



O U T I L L A G E D ' U S I N A G E



**VARDEX**

Solutions de filetage avancées



Catalogue Général

Outils de tournage et de fraisage

Filetage



Gorge



Alésage

METRIQUE

# nouveautés

## dans ce catalogue

### NOUVEAUX OUTILS EN CARBURE MONOBLOC

#### FAMILLE HELICOOL

##### ► Helicool

Goujures hélicoïdales avec arrosage central

##### ► Helicool-R (HCR)

Arrosage radial

##### ► Helicool-C (HCC)

Filetage et chanfreinage avec un seul outil

##### ► Thriller (HTC)

Perçage, filetage et chanfreinage avec un seul outil



Voir pages 292-299

#### FAMILLE MILLIPRO

##### ► Fraise à fileter mini



Voir pages 305-311

#### FILETAGES EN PROFONDEUR

##### ► Longueur d'utilisation jusque 3xDo



Voir page 304

#### HELICAL

##### ► Outil économique pour alésage débouchant



Voir pages 300-303

### MULTI+ PLAQUETTES

##### ► Design amélioré pour plaquette multi-dents

Voir pages 17-95

**Multi+**



M+



T+



Z+

### MINI-3 IC4.0

##### ► Plaquette indexable de filetage pour petits alésages



Voir pages 17-95

### V6 INSERTS

##### ► Une plaquette à 6 arrêtes révolutionnaire

Voir pages 17-95

**V6**



### TMSD

##### ► Fraise à fileter pour alésages profonds



Voir page 273

### MICROSCOPE

##### ► Nouveau système de serrage éprouvé pour outils Micro à une arrête de coupe



Voir pages 17-123

**microscope**

### FAMILLE MiTM

##### ► Outil de fraisage multi coupes pour usinage rapide



Voir pages 253-272

# VARDEX CATALOGUE

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Visitez notre site [www.vargus.com](http://www.vargus.com)



## NUMÉRO UN DU FILETAGE

Vargus est l'innovateur et le principal fabricant et fournisseur d'outils de filetage de précision et d'ébavurage.

La gamme Vardex comprend le plus large éventail de solutions de filetage au monde, en tournage, fraisage et en micro-usinages.

Créé en 1960, Vargus est membre du groupe Ehrenberg, une organisation multinationale, dont le siège se situe en Allemagne à Knittlingen.

Avec un réseau international de filiales, d'importateurs et de distributeurs, Vargus exporte ses outils dans plus de 100 pays au monde.

Ses unités de fabrication certifiées permettent d'assurer un service rapide et efficace.

Vargus a concentré son organisation vers les clients et s'engage à fournir des produits novateurs de très haute qualité. Vargus apporte des compétences techniques de grande valeur et un service irréprochable.

Toutes ces valeurs permettent à Vargus de rester leader des solutions de filetage et d'ébavurage sur le marché et de nous orienter vers un avenir de développement pérenne.



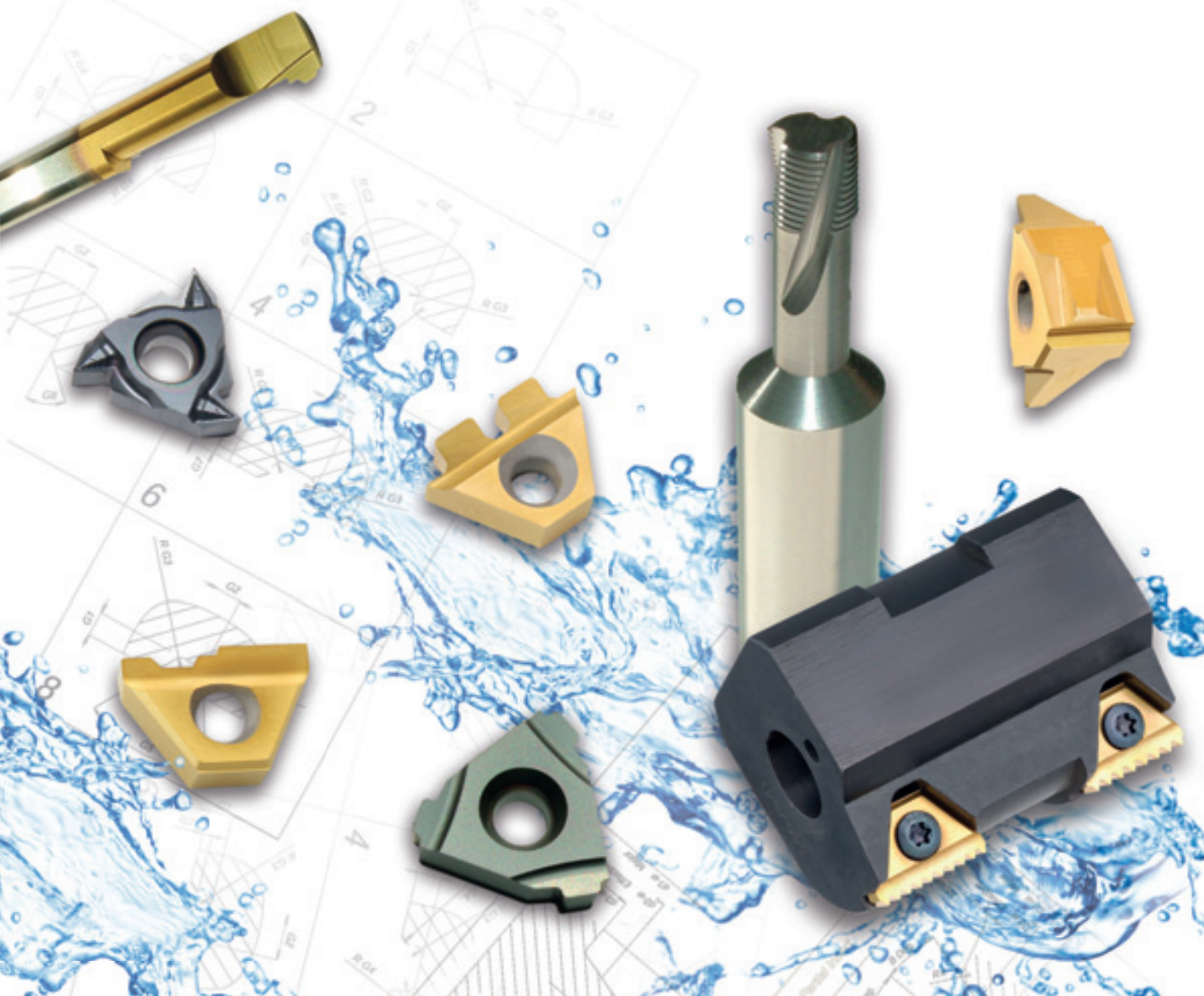
## LES OUTILS SPÉCIAUX VARDEX

Les techniciens et ingénieurs de VARDEX ont le savoir-faire et l'expérience pour concevoir des outils spéciaux adaptés aux demandes des clients. Qu'il s'agisse d'outils spéciaux, à forme complexe ou de taille non standard, notre service d'outils spéciaux peut rapidement les fabriquer en fonction de vos besoins en utilisant les dernières techniques et technologies.

Pour les informations spécifiques, contactez votre plus proche représentant de VARDEX.

- Compétence VARDEX
- Devis rapide
- Livraison compétitive

**Fait sur mesure**



# TOURNAGE

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## TT Gen: Une aide précieuse pour l'usinage de filetages

### TT Gen

#### Logiciel pour solutions de tournage

Le nouveau logiciel TT de VARGUS vous indique l'outil de tournage le plus adapté et les conditions de coupe en quelques secondes.

Pour la mise à jour du logiciel TT Gen,  
connectez-vous au site  
[www.vargus.com](http://www.vargus.com)

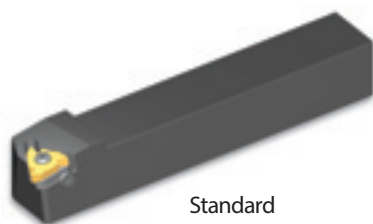


# Tournage

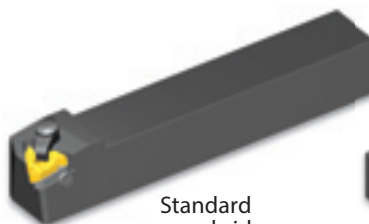
- > Filetage
- > Gorge
- > Alésage

## Système de filetage – Extérieur

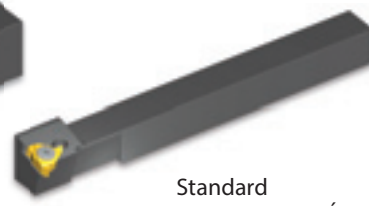
### Standard



Standard



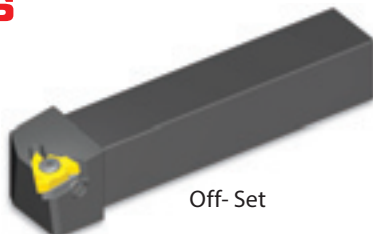
Standard avec bride



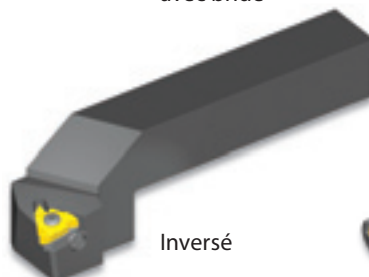
Standard avec corps carré



**6**



Off-Set



Inversé



Mini avec corps rond

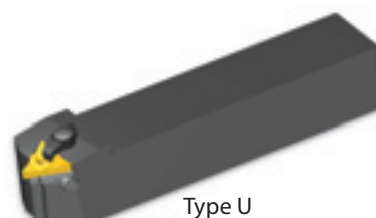


SCB

### Type U

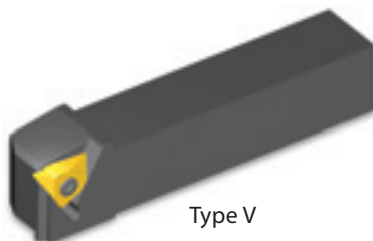


Type U



Type U avec bride

### Type V



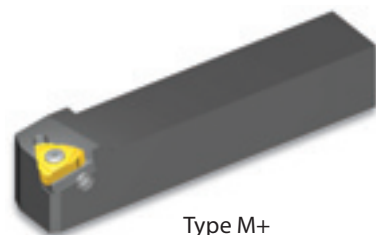
Type V



Slim Throat (gorges fines)

### Type M+

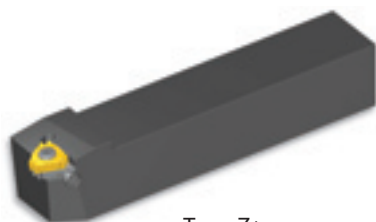
**Multiplus**



Type M+

### Type Z+

**Multiplus**



Type Z+

### Type T+

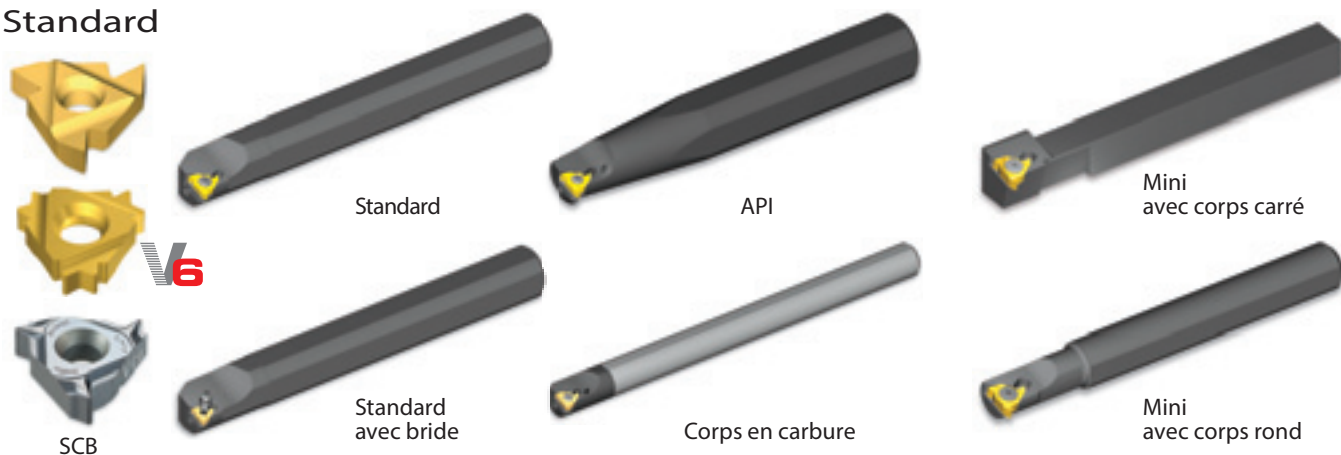
**Multiplus**



Type T+

## Système de filetage – Intérieur

### Standard



### Type U



### Type M+



### Type T+



### Type Z+



### Mini-3



### Mini-L



### Micro



## Recommandations d'outils pour un filetage intérieur donné

Le logiciel TT Gen  
et les mises à jour peuvent  
être téléchargés sur le site  
[www.vargus.com](http://www.vargus.com)



### Métrique ISO

| Pas en mm | Diam.   | Taille plaquette | Plaquette     | Porte-outils | Sous-plaquette |
|-----------|---------|------------------|---------------|--------------|----------------|
| 0.70      | 4       | Micro 3.0        | 3.0SIR0.7ISO  | SMC...-3     | -              |
|           | 6       | Micro 4.0        | 4.0SIR0.75ISO | SMC...-4     | -              |
| 0.75      | 8       | Micro 6.0        | 6.0SIR0.75ISO | SMC...-6     | -              |
|           | 10      | IC 5.0 L         | 5LIR0.75ISO   | .NVR10.-5L   | -              |
| 0.80      | 5       | Micro 3.0        | 3.0SIR0.8ISO  | SMC...-3     | -              |
|           | M6      | Micro 4.0        | 4.0SIR1.0ISO  | SMC...-4     | -              |
|           | 8       | Micro 6.0        | 6.0SIR1.0ISO  | SMC...-6     | -              |
| 1.00      | 10      | IC 5.0 L         | 5LIR1.0ISO    | .NVR10.-5L   | -              |
|           | 12-14   | IC 6.0           | 6.0IR1.0ISO   | .NVR1...-6.0 | -              |
|           | 15-17   | IC 1/4"          | 2IR1.0ISO     | NVR10-2      | -              |
|           | 18      | IC 1/4"          | 2IR1.0ISO     | NVR13-2      | -              |
|           | 20-24   | IC 3/8"          | 3IR1.0ISO     | NVR13-3      | -              |
|           | M8      | Micro 6.0        | 6.0SIR1.25ISO | SMC...-6.0   | -              |
| 1.25      | 10      | IC 5.0 L         | 5LIR1.25ISO   | .NVR10.-5L   | -              |
|           | 12-14   | IC 6.0           | 6.0IR1.25ISO  | .NVR1...-6.0 | -              |
|           | M10     | IC 5.0 L         | 5LIR1.5ISO    | .NVR10.-5L   | -              |
| 1.50      | 12-14   | IC 6.0           | 6.0IR1.5ISO   | .NVR1...-6.0 | -              |
|           | 15-18   | IC 1/4"          | 2IR1.5ISO     | NVR10-2      | -              |
|           | 20-25   | IC 3/8"          | 3IR1.5ISO     | NVR13-3      | -              |
|           | 26-28   | IC 3/8"          | 3IR1.5ISO     | AVR20-3      | YI3            |
|           | 30-36   | IC 3/8"          | 3IR1.5ISO     | AVR20-3      | YI3-1N         |
|           | 38-45   | IC 3/8"          | 3IR1.5ISO     | AVR32-3      | YI3-1N         |
|           | 48-68   | IC 3/8"          | 3IR1.5ISO     | AVR40-3      | YI3-1N         |
|           | M12     | IC 6.0           | 6.0IR1.75ISO  | .NVR1...-6.0 | -              |
| 1.75      | M14     | IC 6.0           | 6.0IR2.0ISO   | .NVR1...-6.0 | -              |
|           | M16-18  | IC 1/4"          | 2IR2.0ISO     | NVR10-2      | -              |
|           | 20-22   | IC 3/8"          | 3IR2.0ISO     | NVR13-3      | -              |
|           | 24      | IC 3/8"          | 3IR2.0ISO     | NVR16-3      | -              |
|           | 27-30   | IC 3/8"          | 3IR2.0ISO     | AVR20-3      | YI3            |
|           | 33-36   | IC 3/8"          | 3IR2.0ISO     | AVR25-3      | YI3            |
|           | 39-45   | IC 3/8"          | 3IR2.0ISO     | AVR32-3      | YI3-1N         |
|           | 48-68   | IC 3/8"          | 3IR2.0ISO     | AVR40-3      | YI3-1N         |
|           | M18     | IC 1/4"          | 2IR2.5ISO     | NVR10-2      | -              |
|           | M20-M22 | IC 3/8"          | 3IR2.5ISO     | NVR13-3      | -              |
| 2.00      | M24-M27 | IC 3/8"          | 3IR3.0ISO     | NVR16-3      | -              |
|           | 36-45   | IC 3/8"          | 3IR3.0ISO     | AVR25-3      | YI3            |
|           | 48-68   | IC 3/8"          | 3IR3.0ISO     | AVR40-3      | YI3            |
| 3.50      | M30-M33 | IC 3/8"          | 3IR3.5ISO     | NVR16-3      | -              |
|           | M36     | IC 1/2"          | 4IR4.0ISO     | NVR20-4      | -              |
| 4.00      | M39     | IC 1/2"          | 4IR4.0ISO     | AVR25-4      | YI4            |
|           | 56-68   | IC 1/2"          | 4IR4.0ISO     | AVR40-4      | YI4            |
| 4.50      | M42     | IC 1/2"          | 4IR4.5ISO     | AVR25-4      | YI4-1P         |
|           | M45     | IC 1/2"          | 4IR4.5ISO     | AVR32-4      | YI4            |
| 5.00      | M48     | IC 1/2"          | 4IR5.0ISO     | AVR32-4      | YI4-1P         |
|           | M52     | IC 1/2"          | 4IR5.0ISO     | AVR32-4      | YI4            |
| 5.50      | M56-60  | IC 5/8"          | 5IR5.5ISO     | AVR40-5      | YI5            |
| 6.00      | M64-68  | IC 5/8"          | 5IR6.0ISO     | AVR40-5      | YI5            |

## Recommandations d'outils pour un filetage intérieur donné

Le logiciel TT Gen  
et les mises à jour peuvent  
être téléchargés sur le site  
[www.vargus.com](http://www.vargus.com)



### Américain UN

| Pas en tpi | Diam.            | Taille plaquette | Plaquette  | Référence     | Sous-plaquette |
|------------|------------------|------------------|------------|---------------|----------------|
|            |                  |                  |            | Porte-outils  |                |
| 56         | 10 - 1/4         | Micro 4.0        | Special    | SMC...-4.0    | -              |
| 48         | 10 - 5/16        | Micro 4.0        | Special    | SMC...-4.0    | -              |
| 40         | 10 - 3/8         | Micro 4.0        | 4.0SIR40UN | SMC...-4.0    | -              |
| 36         | 12 - 3/8         | Micro 4.0        | 4.0SIR36UN | SMC...-4.0    | -              |
|            | 12 - 1/4         | Micro 4.0        | 4.0SIR32UN | SMC...-4.0    | -              |
|            | 5/16 - 3/8       | Micro 6.0        | 6.0SIR32UN | SMC...-6.0    | -              |
|            | 7/16 - 1/2       | IC 6.0           | 6.0IR32UN  | .NVR 1...-6.0 | -              |
| 32         | 9/16 - 11/16     | IC 1/4"          | 2IR32UN    | NVR10-2       | -              |
|            | 3/4 - 15/16      | IC 3/8"          | 3IR32UN    | NVR13-3       | -              |
|            | 7/8 - 15/16      | IC 3/8"          | 3IR32UN    | NVR16-3       | -              |
|            | 1                | IC 3/8"          | 3IR32UN    | AVR20-3       | YI3 - 1N       |
|            | 12 - 1/4         | Micro 4.0        | 4.0SIR28UN | SMC...-4.0    | -              |
|            | 5/16 - 3/8       | Micro 6.0        | 6.0SIR28UN | SMC...-6.0    | -              |
|            | 7/16 - 1/2       | IC 6.0           | 6.0IR28UN  | .NVR 1...-6.0 | -              |
| 28         | 5/8 - 11/16      | IC 1/4"          | 2IR28UN    | NVR10-2       | -              |
|            | 3/4 - 13/16      | IC 3/8"          | 3IR28UN    | NVR13-3       | -              |
|            | 7/8 - 15/16      | IC 3/8"          | 3IR28UN    | NVR16-3       | -              |
|            | 1 - 1 1/8        | IC 3/8"          | 3IR28UN    | AVR20-3       | YI3 - 1N       |
|            | 1 3/16           | IC 3/8"          | 3IR28UN    | AVR25-3       | YI3 - 1N       |
|            | 1/4              | Micro 4.0        | 4.0SIR27UN | SMC...-4.0    | -              |
|            | 5/16 - 3/8       | Micro 6.0        | 6.0SIR27UN | SMC...-6.0    | -              |
|            | 7/16 - 1/2       | IC 6.0           | Special    | .NVR 1...-6.0 | -              |
| 27         | 9/16 - 5/8       | IC 1/4"          | 2IR27UN    | NVR10-2       | -              |
|            | 3/4              | IC 3/8"          | 3IR27UN    | NVR13-3       | -              |
|            | 7/8              | IC 3/8"          | 3IR27UN    | NVR16-3       | -              |
|            | 1                | IC 3/8"          | 3IR27UN    | AVR20-3       | YI3 - 1N       |
|            | 12 - 1/4         | Micro 4.0        | 4.0SIR24UN | SMC...-4.0    | -              |
|            | 5/16 - 3/8       | Micro 6.0        | 6.0SIR24UN | SMC...-6.0    | -              |
|            | 7/16             | IC 5.0 L         | 5LIR24UN   | .NVR10...-5L  | -              |
|            | 1/2              | IC 6.0           | 6.0IR24UN  | .NVR 1...-6.0 | -              |
| 24         | 9/16 - 11/16     | IC 1/4"          | 2IR24UN    | NVR10-2       | -              |
|            | 3/4              | IC 3/8"          | 3IR24UN    | NVR13-3       | -              |
|            | 7/8              | IC 3/8"          | 3IR24UN    | NVR16-3       | -              |
|            | 1 - 1 1/8        | IC 3/8"          | 3IR24UN    | AVR20-3       | YI3 - 1N       |
|            | 1 1/4 - 1 1/2    | IC 3/8"          | 3IR24UN    | AVR25-3       | YI3 - 1N       |
|            | 1 5/8 - 24       | IC 3/8"          | 3IR24UN    | AVR32-3       | YI3 - 1N       |
|            | 5/16 - 3/8       | Micro 6.0        | 6.0SIR20UN | SMC...-6.0    | -              |
|            | 7/16             | IC 5.0 L         | 5LIR20UN   | .NVR10...-5L  | -              |
|            | 1/2 - 9/16       | IC 6.0           | 6.0IR20UN  | .NVR 1...-6.0 | -              |
|            | 5/8 - 11/16      | IC 1/4"          | 2IR20UN    | NVR10-2       | -              |
|            | 3/4 - 13/16      | IC 3/8"          | 3IR20UN    | NVR13-3       | -              |
| 20         | 7/8 - 15/16      | IC 3/8"          | 3IR20UN    | NVR16-3       | -              |
|            | 1 - 1 3/16       | IC 3/8"          | 3IR20UN    | AVR20-3       | YI3 - 1N       |
|            | 1 1/4 - 1 1/2    | IC 3/8"          | 3IR20UN    | AVR25-3       | YI3 - 1N       |
|            | 1 9/16 - 1 13/16 | IC 3/8"          | 3IR20UN    | AVR32-3       | YI3 - 1N       |
|            | 1 7/8 - 2 1/8    | IC 3/8"          | 3IR20UN    | AVR40-3       | YI3 - 1N       |

## Recommandations d'outils pour un filetage intérieur donné

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et les mises à jour peuvent  
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[www.vargus.com](http://www.vargus.com)



### Américain UN (Suite)

| Pas en tpi | Diam.            | Taille plaquette | Plaquette          | Porte-outils      | Sous-plaquette |
|------------|------------------|------------------|--------------------|-------------------|----------------|
| 18         | 5/16 - 3/8       | Micro 6.0        | 6.0SIR18UN         | SMC...-6.0        | -              |
|            | 7/16             | IC 5.0 L         | 5LIR18UN           | .NVR10.-5L        | -              |
|            | 1/2 - 9/16       | IC 6.0           | 6.0IR18UN          | .NVR 1...-6.0     | -              |
|            | 5/8              | IC 1/4"          | 2IR18UN            | NVR10-2           | -              |
|            | 3/4              | IC 3/8"          | 3IR18UN            | NVR13-3           | -              |
|            | 7/8 - 1          | IC 3/8"          | 3IR18UN            | NVR16-3           | -              |
|            | 1 1/16 - 1 3/16  | IC 3/8"          | 3IR18UN            | AVR20-3           | YI3 - 1N       |
|            | 1 1/4 - 1 1/2    | IC 3/8"          | 3IR18UN            | AVR25-3           | YI3 - 1N       |
|            | 1 9/16 - 1 3/4   | IC 3/8"          | 3IR18UN            | AVR32-3           | YI3 - 1N       |
|            | 1 7/8 - 2        | IC 3/8"          | 3IR18UN            | AVR40-3           | YI3 - 1N       |
| 16         | 3/8              | Micro 6.0        | 6.0SIR16UN         | SMC...-6.0        | -              |
|            | 7/16             | IC 5.0 L         | 5LIR16UN           | .NVR10.-5L        | -              |
|            | 1/2 - 9/16       | IC 6.0           | 6.0IR16UN          | .NVR 1...-6.0     | -              |
|            | 5/8 - 11/16      | IC 1/4"          | 2IR16UN            | NVR10-2           | -              |
|            | 3/4 - 13/16      | IC 3/8"          | 3IR16UN            | NVR13-3           | -              |
|            | 7/8 - 1          | IC 3/8"          | 3IR16UN            | NVR16-3           | -              |
|            | 1 1/16 - 1 1/8   | IC 3/8"          | 3IR16UN            | AVR20-3           | YI3            |
|            | 1 3/16           | IC 3/8"          | 3IR16UN            | AVR20-3           | YI3 - 1N       |
|            | 1 1/4 - 1 1/2    | IC 3/8"          | 3IR16UN            | AVR25-3           | YI3 - 1N       |
|            | 1 9/16 - 1 13/16 | IC 3/8"          | 3IR16UN            | AVR32-3           | YI3 - 1N       |
| 14         | 1 7/8 - 2 1/8    | IC 3/8"          | 3IR16UN            | AVR40-3           | YI3 - 1N       |
|            | 7/16             | IC 5.0 L         | 5LIR14UN           | .NVR10.-5L        | -              |
|            | 1/2 - 9/16       | IC 6.0           | 6.0IR14UN          | .NVR 1...-6.0     | -              |
|            | 5/8              | IC 1/4"          | 2IR14UN            | NVR10-2           | -              |
|            | 3/4              | IC 3/8"          | 3IR14UN            | NVR13-3           | -              |
|            | 7/8 - 1          | IC 3/8"          | 3IR14UN            | NVR16-3           | -              |
|            | 1 1/8            | IC 3/8"          | 3IR14UN            | AVR20-3           | YI3            |
|            | 1 1/4            | IC 3/8"          | 3IR14UN            | AVR25-3           | YI3            |
|            | 1 3/8 - 1 1/2    | IC 3/8"          | 3IR14UN            | AVR25-3           | YI3 - 1N       |
|            | 1 5/8 - 1 3/4    | IC 3/8"          | 3IR14UN            | AVR32-3           | YI3 - 1N       |
| 13         | 1 7/8 - 2        | IC 3/8"          | 3IR14UN            | AVR40-3           | YI3 - 1N       |
|            | 1/2 - 13         | IC 6.0           | 6.0I13UN...158/001 | BNVR 10S-6.0      | -              |
|            | 9/16 - 11/16     | IC 1/4"          | 2I12UN...158/002   | NVRC10-2 156/001  | -              |
|            | 3/4 - 7/8        | IC 3/8"          | 3IR12UN            | NVR13-3           | -              |
|            | 15/16 - 1        | IC 3/8"          | 3IR12UN            | NVR16-3           | -              |
|            | 1 1/16 - 1 3/16  | IC 3/8"          | 3IR12UN            | AVR20-3           | YI3            |
|            | 1 1/4 - 1 1/2    | IC 3/8"          | 3IR12UN            | AVR25-3           | YI3            |
|            | 1 9/16 - 1 13/16 | IC 3/8"          | 3IR12UN            | AVR32-3           | YI3            |
|            | 1 7/8 - 2 1/8    | IC 3/8"          | 3IR12UN            | AVR40-3           | YI3 - 1N       |
|            | 5/8 - 11         | IC 1/4U"         | 2UIR11UN...158/003 | NVRC11-2U 156/002 | -              |
| 10         | 7/8              | IC 3/8"          | 3IR10UN            | NVR13-3           | -              |
|            | 1 - 10           | IC 3/8"          | 3IR10UN            | NVR16-3           | -              |
|            | 1 1/8 - 10       | IC 3/8"          | 3IR10UN            | AVR20-3           | YI3            |
|            | 1 1/4 - 1 1/2    | IC 3/8"          | 3IR10UN            | AVR25-3           | YI3            |
|            | 1 5/8 - 1 3/4    | IC 3/8"          | 3IR10UN            | AVR32-3           | YI3            |
|            | 1 7/8 - 2        | IC 3/8"          | 3IR10UN            | AVR40-3           | YI3            |

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### Américain UN (Suite)

| Pas en tpi | Diam.            | Taille plaquette | Plaquette | Porte-outils | Sous-plaquette |
|------------|------------------|------------------|-----------|--------------|----------------|
| 9          | 7/8 - 9          | IC 3/8"          | 3IR9UN    | NVR13-3      | -              |
|            | 1                | IC 3/8"          | 3IR8UN    | NVR16-3      | -              |
|            | 1 1/16 - 1 3/16  | IC 3/8"          | 3IR8UN    | AVR20-3      | YI3 - 1P       |
| 8          | 1 1/4            | IC 3/8"          | 3IR8UN    | AVR20-3      | YI3            |
|            | 1 5/16 - 1 1/2   | IC 3/8"          | 3IR8UN    | AVR25-3      | YI3            |
|            | 1 9/16 - 1 13/16 | IC 3/8"          | 3IR8UN    | AVR32-3      | YI3            |
|            | 1 7/8 - 2 1/8    | IC 3/8"          | 3IR8UN    | AVR40-3      | YI3            |
| 7          | 1 1/8 - 1 1/4    | IC 1/2"          | 4IR7UN    | NVR20-4      | -              |
|            | 1 3/8 - 1 7/16   | IC 1/2"          | 4IR6UN    | NVR20-4      | -              |
|            | 1 1/2 - 1 5/8    | IC 1/2"          | 4IR6UN    | AVR25-4      | YI4-1P         |
| 6          | 1 11/16          | IC 1/2"          | 4IR6UN    | AVR25-4      | YI4            |
|            | 1 3/4 - 2        | IC 1/2"          | 4IR6UN    | AVR32-4      | YI4            |
|            | 2 1/8 - 6        | IC 1/2"          | 4IR6UN    | AVR40-4      | YI4            |
| 5          | 1 3/4 - 5        | IC 1/2"          | 4IR5UN    | AVR25-4      | YI4-1P         |
| 4.5        | 2 - 4 1/2        | IC 5/8"          | 5IR4.5UN  | AVR32-5      | YI5 - 1P       |

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### Whitworth

| Pas en tpi | Diam.           | Taille plaquette | Référence |              |                |
|------------|-----------------|------------------|-----------|--------------|----------------|
|            |                 |                  | Plaquette | Porte-outils | Sous-plaquette |
| 26         | 1/4             | Micro 4.0        | 4.0SIR26W | SMC..-4.0    | -              |
|            | 5/16 - 1/2      | Micro 6.0        | 6.0SIR26W | SMC..-6.0    | -              |
|            | 9/16 - 5/8      | IC 1/4"          | 2IR26W    | NVR10-2      | -              |
|            | 11/16           | IC 1/4"          | 2IR26W    | NVR13-2      | -              |
|            | 3/4 - 13/16     | IC 3/8"          | 3IR26W    | NVR13-3      | -              |
|            | 7/8 - 15/16     | IC 3/8"          | 3IR26W    | NVR16-3      | -              |
|            | 1 - 1 3/16      | IC 3/8"          | 3IR26W    | AVR20-3      | YI3 - 1N       |
|            | 1 1/4 - 1 7/16  | IC 3/8"          | 3IR26W    | AVR25-3      | YI3 - 1N       |
|            | 1 1/2 - 1 3/4   | IC 3/8"          | 3IR26W    | AVR32-3      | YI3 - 1N       |
|            | 1 7/8 - 2       | IC 3/8"          | 3IR26W    | AVR40-3      | YI3 - 1N       |
| 22         | 5/16            | Micro 6.0        | 6.0SIR22W | SMC..-6.0    | -              |
|            | 3/8 - 9/16      | Micro 6.0        | 6.0SIR20W | SMC..-6.0    | -              |
|            | 5/8 - 11/16     | IC 1/4"          | 2IR20W    | NVR10-2      | -              |
|            | 3/4 - 13/16     | IC 3/8"          | 3IR20W    | NVR13-3      | -              |
|            | 7/8 - 1         | IC 3/8"          | 3IR20W    | NVR16-3      | -              |
|            | 1 1/16 - 1 3/16 | IC 3/8"          | 3IR20W    | AVR20-3      | YI3 - 1N       |
|            | 1 1/4 - 1 7/16  | IC 3/8"          | 3IR20W    | AVR25-3      | YI3 - 1N       |
|            | 1 1/2 - 1 3/4   | IC 3/8"          | 3IR20W    | AVR32-3      | YI3 - 1N       |
|            | 1 7/8 - 3       | IC 3/8"          | 3IR20W    | AVR40-3      | YI3 - 1N       |
|            | 11/16           | IC 1/4"          | 2IR16W    | NVR10-2      | -              |
| 20         | 3/4 - 11/16     | IC 3/8"          | 3IR16W    | NVR13-3      | -              |
|            | 7/8 - 1         | IC 3/8"          | 3IR16W    | NVR16-3      | -              |
|            | 1 1/16 - 1 1/8  | IC 3/8"          | 3IR16W    | AVR20-3      | YI3            |
|            | 1 3/16          | IC 3/8"          | 3IR16W    | AVR20-3      | YI3 - 1N       |
|            | 1 1/4 - 1 7/16  | IC 3/8"          | 3IR16W    | AVR25-3      | YI3 - 1N       |
|            | 1 1/2 - 1 3/4   | IC 3/8"          | 3IR16W    | AVR32-3      | YI3 - 1N       |
|            | 1 7/8 - 4 5/8   | IC 3/8"          | 3IR16W    | AVR40-3      | YI3 - 1N       |
|            | 4 3/4 - 7       | IC 3/8"          | 3IR16W    | AVR40-3      | YI3 - 1.5N     |
|            | 7/16            | IC 5.0 L         | 5LIR14W   | .NVR10.-5L   | -              |
|            | 5/8 - 11/16     | IC 1/4"          | 2IR14W    | NVR10-2      | -              |
| 16         | 13/16           | IC 3/8"          | 3IR12W    | NVR13-3      | -              |
|            | 15/16 - 1       | IC 3/8"          | 3IR12W    | NVR16-3      | -              |
|            | 1 1/16 - 1 3/16 | IC 3/8"          | 3IR12W    | AVR20-3      | YI3            |
|            | 1 1/4 - 1 1/2   | IC 3/8"          | 3IR12W    | AVR25-3      | YI3            |
|            | 1.6 - 1 3/4     | IC 3/8"          | 3IR12W    | AVR32-3      | YI3 - 1N       |
|            | 1 7/8 - 6       | IC 3/8"          | 3IR12W    | AVR40-3      | YI3 - 1N       |
|            | 6 1/4 - 7       | IC 3/8"          | 3IR12W    | AVR40-3      | YI3 - 1.5N     |
|            | 7/8             | IC 3/8"          | 3IR11W    | NVR13-3      | -              |
|            | 1               | IC 3/8"          | 3IR10W    | NVR16-3      | -              |
|            |                 |                  |           |              |                |

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### Whitworth (Suite)

| Pas en tpi | Diam.           | Taille plaquette | Plaquette | Référence    | Sous-plaquette |
|------------|-----------------|------------------|-----------|--------------|----------------|
|            |                 |                  |           | Porte-outils |                |
| 9          | 7/8             | IC 3/8"          | 3IR9W     | NVR13-3      | -              |
|            | 1 1/8 - 1 1/4   | IC 3/8"          | 3IR9W     | AVR20-3      | YI3            |
| 8          | 1               | IC 3/8"          | 3IR8W     | NVR16-3      | -              |
|            | 1 3/16          | IC 3/8"          | 3IR8W     | AVR20-3      | YI3 - 1P       |
|            | 1 5/16 - 1 1/2  | IC 3/8"          | 3IR8W     | AVR25-3      | YI3            |
|            | 1.6 - 1 7/8     | IC 3/8"          | 3IR8W     | AVR32-3      | YI3            |
|            | 1.9 - 2 1/4     | IC 3/8"          | 3IR8W     | AVR40-3      | YI3            |
|            | 2.4 - 7         | IC 3/8"          | 3IR8W     | AVR40-3      | YI3 - 1N       |
| 7          | 1 1/4           | IC 1/2"          | 4IR7W     | NVR20-4      | -              |
|            | 1 3/4 - 2       | IC 1/2"          | 4IR7W     | AVR32-4      | YI4            |
| 6          | 1 5/16 - 1 7/16 | IC 1/2"          | 4IR6W     | NVR20-4      | -              |
|            | 1 1/2 - 1 5/8   | IC 1/2"          | 4IR6W     | AVR25-4      | YI4-1P         |
|            | 1 7/8 - 1.9     | IC 1/2"          | 4IR6W     | AVR32-4      | YI4            |
|            | 2.1 - 3.1       | IC 1/2"          | 4IR6W     | AVR40-4      | YI4            |
|            | 3 1/4 - 7       | IC 1/2"          | 4IR6W     | AVR40-4      | YI4 - 1N       |
| 5          | 1 3/4           | IC 1/2"          | 4IR5W     | AVR25-4      | YI4-1P         |
|            | 3 - 3 1/4       | IC 1/2"          | 4IR5W     | AVR40-4      | YI4            |
| 4.5        | 2               | IC 5/8"          | 5IR4.5W   | AVR32-5      | YI5 - 1P       |
|            | 3 1/2 - 4       | IC 5/8"          | 5IR4.5W   | AVR60-5      | YI5            |
| 4          | 2 1/4           | IC 5/8"          | 5IR4W     | AVR40-5      | YI5 - 1P       |
|            | 2 1/2           | IC 5/8"          | 5IR4W     | AVR40-5      | YI5            |
|            | 4 1/4 - 4 3/4   | IC 5/8"          | 5IR4W     | AVR60-5      | YI5            |
|            | 4 7/8 - 7       | IC 5/8"          | 5IR4W     | AVR60-5      | YI5 - 1N       |
| 3.5        | 2 3/4           | IC 5/8" U        | 5UEI3.5W  | AVR40-5U     | YI5U - 1P      |
|            | 3               | IC 5/8" U        | 5UEI3.5W  | AVR50-5U     | YI5U           |
| 3.25       | 3 1/4           | IC 5/8" U        | 5UEI3.25W | AVR50-5U     | YI5U           |
|            | 3 1/2           | IC 5/8" U        | 5UEI3.25W | AVR60-5U     | YI5U           |
| 3          | 3 3/4 - 4       | IC 5/8" U        | 5UEI3W    | AVR60-5U     | YI5U           |
| 2.75       | 5               | IC 5/8" U        | 5UEI2.75W | AVR60-5U     | YI5U           |
| 2.5        | 6               | IC 5/8" V        | 5VIR2.5W  | NVR60-5V     | -              |

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### BSP (55°)

| Pas en tpi | Diam.               | Taille plaquette | Référence |              |                |
|------------|---------------------|------------------|-----------|--------------|----------------|
|            |                     |                  | Plaquette | Porte-outils | Sous-plaquette |
| 28         | G1/16               | Micro 6.0        | 6.0SIR28W | SMC...-6.0   | -              |
|            | G1/8                | IC 5.0 L         | 5LIR28W   | .NVR10.-5L   | -              |
| 19         | G1/4                | IC 6.0           | 6.0IR19W  | .NVR1...-6.0 | -              |
|            | G3/8                | IC 1/4"          | 2IR19W    | NVR10-2      | -              |
| 14         | G1/2 & G5/8         | IC 3/8"          | 3IR14W    | NVR13-3      | -              |
|            | G3/4 & G7/8         | IC 3/8"          | 3IR14W    | AVR20-3      | YI3            |
| 11         | G1 & G1 1/8 & 1 1/4 | IC 3/8"          | 3IR11W    | AVR25-3      | YI3            |
|            | G1 1/2              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G1 3/4              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G2                  | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G2 1/4              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G2 1/2              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G2 3/4              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G3                  | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G3 1/2              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G4                  | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G4 1/2              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G5                  | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G5 1/2              | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |
|            | G6                  | IC 3/8"          | 3IR11W    | AVR40-3      | YI3 - 1N       |

### BSPT

| Pas en tpi | Diam. | Taille plaquette | Référence   |              |                |
|------------|-------|------------------|-------------|--------------|----------------|
|            |       |                  | Plaquette   | Porte-outils | Sous-plaquette |
| 28         | 1/8   | IC 5.0 L         | 5LIR28BSPT  | .NVR1...-5L  | -              |
| 19         | 1/4   | IC 6.0           | 6.0IR19BSPT | .NVR1...-6.0 | -              |
|            | 3/8   | IC 1/4"          | 2IR19BSPT   | NVR10-2      | -              |
| 14         | 1/2   | IC 3/8"          | 3IR14BSPT   | NVR13-3      | -              |
|            | 3/4   | IC 3/8"          | 3IR14BSPT   | AVR20-3      | YI3            |
| 11         | 1     | IC 3/8"          | 3IR11BSPT   | AVR25-3      | YI3            |
|            | 1 1/4 | IC 3/8"          | 3IR11BSPT   | AVR32-3      | YI3            |
|            | 1 1/2 | IC 3/8"          | 3IR11BSPT   | AVR40-3      | YI3 - 1N       |
|            | 2     | IC 3/8"          | 3IR11BSPT   | AVR40-3      | YI3 - 1N       |
|            | 2 1/2 | IC 3/8"          | 3IR11BSPT   | AVR40-3      | YI3 - 1N       |
|            | 3     | IC 3/8"          | 3IR11BSPT   | AVR40-3      | YI3 - 1N       |
|            | 4     | IC 3/8"          | 3IR11BSPT   | AVR40-3      | YI3 - 1N       |
|            | 5     | IC 3/8"          | 3IR11BSPT   | AVR40-3      | YI3 - 1N       |
|            | 6     | IC 3/8"          | 3IR11BSPT   | AVR40-3      | YI3 - 1N       |

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### NPT

| Pas en tpi | Diam. | Taille plaquette | Référence   |              |                |
|------------|-------|------------------|-------------|--------------|----------------|
|            |       |                  | Plaquette   | Porte-outils | Sous-plaquette |
| 27         | 1/16  | Micro 6.0        | 6.0SIR27NPT | SMC...-6.0   | -              |
| 18         | 1/4   | Micro 6.0        | 6.0SIR18NPT | SMC...-6.0   | -              |
|            | 3/8   | Micro 6.0        | 6.0SIR18NPT | SMC...-6.0   | -              |
| 14         | 1/2   | IC 3/8"          | 3IR14NPT    | NVR13-3      | -              |
|            | 3/4   | IC 3/8"          | 3IR14NPT    | NVR13-3      | -              |
| 11.5       | 1     | IC 3/8"          | 3IR11.5NPT  | AVR20-3      | YI3            |
|            | 1 1/4 | IC 3/8"          | 3IR11.5NPT  | AVR32-3      | YI3            |
|            | 1 1/2 | IC 3/8"          | 3IR11.5NPT  | AVR32-3      | YI3 - 1N       |
|            | 2     | IC 3/8"          | 3IR11.5NPT  | AVR40-3      | YI3 - 1N       |
| 8          | 2 1/2 | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 3     | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 3 1/2 | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 4     | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 5     | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 6     | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 8     | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 10    | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |
|            | 12    | IC 3/8"          | 3IR8NPT     | AVR40-3      | YI3 - 1N       |

### NPTF

| Pas en tpi | Diam. | Taille plaquette | Référence   |              |                |
|------------|-------|------------------|-------------|--------------|----------------|
|            |       |                  | Plaquette   | Porte-outils | Sous-plaquette |
| 27         | 1/8   | IC 5.0 L         | 5LIR27NPTF  | .NVR1...-5L  | -              |
| 18         | 1/4   | IC 6.0           | 6.0IR18NPTF | .NVR1...-6.0 | -              |
|            | 3/8   | IC 1/4"          | 2IR18NPTF   | NVR10-2      | -              |
| 14         | 1/2   | IC 3/8"          | 3IR14NPTF   | NVR13-3      | -              |
|            | 3/4   | IC 3/8"          | 3IR14NPTF   | NVR16-3      | -              |
| 11.5       | 1     | IC 3/8"          | 3IR11.5NPTF | AVR20-3      | YI3            |
|            | 1 1/4 | IC 3/8"          | 3IR11.5NPTF | AVR32-3      | YI3            |
|            | 1 1/2 | IC 3/8"          | 3IR11.5NPTF | AVR32-3      | YI3 - 1N       |
|            | 2     | IC 3/8"          | 3IR11.5NPTF | AVR40-3      | YI3 - 1N       |
| 8          | 2 1/2 | IC 3/8"          | 3IR8NPTF    | AVR40-3      | YI3 - 1N       |
|            | 3     | IC 3/8"          | 3IR8NPTF    | AVR40-3      | YI3 - 1N       |

### PG

| Pas en tpi | Diam.                 | Taille plaquette | Référence |              |                |
|------------|-----------------------|------------------|-----------|--------------|----------------|
|            |                       |                  | Plaquette | Porte-outils | Sous-plaquette |
| 20         | Pg 7                  | IC 6.0           | 6.0IR20PG | .NVR 1..6.0  | -              |
| 18         | Pg 9                  | IC 1/4"          | 2IR18PG   | NVR10-2      | -              |
|            | Pg 11 & Pg 13.5       | IC 3/8"          | 3IR18PG   | NVR13-3      | -              |
|            | Pg 16                 | IC 3/8"          | 3IR18PG   | NVR16-3      | -              |
| 16         | Pg 21                 | IC 3/8"          | 3IR16PG   | AVR20-3      | YI3            |
|            | Pg 29                 | IC 3/8"          | 3IR16PG   | AVR25-3      | YI3 - 1N       |
|            | Pg 36 & Pg 42 & Pg 48 | IC 3/8"          | 3IR16PG   | AVR40-3      | YI3 - 1N       |





# Filetage



# PLAQUETTES DE FILETAGE

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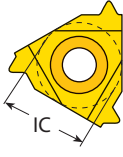
## microscope Codification des plaquettes

### Plaquettes de filetage Micro - Simple Arrête de Coupe

|                        |   |                     |                           |                           |         |                                                                                                                                                  |   |     |  |
|------------------------|---|---------------------|---------------------------|---------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|--|
| M                      | 5 | 42                  | TH                        | 0.5                       | ISO     | L16                                                                                                                                              | R | VBX |  |
| 1                      | 2 | 3                   | 4                         | 5                         | 6       | 7                                                                                                                                                | 8 | 9   |  |
| 1- Gamme de produit    |   | 2- Taille plaquette |                           | 3 - Diam. mini de perçage |         |                                                                                                                                                  |   |     |  |
| M - Microscope         |   | 4, 5, 6, 7          |                           | 3,2, 4,2,...              |         |                                                                                                                                                  |   |     |  |
| 4 - Type d'application |   |                     | 5 - Pas (pour Filetage)   |                           |         | 6 - Standard                                                                                                                                     |   |     |  |
| TH - Filetage          |   |                     | Profil Complet - Type Pas |                           |         | Métrique - ISO Métrique<br>UN - Américain UN<br>W - Whitworth pour BSW, BSP<br>NPT - NPT<br>60° - Profil partiel 60°<br>55° - Profil partiel 55° |   |     |  |
|                        |   |                     | mm                        |                           | tpi     |                                                                                                                                                  |   |     |  |
|                        |   |                     | 0.5-1.5                   |                           | 28-18   |                                                                                                                                                  |   |     |  |
|                        |   |                     | Profil Partiel - Type Pas |                           |         |                                                                                                                                                  |   |     |  |
|                        |   |                     | mm                        |                           | tpi     |                                                                                                                                                  |   |     |  |
| A                      |   | 0.5 - 1.5           | A                         |                           | 48 -16  |                                                                                                                                                  |   |     |  |
| F                      |   | 0.5 - 1.0           | F                         |                           | 48 - 24 |                                                                                                                                                  |   |     |  |
|                        |   |                     |                           |                           |         |                                                                                                                                                  |   |     |  |
| 7 - Porte à faux       |   |                     | 8 - LH ou RH              |                           |         | 9 - Nuance carbure                                                                                                                               |   |     |  |
| L16                    |   |                     | R - RH<br>L - LH          |                           |         | VBX                                                                                                                                              |   |     |  |

# Système de codification Vardex

## Plaquettes de filetage (sauf les systèmes Micro et Microscope)

| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         | E | R                                                                                                                                                                                                                                                                                                                                                                                              | 1.5 | ISO       |                                                                                               |    |     |                                                                                                                           | VTX     |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------|-----------------------------------------------------------------------------------------------|----|-----|---------------------------------------------------------------------------------------------------------------------------|---------|--------------|--------|--------------|--------|-------------|-------|-------------|---------|-------------|--------|-------------|--------|--------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----|---|-----|---|-----|----|-----|----|-----|-----|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2       | 3 | 4                                                                                                                                                                                                                                                                                                                                                                                              | 5   | 6         | 7                                                                                             | 8  | 9   | 10                                                                                                                        | 11      | 12           |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| <b>1 - Taille plaquette</b><br><br>5L - IC5.0L mm<br>4.0K - IC4.0 mm<br>6.0 - IC6.0 mm<br>2 - IC1/4"<br>3 - IC 3/8"<br>4 - IC 1/2"<br>5 - IC5/8"<br>                                                                                                                                                                                                                                                                                                                                                           |         |   | <b>2 - Mod. plaquette</b><br><br>U  V <br><br>L  J <br>SCB |     |           | <b>3 - Type plaquette</b><br><br>E - Extérieur<br>I - Intérieur<br>EI - Extérieur + Intérieur |    |     | <b>4 - Plaquette RH/LH</b><br><br>R - Plaquette à Droite<br>L - Plaquette à Gauche<br>Néant - Plaquette à Droite + Gauche |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| <b>5 - Pas</b><br><b>Profil Complet - Type Pas</b> <table><tr><td>mm</td><td>tpi</td></tr><tr><td>0.35-12.0</td><td>72-2</td></tr></table> <b>Profil Partiel - Type Pas</b> <table><tr><td>mm</td><td>tpi</td></tr><tr><td>A 0.5 - 1.5</td><td>48 - 16</td></tr><tr><td>AG 0.5 - 3.0</td><td>48 - 8</td></tr><tr><td>G 1.75 - 3.0</td><td>14 - 8</td></tr><tr><td>N 3.5 - 5.0</td><td>7 - 5</td></tr><tr><td>U 5.5 - 8.0</td><td>4½ - 3½</td></tr><tr><td>Q 5.5 - 6.0</td><td>4½ - 4</td></tr><tr><td>U 6.5 - 9.0</td><td>4 - 2¾</td></tr><tr><td>V 6.0 - 10.0</td><td>4 - 2½</td></tr></table> |         |   | mm                                                                                                                                                                                                                                                                                                                                                                                             | tpi | 0.35-12.0 | 72-2                                                                                          | mm | tpi | A 0.5 - 1.5                                                                                                               | 48 - 16 | AG 0.5 - 3.0 | 48 - 8 | G 1.75 - 3.0 | 14 - 8 | N 3.5 - 5.0 | 7 - 5 | U 5.5 - 8.0 | 4½ - 3½ | Q 5.5 - 6.0 | 4½ - 4 | U 6.5 - 9.0 | 4 - 2¾ | V 6.0 - 10.0 | 4 - 2½ | <b>6 - Standard</b><br><br>60° - Profil partiel 60°<br>55° - Profil partiel 55°<br>Métrique - ISO Métrique<br>UN - Américain UN<br>W - Whitworth pour BSW, BSP<br>BSPT - British Standard Pipe Thread<br>NPT - NPT<br>NPTF - NPTF<br>NPS - NPS<br>RD - Round DIN 405<br>RD20400 - Round DIN 20400<br>TR - Trapèze DIN 103<br>ACME - ACME<br>STACME - Stub ACME<br>UNJ - UNJ<br>MJ - ISO 5855<br>ABUT - Américain Buttress<br>BBUT - British Buttress<br>SAGE - Métrique Buttress DIN 513<br>API - API<br>BUT - API Buttress Casing<br>APIRD - API Round Casing & Tubing<br>VAM - VAM<br>EL - Extreme Line Casing<br>H90 - H90<br>PG - PG DIN 40430 |  |  | <b>7 - Nbre. Arêtes de Coupe</b><br><br>6C - V6 Arêtes de Coupe<br>Néant - Tous autres<br><br><b>8 - Forme API</b> <table><tr><td>382</td><td>2</td></tr><tr><td>383</td><td>3</td></tr><tr><td>403</td><td>15</td></tr><tr><td>502</td><td>75</td></tr><tr><td>503</td><td>125</td></tr></table><br><b>9 - Nbre. Dents</b><br><br>(pour multi-dents)<br>2, 3, 5, 6, 8 |  |  | 382 | 2 | 383 | 3 | 403 | 15 | 502 | 75 | 503 | 125 |
| mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | tpi     |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| 0.35-12.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 72-2    |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | tpi     |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| A 0.5 - 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 48 - 16 |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| AG 0.5 - 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 48 - 8  |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| G 1.75 - 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 14 - 8  |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| N 3.5 - 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7 - 5   |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| U 5.5 - 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4½ - 3½ |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| Q 5.5 - 6.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4½ - 4  |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| U 6.5 - 9.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4 - 2¾  |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| V 6.0 - 10.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4 - 2½  |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| 382                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2       |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| 383                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3       |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| 403                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15      |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| 502                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 75      |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| 503                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 125     |   |                                                                                                                                                                                                                                                                                                                                                                                                |     |           |                                                                                               |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |
| <b>10 - Modèle multi-dents</b><br><br>M+  T+ <br><br>Z+                                                                                                                                                                                             |         |   | <b>11 - Nuance carbure</b><br><br>VKX, VTX, VCB, VM7, VK2, VK2P,<br>VKP, VHX, VBX                                                                                                                                                                                                                                                                                                              |     |           | <b>12 - Plaquette gros pas</b><br><br>158/...                                                 |    |     |                                                                                                                           |         |              |        |              |        |             |       |             |         |             |        |             |        |              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                                                                                                                                                                                                                                        |  |  |     |   |     |   |     |    |     |    |     |     |

## Plaquettes de filetage Micro - Double arrête de coupe

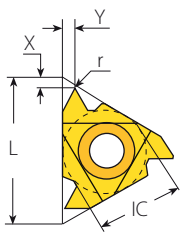
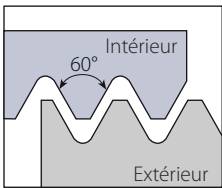
|          |          |          |          |            |            |            |
|----------|----------|----------|----------|------------|------------|------------|
| <b>3</b> | <b>S</b> | <b>I</b> | <b>R</b> | <b>0.5</b> | <b>ISO</b> | <b>VMX</b> |
| <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b>   | <b>6</b>   | <b>7</b>   |

|                                                                               |                           |                           |                                                  |                                  |
|-------------------------------------------------------------------------------|---------------------------|---------------------------|--------------------------------------------------|----------------------------------|
| <b>1- Diam. plaquette</b>                                                     | <b>2 - Mod. plaquette</b> | <b>3 - Type plaquette</b> | <b>4 - Plaquette RH/LH</b>                       | <b>5 - Pas</b>                   |
| 3.0 - 3.0 mm<br>4.0 - 4.0 mm<br>6.0 - 6.0 mm<br>8.0 - 8.0 mm<br>10.0 -10.0 mm | S - Plaquette Micro       | I - Intérieur             | R - Plaquette à Droite<br>L - Plaquette à Gauche | <b>Profil Complet - Type Pas</b> |
|                                                                               |                           |                           |                                                  | mmtpi                            |
|                                                                               |                           |                           |                                                  | 0.30-1.540-16                    |
|                                                                               |                           |                           |                                                  | <b>Profil Partiel - Type Pas</b> |
|                                                                               |                           |                           |                                                  | mmtpi                            |
|                                                                               |                           |                           |                                                  | A0.5 - 1.5A48 - 16               |
|                                                                               |                           |                           |                                                  | F0.5 - 3.0F48 - 24               |

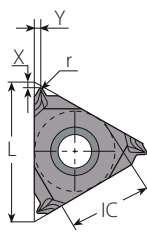
|                                                                                                                                                                                  |                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>6 - Standard</b>                                                                                                                                                              | <b>7 - Nuance carbure</b> |
| 60° - Profil partiel 60°<br>55° - Profil partiel 55°<br>Métrique - ISO Métrique<br>MJ - ISO 5855<br>NPT - NPT<br>NPTF - NPTF<br>UN - Américain UN<br>W - Whitworth pour BSW, BSP | VMX                       |

# Profil partiel 60°

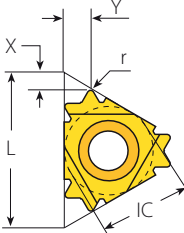
## Extérieur



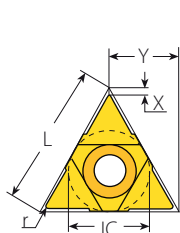
Standard



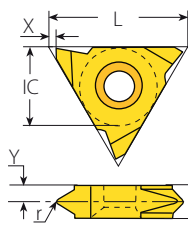
SCB  
Brise-copeaux  
brut de frittage



V6



Type U



Type V / Slim Throat  
Passage étroit

## Standard



SCB



V6

| Taille plaquette | Pas  |          |       | Référence    |            | Dimensions mm |     |     |  | Sous-plaquette |     |              |
|------------------|------|----------|-------|--------------|------------|---------------|-----|-----|--|----------------|-----|--------------|
| IC               | L mm | mm       | tpi   | RH           | LH         | r             | X   | Y   |  | RH             | LH  | Porte-outils |
| 1/4"             | 11   | 0.5-1.5  | 48-16 | 2ERA60...    | 2ELA60...  | 0.05          | 0.8 | 0.9 |  | -              | -   | NL...-2 (LH) |
| 3/8"             | 16   | 0.5-1.5  | 48-16 | 3ERA60...    | 3ELA60...  | 0.05          | 0.8 | 0.9 |  | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 1.75-3.0 | 14-8  | 3ERG60...    | 3ELG60...  | 0.27          | 1.2 | 1.7 |  |                |     |              |
| 3/8" SCB         | 16   | 0.5-3.0  | 48-8  | 3ERAG60...   | 3ELAG60... | 0.08          | 1.2 | 1.7 |  | YE3            | -   | AL...-3      |
|                  |      | 0.5-1.5  | 48-16 | 3JERA60...   |            | 0.05          | 0.6 | 0.8 |  |                |     |              |
|                  |      | 1.75-3.0 | 14-8  | 3JERG60...   |            | 0.27          | 1.1 | 1.5 |  |                |     |              |
| 3/8" V6          | 16   | 0.5-2.0  | 48-13 | 3JERAG60...  |            | 0.08          | 0.9 | 1.5 |  | YE3-6C         | -   | AL...-3      |
| 1/2"             | 22   | 3.5-5.0  | 7-5   | 3ERS60-6C... |            | 0.06          | 1.9 | 3.0 |  |                |     |              |
| 5/8"             | 27   | 5.5-6.0  | 4.5-4 | 4ERN60...    | 4ELN60...  | 0.53          | 1.7 | 2.5 |  |                |     |              |
|                  |      |          |       | 5ERQ60...    | 5ELQ60...  | 0.64          | 2.1 | 3.1 |  | YE5            | YI5 | AL...-5 (LH) |

## Type U



| Taille plaquette | Pas  |         |          | Référence  |  | Dimensions mm |     |      |  | Sous-plaquette |      |               |
|------------------|------|---------|----------|------------|--|---------------|-----|------|--|----------------|------|---------------|
| IC               | L mm | mm      | tpi      | RH+LH      |  | r             | X   | Y    |  | RH             | LH   | Porte-outils  |
| 1/2"U            | 22   | 5.5-8.0 | 4.5-3.25 | 4UEIU60... |  | 0.30          | 0.6 | 11.0 |  | YE4U           | YI4U | AL...-4U (LH) |
| 5/8"U            | 27   | 6.5-9.0 | 4-2.75   | 5UEIU60... |  | 0.37          | 1.0 | 13.7 |  | YE5U           | YI5U | AL...-5U (LH) |

## Slim Throat Passage étroit



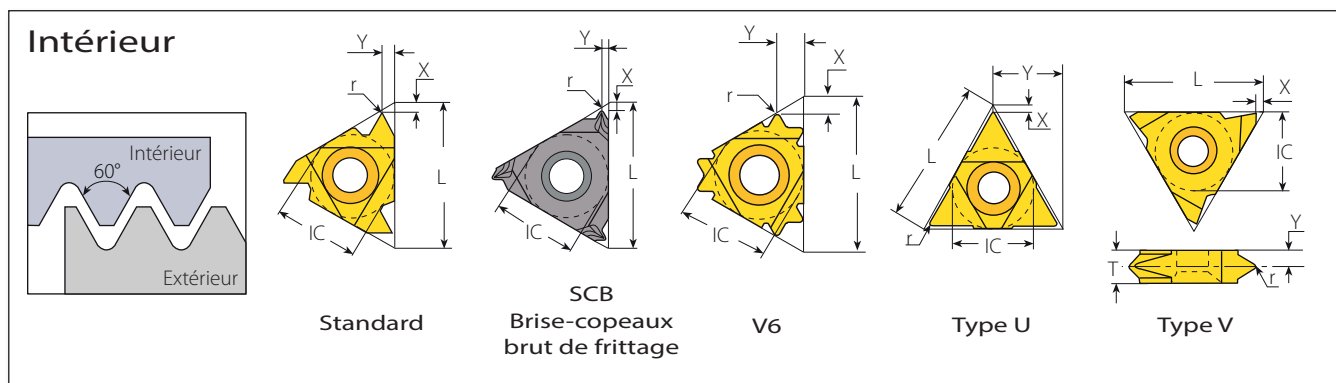
| Taille plaquette | Pas  |          |       | Référence   |             | Dimensions mm |      |     |     |  | Porte-outils  |
|------------------|------|----------|-------|-------------|-------------|---------------|------|-----|-----|--|---------------|
| IC               | L mm | mm       | tpi   | RH          | LH          | r             | X    | Y   | T   |  |               |
| 1/4"V            | 11   | 0.5-1.5  | 48-16 | 2VERA60...  | 2VELA60...  | 0.05          | 0.69 | 2.3 | 3.2 |  | NL...-2V (LH) |
| 3/8"V            | 16   | 0.5-1.5  | 48-16 | 3VERA60...  | 3VELA60...  | 0.05          | 1.10 | 2.7 | 3.6 |  | NL...-3V (LH) |
|                  |      | 1.75-3.0 | 14-8  | 3VERG60...  | 3VELG60...  | 0.27          | 1.10 | 1.9 | 3.6 |  |               |
|                  |      | 0.5-3.0  | 48-8  | 3VERAG60... | 3VELAG60... | 0.08          | 1.10 | 1.9 | 3.6 |  |               |
| 1/2"V            | 22   | 3.5-5.0  | 7-5   | 4VERN60...  | 4VELN60...  | 0.53          | 1.10 | 2.3 | 4.8 |  | NL...-4V (LH) |

## Type V



| Taille plaquette | Pas  |          |       | Référence  |            | Dimensions mm |     |     |    |  | Porte-outils     |
|------------------|------|----------|-------|------------|------------|---------------|-----|-----|----|--|------------------|
| IC               | L mm | mm       | tpi   | RH         | LH         | r             | X   | Y   | T  |  |                  |
| 5/8"V            | 27   | 6.0-10.0 | 4-2.5 | 5VERV60... | 5VELV60... | 0.75          | 0.6 | 5.2 | 10 |  | NL...-5V-10 (LH) |

## Profil partiel 60° (Suite)



### Standard



| Taille plaquette |      | Pas      |       | Référence    |            | Dimensions mm |     |     | Sous-plaquette |     |                              |
|------------------|------|----------|-------|--------------|------------|---------------|-----|-----|----------------|-----|------------------------------|
| IC               | L mm | mm       | tpi   | RH           | LH         | r             | X   | Y   | RH             | LH  | Porte-outils                 |
| 1/4"             | 11   | 0.5-1.5  | 48-16 | 2IRA60...    | 2ILA60...  | 0.05          | 0.8 | 0.9 | -              | -   | NVR...-2 (LH)                |
| 1/4" SCB         | 11   | 0.5-1.5  | 48-16 | 2JIRA60...   |            | 0.05          | 0.6 | 0.8 | -              | -   | NVR...-2                     |
| 3/8"             | 16   | 0.5-1.5  | 48-16 | 3IRA60...    | 3ILA60...  | 0.05          | 0.8 | 0.9 | YI3            | YE3 | AVR...-3 (LH)                |
|                  |      | 1.75-3.0 | 14-8  | 3IRG60...    | 3ILG60...  | 0.16          | 1.2 | 1.7 |                |     |                              |
|                  |      | 0.5-3.0  | 48-8  | 3IRAG60...   | 3ILAG60... | 0.05          | 1.2 | 1.7 |                |     |                              |
| 3/8" SCB         | 16   | 0.5-1.5  | 48-16 | 3JIRA60...   |            | 0.05          | 0.6 | 0.8 | YI3            | -   | AVR...-3                     |
|                  |      | 1.75-3.0 | 14-8  | 3JIRG60...   |            | 0.16          | 1.0 | 1.5 |                |     |                              |
|                  |      | 0.5-3.0  | 48-8  | 3JIRAG60...  |            | 0.05          | 0.9 | 1.5 |                |     |                              |
| 3/8" V6          | 16   | 0.5-2.0  | 48-14 | 3IRS60-6C... |            | 0.03          | 1.6 | 2.6 | YI3-6C         | -   | AVR...-3<br>NVR...-3 206/... |
| 1/2"             | 22   | 3.5-5.0  | 7-5   | 4IRN60...    | 4ILN60...  | 0.30          | 1.7 | 2.5 | YI4            | YE4 | AVR...-4 (LH)                |
| 5/8"             | 27   | 5.5-6.0  | 4.5-4 | 5IRQ60...    | 5ILQ60...  | 0.30          | 1.8 | 2.7 | YI5            | YE5 | AVR...-5 (LH)                |

### Type U



| Taille plaquette |      | Pas     |          | Référence  |  | Dimensions mm |     |      | Sous-plaquette |      |                |
|------------------|------|---------|----------|------------|--|---------------|-----|------|----------------|------|----------------|
| IC               | L mm | mm      | tpi      | RH+LH      |  | r             | X   | Y    | RH             | LH   | Porte-outils   |
| 1/2"U            | 22   | 5.5-8.0 | 4.5-3.25 | 4UEIU60... |  | 0.30          | 0.6 | 11.0 | YI4U           | YE4U | AVR...-4U (LH) |
| 5/8"U            | 27   | 6.5-9.0 | 4-2.75   | 5UEIU60... |  | 0.37          | 1.0 | 13.7 | YI5U           | YE5U | AVR...-5U (LH) |

### Type V

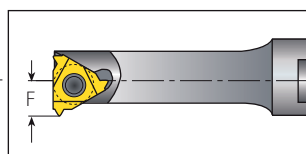
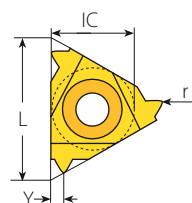
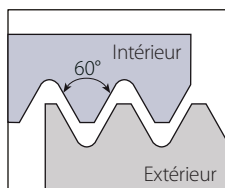


| Taille plaquette |      | Pas      |       | Référence  |            | Dimensions mm |     |     |   |  | Porte-outils   |
|------------------|------|----------|-------|------------|------------|---------------|-----|-----|---|--|----------------|
| IC               | L mm | mm       | tpi   | RH         | LH         | r             | X   | Y   | T |  |                |
| 5/8"V            | 27   | 6.0-10.0 | 4-2.5 | 5VIRV60... | 5VILV60... | 0.35          | 1.0 | 4.3 | 8 |  | NVR...-5V (LH) |

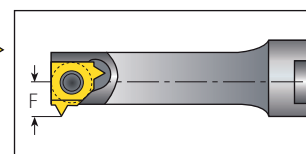
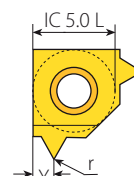
## Profil partiel 60° (Suite)



### Intérieur



Mini-3



Mini-L

### Mini-3



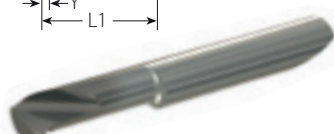
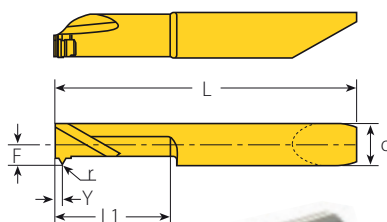
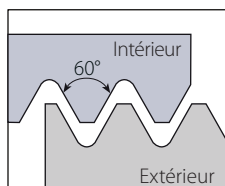
| Taille plaquette |      | Pas      |       | Référence    | Dimensions mm |     |     | Diam. mini de perçage | Porte-outils |
|------------------|------|----------|-------|--------------|---------------|-----|-----|-----------------------|--------------|
| IC               | L mm | mm       | tpi   | RH           | r             | Y   | F   | mm                    |              |
| 4.0              | 6    | 0.5-1.25 | 48-20 | 4.0KIRA60... | 0.05          | 0.6 | 3.7 | 6.35                  | .NVR.5-4.0K  |
| 6.0              | 10   | 0.5-1.5  | 48-16 | 6.0IRA60...  | 0.05          | 0.9 | 5.3 | 10.00                 | .NVR 1.-6.0  |

### Mini-L

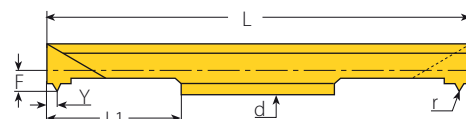


| Taille plaquette |    | Pas     |       | Référence  | Dimensions mm |     |      | Diam. mini de perçage | Porte-outils |
|------------------|----|---------|-------|------------|---------------|-----|------|-----------------------|--------------|
| IC               | mm | mm      | tpi   | RH         | r             | Y   | F    | mm                    |              |
| 5.0L             |    | 0.5-1.5 | 48-16 | 5LIRA60... | 0.05          | 0.9 | 4.65 | 8.0                   | .NVR 10.-5L  |

### Intérieur



RH-Simple arrête de coupe à droite



RH-Double arrête de coupe à droite

### Micro - double arrête de coupe

| Diam. plaquette |         | Pas   |              | Référence |    | Dimensions mm |      |     | Diam. mini de perçage |              |
|-----------------|---------|-------|--------------|-----------|----|---------------|------|-----|-----------------------|--------------|
| d mm            | mm      | tpi   | RH/LH        | r         | L1 | L             | F    | Y   | mm                    | Porte-outils |
| 3.0             | 0.5-1.0 | 48-24 | 3.0SIRF60... | 0.05      | 16 | 50            | 1.46 | 0.9 | 3.3                   | SMC..-3.0    |
| 4.0             | 0.5-1.0 | 48-24 | 4.0SIRF60... | 0.05      | 16 | 50            | 1.96 | 0.9 | 4.3                   | SMC..-4.0    |
| 6.0             | 0.5-1.5 | 48-16 | 6.0SIRA60... | 0.05      | 16 | 50            | 2.50 | 0.9 | 6.0                   | SMC..-6.0    |

Outil à gauche fourni à la demande. (Exemple: 6.0SILA60...)

### Micro-simple arrête de coupe

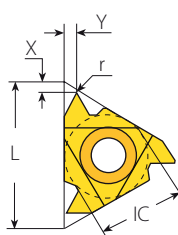
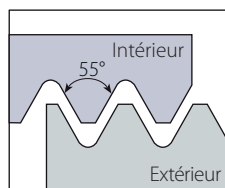
microscope

| Diam. plaquette |         | Pas   |                 | Référence | Dimensions mm |    |     |     |      | Diam. mini de perçage | Porte-outils |
|-----------------|---------|-------|-----------------|-----------|---------------|----|-----|-----|------|-----------------------|--------------|
| d mm            | mm      | mm    | tpi             | RH/LH     | r             | L1 | L   | F   | Y    | h(max)                |              |
| 4.0             | 0.5-1.0 | 48-24 | M429THF60L16R/L | 0.05      | 16            | 33 | 0.9 | 0.9 | 0.65 | 3.2                   | MHC.-4       |
| 4.0             | 0.5-1.0 | 48-24 | M439THF60L16R/L | 0.05      | 16            | 33 | 1.9 | 0.9 | 0.76 | 4.2                   | MHC.-4       |
| 6.0             | 0.5-1.5 | 48-16 | M659THA60L16R/L | 0.05      | 16            | 42 | 2.9 | 0.9 | 1.49 | 6.2                   | MHC.-6       |

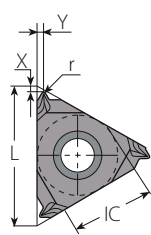
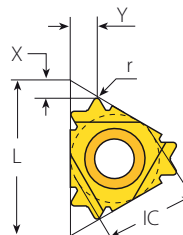
Outil à gauche fourni à la demande. (Exemple: M429THF60L16L)

# Profil partiel 55°

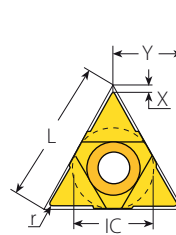
## Extérieur



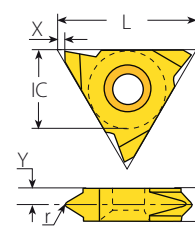
Standard


SCB  
Brise-copeaux  
brut de frittage


V6



Type U


Type V / Slim Throat  
Passage étroit

## Standard



SCB



V6

| Taille plaquette |      | Pas      |       | Référence    |            | Dimensions mm |     |     | Sous-plaquette |     |              |
|------------------|------|----------|-------|--------------|------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | mm       | tpi   | RH           | LH         | r             | X   | Y   | RH             | LH  | Porte-outils |
| 1/4"             | 11   | 0.5-1.5  | 48-16 | 2ERA55...    | 2ELA55...  | 0.05          | 0.8 | 0.9 | -              | -   | NL...-2 (LH) |
|                  |      | 0.5-1.5  | 48-16 | 3ERA55...    | 3ELA55...  | 0.05          | 0.8 | 0.9 | -              | -   | -            |
| 3/8"             | 16   | 1.75-3.0 | 14-8  | 3ERG55...    | 3ELG55...  | 0.21          | 1.2 | 1.7 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 0.5-3.0  | 48-8  | 3ERAG55...   | 3ELAG55... | 0.07          | 1.2 | 1.7 | -              | -   | -            |
| 3/8" SCB         | 16   | 0.5-1.5  | 48-16 | 3JERA55...   | -          | 0.05          | 0.6 | 0.8 | YE3            | -   | AL...-3      |
|                  |      | 1.75-3.0 | 14-8  | 3JERG55...   | -          | 0.21          | 1.1 | 1.5 | -              | -   | -            |
|                  |      | 0.5-3.0  | 48-8  | 3JERAG55...  | -          | 0.07          | 0.9 | 1.5 | -              | -   | -            |
| 3/8" V6          | 16   | -        | 48-14 | 3ERS55-6C... | -          | 0.05          | 1.8 | 2.8 | YE3-6C         | -   | AL...-3      |
| 1/2"             | 22   | 3.5-5.0  | 7-5   | 4ERN55...    | 4ELN55...  | 0.43          | 1.7 | 2.5 | YE4            | YI4 | AL...-4 (LH) |
| 5/8"             | 27   | 5.5-6.0  | 4.5-4 | 5ERQ55...    | 5ELQ55...  | 0.60          | 2.0 | 2.9 | YE5            | YI5 | AL...-5 (LH) |

## Type U



| Taille plaquette |      | Pas     |          | Référence  |  | Dimensions mm |     |      | Sous-plaquette |      |               |
|------------------|------|---------|----------|------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | mm      | tpi      | RH+LH      |  | r             | X   | Y    | RH             | LH   | Porte-outils  |
| 1/2"U            | 22   | 5.5-8.0 | 4.5-3.25 | 4UEIU55... |  | 0.60          | 0.9 | 11.0 | YE4U           | YI4U | AL...-4U (LH) |
| 5/8"U            | 27   | 6.5-9.0 | 4-2.75   | 5UEIU55... |  | 0.80          | 1.2 | 13.7 | YE5U           | YI5U | AL...-5U (LH) |

## Slim Throat Passage étroit



| Taille plaquette |      | Pas      |       | Référence   |             | Dimensions mm |     |     |     | Porte-outils  |
|------------------|------|----------|-------|-------------|-------------|---------------|-----|-----|-----|---------------|
| IC               | L mm | mm       | tpi   | RH          | LH          | r             | X   | Y   | T   |               |
| 1/4"V            | 11   | 0.5-1.5  | 48-16 | 2VERA55...  | 2VELA55...  | 0.05          | 0.8 | 2.7 | 3.2 | NL...-2V (LH) |
|                  |      | 0.5-1.5  | 48-16 | 3VERA55...  | 3VELA55...  | 0.05          | 1.1 | 2.7 | 3.6 | -             |
| 3/8"V            | 16   | 1.75-3.0 | 14-8  | 3VERG55...  | 3VELG55...  | 0.21          | 1.1 | 1.9 | 3.6 | NL...-3V (LH) |
|                  |      | 0.5-3.0  | 48-8  | 3VERAG55... | 3VELAG55... | 0.07          | 1.1 | 1.9 | 3.6 | -             |
| 1/2"V            | 22   | 3.5-5.0  | 7-5   | 4VERN55...  | 4VELN55...  | 0.43          | 1.1 | 2.3 | 4.8 | NL...-4V (LH) |

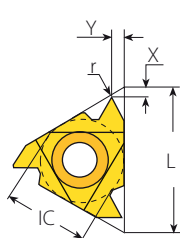
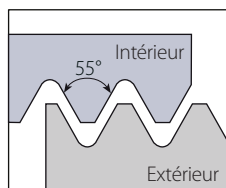
## Type V



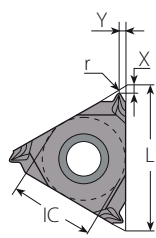
| Taille plaquette |      | Pas     |        | Référence  |            | Dimensions mm |     |     |   | Porte-outils    |
|------------------|------|---------|--------|------------|------------|---------------|-----|-----|---|-----------------|
| IC               | L mm | mm      | tpi    | RH         | LH         | r             | X   | Y   | T |                 |
| 5/8"V            | 27   | 6.0-9.0 | 4-2.75 | 5VERV55... | 5VELV55... | 0.70          | 1.0 | 4.3 | 8 | NL...-5V-8 (LH) |

## Profil partiel 55° (Suite)

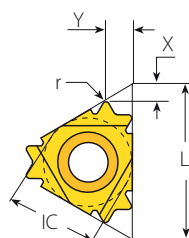
### Intérieur



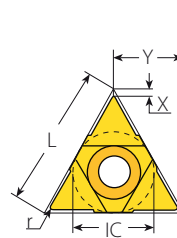
Standard



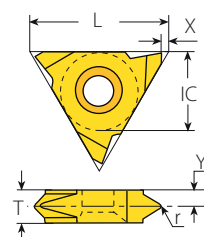
SCB  
Brise-copeaux  
brut de frittage



V6



Type U



Type V

### Standard



SCB



V6

| Taille plaquette |      | Pas      |       | Référence    |            | Dimensions mm |     |     | Sous-plaquette |     |                              |
|------------------|------|----------|-------|--------------|------------|---------------|-----|-----|----------------|-----|------------------------------|
| IC               | L mm | mm       | tpi   | RH           | LH         | r             | X   | Y   | RH             | LH  | Porte-outils                 |
| 1/4"             | 11   | 0.5-1.5  | 48-16 | 2IRA55...    | 2ILA55...  | 0.05          | 0.8 | 0.9 | -              | -   | NVR...-2 (LH)                |
| 1/4" SCB         | 11   | 0.5-1.5  | 48-16 | 2JIRA55...   |            | 0.05          | 0.6 | 0.8 | -              | -   | NVR...-2                     |
| 3/8"             | 16   | 0.5-1.5  | 48-16 | 3IRA55...    | 3ILA55...  | 0.05          | 0.8 | 0.9 | YI3            | YE3 | AVR...-3 (LH)                |
|                  |      | 1.75-3.0 | 14-8  | 3IRG55...    | 3ILG55...  | 0.21          | 1.2 | 1.7 |                |     |                              |
|                  |      | 0.5-3.0  | 48-8  | 3IRAG55...   | 3ILAG55... | 0.07          | 1.2 | 1.7 |                |     |                              |
| 3/8" SCB         | 16   | 0.5-1.5  | 48-16 | 3JIRA55...   |            | 0.05          | 0.6 | 0.8 | YI3            | -   | AVR...-3                     |
|                  |      | 1.75-3.0 | 14-8  | 3JIRG55...   |            | 0.21          | 1.1 | 1.5 |                |     |                              |
|                  |      | 0.5-3.0  | 48-8  | 3JIRAG55...  |            | 0.07          | 0.9 | 1.5 |                |     |                              |
| 3/8" V6          | 16   | -        | 48-16 | 3IRS55-6C... |            | 0.05          | 1.6 | 2.6 | YI3-6C         | -   | AVR...-3<br>NVR...-3 206/... |
| 1/2"             | 22   | 3.5-5.0  | 7-5   | 4IRN55...    | 4ILN55...  | 0.43          | 1.7 | 2.5 | YI4            | YE4 | AVR...-4 (LH)                |
| 5/8"             | 27   | 5.5-6.0  | 4.5-4 | 5IRQ55...    | 5ILQ55...  | 0.60          | 2.0 | 2.9 | YI5            | YE5 | AVR...-5 (LH)                |

### Type U



| Taille plaquette |      | Pas     |          | Référence  |  | Dimensions mm |     |      | Sous-plaquette |      |                |
|------------------|------|---------|----------|------------|--|---------------|-----|------|----------------|------|----------------|
| IC               | L mm | mm      | tpi      | RH+LH      |  | r             | X   | Y    | RH             | LH   | Porte-outils   |
| 1/2"U            | 22   | 5.5-8.0 | 4.5-3.25 | 4UEIU55... |  | 0.60          | 0.9 | 11.0 | YI4U           | YE4U | AVR...-4U (LH) |
| 5/8"U            | 27   | 6.5-9.0 | 4-2.75   | 5UEIU55... |  | 0.80          | 1.2 | 13.7 | YI5U           | YE5U | AVR...-5U (LH) |

### Type V

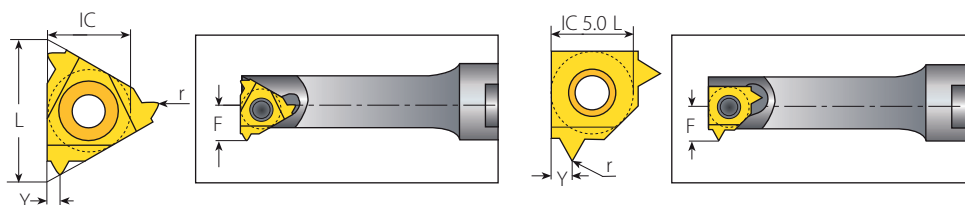
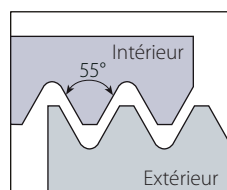


| Taille plaquette |      | Pas     |        | Référence  |            | Dimensions mm |     |     |   |                |  |
|------------------|------|---------|--------|------------|------------|---------------|-----|-----|---|----------------|--|
| IC               | L mm | mm      | tpi    | RH         | LH         | r             | X   | Y   | T | Porte-outils   |  |
| 5/8"V            | 27   | 6.0-9.0 | 4-2.75 | 5VIRV55... | 5VILV55... | 0.70          | 1.0 | 4.3 | 8 | NVR...-5V (LH) |  |

## Profil partiel 55° (Suite)



### Intérieur



Mini-3

Mini-L

### Mini-3



| Taille plaquette |      | Pas      |       | Référence    | Dimensions mm |     |     | Diam. mini de perçage | Porte-outils |
|------------------|------|----------|-------|--------------|---------------|-----|-----|-----------------------|--------------|
| IC               | L mm | mm       | tpi   | RH           | r             | Y   | F   | mm                    |              |
| 4.0              | 6    | 0.5-1.25 | 48-20 | 4.0KIRA55... | 0.05          | 0.6 | 3.8 | 6.45                  | .NVR.5-4.0K  |
| 6.0              | 10   | 0.5-1.50 | 48-16 | 6.0IRA55...  | 0.05          | 0.9 | 5.3 | 10.00                 | .NVR 1..-6.0 |

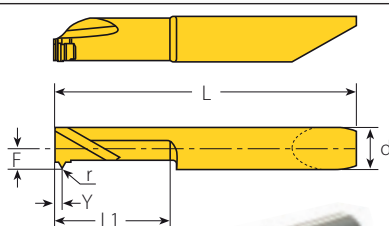
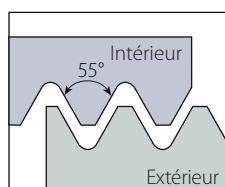
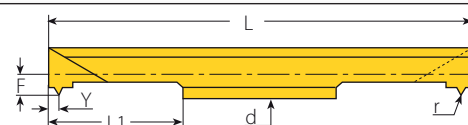
### Mini-L



| Taille plaquette |         | Pas   |            | Référence | Dimensions mm |      |     | Diam. mini de perçage | Porte-outils |
|------------------|---------|-------|------------|-----------|---------------|------|-----|-----------------------|--------------|
| IC               | mm      | tpi   | RH         | r         | Y             | F    | mm  | mm                    |              |
| 5.0L             | 0.5-1.5 | 48-16 | 5LIRA55... | 0.05      | 0.9           | 4.65 | 8.0 |                       | .NVR 10.-5L  |

## Profil partiel 55°

### Intérieur


RH-Simple arrête  
de coupe à droite

RH-Double arrête  
de coupe à droite

### Micro - double arrête de coupe

| Diam. plaquette |         | Pas   | Référence    |      | Dimensions mm |    |      |     |     | Diam. mini de perçage | Porte-outils |
|-----------------|---------|-------|--------------|------|---------------|----|------|-----|-----|-----------------------|--------------|
| d mm            | mm      | tpi   | RH/LH        | r    | L1            | L  | F    | Y   | mm  | mm                    |              |
| 3.0             | 0.5-1.0 | 48-24 | 3.0SIRF55... | 0.05 | 16            | 50 | 1.46 | 0.9 | 3.3 |                       | SMC..-3.0    |
| 4.0             | 0.5-1.0 | 48-24 | 4.0SIRF55... | 0.05 | 16            | 50 | 1.96 | 0.9 | 4.3 |                       | SMC..-4.0    |
| 6.0             | 0.5-1.5 | 48-16 | 6.0SIRA55... | 0.05 | 16            | 50 | 2.50 | 0.9 | 6.0 |                       | SMC..-6.0    |

Outil à gauche fourni à la demande. (Exemple: 6.0SILA55...)

### Micro - simple arrête de coupe

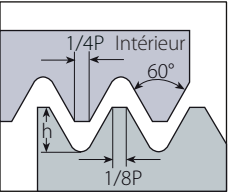
microscope

| Diam. plaquette |         | Pas   | Référence         |      | Dimensions mm |    |     |      |        | Diam. mini de perçage |    | Porte-outils |
|-----------------|---------|-------|-------------------|------|---------------|----|-----|------|--------|-----------------------|----|--------------|
| d mm            | mm      | tpi   | RH/LH             | r    | L1            | L  | F   | Y    | h(max) | mm                    | mm |              |
| 4.0             | 0.5-1.0 | 48-24 | M429TH F55 L16R/L | 0.05 | 16            | 33 | 0.9 | 0.75 | 0.76   | 3.2                   |    | MHC ..-4     |
| 4.0             | 0.5-1.0 | 48-24 | M439TH F55 L16R/L | 0.05 | 16            | 33 | 1.9 | 0.75 | 0.76   | 4.2                   |    | MHC ..-4     |
| 6.0             | 0.5-1.5 | 48-16 | M659TH A55 L16R/L | 0.05 | 16            | 42 | 2.9 | 0.9  | 1.49   | 6.2                   |    | MHC ..-6     |

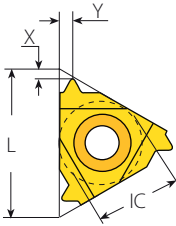
Outil à gauche fourni à la demande. (Exemple: M429TH F55 L16L)

# Métrique ISO

## Extérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Standard

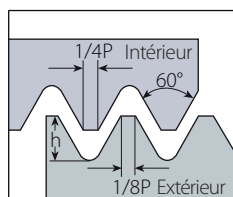
## Standard

| Taille plaquette |      | Pas  | Référence     |               | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|------|---------------|---------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | mm   | RH            | LH            | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 0.25 | 2ER0.25ISO... | 2EL0.25ISO... | 0.14          | 0.4 | 0.2 | -              | -   | NL...-2 (LH) |
|                  |      | 0.3  | 2ER0.3ISO...  | 2EL0.3ISO...  | 0.19          | 0.7 | 0.3 |                |     |              |
|                  |      | 0.35 | 2ER0.35ISO... | 2EL0.35ISO... | 0.21          | 0.8 | 0.4 |                |     |              |
|                  |      | 0.4  | 2ER0.4ISO...  | 2EL0.4ISO...  | 0.25          | 0.7 | 0.4 |                |     |              |
|                  |      | 0.45 | 2ER0.45ISO... | 2EL0.45ISO... | 0.28          | 0.7 | 0.4 |                |     |              |
|                  |      | 0.5  | 2ER0.5ISO...  | 2EL0.5ISO...  | 0.31          | 0.6 | 0.4 |                |     |              |
|                  |      | 0.6  | 2ER0.6ISO...  | 2EL0.6ISO...  | 0.37          | 0.6 | 0.6 |                |     |              |
|                  |      | 0.7  | 2ER0.7ISO...  | 2EL0.7ISO...  | 0.43          | 0.6 | 0.6 |                |     |              |
|                  |      | 0.75 | 2ER0.75ISO... | 2EL0.75ISO... | 0.46          | 0.6 | 0.6 |                |     |              |
|                  |      | 0.8  | 2ER0.8ISO...  | 2EL0.8ISO...  | 0.49          | 0.6 | 0.6 |                |     |              |
|                  |      | 1.0  | 2ER1.0ISO...  | 2EL1.0ISO...  | 0.61          | 0.7 | 0.7 |                |     |              |
|                  |      | 1.25 | 2ER1.25ISO... | 2EL1.25ISO... | 0.77          | 0.8 | 0.9 |                |     |              |
|                  |      | 1.5  | 2ER1.5ISO...  | 2EL1.5ISO...  | 0.92          | 0.8 | 1.0 |                |     |              |
|                  |      | 1.75 | 2ER1.75ISO... | 2EL1.75ISO... | 1.07          | 0.8 | 1.1 |                |     |              |
| 3/8"             | 16   | 0.25 | 3ER0.25ISO... | 3EL0.25ISO... | 0.14          | 0.4 | 0.2 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 0.35 | 3ER0.35ISO... | 3EL0.35ISO... | 0.21          | 0.8 | 0.4 |                |     |              |
|                  |      | 0.4  | 3ER0.4ISO...  | 3EL0.4ISO...  | 0.25          | 0.7 | 0.4 |                |     |              |
|                  |      | 0.45 | 3ER0.45ISO... | 3EL0.45ISO... | 0.28          | 0.7 | 0.4 |                |     |              |
|                  |      | 0.5  | 3ER0.5ISO...  | 3EL0.5ISO...  | 0.31          | 0.6 | 0.4 |                |     |              |
|                  |      | 0.6  | 3ER0.6ISO...  | 3EL0.6ISO...  | 0.37          | 0.6 | 0.6 |                |     |              |
|                  |      | 0.7  | 3ER0.7ISO...  | 3EL0.7ISO...  | 0.43          | 0.6 | 0.6 |                |     |              |
|                  |      | 0.75 | 3ER0.75ISO... | 3EL0.75ISO... | 0.46          | 0.6 | 0.6 |                |     |              |
|                  |      | 0.8  | 3ER0.8ISO...  | 3EL0.8ISO...  | 0.49          | 0.6 | 0.6 |                |     |              |
|                  |      | 1.0  | 3ER1.0ISO...  | 3EL1.0ISO...  | 0.61          | 0.7 | 0.7 |                |     |              |
|                  |      | 1.25 | 3ER1.25ISO... | 3EL1.25ISO... | 0.77          | 0.8 | 0.9 |                |     |              |
|                  |      | 1.5  | 3ER1.5ISO...  | 3EL1.5ISO...  | 0.92          | 0.8 | 1.0 |                |     |              |
|                  |      | 1.75 | 3ER1.75ISO... | 3EL1.75ISO... | 1.07          | 0.9 | 1.2 |                |     |              |
|                  |      | 2.0  | 3ER2.0ISO...  | 3EL2.0ISO...  | 1.23          | 1.0 | 1.3 |                |     |              |
|                  |      | 2.5  | 3ER2.5ISO...  | 3EL2.5ISO...  | 1.53          | 1.1 | 1.5 |                |     |              |
|                  |      | 3.0  | 3ER3.0ISO...  | 3EL3.0ISO...  | 1.84          | 1.2 | 1.6 |                |     |              |
|                  |      | 3.5  | 3ER3.5ISO...  | 3EL3.5ISO...  | 2.15          | 1.6 | 1.9 |                |     |              |

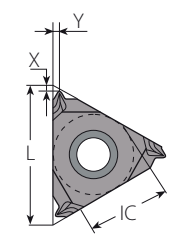
Suite à la page suivante ►

# Métrique ISO (Suite)

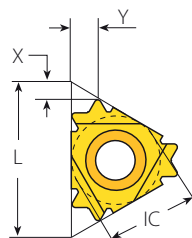
## Extérieur



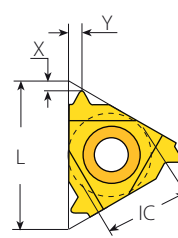
Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



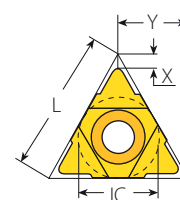
SCB  
Brise-copeaux  
brut de frittage



V6



Standard



Type U

## Standard



SCB



V6



| Taille plaquette |      | Pas  | Référence        |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|------|------------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | mm   | RH               | LH           | h min         | X   | Y   | RH             | LH  |              |
| 3/8" SCB         | 16   | 0.5  | 3JER0.5ISO...    |              | 0.31          | 1.2 | 0.5 | YE3            | -   | AL...-3      |
|                  |      | 0.75 | 3JER0.75ISO...   |              | 0.46          | 1.2 | 0.5 |                |     |              |
|                  |      | 0.8  | 3JER0.8ISO...    |              | 0.49          | 1.2 | 0.5 |                |     |              |
|                  |      | 1.0  | 3JER1.0ISO...    |              | 0.61          | 0.7 | 0.8 |                |     |              |
|                  |      | 1.25 | 3JER1.25ISO...   |              | 0.77          | 0.7 | 0.8 |                |     |              |
|                  |      | 1.5  | 3JER1.5ISO...    |              | 0.92          | 0.7 | 0.8 |                |     |              |
|                  |      | 1.75 | 3JER1.75ISO...   |              | 1.07          | 1.2 | 1.5 |                |     |              |
|                  |      | 2.0  | 3JER2.0ISO...    |              | 1.23          | 1.2 | 1.5 |                |     |              |
|                  |      | 2.5  | 3JER2.5ISO...    |              | 1.53          | 1.2 | 1.5 |                |     |              |
|                  |      | 3.0  | 3JER3.0ISO...    |              | 1.84          | 1.3 | 1.5 |                |     |              |
| 3/8" V6          | 16   | 3.5  | 3JER3.5ISO...    |              | 2.15          | 1.2 | 1.5 | YE3-6C         | -   | AL...-3      |
|                  |      | 0.5  | 3ER0.5ISO-6C...  |              | 0.31          | 2.2 | 1.8 |                |     |              |
|                  |      | 0.75 | 3ER0.75ISO-6C... |              | 0.46          | 2.0 | 1.8 |                |     |              |
|                  |      | 0.8  | 3ER0.8ISO-6C...  |              | 0.49          | 2.0 | 1.9 |                |     |              |
|                  |      | 1.0  | 3ER1.0ISO-6C...  |              | 0.61          | 1.9 | 2.0 |                |     |              |
|                  |      | 1.25 | 3ER1.25ISO-6C... |              | 0.77          | 1.8 | 2.1 |                |     |              |
|                  |      | 1.5  | 3ER1.5ISO-6C...  |              | 0.92          | 1.9 | 2.4 |                |     |              |
|                  |      | 1.75 | 3ER1.75ISO-6C... |              | 1.07          | 1.8 | 2.6 |                |     |              |
| 1/2"             | 22   | 2.0  | 3ER2.0ISO-6C...  |              | 1.23          | 1.9 | 2.8 | YE4            | YI4 | AL...-4 (LH) |
|                  |      | 3.5  | 4ER3.5ISO...     | 4EL3.5ISO... | 2.15          | 1.6 | 2.3 |                |     |              |
|                  |      | 4.0  | 4ER4.0ISO...     | 4EL4.0ISO... | 2.45          | 1.6 | 2.3 |                |     |              |
|                  |      | 4.5  | 4ER4.5ISO...     | 4EL4.5ISO... | 2.76          | 1.7 | 2.4 |                |     |              |
|                  |      | 5.0  | 4ER5.0ISO...     | 4EL5.0ISO... | 3.07          | 1.7 | 2.5 |                |     |              |
| 5/8"             | 27   | 6.0  | 4ER6.0ISO...     | 4EL6.0ISO... | 3.68          | 1.8 | 2.7 | YE5            | YI5 | AL...-5 (LH) |
|                  |      | 5.5  | 5ER5.5ISO...     | 5EL5.5ISO... | 3.37          | 1.9 | 2.7 |                |     |              |
|                  |      | 6.0  | 5ER6.0ISO...     | 5EL6.0ISO... | 3.68          | 2.0 | 2.9 |                |     |              |

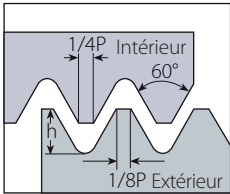
## Type U



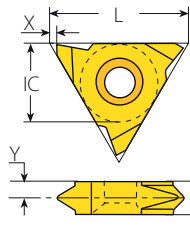
| Taille plaquette |      | Pas | Référence    |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|--------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | mm  | RH+LH        |  | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 5.0 | 4UE5.0ISO... |  | 3.07          | 2.2 | 11.0 | YE4U           | YI4U | AL...-4U (LH) |
|                  |      | 5.5 | 4UE5.5ISO... |  | 3.37          | 2.3 | 11.0 |                |      |               |
|                  |      | 6.0 | 4UE6.0ISO... |  | 3.68          | 2.6 | 11.0 |                |      |               |
| 5/8"U            | 27   | 8.0 | 5UE8.0ISO... |  | 4.91          | 2.4 | 13.7 | YE5U           | YI5U | AL...-5U (LH) |

Métrique ISO (Suite)

Extérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Type V / Slim Throat  
(Passage étroit)

Slim Throat (Passage étroit)

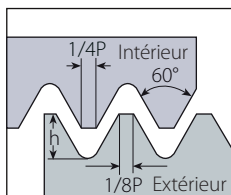
| Taille plaquette |      | Pas  | Référence      |                | Dimensions mm |     |      |     | Porte-outils  |
|------------------|------|------|----------------|----------------|---------------|-----|------|-----|---------------|
| IC               | L mm | mm   | RH             | LH             | h min         | X   | Y    | T   |               |
| 1/4"V            | 11   | 0.75 | 2VER0.75ISO... | 2VEL0.75ISO... | 0.46          | 0.7 | 2.6  | 3.2 | NL...-2V (LH) |
|                  |      | 1.0  | 2VER1.0ISO...  | 2VEL1.0ISO...  | 0.61          | 0.7 | 2.5  | 3.2 |               |
|                  |      | 1.5  | 2VER1.5ISO...  | 2VEL1.5ISO...  | 0.92          | 0.7 | 2.2  | 3.2 |               |
|                  |      | 1.75 | 2VER1.75ISO... | 2VEL1.75ISO... | 1.07          | 0.7 | 2.1  | 3.2 |               |
|                  |      | 2.0  | 2VER2.0ISO...  | 2VEL2.0ISO...  | 1.23          | 0.7 | 1.9  | 3.2 |               |
| 3/8"V            | 16   | 0.35 | 3VER0.35ISO... | 3VEL0.35ISO... | 0.20          | 1.1 | 3.25 | 3.6 | NL...-3V (LH) |
|                  |      | 0.4  | 3VER0.4ISO...  | 3VEL0.4ISO...  | 0.25          | 1.1 | 3.20 | 3.6 |               |
|                  |      | 0.5  | 3VER0.5ISO...  | 3VEL0.5ISO...  | 0.31          | 1.1 | 3.0  | 3.6 |               |
|                  |      | 0.75 | 3VER0.75ISO... | 3VEL0.75ISO... | 0.46          | 1.1 | 3.0  | 3.6 |               |
|                  |      | 0.8  | 3VER0.8ISO...  | 3VEL0.8ISO...  | 0.49          | 1.1 | 3.0  | 3.6 |               |
|                  |      | 1.0  | 3VER1.0ISO...  | 3VEL1.0ISO...  | 0.61          | 1.1 | 2.9  | 3.6 |               |
|                  |      | 1.25 | 3VER1.25ISO... | 3VEL1.25ISO... | 0.77          | 1.1 | 2.7  | 3.6 |               |
|                  |      | 1.5  | 3VER1.5ISO...  | 3VEL1.5ISO...  | 0.92          | 1.1 | 2.6  | 3.6 |               |
|                  |      | 1.75 | 3VER1.75ISO... | 3VEL1.75ISO... | 1.07          | 1.1 | 2.45 | 3.6 |               |
|                  |      | 2.0  | 3VER2.0ISO...  | 3VEL2.0ISO...  | 1.23          | 1.1 | 2.3  | 3.6 |               |
|                  |      | 2.5  | 3VER2.5ISO...  | 3VEL2.5ISO...  | 1.53          | 1.1 | 2.1  | 3.6 |               |
|                  |      | 3.0  | 3VER3.0ISO...  | 3VEL3.0ISO...  | 1.84          | 1.1 | 2.0  | 3.6 |               |

Type V

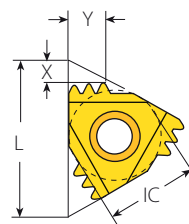
| Taille plaquette |      | Pas  | Référence      |                | Dimensions mm |     |     |    | Porte-outils     |
|------------------|------|------|----------------|----------------|---------------|-----|-----|----|------------------|
| IC               | L mm | mm   | RH             | LH             | h min         | X   | Y   | T  |                  |
| 5/8"V            | 27   | 5.5  | 5VER5.5ISO...  | 5VEL5.5ISO...  | 3.37          | 1.0 | 3.3 | 6  | NL...-5V-6 (LH)  |
|                  |      | 6.0  | 5VER6.0ISO...  | 5VEL6.0ISO...  | 3.68          | 1.0 | 3.3 | 6  |                  |
|                  |      | 8.0  | 5VER8.0ISO...  | 5VEL8.0ISO...  | 4.91          | 1.0 | 4.3 | 8  | NL...-5V-8 (LH)  |
|                  |      | 10.0 | 5VER10.0ISO... | 5VEL10.0ISO... | 6.13          | 1.0 | 5.2 | 10 | NL...-5V-10 (LH) |

# Métrique ISO (Suite)

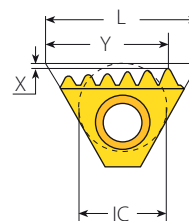
## Extérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Type M+



Type T+

## Type M+



| Taille plaquette |      | Pas | Dents | Référence       | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|-----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | mm  |       | RH              | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 1.0 | 3     | 3ER1.0ISO3M+... | 0.61          | 1.8 | 2.6 | YE3M           | AL...-3      |
|                  |      | 1.5 | 2     | 3ER1.5ISO2M+... | 0.92          | 1.6 | 2.4 |                |              |
|                  |      | 2.0 | 2     | 3ER2.0ISO2M+... | 1.23          | 2.1 | 3.1 |                |              |
| 1/2"             | 22   | 1.5 | 3     | 4ER1.5ISO3M+... | 0.92          | 2.5 | 3.8 | YE4M           | AL...-4      |
|                  |      | 2.0 | 2     | 4ER2.0ISO2M+... | 1.23          | 2.1 | 3.1 |                |              |
|                  |      | 2.0 | 3     | 4ER2.0ISO3M+... | 1.23          | 3.2 | 5.1 |                |              |
|                  |      | 2.5 | 2     | 4ER2.5ISO2M+... | 1.53          | 2.5 | 3.9 |                |              |
| 5/8"             | 27   | 3.0 | 2     | 5ER3.0ISO2M+... | 1.84          | 3.0 | 4.7 | YE5M           | AL...-5M     |

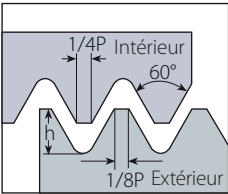
## Type T+



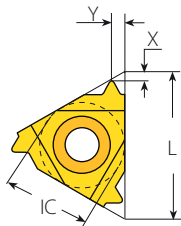
| Taille plaquette |      | Pas | Dents | Référence       | Dimensions mm |     |      | Sous-plaquette |              |
|------------------|------|-----|-------|-----------------|---------------|-----|------|----------------|--------------|
| IC               | L mm | mm  |       | RH              | h min         | X   | Y    | RH             | Porte-outils |
| 1/2"T            | 22   | 1.5 | 8     | 4ER1.5ISO8T+... | 0.92          | 0.2 | 12.4 | Y4T            | AL...-4T     |
|                  |      | 2.0 | 8     | 4ER2.0ISO8T+... | 1.23          | 0.2 | 17.5 |                |              |

Métrique ISO (Suite)

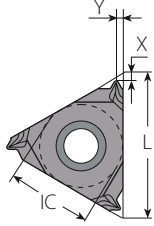
Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Standard



SCB  
Brise-copeaux  
brut de frittage

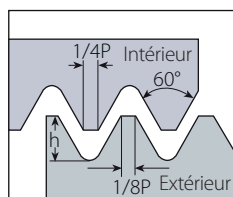
Standard

| Taille plaquette                                                                           |             | Pas | Référence |                | Dimensions mm |      |     | Sous-plaquette |     | Porte-outils |              |
|--------------------------------------------------------------------------------------------|-------------|-----|-----------|----------------|---------------|------|-----|----------------|-----|--------------|--------------|
| IC                                                                                         | L mm        | mm  | RH        | LH             | h min         | X    | Y   | RH             | LH  |              |              |
|          | 1/4"        | 11  | 0.35      | 2IR0.35ISO...  | 2IL0.35ISO... | 0.20 | 0.8 | 0.3            | -   | -            | NVR..-2 (LH) |
|                                                                                            |             |     | 0.4       | 2IR0.4ISO...   | 2IL0.4ISO...  | 0.23 | 0.8 | 0.4            |     |              |              |
|                                                                                            |             |     | 0.45      | 2IR0.45ISO...  | 2IL0.45ISO... | 0.26 | 0.8 | 0.4            |     |              |              |
|                                                                                            |             |     | 0.5       | 2IR0.5ISO...   | 2IL0.5ISO...  | 0.29 | 0.6 | 0.4            |     |              |              |
|                                                                                            |             |     | 0.6       | 2IR0.6ISO...   | 2IL0.6ISO...  | 0.35 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 0.7       | 2IR0.7ISO...   | 2IL0.7ISO...  | 0.40 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 0.75      | 2IR0.75ISO...  | 2IL0.75ISO... | 0.43 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 0.8       | 2IR0.8ISO...   | 2IL0.8ISO...  | 0.46 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 1.0       | 2IR1.0ISO...   | 2IL1.0ISO...  | 0.58 | 0.6 | 0.7            |     |              |              |
|                                                                                            |             |     | 1.25      | 2IR1.25ISO...  | 2IL1.25ISO... | 0.72 | 0.8 | 0.9            |     |              |              |
|                                                                                            |             |     | 1.5       | 2IR1.5ISO...   | 2IL1.5ISO...  | 0.87 | 0.8 | 1.0            |     |              |              |
|                                                                                            |             |     | 1.75      | 2IR1.75ISO...  | 2IL1.75ISO... | 1.01 | 0.9 | 1.1            |     |              |              |
|                                                                                            |             |     | 2.0       | 2IR2.0ISO...   | 2IL2.0ISO...  | 1.15 | 0.9 | 1.1            |     |              |              |
| <br>SCB | 1/4"<br>SCB | 11  | 0.5       | 2JIR0.5ISO...  |               | 0.29 | 1.2 | 0.5            | -   | -            | NVR..-2      |
|                                                                                            |             |     | 0.75      | 2JIR0.75ISO... |               | 0.43 | 1.2 | 0.5            |     |              |              |
|                                                                                            |             |     | 0.8       | 2JIR0.8ISO...  |               | 0.46 | 1.2 | 0.5            |     |              |              |
|                                                                                            |             |     | 1.0       | 2JIR1.0ISO...  |               | 0.58 | 0.7 | 0.8            |     |              |              |
|                                                                                            |             |     | 1.25      | 2JIR1.25ISO... |               | 0.72 | 0.7 | 0.8            |     |              |              |
|         | 3/8"        | 16  | 0.35      | 3IR0.35ISO...  | 3IL0.35ISO... | 0.20 | 0.8 | 0.3            | YI3 | YE3          | AVR..-3 (LH) |
|                                                                                            |             |     | 0.4       | 3IR0.4ISO...   | 3IL0.4ISO...  | 0.23 | 0.8 | 0.4            |     |              |              |
|                                                                                            |             |     | 0.45      | 3IR0.45ISO...  | 3IL0.45ISO... | 0.26 | 0.8 | 0.4            |     |              |              |
|                                                                                            |             |     | 0.5       | 3IR0.5ISO...   | 3IL0.5ISO...  | 0.29 | 0.6 | 0.4            |     |              |              |
|                                                                                            |             |     | 0.6       | 3IR0.6ISO...   | 3IL0.6ISO...  | 0.35 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 0.7       | 3IR0.7ISO...   | 3IL0.7ISO...  | 0.40 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 0.75      | 3IR0.75ISO...  | 3IL0.75ISO... | 0.43 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 0.8       | 3IR0.8ISO...   | 3IL0.8ISO...  | 0.46 | 0.6 | 0.6            |     |              |              |
|                                                                                            |             |     | 1.0       | 3IR1.0ISO...   | 3IL1.0ISO...  | 0.58 | 0.6 | 0.7            |     |              |              |
|                                                                                            |             |     | 1.25      | 3IR1.25ISO...  | 3IL1.25ISO... | 0.72 | 0.8 | 0.9            |     |              |              |
|                                                                                            |             |     | 1.5       | 3IR1.5ISO...   | 3IL1.5ISO...  | 0.87 | 0.8 | 1.0            |     |              |              |
|                                                                                            |             |     | 1.75      | 3IR1.75ISO...  | 3IL1.75ISO... | 1.01 | 0.9 | 1.2            |     |              |              |
|                                                                                            |             |     | 2.0       | 3IR2.0ISO...   | 3IL2.0ISO...  | 1.15 | 1.0 | 1.3            |     |              |              |
|                                                                                            |             |     | 2.5       | 3IR2.5ISO...   | 3IL2.5ISO...  | 1.44 | 1.1 | 1.5            |     |              |              |
|                                                                                            |             |     | 3.0       | 3IR3.0ISO...   | 3IL3.0ISO...  | 1.73 | 1.1 | 1.5            |     |              |              |
|                                                                                            |             |     | 3.5       | 3IR3.5ISO...   | 3IL3.5ISO...  | 2.02 | 1.2 | 1.5            |     |              |              |

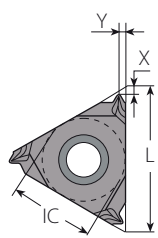
Suite à la page suivante ▶

# Métrique ISO (Suite)

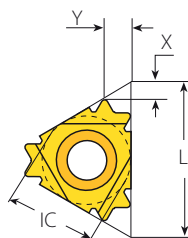
## Intérieur



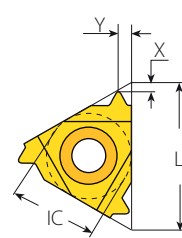
Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



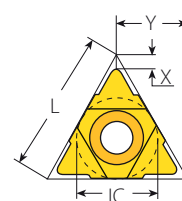
**SCB**  
Brise-copeaux  
brut de frittage



**V6**



**Standard**



**Type U**

## Standard (Suite)



SCB



V6



| Taille plaquette                                                                    |      | Pas | Référence |                  | Dimensions mm |      |     | Sous-plaquette |     |                          |              |
|-------------------------------------------------------------------------------------|------|-----|-----------|------------------|---------------|------|-----|----------------|-----|--------------------------|--------------|
| IC                                                                                  | L mm | mm  | RH        | LH               | h min         | X    | Y   | RH             | LH  | Porte-outils             |              |
|    | 3/8" | 16  | 1.0       | 3JIR1.0ISO...    | 0.58          | 0.7  | 0.8 | YI3            | -   | AVR..-3                  |              |
|                                                                                     |      |     | 1.25      | 3JIR1.25ISO...   | 0.72          | 0.7  | 0.8 |                |     |                          |              |
|                                                                                     |      |     | 1.5       | 3JIR1.5ISO...    | 0.87          | 0.7  | 0.8 |                |     |                          |              |
|                                                                                     |      |     | 1.75      | 3JIR1.75ISO...   | 1.01          | 1.1  | 1.5 |                |     |                          |              |
|                                                                                     |      |     | 2.0       | 3JIR2.0ISO...    | 1.15          | 1.1  | 1.5 |                |     |                          |              |
|                                                                                     |      |     | 2.5       | 3JIR2.5ISO...    | 1.44          | 1.1  | 1.5 |                |     |                          |              |
|                                                                                     |      |     | 3.0       | 3JIR3.0ISO...    | 1.73          | 1.1  | 1.5 |                |     |                          |              |
|                                                                                     |      |     | 3.5       | 3JIR3.5ISO...    | 2.02          | 1.2  | 1.5 |                |     |                          |              |
|  | 3/8" | 16  | 0.5       | 3IR0.5ISO-6C...  | 0.29          | 2.1  | 1.7 | YI3-6C         | -   | AVR..-3<br>NVRC..-3 206/ |              |
|                                                                                     |      |     | 0.75      | 3IR0.75ISO-6C... | 0.43          | 2.0  | 1.8 |                |     |                          |              |
|                                                                                     |      |     | 0.8       | 3IR0.8ISO-6C...  | 0.46          | 1.9  | 1.8 |                |     |                          |              |
|                                                                                     |      |     | 1.0       | 3IR1.0ISO-6C...  | 0.58          | 1.9  | 1.6 |                |     |                          |              |
|                                                                                     |      |     | 1.25      | 3IR1.25ISO-6C... | 0.72          | 1.7  | 2.0 |                |     |                          |              |
|                                                                                     |      |     | 1.5       | 3IR1.5ISO-6C...  | 0.87          | 1.5  | 2.1 |                |     |                          |              |
|                                                                                     |      |     | 1.75      | 3IR1.75ISO-6C... | 1.01          | 1.6  | 2.4 |                |     |                          |              |
|                                                                                     |      |     | 2.0       | 3IR2.0ISO-6C...  | 1.15          | 1.7  | 2.6 |                |     |                          |              |
|  | 1/2" | 22  | 3.5       | 4IR3.5ISO...     | 4IL3.5ISO...  | 2.02 | 1.6 | 2.3            | YI4 | YE4                      | AVR..-4 (LH) |
|                                                                                     |      |     | 4.0       | 4IR4.0ISO...     | 4IL4.0ISO...  | 2.31 | 1.6 | 2.3            |     |                          |              |
|                                                                                     |      |     | 4.5       | 4IR4.5ISO...     | 4IL4.5ISO...  | 2.60 | 1.6 | 2.4            |     |                          |              |
|                                                                                     |      |     | 5.0       | 4IR5.0ISO...     | 4IL5.0ISO...  | 2.89 | 1.6 | 2.3            |     |                          |              |
|                                                                                     |      |     | 6.0       | 4IR6.0ISO...     | 4IL6.0ISO...  | 3.46 | 1.8 | 2.5            |     |                          |              |
|  | 5/8" | 27  | 4.5       | 5IR4.5ISO...     | 5IL4.5ISO...  | 2.60 | 1.6 | 2.4            | YI5 | YE5                      | AVR..-5 (LH) |
|                                                                                     |      |     | 5.0       | 5IR5.0ISO...     | 5IL5.0ISO...  | 2.89 | 1.6 | 2.3            |     |                          |              |
|                                                                                     |      |     | 5.5       | 5IR5.5ISO...     | 5IL5.5ISO...  | 3.17 | 1.6 | 2.3            |     |                          |              |
|                                                                                     |      |     | 6.0       | 5IR6.0ISO...     | 5IL6.0ISO...  | 3.46 | 1.8 | 2.5            |     |                          |              |

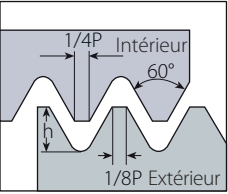
## Type U



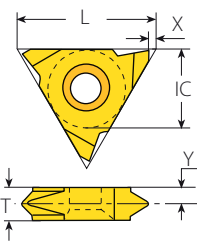
| Taille plaquette |      | Pas | Référence    | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|--------------|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | mm  | RH+LH        | h min.        | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 5.5 | 4UI5.5ISO... | 3.17          | 2.4 | 11.0 | YI4U           | YE4U | AVR..-4U (LH) |
|                  |      | 6.0 | 4UI6.0ISO... | 3.46          | 2.1 | 11.0 |                |      |               |
| 5/8"U            | 27   | 8.0 | 5UI8.0ISO... | 4.62          | 2.4 | 13.7 | YI5U           | YE5U | AVR..-5U (LH) |

Métrique ISO (Suite)

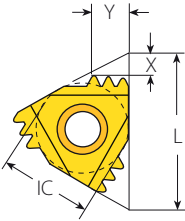
Intérieur



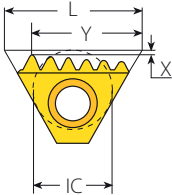
Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Type V



Type M+



Type T+

Type V



| Taille plaquette |      | Pas  | Référence      |                | Dimensions mm |     |     |    | Porte-outils   |
|------------------|------|------|----------------|----------------|---------------|-----|-----|----|----------------|
| IC               | L mm | mm   | RH             | LH             | h min         | X   | Y   | T  |                |
| 5/8"V            | 27   | 6.0  | 5VIR6.0ISO...  | 5VIL6.0ISO...  | 3.46          | 1.0 | 3.3 | 6  | NVR...-5V (LH) |
|                  |      | 8.0  | 5VIR8.0ISO...  | 5VIL8.0ISO...  | 4.62          | 1.0 | 4.3 | 8  |                |
|                  |      | 10.0 | 5VIR10.0ISO... | 5VIL10.0ISO... | 5.77          | 1.0 | 5.2 | 10 |                |

Type M+



| Taille plaquette |      | Pas | Dents | Référence       | Dimensions mm |     |     |      |              |  |
|------------------|------|-----|-------|-----------------|---------------|-----|-----|------|--------------|--|
| IC               | L mm | mm  |       | RH              | h min         | X   | Y   | RH   | Porte-outils |  |
| 3/8"             | 16   | 1.0 | 3     | 3IR1.0ISO3M+... | 0.58          | 1.7 | 2.6 | Y13M | AVR..-3      |  |
|                  |      | 1.5 | 2     | 3IR1.5ISO2M+... | 0.87          | 1.6 | 2.4 |      |              |  |
|                  |      | 2.0 | 2     | 3IR2.0ISO2M+... | 1.15          | 2.0 | 3.1 |      |              |  |
| 1/2"             | 22   | 1.5 | 3     | 4IR1.5ISO3M+... | 0.87          | 2.5 | 3.8 | Y14M | AVR..-4      |  |
|                  |      | 2.0 | 2     | 4IR2.0ISO2M+... | 1.15          | 2.0 | 3.1 |      |              |  |
|                  |      | 2.0 | 3     | 4IR2.0ISO3M+... | 1.15          | 3.2 | 5.1 |      |              |  |
| 5/8"             | 27   | 3.0 | 2     | 5IR3.0ISO2M+... | 1.73          | 3.0 | 4.7 | Y15M | AVR..-5M     |  |

Type T+

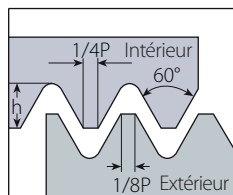


| Taille plaquette |      | Pas | Dents | Référence       |       | Dimensions mm |      | Sous-plaquette | Porte-outils |
|------------------|------|-----|-------|-----------------|-------|---------------|------|----------------|--------------|
| IC               | L mm | mm  |       | RH              | h min | X             | Y    | RH             |              |
| 1/2"             | 22   | 1.5 | 8     | 4IR1.5ISO8T+... | 0.87  | 0.2           | 12.4 | Y4T            | AVR...-4T    |
|                  |      | 2.0 | 8     | 4IR2.0ISO8T+... | 1.15  | 0.2           | 17.5 |                |              |

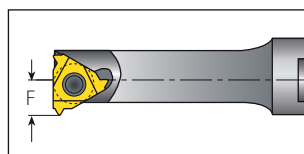
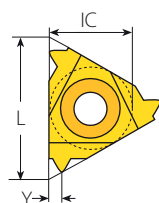
# Métrique ISO (Suite)



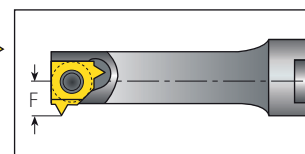
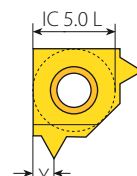
## Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Mini-3



Mini-L

## Mini-3



| Taille plaquette |      | Pas  | Référence        | Dimensions mm |      |     | Diam. mini de perçage | Porte-outils |
|------------------|------|------|------------------|---------------|------|-----|-----------------------|--------------|
| IC               | L mm | mm   | RH               | h min         | Y    | F   | mm                    |              |
| 4.0              | 6    | 0.25 | 4.0KIR0.25ISO... | 0.15          | 0.25 | 3.3 | 5.95                  | .NVR.5-4.0K  |
|                  |      | 0.5  | 4.0KIR0.5ISO...  | 0.29          | 0.5  | 3.4 | 6.05                  |              |
|                  |      | 0.75 | 4.0KIR0.75ISO... | 0.43          | 0.5  | 3.5 | 6.15                  |              |
|                  |      | 1.0  | 4.0KIR1.0ISO...  | 0.58          | 0.7  | 3.6 | 6.25                  |              |
|                  |      | 1.25 | 4.0KIR1.25ISO... | 0.72          | 0.6  | 3.7 | 6.35                  |              |
| 6.0              | 10   | 0.5  | 6.0IR0.5ISO...   | 0.29          | 0.6  | 4.4 | 9.3                   | .NVR1..-6.0  |
|                  |      | 0.75 | 6.0IR0.75ISO...  | 0.43          | 0.6  | 4.6 | 9.5                   |              |
|                  |      | 1.0  | 6.0IR1.0ISO...   | 0.58          | 0.7  | 4.7 | 9.6                   |              |
|                  |      | 1.25 | 6.0IR1.25ISO...  | 0.72          | 0.9  | 4.9 | 9.8                   |              |
|                  |      | 1.5  | 6.0IR1.5ISO...   | 0.87          | 1.0  | 5.0 | 9.9                   |              |
|                  |      | 1.75 | 6.0IR1.75ISO...  | 1.01          | 1.05 | 5.2 | 10.0                  |              |
|                  |      | 2.0  | 6.0IR2.0ISO...   | 1.15          | 1.05 | 5.3 | 10.0                  |              |

## Mini-L

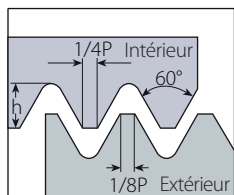


| Taille plaquette |  | Pas  | Référence      | Dimensions mm |      |      | Diam. mini de perçage | Porte-outils |
|------------------|--|------|----------------|---------------|------|------|-----------------------|--------------|
| IC mm            |  | mm   | RH             | h min         | Y    | F    | mm                    |              |
| 5.0L             |  | 0.35 | 5LIR0.35ISO... | 0.20          | 0.3  | 3.75 | 7.3                   | .NVR10.-5L   |
|                  |  | 0.5  | 5LIR0.5ISO...  | 0.29          | 0.4  | 3.75 | 7.3                   |              |
|                  |  | 0.75 | 5LIR0.75ISO... | 0.43          | 0.6  | 3.91 | 7.5                   |              |
|                  |  | 1.0  | 5LIR1.0ISO...  | 0.58          | 0.7  | 4.06 | 7.7                   |              |
|                  |  | 1.25 | 5LIR1.25ISO... | 0.72          | 0.9  | 4.21 | 7.8                   |              |
|                  |  | 1.5  | 5LIR1.5ISO...  | 0.87          | 1.0  | 4.35 | 7.9                   |              |
|                  |  | 1.75 | 5LIR1.75ISO... | 1.01          | 1.05 | 4.51 | 8.0                   |              |
|                  |  | 2.0  | 5LIR2.0ISO...  | 1.15          | 1.05 | 4.65 | 8.0                   |              |

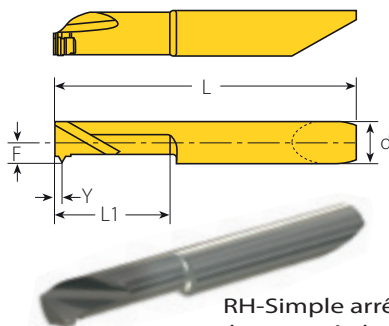
## Métrique ISO (Suite)



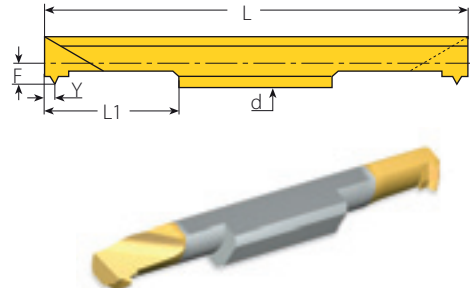
### Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



RH-Simple arrête  
de coupe à droite



RH-Double arrête  
de coupe à droite

### Micro - double arrête de coupe

| Filet       | Diam. plaquette<br>d mm | Pas<br>mm | Référence<br>RH/LH | L1 | L  | F    | Y    | h min | Diam. mini de perçage<br>mm | Porte-outils |
|-------------|-------------------------|-----------|--------------------|----|----|------|------|-------|-----------------------------|--------------|
| M4 x 0.3    | 3.0                     | 0.3       | 3.0SIR0.3ISO...    | 16 | 50 | 1.31 | 0.20 | 0.17  | 3.2                         | SMC...-3.0   |
| M4 x 0.4    |                         | 0.4       | 3.0SIR0.4ISO...    | 16 | 50 | 1.31 | 0.35 | 0.22  | 3.2                         |              |
| M4 x 0.5    |                         | 0.5       | 3.0SIR0.5ISO...    | 16 | 50 | 1.31 | 0.40 | 0.29  | 3.2                         |              |
| M4 x 0.6    |                         | 0.6       | 3.0SIR0.6ISO...    | 16 | 50 | 1.34 | 0.60 | 0.35  | 3.2                         |              |
| M4.5 x 0.7  |                         | 0.7       | 3.0SIR0.7ISO...    | 16 | 50 | 1.43 | 0.60 | 0.40  | 3.3                         |              |
| M4.5 x 0.75 |                         | 0.75      | 3.0SIR0.75ISO...   | 16 | 50 | 1.45 | 0.60 | 0.43  | 3.3                         |              |
| M5 x 0.8    | 4.0                     | 0.8       | 3.0SIR0.8ISO...    | 16 | 50 | 1.46 | 0.60 | 0.46  | 3.3                         | SMC...-4.0   |
| M5 x 0.4    |                         | 0.4       | 4.0SIR0.4ISO...    | 16 | 50 | 1.65 | 0.35 | 0.22  | 4.0                         |              |
| M5 x 0.5    |                         | 0.5       | 4.0SIR0.5ISO...    | 16 | 50 | 1.65 | 0.40 | 0.29  | 4.0                         |              |
| M5 x 0.6    |                         | 0.6       | 4.0SIR0.6ISO...    | 16 | 50 | 1.68 | 0.60 | 0.35  | 4.0                         |              |
| M5 x 0.7    |                         | 0.7       | 4.0SIR0.7ISO...    | 16 | 50 | 1.77 | 0.60 | 0.40  | 4.1                         |              |
| M5.5 x 0.75 |                         | 0.75      | 4.0SIR0.75ISO...   | 16 | 50 | 1.81 | 0.60 | 0.43  | 4.2                         |              |
| M5.5 x 0.8  | 6.0                     | 0.8       | 4.0SIR0.8ISO...    | 16 | 50 | 1.80 | 0.60 | 0.46  | 4.2                         | SMC...-6.0   |
| M6 x 1      |                         | 1.0       | 4.0SIR1.0ISO...    | 16 | 50 | 1.96 | 0.90 | 0.58  | 4.3                         |              |
| M6 x 0.5    |                         | 0.5       | 6.0SIR0.5ISO...    | 16 | 50 | 1.90 | 0.60 | 0.29  | 5.4                         |              |
| M6.5 x 0.75 |                         | 0.75      | 6.0SIR0.75ISO...   | 16 | 50 | 2.06 | 0.60 | 0.43  | 5.6                         |              |
| M7 x 1      |                         | 1.0       | 6.0SIR1.0ISO...    | 16 | 50 | 2.21 | 0.70 | 0.58  | 5.7                         |              |
| M8 x 1.25   |                         | 1.25      | 6.0SIR1.25ISO...   | 16 | 50 | 2.36 | 0.90 | 0.72  | 5.9                         |              |
| M10.5 x 1.5 |                         | 1.5       | 6.0SIR1.5ISO...    | 16 | 50 | 2.50 | 1.00 | 0.87  | 6.0                         |              |

Outil à gauche fourni à la demande. (Exemple: 3.0SIRL0.3ISO...)

### Micro-simple arrête de coupe

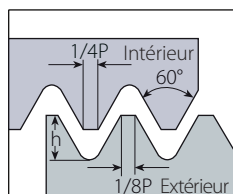
microscope

| Filet     | Diam. plaquette<br>d mm | Pas<br>mm | Référence<br>RH/LH    | L1 | L  | F   | Y   | h min | Diam. mini de perçage<br>mm | Porte-outils |
|-----------|-------------------------|-----------|-----------------------|----|----|-----|-----|-------|-----------------------------|--------------|
| M4x0.5    | 4.0                     | 0.5       | M429TH 0.50ISO L16R/L | 16 | 33 | 0.9 | 0.4 | 0.29  | 3.4                         | MHC...-4     |
| M5x0.5    |                         | 0.5       | M439TH 0.50ISO L16R/L | 16 | 33 | 1.9 | 0.4 | 0.29  | 4.4                         |              |
| M4x0.7    |                         | 0.7       | M429TH 0.70ISO L16R/L | 16 | 33 | 0.9 | 0.5 | 0.41  | 3.2                         |              |
| M5x0.8    |                         | 0.8       | M429TH 0.80ISO L16R/L | 16 | 33 | 0.9 | 0.6 | 0.46  | 4.0                         |              |
| M6x1      | 5.0                     | 1.0       | M439TH 1.00ISO L16R/L | 16 | 33 | 1.9 | 0.7 | 0.58  | 4.8                         | MHC...-5     |
| M5.5x0.5  |                         | 0.5       | M542TH 0.50ISO L16R/L | 16 | 41 | 1.7 | 0.4 | 0.29  | 4.9                         |              |
| M5.5x0.75 |                         | 0.75      | M542TH 0.75ISO L16R/L | 16 | 41 | 1.7 | 0.6 | 0.43  | 4.6                         |              |
| M7x1      |                         | 1.0       | M549TH 1.00ISO L16R/L | 16 | 41 | 2.4 | 0.7 | 0.58  | 5.8                         |              |
| M6x0.5    | 6.0                     | 0.5       | M649TH 0.50ISO L16R/L | 16 | 42 | 1.9 | 0.4 | 0.29  | 5.4                         | MHC...-6     |
| M6.5x0.75 |                         | 0.75      | M649TH 0.75ISO L16R/L | 16 | 42 | 1.9 | 0.6 | 0.43  | 5.6                         |              |
| M7.5x1    |                         | 1.0       | M659TH 1.00ISO L16R/L | 16 | 42 | 2.9 | 0.7 | 0.58  | 6.3                         |              |
| M8x1.25   |                         | 1.25      | M659TH 1.25ISO L16R/L | 16 | 42 | 2.9 | 0.9 | 0.72  | 6.5                         |              |
| M10x1.5   |                         | 1.5       | M659TH 1.50ISO L16R/L | 16 | 42 | 2.9 | 1.0 | 0.87  | 8.3                         |              |

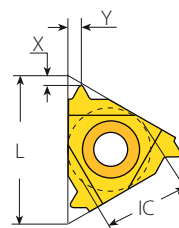
Outil à gauche fourni à la demande. (Exemple: M429TH 0.50ISO L16L)

# American UN - UNC, UNF, UNEF, UNS

## Extérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Standard

## Standard

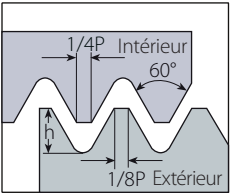
| Taille plaquette |      | Pas  | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|------|--------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi  | RH           | LH           | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 72   | 2ER72UN...   | 2EL72UN...   | 0.22          | 0.8 | 0.4 | -              | -   | NL ..-2 (LH) |
|                  |      | 64   | 2ER64UN...   | 2EL64UN...   | 0.24          | 0.8 | 0.4 |                |     |              |
|                  |      | 56   | 2ER56UN...   | 2EL56UN...   | 0.28          | 0.7 | 0.4 |                |     |              |
|                  |      | 48   | 2ER48UN...   | 2EL48UN...   | 0.32          | 0.6 | 0.6 |                |     |              |
|                  |      | 44   | 2ER44UN...   | 2EL44UN...   | 0.35          | 0.6 | 0.6 |                |     |              |
|                  |      | 40   | 2ER40UN...   | 2EL40UN...   | 0.39          | 0.6 | 0.6 |                |     |              |
|                  |      | 36   | 2ER36UN...   | 2EL36UN...   | 0.43          | 0.6 | 0.6 |                |     |              |
|                  |      | 32   | 2ER32UN...   | 2EL32UN...   | 0.49          | 0.6 | 0.6 |                |     |              |
|                  |      | 28   | 2ER28UN...   | 2EL28UN...   | 0.56          | 0.6 | 0.7 |                |     |              |
|                  |      | 27   | 2ER27UN...   | 2EL27UN...   | 0.58          | 0.7 | 0.8 |                |     |              |
|                  |      | 24   | 2ER24UN...   | 2EL24UN...   | 0.65          | 0.7 | 0.8 |                |     |              |
|                  |      | 20   | 2ER20UN...   | 2EL20UN...   | 0.78          | 0.8 | 0.9 |                |     |              |
|                  |      | 18   | 2ER18UN...   | 2EL18UN...   | 0.87          | 0.8 | 1.0 |                |     |              |
|                  |      | 16   | 2ER16UN...   | 2EL16UN...   | 0.97          | 0.9 | 1.1 |                |     |              |
|                  |      | 14   | 2ER14UN...   | 2EL14UN...   | 1.11          | 0.9 | 1.1 |                |     |              |
| 3/8"             | 16   | 80   | 3ER80UN...   | 3EL80UN...   | 0.18          | 0.8 | 0.3 | YE3            | YI3 | AL..-3 (LH)  |
|                  |      | 72   | 3ER72UN...   | 3EL72UN...   | 0.22          | 0.8 | 0.4 |                |     |              |
|                  |      | 64   | 3ER64UN...   | 3EL64UN...   | 0.24          | 0.8 | 0.4 |                |     |              |
|                  |      | 56   | 3ER56UN...   | 3EL56UN...   | 0.28          | 0.7 | 0.4 |                |     |              |
|                  |      | 48   | 3ER48UN...   | 3EL48UN...   | 0.32          | 0.6 | 0.6 |                |     |              |
|                  |      | 44   | 3ER44UN...   | 3EL44UN...   | 0.35          | 0.6 | 0.6 |                |     |              |
|                  |      | 40   | 3ER40UN...   | 3EL40UN...   | 0.39          | 0.6 | 0.6 |                |     |              |
|                  |      | 36   | 3ER36UN...   | 3EL36UN...   | 0.43          | 0.6 | 0.6 |                |     |              |
|                  |      | 32   | 3ER32UN...   | 3EL32UN...   | 0.49          | 0.6 | 0.6 |                |     |              |
|                  |      | 28   | 3ER28UN...   | 3EL28UN...   | 0.56          | 0.6 | 0.7 |                |     |              |
|                  |      | 27   | 3ER27UN...   | 3EL27UN...   | 0.58          | 0.7 | 0.8 |                |     |              |
|                  |      | 24   | 3ER24UN...   | 3EL24UN...   | 0.65          | 0.7 | 0.8 |                |     |              |
|                  |      | 20   | 3ER20UN...   | 3EL20UN...   | 0.78          | 0.8 | 0.9 |                |     |              |
|                  |      | 18   | 3ER18UN...   | 3EL18UN...   | 0.87          | 0.8 | 1.0 |                |     |              |
|                  |      | 16   | 3ER16UN...   | 3EL16UN...   | 0.97          | 0.9 | 1.1 |                |     |              |
|                  |      | 14   | 3ER14UN...   | 3EL14UN...   | 1.11          | 1.0 | 1.2 |                |     |              |
|                  |      | 13   | 3ER13UN...   | 3EL13UN...   | 1.20          | 1.0 | 1.3 |                |     |              |
|                  |      | 12   | 3ER12UN...   | 3EL12UN...   | 1.30          | 1.1 | 1.4 |                |     |              |
|                  |      | 11.5 | 3ER11.5UN... | 3EL11.5UN... | 1.35          | 1.1 | 1.5 |                |     |              |
|                  |      | 11   | 3ER11UN...   | 3EL11UN...   | 1.42          | 1.1 | 1.5 |                |     |              |
|                  |      | 10   | 3ER10UN...   | 3EL10UN...   | 1.56          | 1.1 | 1.5 |                |     |              |
|                  |      | 9    | 3ER9UN...    | 3EL9UN...    | 1.73          | 1.2 | 1.7 |                |     |              |
|                  |      | 8    | 3ER8UN...    | 3EL8UN...    | 1.95          | 1.2 | 1.6 |                |     |              |



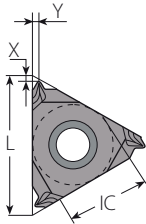
Suite à la page suivante ►

# American UN - UNC, UNF, UNEF, UNS (Suite)

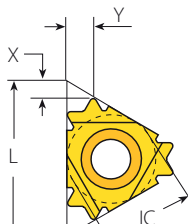
## Extérieur



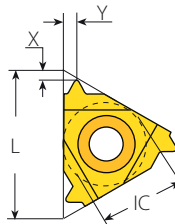
Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



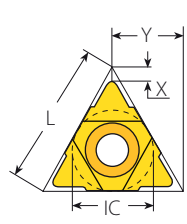
SCB  
Brise-copeaux  
brut de frittage



V6



Standard



Type U

## Standard (Suite)

| Taille plaquette                                                                              |      | Pas | Référence |               | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|-----------------------------------------------------------------------------------------------|------|-----|-----------|---------------|---------------|-----|-----|----------------|-----|--------------|
| IC                                                                                            | L mm | tpi | RH        | LH            | h min         | X   | Y   | RH             | LH  |              |
| <br>SCB     | 3/8" | 16  | 36        | 3JER36UN...   | 0.43          | 1.2 | 0.5 | YE3            | -   | AL...-3      |
|                                                                                               |      |     | 32        | 3JER32UN...   | 0.49          | 1.2 | 0.5 |                |     |              |
|                                                                                               |      |     | 28        | 3JER28UN...   | 0.56          | 0.7 | 0.8 |                |     |              |
|                                                                                               |      |     | 24        | 3JER24UN...   | 0.65          | 0.7 | 0.8 |                |     |              |
|                                                                                               |      |     | 20        | 3JER20UN...   | 0.78          | 0.7 | 0.8 |                |     |              |
|                                                                                               |      |     | 18        | 3JER18UN...   | 0.87          | 0.7 | 0.8 |                |     |              |
|                                                                                               |      |     | 16        | 3JER16UN...   | 0.97          | 0.8 | 0.8 |                |     |              |
|                                                                                               |      |     | 14        | 3JER14UN...   | 1.11          | 1.2 | 1.5 |                |     |              |
|                                                                                               |      |     | 13        | 3JER13UN...   | 1.20          | 1.2 | 1.5 |                |     |              |
|                                                                                               |      |     | 12        | 3JER12UN...   | 1.30          | 1.3 | 1.5 |                |     |              |
|                                                                                               |      |     | 10        | 3JER10UN...   | 1.56          | 1.2 | 1.5 |                |     |              |
|                                                                                               |      |     | 9         | 3JER9UN...    | 1.73          | 1.2 | 1.5 |                |     |              |
| <br>V6     | 3/8" | 16  | 32        | 3ER32UN-6C... | 0.49          | 2.0 | 1.9 | YE3-6C         | -   | AL...-3      |
|                                                                                               |      |     | 28        | 3ER28UN-6C... | 0.56          | 2.0 | 2.0 |                |     |              |
|                                                                                               |      |     | 24        | 3ER24UN-6C... | 0.65          | 1.9 | 2.0 |                |     |              |
|                                                                                               |      |     | 20        | 3ER20UN-6C... | 0.78          | 1.8 | 2.1 |                |     |              |
|                                                                                               |      |     | 18        | 3ER18UN-6C... | 0.87          | 1.9 | 2.3 |                |     |              |
|                                                                                               |      |     | 16        | 3ER16UN-6C... | 0.97          | 1.8 | 2.4 |                |     |              |
|                                                                                               |      |     | 14        | 3ER14UN-6C... | 1.11          | 1.8 | 2.7 |                |     |              |
|                                                                                               |      |     | 13        | 3ER13UN-6C... | 1.20          | 1.9 | 2.9 |                |     |              |
| <br>Type U | 1/2" | 22  | 7         | 4ER7UN...     | 2.22          | 1.6 | 2.3 | YE4            | YI4 | AL...-4 (LH) |
|                                                                                               |      |     | 6         | 4ER6UN...     | 2.60          | 1.6 | 2.3 |                |     |              |
|                                                                                               |      |     | 5         | 4ER5UN...     | 3.12          | 1.7 | 2.5 |                |     |              |
|                                                                                               | 5/8" | 27  | 4.5       | 5ER4.5UN...   | 3.46          | 1.9 | 2.7 | YE5            | YI5 | AL...-5 (LH) |
|                                                                                               |      |     | 4         | 5ER4UN...     | 3.89          | 2.1 | 3.0 |                |     |              |

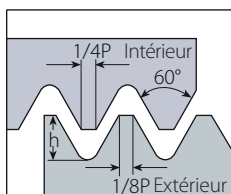
## Type U



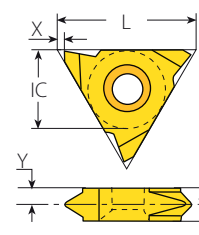
| Taille plaquette |      | Pas | Référence   |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|-------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi | RH+LH       |  | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 4.5 | 4UE4.5UN... |  | 3.46          | 2.0 | 11.0 | YE4U           | YI4U | AL...-4U (LH) |
|                  |      | 4   | 4UE4UN...   |  | 3.89          | 2.0 | 11.0 |                |      |               |
| 5/8"U            | 27   | 3   | 5UE3UN...   |  | 5.19          | 2.5 | 13.7 | YE5U           | YI5U | AL...-5U (LH) |

# American UN - UNC, UNF, UNEF, UNS (Suite)

## Extérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Type V / Slim Throat  
(Passage étroit)

## Slim Throat (Passage étroit)

| Taille plaquette |      | Pas | Référence   |             | Dimensions mm |      |      |     | Porte-outils  |
|------------------|------|-----|-------------|-------------|---------------|------|------|-----|---------------|
| IC               | L mm | tpi | RH          | LH          | h min         | X    | Y    | T   |               |
| 1/4"V            | 11   | 20  | 2VER20UN... | 2VEL20UN... | 0.78          | 0.69 | 2.3  | 3.2 | NL...-2V (LH) |
|                  |      | 18  | 2VER18UN... | 2VEL18UN... | 0.87          | 0.69 | 2.2  | 3.2 |               |
|                  |      | 16  | 2VER16UN... | 2VEL16UN... | 0.97          | 0.69 | 2.2  | 3.2 |               |
|                  |      | 14  | 2VER14UN... | 2VEL14UN... | 1.11          | 0.69 | 2.0  | 3.2 |               |
|                  |      | 12  | 2VER12UN... | 2VEL12UN... | 1.30          | 0.69 | 1.8  | 3.2 |               |
| 3/8"V            | 16   | 32  | 3VER32UN... | 3VEL32UN... | 0.48          | 1.1  | 3.0  | 3.6 | NL...-3V (LH) |
|                  |      | 28  | 3VER28UN... | 3VEL28UN... | 0.56          | 1.1  | 3.0  | 3.6 |               |
|                  |      | 24  | 3VER24UN... | 3VEL24UN... | 0.65          | 1.1  | 2.9  | 3.6 |               |
|                  |      | 20  | 3VER20UN... | 3VEL20UN... | 0.78          | 1.1  | 2.7  | 3.6 |               |
|                  |      | 18  | 3VER18UN... | 3VEL18UN... | 0.87          | 1.1  | 2.6  | 3.6 |               |
|                  |      | 16  | 3VER16UN... | 3VEL16UN... | 0.97          | 1.1  | 2.55 | 3.6 |               |
|                  |      | 14  | 3VER14UN... | 3VEL14UN... | 1.11          | 1.1  | 2.4  | 3.6 |               |
|                  |      | 12  | 3VER12UN... | 3VEL12UN... | 1.30          | 1.1  | 2.2  | 3.6 |               |
|                  |      | 10  | 3VER10UN... | 3VEL10UN... | 1.56          | 1.1  | 2.1  | 3.6 |               |
| 1/2"V            | 22   | 8   | 3VER8UN...  | 3VEL8UN...  | 1.95          | 1.1  | 2.0  | 3.6 | NL...-4V (LH) |
|                  |      | 7   | 4VER7UN...  | 4VEL7UN...  | 2.22          | 1.1  | 2.5  | 4.8 |               |



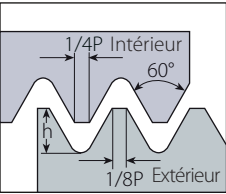
## Type V

| Taille plaquette |      | Pas | Référence  |            | Dimensions mm |     |     |   | Porte-outils    |
|------------------|------|-----|------------|------------|---------------|-----|-----|---|-----------------|
| IC               | L mm | tpi | RH         | LH         | h min         | X   | Y   | T |                 |
| 5/8"V            | 27   | 4   | 5VER4UN... | 5VEL4UN... | 3.89          | 1.0 | 3.3 | 6 | NL...-5V-6 (LH) |
|                  |      | 3   | 5VER3UN... | 5VEL3UN... | 5.19          | 1.0 | 4.3 | 8 | NL...-5V-8 (LH) |

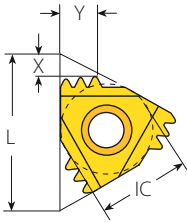


American UN - UNC, UNF, UNEF, UNS (Suite)

Extérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Type M+



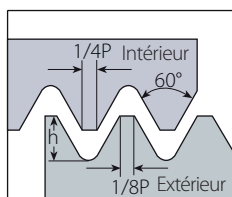
Type M+



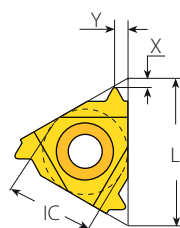
| Taille plaquette |      | Pas | Dents | Référence     | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|---------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH            | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 20  | 3     | 3ER20UN3M+... | 0.78          | 2.2 | 3.3 | YE3M           | AL..-3       |
|                  |      | 18  | 2     | 3ER18UN2M+... | 0.87          | 1.5 | 2.2 |                |              |
|                  |      | 18  | 3     | 3ER18UN3M+... | 0.87          | 2.3 | 3.6 |                |              |
|                  |      | 16  | 2     | 3ER16UN2M+... | 0.97          | 1.7 | 2.5 |                |              |
|                  |      | 14  | 2     | 3ER14UN2M+... | 1.11          | 1.9 | 2.8 |                |              |
|                  |      | 12  | 2     | 3ER12UN2M+... | 1.3           | 2.2 | 3.3 |                |              |
| 1/2"             | 22   | 16  | 3     | 4ER16UN3M+... | 0.97          | 2.6 | 4.1 | YE4M           | AL..-4       |
|                  |      | 14  | 2     | 4ER14UN2M+... | 1.11          | 1.9 | 2.8 |                |              |
|                  |      | 12  | 2     | 4ER12UN2M+... | 1.3           | 2.2 | 3.3 |                |              |
|                  |      | 12  | 3     | 4ER12UN3M+... | 1.3           | 3.4 | 5.4 |                |              |
|                  |      | 11  | 2     | 4ER11UN2M+... | 1.42          | 2.3 | 3.6 |                |              |
|                  |      | 10  | 2     | 4ER10UN2M+... | 1.56          | 2.5 | 3.9 |                |              |
| 5/8"             | 27   | 8   | 2     | 5ER8UN2M+...  | 1.95          | 3.1 | 4.9 | YE5M           | AL..-5M      |

# American UN - UNC, UNF, UNEF, UNS (Suite)

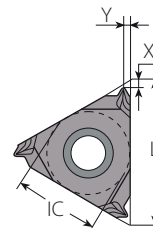
## Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Standard



SCB  
Brise-copeaux  
brut de frittage

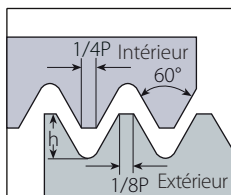
## Standard (Suite)

| Taille plaquette                                                                    |             | Pas | Référence   |            | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|-------------------------------------------------------------------------------------|-------------|-----|-------------|------------|---------------|-----|-----|----------------|-----|--------------|
| IC                                                                                  | L mm        | tpi | RH          | LH         | h min         | X   | Y   | RH             | LH  |              |
|   | 1/4"        | 72  | 2IR72UN...  | 2IL72UN... | 0.20          | 0.8 | 0.3 | -              | -   | NVR..-2 (LH) |
|                                                                                     |             | 64  | 2IR64UN...  | 2IL64UN... | 0.23          | 0.8 | 0.4 |                |     |              |
|                                                                                     |             | 56  | 2IR56UN...  | 2IL56UN... | 0.26          | 0.7 | 0.4 |                |     |              |
|                                                                                     |             | 48  | 2IR48UN...  | 2IL48UN... | 0.31          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 44  | 2IR44UN...  | 2IL44UN... | 0.33          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 40  | 2IR40UN...  | 2IL40UN... | 0.37          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 36  | 2IR36UN...  | 2IL36UN... | 0.41          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 32  | 2IR32UN...  | 2IL32UN... | 0.46          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 28  | 2IR28UN...  | 2IL28UN... | 0.52          | 0.6 | 0.7 |                |     |              |
|                                                                                     |             | 27  | 2IR27UN...  | 2IL27UN... | 0.54          | 0.7 | 0.8 |                |     |              |
|                                                                                     |             | 24  | 2IR24UN...  | 2IL24UN... | 0.61          | 0.7 | 0.8 |                |     |              |
|                                                                                     |             | 20  | 2IR20UN...  | 2IL20UN... | 0.73          | 0.8 | 0.9 |                |     |              |
|                                                                                     |             | 18  | 2IR18UN...  | 2IL18UN... | 0.81          | 0.8 | 1.0 |                |     |              |
|                                                                                     |             | 16  | 2IR16UN...  | 2IL16UN... | 0.92          | 0.9 | 1.1 |                |     |              |
|                                                                                     |             | 14  | 2IR14UN...  | 2IL14UN... | 1.05          | 0.9 | 1.1 |                |     |              |
|  | 1/4"<br>SCB | 12  | 2IR12UN...  | 2IL12UN... | 1.22          | 0.8 | 1.1 |                |     |              |
|                                                                                     |             | 11  | 2IR11UN...  | 2IL11UN... | 1.33          | 0.8 | 1.1 |                |     |              |
|                                                                                     |             | 36  | 2JIR36UN... |            | 0.41          | 1.1 | 0.5 | -              | -   | NVR..-2      |
|                                                                                     |             | 32  | 2JIR32UN... |            | 0.46          | 1.2 | 0.5 |                |     |              |
|                                                                                     |             | 28  | 2JIR28UN... |            | 0.52          | 0.6 | 0.8 |                |     |              |
|                                                                                     |             | 24  | 2JIR24UN... |            | 0.61          | 0.7 | 0.8 |                |     |              |
|                                                                                     |             | 20  | 2JIR20UN... |            | 0.73          | 0.6 | 0.8 |                |     |              |
|                                                                                     |             | 18  | 2JIR18UN... |            | 0.81          | 0.6 | 0.8 |                |     |              |
|  | 3/8"        | 16  | 2JIR16UN... |            | 0.97          | 0.7 | 0.8 |                |     |              |
|                                                                                     |             | 72  | 3IR72UN...  | 3IL72UN... | 0.20          | 0.8 | 0.3 | Y13            | YE3 | AVR..-3 (LH) |
|                                                                                     |             | 64  | 3IR64UN...  | 3IL64UN... | 0.23          | 0.8 | 0.4 |                |     |              |
|                                                                                     |             | 56  | 3IR56UN...  | 3IL56UN... | 0.26          | 0.7 | 0.4 |                |     |              |
|                                                                                     |             | 48  | 3IR48UN...  | 3IL48UN... | 0.31          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 44  | 3IR44UN...  | 3IL44UN... | 0.33          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 40  | 3IR40UN...  | 3IL40UN... | 0.37          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 36  | 3IR36UN...  | 3IL36UN... | 0.41          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 32  | 3IR32UN...  | 3IL32UN... | 0.51          | 0.6 | 0.6 |                |     |              |
|                                                                                     |             | 28  | 3IR28UN...  | 3IL28UN... | 0.52          | 0.6 | 0.7 |                |     |              |
|                                                                                     |             | 27  | 3IR27UN...  | 3IL27UN... | 0.54          | 0.7 | 0.8 |                |     |              |

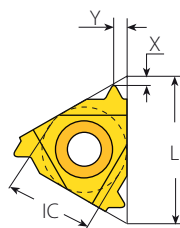
Suite à la page suivante ►

# American UN - UNC, UNF, UNEF, UNS (Suite)

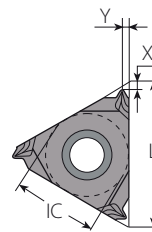
## Intérieur



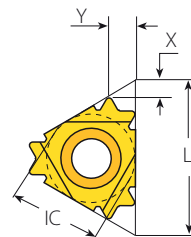
Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Standard



SCB  
Brise-copeaux  
brut de frittage



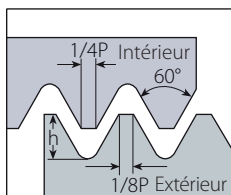
V6

## Standard (Suite)

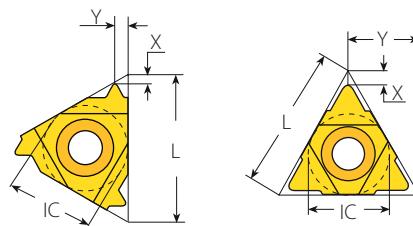
| Taille plaquette |           | Pas       | Référence     |              | Dimensions mm |     |     | Sous-plaquette |     |                               |
|------------------|-----------|-----------|---------------|--------------|---------------|-----|-----|----------------|-----|-------------------------------|
| IC               | L mm      | tpi       | RH            | LH           | h min         | X   | Y   | RH             | LH  | Porte-outils                  |
| 3/8"             | 16        | 24        | 3IR24UN...    | 3IL24UN...   | 0.61          | 0.7 | 0.8 | YI3            | YE3 | AVR...-3 (LH)                 |
|                  |           | 20        | 3IR20UN...    | 3IL20UN...   | 0.73          | 0.8 | 0.9 |                |     |                               |
|                  |           | 18        | 3IR18UN...    | 3IL18UN...   | 0.81          | 0.8 | 1.0 |                |     |                               |
|                  |           | 16        | 3IR16UN...    | 3IL16UN...   | 0.92          | 0.9 | 1.1 |                |     |                               |
|                  |           | 14        | 3IR14UN...    | 3IL14UN...   | 1.05          | 0.9 | 1.2 |                |     |                               |
|                  |           | 13        | 3IR13UN...    | 3IL13UN...   | 1.13          | 1.0 | 1.3 |                |     |                               |
|                  |           | 12        | 3IR12UN...    | 3IL12UN...   | 1.22          | 1.1 | 1.4 |                |     |                               |
|                  |           | 11.5      | 3IR11.5UN...  | 3IL11.5UN... | 1.28          | 1.1 | 1.5 |                |     |                               |
|                  |           | 11        | 3IR11UN...    | 3IL11UN...   | 1.33          | 1.1 | 1.5 |                |     |                               |
|                  |           | 10        | 3IR10UN...    | 3IL10UN...   | 1.47          | 1.1 | 1.5 |                |     |                               |
|                  |           | 9         | 3IR9UN...     | 3IL9UN...    | 1.63          | 1.2 | 1.7 |                |     |                               |
| 8                | 3IR8UN... | 3IL8UN... | 1.83          | 1.1          | 1.5           |     |     |                |     |                               |
| 3/8"<br>SCB      | 16        | 28        | 3JIR28UN...   |              | 0.52          | 0.6 | 0.8 | YI3            | -   | AVR...-3                      |
|                  |           | 24        | 3JIR24UN...   |              | 0.61          | 0.7 | 0.8 |                |     |                               |
|                  |           | 20        | 3JIR20UN...   |              | 0.73          | 0.6 | 0.8 |                |     |                               |
|                  |           | 18        | 3JIR18UN...   |              | 0.81          | 0.6 | 0.8 |                |     |                               |
|                  |           | 16        | 3JIR16UN...   |              | 0.92          | 0.7 | 0.8 |                |     |                               |
|                  |           | 14        | 3JIR14UN...   |              | 1.05          | 1.1 | 1.5 |                |     |                               |
|                  |           | 13        | 3JIR13UN...   |              | 1.13          | 1.1 | 1.5 |                |     |                               |
|                  |           | 12        | 3JIR12UN...   |              | 1.22          | 1.1 | 1.5 |                |     |                               |
|                  |           | 10        | 3JIR10UN...   |              | 1.47          | 1.1 | 1.5 |                |     |                               |
|                  |           | 9         | 3JIR9UN...    |              | 1.63          | 1.0 | 1.5 |                |     |                               |
|                  |           | 8         | 3JIR8UN...    |              | 1.83          | 1.1 | 1.5 |                |     |                               |
| 3/8"<br>V6       | 16        | 32        | 3IR32UN-6C... |              | 0.51          | 2.0 | 1.8 | YI3-6C         | -   | AVR...-3<br>NVRC...-3 206/... |
|                  |           | 28        | 3IR28UN-6C... |              | 0.52          | 1.9 | 1.9 |                |     |                               |
|                  |           | 24        | 3IR24UN-6C... |              | 0.61          | 1.9 | 1.9 |                |     |                               |
|                  |           | 20        | 3IR20UN-6C... |              | 0.73          | 1.8 | 2.1 |                |     |                               |
|                  |           | 18        | 3IR18UN-6C... |              | 0.81          | 1.7 | 2.1 |                |     |                               |
|                  |           | 16        | 3IR16UN-6C... |              | 0.92          | 1.6 | 2.2 |                |     |                               |
|                  |           | 14        | 3IR14UN-6C... |              | 1.05          | 1.7 | 2.5 |                |     |                               |
|                  |           | 13        | 3IR13UN-6C... |              | 1.13          | 1.8 | 2.7 |                |     |                               |
|                  |           | 12        | 3IR12UN-6C... |              | 1.22          | 1.6 | 2.5 |                |     |                               |
| 1/2"             | 22        | 7         | 4IR7UN...     | 4IL7UN...    | 2.09          | 1.6 | 2.3 | YI4            | YE4 | AVR...-4 (LH)                 |
|                  |           | 6         | 4IR6UN...     | 4IL6UN...    | 2.44          | 1.6 | 2.3 |                |     |                               |
|                  |           | 5         | 4IR5UN...     | 4IL5UN...    | 2.93          | 1.6 | 2.3 |                |     |                               |
| 5/8"             | 27        | 4.5       | 5IR4.5UN...   | 5IL4.5UN...  | 3.26          | 1.7 | 2.4 | YI5            | YE5 | AVR...-5 (LH)                 |
|                  |           | 4         | 5IR4UN...     | 5IL4UN...    | 3.67          | 1.8 | 2.7 |                |     |                               |

# Américain UNC

## Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Standard

Type U+

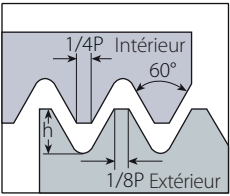
## Gros pas

| Filet       | Taille plaquette |      | Référence           | Dimensions mm |       |     |     | Diam. mini de perçage |      |
|-------------|------------------|------|---------------------|---------------|-------|-----|-----|-----------------------|------|
|             | IC               | L mm |                     | RH/LH         | h min | X   | Y   | Porte-outils          | mm   |
| 1/2 x 13UN  | 6.0              | 10   | 6.0IR13UN...158/001 |               | 1.13  | 0.8 | 0.9 | BNVR10S-6.0           | 10.6 |
| 9/16 x 12UN | 1/4"             | 11   | 2IR12UN...158/002   |               | 1.22  | 0.9 | 1.0 | NVRC10-2 156/001      | 12.0 |
| 5/8 x 11UN  | 1/4"U            |      | 2UIR11UN...158/003  |               | 1.33  | 1.2 | 5.5 | NVRC11-2U 156/002     | 13.4 |
| 3/4 x 10UN  | 3/8"             | 16   | 3IR10UN...          |               | 1.47  | 1.1 | 1.5 | NVRC13-3 156/016      | 16.3 |
| 7/8 x 9UN   |                  |      | 3IR9UN...           |               | 1.63  | 1.2 | 1.7 | NVRC13-3 156/016      | 19.2 |
| 1 x 8UN     |                  |      | 3IR8UN...           |               | 1.83  | 1.1 | 1.5 | NVRC16-3              | 22.0 |
| 1 1/8 x 7UN | 1/2"             | 22   | 4IR7UN...           |               | 2.09  | 1.6 | 2.3 | NVRC20-4              | 24.6 |
| 1 1/4 x 7UN |                  |      | 4IR7UN...           |               | 2.09  | 1.6 | 2.3 | NVRC20-4              | 27.8 |
| 1 3/8 x 6UN |                  |      | 4IR6UN...           |               | 2.44  | 1.6 | 2.3 | NVRC20-4              | 30.3 |

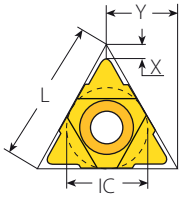
Les plaquettes de type U peuvent être utilisées pour les applications droites et gauches

Américain UN - UNC, UNF, UNEF, UNS (Suite)

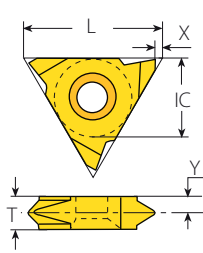
Intérieur



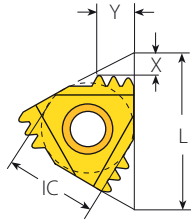
Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Type U



Type V



Type M+

Type U

| Taille plaquette |      | Pas | Référence   | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils   |
|------------------|------|-----|-------------|---------------|-----|------|----------------|------|----------------|
| IC               | L mm | tpi | RH+LH       | h min         | X   | Y    | RH             | LH   |                |
| 1/2"U            | 22   | 4.5 | 4UI4.5UN... | 3.26          | 2.4 | 11.0 | YI4U           | YE4U | AVR...-4U (LH) |
|                  |      | 4   | 4UI4UN...   | 3.67          | 2.4 | 11.0 |                |      |                |
| 5/8"U            | 27   | 3   | 5UI3UN...   | 4.89          | 2.7 | 13.7 | YI5U           | YE5U | AVR...-5U (LH) |

Type V



| Taille plaquette |      | Pas | Référence  |            | Dimensions mm |     |     |   | Porte-outils   |
|------------------|------|-----|------------|------------|---------------|-----|-----|---|----------------|
| IC               | L mm | tpi | RH         | LH         | h min         | X   | Y   | T |                |
| 5/8"V            | 27   | 4   | 5VIR4UN... | 5VIL4UN... | 3.67          | 1.0 | 3.3 | 6 | NVR...-5V (LH) |
|                  |      | 3   | 5VIR3UN... | 5VIL3UN... | 4.89          | 1.0 | 4.3 | 8 |                |

Type M+

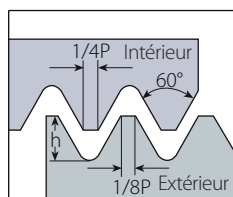


| Taille plaquette |      | Pas | Dents | Référence     | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|---------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH            | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 12  | 2     | 3IR12UN2M+... | 1.22          | 2.2 | 3.3 | YI3M           | AVR...-3     |
|                  |      | 14  | 2     | 3IR14UN2M+... | 1.05          | 1.9 | 2.8 |                |              |
|                  |      | 16  | 2     | 3IR16UN2M+... | 0.92          | 1.7 | 2.5 |                |              |
| 1/2"             | 22   | 16  | 3     | 4IR16UN3M+... | 0.92          | 2.6 | 4.1 | YI4M           | AVR...-4     |
|                  |      | 14  | 2     | 4IR14UN2M+... | 1.05          | 1.9 | 2.8 |                |              |
|                  |      | 12  | 2     | 4IR12UN2M+... | 1.22          | 2.2 | 3.3 |                |              |
|                  |      | 12  | 3     | 4IR12UN3M+... | 1.22          | 3.4 | 5.4 |                |              |
| 5/8"             | 27   | 8   | 2     | 5IR8UN2M+...  | 1.83          | 3.1 | 4.9 | YI5M           | AVR...-5M    |

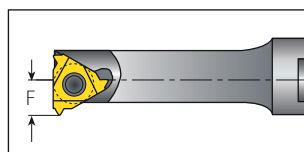
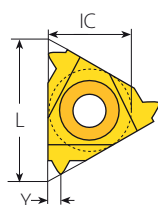
# Américain UN - UNC, UNF, UNEF, UNS (Suite)



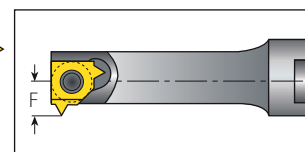
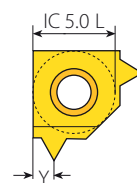
## Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



Mini-3



Mini-L

## Mini-3



| Taille plaquette |      | Pas | Référence     | Dimensions mm |      |      | Diam. mini de perçage |              |
|------------------|------|-----|---------------|---------------|------|------|-----------------------|--------------|
| IC               | L mm | tpi | RH            | h min         | Y    | F    | mm                    | Porte-outils |
| 4.0              | 6    | 32  | 4.0KIR32UN... | 0.46          | 0.5  | 3.50 | 6.15                  | .NVR.5-4.0K  |
|                  |      | 28  | 4.0KIR28UN... | 0.52          | 0.6  | 3.50 | 6.15                  |              |
|                  |      | 24  | 4.0KIR24UN... | 0.61          | 0.6  | 3.60 | 6.25                  |              |
|                  |      | 20  | 4.0KIR20UN... | 0.73          | 0.6  | 3.70 | 6.35                  |              |
|                  |      | 18  | 4.0KIR18UN... | 0.81          | 0.7  | 3.70 | 6.35                  |              |
| 6.0              | 10   | 40  | 6.0IR40UN...  | 0.37          | 0.6  | 4.50 | 9.5                   | .NVR1..-6.0  |
|                  |      | 32  | 6.0IR32UN...  | 0.46          | 0.6  | 4.60 | 9.5                   |              |
|                  |      | 28  | 6.0IR28UN...  | 0.52          | 0.65 | 4.70 | 9.6                   |              |
|                  |      | 24  | 6.0IR24UN...  | 0.61          | 0.75 | 4.80 | 9.7                   |              |
|                  |      | 20  | 6.0IR20UN...  | 0.73          | 0.9  | 4.90 | 9.8                   |              |
|                  |      | 18  | 6.0IR18UN...  | 0.81          | 1.0  | 5.00 | 9.9                   |              |
|                  |      | 16  | 6.0IR16UN...  | 0.92          | 1.05 | 5.10 | 10.0                  |              |
|                  |      | 14  | 6.0IR14UN...  | 1.05          | 1.05 | 5.20 | 10.0                  |              |

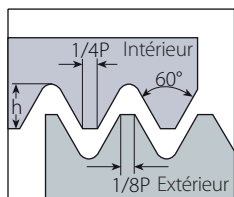
## Mini-L

| Taille plaquette | Pas | Référence   | Dimensions mm |      |      | Diam. mini de perçage |              |
|------------------|-----|-------------|---------------|------|------|-----------------------|--------------|
| IC mm            | tpi | RH          | h min         | Y    | F    | mm                    | Porte-outils |
| 5.0L             | 32  | 5LIR32UN... | 0.46          | 0.6  | 3.92 | 7.5                   | .NVR10.-5L   |
|                  | 28  | 5LIR28UN... | 0.52          | 0.65 | 3.99 | 7.6                   |              |
|                  | 24  | 5LIR24UN... | 0.61          | 0.75 | 4.09 | 7.7                   |              |
|                  | 20  | 5LIR20UN... | 0.73          | 0.9  | 4.21 | 7.8                   |              |
|                  | 18  | 5LIR18UN... | 0.81          | 1.0  | 4.30 | 7.9                   |              |
|                  | 16  | 5LIR16UN... | 0.92          | 1.05 | 4.41 | 8.0                   |              |
|                  | 14  | 5LIR14UN... | 1.05          | 1.05 | 4.54 | 8.0                   |              |

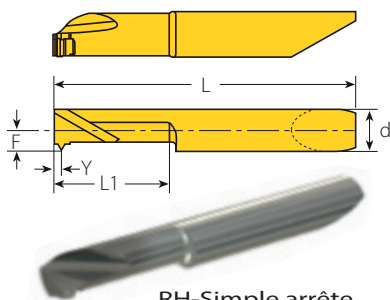
## Américain UN - UNC, UNF, UNEF, UNS (Suite)



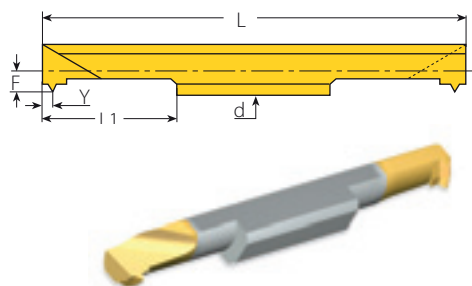
### Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



RH-Simple arrête  
de coupe à droite



RH-Double arrête  
de coupe à droite

### Micro - double arrête de coupe

| Filet       | Diam. plaque<br>d mm | Pas<br>mm | Référence<br>RH/LH | Dimensions mm |    |      |      |      | Diam. mini de perçage<br>mm | Porte-outils |
|-------------|----------------------|-----------|--------------------|---------------|----|------|------|------|-----------------------------|--------------|
| 10-40UNS    | 3.0                  | 40        | 3.0SIR40UN...      | 16            | 50 | 1.35 | 0.60 | 0.37 | 3.2                         | SMC...-3.0   |
| 8-36UNF     |                      | 36        | 3.0SIR36UN...      | 16            | 50 | 1.46 | 0.60 | 0.41 | 3.2                         |              |
| 8-32UNF     |                      | 32        | 3.0SIR32UN...      | 16            | 50 | 1.40 | 0.60 | 0.46 | 3.3                         |              |
| 10-40UNS    | 4.0                  | 40        | 4.0SIR40UN...      | 16            | 50 | 1.65 | 0.60 | 0.37 | 4.0                         | SMC...-4.0   |
| 10-36UNS    |                      | 36        | 4.0SIR36UN...      | 16            | 50 | 1.70 | 0.60 | 0.41 | 4.1                         |              |
| 12-32UNEF   |                      | 32        | 4.0SIR32UN...      | 16            | 50 | 1.76 | 0.60 | 0.46 | 4.1                         |              |
| 12-28UNF    |                      | 28        | 4.0SIR28UN...      | 16            | 50 | 1.83 | 0.65 | 0.52 | 4.2                         |              |
| 1/4"-27UNS  |                      | 27        | 4.0SIR27UN...      | 16            | 50 | 1.85 | 0.75 | 0.54 | 4.2                         |              |
| 12-24UNC    | 6.0                  | 24        | 4.0SIR24UN...      | 16            | 50 | 1.93 | 0.75 | 0.61 | 4.3                         | SMC...-6.0   |
| 1/4"-20UNC  |                      | 20        | 4.0SIR20UN...      | 16            | 50 | 2.03 | 0.76 | 0.73 | 4.3                         |              |
| 1/4"-32UNEF |                      | 32        | 6.0SIR32UN...      | 16            | 50 | 2.01 | 0.60 | 0.46 | 5.5                         |              |
| 5/16"-28UN  |                      | 28        | 6.0SIR28UN...      | 16            | 50 | 2.08 | 0.65 | 0.52 | 5.6                         |              |
| 5/16"-27UNS |                      | 27        | 6.0SIR27UN...      | 16            | 50 | 2.10 | 0.75 | 0.54 | 5.6                         |              |
| 5/16"-24UNF |                      | 24        | 6.0SIR24UN...      | 16            | 50 | 2.18 | 0.75 | 0.61 | 5.7                         |              |
| 5/16"-20UN  |                      | 20        | 6.0SIR20UN...      | 16            | 50 | 2.30 | 0.90 | 0.73 | 5.8                         |              |
| 5/16"-18UNC | 6.0                  | 18        | 6.0SIR18UN...      | 16            | 50 | 2.39 | 1.00 | 0.81 | 5.9                         |              |
| 3/8"-16UNC  |                      | 16        | 6.0SIR16UN...      | 16            | 50 | 2.50 | 1.05 | 0.92 | 6.0                         |              |

Outil à gauche fourni à la demande. (Exemple: 6.0SIR16UN...)

### Micro-simple arrête de coupe

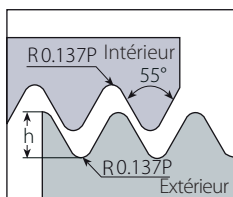
microscope

| Filet       | Diam. plaque<br>d mm | Pas<br>mm | Référence<br>RH/LH | Dimensions mm |    |     |      |      | Diam. mini de perçage<br>mm | Porte-outils |
|-------------|----------------------|-----------|--------------------|---------------|----|-----|------|------|-----------------------------|--------------|
| 8-32UNC     | 4.0                  | 32        | M429TH 32UN L16R/L | 16            | 33 | 0.9 | 0.6  | 0.46 | 3.3                         | MHC...-4     |
| 10-28UNS    |                      | 28        | M429TH 28UN L16R/L | 16            | 33 | 0.9 | 0.65 | 0.52 | 3.6                         |              |
| 1/4"-27UNS  | 5.0                  | 27        | M549TH 27UN L16R/L | 16            | 41 | 2.4 | 0.75 | 0.54 | 5.3                         | MHC...-5     |
| 1/4"-24UNS  |                      | 24        | M542TH 24UN L16R/L | 16            | 41 | 1.7 | 0.75 | 0.61 | 5.1                         |              |
| 1/4"-20UNC  | 6.0                  | 20        | M542TH 20UN L16R/L | 16            | 41 | 1.7 | 0.9  | 0.73 | 4.6                         | MHC...-6     |
| 5/16"-18UNC |                      | 18        | M659TH 18UN L16R/L | 16            | 42 | 2.9 | 1.05 | 0.81 | 6.3                         |              |
| 3/8"-16UNC  |                      | 16        | M659TH 16UN L16R/L | 16            | 42 | 2.9 | 1.0  | 0.92 | 7.7                         |              |

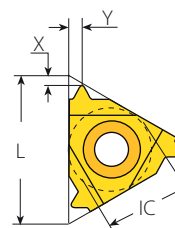
Outil à gauche fourni à la demande. (Exemple: M429TH 32UN L16L)

# Whitworth - BSW, BSP, BSF, BSB

## Extérieur



Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



Standard

## Standard

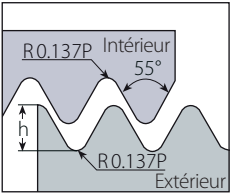
| Taille plaquette |      | Pas | Référence |           | Dimensions mm |     |     | Sous-plaquette |     |              |
|------------------|------|-----|-----------|-----------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH        | LH        | h min         | X   | Y   | RH             | LH  | Porte-outils |
| 1/4"             | 11   | 72  | 2ER72W... | 2EL72W... | 0.23          | 0.7 | 0.4 | -              | -   | NL...-2 (LH) |
|                  |      | 60  | 2ER60W... | 2EL60W... | 0.27          | 0.7 | 0.4 |                |     |              |
|                  |      | 56  | 2ER56W... | 2EL56W... | 0.29          | 0.7 | 0.4 |                |     |              |
|                  |      | 48  | 2ER48W... | 2EL48W... | 0.34          | 0.6 | 0.6 |                |     |              |
|                  |      | 40  | 2ER40W... | 2EL40W... | 0.41          | 0.6 | 0.6 |                |     |              |
|                  |      | 36  | 2ER36W... | 2EL36W... | 0.45          | 0.6 | 0.6 |                |     |              |
|                  |      | 32  | 2ER32W... | 2EL32W... | 0.51          | 0.6 | 0.6 |                |     |              |
|                  |      | 28  | 2ER28W... | 2EL28W... | 0.58          | 0.6 | 0.7 |                |     |              |
|                  |      | 26  | 2ER26W... | 2EL26W... | 0.63          | 0.7 | 0.8 |                |     |              |
|                  |      | 24  | 2ER24W... | 2EL24W... | 0.68          | 0.7 | 0.8 |                |     |              |
|                  |      | 22  | 2ER22W... | 2EL22W... | 0.74          | 0.8 | 0.9 |                |     |              |
|                  |      | 20  | 2ER20W... | 2EL20W... | 0.81          | 0.8 | 0.9 |                |     |              |
|                  |      | 19  | 2ER19W... | 2EL19W... | 0.86          | 0.8 | 1.0 |                |     |              |
|                  |      | 18  | 2ER18W... | 2EL18W... | 0.90          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | 2ER16W... | 2EL16W... | 1.02          | 0.9 | 1.1 |                |     |              |
|                  |      | 14  | 2ER14W... | 2EL14W... | 1.16          | 1.0 | 1.2 |                |     |              |
| 3/8"             | 16   | 72  | 3ER72W... | 3EL72W... | 0.23          | 0.7 | 0.4 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 60  | 3ER60W... | 3EL60W... | 0.27          | 0.7 | 0.4 |                |     |              |
|                  |      | 56  | 3ER56W... | 3EL56W... | 0.29          | 0.7 | 0.4 |                |     |              |
|                  |      | 48  | 3ER48W... | 3EL48W... | 0.34          | 0.6 | 0.6 |                |     |              |
|                  |      | 40  | 3ER40W... | 3EL40W... | 0.41          | 0.6 | 0.6 |                |     |              |
|                  |      | 36  | 3ER36W... | 3EL36W... | 0.45          | 0.6 | 0.6 |                |     |              |
|                  |      | 32  | 3ER32W... | 3EL32W... | 0.51          | 0.6 | 0.6 |                |     |              |
|                  |      | 30  | 3ER30W... | 3EL30W... | 0.55          | 0.6 | 0.7 |                |     |              |
|                  |      | 28  | 3ER28W... | 3EL28W... | 0.58          | 0.6 | 0.7 |                |     |              |
|                  |      | 26  | 3ER26W... | 3EL26W... | 0.63          | 0.7 | 0.8 |                |     |              |
|                  |      | 24  | 3ER24W... | 3EL24W... | 0.68          | 0.7 | 0.8 |                |     |              |
|                  |      | 22  | 3ER22W... | 3EL22W... | 0.74          | 0.8 | 0.9 |                |     |              |
|                  |      | 20  | 3ER20W... | 3EL20W... | 0.81          | 0.8 | 0.9 |                |     |              |
|                  |      | 19  | 3ER19W... | 3EL19W... | 0.86          | 0.8 | 1.0 |                |     |              |
|                  |      | 18  | 3ER18W... | 3EL18W... | 0.90          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | 3ER16W... | 3EL16W... | 1.02          | 0.9 | 1.1 |                |     |              |



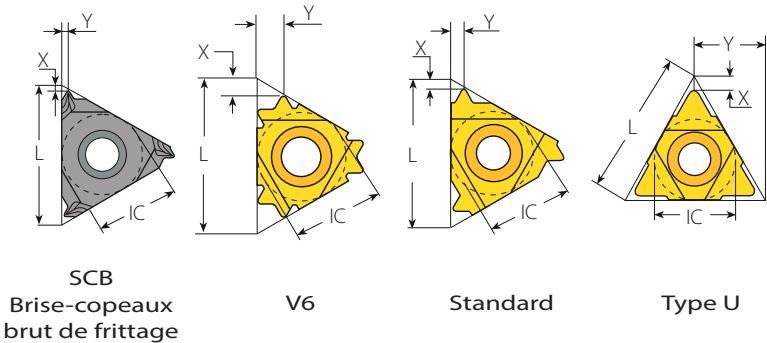
Suite à la page suivante ►

# Whitworth - BSW, BSP, BSF, BSB (Suite)

## Extérieur



Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



## Standard (Suite)



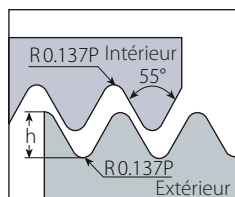
| Taille plaquette |      | Pas | Référence    |            | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|--------------|------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH           | LH         | h min         | X   | Y   | RH             | LH  |              |
| 3/8" SCB         | 16   | 36  | 3JER36W...   |            | 0.45          | 1.2 | 0.5 | YE3            | -   | AL...-3      |
|                  |      | 32  | 3JER32W...   |            | 0.51          | 1.2 | 0.5 |                |     |              |
|                  |      | 28  | 3JER28W...   |            | 0.58          | 0.7 | 0.8 |                |     |              |
|                  |      | 24  | 3JER24W...   |            | 0.68          | 0.7 | 0.8 |                |     |              |
|                  |      | 20  | 3JER20W...   |            | 0.81          | 0.7 | 0.8 |                |     |              |
|                  |      | 19  | 3JER19W...   |            | 0.86          | 0.7 | 0.8 |                |     |              |
|                  |      | 18  | 3JER18W...   |            | 0.90          | 0.8 | 0.8 |                |     |              |
|                  |      | 16  | 3JER16W...   |            | 1.02          | 0.8 | 0.8 |                |     |              |
|                  |      | 14  | 3JER14W...   |            | 1.16          | 1.3 | 1.5 |                |     |              |
|                  |      | 12  | 3JER12W...   |            | 1.36          | 1.3 | 1.5 |                |     |              |
|                  |      | 11  | 3JER11W...   |            | 1.48          | 1.3 | 1.5 |                |     |              |
|                  |      | 10  | 3JER10W...   |            | 1.63          | 1.3 | 1.5 |                |     |              |
| 3/8" V6          | 16   | 8   | 3JER8W...    |            | 2.03          | 1.3 | 1.5 | YE3-6C         | -   | AL...-3      |
|                  |      | 19  | 3ER19W-6C... |            | 0.86          | 1.8 | 2.2 |                |     |              |
|                  |      | 16  | 3ER16W-6C... |            | 1.02          | 1.6 | 2.4 |                |     |              |
|                  |      | 14  | 3ER14W-6C... |            | 1.16          | 1.8 | 2.7 |                |     |              |
| 1/2"             | 22   | 12  | 3ER12W-6C... |            | 1.36          | 1.9 | 3.0 | YE4            | YI4 | AL...-4 (LH) |
|                  |      | 7   | 4ER7W...     | 4EL7W...   | 2.41          | 1.6 | 2.3 |                |     |              |
|                  |      | 6   | 4ER6W...     | 4EL6W...   | 2.71          | 1.6 | 2.3 |                |     |              |
|                  |      | 5   | 4ER5W...     | 4EL5W...   | 3.25          | 1.7 | 2.4 |                |     |              |
| 5/8"             | 27   | 4.5 | 5ER4.5W...   | 5EL4.5W... | 3.61          | 1.8 | 2.6 | YE5            | YI5 | AL...-5 (LH) |
|                  |      | 4   | 5ER4W...     | 5EL4W...   | 4.07          | 2.0 | 2.9 |                |     |              |

## Type U

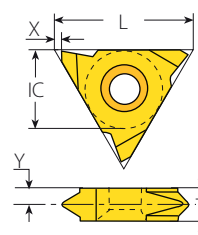
| Taille plaquette |      | Pas  | Référence    |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|------|--------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi  | RH+LH        |  | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 4.5  | 4UEI4.5W...  |  | 3.61          | 2.3 | 11.0 | YE4U           | YI4U | AL...-4U (LH) |
|                  |      | 4    | 4UEI4W...    |  | 4.07          | 1.8 | 11.0 |                |      |               |
|                  |      | 3.5  | 4UEI3.5W...  |  | 4.65          | 2.1 | 11.0 |                |      |               |
|                  |      | 3.25 | 4UEI3.25W... |  | 5.00          | 2.0 | 11.0 |                |      |               |
| 5/8"U            | 27   | 3.5  | 5UEI3.5W...  |  | 4.65          | 2.1 | 13.7 | YE5U           | YI5U | AL...-5U (LH) |
|                  |      | 3.25 | 5UEI3.25W... |  | 5.00          | 2.0 | 13.7 |                |      |               |
|                  |      | 3    | 5UEI3W...    |  | 5.42          | 2.3 | 13.7 |                |      |               |
|                  |      | 2.75 | 5UEI2.75W... |  | 5.91          | 2.4 | 13.7 |                |      |               |

# Whitworth - BSW, BSP, BSF, BSB (Suite)

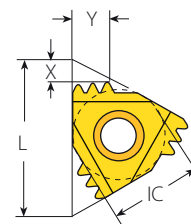
## Extérieur



Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



Type V / Slim Throat  
Passage étroit



Type M+

## Slim Throat Passage étroit



| Taille plaquette |      | Pas | Référence  |            | Dimensions mm |      |     |     | Porte-outils  |
|------------------|------|-----|------------|------------|---------------|------|-----|-----|---------------|
| IC               | L mm | tpi | RH         | LH         | h min         | X    | Y   | T   |               |
| 1/4"V            | 11   | 19  | 2VER19W... | 2VEL19W... | 0.86          | 0.69 | 2.3 | 3.2 | NL...-2V (LH) |
|                  |      | 14  | 2VER14W... | 2VEL14W... | 1.16          | 0.69 | 2.0 | 3.2 |               |
|                  |      | 11  | 2VER11W... | 2VEL11W... | 1.48          | 0.69 | 1.7 | 3.2 |               |
| 3/8"V            | 16   | 19  | 3VER19W... | 3VEL19W... | 0.86          | 1.1  | 2.7 | 3.6 | NL...-3V (LH) |
|                  |      | 18  | 3VER18W... | 3VEL18W... | 0.90          | 1.1  | 2.6 | 3.6 |               |
|                  |      | 16  | 3VER16W... | 3VEL16W... | 1.02          | 1.1  | 2.6 | 3.6 |               |
|                  |      | 14  | 3VER14W... | 3VEL14W... | 1.16          | 1.1  | 2.4 | 3.6 |               |
|                  |      | 12  | 3VER12W... | 3VEL12W... | 1.36          | 1.1  | 2.2 | 3.6 |               |
|                  |      | 11  | 3VER11W... | 3VEL11W... | 1.48          | 1.1  | 2.1 | 3.6 |               |

## Type V



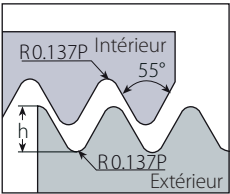
| Taille plaquette |      | Pas | Référence   |             | Dimensions mm |     |     |    | Porte-outils     |
|------------------|------|-----|-------------|-------------|---------------|-----|-----|----|------------------|
| IC               | L mm | tpi | RH          | LH          | h min         | X   | Y   | T  |                  |
| 5/8"V            | 27   | 4   | 5VER4W...   | 5VEL4W...   | 4.07          | 1.0 | 3.3 | 6  | NL...-5V-6 (LH)  |
|                  |      | 3   | 5VER3W...   | 5VEL3W...   | 5.42          | 1.0 | 4.3 | 8  | NL...-5V-8 (LH)  |
|                  |      | 2.5 | 5VER2.5W... | 5VEL2.5W... | 6.51          | 1.0 | 5.2 | 10 | NL...-5V-10 (LH) |

## Type M+

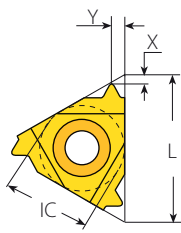
| Taille plaquette |      | Pas | Dents | Référence    |       | Dimensions mm |     | Sous-plaquette | Porte-outils |
|------------------|------|-----|-------|--------------|-------|---------------|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH           | h min | X             | Y   | RH             |              |
| 3/8"             | 16   | 28  | 2     | 3ER28W2M+... | 0.58  | 1.2           | 1.6 | YE3M           | AL...-3      |
|                  |      | 19  | 2     | 3ER19W2M+... | 0.86  | 1.6           | 2.3 |                |              |
|                  |      | 19  | 3     | 3ER19W3M+... | 0.86  | 2.2           | 3.4 |                |              |
|                  |      | 14  | 2     | 3ER14W2M+... | 1.16  | 2.0           | 3.0 |                |              |
| 1/2"             | 22   | 14  | 3     | 4ER14W3M+... | 1.16  | 2.9           | 4.6 | YE4M           | AL...-4      |
|                  |      | 11  | 2     | 4ER11W2M+... | 1.48  | 2.3           | 3.5 |                |              |

Whitworth - BSW, BSP, BSF, BSB (Suite)

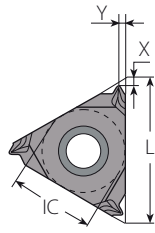
Intérieur



Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



Standard



SCB  
Brise-copeaux  
brut de frittage

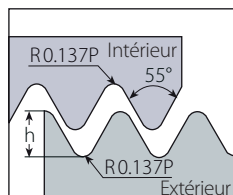
Standard

| Taille plaquette                                                                           |             | Pas | Référence |            | Dimensions mm |      |     | Sous-plaquette |     | Porte-outils |               |
|--------------------------------------------------------------------------------------------|-------------|-----|-----------|------------|---------------|------|-----|----------------|-----|--------------|---------------|
| IC                                                                                         | L mm        | tpi | RH        | LH         | h min         | X    | Y   | RH             | LH  |              |               |
|          | 1/4"        | 11  | 72        | 2IR72W...  | 2IL72W...     | 0.23 | 0.7 | 0.4            | -   | -            | NVR...-2 (LH) |
|                                                                                            |             |     | 60        | 2IR60W...  | 2IL60W...     | 0.27 | 0.7 | 0.4            |     |              |               |
|                                                                                            |             |     | 56        | 2IR56W...  | 2IL56W...     | 0.29 | 0.7 | 0.4            |     |              |               |
|                                                                                            |             |     | 48        | 2IR48W...  | 2IL48W...     | 0.34 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 40        | 2IR40W...  | 2IL40W...     | 0.41 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 36        | 2IR36W...  | 2IL36W...     | 0.45 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 32        | 2IR32W...  | 2IL32W...     | 0.51 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 28        | 2IR28W...  | 2IL28W...     | 0.58 | 0.6 | 0.7            |     |              |               |
|                                                                                            |             |     | 26        | 2IR26W...  | 2IL26W...     | 0.63 | 0.7 | 0.8            |     |              |               |
|                                                                                            |             |     | 24        | 2IR24W...  | 2IL24W...     | 0.68 | 0.7 | 0.8            |     |              |               |
|                                                                                            |             |     | 22        | 2IR22W...  | 2IL22W...     | 0.74 | 0.8 | 0.9            |     |              |               |
|                                                                                            |             |     | 20        | 2IR20W...  | 2IL20W...     | 0.81 | 0.8 | 0.9            |     |              |               |
|                                                                                            |             |     | 19        | 2IR19W...  | 2IL19W...     | 0.86 | 0.8 | 1.0            |     |              |               |
|                                                                                            |             |     | 18        | 2IR18W...  | 2IL18W...     | 0.90 | 0.8 | 1.0            |     |              |               |
|                                                                                            |             |     | 16        | 2IR16W...  | 2IL16W...     | 1.02 | 0.9 | 1.1            |     |              |               |
|                                                                                            |             |     | 14        | 2IR14W...  | 2IL14W...     | 1.16 | 0.9 | 1.1            |     |              |               |
|                                                                                            |             |     | 12        | 2IR12W...  | 2IL12W...     | 1.32 | 0.9 | 1.2            |     |              |               |
| <br>SCB | 1/4"<br>SCB | 11  | 36        | 2JIR36W... |               | 0.45 | 1.2 | 0.5            | -   | -            | NVR...-2      |
|                                                                                            |             |     | 32        | 2JIR32W... |               | 0.51 | 1.2 | 0.5            |     |              |               |
|                                                                                            |             |     | 28        | 2JIR28W... |               | 0.58 | 0.7 | 0.8            |     |              |               |
|                                                                                            |             |     | 24        | 2JIR24W... |               | 0.68 | 0.7 | 0.8            |     |              |               |
|                                                                                            |             |     | 20        | 2JIR20W... |               | 0.81 | 0.7 | 0.8            |     |              |               |
|                                                                                            |             |     | 19        | 2JIR19W... |               | 0.86 | 0.6 | 0.8            |     |              |               |
|                                                                                            |             |     | 18        | 2JIR18W... |               | 0.90 | 0.8 | 0.8            |     |              |               |
|                                                                                            |             |     | 16        | 2JIR16W... |               | 1.02 | 0.8 | 0.8            |     |              |               |
|                                                                                            |             |     | 14        | 2JIR14W... |               | 1.16 | 0.7 | 0.9            |     |              |               |
|         | 3/8"        | 16  | 72        | 3IR72W...  | 3IL72W...     | 0.23 | 0.7 | 0.4            | YI3 | YE3          | AVR...-3 (LH) |
|                                                                                            |             |     | 60        | 3IR60W...  | 3IL60W...     | 0.27 | 0.7 | 0.4            |     |              |               |
|                                                                                            |             |     | 56        | 3IR56W...  | 3IL56W...     | 0.29 | 0.7 | 0.4            |     |              |               |
|                                                                                            |             |     | 48        | 3IR48W...  | 3IL48W...     | 0.34 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 40        | 3IR40W...  | 3IL40W...     | 0.41 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 36        | 3IR36W...  | 3IL36W...     | 0.45 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 32        | 3IR32W...  | 3IL32W...     | 0.51 | 0.6 | 0.6            |     |              |               |
|                                                                                            |             |     | 30        | 3IR30W...  | 3IL30W...     | 0.55 | 0.6 | 0.7            |     |              |               |

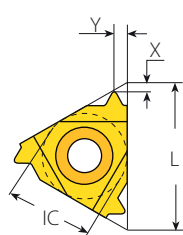
Suite à la page suivante ▶

# Whitworth - BSW, BSP, BSF, BSB (Suite)

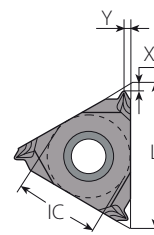
## Intérieur



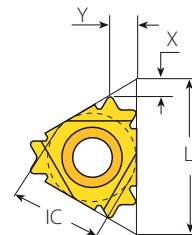
Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



Standard



SCB  
Brise-copeaux  
brut de frittage



V6

## Standard (Suite)



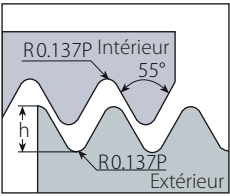
3/8"

16

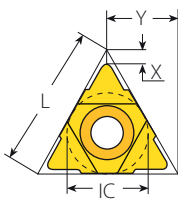
| Taille plaquette                                                                    |      | Pas | Référence    |            | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils                  |
|-------------------------------------------------------------------------------------|------|-----|--------------|------------|---------------|-----|-----|----------------|-----|-------------------------------|
| IC                                                                                  | L mm | tpi | RH           | LH         | h min         | X   | Y   | RH             | LH  |                               |
|   | 3/8" | 28  | 3IR28W...    | 3IL28W...  | 0.58          | 0.6 | 0.7 | YI3            | YE3 | AVR...-3 (LH)                 |
|                                                                                     |      | 26  | 3IR26W...    | 3IL26W...  | 0.63          | 0.7 | 0.8 |                |     |                               |
|                                                                                     |      | 24  | 3IR24W...    | 3IL24W...  | 0.68          | 0.7 | 0.8 |                |     |                               |
|                                                                                     |      | 22  | 3IR22W...    | 3IL22W...  | 0.74          | 0.8 | 0.9 |                |     |                               |
|                                                                                     |      | 20  | 3IR20W...    | 3IL20W...  | 0.81          | 0.8 | 0.9 |                |     |                               |
|                                                                                     |      | 19  | 3IR19W...    | 3IL19W...  | 0.86          | 0.8 | 1.0 |                |     |                               |
|                                                                                     |      | 18  | 3IR18W...    | 3IL18W...  | 0.90          | 0.8 | 1.0 |                |     |                               |
|                                                                                     |      | 16  | 3IR16W...    | 3IL16W...  | 1.02          | 0.9 | 1.1 |                |     |                               |
|                                                                                     |      | 14  | 3IR14W...    | 3IL14W...  | 1.16          | 1.0 | 1.2 |                |     |                               |
|                                                                                     |      | 12  | 3IR12W...    | 3IL12W...  | 1.36          | 1.1 | 1.4 |                |     |                               |
|                                                                                     |      | 11  | 3IR11W...    | 3IL11W...  | 1.48          | 1.1 | 1.5 |                |     |                               |
|                                                                                     |      | 10  | 3IR10W...    | 3IL10W...  | 1.63          | 1.1 | 1.5 |                |     |                               |
|                                                                                     |      | 9   | 3IR9W...     | 3IL9W...   | 1.81          | 1.2 | 1.7 |                |     |                               |
|  | 3/8" | 8   | 3IR8W...     | 3IL8W...   | 2.03          | 1.2 | 1.5 | YI3            | -   | AVR...-3                      |
|                                                                                     |      | 28  | 3IR28W...    |            | 0.58          | 0.7 | 0.8 |                |     |                               |
|                                                                                     |      | 24  | 3IR24W...    |            | 0.68          | 0.7 | 0.8 |                |     |                               |
|                                                                                     |      | 20  | 3IR20W...    |            | 0.81          | 0.7 | 0.8 |                |     |                               |
|                                                                                     |      | 19  | 3IR19W...    |            | 0.86          | 0.6 | 0.5 |                |     |                               |
|                                                                                     |      | 18  | 3IR18W...    |            | 0.90          | 0.8 | 0.8 |                |     |                               |
|                                                                                     |      | 16  | 3IR16W...    |            | 1.02          | 0.8 | 0.8 |                |     |                               |
|                                                                                     |      | 14  | 3IR14W...    |            | 1.16          | 1.3 | 1.5 |                |     |                               |
|                                                                                     |      | 12  | 3IR12W...    |            | 1.36          | 1.3 | 1.5 |                |     |                               |
|                                                                                     |      | 11  | 3IR11W...    |            | 1.48          | 1.3 | 1.5 |                |     |                               |
|  | 3/8" | 8   | 3IR8W...     |            | 2.03          | 1.3 | 1.5 | YI3-6C         | -   | AVR...-3<br>NVRC...-3 206/... |
|                                                                                     |      | 19  | 3IR19W-6C... |            | 0.86          | 1.7 | 2.2 |                |     |                               |
|                                                                                     |      | 16  | 3IR16W-6C... |            | 1.02          | 1.6 | 2.6 |                |     |                               |
|                                                                                     |      | 14  | 3IR14W-6C... |            | 1.16          | 1.8 | 2.7 |                |     |                               |
|  | 1/2" | 12  | 3IR12W-6C... |            | 1.36          | 1.7 | 2.6 | YI4            | YE4 | AVR...-4 (LH)                 |
|                                                                                     |      | 7   | 4IR7W...     | 4IL7W...   | 2.41          | 1.6 | 2.3 |                |     |                               |
|                                                                                     |      | 6   | 4IR6W...     | 4IL6W...   | 2.71          | 1.6 | 2.3 |                |     |                               |
|  | 5/8" | 5   | 4IR5W...     | 4IL5W...   | 3.25          | 1.7 | 2.4 | YI5            | YE5 | AVR...-5 (LH)                 |
|                                                                                     |      | 4.5 | 5IR4.5W...   | 5IL4.5W... | 3.61          | 1.8 | 2.6 |                |     |                               |
|                                                                                     |      | 4   | 5IR4W...     | 5IL4W...   | 4.07          | 2.0 | 2.9 |                |     |                               |

# Whitworth - BSW, BSP, BSF, BSB (Suite)

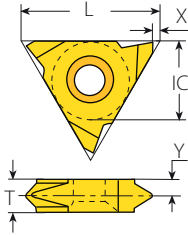
## Intérieur



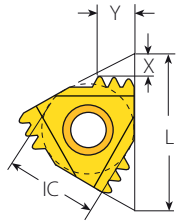
Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



Type U



Type V



Type M+

## Type U



| Taille plaquette |      | Pas  | Référence    | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|------|--------------|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi  | RH+LH        | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 4,5  | 4UEI4.5W...  | 3.61          | 2.3 | 11.0 | YI4U           | YE4U | AVR...4U (LH) |
|                  |      | 4    | 4UEI4W...    | 4.07          | 1.8 | 11.0 |                |      |               |
|                  |      | 3.5  | 4UEI3.5W...  | 4.65          | 2.1 | 11.0 |                |      |               |
|                  |      | 3.25 | 4UEI3.25W... | 5.00          | 2.0 | 11.0 |                |      |               |
| 5/8"U            | 27   | 3.5  | 5UEI3.5W...  | 4.65          | 2.1 | 13.7 | YI5U           | YE5U | AVR...5U (LH) |
|                  |      | 3.25 | 5UEI3.25W... | 5.00          | 2.0 | 13.7 |                |      |               |
|                  |      | 3    | 5UEI3W...    | 5.42          | 2.3 | 13.7 |                |      |               |
|                  |      | 2.75 | 5UEI2.75W... | 5.91          | 2.4 | 13.7 |                |      |               |

## Type V



| Taille plaquette |      | Pas | Référence   |             | Dimensions mm |     |     |    | Porte-outils  |
|------------------|------|-----|-------------|-------------|---------------|-----|-----|----|---------------|
| IC               | L mm | tpi | RH          | LH          | h min         | X   | Y   | T  |               |
| 5/8"V            | 27   | 4   | 5VIR4W...   | 5VIL4W...   | 4.07          | 1.0 | 3.3 | 6  | NVR...5V (LH) |
|                  |      | 3   | 5VIR3W...   | 5VIL3W...   | 5.42          | 1.0 | 4.3 | 8  |               |
|                  |      | 2.5 | 5VIR2.5W... | 5VIL2.5W... | 6.51          | 1.0 | 5.2 | 10 |               |

## Type M+



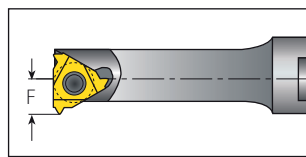
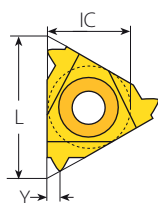
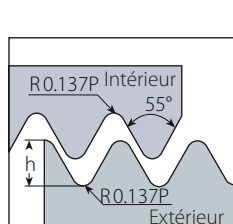
| Taille plaquette |      | Pas | Dents | Référence    | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|--------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH           | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 14  | 2     | 3IR14W2M+... | 1.16          | 2.0 | 3.0 | YI3M           | AVR...-3     |
| 1/2"             | 22   | 11  | 2     | 4IR11W2M+... | 1.48          | 2.3 | 3.5 | YI4M           | AVR...-4     |

**Multi+**

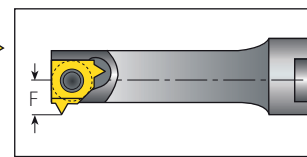
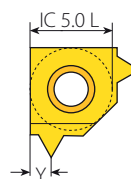
# Whitworth - BSW, BSP, BSF, BSB (Suite)



## Intérieur



Mini-3



Mini-L

Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A

## Mini-3



| Taille plaquette |      | Pas | Référence    | Dimensions mm |     |     | Diam. mini de perçage |              |
|------------------|------|-----|--------------|---------------|-----|-----|-----------------------|--------------|
| IC               | L mm | tpi | RH           | h min         | Y   | F   | mm                    | Porte-outils |
| 4.0              | 6    | 26  | 4.0KIR26W... | 0.63          | 0.6 | 3.6 | 6.25                  | .NVR.5-4.0K  |
|                  |      | 22  | 4.0KIR22W... | 0.74          | 0.6 | 3.7 | 6.35                  |              |
|                  |      | 20  | 4.0KIR20W... | 0.81          | 0.7 | 3.7 | 6.35                  |              |
|                  |      | 19  | 4.0KIR19W... | 0.86          | 0.7 | 3.7 | 6.35                  |              |
|                  |      | 18  | 4.0KIR18W... | 0.90          | 0.7 | 3.7 | 6.35                  |              |
| 6.0              | 10   | 28  | 6.0IR28W...  | 0.58          | 0.7 | 4.7 | 9.6                   | .NVR1..-6.0  |
|                  |      | 19  | 6.0IR19W...  | 0.86          | 1.0 | 5.0 | 9.9                   |              |
|                  |      | 14  | 6.0IR14W...  | 1.16          | 1.1 | 5.3 | 10.0                  |              |

## Mini-L

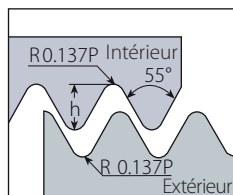


| Taille plaquette |  | Pas | Référence  | Dimensions mm |     |      | Diam. mini de perçage |              |
|------------------|--|-----|------------|---------------|-----|------|-----------------------|--------------|
| IC mm            |  | tpi | RH         | h min         | Y   | F    | mm                    | Porte-outils |
| 5.0 L            |  | 28  | 5LIR28W... | 0.58          | 0.7 | 4.05 | 7.6                   | .NVR 10.-5L  |
|                  |  | 19  | 5LIR19W... | 0.86          | 1.0 | 4.35 | 7.9                   |              |
|                  |  | 14  | 5LIR14W... | 1.16          | 1.1 | 4.68 | 8.0                   |              |

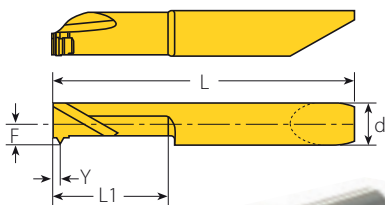
# Whitworth - BSW, BSP, BSF, BSB (Suite)



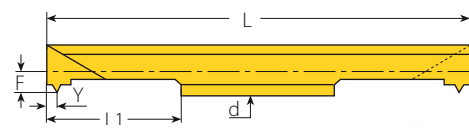
## Intérieur



Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



RH-Simple arrête de coupe à droite



RH-Double arrête de coupe à droite

## Micro - double arrête de coupe

| Filet       | Diam. plaque | Pas | Référence    | Dimensions mm |    |      |      |       | Diam. mini de perçage | Porte-outils |
|-------------|--------------|-----|--------------|---------------|----|------|------|-------|-----------------------|--------------|
|             | d mm         | tpi | RH/LH        | L1            | L  | F    | Y    | h min | mm                    |              |
| 1/16"-28BSP | 4.0          | 28  | 4.0SIR28W... | 16            | 50 | 1.86 | 0.65 | 0.58  | 4.2                   | SMC...-4.0   |
| 1/4"-26BSF  |              | 26  | 4.0SIR26W... | 16            | 50 | 1.93 | 0.75 | 0.63  | 4.2                   |              |
| 1/4"-24BSW  |              | 24  | 4.0SIR24W... | 16            | 50 | 1.96 | 0.75 | 0.68  | 4.3                   |              |
| 1/16"-28BSP | 6.0          | 28  | 6.0SIR28W... | 16            | 50 | 2.50 | 0.65 | 0.58  | 6.0                   | SMC...-6.0   |
| 5/16"-28BSW |              | 26  | 6.0SIR26W... | 16            | 50 | 2.50 | 0.75 | 0.63  | 6.0                   |              |
| 5/16"-24BSW |              | 24  | 6.0SIR24W... | 16            | 50 | 2.50 | 0.75 | 0.68  | 6.0                   |              |
| 5/16"-22BSW |              | 22  | 6.0SIR22W... | 16            | 50 | 2.50 | 0.90 | 0.74  | 6.0                   |              |
| 3/8"-20BSF  |              | 20  | 6.0SIR20W... | 16            | 50 | 2.50 | 0.90 | 0.81  | 6.0                   |              |
| 1/4"-19BSP  |              | 19  | 6.0SIR19W... | 16            | 50 | 2.50 | 0.95 | 0.86  | 6.0                   |              |

Outil à gauche fourni à la demande. (Exemple: 6.0SIL19W...)

## Micro-simple arrête de coupe

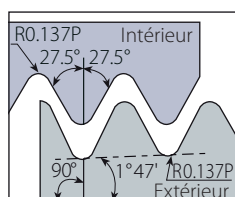
microscope

| Filet       | Diam. plaque | Pas | Référence         | Dimensions mm |    |      |      |       | Diam. mini de perçage | Porte-outils |
|-------------|--------------|-----|-------------------|---------------|----|------|------|-------|-----------------------|--------------|
|             | d mm         | tpi | RH/LH             | L1            | L  | F    | Y    | h min | mm                    |              |
| 1/16"-28BSP | 6.0          | 28  | M659TH 28W L16R/L | 16            | 42 | 2.90 | 0.65 | 0.58  | 6.5                   | MHC...-6     |
| 1/4"-19BSP  |              | 19  | M659TH 19W L16R/L | 16            | 42 | 2.90 | 0.95 | 0.86  | 11.4                  |              |

Outil à gauche fourni à la demande. (Exemple: M659TH 28W L16L)

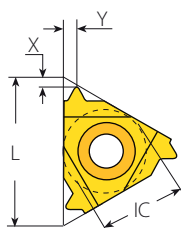
# BSPT

## Extérieur

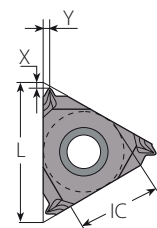


Norme: B.S. 21:1985

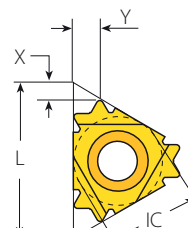
Classe de tolérance: Standard BSPT



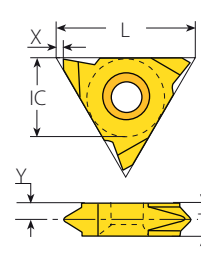
Standard



SCB  
Brise-copeaux  
brut de frittage



V6



Slim Throat  
Passage étroit

## Standard



SCB



V6

| Taille plaquette |      | Pas | Référence       |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|-----------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH              | LH           | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 28  | 2ER28BSPT...    | 2EL28BSPT... | 0.58          | 0.6 | 0.6 | -              | -   | NL...-2 (LH) |
|                  |      | 19  | 2ER19BSPT...    | 2EL19BSPT... | 0.86          | 0.8 | 0.9 |                |     |              |
|                  |      | 14  | 2ER14BSPT...    | 2EL14BSPT... | 1.16          | 0.9 | 1.0 |                |     |              |
| 3/8"             | 16   | 28  | 3ER28BSPT...    | 3EL28BSPT... | 0.58          | 0.6 | 0.6 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 19  | 3ER19BSPT...    | 3EL19BSPT... | 0.86          | 0.8 | 0.9 |                |     |              |
|                  |      | 14  | 3ER14BSPT...    | 3EL14BSPT... | 1.16          | 1.0 | 1.2 |                |     |              |
|                  |      | 11  | 3ER11BSPT...    | 3EL11BSPT... | 1.48          | 1.1 | 1.5 |                |     |              |
| 3/8"<br>SCB      | 16   | 28  | 3JER28BSPT...   |              | 0.58          | 0.7 | 0.8 | YE3            | -   | AL...-3      |
|                  |      | 19  | 3JER19BSPT...   |              | 0.86          | 0.7 | 0.8 |                |     |              |
|                  |      | 14  | 3JER14BSPT...   |              | 1.16          | 1.3 | 1.5 |                |     |              |
|                  |      | 11  | 3JER11BSPT...   |              | 1.48          | 1.3 | 1.5 |                |     |              |
| 3/8"<br>V6       | 16   | 19  | 3ER19BSPT-6C... |              | 0.86          | 1.7 | 2.2 | YE3-6C         | -   | AL...-3      |
|                  |      | 14  | 3ER14BSPT-6C... |              | 1.16          | 1.9 | 2.8 |                |     |              |

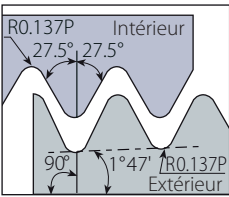
## Slim Throat Passage étroit



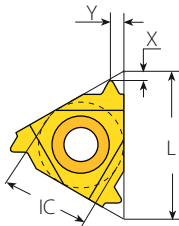
| Taille plaquette |      | Pas | Référence     |               | Dimensions mm |     |     |     | Porte-outils  |
|------------------|------|-----|---------------|---------------|---------------|-----|-----|-----|---------------|
| IC               | L mm | tpi | RH            | LH            | h min         | X   | Y   | T   |               |
| 3/8"V            | 16   | 28  | 3VER28BSPT... | 3VEL28BSPT... | 0.58          | 1.1 | 3.0 | 3.6 | NL...-3V (LH) |
|                  |      | 19  | 3VER19BSPT... | 3VEL19BSPT... | 0.86          | 1.1 | 2.7 | 3.6 |               |
|                  |      | 14  | 3VER14BSPT... | 3VEL14BSPT... | 1.16          | 1.1 | 2.4 | 3.6 |               |
|                  |      | 11  | 3VER11BSPT... | 3VEL11BSPT... | 1.48          | 1.1 | 2.1 | 3.6 |               |

BSPT (Suite)

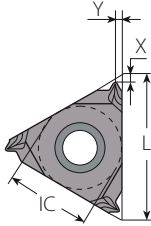
Intérieur



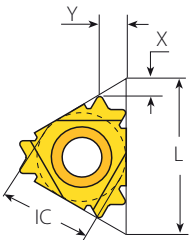
Norme: B.S. 21:1985  
Classe de tolérance: Standard BSPT



Standard



SCB  
Brise-copeaux  
brut de frittage



V6

Standard



SCB



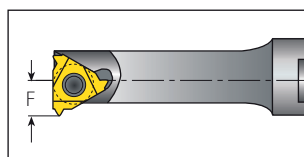
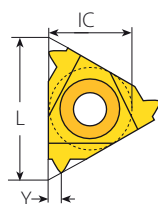
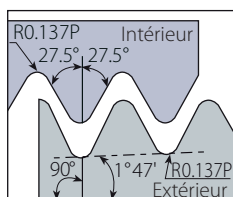
V6

| Taille plaquette |      | Pas | Référence       |              | Dimensions mm |     |     | Sous-plaquette |     |                              |
|------------------|------|-----|-----------------|--------------|---------------|-----|-----|----------------|-----|------------------------------|
| IC               | L mm | tpi | RH              | LH           | h min         | X   | Y   | RH             | LH  | Porte-outils                 |
| 1/4"             | 11   | 28  | 2IR28BSPT...    | 2IL28BSPT... | 0.58          | 0.6 | 0.6 | -              | -   | NVR..-2 (LH)                 |
|                  |      | 19  | 2IR19BSPT...    | 2IL19BSPT... | 0.86          | 0.8 | 0.9 |                |     |                              |
|                  |      | 14  | 2IR14BSPT...    | 2IL14BSPT... | 1.16          | 0.9 | 1.0 |                |     |                              |
| 1/4"<br>SCB      | 11   | 28  | 2JIR28BSPT...   |              | 0.58          | 0.7 | 0.8 | -              | -   | NVR..-2                      |
|                  |      | 19  | 2JIR19BSPT...   |              | 0.86          | 0.7 | 0.8 |                |     |                              |
| 3/8"             | 16   | 28  | 3IR28BSPT...    | 3IL28BSPT... | 0.58          | 0.6 | 0.6 | YI3            | YE3 | AVR..-3 (LH)                 |
|                  |      | 19  | 3IR19BSPT...    | 3IL19BSPT... | 0.86          | 0.8 | 0.9 |                |     |                              |
|                  |      | 14  | 3IR14BSPT...    | 3IL14BSPT... | 1.16          | 1.0 | 1.2 |                |     |                              |
|                  |      | 11  | 3IR11BSPT...    | 3IL11BSPT... | 1.48          | 1.1 | 1.5 |                |     |                              |
| 3/8"<br>SCB      | 16   | 28  | 3JIR28BSPT...   |              | 0.58          | 0.7 | 0.8 | YI3            | -   | AVR..-3                      |
|                  |      | 19  | 3JIR19BSPT...   |              | 0.86          | 0.7 | 0.8 |                |     |                              |
|                  |      | 14  | 3JIR14BSPT...   |              | 1.16          | 1.3 | 1.5 |                |     |                              |
|                  |      | 11  | 3JIR11BSPT...   |              | 1.48          | 1.3 | 1.5 |                |     |                              |
| 3/8"<br>V6       | 16   | 19  | 3IR19BSPT-6C... |              | 0.86          | 1.8 | 2.3 | YI3-6C         | -   | AVR..-3<br>NVRC...-3 206/... |
|                  |      | 14  | 3IR14BSPT-6C... |              | 1.16          | 1.9 | 2.7 |                |     |                              |

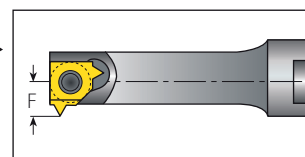
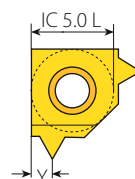
## BSPT (Suite)



### Intérieur



Mini-3



Mini-L

Norme: B.S. 21:1985

Classe de tolérance: Standard BSPT

### Mini-3



| Taille plaquette |      | Pas | Référence       | Dimensions mm |     |     | Diam. mini de perçage | Porte-outils |
|------------------|------|-----|-----------------|---------------|-----|-----|-----------------------|--------------|
| IC               | L mm | tpi | RH              | h min         | Y   | F   | mm                    |              |
| 4.0              | 6    | 28  | 4.0KIR28BSPT... | 0.58          | 0.6 | 3.6 | 6.25                  | .NVR.5-4.0K  |
|                  |      | 28  | 6.0IR28BSPT...  | 0.58          | 0.6 | 4.7 | 9.6                   |              |
| 6.0              | 10   | 19  | 6.0IR19BSPT...  | 0.86          | 0.9 | 5.0 | 9.9                   | .NVR1...-6.0 |
|                  |      | 14  | 6.0IR14BSPT...  | 1.16          | 1.2 | 5.3 | 10.0                  |              |

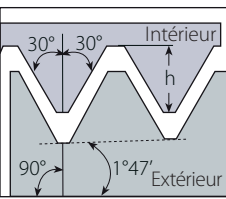
### Mini-L



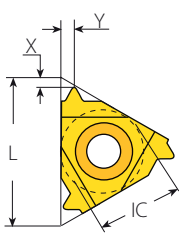
| Taille plaquette |  | Pas | Référence     | Dimensions mm |     |      | Diam. mini de perçage | Porte-outils |
|------------------|--|-----|---------------|---------------|-----|------|-----------------------|--------------|
| IC mm            |  | tpi | RH            | h min         | Y   | F    | mm                    |              |
| 5.0L             |  | 28  | 5LIR28BSPT... | 0.58          | 0.6 | 4.05 | 7.6                   |              |
|                  |  | 19  | 5LIR19BSPT... | 0.86          | 0.9 | 4.35 | 7.9                   | .NVR10...-5L |
|                  |  | 14  | 5LIR14BSPT... | 1.16          | 1.2 | 4.68 | 8.0                   |              |

# NPT

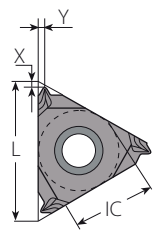
## Extérieur



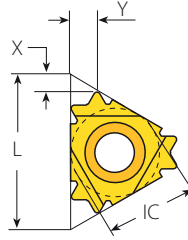
Norme: USAS B2.1:1968  
Classe de tolérance: Standard NPT



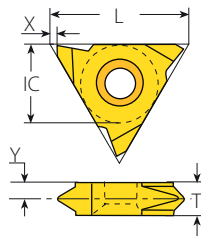
Standard



SCB  
Brise-copeaux  
brut de frittage



V6



Slim Throat  
Passage étroit

## Standard



SCB



V6

| Taille plaquette |      | Pas  | Référence      |               | Dimensions mm |     |     | Sous-plaquette |     |              |
|------------------|------|------|----------------|---------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi  | RH             | LH            | h min         | X   | Y   | RH             | LH  | Porte-outils |
| 1/4"             | 11   | 27   | 2ER27NPT...    | 2EL27NPT...   | 0.66          | 0.7 | 0.8 | -              | -   | NL...-2 (LH) |
|                  |      | 18   | 2ER18NPT...    | 2EL18NPT...   | 1.01          | 0.8 | 1.0 |                |     |              |
|                  |      | 14   | 2ER14NPT...    | 2EL14NPT...   | 1.33          | 0.8 | 1.0 |                |     |              |
| 3/8"             | 16   | 27   | 3ER27NPT...    | 3EL27NPT...   | 0.66          | 0.7 | 0.8 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 18   | 3ER18NPT...    | 3EL18NPT...   | 1.01          | 0.8 | 1.0 |                |     |              |
|                  |      | 14   | 3ER14NPT...    | 3EL14NPT...   | 1.33          | 0.9 | 1.2 |                |     |              |
|                  |      | 11.5 | 3ER11.5NPT...  | 3EL11.5NPT... | 1.64          | 1.1 | 1.5 |                |     |              |
|                  |      | 8    | 3ER8NPT...     | 3EL8NPT...    | 2.42          | 1.3 | 1.8 |                |     |              |
| 3/8" SCB         | 16   | 27   | 3JER27NPT...   |               | 0.66          | 0.6 | 0.8 | YE3            | -   | AL...-3      |
|                  |      | 18   | 3JER18NPT...   |               | 1.01          | 0.6 | 0.8 |                |     |              |
|                  |      | 14   | 3JER14NPT...   |               | 1.33          | 1.1 | 1.5 |                |     |              |
|                  |      | 11.5 | 3JER11.5NPT... |               | 1.64          | 1.1 | 1.5 |                |     |              |
|                  |      | 8    | 3JER8NPT...    |               | 2.42          | 1.0 | 1.5 |                |     |              |
| 3/8" V6          | 16   | 14   | 3ER14NPT-6C... |               | 1.33          | 1.9 | 3.0 | YE3-6C         | -   | AL...-3      |

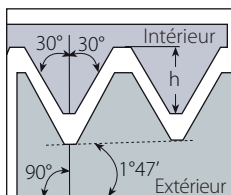
## Slim Throat Passage étroit



| Taille plaquette |      | Pas  | Référence      |                 | Dimensions mm |     |     |     | Porte-outils  |
|------------------|------|------|----------------|-----------------|---------------|-----|-----|-----|---------------|
| IC               | L mm | tpi  | RH             | LH              | h min         | X   | Y   | T   |               |
| 1/4"V            | 11   | 27   | 2VER27NPT...   | 2VEL27NPT...    | 0.66          | 0.7 | 2.0 | 3.2 | NL...-2V (LH) |
|                  |      | 18   | 2VER18NPT...   | 2VEL18NPT...    | 1.01          | 0.7 | 1.8 | 3.2 |               |
|                  |      | 14   | 2VER14NPT...   | 2VEL14NPT...    | 1.33          | 0.7 | 1.8 | 3.2 |               |
|                  |      | 11.5 | 2VER11.5NPT... | 2VEL11.5NPT...  | 1.64          | 0.7 | 2.1 | 3.2 |               |
| 3/8"V            | 16   | 27   | 3VER27NPT...   | 3VEL27NPT...    | 0.66          | 1.1 | 2.9 | 3.6 | NL...-3V (LH) |
|                  |      | 18   | 3VER18NPT...   | 3VEL18NPT...    | 1.01          | 1.1 | 2.6 | 3.6 |               |
|                  |      | 11.5 | 3VER11.5NPT... | 3VEL11.5 NPT... | 1.64          | 1.1 | 2.1 | 3.6 |               |

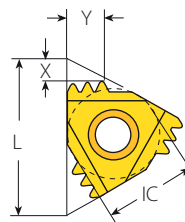
## NPT (Suite)

### Extérieur

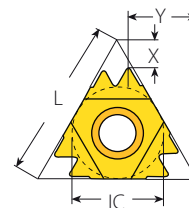


Norme: USAS B2.1:1968

Classe de tolérance: Standard NPT



Type M+



Type Z+

### Type M+

**Multi**plus



| Taille plaquette |      | Pas  | Dents | Référence        | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|------|-------|------------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi  |       | RH               | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 14   | 2     | 3ER14NPT2M+...   | 1.33          | 2.0 | 3.0 | YE3M           | AL...-3      |
| 1/2"             | 22   | 11.5 | 2     | 4ER11.5NPT2M+... | 1.64          | 2.2 | 3.4 | YE4M           | AL...-4      |
| 5/8"             | 27   | 11.5 | 3     | 5ER11.5NPT3M+... | 1.64          | 3.5 | 5.6 | YE5M           | AL...-5M     |
|                  |      | 8    | 2     | 5ER8NPT2M+...    | 2.42          | 3.1 | 4.9 |                |              |

### Type Z+

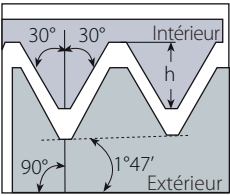
**Multi**plus



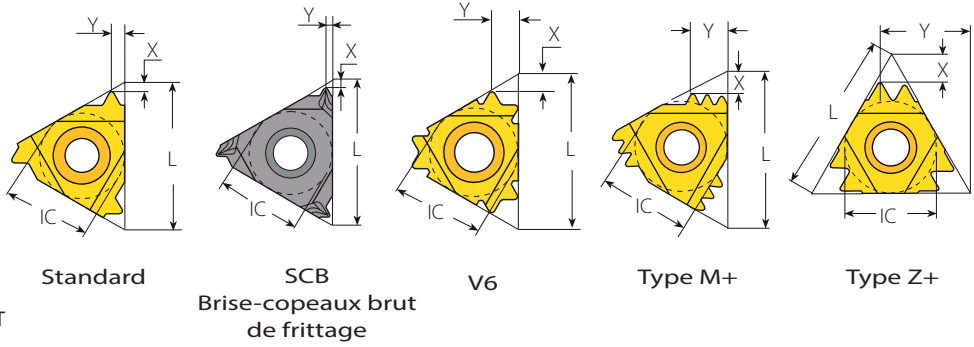
| Taille plaquette |      | Pas  | Dents | Référence        | Dimensions mm |     |      | Sous-plaquette |              |
|------------------|------|------|-------|------------------|---------------|-----|------|----------------|--------------|
| IC               | L mm | tpi  |       | RH               | h min         | X   | Y    | RH             | Porte-outils |
| 1/2"             | 22   | 11.5 | 2     | 4ER11.5NPT2Z+... | 1.64          | 2.7 | 10.0 | YE4Z           | AL...-4Z     |
|                  |      | 8    | 2     | 4ER8NPT2Z+...    | 2.42          | 3.4 | 9.6  |                |              |

# NPT (Suite)

## Intérieur



Norme: USAS B2.1:1968  
Classe de tolérance: Standard NPT



## Standard



| Taille plaquette |      | Pas  | Référence      |               | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils                 |
|------------------|------|------|----------------|---------------|---------------|-----|-----|----------------|-----|------------------------------|
| IC               | L mm | tpi  | RH             | LH            | h min         | X   | Y   | RH             | LH  |                              |
| 1/4"             | 11   | 27   | 2IR27NPT...    | 2IL27NPT...   | 0.66          | 0.7 | 0.8 | -              | -   | NVR...-2 (LH)                |
|                  |      | 18   | 2IR18NPT...    | 2IL18NPT...   | 1.01          | 0.8 | 1.0 |                |     |                              |
|                  |      | 14   | 2IR14NPT...    | 2IL14NPT...   | 1.33          | 0.8 | 1.0 |                |     |                              |
| 1/4"<br>SCB      | 11   | 27   | 2JIR27NPT...   |               | 0.66          | 0.6 | 0.8 | -              | -   | NVR...-2                     |
|                  |      | 18   | 2JIR18NPT...   |               | 1.01          | 0.6 | 0.8 |                |     |                              |
|                  |      |      |                |               |               |     |     |                |     |                              |
| 3/8"             | 16   | 27   | 3IR27NPT...    | 3IL27NPT...   | 0.66          | 0.7 | 0.8 | YI3            | YE3 | AVR...-3 (LH)                |
|                  |      | 18   | 3IR18NPT...    | 3IL18NPT...   | 1.01          | 0.8 | 1.0 |                |     |                              |
|                  |      | 14   | 3IR14NPT...    | 3IL14NPT...   | 1.33          | 0.9 | 1.2 |                |     |                              |
|                  |      | 11.5 | 3IR11.5NPT...  | 3IL11.5NPT... | 1.64          | 1.1 | 1.5 |                |     |                              |
|                  |      | 8    | 3IR8NPT...     | 3IL8NPT...    | 2.42          | 1.3 | 1.8 |                |     |                              |
| 3/8"<br>SCB      | 16   | 27   | 3JIR27NPT...   |               | 0.66          | 0.6 | 0.8 | YI3            | -   | AVR...-3                     |
|                  |      | 18   | 3JIR18NPT...   |               | 1.01          | 0.6 | 0.8 |                |     |                              |
|                  |      | 14   | 3JIR14NPT...   |               | 1.33          | 1.1 | 1.5 |                |     |                              |
|                  |      | 11.5 | 3JIR11.5NPT... |               | 1.64          | 1.1 | 1.5 |                |     |                              |
|                  |      | 8    | 3JIR8NPT...    |               | 2.42          | 1.0 | 1.5 |                |     |                              |
| 3/8"<br>V6       | 16   | 14   | 3IR14NPT-6C... |               | 1.33          | 1.9 | 2.8 | YI3-6C         | -   | AVR...-3<br>NVR...-3 206/... |

## Type M+



| Taille plaquette |      | Pas  | Dents | Référence        |    | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|------|-------|------------------|----|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi  |       | RH               | LH | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 14   | 2     | 3IR14NPT2M+...   |    | 1.33          | 2.0 | 3.0 | YI3M           | AVR...-3     |
| 1/2"             | 22   | 11.5 | 2     | 4IR11.5NPT2M+... |    | 1.64          | 2.2 | 3.4 | YI4M           | AVR...-4     |
| 5/8"             | 27   | 11.5 | 3     | 5IR11.5NPT3M+... |    | 1.64          | 3.5 | 5.6 | YI5M           | AVR...-5M    |
|                  |      | 8    | 2     | 5IR8NPT2M+...    |    | 2.42          | 3.1 | 4.9 |                |              |

## Type Z+

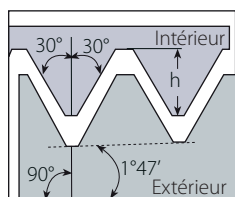


| Taille plaquette |      | Pas  | Dents | Référence        |    | Dimensions mm |     |      | Sous-plaquette |              |
|------------------|------|------|-------|------------------|----|---------------|-----|------|----------------|--------------|
| IC               | L mm | tpi  |       | RH               | LH | h min         | X   | Y    | RH             | Porte-outils |
| 1/2"             | 22   | 11.5 | 2     | 4IR11.5NPT2Z+... |    | 1.64          | 2.7 | 10.0 | YI4Z           | AVR...-4Z    |
|                  |      | 8    | 2     | 4IR8NPT2Z+...    |    | 2.42          | 3.4 | 9.6  |                |              |

## NPT (Suite)

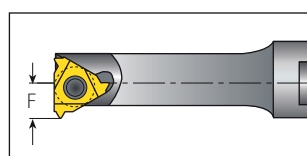
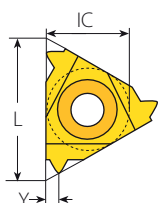


### Intérieur

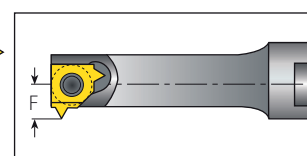
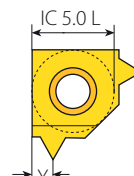


Norme: USAS B2.1:1968

Classe de tolérance: Standard NPT



Mini-3



Mini-L

### Mini-3



| Taille plaquette |      | Pas | Référence      | Dimensions mm |     |     | Diam. mini de perçage | Porte-outils |
|------------------|------|-----|----------------|---------------|-----|-----|-----------------------|--------------|
| IC               | L mm | tpi | RH             | h min         | Y   | F   | mm                    |              |
| 4.0              | 6.0  | 27  | 4.0KIR27NPT... | 0.66          | 0.6 | 3.7 | 6.35                  | .NVR.5-4.0K  |
|                  |      | 27  | 6.0IR27NPT...  | 0.66          | 0.8 | 5.3 |                       |              |
| 6.0              | 10   | 18  | 6.0IR18NPT...  | 1.01          | 1.0 | 5.3 | 10.0                  | .NVR1...-6.0 |
|                  |      | 14  | 6.0IR14NPT...  | 1.33          | 1.1 | 5.3 |                       |              |

### Mini-L

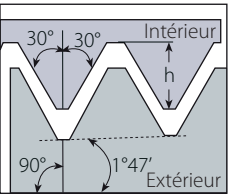


| Taille plaquette |  | Pas | Référence    | Dimensions mm |     |      | Diam. mini de perçage | Porte-outils |
|------------------|--|-----|--------------|---------------|-----|------|-----------------------|--------------|
| IC mm            |  | tpi | RH           | h min         | Y   | F    | mm                    |              |
| 5.0L             |  | 27  | 5LIR27NPT... | 0.66          | 0.8 | 4.65 |                       |              |
|                  |  | 18  | 5LIR18NPT... | 1.01          | 1.0 | 4.65 | 8.0                   | .NVR10.-5L   |
|                  |  | 14  | 5LIR14NPT... | 1.33          | 1.1 | 4.65 |                       |              |

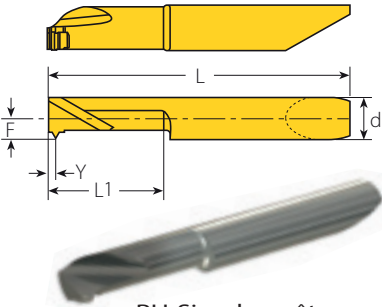
NPT



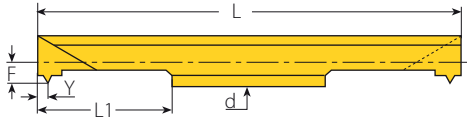
Intérieur



Norme: USAS B2.1:1968  
Classe de tolérance: Standard NPT



RH-Simple arrête  
de coupe à droite



RH-Double arrête  
de coupe à droite

Micro - double arrête de coupe

|             | Diam. plaquette | Pas | Référence      | Dimensions mm |    |      |      |       | Diam. mini de perçage |              |
|-------------|-----------------|-----|----------------|---------------|----|------|------|-------|-----------------------|--------------|
| Filet       | d mm            | mm  | RH/LH          | L1            | L  | F    | Y    | h min | mm                    | Porte-outils |
| 1/16"-27NPT | 6.0             | 27  | 6.OSIR27NPT... | 16            | 50 | 2.50 | 1.00 | 0.66  | 5.9                   | SMC...-6.0   |
| 1/4"-18NPT  |                 | 18  | 6.OSIR18NPT... | 16            | 50 | 2.50 | 0.80 | 1.01  | 6.0                   |              |

Outil à gauche fourni à la demande. (Exemple: 6.OSIL18NPT...)

Micro-simple arrête de coupe

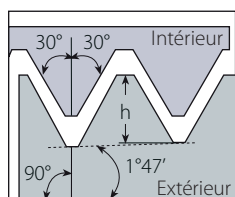


|             | Diam. plaquette | Pas | Référence           | Dimensions mm |    |      |      |       | Diam. mini de perçage |              |
|-------------|-----------------|-----|---------------------|---------------|----|------|------|-------|-----------------------|--------------|
| Filet       | d mm            | mm  | RH/LH               | L1            | L  | F    | Y    | h min | mm                    | Porte-outils |
| 1/16"-27NPT | 6.0             | 27  | M659TH 27NPT L16R/L | 16            | 42 | 2.90 | 0.75 | 0.66  | 6.1                   | MHC...-6     |
| 1/4"-18NPT  |                 | 18  | M659TH 18NPT L16R/L | 16            | 42 | 2.90 | 1.00 | 1.01  | 10.7                  |              |

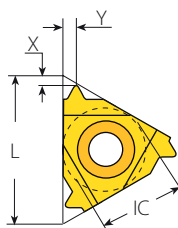
Outil à gauche fourni à la demande. (Exemple: M659TH 27NPT L16L)

# NPTF

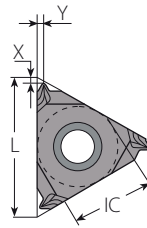
## Extérieur



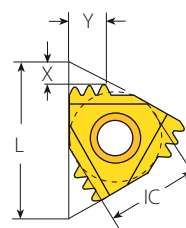
Norme: ANSI B1.20.3-1976  
Classe de tolérance: Class 2



Standard



SCB  
Brise-copeaux  
brut de frittage



Type M+

## Standard



SCB

| Taille plaquette |      | Pas  | Référence       |                | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|------|-----------------|----------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi  | RH              | LH             | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 27   | 2ER27NPTF...    | 2EL27NPTF...   | 0.64          | 0.7 | 0.8 | -              | -   | NL...-2 (LH) |
|                  |      | 18   | 2ER18NPTF...    | 2EL18NPTF...   | 1.00          | 0.8 | 1.0 |                |     |              |
|                  |      | 14   | 2ER14NPTF...    | 2EL14NPTF...   | 1.35          | 0.8 | 1.0 |                |     |              |
| 3/8"             | 16   | 27   | 3ER27NPTF...    | 3EL27NPTF...   | 0.64          | 0.7 | 0.8 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 18   | 3ER18NPTF...    | 3EL18NPTF...   | 1.00          | 0.8 | 1.0 |                |     |              |
|                  |      | 14   | 3ER14NPTF...    | 3EL14NPTF...   | 1.35          | 0.9 | 1.2 |                |     |              |
|                  |      | 11.5 | 3ER11.5NPTF...  | 3EL11.5NPTF... | 1.63          | 1.1 | 1.5 |                |     |              |
|                  |      | 8    | 3ER8NPTF...     | 3EL8NPTF...    | 2.38          | 1.3 | 1.8 |                |     |              |
| 3/8"<br>SCB      | 16   | 27   | 3JER27NPTF...   |                | 0.64          | 0.7 | 0.8 | YE3            | -   | AL...-3      |
|                  |      | 18   | 3JER18NPTF...   |                | 1.00          | 0.6 | 0.8 |                |     |              |
|                  |      | 14   | 3JER14NPTF...   |                | 1.35          | 1.1 | 1.5 |                |     |              |
|                  |      | 11.5 | 3JER11.5NPTF... |                | 1.63          | 1.1 | 1.5 |                |     |              |
|                  |      | 8    | 3JER8NPTF...    |                | 2.38          | 1.1 | 1.5 |                |     |              |

## Type M+

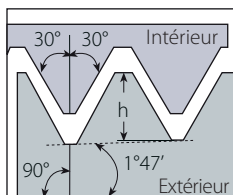
**Multi**plus



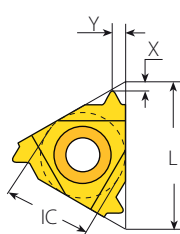
| Taille plaquette |      | Pas | Dents | Référence       | Dimensions mm |     |     | Sous-plaquette |  | Porte-outils |
|------------------|------|-----|-------|-----------------|---------------|-----|-----|----------------|--|--------------|
| IC               | L mm | tpi |       | RH              | h min         | X   | Y   | RH             |  |              |
| 3/8"             | 16   | 14  | 2     | 3ER14NPTF2M+... | 1.35          | 2.0 | 3.0 | YE3M           |  | AL...-3      |

## NPTF (Suite)

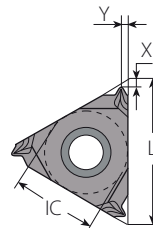
### Intérieur



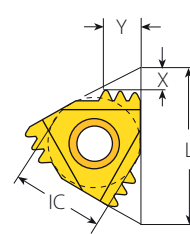
Norme: ANSI B1.20.3-1976  
Classe de tolérance: Class 2



Standard



SCB  
Brise-copeaux  
brut de frittage



Type M+

### Standard



| Taille plaquette |      | Pas  | Référence       |                | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils  |
|------------------|------|------|-----------------|----------------|---------------|-----|-----|----------------|-----|---------------|
| IC               | L mm | tpi  | RH              | LH             | h min         | X   | Y   | RH             | LH  |               |
| 1/4"             | 11   | 27   | 2IR27NPTF...    | 2IL27NPTF...   | 0.64          | 0.7 | 0.8 | -              | -   | NVR...-2 (LH) |
|                  |      | 18   | 2IR18NPTF...    | 2IL18NPTF...   | 1.00          | 0.8 | 1.0 |                |     |               |
|                  |      | 14   | 2IR14NPTF...    | 2IL14NPTF...   | 1.35          | 0.8 | 1.0 |                |     |               |
| 1/4"<br>SCB      | 11   | 27   | 2JIR27NPTF...   |                | 0.64          | 0.7 | 0.8 | -              | -   | NVR...-2      |
|                  |      | 18   | 2JIR18NPTF...   |                | 1.00          | 0.6 | 0.8 |                |     |               |
|                  |      | 14   | 2JIR14NPTF...   |                | 1.35          | 0.8 | 1.0 |                |     |               |
| 3/8"             | 16   | 27   | 3IR27NPTF...    | 3IL27NPTF...   | 0.64          | 0.7 | 0.8 | YI3            | YE3 | AVR...-3 (LH) |
|                  |      | 18   | 3IR18NPTF...    | 3IL18NPTF...   | 1.00          | 0.8 | 1.0 |                |     |               |
|                  |      | 14   | 3IR14NPTF...    | 3IL14NPTF...   | 1.35          | 0.9 | 1.2 |                |     |               |
|                  |      | 11.5 | 3IR11.5NPTF...  | 3IL11.5NPTF... | 1.63          | 1.1 | 1.5 |                |     |               |
|                  |      | 8    | 3IR8NPTF...     | 3IL8NPTF...    | 2.38          | 1.3 | 1.8 |                |     |               |
| 3/8"<br>SCB      | 16   | 27   | 3JIR27NPTF...   |                | 0.64          | 0.7 | 0.8 | YI3            | -   | AVR...-3      |
|                  |      | 18   | 3JIR18NPTF...   |                | 1.00          | 0.6 | 0.8 |                |     |               |
|                  |      | 14   | 3JIR14NPTF...   |                | 1.35          | 1.1 | 1.5 |                |     |               |
|                  |      | 11.5 | 3JIR11.5NPTF... |                | 1.63          | 1.1 | 1.5 |                |     |               |
|                  |      | 8    | 3JIR8NPTF...    |                | 2.38          | 1.1 | 1.5 |                |     |               |



SCB

### Type M+

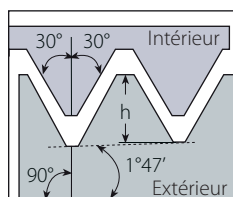


| Taille plaquette |      | Pas | Dents | Référence       |    | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|-----------------|----|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH              | LH | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 14  | 2     | 3IR14NPTF2M+... |    | 1.35          | 2.0 | 3.0 | YI3M           | AVR...-3     |

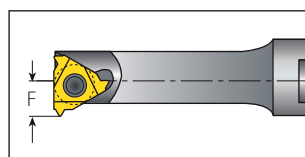
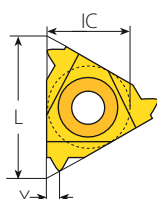
## NPTF (Suite)



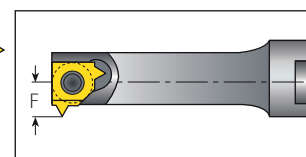
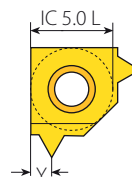
### Intérieur



Norme: ANSI B1.20.3-1976  
Classe de tolérance: Class 2



Mini-3



Mini-L

### Mini-3



| Taille plaquette | Pas  | Référence | Dimensions mm   | Diam. mini de perçage |                          |
|------------------|------|-----------|-----------------|-----------------------|--------------------------|
| IC               | L mm | tpi       | RH              | h min                 | Y F mm Porte-outils      |
| 4.0              | 6    | 27        | 4.0KIR27NPTF... | 0.64                  | 0.6 3.6 6.25 .NVR.5-4.0K |
|                  |      | 27        | 6.0IR27NPTF...  | 0.64                  | 0.8 5.3                  |
| 6.0              | 10   | 18        | 6.0IR18NPTF...  | 1.00                  | 1.0 5.3 10.0 .NVR1..-6.0 |
|                  |      | 14        | 6.0IR14NPTF...  | 1.35                  | 1.1 5.3                  |

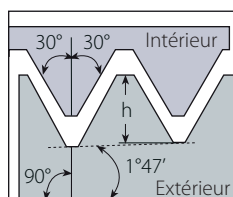
### Mini-L



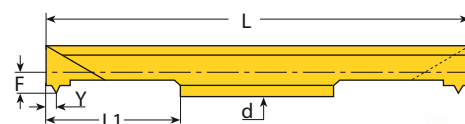
| Taille plaquette | Pas | Référence     | Dimensions mm |     |      | Diam. mini de perçage |              |
|------------------|-----|---------------|---------------|-----|------|-----------------------|--------------|
| IC mm            | tpi | RH            | h min         | Y   | F    | mm                    | Porte-outils |
| 5.0L             | 27  | 5LIR27NPTF... | 0.64          | 0.8 | 4.65 | 8.0                   | .NVR 10.-5L  |
|                  | 18  | 5LIR18NPTF... | 1.00          | 1.0 | 4.65 |                       |              |
|                  | 14  | 5LIR14NPTF... | 1.35          | 1.1 | 4.65 |                       |              |

## NPTF

### Intérieur



Norme: ANSI B1.20.3-1976  
Classe de tolérance: Class 2



RH-Double arrête  
de coupe à droite

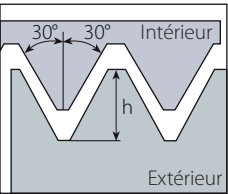
### Micro - double arrête de coupe

| Diam. plaquette | Pas  | Référence | Dimensions mm   | Diam. mini de perçage |                 |
|-----------------|------|-----------|-----------------|-----------------------|-----------------|
| Filet           | d mm | tpi       | RH/LH           | L1 L F Y h min        | mm Porte-outils |
| 1/16"-27NPTF    | 6.0  | 27        | 6.0SIR27NPTF... | 16 50 2.50 0.80 0.64  |                 |
| 1/4"-18NPTF     |      | 18        | 6.0SIR18NPTF... | 16 50 2.50 1.00 1.00  | 6.0 SMC..-6.0   |

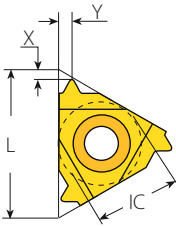
Outil à gauche fourni à la demande. (Exemple: 6.0SIL18NPTF...)

# NPS

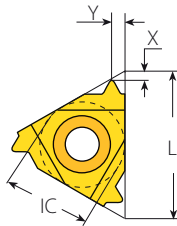
## Extérieur / Intérieur



Norme: USA NBS H28 (1957)  
Classe de tolérance: Standard NPS



Extérieur - Standard



Intérieur - Standard

## Extérieur

### Standard



| Taille plaquette |      | Pas  | Référence     |               | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|------|---------------|---------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi  | RH            | LH            | h min         | X   | Y   | RH             | LH  |              |
| 3/8"             | 16   | 24   | 3ER24NPS...   | 3EL24NPS...   | 0.79          | 0.7 | 0.8 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 16   | 3ER16NPS...   | 3EL16NPS...   | 1.21          | 0.8 | 1.1 |                |     |              |
|                  |      | 14   | 3ER14NPS...   | 3EL14NPS...   | 1.33          | 0.9 | 1.2 |                |     |              |
|                  |      | 12   | 3ER12NPS...   | 3EL12NPS...   | 1.63          | 1.1 | 1.4 |                |     |              |
|                  |      | 11.5 | 3ER11.5NPS... | 3EL11.5NPS... | 1.71          | 1.1 | 1.5 |                |     |              |
| 1/2"             | 22   | 9    | 3ER9NPS...    | 3EL9NPS...    | 2.20          | 1.2 | 1.6 | YE4            | YI4 | AL...-4 (LH) |
|                  |      | 8    | 4ER8NPS...    | 4EL8NPS...    | 2.46          | 1.3 | 1.9 |                |     |              |
|                  |      | 7    | 4ER7NPS...    | 4EL7NPS...    | 2.82          | 1.6 | 2.3 |                |     |              |
| 5/8"             | 27   | 6    | 4ER6NPS...    | 4EL6NPS...    | 3.31          | 1.6 | 2.3 | YE5            | YI5 | AL...-5 (LH) |
|                  |      | 5    | 5ER5NPS...    | 5EL5NPS...    | 3.98          | 1.9 | 2.8 |                |     |              |

## Intérieur

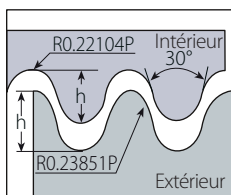
### Standard



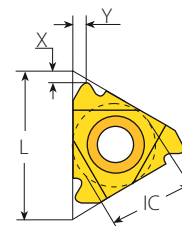
| Taille plaquette |      | Pas  | Référence     |               | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils  |
|------------------|------|------|---------------|---------------|---------------|-----|-----|----------------|-----|---------------|
| IC               | L mm | tpi  | RH            | LH            | h min         | X   | Y   | RH             | LH  |               |
| 3/8"             | 16   | 24   | 3IR24NPS...   | 3IL24NPS...   | 0.79          | 0.7 | 0.8 | YI3            | YE3 | AVR...-3 (LH) |
|                  |      | 14   | 3IR14NPS...   | 3IL14NPS...   | 1.33          | 0.9 | 1.2 |                |     |               |
|                  |      | 12   | 3IR12NPS...   | 3IL12NPS...   | 1.63          | 1.1 | 1.4 |                |     |               |
|                  |      | 11.5 | 3IR11.5NPS... | 3IL11.5NPS... | 1.71          | 1.1 | 1.5 |                |     |               |
| 1/2"             | 22   | 9    | 3IR9NPS...    | 3IL9NPS...    | 2.20          | 1.2 | 1.6 | YI4            | YE4 | AVR...-4 (LH) |
|                  |      | 8    | 4IR8NPS...    | 4IL8NPS...    | 2.46          | 1.3 | 1.9 |                |     |               |
|                  |      | 7    | 4IR7NPS...    | 4IL7NPS...    | 2.82          | 1.6 | 2.3 |                |     |               |
| 5/8"             | 27   | 6    | 4IR6NPS...    | 4IL6NPS...    | 3.31          | 1.6 | 2.3 | YI5            | YE5 | AVR...-5 (LH) |
|                  |      | 5    | 5IR5NPS...    | 5IL5NPS...    | 3.98          | 1.9 | 2.8 |                |     |               |

## Rond (DIN 405)

### Extérieur



Norme: DIN 405  
Classe de tolérance: 7h/7H



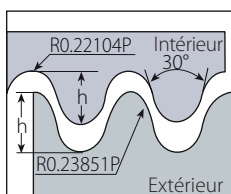
Standard

### Standard

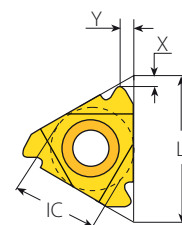


| Taille plaquette |      | Pas | Référence  |            | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|------------|------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH         | LH         | h min         | X   | Y   | RH             | LH  |              |
| 3/8"             | 16   | 10  | 3ER10RD... | 3EL10RD... | 1.27          | 1.1 | 1.2 | YE3            | YI3 | AL..-3 (LH)  |
|                  |      | 8   | 3ER8RD...  | 3EL8RD...  | 1.59          | 1.4 | 1.3 |                |     |              |
|                  |      | 6   | 3ER6RD...  | 3EL6RD...  | 2.12          | 1.5 | 1.7 |                |     |              |
| 1/2"             | 22   | 6   | 4ER6RD...  | 4EL6RD...  | 2.12          | 1.5 | 1.7 | YE4            | YI4 | AL..-4 (LH)  |
|                  |      | 4   | 4ER4RD...  | 4EL4RD...  | 3.18          | 2.2 | 2.3 |                |     |              |
| 5/8"             | 27   | 4   | 5ER4RD...  | 5EL4RD...  | 3.18          | 2.2 | 2.3 | YE5            | YI5 | AL..-5 (LH)  |

### Intérieur



Norme: DIN 405  
Classe de tolérance: 7h/7H



Standard

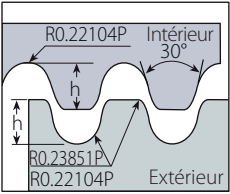
### Standard



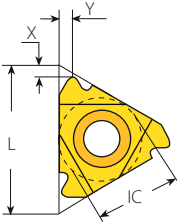
| Taille plaquette |      | Pas | Référence  |            | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|------------|------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH         | LH         | h min         | X   | Y   | RH             | LH  |              |
| 3/8"             | 16   | 10  | 3IR10RD... | 3IL10RD... | 1.27          | 1.1 | 1.2 | YI3            | YE3 | AVR..-3 (LH) |
|                  |      | 8   | 3IR8RD...  | 3IL8RD...  | 1.59          | 1.4 | 1.4 |                |     |              |
|                  |      | 6   | 3IR6RD...  | 3IL6RD...  | 2.12          | 1.4 | 1.5 |                |     |              |
| 1/2"             | 22   | 6   | 4IR6RD...  | 4IL6RD...  | 2.12          | 1.5 | 1.7 | YI4            | YE4 | AVR..-4 (LH) |
|                  |      | 4   | 4IR4RD...  | 4IL4RD...  | 3.18          | 2.2 | 2.3 |                |     |              |
| 5/8"             | 27   | 4   | 5IR4RD...  | 5IL4RD...  | 3.18          | 2.2 | 2.3 | YI5            | YE5 | AVR..-5 (LH) |

# Rond (DIN 20400)

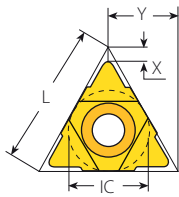
## Extérieur



Norme: DIN 20400  
Classe de tolérance: Standard



Standard



Type U

## Standard



| Taille plaquette |      | Pas | Référence        |                  | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|------------------|------------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | mm  | RH               | LH               | h min         | X   | Y   | RH             | LH  |              |
| 1/2"             | 22   | 3.0 | 4ER3.0RD20400... | 4EL3.0RD20400... | 1.65          | 1.3 | 1.7 | YE4            | YI4 | AL...-4 (LH) |
|                  |      | 4.0 | 4ER4.0RD20400... | 4EL4.0RD20400... | 2.20          | 1.6 | 2.2 |                |     |              |
|                  |      | 5.0 | 4ER5.0RD20400... | 4EL5.0RD20400... | 2.75          | 1.4 | 1.7 |                |     |              |
|                  |      | 6.0 | 4ER6.0RD20400... | 4EL6.0RD20400... | 3.30          | 1.7 | 2.1 |                |     |              |

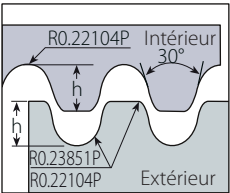
## Type U



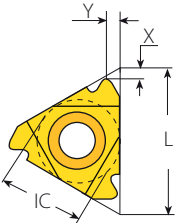
| Taille plaquette |      | Pas | Référence         |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|-------------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | mm  | RH+LH             |  | h min         | X   | Y    | RH             | LH   |               |
| 5/8"U            | 27   | 8.0 | 5UEI8.0RD20400... |  | 4.4           | 2.9 | 13.5 | YE5U           | YI5U | AL...-5U (LH) |

# Rond (DIN 20400)

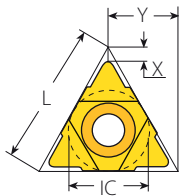
## Intérieur



Norme: DIN 20400  
Classe de tolérance: Standard



Standard



Type U

## Standard



| Taille plaquette |      | Pas | Référence        |                  | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils  |
|------------------|------|-----|------------------|------------------|---------------|-----|-----|----------------|-----|---------------|
| IC               | L mm | mm  | RH               | LH               | h min         | X   | Y   | RH             | LH  |               |
| 1/2"             | 22   | 3.0 | 4IR3.0RD20400... | 4IL3.0RD20400... | 1.65          | 1.3 | 1.7 | YI4            | YE4 | AVR...-4 (LH) |
|                  |      | 4.0 | 4IR4.0RD20400... | 4IL4.0RD20400... | 2.20          | 1.6 | 2.2 |                |     |               |
|                  |      | 5.0 | 4IR5.0RD20400... | 4IL5.0RD20400... | 2.75          | 1.4 | 1.7 |                |     |               |
|                  |      | 6.0 | 4IR6.0RD20400... | 4IL6.0RD20400... | 3.30          | 1.7 | 2.1 |                |     |               |

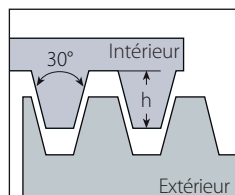
## Type U



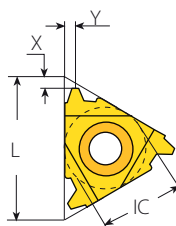
| Taille plaquette |      | Pas | Référence         |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils   |
|------------------|------|-----|-------------------|--|---------------|-----|------|----------------|------|----------------|
| IC               | L mm | mm  | RH+LH             |  | h min         | X   | Y    | RH             | LH   |                |
| 5/8"U            | 27   | 8.0 | 5UEI8.0RD20400... |  | 4.4           | 2.9 | 13.5 | YI5U           | YE5U | AVR...-5U (LH) |

# Trapèze

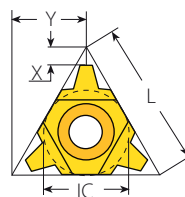
## Extérieur



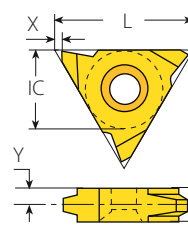
Norme: DIN 103  
Classe de tolérance: 7e/7H



Standard



Type U



Type V

## Standard



| Taille plaquette |      | Pas | Référence   |             | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|-------------|-------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | mm  | RH          | LH          | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 1.5 | 2ER1.5TR... | 2EL1.5TR... | 0.90          | 0.8 | 0.9 | -              | -   | NL..-2 (LH)  |
| 3/8"             | 16   | 1.5 | 3ER1.5TR... | 3EL1.5TR... | 0.90          | 1.0 | 1.1 | YE3            | YI3 | AL..-3 (LH)  |
|                  |      | 2.0 | 3ER2.0TR... | 3EL2.0TR... | 1.25          | 1.1 | 1.3 |                |     |              |
|                  |      | 2.5 | 3ER2.5TR... | 3EL2.5TR... | 1.55          | 1.2 | 1.4 |                |     |              |
|                  |      | 3.0 | 3ER3.0TR... | 3EL3.0TR... | 1.75          | 1.3 | 1.5 |                |     |              |
| 1/2"             | 22   | 4.0 | 4ER4.0TR... | 4EL4.0TR... | 2.25          | 1.7 | 1.9 | YE4            | YI4 | AL..-4 (LH)  |
|                  |      | 5.0 | 4ER5.0TR... | 4EL5.0TR... | 2.75          | 2.1 | 2.5 |                |     |              |
|                  |      | 6.0 | 4ER6.0TR... | 4EL6.0TR... | 3.50          | 2.3 | 2.7 |                |     |              |
| 5/8"             | 27   | 6.0 | 5ER6.0TR... | 5EL6.0TR... | 3.50          | 2.3 | 2.7 | YE5            | YI5 | AL..-5 (LH)  |

## Type U



| Taille plaquette |      | Pas | Référence   |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils |
|------------------|------|-----|-------------|--|---------------|-----|------|----------------|------|--------------|
| IC               | L mm | mm  | RH+LH       |  | h min         | X   | Y    | RH             | LH   |              |
| 1/2"U            | 22   | 6.0 | 4UE6.0TR... |  | 3.50          | 2.0 | 11.0 | YE4U           | YI4U | AL..-4U (LH) |
|                  |      | 7.0 | 4UE7.0TR... |  | 4.00          | 2.3 | 11.0 |                |      |              |
|                  |      | 8.0 | 4UE8.0TR... |  | 4.50          | 2.6 | 11.0 |                |      |              |
| 5/8"U            | 27   | 8.0 | 5UE8.0TR... |  | 4.50          | 2.6 | 13.7 | YE5U           | YI5U | AL..-5U (LH) |
|                  |      | 9.0 | 5UE9.0TR... |  | 5.00          | 3.0 | 13.7 |                |      |              |

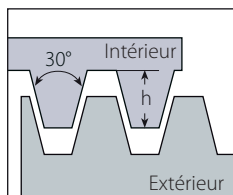
## Type V



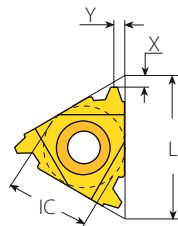
| Taille plaquette |      | Pas  | Référence     |               | Dimensions mm |     |     |    | Porte-outils    |
|------------------|------|------|---------------|---------------|---------------|-----|-----|----|-----------------|
| IC               | L mm | mm   | RH            | LH            | h min         | X   | Y   | T  |                 |
| 5/8"V            | 27   | 6.0  | 5VER6.0TR...  | 5VEL6.0TR...  | 3.50          | 1.0 | 3.3 | 6  | NL..-5V-6 (LH)  |
|                  |      | 7.0  | 5VER7.0TR...  | 5VEL7.0TR...  | 4.00          | 1.0 | 3.3 | 6  |                 |
|                  |      | 8.0  | 5VER8.0TR...  | 5VEL8.0TR...  | 4.50          | 1.0 | 3.3 | 6  |                 |
|                  |      | 9.0  | 5VER9.0TR...  | 5VEL9.0TR...  | 5.00          | 1.0 | 4.3 | 8  | NL..-5V-8 (LH)  |
|                  |      | 10.0 | 5VER10.0TR... | 5VEL10.0TR... | 5.50          | 1.0 | 4.3 | 8  |                 |
|                  |      | 12.0 | 5VER12.0TR... | 5VEL12.0TR... | 6.50          | 1.0 | 5.2 | 10 | NL..-5V-10 (LH) |

## Trapèze (Suite)

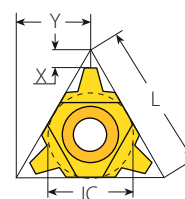
### Intérieur



Norme: DIN 103  
Classe de tolérance: 7e/7H



Standard



Type U

### Standard



| Taille plaquette |      | Pas | Référence   |             | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils  |
|------------------|------|-----|-------------|-------------|---------------|-----|-----|----------------|-----|---------------|
| IC               | L mm | mm  | RH          | LH          | h min         | X   | Y   | RH             | LH  |               |
| 1/4"             | 11   | 1.5 | 2IR1.5TR... | 2IL1.5TR... | 0.90          | 0.8 | 0.9 | -              | -   | NVR...-2 (LH) |
| 3/8"             | 16   | 1.5 | 3IR1.5TR... | 3IL1.5TR... | 0.90          | 1.0 | 1.1 | YI3            | YE3 | AVR...-3 (LH) |
|                  |      | 2.0 | 3IR2.0TR... | 3IL2.0TR... | 1.25          | 1.1 | 1.3 |                |     |               |
|                  |      | 2.5 | 3IR2.5TR... | 3IL2.5TR... | 1.53          | 1.2 | 1.4 |                |     |               |
|                  |      | 3.0 | 3IR3.0TR... | 3IL3.0TR... | 1.75          | 1.3 | 1.5 |                |     |               |
| 1/2"             | 22   | 4.0 | 4IR4.0TR... | 4IL4.0TR... | 2.25          | 1.7 | 1.9 | YI4            | YE4 | AVR...-4 (LH) |
|                  |      | 5.0 | 4IR5.0TR... | 4IL5.0TR... | 2.75          | 2.1 | 2.5 |                |     |               |
|                  |      | 6.0 | 4IR6.0TR... | 4IL6.0TR... | 3.50          | 2.3 | 2.7 |                |     |               |
| 5/8"             | 27   | 6.0 | 5IR6.0TR... | 5IL6.0TR... | 3.50          | 2.3 | 2.7 | YI5            | YE5 | AVR...-5 (LH) |

### Gros pas

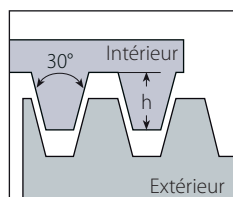


| Filet  | Taille plaquette |      | Référence           | Dimensions mm |      |      | Diam. mini de perçage |      |
|--------|------------------|------|---------------------|---------------|------|------|-----------------------|------|
|        | IC               | L mm | RH/LH               | h min         | X    | Y    | Porte-outils          | mm   |
| TR18x4 | 3/8"U            | 16   | 3UIR4.0TR...158/013 | 2.25          | 2.10 | 8.0  | NVRC11-3U 156/020     | 14.0 |
| TR20x4 | 3/8"             | 16   | 3IR4.0TR...158/012  | 2.25          | 1.53 | 1.9  | NVRC13-3 156/006      | 16.0 |
| TR22x5 | 3/8"U            | 16   | 3UIR5.0TR...158/011 | 2.75          | 1.56 | 8.0  | NVRC14-3U 156/018     | 17.0 |
| TR24x5 |                  |      | 3UIR5.0TR...158/011 | 2.75          | 1.56 | 8.0  | NVRC15-3U 156/019     | 19.0 |
| TR26x5 |                  |      | 3UIR5.0TR...158/011 | 2.75          | 1.56 | 8.0  | NVRC15-3U 156/019     | 21.0 |
| TR28x5 |                  |      | 4IR5.0TR...         | 2.75          | 2.30 | 2.7  | NVRC20-4 156/008      | 23.0 |
| TR30x6 | 1/2"U            | 22   | 4UIR6.0TR...158/007 | 3.50          | 1.94 | 11.0 | NVRC20-4U 156/011     | 24.0 |
| TR36x6 | 5/8"             | 27   | 5IR6.0TR...         | 3.50          | 2.30 | 2.7  | NVRC25-5 156/012      | 30.0 |
| TR38x7 | 1/2"U            | 22   | 4UIR7.0TR...158/008 | 4.00          | 2.27 | 11.0 | NVRC25-4U 156/013     | 31.0 |
| TR40x7 |                  |      | 4UIR7.0TR...158/008 | 4.00          | 2.27 | 11.0 | NVRC25-4U 156/013     | 33.0 |
| TR42x7 |                  |      | 4UIR7.0TR...158/008 | 4.00          | 2.27 | 11.0 | NVRC32-4U 156/014     | 35.0 |
| TR44x7 |                  |      | 4UIR7.0TR...158/008 | 4.00          | 2.27 | 11.0 | NVRC32-4U 156/014     | 37.0 |
| TR46x8 | 5/8"U            | 27   | 5UIR8.0TR...158/010 | 4.50          | 2.59 | 13.5 | NVRC32-5U 156/015     | 38.0 |
| TR48x8 |                  |      | 5UIR8.0TR...158/010 | 4.50          | 2.59 | 13.5 | NVRC32-5U 156/015     | 40.0 |
| TR50x8 |                  |      | 5UIR8.0TR...158/010 | 4.50          | 2.59 | 13.5 | NVRC32-5U 156/015     | 42.0 |
| TR52x8 |                  |      | 5UIR8.0TR...158/010 | 4.50          | 2.59 | 13.5 | NVRC32-5U 156/015     | 44.0 |

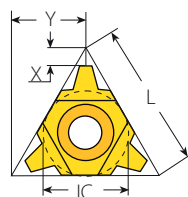
Les plaquettes de type U peuvent être utilisés pour les applications droites et gauches

# Trapèze (Suite)

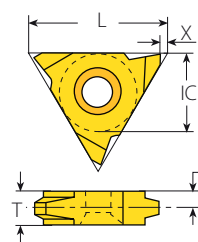
## Intérieur



Norme: DIN 103  
Classe de tolérance: 7e/7H



Type U



Type V

## Type U



| Taille plaquette |      | Pas | Référence   | Dimensions mm |     |      | Sous-plaquette |      |                |
|------------------|------|-----|-------------|---------------|-----|------|----------------|------|----------------|
| IC               | L mm | mm  | RH+LH       | h min         | X   | Y    | RH             | LH   | Porte-outils   |
| 1/2"U            | 22   | 6.0 | 4UI6.0TR... | 3.50          | 2.0 | 11.0 | YI4U           | YE4U | AVR...-4U (LH) |
|                  |      | 7.0 | 4UI7.0TR... | 4.00          | 2.3 | 11.0 |                |      |                |
|                  |      | 8.0 | 4UI8.0TR... | 4.50          | 2.6 | 11.0 |                |      |                |
| 5/8"U            | 27   | 8.0 | 5UI8.0TR... | 4.50          | 2.6 | 13.7 | YI5U           | YE5U | AVR...-5U (LH) |
|                  |      | 9.0 | 5UI9.0TR... | 5.00          | 3.0 | 13.7 |                |      |                |

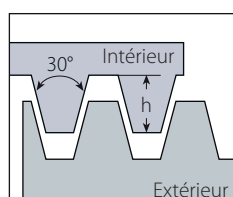
## Type V



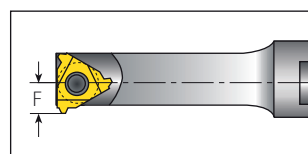
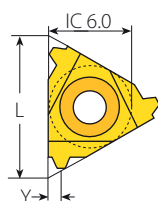
| Taille plaquette | Pas  | Référence | Dimensions mm |               |       |     |     |    | Porte-outils   |
|------------------|------|-----------|---------------|---------------|-------|-----|-----|----|----------------|
| IC               | L mm | mm        | RH            | LH            | h min | X   | Y   | T  |                |
| 5/8"V            | 27   | 6.0       | 5VIR6.0TR...  | 5VIL6.0TR...  | 3.50  | 1.0 | 3.3 | 6  | NVR...-5V (LH) |
|                  |      | 7.0       | 5VIR7.0TR...  | 5VIL7.0TR...  | 4.00  | 1.0 | 3.3 | 6  |                |
|                  |      | 8.0       | 5VIR8.0TR...  | 5VIL8.0TR...  | 4.50  | 1.0 | 3.3 | 6  |                |
|                  |      | 9.0       | 5VIR9.0TR...  | 5VIL9.0TR...  | 5.00  | 1.0 | 4.3 | 8  |                |
|                  |      | 10.0      | 5VIR10.0TR... | 5VIL10.0TR... | 5.50  | 1.0 | 4.3 | 8  |                |
|                  |      | 12.0      | 5VIR12.0TR... | 5VIL12.0TR... | 6.50  | 1.0 | 5.2 | 10 |                |



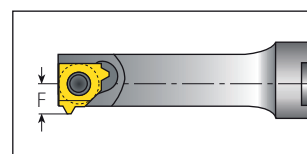
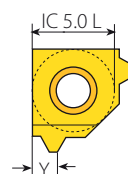
## Intérieur



Norme: DIN 103  
Classe de tolérance: 7e/7H



Mini-3



Mini-L

## Mini-3



| Taille plaquette | Pas  | Référence | Dimensions mm |       |      | Diam. mini de perçage |      | Porte-outils |
|------------------|------|-----------|---------------|-------|------|-----------------------|------|--------------|
| IC               | L mm | mm        | RH            | h min | Y    | F                     | mm   |              |
| 6.0              | 10   | 1.5       | 6.0IR1.5TR... | 0.85  | 0.85 | 5.3                   | 10.0 | .NVR1...-6.0 |
|                  |      | 2.0       | 6.0IR2.0TR... | 1.25  | 1.30 | 5.3                   | 10.0 |              |

## Mini-L

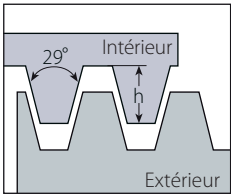


| Taille plaquette | Pas | Référence    | Dimensions mm |      |      | Diam. mini de perçage |              |
|------------------|-----|--------------|---------------|------|------|-----------------------|--------------|
| IC mm            | mm  | RH           | h min         | Y    | F    | mm                    | Porte-outils |
| 5.0L             | 1.5 | 5LIR1.5TR... | 0.85          | 0.85 | 4.65 | 8.0                   | .NVR 10.-5L  |
|                  | 2.0 | 5LIR2.0TR... | 1.25          | 1.30 | 4.65 | 8.0                   |              |

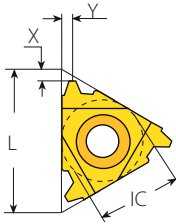
Outil à gauche fourni à la demande. (Exemple: 6.0IL2.0TR...)

# Américain ACME

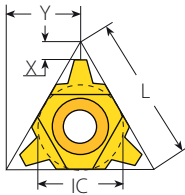
## Extérieur



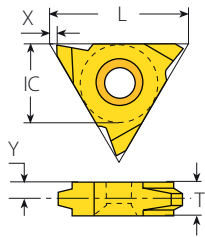
Norme: ANSI B1.5:1988  
Classe de tolérance: 3G



Standard



Type U



Type V

## Standard



| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |        |              |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|--------|--------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH     | Porte-outils |
| 1/4"             | 11   | 16  | 2ER16ACME... | 2EL16ACME... | 0.92          | 1.0 | 1.1 | -              | -      | NL..-2 (LH)  |
| 3/8"             | 16   | 16  | 3ER16ACME... | 3EL16ACME... | 0.92          | 1.0 | 1.1 | YE3            | YI3    | AL..-3 (LH)  |
|                  |      | 14  | 3ER14ACME... | 3EL14ACME... | 1.03          | 1.0 | 1.2 |                |        |              |
|                  |      | 12  | 3ER12ACME... | 3EL12ACME... | 1.19          | 1.1 | 1.2 |                |        |              |
|                  |      | 10  | 3ER10ACME... | 3EL10ACME... | 1.52          | 1.3 | 1.4 |                |        |              |
|                  |      | 8   | 3ER8ACME...  | 3EL8ACME...  | 1.84          | 1.4 | 1.5 |                |        |              |
|                  |      | 7   | 3ER7ACME...  | 3EL7ACME...  | 2.08          | 1.9 | 2.2 |                |        |              |
|                  |      | 6   | 3ER6ACME...  | 3EL6ACME...  | 2.37          | 1.7 | 1.9 | YE3AC6         | YI3AC6 |              |
| 1/2"             | 22   | 7   | 4ER7ACME...  | 4EL7ACME...  | 2.08          | 1.9 | 2.2 | YE4            | YI4    | AL..-4 (LH)  |
|                  |      | 6   | 4ER6ACME...  | 4EL6ACME...  | 2.37          | 1.8 | 2.1 |                |        |              |
|                  |      | 5   | 4ER5ACME...  | 4EL5ACME...  | 2.79          | 2.0 | 2.3 |                |        |              |
| 5/8"             | 27   | 4   | 5ER4ACME...  | 5EL4ACME...  | 3.43          | 2.4 | 2.7 | YE5            | YI5    | AL..-5 (LH)  |

## Type U



| Taille plaquette |      | Pas | Référence   |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|-------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi | RH+LH       |  | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 3   | 4UE3ACME... |  | 4.49          | 3.0 | 11.0 | YE4U           | YI4U | AL...-4U (LH) |
|                  |      | 4   | 4UE4ACME... |  | 3.43          | 2.3 | 11.0 |                |      |               |
| 5/8"U            | 27   | 3   | 5UE3ACME... |  | 4.49          | 3.0 | 13.7 | YE5U           | YI5U | AL...-5U (LH) |

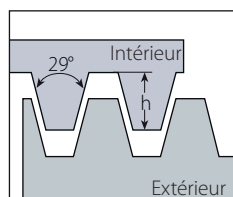
## Type V



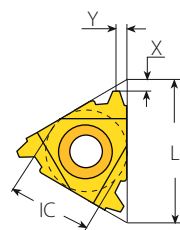
| Taille plaquette |      | Pas | Référence      |                | Dimensions mm |     |     |    | Porte-outils     |
|------------------|------|-----|----------------|----------------|---------------|-----|-----|----|------------------|
| IC               | L mm | tpi | RH             | LH             | h min         | X   | Y   | T  |                  |
| 5/8"V            | 27   | 4   | 5VER4ACME...   | 5VEL4ACME...   | 3.43          | 1.0 | 3.3 | 6  | NL...-5V-6 (LH)  |
|                  |      | 3.5 | 5VER3.5ACME... | 5VEL3.5ACME... | 3.85          | 1.0 | 3.3 | 6  |                  |
|                  |      | 3   | 5VER3ACME...   | 5VEL3ACME...   | 4.49          | 1.0 | 3.3 | 6  |                  |
|                  |      | 2   | 5VER2ACME...   | 5VEL2ACME...   | 6.60          | 1.0 | 5.2 | 10 | NL...-5V-10 (LH) |

## Américain ACME (Suite)

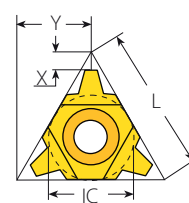
### Intérieur



Norme: ANSI B1.5:1988  
Classe de tolérance: 3G



Standard



Type U

### Standard



| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 16  | 2IR16ACME... | 2IL16ACME... | 0.92          | 0.9 | 0.9 | -              | -   | NVR..-2 (LH) |
| 3/8"             | 16   | 16  | 3IR16ACME... | 3IL16ACME... | 0.92          | 1.0 | 1.1 | YI3            | YE3 | AVR..-3 (LH) |
|                  |      | 14  | 3IR14ACME... | 3IL14ACME... | 1.03          | 1.1 | 1.2 |                |     |              |
|                  |      | 12  | 3IR12ACME... | 3IL12ACME... | 1.19          | 1.2 | 1.3 |                |     |              |
|                  |      | 10  | 3IR10ACME... | 3IL10ACME... | 1.52          | 1.2 | 1.3 |                |     |              |
|                  |      | 8   | 3IR8ACME...  | 3IL8ACME...  | 1.84          | 1.4 | 1.5 |                |     |              |
|                  |      | 6   | 3IR6ACME...  | 3IL6ACME...  | 2.37          | 1.7 | 1.9 |                |     |              |
| 1/2"             | 22   | 6   | 4IR6ACME...  | 4IL6ACME...  | 2.37          | 1.8 | 2.1 | YI4            | YE4 | AVR..-4 (LH) |
|                  |      | 5   | 4IR5ACME...  | 4IL5ACME...  | 2.79          | 2.0 | 2.3 |                |     |              |
| 5/8"             | 27   | 4   | 5IR4ACME...  | 5IL4ACME...  | 3.43          | 2.3 | 2.6 | YI5            | YE5 | AVR..-5 (LH) |

### Gros pas



| Filet    | Taille plaquette |      | Référence              | Dimensions mm |     |     | Sous-plaquette |              | Diam. mini de perçage |       |
|----------|------------------|------|------------------------|---------------|-----|-----|----------------|--------------|-----------------------|-------|
| tpi      | IC               | L mm | RH/LH                  | h min         | X   | Y   | RH             | Porte-outils | mm                    |       |
| 1/2"x10  | 6.0U             | 10   | 6.0UIR10ACME...158/005 | 1.52          | 1.0 | 5.2 | -              | NVRC 8-6.0U  | 156/003               | 10.16 |
| 5/8"x8   | 1/4"U            | 11   | 2UIR8ACME...158/006    | 1.84          | 1.0 | 5.5 | -              | NVRC 10-2U   | 156/004               | 12.70 |
| 3/4"x6   | 3/8"             | 16   | 3IR6ACME...            | 2.37          | 1.7 | 1.8 | -              | NVRC 11-3    | 156/005               | 14.82 |
| 7/8"x6   |                  |      | 3IR6ACME...            | 2.37          | 1.7 | 1.8 | -              | NVRC 13-3    | 156/006               | 18.42 |
| 1"x5     | 1/2"             | 22   | 4IR5ACME...            | 2.79          | 2.0 | 2.3 | -              | NVRC 17-4    | 156/007               | 20.32 |
| 1 1/8"x5 |                  |      | 4IR5ACME...            | 2.79          | 2.0 | 2.3 | -              | NVRC 20-4    | 156/008               | 24.00 |
| 1 1/4"x5 |                  |      | 4IR5ACME...            | 2.79          | 2.0 | 2.3 | -              | NVRC 20-4    | 156/009               | 27.18 |
| 1 1/2"x4 | 5/8"             | 27   | 5IR4ACME...            | 3.43          | 2.3 | 2.6 | -              | NVRC 28-5    | 156/010               | 32.38 |
| 1 3/4"x4 |                  |      | 5IR4ACME...            | 3.43          | 2.3 | 2.6 | YI5 - 1P       | AVRC 32-5    |                       | 38.74 |

Les plaquettes de type U peuvent être utilisés pour les applications droites et gauches

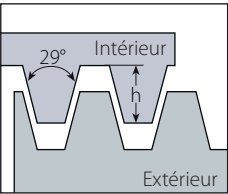
### Type U



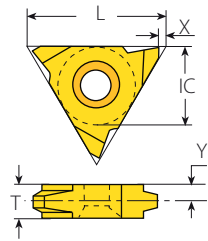
| Taille plaquette |      | Pas | Référence   | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|-------------|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi | RH+LH       | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 4   | 4UI4ACME... | 3.43          | 2.3 | 11.0 | YI4U           | YE4U | AVR..-4U (LH) |
|                  |      | 3   | 4UI3ACME... | 4.49          | 2.9 | 11.0 |                |      |               |
| 5/8"U            | 27   | 3   | 5UI3ACME... | 4.49          | 2.9 | 13.7 | YI5U           | YE5U | AVR..-5U (LH) |

# Américain ACME (Suite)

## Intérieur



Norme: ANSI B1.5:1988  
Classe de tolérance: 3G



Type V

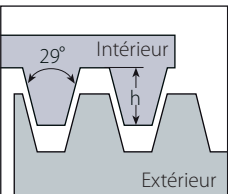
## Type V



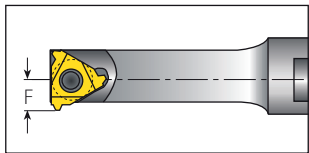
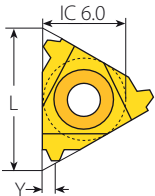
| Taille plaquette | Pas  | Référence |                | Dimensions mm  |       |     |     |    | Porte-outils   |
|------------------|------|-----------|----------------|----------------|-------|-----|-----|----|----------------|
| IC               | L mm | tpi       | RH             | LH             | h min | X   | Y   | T  |                |
| 5/8"V            | 27   | 4         | 5VIR4ACME...   | 5VIL4ACME...   | 3.43  | 1.0 | 3.3 | 6  | NVR...-5V (LH) |
|                  |      | 3.5       | 5VIR3.5ACME... | 5VIL3.5ACME... | 3.85  | 1.0 | 3.3 | 6  |                |
|                  |      | 3         | 5VIR3ACME...   | 5VIL3ACME...   | 4.49  | 1.0 | 3.3 | 6  |                |
|                  |      | 2         | 5VIR2ACME...   | 5VIL2ACME...   | 6.60  | 1.0 | 5.2 | 10 |                |



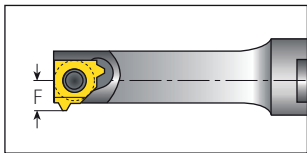
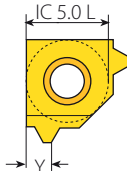
## Intérieur



Norme: ANSI B1.5:1988  
Classe de tolérance: 3G



Mini-3



Mini-L

## Mini-3



| Taille plaquette | Pas  | Référence |                | Dimensions mm |     |     |      | Diam. mini de perçage | Porte-outils |
|------------------|------|-----------|----------------|---------------|-----|-----|------|-----------------------|--------------|
| IC               | L mm | tpi       | RH             | h min         | Y   | F   | mm   |                       |              |
| 6.0              | 10   | 12        | 6.0IR12ACME... | 1.19          | 1.1 | 5.1 | 10.0 |                       | .NVR1...-6.0 |

## Mini-L

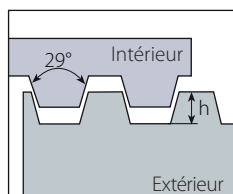


| Taille plaquette | Pas | Référence     |       | Dimensions mm |      |     |  | Diam. mini de perçage | Porte-outils  |
|------------------|-----|---------------|-------|---------------|------|-----|--|-----------------------|---------------|
| IC mm            | tpi | RH            | h min | Y             | F    | mm  |  |                       |               |
| 5.0L             | 12  | 5LIR12ACME... | 1.19  | 1.1           | 4.42 | 8.0 |  |                       | .NVR 10...-5L |

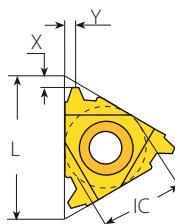
Outil à gauche fourni à la demande. (Exemple: 6.0IL12ACME...)

# Stub ACME

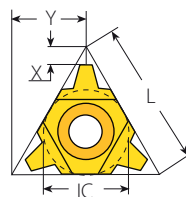
## Extérieur



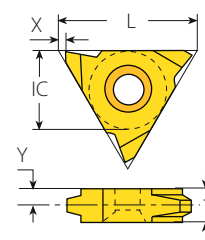
Norme: ANSI B1.8:1988  
Classe de tolérance: 2G



Standard



Type U



Type V

## Standard



| Taille plaquette |      | Pas | Référence      |                | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|----------------|----------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH             | LH             | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 16  | 2ER16STACME... | 2EL16STACME... | 0.60          | 1.0 | 1.0 | -              | -   | NL...-2 (LH) |
| 3/8"             | 16   | 16  | 3ER16STACME... | 3EL16STACME... | 0.60          | 1.0 | 1.0 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 14  | 3ER14STACME... | 3EL14STACME... | 0.67          | 1.1 | 1.1 |                |     |              |
|                  |      | 12  | 3ER12STACME... | 3EL12STACME... | 0.76          | 1.2 | 1.2 |                |     |              |
|                  |      | 10  | 3ER10STACME... | 3EL10STACME... | 1.02          | 1.2 | 1.3 |                |     |              |
|                  |      | 8   | 3ER8STACME...  | 3EL8STACME...  | 1.21          | 1.4 | 1.5 |                |     |              |
|                  |      | 6   | 3ER6STACME...  | 3EL6STACME...  | 1.52          | 1.7 | 1.8 |                |     |              |
| 1/2"             | 22   | 6   | 4ER6STACME...  | 4EL6STACME...  | 1.52          | 1.7 | 1.8 | YE4            | YI4 | AL...-4 (LH) |
|                  |      | 5   | 4ER5STACME...  | 4EL5STACME...  | 1.78          | 2.1 | 2.3 |                |     |              |
|                  |      | 4   | 4ER4STACME...  | 4EL4STACME...  | 2.16          | 2.3 | 2.3 |                |     |              |
| 5/8"             | 27   | 4   | 5ER4STACME...  | 5EL4STACME...  | 2.16          | 2.3 | 2.4 | YE5            | YI5 | AL...-5 (LH) |
|                  |      | 3   | 5ER3STACME...  | 5EL3STACME...  | 2.79          | 2.9 | 2.9 |                |     |              |

## Type U



| Taille plaquette |      | Pas | Référence     |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|---------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi | RH+LH         |  | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 4   | 4UE4STACME... |  | 2.16          | 2.6 | 11.0 | YE4U           | YI4U | AL...-4U (LH) |
|                  |      | 3   | 4UE3STACME... |  | 2.79          | 3.4 | 11.0 |                |      |               |

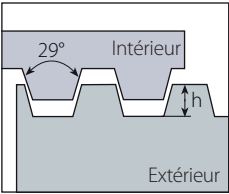
## Type V



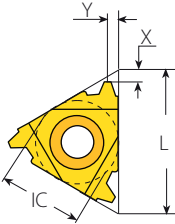
| Taille plaquette |      | Pas | Référence      |                | Dimensions mm |     |     |   | Porte-outils    |
|------------------|------|-----|----------------|----------------|---------------|-----|-----|---|-----------------|
| IC               | L mm | tpi | RH             | LH             | h min         | X   | Y   | T |                 |
| 5/8"V            | 27   | 4   | 5VER4STACME... | 5VEL4STACME... | 2.16          | 1.0 | 3.3 | 6 | NL...-5V-6 (LH) |
|                  |      | 3   | 5VER3STACME... | 5VEL3STACME... | 2.79          | 1.0 | 3.3 | 6 |                 |
|                  |      | 2   | 5VER2STACME... | 5VEL2STACME... | 4.06          | 1.0 | 4.3 | 8 |                 |

# Stub ACME (Suite)

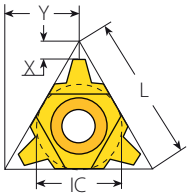
## Intérieur



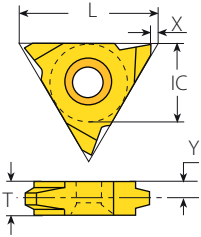
Norme: ANSI B1.8:1988  
Classe de tolérance: 2G



Standard



Type U



Type V

## Standard



| Taille plaquette |      | Pas | Référence      |                | Dimensions mm |     |     | Sous-plaquette |     |              |
|------------------|------|-----|----------------|----------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH             | LH             | h min         | X   | Y   | RH             | LH  | Porte-outils |
| 1/4"             | 11   | 16  | 2IR16STACME... | 2IL16STACME... | 0.60          | 1.0 | 1.0 | -              | -   | NVR..-2 (LH) |
| 3/8"             | 16   | 16  | 3IR16STACME... | 3IL16STACME... | 0.60          | 1.0 | 1.0 | YI3            | YE3 | AVR..-3 (LH) |
|                  |      | 14  | 3IR14STACME... | 3IL14STACME... | 0.67          | 1.1 | 1.1 |                |     |              |
|                  |      | 12  | 3IR12STACME... | 3IL12STACME... | 0.76          | 1.1 | 1.2 |                |     |              |
|                  |      | 10  | 3IR10STACME... | 3IL10STACME... | 1.02          | 1.2 | 1.3 |                |     |              |
|                  |      | 8   | 3IR8STACME...  | 3IL8STACME...  | 1.21          | 1.4 | 1.5 |                |     |              |
|                  |      | 6   | 3IR6STACME...  | 3IL6STACME...  | 1.52          | 1.7 | 1.8 |                |     |              |
| 1/2"             | 22   | 6   | 4IR6STACME...  | 4IL6STACME...  | 1.52          | 1.7 | 1.8 | YI4            | YE4 | AVR..-4 (LH) |
|                  |      | 5   | 4IR5STACME...  | 4IL5STACME...  | 1.78          | 2.1 | 2.3 |                |     |              |
|                  |      | 4   | 4IR4STACME...  | 4IL4STACME...  | 2.16          | 2.3 | 2.3 |                |     |              |
| 5/8"             | 27   | 4   | 5IR4STACME...  | 5IL4STACME...  | 2.16          | 2.3 | 2.4 | YI5            | YE5 | AVR..-5 (LH) |
|                  |      | 3   | 5IR3STACME...  | 5IL3STACME...  | 2.79          | 2.9 | 2.9 |                |     |              |

## Type U



| Taille plaquette |      | Pas | Référence     |  | Dimensions mm |     |      | Sous-plaquette |      |               |
|------------------|------|-----|---------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi | RH+LH         |  | h min         | X   | Y    | RH             | LH   | Porte-outils  |
| 1/2"U            | 22   | 4   | 4UI4STACME... |  | 2.16          | 2.5 | 11.0 | YI4U           | YE4U | AVR..-4U (LH) |
|                  |      | 3   | 4UI3STACME... |  | 2.79          | 3.3 | 11.0 |                |      |               |

## Type V

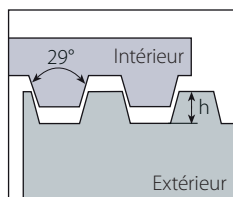


| Taille plaquette |      | Pas | Référence      |                | Dimensions mm |     |     |   |               |
|------------------|------|-----|----------------|----------------|---------------|-----|-----|---|---------------|
| IC               | L mm | tpi | RH             | LH             | h min         | X   | Y   | T | Porte-outils  |
| 5/8"V            | 27   | 4   | 5VIR4STACME... | 5VIL4STACME... | 2.16          | 1.0 | 3.3 | 6 | NVR..-5V (LH) |
|                  |      | 3   | 5VIR3STACME... | 5VIL3STACME... | 2.79          | 1.0 | 3.3 | 6 |               |
|                  |      | 2   | 5VIR2STACME... | 5VIL2STACME... | 4.06          | 1.0 | 4.3 | 8 |               |

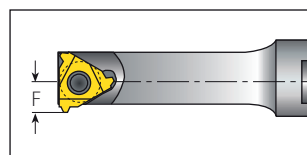
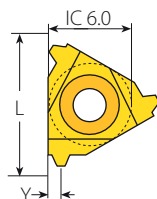
# Stub ACME (Suite)



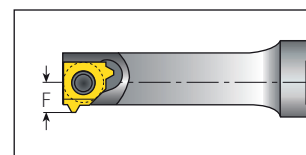
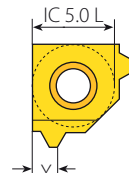
## Intérieur



Norme: ANSI B1.8:1988  
Classe de tolérance: 2G



Mini-3



Mini-L

## Mini-3



| Taille plaque |      | Pas | Référence        | Dimensions mm |     |     | Diam. mini de perçage | Porte-outils |
|---------------|------|-----|------------------|---------------|-----|-----|-----------------------|--------------|
| IC            | L mm | tpi | RH               | h min         | Y   | F   | mm                    |              |
| 6.0           | 10   | 12  | 6.0IR12STACME... | 0.76          | 1.2 | 5.1 | 10.0                  | .NVR1..-6.0  |

## Mini-L

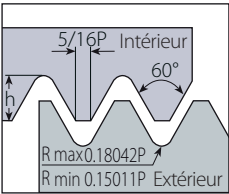


| Taille plaque |  | Pas | Référence       | Dimensions mm |     |      | Diam. mini de perçage | Porte-outils |
|---------------|--|-----|-----------------|---------------|-----|------|-----------------------|--------------|
| IC mm         |  | tpi | RH              | h min         | Y   | F    | mm                    |              |
| 5.0L          |  | 12  | 5LIR12STACME... | 0.76          | 1.2 | 4.42 | 8.0                   | .NVR 10.-5L  |

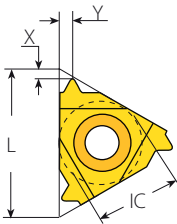
Outil à gauche fourni à la demande. (Exemple: 6.0L12STACME...)

UNJ - UNJC, UNJF, UNJEF, UNJS

Extérieur



Norme: MIL-S-8879C  
Classe de tolérance: 3A/3B



Standard

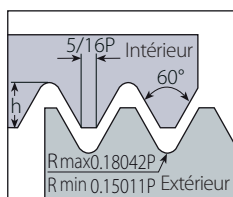
Standard

| Taille plaquette |      | Pas | Référence   |             | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|-------------|-------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH          | LH          | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 48  | 2ER48UNJ... | 2EL48UNJ... | 0.31          | 0.6 | 0.5 | -              | -   | NL...-2 (LH) |
|                  |      | 44  | 2ER44UNJ... | 2EL44UNJ... | 0.33          | 0.6 | 0.6 |                |     |              |
|                  |      | 40  | 2ER40UNJ... | 2EL40UNJ... | 0.37          | 0.6 | 0.6 |                |     |              |
|                  |      | 36  | 2ER36UNJ... | 2EL36UNJ... | 0.41          | 0.6 | 0.6 |                |     |              |
|                  |      | 32  | 2ER32UNJ... | 2EL32UNJ... | 0.46          | 0.6 | 0.7 |                |     |              |
|                  |      | 28  | 2ER28UNJ... | 2EL28UNJ... | 0.52          | 0.7 | 0.7 |                |     |              |
|                  |      | 24  | 2ER24UNJ... | 2EL24UNJ... | 0.61          | 0.7 | 0.8 |                |     |              |
|                  |      | 20  | 2ER20UNJ... | 2EL20UNJ... | 0.73          | 0.8 | 0.9 |                |     |              |
|                  |      | 18  | 2ER18UNJ... | 2EL18UNJ... | 0.81          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | 2ER16UNJ... | 2EL16UNJ... | 0.92          | 0.9 | 1.1 |                |     |              |
|                  |      | 14  | 2ER14UNJ... | 2EL14UNJ... | 1.05          | 1.0 | 1.2 |                |     |              |
| 3/8"             | 16   | 48  | 3ER48UNJ... | 3EL48UNJ... | 0.31          | 0.6 | 0.5 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 44  | 3ER44UNJ... | 3EL44UNJ... | 0.33          | 0.6 | 0.6 |                |     |              |
|                  |      | 40  | 3ER40UNJ... | 3EL40UNJ... | 0.37          | 0.6 | 0.6 |                |     |              |
|                  |      | 36  | 3ER36UNJ... | 3EL36UNJ... | 0.41          | 0.6 | 0.6 |                |     |              |
|                  |      | 32  | 3ER32UNJ... | 3EL32UNJ... | 0.46          | 0.6 | 0.7 |                |     |              |
|                  |      | 28  | 3ER28UNJ... | 3EL28UNJ... | 0.52          | 0.7 | 0.7 |                |     |              |
|                  |      | 24  | 3ER24UNJ... | 3EL24UNJ... | 0.61          | 0.7 | 0.8 |                |     |              |
|                  |      | 20  | 3ER20UNJ... | 3EL20UNJ... | 0.73          | 0.8 | 0.9 |                |     |              |
|                  |      | 18  | 3ER18UNJ... | 3EL18UNJ... | 0.81          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | 3ER16UNJ... | 3EL16UNJ... | 0.92          | 0.9 | 1.1 |                |     |              |
|                  |      | 14  | 3ER14UNJ... | 3EL14UNJ... | 1.05          | 1.0 | 1.2 |                |     |              |
|                  |      | 13  | 3ER13UNJ... | 3EL13UNJ... | 1.13          | 1.0 | 1.3 |                |     |              |
|                  |      | 12  | 3ER12UNJ... | 3EL12UNJ... | 1.22          | 1.1 | 1.3 |                |     |              |
|                  |      | 11  | 3ER11UNJ... | 3EL11UNJ... | 1.33          | 1.2 | 1.5 |                |     |              |
|                  |      | 10  | 3ER10UNJ... | 3EL10UNJ... | 1.47          | 1.2 | 1.5 |                |     |              |
|                  |      | 9   | 3ER9UNJ...  | 3EL9UNJ...  | 1.63          | 1.3 | 1.7 |                |     |              |
|                  |      | 8   | 3ER8UNJ...  | 3EL8UNJ...  | 1.83          | 1.2 | 1.6 |                |     |              |

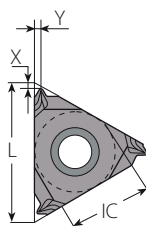
Suite à la page suivante ►

# UNJ - UNJC, UNJF, UNJEF, UNJS (Suite)

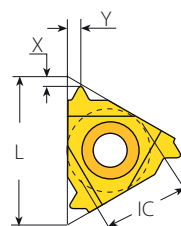
## Extérieur



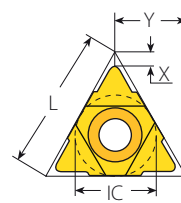
Norme: MIL-S-8879C  
Classe de tolérance: 3A/3B



**SCB**  
Brise-copeaux  
brut de frittage



**Standard**



**Type U**

## Standard (Suite)



SCB



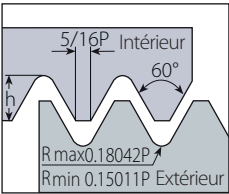
| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH  |              |
| 3/8"<br>SCB      | 16   | 36  | 3JER36UNJ... |              | 0.41          | 1.3 | 0.5 | YE3            | -   | AL...-3      |
|                  |      | 32  | 3JER32UNJ... |              | 0.46          | 1.2 | 0.5 |                |     |              |
|                  |      | 28  | 3JER28UNJ... |              | 0.52          | 0.7 | 0.8 |                |     |              |
|                  |      | 24  | 3JER24UNJ... |              | 0.61          | 0.7 | 0.8 |                |     |              |
|                  |      | 20  | 3JER20UNJ... |              | 0.73          | 0.7 | 0.8 |                |     |              |
|                  |      | 18  | 3JER18UNJ... |              | 0.81          | 0.7 | 0.8 |                |     |              |
|                  |      | 16  | 3JER16UNJ... |              | 0.92          | 0.8 | 0.8 |                |     |              |
|                  |      | 14  | 3JER14UNJ... |              | 1.05          | 1.3 | 1.5 |                |     |              |
|                  |      | 12  | 3JER12UNJ... |              | 1.22          | 1.3 | 1.5 |                |     |              |
|                  |      | 10  | 3JER10UNJ... |              | 1.47          | 1.3 | 1.5 |                |     |              |
| 1/2"             | 22   | 7   | 4ER7UNJ...   | 4EL7UNJ...   | 2.09          | 1.7 | 2.3 | YE4            | YI4 | AL...-4 (LH) |
|                  |      | 6   | 4ER6UNJ...   | 4EL6UNJ...   | 2.44          | 1.7 | 2.3 |                |     |              |
|                  |      | 5   | 4ER5UNJ...   | 4EL5UNJ...   | 2.93          | 1.8 | 2.5 |                |     |              |
| 5/8"             | 27   | 4.5 | 5ER4.5UNJ... | 5EL4.5UNJ... | 3.26          | 2.0 | 2.7 | YE5            | YI5 | AL...-5 (LH) |
|                  |      | 4   | 5ER4UNJ...   | 5EL4UNJ...   | 3.67          | 2.2 | 3.1 |                |     |              |

## Type U

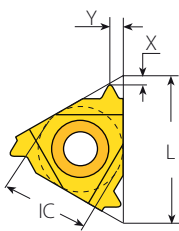
| Taille plaquette |      | Pas | Référence    |  | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|--------------|--|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi | RH+LH        |  | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 4.5 | 4UE4.5UNJ... |  | 3.26          | 2.1 | 11.0 | YE4U           | YI4U | AL...-4U (LH) |
|                  |      | 4   | 4UE4UNJ...   |  | 3.67          | 2.2 | 11.0 |                |      |               |

UNJ - UNJC, UNJF, UNJEF, UNJS (Suite)

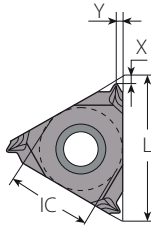
Intérieur



Norme: MIL-S-8879C  
Classe de tolérance: 3A/3B



Standard



SCB  
Brise-copeaux  
brut de frittage

Standard



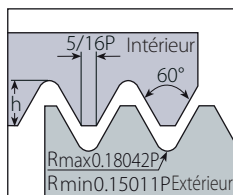
SCB

| Taille plaquette |      | Pas | Référence    |             | Dimensions mm |     |     | Sous-plaquette |    | Porte-outils |
|------------------|------|-----|--------------|-------------|---------------|-----|-----|----------------|----|--------------|
| IC               | L mm | tpi | RH           | LH          | h min         | X   | Y   | RH             | LH |              |
| 1/4"             | 11   | 48  | 2IR48UNJ...  | 2IL48UNJ... | 0.28          | 0.6 | 0.5 | -              | -  | NVR..-2 (LH) |
|                  |      | 44  | 2IR44UNJ...  | 2IL44UNJ... | 0.30          | 0.6 | 0.6 |                |    |              |
|                  |      | 40  | 2IR40UNJ...  | 2IL40UNJ... | 0.33          | 0.6 | 0.6 |                |    |              |
|                  |      | 36  | 2IR36UNJ...  | 2IL36UNJ... | 0.37          | 0.6 | 0.6 |                |    |              |
|                  |      | 32  | 2IR32UNJ...  | 2IL32UNJ... | 0.42          | 0.6 | 0.7 |                |    |              |
|                  |      | 28  | 2IR28UNJ...  | 2IL28UNJ... | 0.47          | 0.7 | 0.7 |                |    |              |
|                  |      | 24  | 2IR24UNJ...  | 2IL24UNJ... | 0.55          | 0.7 | 0.8 |                |    |              |
|                  |      | 20  | 2IR20UNJ...  | 2IL20UNJ... | 0.66          | 0.8 | 0.9 |                |    |              |
|                  |      | 18  | 2IR18UNJ...  | 2IL18UNJ... | 0.74          | 0.8 | 1.0 |                |    |              |
|                  |      | 16  | 2IR16UNJ...  | 2IL16UNJ... | 0.83          | 0.9 | 1.1 |                |    |              |
|                  |      | 14  | 2IR14UNJ...  | 2IL14UNJ... | 0.95          | 1.0 | 1.2 |                |    |              |
| 1/4"<br>SCB      | 11   | 36  | 2JIR36UNJ... |             | 0.37          | 1.1 | 0.5 | -              | -  | NVR..-2      |
|                  |      | 32  | 2JIR32UNJ... |             | 0.42          | 1.2 | 0.5 |                |    |              |
|                  |      | 28  | 2JIR28UNJ... |             | 0.47          | 0.6 | 0.8 |                |    |              |
|                  |      | 24  | 2JIR24UNJ... |             | 0.55          | 0.6 | 0.8 |                |    |              |
|                  |      | 20  | 2JIR20UNJ... |             | 0.66          | 0.6 | 0.8 |                |    |              |
|                  |      | 18  | 2JIR18UNJ... |             | 0.74          | 0.6 | 0.8 |                |    |              |
|                  |      | 16  | 2JIR16UNJ... |             | 0.83          | 0.6 | 0.8 |                |    |              |
|                  |      | 14  | 2JIR14UNJ... |             | 0.95          | 0.6 | 0.8 |                |    |              |

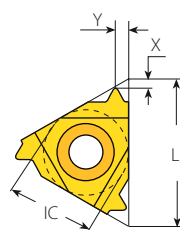
Suite à la page suivante ►

# UNJ - UNJC, UNJF, UNJEF, UNJS (Suite)

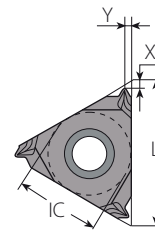
## Intérieur



Norme: MIL-S-8879C  
Classe de tolérance: 3A/3B



Standard



SCB  
Brise-copeaux  
brut de frittage

## Standard (Suite)



3/8"

16



SCB

3/8"

SCB

16



1/2"

22

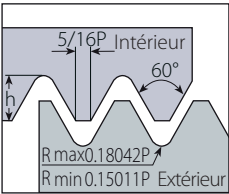
5/8"

27

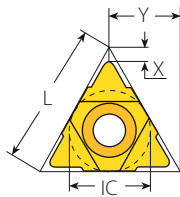
| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils  |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|-----|---------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH  |               |
|                  |      | 48  | 3IR48UNJ...  | 3IL48UNJ...  | 0.28          | 0.6 | 0.5 | YI3            | YE3 | AVR...-3 (LH) |
|                  |      | 44  | 3IR44UNJ...  | 3IL44UNJ...  | 0.30          | 0.6 | 0.6 |                |     |               |
|                  |      | 40  | 3IR40UNJ...  | 3IL40UNJ...  | 0.33          | 0.6 | 0.6 |                |     |               |
|                  |      | 36  | 3IR36UNJ...  | 3IL36UNJ...  | 0.37          | 0.6 | 0.6 |                |     |               |
|                  |      | 32  | 3IR32UNJ...  | 3IL32UNJ...  | 0.42          | 0.6 | 0.7 |                |     |               |
|                  |      | 28  | 3IR28UNJ...  | 3IL28UNJ...  | 0.47          | 0.7 | 0.7 |                |     |               |
|                  |      | 24  | 3IR24UNJ...  | 3IL24UNJ...  | 0.55          | 0.7 | 0.8 |                |     |               |
|                  |      | 20  | 3IR20UNJ...  | 3IL20UNJ...  | 0.66          | 0.8 | 0.9 |                |     |               |
|                  |      | 18  | 3IR18UNJ...  | 3IL18UNJ...  | 0.74          | 0.8 | 1.0 |                |     |               |
|                  |      | 16  | 3IR16UNJ...  | 3IL16UNJ...  | 0.83          | 0.9 | 1.1 |                |     |               |
|                  |      | 14  | 3IR14UNJ...  | 3IL14UNJ...  | 0.95          | 1.0 | 1.2 |                |     |               |
|                  |      | 13  | 3IR13UNJ...  | 3IL13UNJ...  | 1.02          | 1.0 | 1.3 |                |     |               |
|                  |      | 12  | 3IR12UNJ...  | 3IL12UNJ...  | 1.11          | 1.1 | 1.3 |                |     |               |
|                  |      | 11  | 3IR11UNJ...  | 3IL11UNJ...  | 1.21          | 1.2 | 1.5 |                |     |               |
|                  |      | 10  | 3IR10UNJ...  | 3IL10UNJ...  | 1.33          | 1.2 | 1.5 |                |     |               |
|                  |      | 9   | 3IR9UNJ...   | 3IL9UNJ...   | 1.48          | 1.3 | 1.7 |                |     |               |
|                  |      | 8   | 3IR8UNJ...   | 3IL8UNJ...   | 1.66          | 1.2 | 1.6 |                |     |               |
|                  |      | 28  | 3JIR28UNJ... |              | 0.47          | 0.6 | 0.8 | YI3            | -   | AVR...-3      |
|                  |      | 24  | 3JIR24UNJ... |              | 0.55          | 0.6 | 0.8 |                |     |               |
|                  |      | 20  | 3JIR20UNJ... |              | 0.66          | 0.6 | 0.8 |                |     |               |
|                  |      | 18  | 3JIR18UNJ... |              | 0.74          | 0.6 | 0.8 |                |     |               |
|                  |      | 16  | 3JIR16UNJ... |              | 0.83          | 0.6 | 0.8 |                |     |               |
|                  |      | 14  | 3JIR14UNJ... |              | 0.95          | 1.1 | 1.5 |                |     |               |
|                  |      | 12  | 3JIR12UNJ... |              | 1.11          | 1.1 | 1.5 | YI4            | YE4 | AVR...-4 (LH) |
|                  |      | 10  | 3JIR10UNJ... |              | 1.33          | 1.1 | 1.5 |                |     |               |
|                  |      | 8   | 3JIR8UNJ...  |              | 1.66          | 1.0 | 1.5 |                |     |               |
|                  |      | 7   | 4IR7UNJ...   | 4IL7UNJ...   | 1.90          | 1.7 | 2.3 |                |     |               |
|                  |      | 6   | 4IR6UNJ...   | 4IL6UNJ...   | 2.21          | 1.7 | 2.3 |                |     |               |
|                  |      | 5   | 4IR5UNJ...   | 4IL5UNJ...   | 2.66          | 1.8 | 2.5 | YI5            | YE5 | AVR...-5 (LH) |
|                  |      | 4.5 | 5IR4.5UNJ... | 5IL4.5UNJ... | 2.95          | 2.0 | 2.7 |                |     |               |
|                  |      | 4   | 5IR4UNJ...   | 5IL4UNJ...   | 3.32          | 2.2 | 2.4 |                |     |               |

UNJ - UNJC, UNJF, UNJEF, UNJS (Suite)

Intérieur



Norme: MIL-S-8879C  
Classe de tolérance: 3A/3B



Type U

Type U

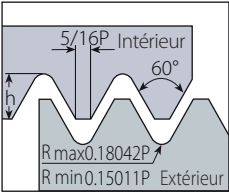


| Taille plaquette |      | Pas | Référence    | Dimensions mm |     |      | Sous-plaquette |      | Porte-outils  |
|------------------|------|-----|--------------|---------------|-----|------|----------------|------|---------------|
| IC               | L mm | tpi | RH+LH        | h min         | X   | Y    | RH             | LH   |               |
| 1/2"U            | 22   | 4.5 | 4UI4.5UNJ... | 2.95          | 2.1 | 11.0 | YI4U           | YE4U | AVR...4U (LH) |
|                  |      | 4   | 4UI4UNJ...   | 3.32          | 2.2 | 11.0 |                |      |               |

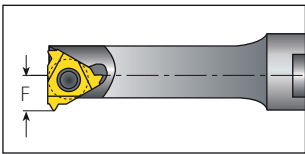
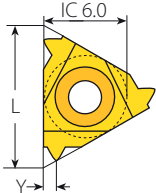
UNJ - UNJC, UNJF, UNJEF, UNJS (Suite)



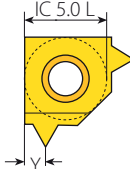
Intérieur



Norme: MIL-S-8879C  
Classe de tolérance: 3A/3B



Mini-3



Mini-L

Mini-3



| Taille plaquette |      | Pas | Référence     | Dimensions mm |     |      | Diam. mini de perçage | Porte-outils |
|------------------|------|-----|---------------|---------------|-----|------|-----------------------|--------------|
| IC               | L mm | tpi | RH            | h min         | Y   | F    | mm                    |              |
| 6.0              | 10   | 20  | 6.0IR20UNJ... | 0.66          | 0.9 | 4.90 | 9.8                   | .NVR1...-6.0 |

Mini-L

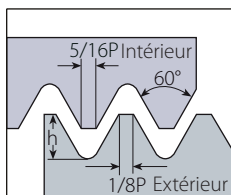


| Taille plaquette | Pas | Référence    | Dimensions mm |     |      | Diam. mini de perçage |              |
|------------------|-----|--------------|---------------|-----|------|-----------------------|--------------|
| IC mm            | tpi | RH           | h min         | Y   | F    | mm                    | Porte-outils |
| 5.0L             | 32  | 5LIR32UNJ... | 0.42          | 0.6 | 3.92 | 7.5                   | .NVR 10.-5L  |
|                  | 28  | 5LIR28UNJ... | 0.47          | 0.6 | 3.99 | 7.6                   |              |
|                  | 20  | 5LIR20UNJ... | 0.66          | 0.9 | 4.21 | 7.8                   |              |
|                  | 18  | 5LIR18UNJ... | 0.74          | 1.0 | 4.30 | 7.9                   |              |
|                  | 16  | 5LIR16UNJ... | 0.83          | 1.0 | 4.41 | 8.0                   |              |
|                  | 14  | 5LIR14UNJ... | 0.95          | 1.0 | 4.54 | 8.0                   |              |

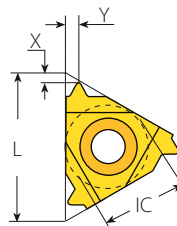
Outil à gauche fourni à la demande. (Exemple: 6.0IL20UNJ...)

# MJ

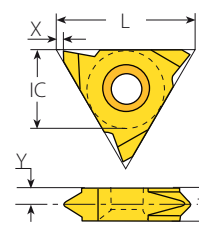
## Extérieur



Norme: ISO 5855  
Classe de tolérance: 4h/6h-4H/5H



Extérieur - Standard



Slim Throat  
Passage étroit

## Standard



| Taille plaquette |      | Pas  | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     |              |
|------------------|------|------|--------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | mm   | RH           | LH           | h min         | X   | Y   | RH             | LH  | Porte-outils |
| 1/4"             | 11   | 1.0  | 2ER1.0MJ...  | 2EL1.0MJ...  | 0.58          | 0.7 | 0.7 | -              | -   | NL..-2 (LH)  |
|                  |      | 1.25 | 2ER1.25MJ... | 2EL1.25MJ... | 0.72          | 0.8 | 0.9 |                |     |              |
|                  |      | 1.5  | 2ER1.5MJ...  | 2EL1.5MJ...  | 0.87          | 0.8 | 1.0 |                |     |              |
| 3/8"             | 16   | 0.7  | 3ER0.7MJ...  | 3EL0.7MJ...  | 0.40          | 0.6 | 0.6 | YE3            | YI3 | AL..-3 (LH)  |
|                  |      | 1.0  | 3ER1.0MJ...  | 3EL1.0MJ...  | 0.58          | 0.7 | 0.7 |                |     |              |
|                  |      | 1.25 | 3ER1.25MJ... | 3EL1.25MJ... | 0.72          | 0.8 | 0.9 |                |     |              |
|                  |      | 1.5  | 3ER1.5MJ...  | 3EL1.5MJ...  | 0.87          | 0.8 | 1.0 |                |     |              |
|                  |      | 2.0  | 3ER2.0MJ...  | 3EL2.0MJ...  | 1.15          | 1.0 | 1.3 |                |     |              |
|                  |      | 2.5  | 3ER2.5MJ...  | 3EL2.5MJ...  | 1.49          | 1.1 | 1.5 |                |     |              |
|                  |      | 3.0  | 3ER3.0MJ...  | 3EL3.0MJ...  | 1.73          | 1.2 | 1.6 |                |     |              |

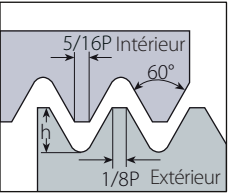
## Slim Throat Passage étroit



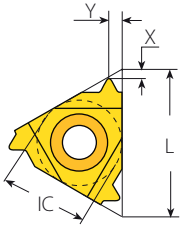
| Taille plaquette |      | Pas  | Référence  |            | Dimensions mm |     |     |     | Porte-outils |
|------------------|------|------|------------|------------|---------------|-----|-----|-----|--------------|
| IC               | L mm | mm   | RH         | LH         | h min         | X   | Y   | T   |              |
| 1/4"V            | 11   | 0.7  | 2VER0.7MJ  | 2VEL0.7MJ  | 0.40          | 0.7 | 2.5 | 3.2 | NL..-2V (LH) |
|                  |      | 0.8  | 2VER0.8MJ  | 2VEL0.8MJ  | 0.44          | 0.7 | 2.5 | 3.2 |              |
|                  |      | 0.9  | 2VER0.9MJ  | 2VEL0.9MJ  | 0.53          | 0.7 | 2.6 | 3.2 |              |
|                  |      | 1.0  | 2VER1.0MJ  | 2VEL1.0MJ  | 0.58          | 0.7 | 2.5 | 3.2 |              |
|                  |      | 1.25 | 2VER1.25MJ | 2VEL1.25MJ | 0.72          | 0.7 | 2.3 | 3.2 |              |
|                  |      | 1.5  | 2VER1.5MJ  | 2VEL1.5MJ  | 0.87          | 0.7 | 2.2 | 3.2 |              |

MJ

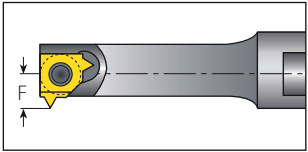
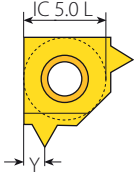
Intérieur



Norme: ISO 5855  
Classe de tolérance: 4h/6h-4H/5H



Intérieur - Standard



Mini-L

Standard



| Taille plaquette |      | Pas  | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils  |
|------------------|------|------|--------------|--------------|---------------|-----|-----|----------------|-----|---------------|
| IC               | L mm | mm   | RH           | LH           | h min         | X   | Y   | RH             | LH  |               |
| 1/4"             | 11   | 1.0  | 2IR1.0MJ...  | 2IL1.0MJ...  | 0.49          | 0.6 | 0.7 | -              | -   | NVR...-2 (LH) |
|                  |      | 1.25 | 2IR1.25MJ... | 2IL1.25MJ... | 0.61          | 0.8 | 0.9 |                |     |               |
|                  |      | 1.5  | 2IR1.5MJ...  | 2IL1.5MJ...  | 0.73          | 0.8 | 1.0 |                |     |               |
|                  |      | 2.0  | 2IR2.0MJ...  | 2IL2.0MJ...  | 0.97          | 0.8 | 1.0 |                |     |               |
| 3/8"             | 16   | 0.75 | 3IR0.75MJ... | 3IL0.75MJ... | 0.37          | 0.6 | 0.6 | Y13            | YE3 | AVR...-3 (LH) |
|                  |      | 1.0  | 3IR1.0MJ...  | 3IL1.0MJ...  | 0.49          | 0.6 | 0.7 |                |     |               |
|                  |      | 1.25 | 3IR1.25MJ... | 3IL1.25MJ... | 0.61          | 0.8 | 0.9 |                |     |               |
|                  |      | 1.5  | 3IR1.5MJ...  | 3IL1.5MJ...  | 0.73          | 0.8 | 1.0 |                |     |               |
|                  |      | 2.0  | 3IR2.0MJ...  | 3IL2.0MJ...  | 0.97          | 0.8 | 1.3 |                |     |               |
|                  |      | 2.5  | 3IR2.5MJ...  | 3IL2.5MJ...  | 1.23          | 1.1 | 1.5 |                |     |               |
|                  |      | 3.0  | 3IR3.0MJ...  | 3IL3.0MJ...  | 1.46          | 1.2 | 1.6 |                |     |               |

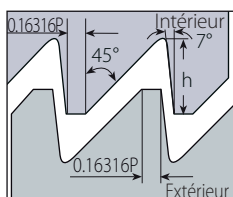
Mini-L



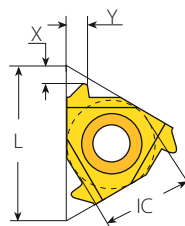
| Taille plaquette |  | Pas  | Référence     |  | Dimensions mm |     |      | Diam. mini de perçage | Porte-outils |
|------------------|--|------|---------------|--|---------------|-----|------|-----------------------|--------------|
| IC mm            |  | mm   | RH            |  | h min         | Y   | F    | mm                    |              |
| 5.0L             |  | 1.0  | 5LIR1.0MJ...  |  | 0.49          | 0.7 | 4.06 | 7.7                   | .NVR 10.-5L  |
|                  |  | 1.25 | 5LIR1.25MJ... |  | 0.61          | 0.9 | 4.21 | 7.8                   |              |
|                  |  | 1.5  | 5LIR1.50MJ... |  | 0.73          | 1.0 | 4.35 | 7.9                   |              |

# American Buttress

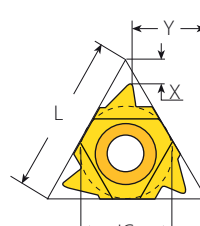
## Extérieur



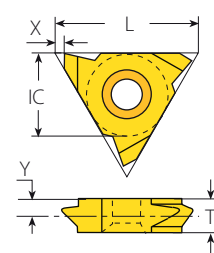
Norme: ANSI B1.9.1973  
Classe de tolérance: Class 2



Standard



Type U



Type V

## Standard



| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 20  | 2ER20ABUT... | 2EL20ABUT... | 0.84          | 1.0 | 1.4 | -              | -   | NL...-2 (LH) |
|                  |      | 16  | 2ER16ABUT... | 2EL16ABUT... | 1.05          | 1.3 | 1.9 |                |     |              |
| 3/8"             | 16   | 20  | 3ER20ABUT... | 3EL20ABUT... | 0.84          | 1.0 | 1.4 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 16  | 3ER16ABUT... | 3EL16ABUT... | 1.05          | 1.3 | 1.9 |                |     |              |
|                  |      | 12  | 3ER12ABUT... | 3EL12ABUT... | 1.40          | 1.4 | 2.0 |                |     |              |
|                  |      | 10  | 3ER10ABUT... | 3EL10ABUT... | 1.68          | 1.5 | 2.3 |                |     |              |
| 1/2"             | 22   | 8   | 4ER8ABUT...  | 4EL8ABUT...  | 2.10          | 2.0 | 3.2 | YE4            | YI4 | AL...-4 (LH) |
|                  |      | 6   | 4ER6ABUT...  | 4EL6ABUT...  | 2.80          | 2.2 | 3.5 |                |     |              |

## Type U



| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |      | Sous-plaquette |           | Porte-outils  |
|------------------|------|-----|--------------|--------------|---------------|-----|------|----------------|-----------|---------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y    | RH             | LH        |               |
| 1/2"U            | 22   | 4   | 4UER4ABUT... | 4UEL4ABUT... | 4.21          | 2.4 | 9.8  | YE4U-BUT4      | YI4U-BUT4 | AL...-4U (LH) |
| 5/8"U            | 27   | 3   | 5UER3ABUT... | 5UEL3ABUT... | 5.61          | 3.1 | 12.1 | YE5U-BUT3      | YI5U-BUT3 | AL...-5U (LH) |

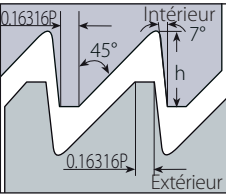
## Type V



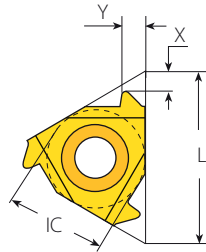
| Taille plaquette |      | Pas | Référence      |                | Dimensions mm |     |     | Sous-plaquette |  | Porte-outils         |
|------------------|------|-----|----------------|----------------|---------------|-----|-----|----------------|--|----------------------|
| IC               | L mm | tpi | RH             | LH             | h min         | X   | Y   | T              |  |                      |
| 5/8"V            | 27   | 4   | 5VER4ABUT...   | 5VEL4ABUT...   | 4.21          | 0.6 | 1.8 | 6              |  | NL...-5V-6 (LH)      |
|                  |      | 3   | 5VER3ABUT...   | 5VEL3ABUT...   | 5.61          | 0.6 | 2.2 | 8              |  | NL...-5V-8 (LH)      |
|                  |      | 2.5 | 5VER2.5ABUT... | 5VEL2.5ABUT... | 6.73          | 0.6 | 2.7 | 10             |  | NL...-5V-10ABUT (LH) |

# American Buttress (Suite)

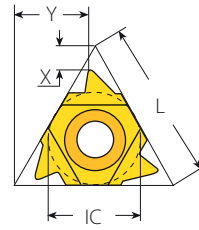
## Intérieur



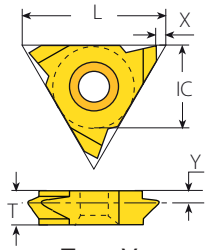
Norme: ANSI B1.9.1973  
Classe de tolérance: Class 2



Standard



Type U



Type V

## Standard



| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     |              |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH  | Porte-outils |
| 1/4"             | 11   | 20  | 2IR20ABUT... | 2IL20ABUT... | 0.84          | 1.0 | 1.4 | -              | -   | NVR..-2 (LH) |
|                  |      | 16  | 2IR16ABUT... | 2IL16ABUT... | 1.05          | 1.3 | 1.9 |                |     |              |
| 3/8"             | 16   | 20  | 3IR20ABUT... | 3IL20ABUT... | 0.84          | 1.0 | 1.4 | YI3            | YE3 | AVR..-3 (LH) |
|                  |      | 16  | 3IR16ABUT... | 3IL16ABUT... | 1.05          | 1.3 | 1.9 |                |     |              |
|                  |      | 12  | 3IR12ABUT... | 3IL12ABUT... | 1.40          | 1.4 | 2.0 |                |     |              |
|                  |      | 10  | 3IR10ABUT... | 3IL10ABUT... | 1.68          | 1.5 | 2.3 |                |     |              |
| 1/2"             | 22   | 8   | 4IR8ABUT...  | 4IL8ABUT...  | 2.10          | 2.0 | 3.2 | YI4            | YE4 | AVR..-4 (LH) |
|                  |      | 6   | 4IR6ABUT...  | 4IL6ABUT...  | 2.80          | 2.2 | 3.5 |                |     |              |

## Type U



| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |      | Sous-plaquette |         |               |
|------------------|------|-----|--------------|--------------|---------------|-----|------|----------------|---------|---------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y    | RH             | LH      | Porte-outils  |
| 1/2"U            | 22   | 4   | 4UIR4ABUT... | 4UIL4ABUT... | 4.21          | 2.4 | 9.8  | YI4U-4B        | YE4U-4B | AVR..-4U (LH) |
| 5/8"U            | 27   | 3   | 5UIR3ABUT... | 5UIL3ABUT... | 5.61          | 3.1 | 12.1 | YI5U-3B        | YE5U-3B | AVR..-5U (LH) |

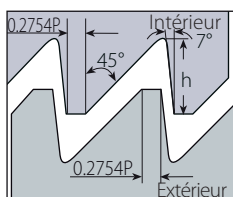
## Type V



| Taille plaquette |      | Pas | Référence      |                | Dimensions mm |     |     |    | Porte-outils  |
|------------------|------|-----|----------------|----------------|---------------|-----|-----|----|---------------|
| IC               | L mm | tpi | RH             | LH             | h min         | X   | Y   | T  |               |
| 5/8"V            | 27   | 4   | 5VIR4ABUT...   | 5VIL4ABUT...   | 4.21          | 0.6 | 1.8 | 6  | NVR..-5V (LH) |
|                  |      | 3   | 5VIR3ABUT...   | 5VIL3ABUT...   | 5.61          | 0.6 | 2.2 | 8  |               |
|                  |      | 2.5 | 5VIR2.5ABUT... | 5VIL2.5ABUT... | 6.73          | 0.6 | 2.7 | 10 |               |

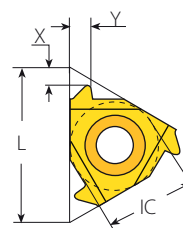
## British Buttress

### Extérieur



Norme: B.S. 1657: 1950

Classe de tolérance: Classe moyenne



Standard

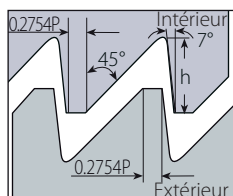
### Standard



| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH  |              |
| 3/8"             | 16   | 16  | 3ER16BBUT... | 3EL16BBUT... | 0.80          | 1.1 | 1.6 | YE3            | YI3 | AL...-3 (LH) |
|                  |      | 12  | 3ER12BBUT... | 3EL12BBUT... | 1.07          | 1.4 | 2.1 |                |     |              |
|                  |      | 10  | 3ER10BBUT... | 3EL10BBUT... | 1.28          | 1.4 | 2.2 |                |     |              |
|                  |      | 8   | 3ER8BBUT...  | 3EL8BBUT...  | 1.61          | 1.6 | 2.5 |                |     |              |
| 1/2"             | 22   | 8   | 4ER8BBUT...  | 4EL8BBUT...  | 1.61          | 1.6 | 2.5 | YE4            | YI4 | AL...-4 (LH) |

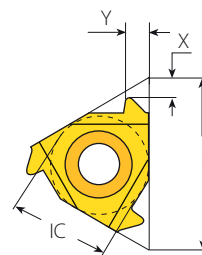
## British Buttress

### Intérieur



Norme: B.S. 1657: 1950

Classe de tolérance: Classe moyenne



Standard

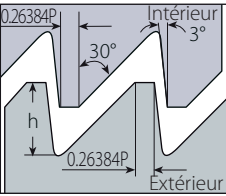
### Standard



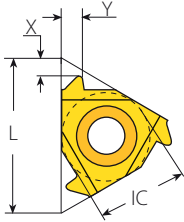
| Taille plaquette |      | Pas | Référence    |              | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils  |
|------------------|------|-----|--------------|--------------|---------------|-----|-----|----------------|-----|---------------|
| IC               | L mm | tpi | RH           | LH           | h min         | X   | Y   | RH             | LH  |               |
| 3/8"             | 16   | 16  | 3IR16BBUT... | 3IL16BBUT... | 0.80          | 1.1 | 1.6 | YI3            | YE3 | AVR...-3 (LH) |
|                  |      | 12  | 3IR12BBUT... | 3IL12BBUT... | 1.07          | 1.4 | 2.1 |                |     |               |
|                  |      | 10  | 3IR10BBUT... | 3IL10BBUT... | 1.28          | 1.4 | 2.2 |                |     |               |
|                  |      | 8   | 3IR8BBUT...  | 3IL8BBUT...  | 1.61          | 1.6 | 2.5 |                |     |               |
| 1/2"             | 22   | 8   | 4IR8BBUT...  | 4IL8BBUT...  | 1.61          | 1.6 | 2.5 | YI4            | YE4 | AVR...-4 (LH) |

# Métrique Buttress

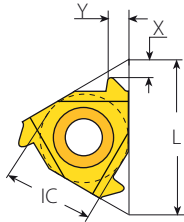
## Extérieur / Intérieur



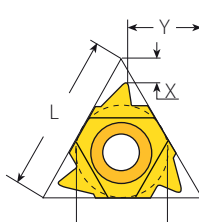
Norme: DIN 513  
Classe de tolérance: Classe moyenne



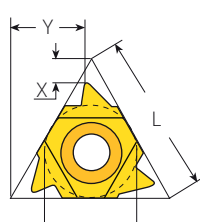
Extérieur  
Standard



Intérieur  
Standard



Extérieur  
Type U



Intérieur  
Type U

## Standard - Extérieur



| Taille plaquette | Pas  | Référence |               | Dimensions mm |       |      | Sous-plaquette |             |             | Porte-outils |
|------------------|------|-----------|---------------|---------------|-------|------|----------------|-------------|-------------|--------------|
| IC               | L mm | mm        | RH            | LH            | h min | X    | Y              | RH          | LH          |              |
| 3/8"             | 16   | 2.0       | 3ER2.0SAGE... | 3EL2.0SAGE... | 1.74  | 1.5  | 2.1            | YE3         | YI3         | AL...-3 (LH) |
|                  |      | 2.0       | 4ER2.0SAGE... | 4EL2.0SAGE... | 1.74  | 1.5  | 2.1            |             |             |              |
| 1/2"             | 22   | 3.0       | 4ER3.0SAGE... | 4EL3.0SAGE... | 2.60  | 1.8  | 2.6            | YE4         | YI4         | AL...-4 (LH) |
|                  |      | 4.0       | 4ER4.0SAGE... | 4EL4.0SAGE... | 3.55  | 1.75 | 3.1            |             |             |              |
| 5/8"             | 27   | 4.0       | 5ER4.0SAGE... | 5EL4.0SAGE... | 3.55  | 1.9  | 3.2            | YE5 082/038 | YI5 082/039 | AL...-5 (LH) |

## Type U - Extérieur



| Taille plaquette | Pas  | Référence |                | Dimensions mm  |       |      | Sous-plaquette |            |            | Porte-outils  |
|------------------|------|-----------|----------------|----------------|-------|------|----------------|------------|------------|---------------|
| IC               | L mm | mm        | RH             | LH             | h min | X    | Y              | RH         | LH         |               |
| 1/2"U            | 22   | 5         | 4UER5.0SAGE... | 4UEL5.0SAGE... | 4.41  | 1.27 | 10.35          | YE4U-SAGE5 | YI4U-SAGE5 | AL...-4U (LH) |
|                  |      | 6         | 4UER6.0SAGE... | 4UEL6.0SAGE... | 5.29  | 1.25 | 10.28          | YE4U-SAGE6 | YI4U-SAGE6 |               |

## Standard - Intérieur



| Taille plaquette | Pas  | Référence |               | Dimensions mm |       |      | Sous-plaquette |             |             | Porte-outils  |
|------------------|------|-----------|---------------|---------------|-------|------|----------------|-------------|-------------|---------------|
| IC               | L mm | mm        | RH            | LH            | h min | X    | Y              | RH          | LH          |               |
| 3/8"             | 16   | 2.0       | 3IR2.0SAGE... | 3IL2.0SAGE... | 1.50  | 1.5  | 2.2            | YI3         | YE3         | AVR...-3 (LH) |
| 1/2"             | 22   | 3.0       | 4IR3.0SAGE... | 4IL3.0SAGE... | 2.25  | 1.7  | 2.9            | YI4         | YE4         | AVR...-4 (LH) |
|                  |      | 4.0       | 4IR4.0SAGE... | 4IL4.0SAGE... | 3.09  | 2.03 | 3.25           |             |             |               |
| 5/8"             | 27   | 4.0       | 5IR4.0SAGE... | 5IL4.0SAGE... | 3.09  | 2.1  | 3.2            | YI5 082/039 | YE5 082/038 | AVR...-5 (LH) |

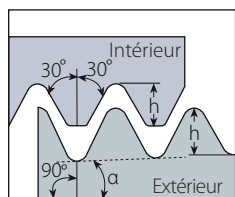
## Type U - Intérieur



| Taille plaquette | Pas  | Référence |                | Dimensions mm  |       |     | Sous-plaquette |         |         | Porte-outils   |
|------------------|------|-----------|----------------|----------------|-------|-----|----------------|---------|---------|----------------|
| IC               | L mm | mm        | RH             | LH             | h min | X   | Y              | RH      | LH      |                |
| 1/2"U            | 22   | 5         | 4UIR5.0SAGE... | 4UIL5.0SAGE... | 3.76  | 1.8 | 10.3           | YI4U-5S | YE4U-5S | AVR...-4U (LH) |
|                  |      | 6         | 4UIR6.0SAGE... | 4UIL6.0SAGE... | 4.54  | 1.9 | 10.15          | YI4U-6S | YE4U-6S |                |

# API

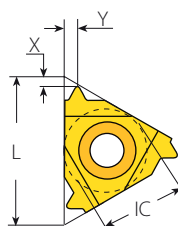
## Extérieur / Intérieur



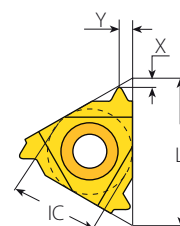
$$\alpha = \arctg (IPF/24)$$

Norme: API SPEC. 7:1990

Classe de tolérance: Standard API



Extérieur - Standard



Intérieur - Standard

## Standard - Extérieur



| Taille plaquette | Pas  | Filet | Cône     | Référence | Taille        | Dimensions mm              |      |     | Sous-plaquette |              |                |
|------------------|------|-------|----------|-----------|---------------|----------------------------|------|-----|----------------|--------------|----------------|
| IC               | L mm | tpi   | IPF      | RH        |               | h min                      | X    | Y   | RH             | Porte-outils |                |
| 1/2"             | 22   | 4     | V-0.038R | 2         | 4ER4API382... | NC23-NC50                  | 3.09 | 2.1 | 2.8            | YE4          | AL...-4 (LH)   |
|                  |      | 4     | V-0.038R | 3         | 4ER4API383... | NC56-NC77                  | 3.08 | 2.1 | 2.8            |              |                |
|                  |      | 4     | V-0.050  | 2         | 4ER4API502... | 6 5/8" REG                 | 3.75 | 2.0 | 2.9            |              |                |
|                  |      | 4     | V-0.050  | 3         | 4ER4API503... | 5 1/2", 7 5/8", 8 5/8" REG | 3.74 | 2.0 | 2.9            |              |                |
|                  |      | 5     | V-0.040  | 3         | 4ER5API403... | 2 3/8"-4 1/2" REG          | 2.99 | 1.8 | 2.6            |              |                |
|                  |      | 6     | V-0.055  | 1.5       | 4ER6API551... | NC10-NC16                  | 1.41 | 2.6 | 2.0            |              |                |
| 5/8"             | 27   | 4     | V-0.038R | 2         | 5ER4API382... | NC23-NC50                  | 3.09 | 2.1 | 2.8            | YESOIL       | AL...5OIL (LH) |
|                  |      | 4     | V-0.038R | 3         | 5ER4API383... | NC56-NC77                  | 3.08 | 2.1 | 2.8            |              |                |
|                  |      | 4     | V-0.050  | 2         | 5ER4API502... | 6 5/8" REG                 | 3.75 | 2.1 | 3.1            |              |                |
|                  |      | 4     | V-0.050  | 3         | 5ER4API503... | 5 1/2", 7 5/8", 8 5/8" REG | 3.74 | 2.1 | 3.1            |              |                |
|                  |      | 5     | V-0.040  | 3         | 5ER5API403... | 2 3/8"-4 1/2" REG          | 2.99 | 1.9 | 2.7            |              |                |

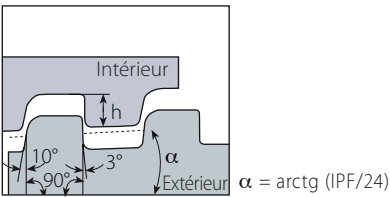
## Standard - Intérieur



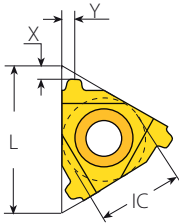
| Taille plaquette | Pas  | Filet | Cône     | Référence | Taille        | Dimensions mm              |      |     | Sous-plaquette |              |                  |
|------------------|------|-------|----------|-----------|---------------|----------------------------|------|-----|----------------|--------------|------------------|
| IC               | L mm | tpi   | IPF      | RH        |               | h min                      | X    | Y   | RH             | Porte-outils |                  |
| 1/2"             | 22   | 4     | V-0.038R | 2         | 4IR4API382... | NC23-NC50                  | 3.09 | 2.1 | 2.8            | YI4          | AVR...-4 (LH)    |
|                  |      | 4     | V-0.038R | 3         | 4IR4API383... | NC56-NC77                  | 3.08 | 2.1 | 2.8            |              |                  |
|                  |      | 4     | V-0.050  | 2         | 4IR4API502... | 6 5/8" REG                 | 3.75 | 2.1 | 3.1            |              |                  |
|                  |      | 4     | V-0.050  | 3         | 4IR4API503... | 5 1/2", 7 5/8", 8 5/8" REG | 3.74 | 2.0 | 2.9            |              |                  |
|                  |      | 5     | V-0.040  | 3         | 4IR5API403... | 2 3/8"-4 1/2" REG          | 2.99 | 1.8 | 2.6            |              |                  |
|                  |      | 6     | V-0.055  | 1.5       | 4IR6API551... | NC10-NC16                  | 1.41 | 2.6 | 2.0            |              |                  |
| 5/8"             | 27   | 4     | V-0.038R | 2         | 5IR4API382... | NC23-NC50                  | 3.09 | 2.1 | 2.8            | YI5OIL       | AVR...5 OIL (LH) |
|                  |      | 4     | V-0.038R | 3         | 5IR4API383... | NC56-NC77                  | 3.08 | 2.1 | 2.8            |              |                  |
|                  |      | 4     | V-0.050  | 2         | 5IR4API502... | 6 5/8" REG                 | 3.75 | 2.1 | 3.1            |              |                  |
|                  |      | 4     | V-0.050  | 3         | 5IR4API503... | 5 1/2", 7 5/8", 8 5/8" REG | 3.74 | 2.1 | 3.1            |              |                  |
|                  |      | 5     | V-0.040  | 3         | 5IR5API403... | 2 3/8"-4 1/2" REG          | 2.99 | 1.9 | 2.7            |              |                  |

# API Buttress Casing

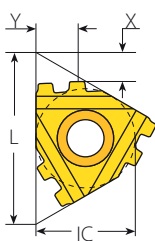
## Extérieur



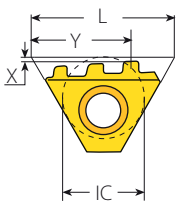
Norme: STD.5B:1979  
Classe de tolérance: Standard API



Standard



Type M+



Type T+

## Standard



| Taille plaquette |      | Pas | Cône | Référence    | Taille         | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|------|--------------|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | IPF  | RH           |                | h min         | X   | Y   | RH             | Porte-outils |
| 1/2"             | 22   | 5   | 0.75 | 4ER5BUT75... | 4 1/2"-13 3/8" | 1.55          | 3.1 | 1.9 | YE4            | AL...-4      |
|                  |      | 5   | 1    | 4ER5BUT1...  | 16"-20"        | 1.55          | 3.1 | 1.9 |                |              |

## Type M+



| Taille plaquette |      | Pas | Cône | Dents | Référence       | Taille         | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|------|-------|-----------------|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | IPF  |       | RH              |                | h min         | X   | Y   | RH             | Porte-outils |
| 5/8"             | 27   | 5   | 0.75 | 2     | 5ER5BUT752M+... | 4 1/2"-13 3/8" | 1.55          | 4.8 | 6.8 | YE5M           | AL...-5M     |

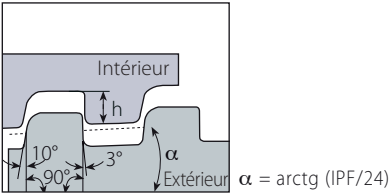
## Type T+



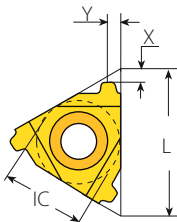
| Taille plaquette |      | Pas | Cône | Dents | Référence       | Taille         | Dimensions mm |     |      | Sous-plaquette |              |
|------------------|------|-----|------|-------|-----------------|----------------|---------------|-----|------|----------------|--------------|
| IC               | L mm | tpi | IPF  |       | RH              |                | h min         | X   | Y    | RH             | Porte-outils |
| 1/2" T           | 22   | 5   | 0.75 | 3     | 4ER5BUT753T+... | 4 1/2"-13 3/8" | 1.55          | 0.1 | 16.1 | Y4T            | AL...-4T     |

# API Buttress Casing

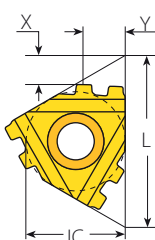
## Intérieur



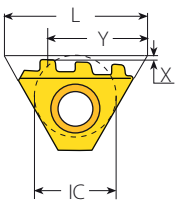
Norme: STD.5B:1979  
Classe de tolérance: Standard API



Standard



Type M+



Type T+

## Standard



| Taille plaquette |      | Pas | Cône | Référence    | Taille         | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|------|--------------|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | IPF  | RH           |                | h min         | X   | Y   | RH             | Porte-outils |
| 1/2"             | 22   | 5   | 0.75 | 4IR5BUT75... | 4 1/2"-13 3/8" | 1.55          | 2.8 | 1.9 | YI4            | AVR...-4     |
|                  |      | 5   | 1    | 4IR5BUT1...  | 16"-20"        | 1.55          | 2.8 | 1.9 |                |              |

## Type M+



| Taille plaquette |      | Pas | Cône | Dents | Référence       | Taille         | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|------|-------|-----------------|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | IPF  |       | RH              |                | h min         | X   | Y   | RH             | Porte-outils |
| 5/8"             | 27   | 5   | 0.75 | 2     | 5IR5BUT752M+... | 4 1/2"-13 3/8" | 1.55          | 4.8 | 6.7 | YI5M           | AVR...-5M    |

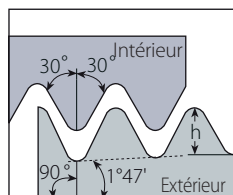
## Type T+



| Taille plaquette |      | Pas | Cône | Dents | Référence       | Taille         | Dimensions mm |     |      | Sous-plaquette |              |
|------------------|------|-----|------|-------|-----------------|----------------|---------------|-----|------|----------------|--------------|
| IC               | L mm | tpi | IPF  |       | RH              |                | h min         | X   | Y    | RH             | Porte-outils |
| 1/2" T           | 22   | 5   | 0.75 | 3     | 4IR5BUT753T+... | 4 1/2"-13 3/8" | 1.55          | 0.1 | 16.1 | Y4T            | AVR..-4T     |

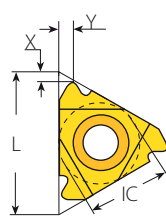
# API Round Casing & Tubing

## Extérieur

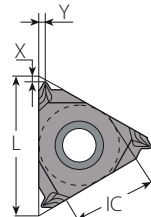


Norme: API STD. 5B:1979

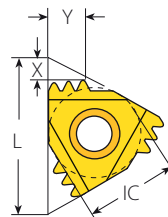
Classe de tolérance: Standard API RD



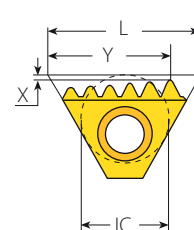
Standard



SCB  
Brise-copeaux  
brut de frittage



Type M+



Type T+

## Standard



SCB

| Taille plaquette |      | Pas | Référence      | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | RH             | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 10  | 3ER10APIRD...  | 1.41          | 1.2 | 1.4 | YE3            | AL...-3      |
|                  |      | 8   | 3ER8APIRD...   | 1.81          | 1.3 | 1.5 |                |              |
| 3/8"<br>SCB      | 16   | 10  | 3JER10APIRD... | 1.41          | 1.2 | 1.5 | YE3            | AL...-3      |
|                  |      | 8   | 3JER8APIRD...  | 1.81          | 1.3 | 1.5 |                |              |

**Multi**plus

## Type M+



| Taille plaquette |      | Pas | Dents | Référence        | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|------------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH               | h min         | X   | Y   | RH             | Porte-outils |
| 5/8"             | 27   | 10  | 3     | 5ER10APIRD3M+... | 1.41          | 3.9 | 6.3 | YE5M           | AL...-5M     |
|                  |      | 8   | 2     | 5ER8APIRD2M+...  | 1.81          | 2.9 | 4.5 |                |              |

**Multi**plus

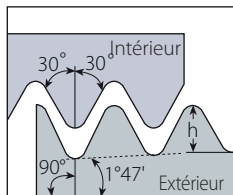
## Type T+



| Taille plaquette |      | Pas | Dents | Référence        | Dimensions mm |     |      | Sous-plaquette |              |
|------------------|------|-----|-------|------------------|---------------|-----|------|----------------|--------------|
| IC               | L mm | tpi |       | RH               | h min         | X   | Y    | RH             | Porte-outils |
| 1/2"T            | 22   | 10  | 6     | 4ER10APIRD6T+... | 1.41          | 0.2 | 16.2 | Y4T            | AL...-4T     |
|                  |      | 8   | 3     | 4ER8APIRD3T+...  | 1.81          | 0.2 | 14.2 |                |              |
|                  |      | 8   | 5     | 4ER8APIRD5T+...  | 1.81          | 0.2 | 16.7 |                |              |

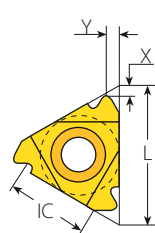
## API Round Casing & Tubing (Suite)

### Intérieur

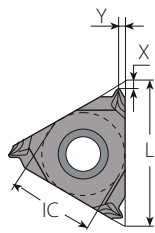


Norme: API STD. 5B:1979

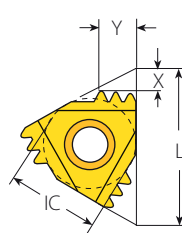
Classe de tolérance: Standard API RD



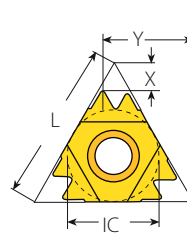
Standard



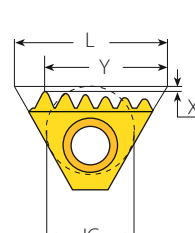
SCB  
Brise-copeaux  
brut de frittage



Type M+



Type Z+



Type T+

### Standard



SCB

| Taille plaquette |      | Pas | Référence      | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | RH             | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 10  | 3IR10APIRD...  | 1.41          | 1.2 | 1.4 | YI3            | AVR...-3     |
|                  |      | 8   | 3IR8APIRD...   | 1.81          | 1.3 | 1.5 |                |              |
| 3/8"<br>SCB      | 16   | 10  | 3JIR10APIRD... | 1.41          | 1.2 | 1.5 | YI3            | AVR...-3     |
|                  |      | 8   | 3JIR8APIRD...  | 1.81          | 1.3 | 1.5 |                |              |

### Type M+



| Taille plaquette |      | Pas | Dents | Référence        | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|------------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH               | h min         | X   | Y   | RH             | Porte-outils |
| 1/2"             | 22   | 10  | 2     | 4IR10APIRD2M+... | 1.41          | 2.4 | 3.7 | YI4M           | AVR...-4     |
|                  |      | 8   | 2     | 4IR8APIRD2M+...  | 1.81          | 2.9 | 4.5 |                |              |
| 5/8"             | 27   | 10  | 3     | 5IR10APIRD3M+... | 1.41          | 3.9 | 6.3 | YI5M           | AVR...-5M    |
|                  |      | 8   | 2     | 5IR8APIRD2M+...  | 1.81          | 2.9 | 4.5 |                |              |

### Type Z+



| Taille plaquette |      | Pas | Dents | Référence       | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|-------|-----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi |       | RH              | h min         | X   | Y   | RH             | Porte-outils |
| 1/2"             | 22   | 8   | 2     | 4IR8APIRD2Z+... | 1.81          | 3.7 | 9.6 | YI4Z           | AVR...-4Z    |

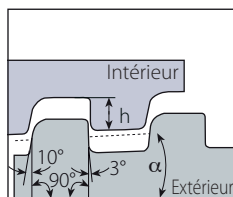
### Type T+



| Taille plaquette |      | Pas | Dents | Référence        | Dimensions mm |     |      | Sous-plaquette |              |
|------------------|------|-----|-------|------------------|---------------|-----|------|----------------|--------------|
| IC               | L mm | tpi |       | RH               | h min         | X   | Y    | RH             | Porte-outils |
| 1/2"T            | 22   | 10  | 6     | 4IR10APIRD6T+... | 1.43          | 0.2 | 16.8 | Y4T            | AVR...-4T    |
|                  |      | 8   | 3     | 4IR8APIRD3T+...  | 1.81          | 0.2 | 14.2 |                |              |
|                  |      | 8   | 5     | 4IR8APIRD5T+...  | 1.81          | 0.2 | 16.7 |                |              |

# VAM

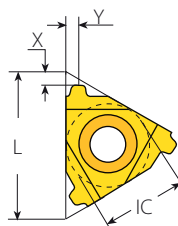
## Extérieur / Intérieur



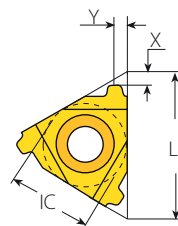
$$\alpha = \arctg (IPF/24)$$

Norme: VAM

Classe de tolérance: Standard VAM



Extérieur - Standard



Intérieur - Standard

## Standard - Extérieur



| Taille plaquette |      | Pas | Cône | Référence  | Taille         | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|------|------------|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | IPF  | RH         |                | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 8   | 0.75 | 3ER8VAM... | 2 3/8", 2 7/8" | 0.97          | 1.7 | 1.8 | YE3            | AL..-3       |
| 1/2"             | 22   | 6   | 0.75 | 4ER6VAM... | 3 1/2"         | 0.97          | 2.4 | 2.4 | YE4            | AL..-4       |
|                  |      | 5   | 0.75 | 4ER5VAM... | 5"-9 5/8"      | 1.54          | 2.4 | 2.7 |                |              |

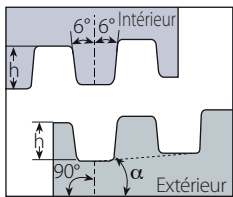
## Standard - Intérieur



| Taille plaquette |      | Pas | Cône | Référence  | Taille         | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|------|------------|----------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | IPF  | RH         |                | h min         | X   | Y   | RH             | Porte-outils |
| 3/8"             | 16   | 8   | 0.75 | 3IR8VAM... | 2 3/8", 2 7/8" | 0.97          | 1.7 | 1.8 | YI3            | AVR..-3      |
| 1/2"             | 22   | 6   | 0.75 | 4IR6VAM... | 3 1/2"         | 0.97          | 2.5 | 2.5 | YI4            | AVR..-4      |
|                  |      | 5   | 0.75 | 4IR5VAM... | 5"-9 5/8"      | 1.54          | 2.4 | 2.5 |                |              |

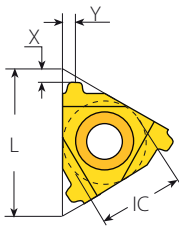
# EL-Ligne Extreme

## Extérieur / Intérieur

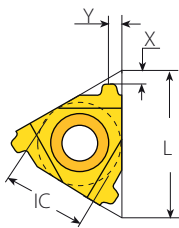


$\alpha = \arctg (IPF/24)$

Norme: API STD,5B:1979  
Classe de tolérance: Standard



Extérieur - Standard



Intérieur - Standard

## Standard - Extérieur



| Taille plaquette |      | Pas | Cône | Référence    | Nbre de raccord ou taille | Dimensions mm |     |     | Sous-plaquette |              |
|------------------|------|-----|------|--------------|---------------------------|---------------|-----|-----|----------------|--------------|
| IC               | L mm | tpi | IPF  | RH           |                           | h min         | X   | Y   | RH             | Porte-outils |
| 1/2"             | 22   | 6   | 1.5  | 4ER6EL15...  | 5"-7 5/8"                 | 1.21          | 1.9 | 1.9 | YE4            | AL...-4 (LH) |
|                  |      | 5   | 1.25 | 4ER5EL125... | 8 5/8"-10 3/4"            | 1.71          | 2.3 | 2.4 |                |              |

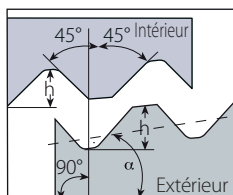
## Standard - Intérieur



| Taille plaquette |      | Pas | Cône | Référence    | Nbre de raccord ou taille | Dimensions mm |     |     | Sous-plaquette |               |
|------------------|------|-----|------|--------------|---------------------------|---------------|-----|-----|----------------|---------------|
| IC               | L mm | tpi | IPF  | RH           |                           | h min         | X   | Y   | RH             | Porte-outils  |
| 1/2"             | 22   | 6   | 1.5  | 4IR6EL15...  | 5"-7 5/8"                 | 1.39          | 1.8 | 1.9 | YI4            | AVR...-4 (LH) |
|                  |      | 5   | 1.25 | 4IR5EL125... | 8 5/8"-10 3/4"            | 1.91          | 2.2 | 2.4 |                |               |

# Hughes H-90

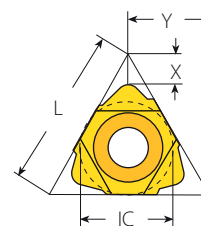
## Extérieur / Intérieur



$$\alpha = \arctg (IPF/24)$$

Norme: API STD,5B:1979

Classe de tolérance: Standard



Type U

## Type U - Extérieur



| Taille plaquette |      | Pas | Cône  | Référence      | Taille        | Dimensions mm |     |      | Sous-plaquette |               |
|------------------|------|-----|-------|----------------|---------------|---------------|-----|------|----------------|---------------|
| IC               | L mm | tpi | IPF   | RH             |               | h min         | X   | Y    | RH             | Porte-outils  |
| 1/2" U           | 22   | 3.5 | 2     | 4UER3.5H902... | 3 1/2"-6 5/8" | 2.50          | 4.2 | 11   | YE4U-H90       | AL...-4U (LH) |
|                  |      | 3.5 | 3     | 4UER3.5H903... | 7"-8 5/8"     | 2.50          | 4.2 | 11   |                |               |
| 5/8" U           | 27   | 3   | 1.25* | 5UER3H90SL...  | 2 3/8"-3 1/2" | 2.24          | 5.5 | 13.7 | YE5U-H90       | AL...-5U (LH) |

\* H-90 Slim line

## Type U - Intérieur

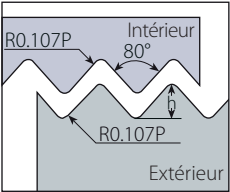


| Taille plaquette |      | Pas | Cône  | Référence      | Taille        | Dimensions mm |     |      | Sous-plaquette |                |
|------------------|------|-----|-------|----------------|---------------|---------------|-----|------|----------------|----------------|
| IC               | L mm | tpi | IPF   | RH             |               | h min         | X   | Y    | RH             | Porte-outils   |
| 1/2" U           | 22   | 3.5 | 2     | 4UIR3.5H902... | 3 1/2"-6 5/8" | 2.50          | 4.2 | 11   | YI4U-H90       | AVR...-4U (LH) |
|                  |      | 3.5 | 3     | 4UIR3.5H903... | 7"-8 5/8"     | 2.50          | 4.2 | 11   |                |                |
| 5/8" U           | 27   | 3   | 1.25* | 5UIR3H90SL...  | 2 3/8"-3 1/2" | 2.24          | 5.5 | 13.7 | YI5U-H90       | AVR...-5U (LH) |

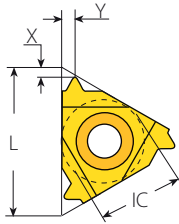
\* H-90 Slim line

PG

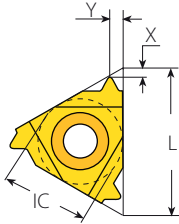
Extérieur / Intérieur



Norme: DIN 40430  
Classe de tolérance: Standard



Standard Extérieur



Standard Intérieur

Standard - Extérieur



| Taille plaquette |      | Pas | Filet            | Référence  |            | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|------------------|------------|------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi |                  | RH         | LH         | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 20  | Pg7              | 2ER20PG... | 2EL20PG... | 0.61          | 0.8 | 0.9 | -              | -   | NL..-2 (LH)  |
|                  |      | 18  | Pg9/11/13.5/16   | 2ER18PG... | 2EL18PG... | 0.67          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | Pg21/29/36/42/48 | 2ER16PG... | 2EL16PG... | 0.76          | 0.9 | 1.1 |                |     |              |
| 3/8"             | 16   | 20  | Pg7              | 3ER20PG... | 3EL20PG... | 0.61          | 0.8 | 0.9 | YE3            | YI3 | AL..-3 (LH)  |
|                  |      | 18  | Pg9/11/13.5/16   | 3ER18PG... | 3EL18PG... | 0.67          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | Pg21/29/36/42/48 | 3ER16PG... | 3EL16PG... | 0.76          | 0.9 | 1.1 |                |     |              |

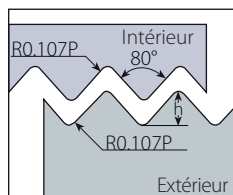
Standard - Intérieur



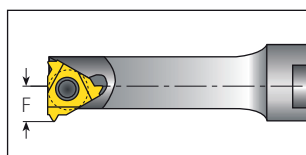
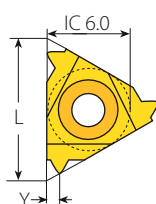
| Taille plaquette |      | Pas | Filet            | Référence  |            | Dimensions mm |     |     | Sous-plaquette |     | Porte-outils |
|------------------|------|-----|------------------|------------|------------|---------------|-----|-----|----------------|-----|--------------|
| IC               | L mm | tpi |                  | RH         | LH         | h min         | X   | Y   | RH             | LH  |              |
| 1/4"             | 11   | 20  | Pg7              | 2IR20PG... | 2IL20PG... | 0.64          | 0.8 | 0.9 | -              | -   | NVR..-2 (LH) |
|                  |      | 18  | Pg9/11/13.5/16   | 2IR18PG... | 2IL18PG... | 0.67          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | Pg21/29/36/42/48 | 2IR16PG... | 2IL16PG... | 0.76          | 0.9 | 1.1 |                |     |              |
| 3/8"             | 16   | 20  | Pg7              | 3IR20PG... | 3IL20PG... | 0.64          | 0.8 | 0.9 | YI3            | YE3 | AVR..-3 (LH) |
|                  |      | 18  | Pg11/13.5/16     | 3IR18PG... | 3IL18PG... | 0.67          | 0.8 | 1.0 |                |     |              |
|                  |      | 16  | Pg21/29/36/42/48 | 3IR16PG... | 3IL16PG... | 0.76          | 0.8 | 1.1 |                |     |              |

**PG**

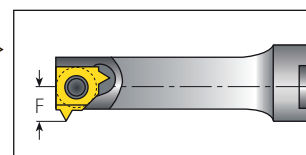
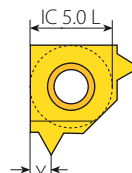

## Intérieur



Norme: DIN 40430  
Classe de tolérance: Standard



Mini-3



Mini-L

## Mini-3



| Taille plaquette |      | Pas | Filet          | Référence    | Dimensions mm |     |     | Diam. mini de perçage |              |
|------------------|------|-----|----------------|--------------|---------------|-----|-----|-----------------------|--------------|
| IC               | L mm | tpi |                | RH           | h min         | Y   | F   | mm                    | Porte-outils |
| 6.0              | 10   | 20  | Pg7            | 6.0IR20PG... | 0.61          | 0.8 | 5.3 | 10.0                  | .NVR1..-6.0  |
|                  |      | 18  | Pg9/11/13.5/16 | 6.0IR18PG... | 0.67          | 0.9 | 5.3 |                       |              |

## Mini-L



| Taille plaquette | Pas | Filet          | Référence   | Dimensions mm |     |      | Diam. mini de perçage |              |
|------------------|-----|----------------|-------------|---------------|-----|------|-----------------------|--------------|
| IC               | tpi |                | RH          | h min         | Y   | F    | mm                    | Porte-outils |
| 5.0L             | 20  | Pg7            | 5LIR20PG... | 0.61          | 0.8 | 4.65 | 8.0                   | .NVR10..-5L  |
|                  | 18  | Pg9/11/13.5/16 | 5LIR18PG... | 0.67          | 0.9 | 4.65 |                       |              |





# Filetage



> Porte-outils

|                                       |         |
|---------------------------------------|---------|
| ■ Système de codification Vardex..... | Page 99 |
|---------------------------------------|---------|

## Porte-outils extérieur

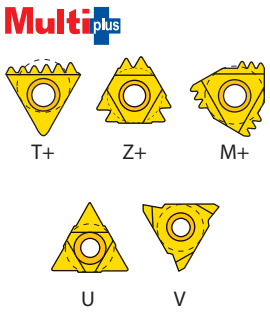
|                                                                 |          |
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| ■ API.....                                                      | Page 101 |
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| ■ Type Z+.....                                                  | Page 104 |
| ■ Type M+.....                                                  | Page 105 |
| ■ Type T+.....                                                  | Page 105 |
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| ■ Inversé (CQ).....                                             | Page 106 |
| ■ Mini Porte-outils à corps carré (extérieur et intérieur)..... | Page 107 |
| ■ Mini Porte-outils à corps rond (extérieur et intérieur).....  | Page 107 |

## Porte-outils intérieur

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| ■ Standard pour V6.....                                  | Page 109 |
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# Système de codification Vardex

## Porte-outils extérieur

|                                                                                   |   |    |                                                                 |   |   |                                          |   |                                                      |   |
|-----------------------------------------------------------------------------------|---|----|-----------------------------------------------------------------|---|---|------------------------------------------|---|------------------------------------------------------|---|
| A                                                                                 | L | 32 | -                                                               | 4 | U | C                                        |   |                                                      |   |
| 1                                                                                 | 2 | 3  |                                                                 | 4 | 5 | 6                                        | 7 | 8                                                    | 9 |
| 1- Sous-plaquette                                                                 |   |    | 2 - Type Porte-outils                                           |   |   | 3 - Section [mm]                         |   | 4- Taille plaquette                                  |   |
| A - Avec Sous-plaquette<br>N - Sans Sous-plaquette<br>O - Mini Porte-outils       |   |    | L - Extérieur<br>V - Mini queue carrée<br>VR - Mini queue ronde |   |   | 8, 10, 12, 16, 20, 25, 32,<br>40, 50, 60 |   | 2 - IC1/4"<br>3 - IC3/8"<br>4 - IC1/2"<br>5 - IC5/8" |   |
| 5 - Mod. plaquette                                                                |   |    | 6 - Bridage                                                     |   |   | 7 - Largeur plaquette                    |   |                                                      |   |
|  |   |    | C - Avec bride                                                  |   |   | (pour IC5/8"V)<br>6, 8, 10               |   |                                                      |   |
| 8 - Type de Porte-outils                                                          |   |    | 9 - RH/LH Porte-outils                                          |   |   |                                          |   |                                                      |   |
| CQ - Inversé<br>FQ - Off-Set<br>Oil - Pour plaquettes API                         |   |    | Néant - A droite<br>LH - A gauche                               |   |   |                                          |   |                                                      |   |

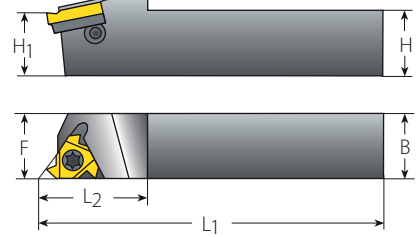
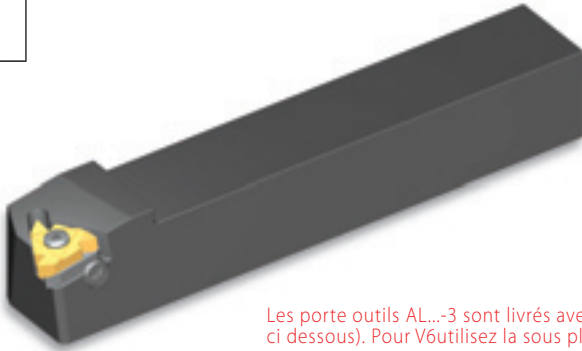
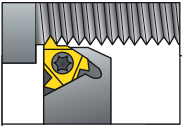
## Porte-outils intérieur

| C                                                                                                                                         | A | VR | C                                                                                                       | 20 |   | -                                                                   | 3 |                                                                                                                                         |   |    |                                                                                                                                   |    |
|-------------------------------------------------------------------------------------------------------------------------------------------|---|----|---------------------------------------------------------------------------------------------------------|----|---|---------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------|---|----|-----------------------------------------------------------------------------------------------------------------------------------|----|
| 1                                                                                                                                         | 2 | 3  | 4                                                                                                       | 5  | 6 |                                                                     | 7 | 8                                                                                                                                       | 9 | 10 | 11                                                                                                                                | 12 |
| <b>1 - Type de corps</b><br>B - Système anti-vibration<br>C - Corps en carbure<br>S - Mini Porte-outils                                   |   |    | <b>2- Sous-plaquette</b><br>A - Avec Sous-plaquette<br>N - Sans Sous-plaquette<br>O - Mini Porte-outils |    |   | <b>3 - Type de Porte-outils</b><br>VR - Intérieur queue ronde       |   | <b>5 - Diam. tête de l'outil</b><br>10, 10D, 12, 13, 16<br>16D, 20, 25, 25D, 32, 40, 50<br>6.2 (Mini Ajustable)<br>8.0 (Mini Ajustable) |   |    | <b>6 - Longueur Porte-outils</b><br>(Mini porte-outils)<br>U - Ultra court<br>S - Court<br>M - Moyen<br>L - Long<br>T - Ajustable |    |
| <b>7- Taille plaquette</b><br>5L - IC5.0L mm<br>4.0K - IC4.0 mm<br>6.0 - IC6.0 mm<br>2 - IC1/4"<br>3 - IC3/8"<br>4 - IC1/2"<br>5 - IC5/8" |   |    | <b>8 - Type plaquette</b><br>U<br>V<br>T<br>M<br>Z<br>L                                                 |    |   | <b>9 - Bridage</b><br>C - Avec bride                                |   | <b>12 - No. de série.</b><br>156/... (Porte-outils gros pas)<br>206/... (Porte-outils V6)                                               |   |    |                                                                                                                                   |    |
|                                                                                                                                           |   |    |                                                                                                         |    |   | <b>10 -Oil Field</b><br>OIL - Pour plaquette API                    |   |                                                                                                                                         |   |    |                                                                                                                                   |    |
|                                                                                                                                           |   |    |                                                                                                         |    |   | <b>11 - RH/LH Porte-outils</b><br>Néant - À droite<br>LH - À gauche |   |                                                                                                                                         |   |    |                                                                                                                                   |    |

## Porte-outils Micro, Microscope & Ajustables (Douilles)

| S                                                                                                                      | M | C | 16                                                                                                                                                                        | - | 3 |
|------------------------------------------------------------------------------------------------------------------------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1                                                                                                                      | 2 | 3 | 4                                                                                                                                                                         |   | 5 |
| <b>1 - Forme porte-outils</b><br>S - Douille<br>(Double arrête de coupe)<br>M - Microscope<br>(Simple arrête de coupe) |   |   | <b>2 - Type Porte-outils</b><br>V - Porte-outils ajustables pour le Mini<br>M - Micro (Double arrête de coupe)<br>H - Porte-outils Microscope<br>(Simple arrête de coupe) |   |   |
|                                                                                                                        |   |   | <b>3 - Arrosage</b><br>C - Avec canal de lubrification                                                                                                                    |   |   |
|                                                                                                                        |   |   | <b>4 - Diam. Porte-outils</b><br>10, 12, 16, 20                                                                                                                           |   |   |
|                                                                                                                        |   |   | <b>5 - Dimension d'alésage</b><br>Taille Micro<br>3, 4, 5, 6, 7, 8, 10<br>Porte-outils ajustables (pour Mini)<br>6.2<br>8                                                 |   |   |

# Porte-outils extérieur



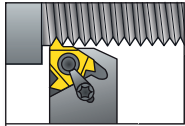
Les porte outils AL...-3 sont livrés avec une sous-plaquette standard(voir tableau des pièces détachées ci dessous). Pour V6utilisez la sous plaquette YE3-6C... Pour plus d'informations voir page 131.

## Standard

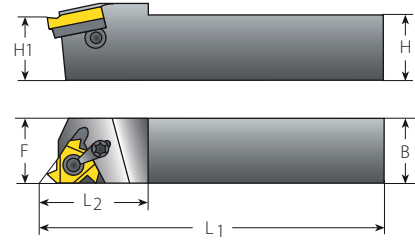
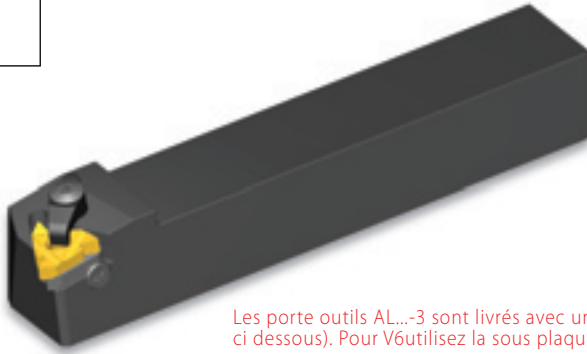
## Pièces détachées

| Taille<br>plaquette | Référence | Dimensions mm |    |       |       |  |  |  |  |  |
|---------------------|-----------|---------------|----|-------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  | RH/LH     | H=H1=B        | F  | L1    | L2    | Vis plaquette                                                                     | Vis sous-plaquette                                                                | Clé torx                                                                            | Sous-plaquette RH                                                                   | Sous-plaquette LH                                                                   |
| 1/4"                | NL8-2     | 8             | 11 | 136.4 | 17.5  | SN2T                                                                              | -                                                                                 | K2T                                                                                 | -                                                                                   | -                                                                                   |
|                     | NL10-2    | 10            | 11 | 70    | 17.5  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | NL12-2    | 12            | 12 | 80    | 17.5  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| 3/8"                | NL12-3    | 12            | 16 | 83.2  | 22    | SA3T                                                                              | -                                                                                 | K3T                                                                                 | -                                                                                   | -                                                                                   |
|                     | AL3/8-3   | 9.52          | 16 | 63.6  | 20.5  | SA3T                                                                              | SY3T                                                                              | K3T                                                                                 | YE3                                                                                 | YI3                                                                                 |
|                     | AL12-3    | 12            | 16 | 83.2  | 22    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | AL16-3    | 16            | 16 | 100.0 | 20.5  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | AL20-3    | 20            | 20 | 128.6 | 30    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | AL25-3    | 25            | 25 | 153.6 | 30    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | AL32-3    | 32            | 32 | 173.6 | 30    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | 1/2"      | AL25-4        | 25 | 25    | 155.7 | 36                                                                                | SA4T                                                                              | SY4T                                                                                | K4T                                                                                 | YE4                                                                                 |
| AL32-4              |           | 32            | 32 | 175.7 | 36    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| AL40-4              |           | 40            | 40 | 205.7 | 36    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| 5/8"                | AL25-5    | 25            | 32 | 151.6 | 35    | SA5T                                                                              | SY5T                                                                              | K5T                                                                                 | YE5                                                                                 | YI5                                                                                 |
|                     | AL32-5    | 32            | 32 | 176.6 | 40    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | AL40-5    | 40            | 40 | 206.6 | 40    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                     | AL50-5    | 50            | 50 | 256.6 | 40    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

Ces porte-outils ci-dessus ont un angle d'hélice de 1.5°. Concernant les autres angles d'hélice, voir page 131.  
Les porte-outils avec préfixe "N" ne peuvent pas être utilisés avec une sous-plaquette.



## Porte-outils extérieur



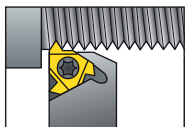
Les porte outils AL...-3 sont livrés avec une sous-plaquette standard (voir tableau des pièces détachées ci dessous). Pour V6 utiliser la sous plaquette YE3-6C... Pour plus d'informations voir page 131.

### Standard avec bride

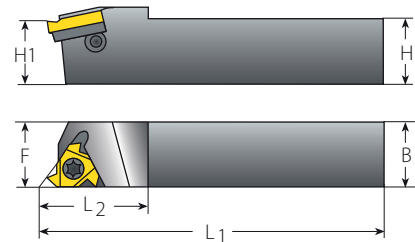
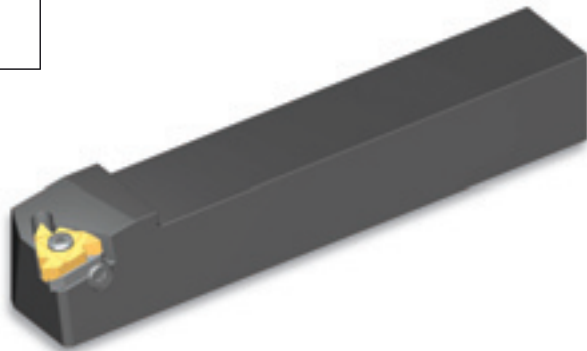
(Système double, vis ou bride)

Pièces détachées

| Taille<br>plaquette | Référence | Dimensions mm |    |       |      |       |                    |       |          |                   |                   |
|---------------------|-----------|---------------|----|-------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------|----------|-------------------|-------------------|
| IC                  | RH/LH     | H=H1=B        | F  | L1    | L2   | Vis plaquette                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Vis sous-plaquette | Bride | Clé torx | Sous-plaquette RH | Sous-plaquette LH |
| 3/8"                | AL16-3C   | 16            | 16 | 100.0 | 20.5 | SA3T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SY3T               | C3    | K3CT     | YE3               | YI3               |
|                     | AL20-3C   | 20            | 20 | 128.6 | 30   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |
|                     | AL25-3C   | 25            | 25 | 153.6 | 30   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |
|                     | AL32-3C   | 32            | 32 | 173.6 | 30   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |
| 1/2"                | AL25-4C   | 25            | 25 | 155.7 | 36   | SA4T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SY4T               | C4    | K4T      | YE4               | YI4               |
|                     | AL32-4C   | 32            | 32 | 175.7 | 36   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |
|                     | AL40-4C   | 40            | 40 | 205.7 | 36   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |
| 5/8"                | AL25-5C   | 25            | 32 | 151.6 | 35   | SA5T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SY5T               | C5    | K5T      | YE5               | YI5               |
|                     | AL32-5C   | 32            | 32 | 176.6 | 40   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |
|                     | AL40-5C   | 40            | 40 | 206.6 | 40   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |
|                     | AL50-5C   | 50            | 50 | 256.6 | 40   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |       |          |                   |                   |



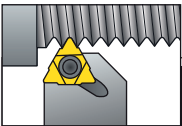
## Porte-outils extérieur



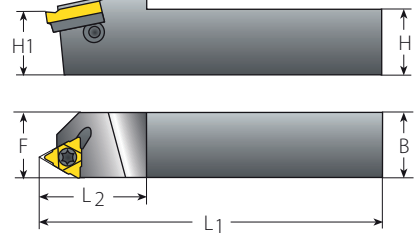
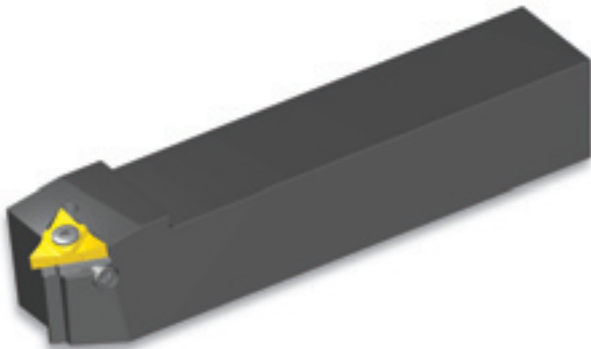
### Standard pour API

Pièces détachées

| Taille<br>plaquette | Référence | Forme du filet | N° de raccord / Diamètre nominal filetage | Dimensions mm |       |    |      |                    |          |                   |                   |
|---------------------|-----------|----------------|-------------------------------------------|---------------|-------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|-------------------|-------------------|
| IC                  | RH/LH     |                |                                           | H=H1=B=F      | L1    | L2 | Vis plaquette                                                                                                                                                                                                                                                                                                                                                                                                                               | Vis sous-plaquette | Clé torx | Sous-plaquette RH | Sous-plaquette LH |
| 5/8"                | AL32-SOIL | V0.038R        | V0.050 NC23-NC77 Toutes tailles           | 32            | 175.9 | 40 | SA5T                                                                                                                                                                                                                                                                                                                                                                                                                                        | SY5T               | K5T      | YE5OIL            | YI5OIL            |
|                     | AL40-SOIL | V0.038R        | V0.050 NC23-NC77 Toutes tailles           | 40            | 205.9 | 40 |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |          |                   |                   |



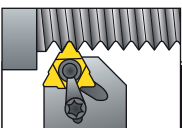
## Porte-outils extérieur



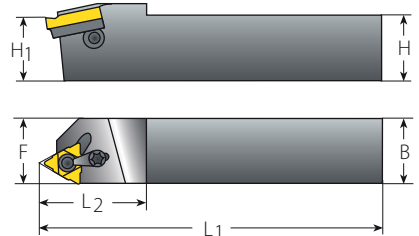
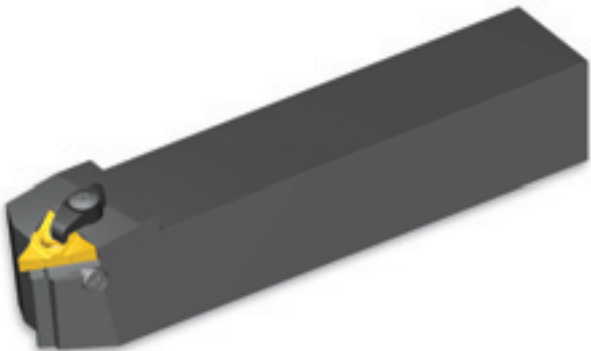
### Type U

#### Pièces détachées

| Taille plaque | Référence | Dimensions mm |    |       |    |  |  |  |  |  |
|---------------|-----------|---------------|----|-------|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC            | RH/LH     | H=H1=B        | F  | L1    | L2 | Vis plaque                                                                        | Vis sous-plaque                                                                   | Clé torx                                                                            | Sous-plaque RH                                                                      | Sous-plaque LH                                                                      |
| 1/2"U         | AL25-4U   | 25            | 25 | 178.4 | 38 | SA4T                                                                              | SY4T                                                                              | K4T                                                                                 | YE4U                                                                                | YI4U                                                                                |
|               | AL32-4U   | 32            | 32 | 178.4 | 38 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|               | AL40-4U   | 40            | 40 | 208.4 | 38 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| 5/8" U        | AL25-5U   | 25            | 25 | 179.1 | 40 | SA5T                                                                              | SY5T                                                                              | K5T                                                                                 | YE5U                                                                                | YI5U                                                                                |
|               | AL32-5U   | 32            | 32 | 179.1 | 40 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|               | AL40-5U   | 40            | 40 | 209.1 | 40 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|               | AL50-5U   | 50            | 50 | 259.1 | 40 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |



## Porte-outils extérieur

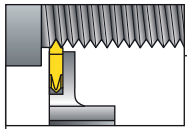


### Type U avec bride

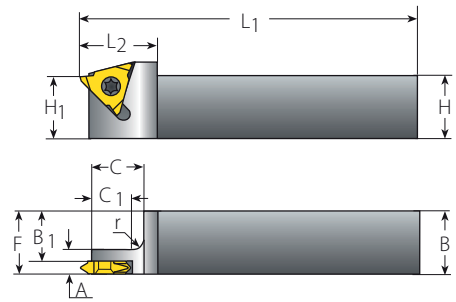
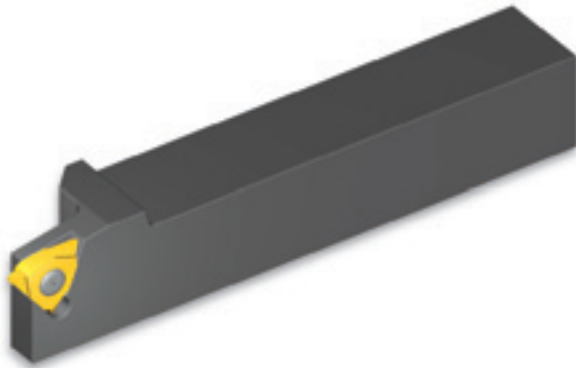
(Système double, vis ou bride)

#### Pièces détachées

| Taille plaque | Référence | Dimensions mm |    |       |    |  |  |  |  |  |  |
|---------------|-----------|---------------|----|-------|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| IC            | RH/LH     | H=H1=B        | F  | L1    | L2 | Vis plaque                                                                          | Vis sous-plaque                                                                     | Bride                                                                                 | Clé torx                                                                              | Sous-plaque RH                                                                        | Sous-plaque LH                                                                        |
| 1/2"U         | AL32-4UC  | 32            | 32 | 178.4 | 38 | SA4T                                                                                | SY4T                                                                                | C4                                                                                    | K4T                                                                                   | YE4U                                                                                  | YI4U                                                                                  |
|               | AL40-4UC  | 40            | 40 | 208.4 | 38 |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|               | AL32-5UC  | 32            | 32 | 179.1 | 40 |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 5/8" U        | AL40-5UC  | 40            | 40 | 209.1 | 40 | SA5T                                                                                | SY5T                                                                                | C5                                                                                    | K5T                                                                                   | YE5U                                                                                  | YI5U                                                                                  |
|               | AL40-5UC  | 40            | 40 | 209.1 | 40 |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|               | AL50-5UC  | 50            | 50 | 259.1 | 40 |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |



## Porte-outils extérieur

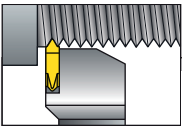


### Slim Throat Passage étroit

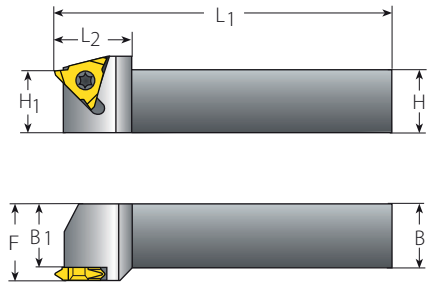
Pièces détachées

| Taille<br>plaquette | Référence | Dimensions mm |    |    |      |      |      |     |      |   |               |          |
|---------------------|-----------|---------------|----|----|------|------|------|-----|------|---|---------------|----------|
| IC                  | RH/LH     | H=B=F         | H1 | A  | B1   | C    | C1   | L1  | L2   | r | Vis plaquette | Clé torx |
| 1/4"V               | NL8-2V    | 8             | 10 | 7  | 4.8  | 12.5 | 11.5 | 60  | 14.0 | 1 | SN2T          | K2T      |
|                     | NL10-2V   | 10            | 10 | 7  | 6.8  | 12.5 | 11.5 | 70  | 14.0 | 1 |               |          |
|                     | NL12-2V   | 12            | 12 | 7  | 8.8  | 14.5 | 11.5 | 80  | 14.0 | 3 |               |          |
|                     | NL16-2V   | 16            | 16 | 7  | 12.8 | 14.5 | 11.5 | 100 | 14.0 | 3 |               |          |
| 3/8"V               | NL10-3V   | 10            | 14 | 7  | 6.4  | 14.5 | 11.5 | 70  | 18.5 | 3 | SN3TV         | K3T      |
|                     | NL12-3V   | 12            | 14 | 7  | 8.4  | 14.5 | 11.5 | 80  | 18.5 | 3 |               |          |
|                     | NL16-3V   | 16            | 16 | 7  | 12.4 | 14.5 | 11.5 | 100 | 25.0 | 3 |               |          |
|                     | NL20-3V   | 20            | 20 | 7  | 16.4 | 16.5 | 11.5 | 125 | 30.0 | 3 |               |          |
|                     | NL25-3V   | 25            | 25 | 7  | 21.4 | 16.5 | 11.5 | 150 | 30.0 | 5 |               |          |
|                     | NL32-3V   | 32            | 32 | 7  | 28.4 | 16.5 | 11.5 | 170 | 30.0 | 5 |               |          |
| 1/2"V               | NL40-3V   | 40            | 40 | 7  | 36.4 | 16.5 | 11.5 | 200 | 30.0 | 5 | SN4T          | K4T      |
|                     | NL25-4V   | 25            | 25 | 12 | 20.2 | 16.5 | 11.5 | 150 | 30.0 | 5 |               |          |
|                     | NL32-4V   | 32            | 32 | 12 | 27.2 | 16.5 | 11.5 | 170 | 30.0 | 5 |               |          |
|                     | NL40-4V   | 40            | 40 | 12 | 35.2 | 16.5 | 11.5 | 200 | 30.0 | 5 |               |          |

Tous les porte-outils de type Slim Throat ont un angle d'hélice de 1.5°.



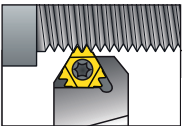
## Porte-outils extérieur



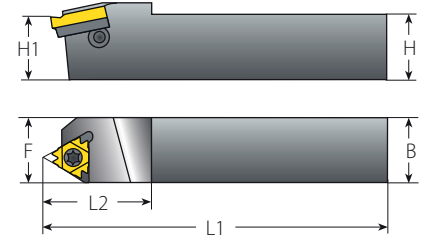
### Type V

| Taille<br>plaquette | Référence       |        | Dimensions mm |      |     |    |  |  |
|---------------------|-----------------|--------|---------------|------|-----|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  | RH/LH           | H=H1=B | B1            | F    | L1  | L2 | Vis plaquette                                                                       | Clé torx                                                                            |
| 5/8"V               | NL32-5V-6       | 32     | 25.5          | 32.0 | 170 | 40 | SN6T                                                                                | K6T                                                                                 |
|                     | NL32-5V-8       | 32     | 25.5          | 34.1 | 170 | 40 |                                                                                     |                                                                                     |
|                     | NL32-5V-10      | 32     | 25.5          | 35.8 | 170 | 40 |                                                                                     |                                                                                     |
|                     | NL32-5V-10ABUT* | 32     | 25.5          | 35.8 | 170 | 40 |                                                                                     |                                                                                     |
|                     | NL40-5V-6       | 40     | 33.5          | 40.0 | 200 | 40 |                                                                                     |                                                                                     |
|                     | NL40-5V-8       | 40     | 33.5          | 42.1 | 200 | 40 |                                                                                     |                                                                                     |
|                     | NL40-5V-10      | 40     | 33.5          | 43.8 | 200 | 40 |                                                                                     |                                                                                     |
|                     | NL40-5V-10ABUT* | 40     | 33.5          | 43.8 | 200 | 40 |                                                                                     |                                                                                     |

Tous les porte-outils de type V ont un angle d'hélice de 1°.  
Les porte-outils ci-dessus sont pour des plaquettes à droite. Pour les plaquettes à gauche, ajouter "LH" à la référence du porte-outils. (Exemple NL32-5V-6 **LH**)  
n'utilisez qu'avec la plaquette 5VER2.5 ABUT...



## Porte-outils extérieur



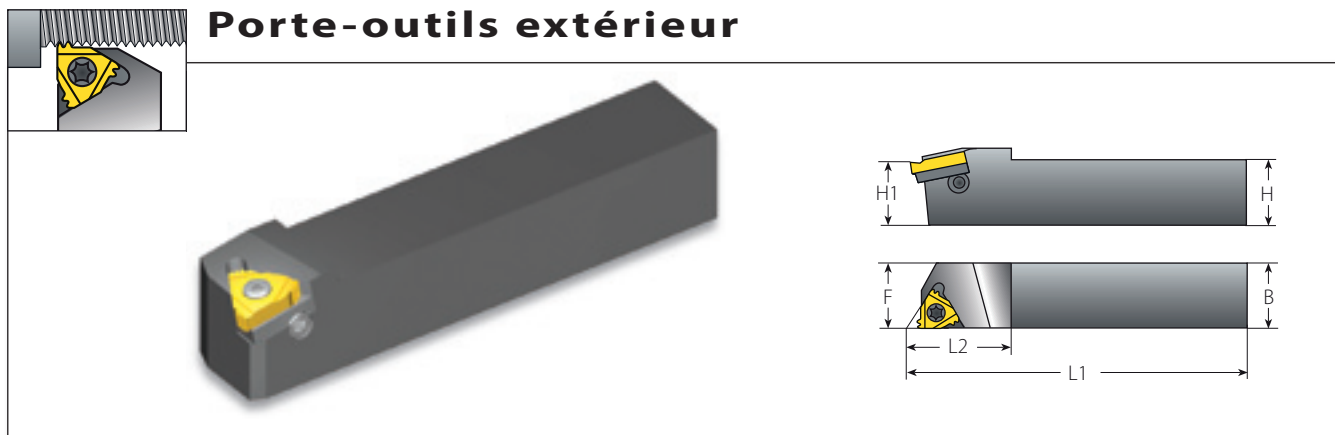
### Type Z+

| Taille<br>plaquette | Référence |        | Dimensions mm |       |    |  |  |  |  |  |
|---------------------|-----------|--------|---------------|-------|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| IC                  | RH        | H=H1=B | F             | L1    | L2 | Vis plaquette                                                                       | Vis sous-plaquette                                                                  | Clé torx                                                                              | Sous-plaquette RH                                                                     | Sous-plaquette LH                                                                     |
| 1/2"Z               | AL32-4Z   | 32     | 32            | 178.4 | 38 | SA4T                                                                                | SY4T                                                                                | K4T                                                                                   | YE4Z                                                                                  | YI4Z                                                                                  |
|                     | AL40-4Z   | 40     | 40            | 208.4 | 38 |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
| 5/8"Z               | AL32-5Z   | 32     | 32            | 179.1 | 40 | SA5T                                                                                | SY5T                                                                                | K5T                                                                                   | YE5Z                                                                                  | YI5Z                                                                                  |
|                     | AL40-5Z   | 40     | 40            | 209.1 | 40 |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|                     | AL50-5Z   | 50     | 50            | 259.1 | 40 |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |

Tous les porte-outils de type Z ont un angle d'hélice de 1.5°.

**Multi**plus

## Porte-outils extérieur

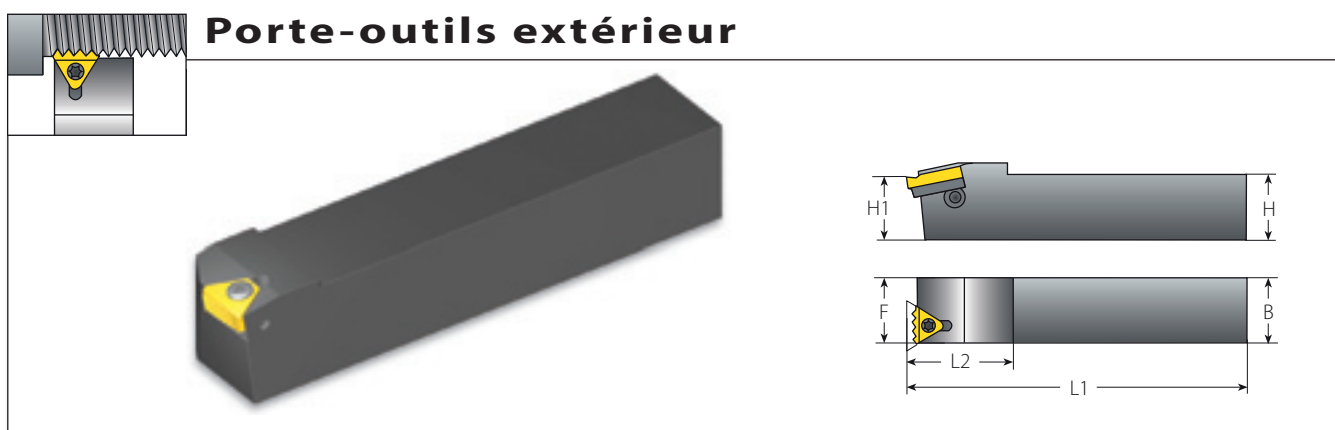


### Type M+

| Taille<br>plaquette | Référence | Dimensions mm |    |       |    | Pièces détachées |                    |          |                   |                   |
|---------------------|-----------|---------------|----|-------|----|------------------|--------------------|----------|-------------------|-------------------|
|                     |           | H=H1=B        | F  | L1    | L2 | Vis plaquette    | Vis sous-plaquette | Clé torx | Sous-plaquette RH | Sous-plaquette LH |
| 5/8" M              | AL32-5M   | 32            | 32 | 176.6 | 40 | SA5T             | SY5T               | K5T      | YE5M              | YI5M              |
|                     | AL40-5M   | 40            | 40 | 206.6 | 40 |                  |                    |          |                   |                   |
|                     | AL50-5M   | 50            | 50 | 256.6 | 40 |                  |                    |          |                   |                   |

Tous les porte-outils de type M ont un angle d'hélice de 1.5°.

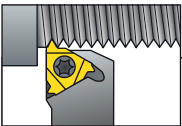
## Porte-outils extérieur



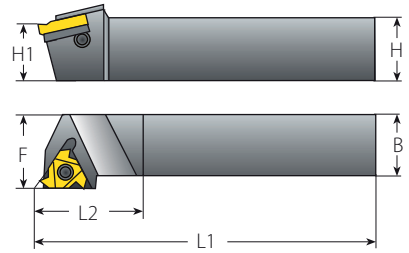
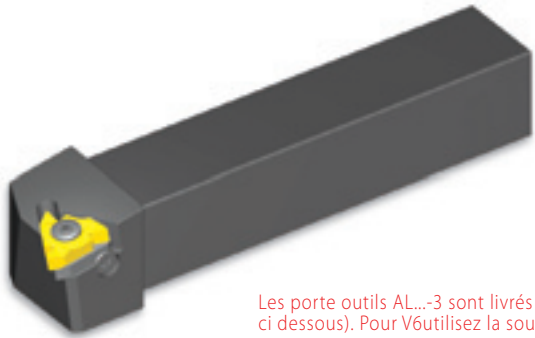
### Type T+

| Taille<br>plaquette | Référence | Dimensions mm |    |     |    | Pièces détachées |                    |                       |                            |                      |
|---------------------|-----------|---------------|----|-----|----|------------------|--------------------|-----------------------|----------------------------|----------------------|
|                     |           | H=H1=B        | F  | L1  | L2 | Vis plaquette    | Vis sous-plaquette | Clé torx de plaquette | Clé torx de sous-plaquette | Sous-plaquette RH/LH |
| 1/2" T              | AL25-4T   | 25            | 27 | 150 | 30 | SA4T             | SY4K2              | K4T                   | K2                         | Y4T                  |
|                     | AL32-4T   | 32            | 34 | 170 | 30 |                  |                    |                       |                            |                      |
|                     | AL40-4T   | 40            | 42 | 200 | 30 |                  |                    |                       |                            |                      |

Tous les porte-outils de type T ont un angle d'hélice de 0°.



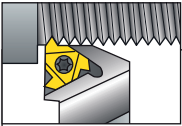
## Porte-outils extérieur



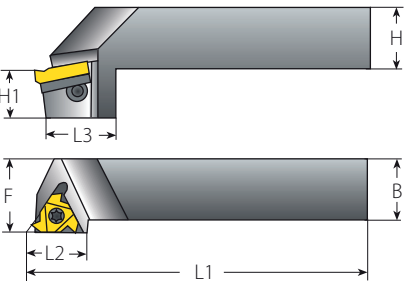
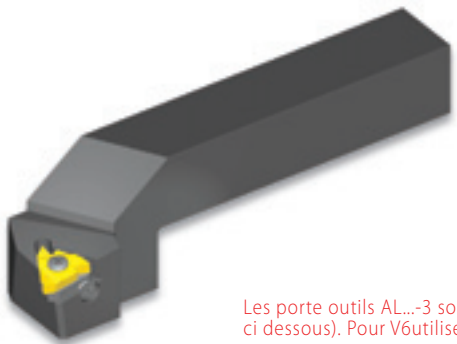
Les porte outils AL...-3 sont livrés avec une sous-plaquette standard (voir tableau des pièces détachées ci-dessous). Pour V6 utilisez la sous-plaquette YE3-6C... Pour plus d'informations voir page 131.

### Off-Set (FQ)

| Taille<br>plaquette | Référence | Dimensions mm |    |     |    | Pièces détachées |      |     |     |     |
|---------------------|-----------|---------------|----|-----|----|------------------|------|-----|-----|-----|
|                     |           | H=H1=B        | F  | L1  | L2 |                  |      |     |     |     |
| 3/8"                | AL20-3FQ  | 20            | 25 | 125 | 25 | SA3T             | SY3T | K3T | YE3 | YI3 |
|                     | AL25-3FQ  | 25            | 32 | 150 | 25 |                  |      |     |     |     |
|                     | AL32-3FQ  | 32            | 40 | 170 | 32 |                  |      |     |     |     |
| 1/2"                | AL25-4FQ  | 25            | 32 | 150 | 30 | SA4T             | SY4T | K4T | YE4 | YI4 |
|                     | AL32-4FQ  | 32            | 40 | 170 | 30 |                  |      |     |     |     |
| 5/8"                | AL32-5FQ  | 32            | 40 | 170 | 35 | SA5T             | SY5T | K5T | YE5 | YI5 |



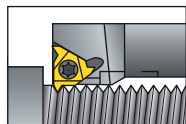
## Porte-outils extérieur



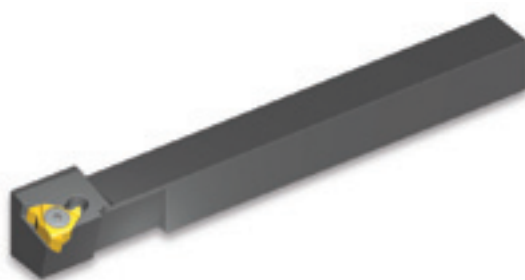
Les porte outils AL...-3 sont livrés avec une sous-plaquette standard (voir tableau des pièces détachées ci-dessous). Pour V6 utilisez la sous-plaquette YE3-6C... Pour plus d'informations voir page 131.

### Inversé (CQ)

| Taille<br>plaquette | Référence | Dimensions mm |    |     |    |    |      | Pièces détachées |      |     |     |     |
|---------------------|-----------|---------------|----|-----|----|----|------|------------------|------|-----|-----|-----|
|                     |           | H=B           | F  | L1  | L2 | L3 | H1   |                  |      |     |     |     |
| 3/8"                | AL20-3CQ  | 20            | 25 | 125 | 24 | 38 | 17.5 | SA3T             | SY3T | K3T | YE3 | YI3 |
|                     | AL25-3CQ  | 25            | 32 | 150 | 24 | 38 | 22.2 |                  |      |     |     |     |
|                     | AL32-3CQ  | 32            | 40 | 170 | 24 | 38 | 22.2 |                  |      |     |     |     |
| 1/2"                | AL25-4CQ  | 25            | 32 | 150 | 30 | 38 | 22.2 | SA4T             | SY4T | K4T | YE4 | YI4 |
|                     | AL32-4CQ  | 32            | 40 | 170 | 30 | 38 | 22.2 |                  |      |     |     |     |
| 5/8"                | AL32-5CQ  | 32            | 40 | 170 | 33 | 43 | 25.4 | SA5T             | SY5T | K5T | YE5 | YI5 |



## Porte-outils intérieur & extérieur

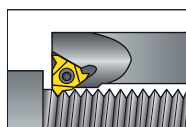


### Mini porte-outils à corps carré\*

Pièces détachées

| Taille plaquette | Référence | Dimensions mm |     |    |    |      | Diam. mini de perçage |               |          |
|------------------|-----------|---------------|-----|----|----|------|-----------------------|---------------|----------|
| IC               | RH/LH     | A             | L   | L1 | F  | mm   |                       | Vis plaquette | Clé torx |
| 1/4"             | OV 8-2    | 8             | 100 | 25 | 12 | 29,2 |                       | SN2T          | K2T      |
|                  | OV 10-2   | 10            | 100 | 25 | 14 | 36,1 |                       |               |          |

Les mini porte-outils ont un angle d'hélice de 0.5°.



## Porte-outils intérieur & extérieur



### Mini porte-outils à corps rond\*

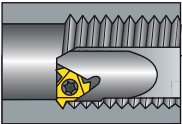
Pièces détachées

| Dimensions mm    |           |      |               |    |    |    |     |                       | Outils recommandés                                                                    |                                                                                       |
|------------------|-----------|------|---------------|----|----|----|-----|-----------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Taille plaquette | Référence |      | Dimensions mm |    |    |    |     | Diam. mini de perçage |  |  |
| IC               | RH/LH     | A    | L             | L1 | D  | D1 | F   | mm                    | Vis plaquette                                                                         | Clé torx                                                                              |
| 1/4"             | OVR 12-2  | 11.4 | 100           | 25 | 12 | 10 | 7.4 | 13                    | SN2T                                                                                  | K2T                                                                                   |
|                  | OVR 15-2  | 14.3 | 100           | 32 | 15 | 13 | 8.9 | 16                    |                                                                                       |                                                                                       |
|                  | OVR 16D-2 | 15.3 | 100           | 32 | 16 | 13 | 8.9 | 16                    |                                                                                       |                                                                                       |

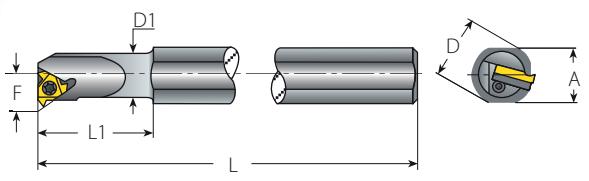
Les mini porte-outils ont un angle d'hélice de 0.5°.

\* Les mini porte-outils à corps carrés et ronds sont conçus pour les tours automatiques destinés à l'industrie optique et autres industries de précision. Ils peuvent être utilisés pour les filetages extérieur et intérieur, comme suit:

|              |    |    |    |    |
|--------------|----|----|----|----|
| Filet        | ER | EL | IR | IL |
| Plaquette    | ER | EL | IR | IL |
| Porte-outils | LH | RH | RH | LH |



# Porte-outils intérieur



Les porte outils AL...-3 sont livrés avec une sous-plaquette standard(voir tableau des pièces détachées ci dessous). Pour V6utilisez la sous plaquette YE3-6C... Pour plus d'informations voir page 131.

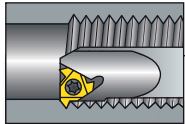
## Standard

## Pièces détachées

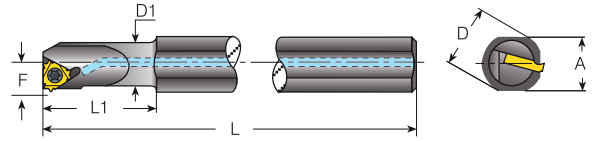
| Taille<br>plaquette | Référence | Dimensions mm |     |    |    |      |      | Diam.<br>mini de<br>perçage |               |                    |          |                   |                   |
|---------------------|-----------|---------------|-----|----|----|------|------|-----------------------------|---------------|--------------------|----------|-------------------|-------------------|
|                     |           | A             | L   | L1 | D  | D1   | F    |                             | Vis plaquette | Vis sous-plaquette | Clé torx | Sous-plaquette RH | Sous-plaquette LH |
| 1/4"                | NVR10D-2  |               | 100 |    | 10 | 10.0 | 7.3  | 13                          | SN2T          | -                  | K2T      | -                 | -                 |
|                     | NVR10-2   | 18.0          | 180 | 25 | 20 | 10.0 | 7.3  | 13                          |               |                    |          |                   |                   |
|                     | NVR13-2   | 18.0          | 180 | 32 | 20 | 13.0 | 8.9  | 16                          |               |                    |          |                   |                   |
| 3/8"                | NVR13-3   | 18.0          | 180 | 32 | 20 | 12.7 | 10.3 | 17                          | SN3T          | -                  | K3T      | -                 | -                 |
|                     | NVR16-3   | 18.0          | 180 | 40 | 20 | 16.0 | 11.5 | 20                          |               |                    |          |                   |                   |
|                     | NVR16D-3  | 15.2          | 150 | 32 | 16 | 16.0 | 11.3 | 20                          |               |                    |          |                   |                   |
|                     | AVR20-3   | 18.0          | 180 | 40 | 20 | 20.0 | 13.4 | 24                          | SA3T          | SY3T               | K3T      | YI3               | YE3               |
|                     | AVR25-3   | 29.0          | 250 | 60 | 32 | 25.0 | 16.3 | 29                          |               |                    |          |                   |                   |
|                     | AVR25D-3  | 22.6          | 200 | 45 | 25 | 24.6 | 16.1 | 29                          |               |                    |          |                   |                   |
|                     | AVR32-3   | 29.0          | 250 | 60 | 32 | 32.0 | 19.6 | 36                          |               |                    |          |                   |                   |
| 1/2"                | AVR40-3   | 36.0          | 300 | 60 | 40 | 40.0 | 23.8 | 44                          | SN4T          | -                  | K4T      | -                 | -                 |
|                     | NVR20-4   | 18.0          | 180 | 50 | 20 | 20.0 | 15.6 | 27                          |               |                    |          |                   |                   |
|                     | AVR25-4   | 29.0          | 250 | 60 | 32 | 25.0 | 17.4 | 32                          |               |                    |          |                   |                   |
|                     | AVR25D-4  | 22.6          | 200 | 45 | 25 | 24.6 | 17.2 | 32                          | SA4T          | SY4T               | K4T      | YI4               | YE4               |
|                     | AVR32-4   | 29.0          | 250 | 60 | 32 | 32.0 | 21.5 | 39                          |               |                    |          |                   |                   |
|                     | AVR40-4   | 36.0          | 300 | 60 | 40 | 40.0 | 25.8 | 47                          |               |                    |          |                   |                   |
| 5/8"                | AVR50-4   | 45.0          | 350 | 75 | 50 | 50.0 | 30.8 | 57                          | SN5T          | SY5T               | K5T      | YI5               | YE5               |
|                     | AVR32-5   | 29.0          | 250 | 60 | 32 | 32.0 | 22.4 | 40                          |               |                    |          |                   |                   |
|                     | AVR40-5   | 36.0          | 300 | 60 | 40 | 40.0 | 26.4 | 48                          | SA5T          | SY5T               | K5T      | YI5               | YE5               |
|                     | AVR50-5   | 45.0          | 350 | 75 | 50 | 50.0 | 31.4 | 58                          |               |                    |          |                   |                   |
|                     | AVR60-5   | 54.0          | 400 | 75 | 60 | 60.0 | 36.4 | 69                          |               |                    |          |                   |                   |

Ces porte-outils ci-dessus ont un angle d'hélice de 1.5°. Concernant les autres angles d'hélice, voir page 131.  
Les porte-outils avec préfixe "N" ne peuvent pas être utilisés avec une sous-plaquette.

Les porte-outils avec canal de lubrification sont disponibles en standard. (Exemple NVRC 10D-2)



## Porte-outils intérieur pour V6 (sans sous-plaquette)\*



Spécialement pour la plaquette V6

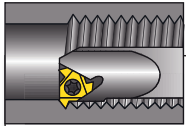
### Type V6

Pièces détachées **V6**

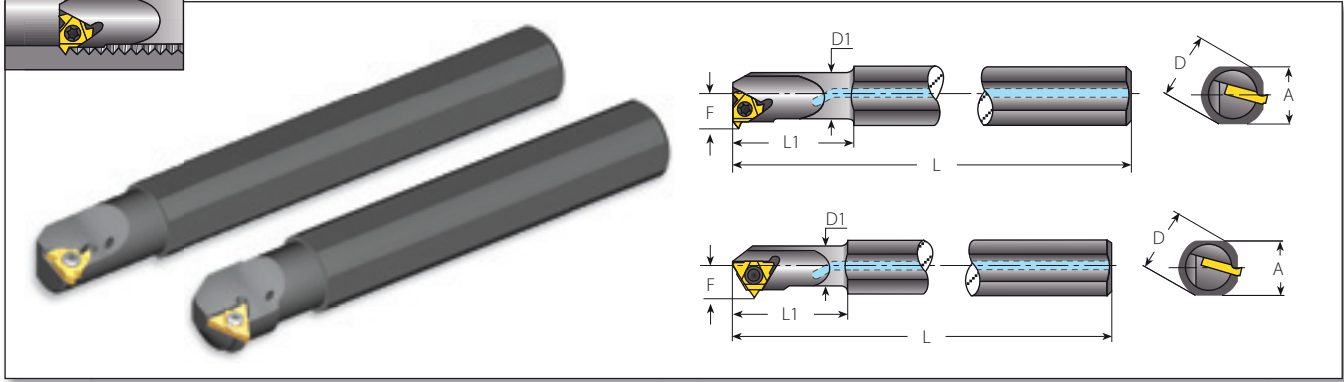
| Taille<br>plaquette | Référence          | Dimensions mm |     |    |    |      |      |    | Diam. mini<br>de perçage |  |  |
|---------------------|--------------------|---------------|-----|----|----|------|------|----|--------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  | RH                 | A             | L   | L1 | D  | D1   | F    | mm |                          | Vis plaquette                                                                       | Clé torx                                                                            |
| 3/8"<br>V6          | NVRC 13-3 206/001  | 18            | 180 | 32 | 20 | 12,7 | 10,3 | 17 |                          | SN3TM                                                                               | K3T                                                                                 |
|                     | NVRC 16-3 206/002  | 18            | 180 | 40 | 20 | 16   | 11,5 | 20 |                          | SN3T                                                                                |                                                                                     |
|                     | NVRC 16D-3 206/003 | 15,2          | 150 | 40 | 16 | 16   | 11,3 | 20 |                          | SN3T                                                                                |                                                                                     |

Ces porte-outils ci-dessus ont un angle d'hélice de 1.5°.

V6 ne peut être utilisé sans sous-plaquette avec un P.O Intérieur standard. Dans ce cas, vous devez utiliser un de ces P.O. spéciaux V6



## Porte-outils intérieur



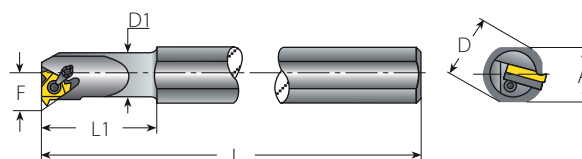
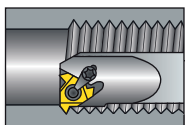
### Standard pour gros pas

| Taille<br>plaquette | Référence        | Dimensions mm |     |      |    |      | F     | Hélice<br>Porte-outils | Pièces détachées |          |
|---------------------|------------------|---------------|-----|------|----|------|-------|------------------------|------------------|----------|
| IC                  | RH/LH            | A             | L   | L1   | D  | D1   | mm    | Deg.                   | Vis plaquette    | Clé torx |
| 1/4"                | NVRC10-2 156/001 | 18.0          | 180 | 25.0 | 20 | 10.1 | 6.53  | 3.0                    | SN2T             | K2T      |
|                     | NVRC11-3 156/005 | 18.0          | 180 | 25.4 | 20 | 11.2 | 8.30  | 4.5                    | SN3TM            | K3T      |
| 3/8"                | NVRC13-3 156/006 | 18.0          | 180 | 32.0 | 20 | 13.0 | 9.05  | 4.0                    | SN3T             | K3T      |
|                     | NVRC13-3 156/016 | 18.0          | 180 | 34.0 | 20 | 13.8 | 8.90  | 2.5                    |                  |          |
|                     | NVRC17-4 156/007 | 18.0          | 180 | 40.0 | 20 | 16.7 | 11.45 | 4.0                    | SN4TM            | K4T      |
| 1/2"                | NVRC20-4 156/008 | 18.0          | 180 | 50.0 | 20 | 19.6 | 12.55 | 3.5                    | SN4T             | K4T      |
|                     | NVRC20-4 156/009 | 18.0          | 180 | 50.0 | 20 | 19.6 | 12.55 | 3.0                    |                  |          |
| 5/8"                | NVRC25-5 156/012 | 29.0          | 250 | 60.0 | 32 | 25.0 | 16.78 | 3.3                    | SN5TM            | K5T      |
|                     | NVRC28-5 156/010 | 29.0          | 250 | 50.0 | 32 | 28.0 | 17.80 | 3.5                    |                  |          |

### Type U pour gros pas

| Taille<br>plaquette | Référence          | Dimensions mm |     |      |    |      | F     | Hélice<br>Porte-outils | Pièces détachées |          |
|---------------------|--------------------|---------------|-----|------|----|------|-------|------------------------|------------------|----------|
| IC                  | RH/LH              | A             | L   | L1   | D  | D1   | mm    | Deg.                   | Vis plaquette    | Clé torx |
| 6.0U                | NVRC8-6.0U 156/003 | 18.0          | 180 | 24.0 | 20 | 8.0  | 5.86  | 4.0                    | SN6MT            | K6MT     |
| 1/4"U               | NVRC10-2U 156/004  | 18.0          | 180 | 32.0 | 20 | 10.0 | 7.40  | 4.0                    | SM2T8            | K2T      |
|                     | NVRC11-2U 156/002  | 18.0          | 180 | 32.0 | 20 | 11.2 | 7.30  | 3.0                    |                  |          |
|                     | NVRC11-3U 156/020  | 18.0          | 180 | 32.0 | 20 | 11.0 | 8.23  | 4.5                    |                  |          |
| 3/8"U               | NVRC14-3U 156/018  | 18.0          | 180 | 38.0 | 20 | 13.4 | 9.99  | 4.5                    | SN3TM            | K3T      |
|                     | NVRC15-3U 156/019  | 18.0          | 180 | 38.0 | 20 | 15.4 | 10.99 | 4.0                    |                  |          |
|                     | NVRC20-4U 156/011  | 18.0          | 180 | 40.0 | 20 | 19.2 | 13.68 | 4.0                    | SN4T             | K4T      |
| 1/2"U               | NVRC25-4U 156/013  | 29.0          | 250 | 60.0 | 32 | 25.0 | 17.63 | 3.5                    |                  |          |
|                     | NVRC32-4U 156/014  | 29.0          | 250 | 60.0 | 32 | 29.7 | 18.76 | 3.3                    | SA4T             | K4T      |
| 5/8" U              | NVRC32-5U 156/015  | 29.0          | 250 | 60.0 | 32 | 31.6 | 20.96 | 3.2                    | SA5T             | K5T      |

## Porte-outils intérieur



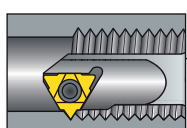
Les porte-outils AL...-3 sont livrés avec une sous-plaquette standard (voir tableau des pièces détachées ci dessous). Pour V6 utilisez la sous-plaquette YE3-6C... Pour plus d'informations voir page 131.

### Standard avec bride

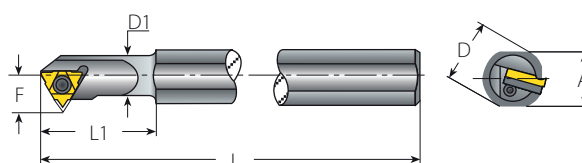
(Système double, vis ou bride)

#### Pièces détachées

| Taille<br>plaquette | Référence | Dimensions mm |     |    |    |      |      |    | Diam. mini de<br>perçage |  |  |  |  |  |  |
|---------------------|-----------|---------------|-----|----|----|------|------|----|--------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  | RH/LH     | A             | L   | L1 | D  | D1   | F    | mm |                          | Vis plaquette                                                                     | Vis sous-plaquette                                                                 | Bride                                                                               | Clé torx                                                                            | Sous-plaquette RH                                                                   | Sous-plaquette LH                                                                   |
| 3/8"                | AVR20-3C  | 18.0          | 180 | 50 | 20 | 20.0 | 13.4 | 24 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                     | AVR25-3C  | 28.0          | 250 | 60 | 32 | 25.0 | 16.3 | 29 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                     | AVR25D-3C | 22.6          | 200 | 45 | 25 | 24.6 | 16.1 | 29 |                          | SA3T                                                                              | SY3T                                                                               | C3                                                                                  | K3CT                                                                                | YI3                                                                                 | YE3                                                                                 |
|                     | AVR32-3C  | 29.0          | 250 | 60 | 32 | 32.0 | 19.6 | 36 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                     | AVR40-3C  | 36.0          | 300 | 60 | 40 | 40.0 | 23.8 | 44 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1/2"                | AVR25-4C  | 29.0          | 250 | 60 | 32 | 25.0 | 17.4 | 32 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                     | AVR25D-4C | 22.6          | 200 | 45 | 25 | 24.6 | 17.2 | 32 |                          | SA4T                                                                              | SY4T                                                                               | C4                                                                                  | K4T                                                                                 | YI4                                                                                 | YE4                                                                                 |
|                     | AVR32-4C  | 29.0          | 250 | 60 | 32 | 32.0 | 21.5 | 39 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                     | AVR40-4C  | 36.0          | 300 | 60 | 40 | 40.0 | 25.8 | 47 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 5/8"                | AVR32-5C  | 29.0          | 250 | 60 | 32 | 32.0 | 22.4 | 40 |                          | SN5T                                                                              | SY5T                                                                               | C5                                                                                  | K5T                                                                                 | YI5                                                                                 | YE5                                                                                 |
|                     | AVR40-5C  | 36.0          | 300 | 60 | 40 | 40.0 | 26.4 | 48 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                     | AVR50-5C  | 45.0          | 350 | 75 | 50 | 50.0 | 31.4 | 58 |                          | SA5T                                                                              | SY5T                                                                               | C5                                                                                  | K5T                                                                                 | YI5                                                                                 | YE5                                                                                 |
|                     | AVR60-5C  | 54.0          | 400 | 75 | 60 | 60.0 | 36.4 | 69 |                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



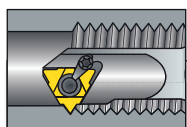
## Porte-outils intérieur



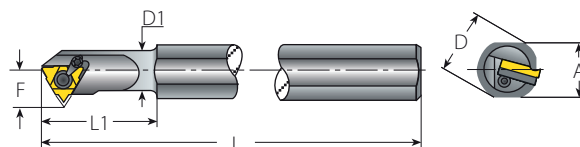
### Type U

#### Pièces détachées

| Taille<br>plaquette | Référence | Dimensions mm |     |    |    |    |      |    | Diam. mini de<br>perçage |  |  |  |  |  |
|---------------------|-----------|---------------|-----|----|----|----|------|----|--------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| IC                  | RH/LH     | A             | L   | L1 | D  | D1 | F    | mm |                          | Vis plaquette                                                                       | Vis sous-plaquette                                                                    | Clé torx                                                                              | Sous-plaquette RH                                                                     | Sous-plaquette LH                                                                     |
| 1/2" U              | AVR32-4U  | 29            | 250 | 60 | 32 | 32 | 25.5 | 42 |                          | SA4T                                                                                | SY4T                                                                                  | K4T                                                                                   | YI4U                                                                                  | YE4U                                                                                  |
|                     | AVR40-4U  | 36            | 300 | 60 | 40 | 40 | 29.5 | 51 |                          |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 5/8" U              | NVR32-5U  | 29            | 250 | 60 | 32 | 32 | 24.7 | 42 |                          | SN5T                                                                                | -                                                                                     | K5T                                                                                   | -                                                                                     | -                                                                                     |
|                     | AVR40-5U  | 36            | 300 | 60 | 40 | 40 | 29.4 | 53 |                          |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|                     | AVR50-5U  | 45            | 350 | 75 | 50 | 50 | 34.3 | 63 |                          | SA5T                                                                                | SY5T                                                                                  | K5T                                                                                   | YI5U                                                                                  | YE5U                                                                                  |
|                     | AVR60-5U  | 54            | 400 | 75 | 60 | 60 | 39.3 | 74 |                          |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |



## Porte-outils intérieur



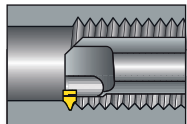
### Type U avec bride

(Système double, vis ou bride)

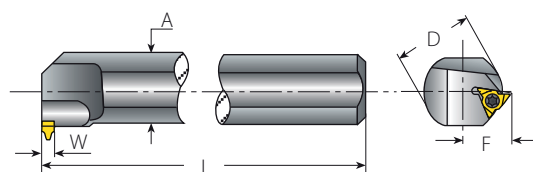
Pièces détachées

| Taille<br>plaquette | Référence | Dimensions mm |     |    |    |      |      |    | Diam. mini<br>de perçage |       |                    |       |          |                   |                   |
|---------------------|-----------|---------------|-----|----|----|------|------|----|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------|----------|-------------------|-------------------|
| IC                  | RH/LH     | A             | L   | L1 | D  | D1   | F    | mm |                          | Vis plaquette                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Vis sous-plaquette | Bride | Clé torx | Sous-plaquette RH | Sous-plaquette LH |
| 1/2" U              | AVR32-4UC | 29.0          | 250 | 60 | 32 | 32.0 | 25.5 | 42 |                          | SA4T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SY4T               | C4    | K4T      | YI4U              | YE4U              |
|                     | AVR40-4UC | 36.0          | 300 | 60 | 40 | 40.0 | 29.5 | 51 |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |       |          |                   |                   |
|                     | AVR40-5UC | 36.0          | 300 | 60 | 40 | 40.0 | 29.4 | 53 |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |       |          |                   |                   |
| 5/8" U              | AVR50-5UC | 45.0          | 350 | 75 | 50 | 50.0 | 34.4 | 63 |                          | SA5T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SY5T               | C5    | K5T      | YI5U              | YE5U              |
|                     | AVR60-5UC | 54.0          | 400 | 75 | 60 | 60.0 | 39.3 | 74 |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |       |          |                   |                   |

Ces porte-outils ci-dessus ont un angle d'hélice de 1.5°. Concernant les autres angles d'hélice, voir page 131.



## Porte-outils intérieur



### Type V

Pièces détachées

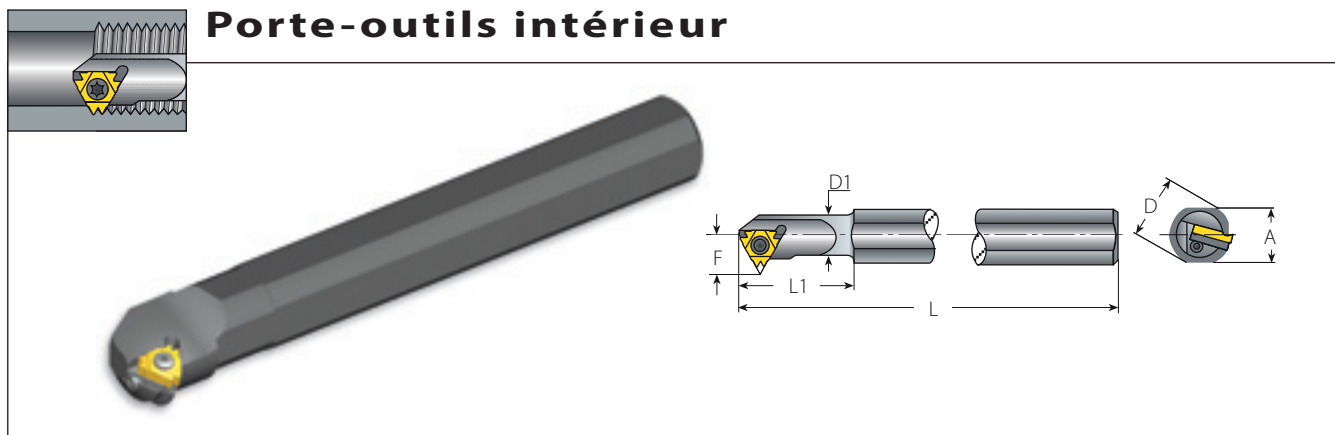
| Taille<br>plaquette | Référence | Dimensions mm |     |    |      |     |   |          |
|---------------------|-----------|---------------|-----|----|------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| IC                  | RH/LH     | A             | L   | D  | F    | W   | Vis plaquette                                                                                                                                                               | Clé torx |
| 5/8" V              | NVR40-5V  | 36            | 300 | 40 | 28.4 | 6.5 | SN6T                                                                                                                                                                        | K6T      |
|                     | NVR50-5V  | 45            | 350 | 50 | 33.4 | 6.5 |                                                                                                                                                                             |          |
|                     | NVR60-5V  | 54            | 400 | 60 | 38.0 | 6.5 |                                                                                                                                                                             |          |

Ces porte-outils ci-dessus ont un angle d'hélice de 1.0°.

### Diam. mini de perçage

|          | Pas en mm  | 6.0 ISO | 8.0 ISO | 10.0 ISO |       |
|----------|------------|---------|---------|----------|-------|
|          | Pas en tpi | 4 UN    | 3 UN    |          | 2.5 W |
| NVR40-5V |            | 48      | 54      | 62       | 68    |
| NVR50-5V |            | 58      | 58      | 62       | 68    |
| NVR60-5V |            | 68      | 68      | 68       | 68    |

## Porte-outils intérieur

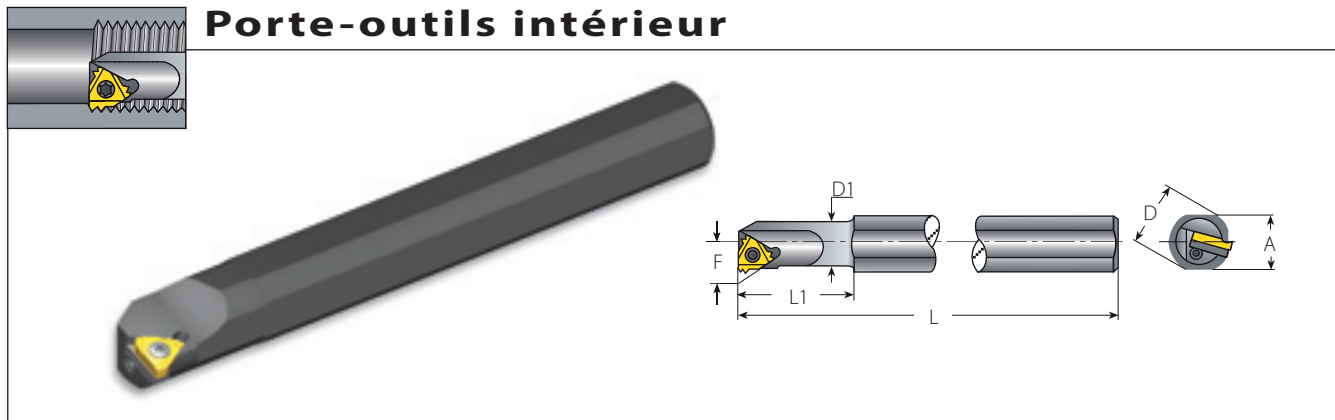


### Type Z+

| Taille plaque | Référence | Dimensions mm |     |    |    |    |      |    | Diam. mini de perçage | Pièces détachées |                 |          |                |                |
|---------------|-----------|---------------|-----|----|----|----|------|----|-----------------------|------------------|-----------------|----------|----------------|----------------|
| IC            |           | A             | L   | L1 | D  | D1 | F    | mm |                       | Vis plaque       | Vis sous-plaque | Clé torx | Sous-plaque RH | Sous-plaque LH |
| 1/2"Z         | AVR32-4Z  | 29            | 250 | 60 | 32 | 32 | 25.5 | 42 |                       | SA4T             | SY4T            | K4T      | YI4Z           | YE4Z           |
|               | AVR40-4Z  | 36            | 300 | 60 | 40 | 40 | 29.5 | 51 |                       |                  |                 |          |                |                |
| 5/8"Z         | NVR32-5Z  | 29            | 250 | 60 | 32 | 32 | 24.7 | 42 |                       | SN5T             | -               | K5T      | -              | -              |
|               | AVR40-5Z  | 36            | 300 | 60 | 40 | 40 | 29.4 | 53 |                       |                  |                 |          |                |                |
|               | AVR50-5Z  | 45            | 350 | 75 | 50 | 50 | 34.3 | 63 |                       | SA5T             | SY5T            | K5T      | YI5Z           | YE5Z           |
|               | AVR60-5Z  | 54            | 400 | 75 | 60 | 60 | 39.3 | 74 |                       |                  |                 |          |                |                |

Tous les porte-outils de type Z ont un angle d'hélice de 1.5°.

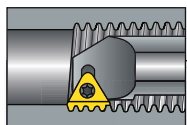
## Porte-outils intérieur



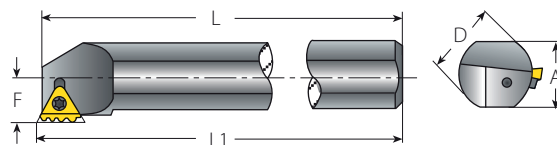
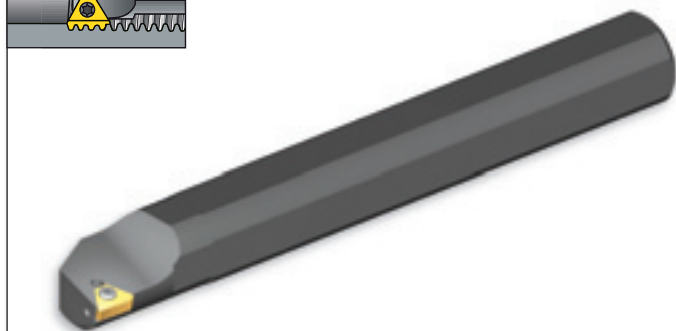
### Type M+

| Taille plaque | Référence | Dimensions mm |     |    |    |    |      |    | Diam. mini de perçage | Pièces détachées |                 |          |                |                |
|---------------|-----------|---------------|-----|----|----|----|------|----|-----------------------|------------------|-----------------|----------|----------------|----------------|
| IC            |           | A             | L   | L1 | D  | D1 | F    | mm |                       | Vis plaque       | Vis sous-plaque | Clé torx | Sous-plaque RH | Sous-plaque LH |
| 5/8"M         | AVR32-5M  | 29            | 250 | 60 | 32 | 32 | 22.4 | 40 |                       | SN5T             | SY5T            | K5T      | YI5M           | YE5M           |
|               | AVR40-5M  | 36            | 300 | 60 | 40 | 40 | 26.4 | 48 |                       |                  |                 |          |                |                |
|               | AVR50-5M  | 45            | 350 | 75 | 50 | 50 | 31.4 | 58 |                       | SA5T             | SY5T            | K5T      | YI5M           | YE5M           |
|               | AVR60-5M  | 54            | 400 | 75 | 60 | 60 | 36.4 | 69 |                       |                  |                 |          |                |                |

Tous les porte-outils de type M ont un angle d'hélice de 1.5°.



## Porte-outils intérieur



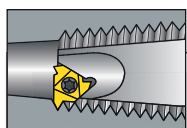
### Type T+

| Taille<br>plaquette | Référence | Dimensions mm |     |     |    |      |                          | Pièces détachées |                    |          |                            |                      |
|---------------------|-----------|---------------|-----|-----|----|------|--------------------------|------------------|--------------------|----------|----------------------------|----------------------|
|                     |           | A             | L   | L1  | D  | F    | Diam. mini<br>de perçage | Vis plaquette    | Vis sous-plaquette | Clé torx | Clé torx de sous-plaquette | Sous-plaquette RH/LH |
| 1/2"                | IC        |               |     |     |    |      | mm                       |                  |                    |          |                            |                      |
|                     | AVR40-4T  | 36            | 300 | 302 | 40 | 23.3 | 60                       |                  |                    |          |                            |                      |
|                     | AVR50-4T  | 45            | 350 | 352 | 50 | 28.3 | 70                       | SA4T             | SY4K2              | K4T      | K2                         | Y4T                  |
|                     | AVR60-4T  | 54            | 400 | 402 | 60 | 33.3 | 80                       |                  |                    |          |                            |                      |

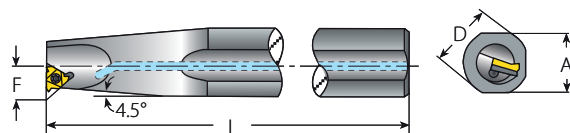
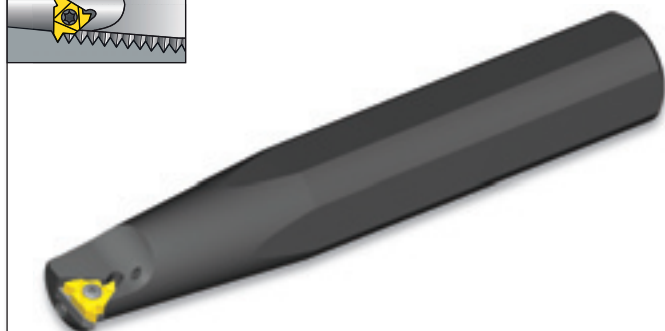
**Multi**plus

Tous les porte-outils ont un angle d'hélice de 0°.

Les porte-outils avec canal de lubrification sont disponibles en standard. (Exemple: AVRC-4T)



## Porte-outils intérieur



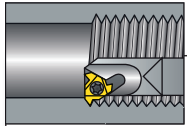
### API

| Taille<br>plaquette | Référence   | Forme<br>du filet | N° de raccord / Diamètre<br>nominal filetage | Dimensions mm |     |    |      | Pièces détachées |                    |          |                   |                   |
|---------------------|-------------|-------------------|----------------------------------------------|---------------|-----|----|------|------------------|--------------------|----------|-------------------|-------------------|
|                     |             |                   |                                              | A             | L   | D  | F    | Vis plaquette    | Vis sous-plaquette | Clé torx | Sous-plaquette RH | Sous-plaquette LH |
| 5/8"                | IC          | RH/LH             |                                              |               |     |    |      |                  |                    |          |                   |                   |
|                     | AVR50-5OIL  | V0.038R           | NC23-NC38                                    | 45            | 300 | 50 | 22.6 |                  |                    |          |                   |                   |
|                     | AVRC50-5OIL | V0.038R           | NC23-NC38                                    |               |     |    |      | SA5T             | SY5T               | K5T      | YI5OIL            | YE5OIL            |
|                     | AVR80-5OIL  | V0.050R           | NC40-NC77                                    | 72            | 400 | 80 | 39.7 |                  |                    |          |                   |                   |
|                     | AVRC80-5OIL | V0.050R           | NC40-NC77                                    |               |     |    |      |                  |                    |          |                   |                   |

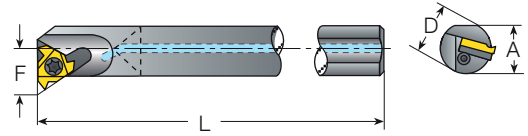
Ces porte-outils ci-dessus ont un angle d'hélice de 1.5°.

Les porte-outils référencés avec un canal de lubrification intérieur ont un filetage intérieur BSP 1/2" pour la connection du canal d'arrossage.

Les porte-outils ci-dessus sont pour des plaquettes à droite. Pour les plaquettes à gauche, ajouter "LH" à la référence du porte-outils. (Exemple AVR50-5OIL LH)



## Porte-outils intérieur



Les porte-outils AL...-3 sont livrés avec une sous-plaquette standard (voir tableau des pièces détachées ci-dessous). Pour V6 utilisez la sous-plaquette YE3-6C... Pour plus d'informations voir page 131.

### Porte-outils en carbure pour plaquettes standards

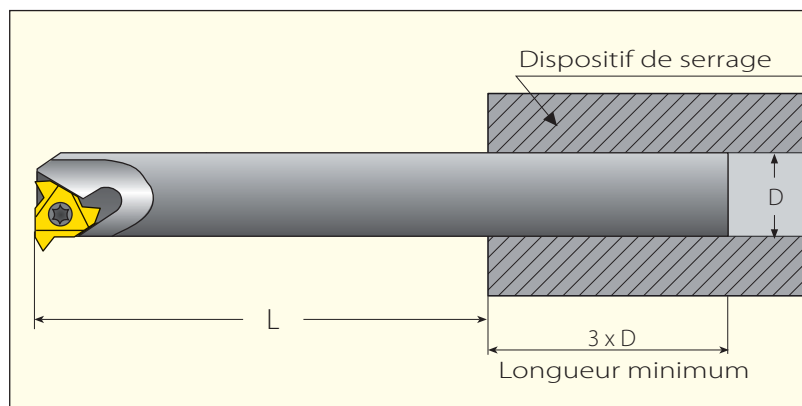
#### Pièces détachées

| Taille plaquette | Référence | Dimensions mm |      |      |     | Diam. mini de perçage |  |                    |          |                   |                   |
|------------------|-----------|---------------|------|------|-----|-----------------------|------------------------------------------------------------------------------------|--------------------|----------|-------------------|-------------------|
| IC               | RH/LH     | D             | A    | F    | L   | mm                    | Vis plaquette                                                                      | Vis sous-plaquette | Clé torx | Sous-plaquette RH | Sous-plaquette LH |
| 1/4"             | CNVRC10-2 | 10            | 9,5  | 7,3  | 150 | 13                    | SN2T                                                                               | -                  | K2T      | -                 | -                 |
|                  | CNVRC12-2 | 12            | 11,7 | 8,3  | 180 | 15                    | SN2T                                                                               | -                  | K2T      | -                 | -                 |
| 3/8"             | CNVRC16-3 | 16            | 15,6 | 11,5 | 200 | 20                    | SN3T                                                                               | -                  | K3T      | -                 | -                 |
|                  | CAVRC20-3 | 20            | 19,5 | 13,4 | 250 | 24                    | SA3T                                                                               | SY3T               | K3T      | YI3               | YE3               |
| 1/2"             | CNVRC20-4 | 20            | 19,5 | 13,8 | 250 | 25                    | SN4T                                                                               | -                  | K4T      | -                 | -                 |

Ces porte-outils ci-dessus ont un angle d'hélice de 1,5°. Concernant les autres angles d'hélice, voir page 131.

Les porte-outils avec préfixe "CN" ne peuvent pas être utilisés avec une sous-plaquette. Les porte-outils ci-dessus ont un canal de lubrification standard.

Les porte-outils en carbure sont utilisés à fin d'obtenir une rigidité maximale ou lorsque le porte-à-faux est supérieur à 3 fois le diamètre du porte-outils.



Le porte-à-faux doit être le plus petit possible afin de réduire au maximum le risque de vibration. Le corps du porte-outils doit être maintenu sur une longueur de 3 fois son diamètre.

## Coffrets de filetage-tournage



### Coffrets Intérieur & Extérieur

| Référence    | Contenu                          |                       |                       |                                                                                              |
|--------------|----------------------------------|-----------------------|-----------------------|----------------------------------------------------------------------------------------------|
| KHTT3EI- ... | Porte-outils extérieur+intérieur | 10 x Plaquettes exter | 10 x Plaquettes inter | Clé torx  |
|              | AL 20-3<br>AVRC 20-3             | 3ERA60...             | 3IRA60...             | K3T                                                                                          |
|              |                                  | 3ERG60...             | 3IRG60...             |                                                                                              |
|              |                                  | 3ER11W...             | 3IR11W...             |                                                                                              |
|              |                                  | 3ER14W...             | 3IR14W...             |                                                                                              |
|              |                                  | 3ER1.0ISO...          | 3IR1.0ISO...          |                                                                                              |
|              |                                  | 3ER1.25ISO...         | 3IR1.25ISO...         |                                                                                              |
|              |                                  | 3ER1.5ISO...          | 3IR1.5ISO...          |                                                                                              |
|              |                                  | 3ER2.0ISO...          | 3IR2.0ISO...          |                                                                                              |
|              |                                  | 3ER2.5ISO...          | 3IR2.5ISO...          |                                                                                              |
|              |                                  | 3ER3.0ISO...          | 3IR3.0ISO...          |                                                                                              |

### Coffrets Extérieur

| Référence   | Contenu                |                       |                                                                                                |
|-------------|------------------------|-----------------------|------------------------------------------------------------------------------------------------|
| KHTT3E- ... | Porte-outils extérieur | 10 x Plaquettes exter | Clé torx  |
|             | AL 20-3                | 3ERA60...             | K3T                                                                                            |
|             |                        | 3ERG60...             |                                                                                                |
|             |                        | 3ER11W...             |                                                                                                |
|             |                        | 3ER14W...             |                                                                                                |
|             |                        | 3ER1.0ISO...          |                                                                                                |
|             |                        | 3ER1.25ISO...         |                                                                                                |
|             |                        | 3ER1.5ISO...          |                                                                                                |
|             |                        | 3ER2.0ISO...          |                                                                                                |
|             |                        | 3ER2.5ISO...          |                                                                                                |
|             |                        | 3ER3.0ISO...          |                                                                                                |

### Coffrets Intérieur

| Référence   | Contenu                |                       |                                                                                                |
|-------------|------------------------|-----------------------|------------------------------------------------------------------------------------------------|
| KHTT3I- ... | Porte-outils intérieur | 10 x Plaquettes inter | Clé torx  |
|             | AVRC 20-3              | 3IRA60...             | K3T                                                                                            |
|             |                        | 3IRG60...             |                                                                                                |
|             |                        | 3IR11W...             |                                                                                                |
|             |                        | 3IR14W...             |                                                                                                |
|             |                        | 3IR1.0ISO...          |                                                                                                |
|             |                        | 3IR1.25ISO...         |                                                                                                |
|             |                        | 3IR1.5ISO...          |                                                                                                |
|             |                        | 3IR2.0ISO...          |                                                                                                |
|             |                        | 3IR2.5ISO...          |                                                                                                |
|             |                        | 3IR3.0ISO...          |                                                                                                |

## Coffret de Plaquettes filetage-tournage



Coffret de plaquettes

### Coffret de Paquettes Extérieur

| Référence  | Contenu               |                                                                                                                                                                                                |
|------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KIT3E- ... | 10 x Plaquettes exter | Clé torx  Vis plaquette  |
|            | 3ERA60...             | K3T SA3T                                                                                                                                                                                       |
|            | 3ERG60...             |                                                                                                                                                                                                |
|            | 3ER11W...             |                                                                                                                                                                                                |
|            | 3ER14W...             |                                                                                                                                                                                                |
|            | 3ER1.0ISO...          |                                                                                                                                                                                                |
|            | 3ER1.25ISO...         |                                                                                                                                                                                                |
|            | 3ER1.5ISO...          |                                                                                                                                                                                                |
|            | 3ER2.0ISO...          |                                                                                                                                                                                                |
|            | 3ER2.5ISO...          |                                                                                                                                                                                                |
|            | 3ER3.0ISO...          |                                                                                                                                                                                                |

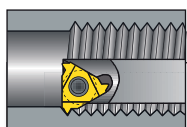
### Coffret de Paquettes Intérieur

| Référence  | Contenu               |                                                                                                                                                                                                    |
|------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KIT3I- ... | 10 x Plaquettes exter | Clé torx  Vis plaquette  |
|            | 3IRA60...             | K3T SA3T                                                                                                                                                                                           |
|            | 3IRG60...             |                                                                                                                                                                                                    |
|            | 3IR11W...             |                                                                                                                                                                                                    |
|            | 3IR14W...             |                                                                                                                                                                                                    |
|            | 3IR1.0ISO...          |                                                                                                                                                                                                    |
|            | 3IR1.25ISO...         |                                                                                                                                                                                                    |
|            | 3IR1.5ISO...          |                                                                                                                                                                                                    |
|            | 3IR2.0ISO...          |                                                                                                                                                                                                    |
|            | 3IR2.5ISO...          |                                                                                                                                                                                                    |
|            | 3IR3.0ISO...          |                                                                                                                                                                                                    |

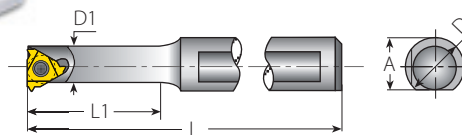
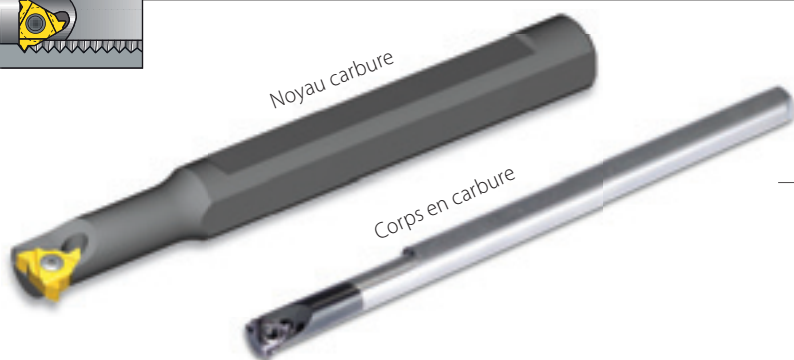
### Coffret de Paquettes V6 Intérieur & Extérieur



| Référence     | Contenu              |                                                                                                                                                                                                    |
|---------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KIT3V6EI- ... | 5 x Plaquettes inter | 5 x Plaquettes exter                                                                                                                                                                               |
|               | 3IRS60-6C...         | 3ERS60-6C...                                                                                                                                                                                       |
|               | 3IR1.0ISO-6C...      | 3ER1.0ISO-6C...                                                                                                                                                                                    |
|               | 3IR1.25ISO-6C...     | 3ER1.25ISO-6C...                                                                                                                                                                                   |
|               | 3IR1.5ISO-6C...      | 3ER1.5ISO-6C...                                                                                                                                                                                    |
|               | 3IR2.0ISO-6C...      | 3ER2.0ISO-6C...                                                                                                                                                                                    |
|               |                      | Clé torx  Vis plaquette  |
|               |                      | K3T SA3T                                                                                                                                                                                           |

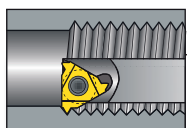


## Porte-outils intérieur

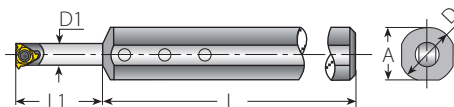


### Mini-3

| Taille<br>plaquette | Référence    | Dimensions mm |     |    |    |     | Système anti-vibration | Pièces détachées                                                                    |                                                                                     |
|---------------------|--------------|---------------|-----|----|----|-----|------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                     |              | A             | L   | L1 | D  | D1  |                        |  |  |
| 4.0                 | CNVRC 5-4.0K | 5.2           | 100 | 26 | 6  | 5.1 | Corps en carbure       | Vis plaquette<br>SN4MT                                                              | Clé torx<br>K6MT                                                                    |
|                     | SNVR 5-4.0K  | 11.0          | 100 | 12 | 12 | 5.1 | Non                    |                                                                                     |                                                                                     |
| 6.0                 | SNVR 12U-6.0 | 11.4          | 82  | 16 | 12 | 8   | Non                    | Vis plaquette<br>SN6MT                                                              | Clé torx<br>K6MT                                                                    |
|                     | BNVR 10S-6.0 | 9.4           | 89  | 22 | 10 | 8   | Carbure implanté       |                                                                                     |                                                                                     |
|                     | BNVR 10M-6.0 | 9.4           | 98  | 31 | 10 | 8   | Carbure implanté       |                                                                                     |                                                                                     |
|                     | BNVR 10L-6.0 | 9.4           | 110 | 43 | 10 | 8   | Carbure implanté       |                                                                                     |                                                                                     |

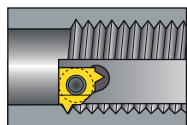


## Porte-outils intérieur

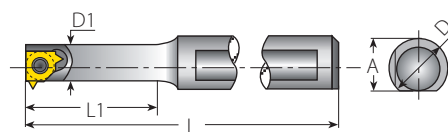


### Mini-3 Ajustable

| Taille<br>plaquette |          | Référence          |      | Dimensions mm |      |    |    |     |                             |                     |                        |
|---------------------|----------|--------------------|------|---------------|------|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|------------------------|
| IC                  | Douille  | Porte-outils LH/RH | A    | L             | L1   | D  | D1 | Vis plaquette                                                                                                                                                                                                                                                                                                                                         | Clé torx pour vis plaquette | Vis porte-outils x3 | Clé pour vis plaquette |
| 6.0                 | SV16-8.0 | BNVR8.0T-6.0       | 15.6 | 100           | 8-56 | 16 | 8  | SN6MT                                                                                                                                                                                                                                                                                                                                                 | K6MT                        | S4.0                | K2.0                   |



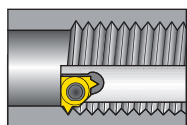
## Porte-outils intérieur



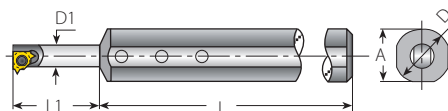
### Mini-L

#### Pièces détachées

| Taille plaque | Référence   | Dimensions mm |     |    |    |     | Système anti-vibration |  |  |
|---------------|-------------|---------------|-----|----|----|-----|------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC            | RH/LH       | A             | L   | L1 | D  | D1  |                        | Vis plaque                                                                          | Clé torx                                                                            |
| 5.0L          | SNVR 10U-5L | 9.4           | 81  | 16 | 10 | 6.2 | Non                    | SN5LT                                                                               | K5LT                                                                                |
|               | BNVR 10S-5L | 9.4           | 87  | 22 | 10 | 6.2 | Carbure implanté       |                                                                                     |                                                                                     |
|               | BNVR 10M-5L | 9.4           | 97  | 31 | 10 | 6.2 | Carbure implanté       |                                                                                     |                                                                                     |
|               | BNVR 10L-5L | 9.4           | 109 | 43 | 10 | 6.2 | Carbure implanté       |                                                                                     |                                                                                     |



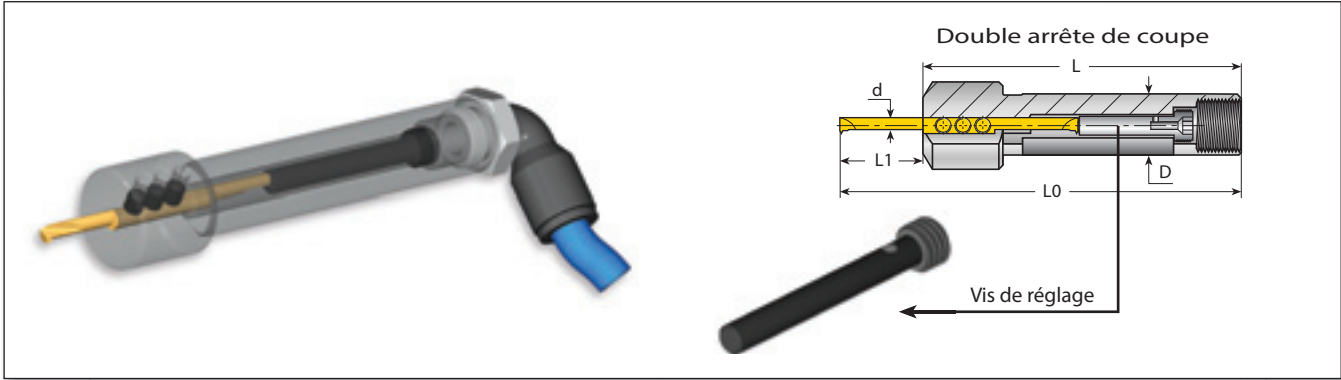
## Porte-outils intérieur



### Mini-L Ajustable

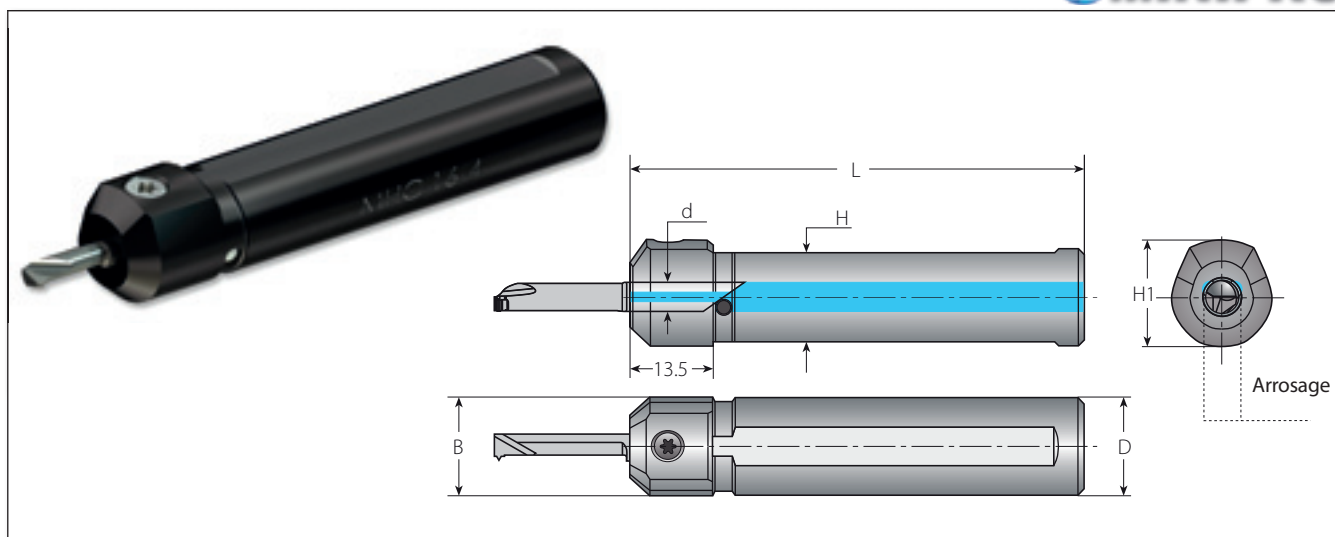
#### Pièces détachées

| Taille plaque | Référence | Dimensions mm      |      |     |      |    |     |  |  |  |  |  |
|---------------|-----------|--------------------|------|-----|------|----|-----|--|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| IC            | Douille   | Porte-outils LH/RH | A    | L   | L1   | D  | D1  |  | Vis plaque                                                                          | Clé torx pour vis plaque                                                              | Vis porte-outils x3                                                                   | Clé pour vis plaque                                                                   |
| 5.0L          | SV16-6.2  | BNVR6.2T-5L        | 15.6 | 100 | 8-44 | 16 | 6.2 |  | SN5LT                                                                               | K5LT                                                                                  | S4.0                                                                                  | K2.0                                                                                  |



| Micro - double arrête de coupe |               |           |               |           |     | Pièces détachées |    |      |                    |      |
|--------------------------------|---------------|-----------|---------------|-----------|-----|------------------|----|------|--------------------|------|
| Micro<br>Diam.<br>plaquette    | Dia.<br>queue | Référence | Dimensions mm |           |     | Vis de réglage*  |    |      | Vis de serrage x 3 |      |
| d [mm]                         | D             |           | L             | L1        | L0  | Vis              | M  | Clé  | Vis                | Clé  |
| 3                              | 10            | SMC10-3.0 | 80            | 9- court  | 89  | 4GISM8X28        | 28 | K4.0 | M4X0.7X4.0         | K2.0 |
|                                | 12            | SMC12-3.0 |               | 16- moyen | 96  | 4GISM8X21        | 21 |      |                    |      |
|                                | 16            | SMC16-3.0 | 95            | 9- court  | 104 | 4GISM8X49        | 49 |      |                    |      |
|                                | 20            | SMC20-3.0 |               | 16- moyen | 111 | 4GISM8X42        | 42 |      |                    |      |
| 4                              | 10            | SMC10-4.0 | 80            | 9- court  | 89  | 4GISM8X28        | 28 |      |                    |      |
|                                | 12            | SMC12-4.0 |               | 16- moyen | 96  | 4GISM8X21        | 21 |      |                    |      |
|                                |               |           |               | 21- long  | 101 | 4GISM8X16        | 16 |      |                    |      |
|                                | 16            | SMC16-4.0 | 95            | 9- court  | 104 | 4GISM8X49        | 49 |      |                    |      |
|                                | 20            | SMC20-4.0 |               | 16- moyen | 111 | 4GISM8X42        | 42 |      |                    |      |
| 6                              |               |           |               | 21- long  | 116 | 4GISM8X37        | 37 |      |                    |      |
|                                | 12            | SMC12-6.0 | 80            | 9- court  | 89  | 4GISM8X28        | 28 |      |                    |      |
|                                |               |           |               | 16- moyen | 96  | 4GISM8X21        | 21 |      |                    |      |
|                                |               |           |               | 21- long  | 101 | 4GISM8X16        | 16 |      |                    |      |
|                                | 16            | SMC16-6.0 | 95            | 9- court  | 104 | 4GISM8X49        | 49 |      |                    |      |
|                                |               |           |               | 16- moyen | 111 | 4GISM8X42        | 42 |      |                    |      |
|                                |               |           |               | 21- long  | 116 | 4GISM8X37        | 37 |      |                    |      |

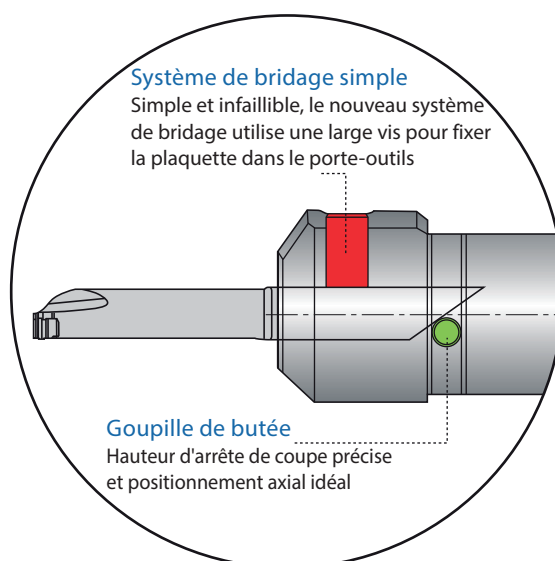
\* Tous les kits de porte-outils contiennent une gamme complète de vis de réglage



## Micro - simple arrête de coupe

Pièces détachées **microscope**

| Micro<br>Diam.<br>plaquette | Référence | Dimensions (mm) |      |      |    |                |      |
|-----------------------------|-----------|-----------------|------|------|----|----------------|------|
| d [mm]                      |           | D=B             | H1   | H    | L  | Vis de serrage | Clé  |
| 4.0                         | MHC 10-4  | 10              | 14   | 8.8  | 65 | SL7DT15        | KT15 |
|                             | MHC 12-4  | 12              | 16   | 10.8 | 70 |                |      |
|                             | MHC 16-4  | 16              | 17.6 | 14.8 | 75 |                |      |
|                             | MHC 20-4  | 20              | 22   | 18.8 | 84 |                |      |
| 5.0                         | MHC 10-5  | 10              | 14   | 8.8  | 65 |                |      |
|                             | MHC 12-5  | 12              | 16   | 10.8 | 70 |                |      |
|                             | MHC 16-5  | 16              | 18.6 | 14.8 | 75 |                |      |
|                             | MHC 20-5  | 20              | 22   | 18.8 | 84 |                |      |
| 6.0                         | MHC 12-6  | 12              | 16   | 10.8 | 70 |                |      |
|                             | MHC 16-6  | 16              | 18.6 | 14.8 | 75 |                |      |
|                             | MHC 20-6  | 20              | 22   | 18.8 | 84 |                |      |
| 7.0                         | MHC 16-7  | 16              | 18.6 | 14.8 | 75 |                |      |
|                             | MHC 20-7  | 20              | 22   | 18.8 | 84 |                |      |



## Coffrets micrOscope



micrOscope Kit

### Coffrets micrOscope 4

| Référence | Contenu      |                     |                       |                                                                                              |
|-----------|--------------|---------------------|-----------------------|----------------------------------------------------------------------------------------------|
|           | Porte-outils | Plaquettes          |                       | Clé torx  |
| KMS4-...  | MHC16-4      | M429TH F55 L16R...  | Filetage              | KT15                                                                                         |
|           |              | M429TH F60 L16R...  |                       |                                                                                              |
|           |              | M432BC R15 L16R...  | Alésage               |                                                                                              |
|           |              | M422BC R10 L09R...  |                       |                                                                                              |
|           |              | M442CL R15 L16R...  | Copiage pointe longue |                                                                                              |
|           |              | M442GS W100 L15R... | Gorge                 |                                                                                              |

### Coffrets micrOscope 5

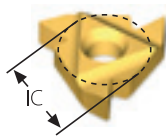
| Référence | Contenu      |                        |                       |                                                                                                |
|-----------|--------------|------------------------|-----------------------|------------------------------------------------------------------------------------------------|
|           | Porte-outils | Plaquettes             |                       | Clé torx  |
| KMS5-...  | MHC16-5      | M542TH 0.75ISO L16R... | Filetage              | KT15                                                                                           |
|           |              | M549TH 1.00ISO L16R... |                       |                                                                                                |
|           |              | M552BC R20 L16R...     | Alésage               |                                                                                                |
|           |              | M552BC R20 L26R...     |                       |                                                                                                |
|           |              | M552CL R20 L25R...     | Copiage pointe longue |                                                                                                |
|           |              | M552GS W100 L15R...    | Gorge                 |                                                                                                |

### Coffrets micrOscope 6

| Référence | Contenu      |                     |                       |                                                                                                |
|-----------|--------------|---------------------|-----------------------|------------------------------------------------------------------------------------------------|
|           | Porte-outils | Plaquettes          |                       | Clé torx  |
| KMS6-...  | MHC16-6      | M659TH A60 L16R...  | Filetage              | KT15                                                                                           |
|           |              | M659TH A55 L16R...  |                       |                                                                                                |
|           |              | M662BC R20 L21R...  | Alésage               |                                                                                                |
|           |              | M662BC R20 L30R...  |                       |                                                                                                |
|           |              | M662CL R20 L30R...  | Copiage pointe longue |                                                                                                |
|           |              | M662GS W100 L15R... | Gorge                 |                                                                                                |

## Pièces détachées

### Porte-outils Inter/Exter (excepté Micro et Microscope)



Taille plaquette



Vis plaquette / Vis de serrage



Vis Sous-plaquette  
& Rondelle



Clé



Sous-plaquette



| Porte-outils               | IC            | Désignation | Filet                    | Désignation | Filet      | EX RH / IN LH | IN RH / EX LH |
|----------------------------|---------------|-------------|--------------------------|-------------|------------|---------------|---------------|
| Standard                   | 1/4"          | SN2T        | M2.6x0.45x6.5            | -           | -          | K2T           | -             |
|                            | 3/8", 3/8"V6* | SA3T        | UNC5x12.0                | SY3T        | UNC5x7.3   | K3T           | YE3/YE3-6C    |
|                            | 1/2"***       | SA4T        | UNC8x15.2                | SY4T        | UNC8x9.3   | K4T           | YE4           |
|                            | 5/8"          | SA5T        | M5x0.8x22.0              | SY5T        | M5x0.8x9.5 | K5T           | YE5           |
| Standard avec bride        | 3/8"          | SA3T/C3     | UNC5x12.0/M5x0.8x22.0    | SY3T        | UNC5x7.3   | K3CT          | YE3           |
|                            | 1/2"          | SA4T/C4     | UNC8x15.2/M6x1.0x29.5    | SY4T        | UNC8x9.3   | K4T           | YE4           |
|                            | 5/8"          | SA5T/C5     | M5x0.8x22.0/M8x1.25x28.0 | SY5T        | M5x0.8x9.5 | K5T           | YE5           |
| Type U                     | 1/2"U         | SA4T        | UNC8x15.2                | SY4T        | UNC8x9.3   | K4T           | YE4U          |
|                            | 5/8" U        | SA5T        | M5x0.8x22.0              | SY5T        | M5x0.8x9.5 | K5T           | YE5U          |
| Type U avec bride          | 1/2"          | SA4T/C4     | UNC8x15.2/M6x1.0x29.5    | SY4T        | UNC8x9.3   | K4T           | YE4U          |
|                            | 5/8"          | SA5T/C5     | M5x0.8x22.0/M8x1.25x28.0 | SY5T        | M5x0.8x9.5 | K5T           | YE5U          |
| Type V                     | 1/4"V         | SN2T        | M2.6x0.45x6.5            | -           | -          | K2T           | -             |
|                            | 3/8"V         | SN3TV       | UNC5x7.5                 | -           | -          | K3T           | -             |
|                            | 1/2"V         | SN4T        | UNC8x15.2                | -           | -          | K4T           | -             |
|                            | 5/8"V         | SN6T        | M6x1.0x29.5              | -           | -          | K6T           | -             |
| Type Z+                    | 1/2"Z         | SA4T        | UNC8x15.2                | SY4T        | UNC8x9.3   | K4T           | YE4Z          |
|                            | 5/8"Z         | SA5T        | M5x0.8x22.0              | SY5T        | M5x0.8x9.5 | K5T           | YE5Z          |
| Type M+                    | 3/8"M         | SA3T        | UNC5x12.0                | SY3T        | UNC5x7.3   | K3T           | YE3M          |
|                            | 1/2"M         | SA4T        | UNC8x15.2                | SY4T        | UNC8x9.3   | K4T           | YE4M          |
|                            | 5/8"M         | SA5T        | M5x0.8x22.0              | SY5T        | M5x0.8x9.5 | K5T           | YE5M          |
| Type T+                    | 1/2"T         | SA4T        | UNC8x15.2                | SY4K2       | UNC8x7.3   | K4T/K2        | Y4T           |
| API                        | 5/8"          | SA5T/C5     | M5x0.8x22.0/M8x1.25x28.0 | SY5T        | M5x0.8x9.5 | K5T           | YE5OIL        |
| Mini-L                     | 5.0L          | SN5LT       | M2x0.4x4.1               | -           | -          | K5LT          | -             |
| Mini-3                     | 4.0mm         | SN4MT       | M2x0.4x4.0               | -           | -          | K6MT          | -             |
|                            | 6.0mm         | SN6MT       | M1.8x0.35x4.5            | -           | -          | K6MT          | -             |
| Port-outils mini ajustable | -             | S4.0        | M4x0.7x4.0               | -           | -          | K2.0          | -             |

\* NVR16-3 Exige une vis SN3T (UNC5x9.5) \*\* NVR20-4 SN4T (UNC8x12.0)

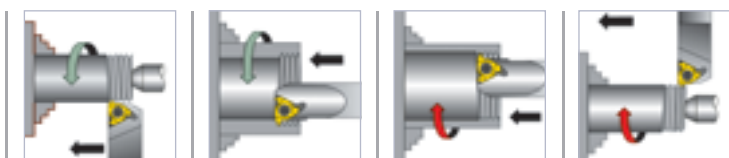
SN5T (M5x0.8x18) pour porte-outils A/NVR32-5...

Pour les porte-outils Micro, voir page 120-121. 





# Filetage



> Informations techniques

# GUIDE DE L'UTILISATEUR POUR LE FILETAGE

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# Terminologie du filetage

## Filet extérieur

Un filetage sur la surface extérieure d'un cylindre ou d'un cône.

## Profondeur du filet

La distance entre le sommet du filet et le diamètre du noyau.

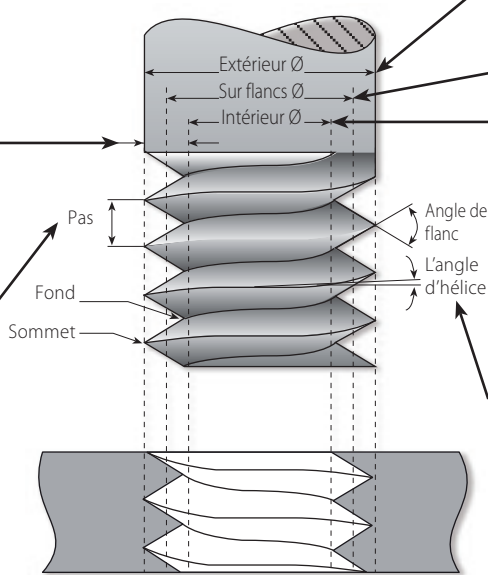
## Pas

La distance entre deux sommets de filets adjacents, mesurés parallèlement à l'axe. Cette distance peut être exprimée en millimètres ou en tpi (filets au pouce), ce qui correspond au pas.

## Diamètre nominal

Le diamètre à partir duquel sont fixées les limites de tolérances.

## Filet extérieur



## Internal Thread

Un filetage sur la partie interne d'un cylindre ou d'un cône

## Diamètre extérieur

Le diamètre le plus large d'un filet.

## Diamètre sur flancs

Le diamètre qui recoupe le filet en un point où la largeur entre les flancs et la largeur de gorge sont égales.

## Diamètre intérieur

Le diamètre le plus petit d'un filet.

## L'angle d'hélice

Pour un filet droit, l'angle d'hélice est l'inclinaison du filet et elle est fonction du diamètre de la pièce et du pas.

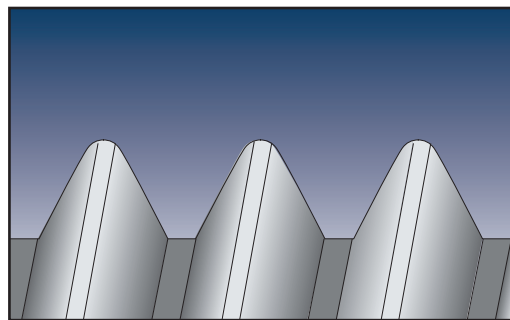
## Filet droit

Un filetage usiné sur un cylindre.

## Filet conique

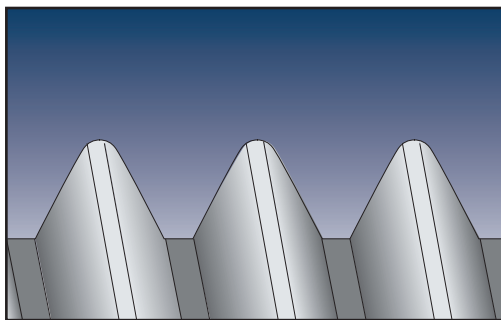
Un filetage usiné sur un cône.

## Filetage à gauche



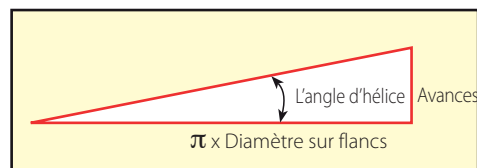
Un filet qui, lorsqu'il est vu axialement, s'enroule dans le sens opposé à celui des aiguilles d'une montre. Tous les filetages à gauche ont la désignation LH.

## Filetage à droite



Un filet qui, lorsqu'il est vu axialement, tourne dans le sens des aiguilles d'une montre. Sauf spécifications contraires, les filetages sont toujours à droite.

## L'angle d'hélice $\beta$



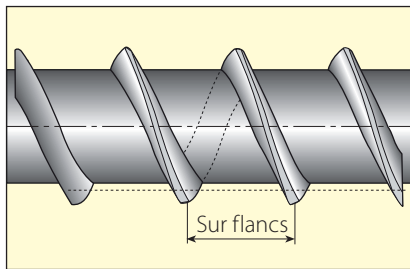
## Avances

La distance sur laquelle se déplace une partie filetée, par rapport à la partie appairée, sur un tour complet. L'avances est égale au pas multiplié par le nombre d'entrées de filet.

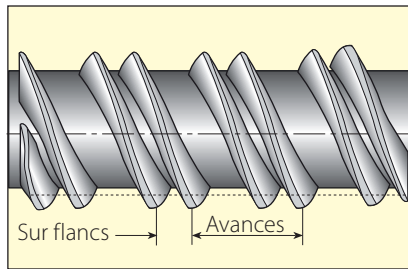
# Filetage à pas multiples

Un filet dans lequel avance est un multiple du pas, multiplié par le nombre d'entrées de filet.  
Un filetage à pas multiples permet une avances plus rapide sans une forme de filet importante.

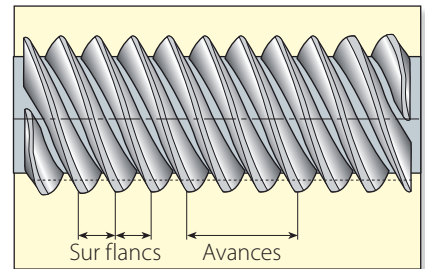
Filetage 1 filet



Filetage 2 filets



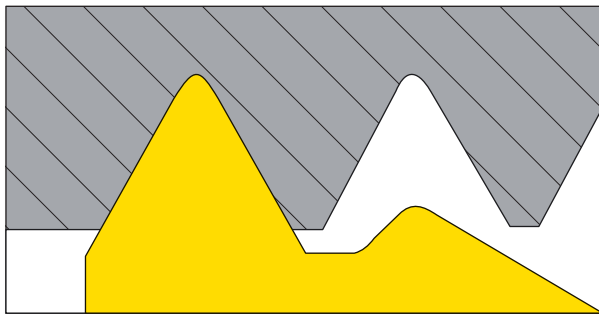
Filetage 3 filets (triple)



$$\text{Avances} = 3 \times \text{sur flancs}$$

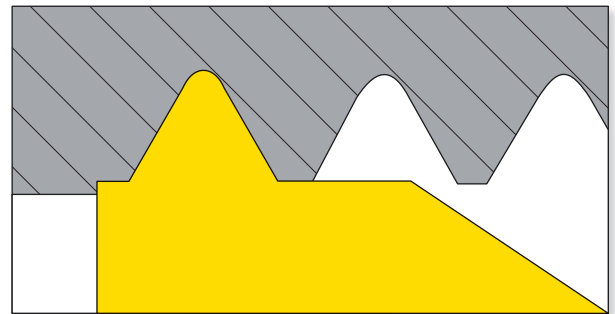
## Types de profil de plaquette

Profil partiel



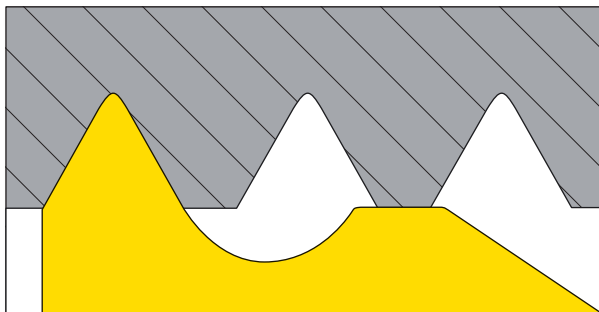
La plaquette au profil partiel de type V coupe sans le sommet du diamètre extérieur du filet. La même plaquette peut être utilisée pour différents pas à l'extérieur d'une gamme définie qui a un angle de filet courant.

Profil complet



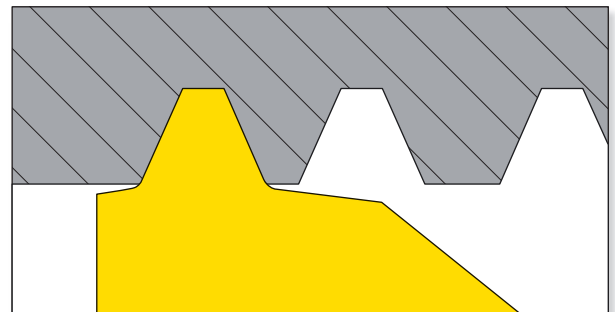
Les plaquettes à profil complet formeront un profil de filetage complet y compris la pointe. Pour tous les pas de filet et standard, une plaquette distincte est nécessaire.

Profil complet pour pas fins



Le profil complet pour pas fin formera un filet complet.  
Le sommet du diamètre extérieur est généré par la deuxième dent.

Profil semi-complet

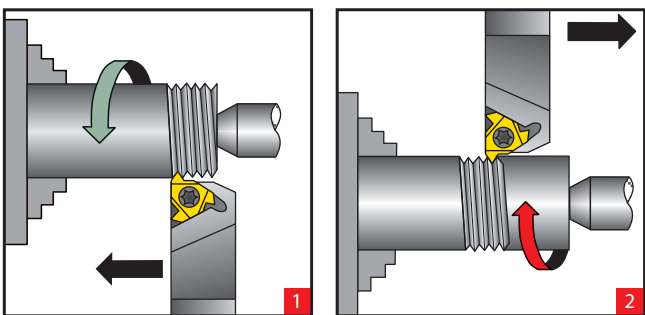


La plaquette à profil semi-complet formera un filetage complet y compris le rayon de pointe mais sans le sommet du diamètre extérieur. Principalement utilisée pour profils trapézoïdaux.

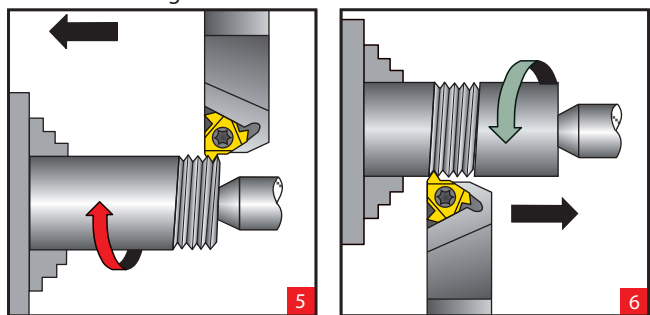
# Méthodes de filetage en tournage

| Filet              | Plaquettes & porte-outils | Rotation                                          | Direction de l'avances                       | Sous-plaquette | Croquis No. |
|--------------------|---------------------------|---------------------------------------------------|----------------------------------------------|----------------|-------------|
| Extérieur à droite | EX RH                     | Dans le sens contraire des aiguilles d'une montre | Vers le mandrin                              | Normale        | 1           |
|                    | EX LH                     | Dans le sens des aiguilles d'une montre           | Vers la contre-pointe ou à partir du mandrin | Inversée       | 2           |
| Intérieur à droite | IN RH                     | Dans le sens contraire des aiguilles d'une montre | Vers le mandrin                              | Normale        | 3           |
|                    | IN LH                     | Dans le sens des aiguilles d'une montre           | Vers la contre-pointe ou à partir du mandrin | Inversée       | 4           |
| Extérieur à gauche | EX LH                     | Dans le sens des aiguilles d'une montre           | Vers le mandrin                              | Normale        | 5           |
|                    | EX RH                     | Dans le sens contraire des aiguilles d'une montre | Vers la contre-pointe ou à partir du mandrin | Inversée       | 6           |
| Intérieur à gauche | IN LH                     | Dans le sens des aiguilles d'une montre           | Vers le mandrin                              | Normale        | 7           |
|                    | IN RH                     | Dans le sens contraire des aiguilles d'une montre | Vers la contre-pointe ou à partir du mandrin | Inversée       | 8           |

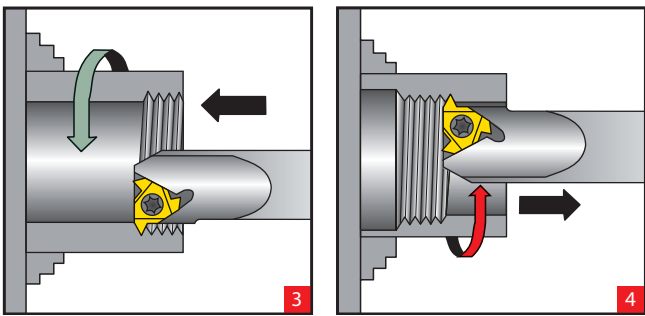
Filet extérieur à droite



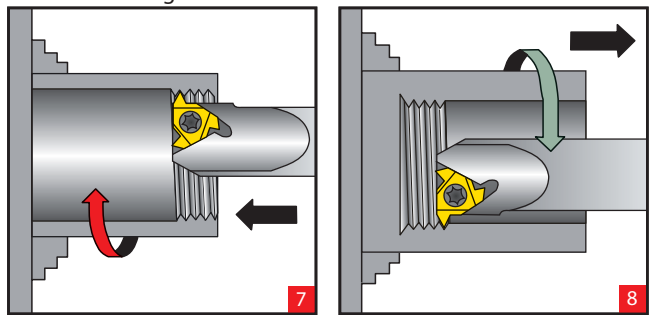
Filet extérieur à gauche



Filet intérieur à droite

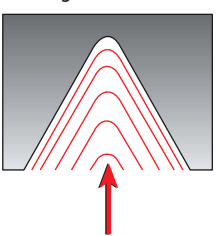


Filet intérieur à gauche



## Méthodes de décalage

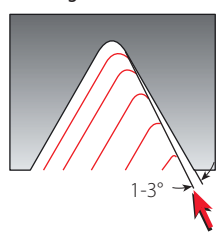
Décalage radial



Le décalage radial est la méthode de programmation la plus simple et la plus rapide. Le décalage radial se fait perpendiculairement à l'axe de tournage, et sur les deux flancs de la plaquette réalisant l'opération de coupe. Le décalage radial est recommandé dans 3 cas:

- les pas inférieurs à 1.5 mm
- les matériaux à copeaux courts
- l'usinage de matériaux traités

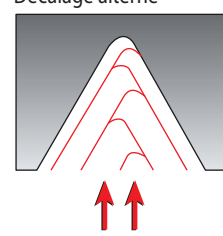
Décalage sur flanc (modifié)



Le décalage sur flanc se fait parallèlement à l'angle de flanc:

- cette méthode permet de réduire les contraintes de coupe quand le pas est supérieur à 1.5 mm., car une seule arête se trouve engagée. Pour éliminer le risque de broutage de la seconde arête, on peut programmer une valeur de quelques degrés inférieurs à l'angle réel.
- pour les TRAPEZE et ACME, cela évite de faire travailler les trois Arrête de la plaquette en même temps et facilite l'évacuation des copeaux.

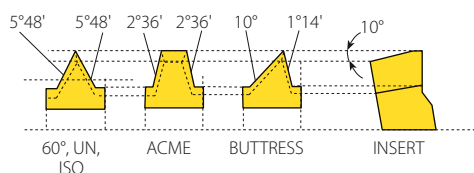
Décalage alterné



Le décalage alterné se fait comme le décalage sur flanc en alternant chaque flanc. Le décalage alterné est recommandé pour les pas larges et profonds.

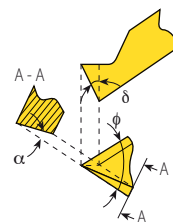
# Calcul de l'angle d'hélice et choix des sous-plaquettes

## Angle de dépouille sur flanc $\alpha$ (pour porte-outils extérieur)



L'angle de dépouille des plaquettes Vardex est obtenu par inclinaison de la plaquette sur le Porte-outils ( $d = 10^\circ$  pour l'extérieur,  $15^\circ$  pour l'intérieur). Selon les angles de flancs, il en

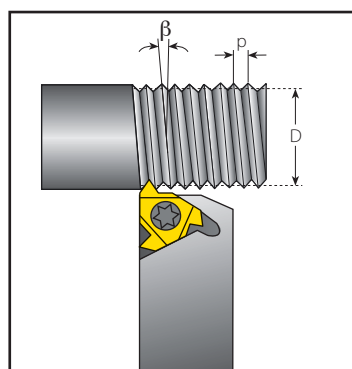
résulte des angles de dépouille différents. Pour éviter un talonnage des Arrête de coupe de la plaquette, il est possible, à l'aide de sous-plaquettes de correction, de modifier l'angle d'hélice de l'assise de la plaquette.



$$\alpha = \arctan(\tan \delta / 2 \times \tan \phi)$$

Où:  $\alpha$  - Angle de dépouille sur flanc  
 $\delta$  - Angle de basculement  
 $\phi$  - Angle de flanc fermé

## Calcul de l'angle d'hélice $\beta$



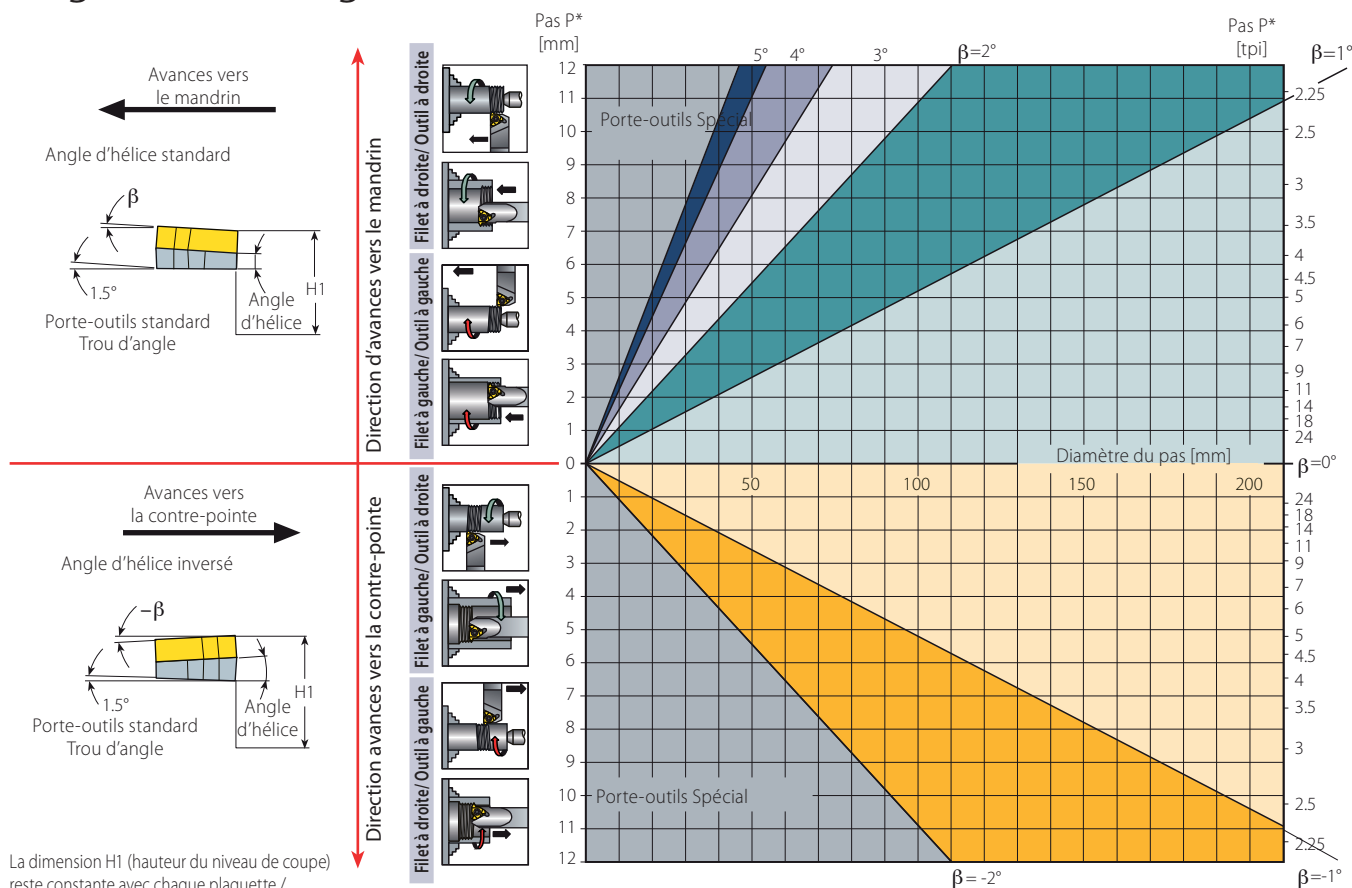
L'angle d'hélice est calculé selon la formule suivante:

$$\beta = \arctan \frac{P \times N}{\pi \times D}$$

$\beta$  - Angle d'hélice [°]  
 P - Pas [mm]  
 N - Nbre de pas  
 D - Diamètre du pas [mm]  
 Avances =  $P \times N$

L'angle d'hélice peut également être trouvé à partir du diagramme ci-dessous.

## Diagramme de l'angle d'hélice



La dimension H1 (hauteur du niveau de coupe) reste constante avec chaque plaquette / combinaison de sous-plaquette.

\* Pour des filets à pas multiples, utiliser la valeur de l'avances au lieu du pas

## Sous-plaquettes

| Angle d'hélice   |      | 4.5°      3.5°      2.5°      1.5°      0.5°      0°      -0.5°      -1.5° |           |           |           |        |           |             |           |           |
|------------------|------|----------------------------------------------------------------------------|-----------|-----------|-----------|--------|-----------|-------------|-----------|-----------|
| Taille plaquette |      | Porte-outils                                                               |           | Référence |           |        |           |             |           |           |
| IC               | L mm |                                                                            |           |           |           |        |           |             |           |           |
| 3/8"             | 16   | ER / IL                                                                    | YE3-3P    | YE3-2P    | YE3-1P    | YE3    | YE3-1N    | YE3-1.5N    | YE3-2N    | YE3-3N    |
|                  |      | EL / IR                                                                    | YI3-3P    | YI3-2P    | YI3 - 1P  | YI3    | YI3-1N    | YI3-1.5N    | YI3-2N    | YI3-3N    |
| 3/8"<br>V6       | 16   | ER                                                                         | YE3-6C-3P | YE3-6C-2P | YE3-6C-1P | YE3-6C | YE3-6C-1N | YE3-6C-1.5N | YE3-6C-2N | YE3-6C-3N |
|                  |      | IR                                                                         | YI3-6C-3P | YI3-6C-2P | YI3-6C-1P | YI3-6C | YI3-6C-1N | YI3-6C-1.5N | YI3-6C-2N | YI3-6C-3N |
| 1/2"             | 22   | ER / IL                                                                    | YE4-3P    | YE4-2P    | YE4-1P    | YE4    | YE4-1N    | YE4-1.5N    | YE4-2N    | YE4-3N    |
|                  |      | EL / IR                                                                    | YI4-3P    | YI4-2P    | YI4-1P    | YI4    | YI4-1N    | YI4-1.5N    | YI4-2N    | YI4-3N    |
| 1/2"U            | 22   | ER / IL                                                                    | YE4U-3P   | YE4U-2P   | YE4U-1P   | YE4U   | YE4U-1N   | YE4U-1.5N   | YE4U-2N   | YE4U-3N   |
|                  |      | EL / IR                                                                    | YI4U-3P   | YI4U-2P   | YI4U-1P   | YI4U   | YI4U-1N   | YI4U-1.5N   | YI4U-2N   | YI4U-3N   |
| 5/8"             | 27   | ER / IL                                                                    | YE5-3P    | YE5-2P    | YE5-1P    | YE5    | YE5-1N    | YE5-1.5N    | YE5-2N    | YE5-3N    |
|                  |      | EL / IR                                                                    | YI5-3P    | YI5-2P    | YI5 - 1P  | YI5    | YI5-1N    | YI5-1.5N    | YI5-2N    | YI5-3N    |
| 5/8" U           | 27   | ER / IL                                                                    | YE5U-3P   | YE5U-2P   | YE5U-1P   | YE5U   | YE5U-1N   | YE5U-1.5N   | YE5U-2N   | YE5U-3N   |
|                  |      | EL / IR                                                                    | YI5U-3P   | YI5U-2P   | YI5U - 1P | YI5U   | YI5U-1N   | YI5U-1.5N   | YI5U-2N   | YI5U-3N   |
| 3/8"M            | 16   | ER / IL                                                                    |           |           | YE3M-1P   | YE3M   | YE3M-1N   | YE3M-1.5N   | YE3M-2N   |           |
|                  |      | EL / IR                                                                    |           |           | YI3M-1P   | YI3M   | YI3M-1N   | YI3M-1.5N   |           |           |
| 1/2"M            | 22   | ER / IL                                                                    |           |           | YE4M-1P   | YE4M   | YE4M-1N   | YE4M-1.5N   | YE4M-2N   |           |
|                  |      | EL / IR                                                                    |           |           | YI4M-1P   | YI4M   | YI4M-1N   | YI4M-1.5N   |           |           |
| 5/8"M            | 27   | ER / IL                                                                    |           |           |           | YE5M   | YE5M-1N   | YE5M-1.5N   |           |           |
|                  |      | EL / IR                                                                    |           |           |           | YI5M   | YI5M-1N   | YI5M-1.5N   |           |           |
| 1/2"Z            | 22   | ER / IL                                                                    |           |           | YE4Z-1P   | YE4Z   | YE4Z-1N   |             |           |           |
|                  |      | EL / IR                                                                    |           |           | YI4Z-1P   | YI4Z   | YI4Z-1N   |             |           |           |
| 5/8"Z            | 27   | ER / IL                                                                    |           |           |           | YE5Z   |           |             |           |           |
|                  |      | EL / IR                                                                    |           |           |           | YI5Z   |           |             |           |           |
| 1/2"T            | 22   | ER / IL   EL / IR                                                          |           |           |           |        |           | Y4T         |           |           |

| Sous-plaquettes standard                                                            |  Sous-plaquette | Sous-plaquettes type U                                                              | Sous-plaquettes type M                                                              | Sous-plaquettes type Z                                                                | Sous-plaquettes type T                                                                |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |                 |  |  |  |  |
| ER/IL EL / IR                                                                       | ER IR<br><small>V6 est indiquée à l'arrière</small>                                                | ER/IL EL / IR                                                                       | ER/IL EL / IR                                                                       | ER/IL EL / IR                                                                         | ER/IL EL / IR<br><small>Même sous-plaquette à l'envers</small>                        |

## Kits de Sous-plaquette

| Taille de Sous-plaquette | Référence | Sous-plaquettes incluses:                              |
|--------------------------|-----------|--------------------------------------------------------|
| IC                       | L mm      |                                                        |
| 3/8"                     | 16        | ABY3                                                   |
|                          |           | YE3-2P, 1P, 1N, 2N, 3N<br>YI3-2P, 1P, 1N, 2N, 3N       |
| 3/8"<br>V6               | 16        | ABY3-6C                                                |
|                          |           | YE3-6C-2P, 1P, 1N, 2N, 3N<br>YI3-6C-2P, 1P, 1N, 2N, 3N |
| 1/2"                     | 22        | ABY4                                                   |
|                          |           | YE4-2P, 1P, 1N, 2N, 3N<br>YI4-2P, 1P, 1N, 2N, 3N       |
| 1/2"U                    | 22        | ABY4U                                                  |
|                          |           | YE4U-2P, 1P, 1N, 2N, 3N<br>YI4U-2P, 1P, 1N, 2N, 3N     |
| 5/8"                     | 27        | ABYE5                                                  |
|                          |           | YE5-2P, 1P, 1N, 2N, 3N                                 |
| 5/8" U                   | 27        | ABYI5                                                  |
|                          |           | YI5-2P, 1P, 1N, 2N, 3N                                 |
|                          |           | ABYE5U                                                 |
|                          |           | YE5U-2P, 1P, 1N, 2N, 3N                                |
|                          |           | ABYI5U                                                 |
|                          |           | YI5U-2P, 1P, 1N, 2N, 3N                                |

Pour s'assurer que vous avez toujours sous la main un assortiment de sous-plaquettes pour tout type de travaux, nous vous conseillons d'avoir des kits de sous-plaquettes disponibles.

## Important!

Utilisez une sous-plaquette V6 pour une plaquette V6



Pour extérieur à droite  
utilisation de la sous-  
plaquette YE3-6C anvil.

Pour intérieur à droite,  
utilisation de la sous-  
plaquette YI3-6C anvil.



## Les nuances et leurs applications

| Utilisation générale                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VKX                                                                                                                                                                                                                                                      | VTX                                                                                                                                                                                                                                | VCB                                                                                                                                                                                                                           |
|  <p>Nuance pour utilisations courantes, excellente pour les aciers et les inox, Préconisé pour des conditions rigides, brise copeaux fritté ou affuté. Revêtue TiN.</p> |  <p>Nuance pour utilisation générale avec un substrat dur sub-micron fournit une bonne dureté dans des conditions non-stables. Revêtue TiAlN.</p> |  <p>Le brise-copeaux brut de frittage de Vardex avec le profil rectifié fournit un excellent contrôle de copeau longues Revêtue TiAlN.</p> |

| Acier inoxydable                                                                                                                                                                 | Matériaux non-ferreux, haute température et alliages de titane                                                                                                                                 |                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VM7                                                                                                                                                                              | VK2                                                                                                                                                                                            | VK2P                                                                                                                                                                                                    |
|  <p>Nuance spéciale pour le filetage acier inoxydable. Revêtement PVD spécial multi-couche.</p> |  <p>La nuance non revêtue pour matériaux non-ferreux, aluminium, haute température et alliages de titane.</p> |  <p>Version polie-glacée de la nuance non-revêtue VK2 pour un état de surface de haute qualité dans l'aluminium.</p> |

## MINI PRO

| Micro & MicrOscope                                                                                                                                                                                  | Mini "5L" & Mini IC 6.0                                                                                                                                                                                                   | Mini IC 4.0                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VMX                                                                                                                                                                                                 | VHX                                                                                                                                                                                                                       | VTX                                                                                                                                                                                               |
|  <p>Nuance carbure pour utilisation générale des plaquettes Micro double arrête de coupe. Revêtue TiN.</p>       |  <p>Nuance HSS pour utilisation générale des plaquettes Mini "L" et Mini 6.0; pour usinage à faible vitesse de coupe. Revêtue TiN.</p> |  <p>Nuance carbure pour Mini 4.0. Usinage des aciers inoxydables et utilisation générale. Revêtue TiAlN.</p> |
| VBX                                                                                                                                                                                                 | VKP                                                                                                                                                                                                                       | VBX                                                                                                                                                                                               |
|  <p>Nuance carbure pour utilisation générale des plaquettes MicrOscope simple arrête de coupe. Revêtue TiCN.</p> |  <p>Nuance carbure pour utilisation générale des plaquettes Mini "L" et Mini 6.0. Revêtue TiN.</p>                                     |  <p>Nuance carbure pour Mini 4.0. Usinage des aciers et utilisation générale. Revêtue TiCN.</p>              |

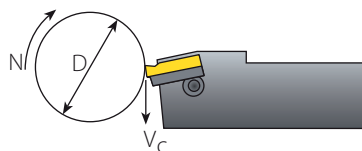
## Vitesse de coupe Vc [m/min] et nuances recommandées (ne comprenant pas la serie MiniPro)

| Groupe de Matière                        | Vardex No. | Matière                                            |                                              | Dureté Brinell HB | Vc [m/min] |         |        |         |             |
|------------------------------------------|------------|----------------------------------------------------|----------------------------------------------|-------------------|------------|---------|--------|---------|-------------|
|                                          |            |                                                    |                                              |                   | Revêtue    |         |        |         | Non revêtue |
|                                          |            |                                                    |                                              |                   | VKX        | VCB     | VM7    | VTX     | VK2 / VK2P  |
| <b>P</b><br>Acier                        | 1          | Acier non allié                                    | Carbone faible (C= 0.1-0.25 %)               | 125               | 115-190    | 115-190 |        | 115-190 |             |
|                                          | 2          |                                                    | Carbone moyen (C=0.25-0.55%)                 | 150               | 100-175    | 100-165 |        | 100-175 |             |
|                                          | 3          |                                                    | Carbone haut (C=0.55-0.85%)                  | 170               | 90-165     | 90-155  |        | 90-165  |             |
|                                          | 4          | Acier faiblement allié (constituants d'alliage≤5%) | Non traité                                   | 180               | 100-180    | 100-180 |        | 100-180 |             |
|                                          | 5          |                                                    | Traité                                       | 275               | 75-140     | 75-140  |        | 75-140  |             |
|                                          | 6          | Acier hautement allié (constituants d'alliage>5%)  | Traité                                       | 350               | 70-135     | 70-135  |        | 70-135  |             |
|                                          | 7          |                                                    | Revenu / Malléable                           | 200               | 80-120     | 80-120  |        | 80-120  |             |
|                                          | 8          | Acier fondu                                        | Traité                                       | 325               | 50-100     | 50-100  |        | 50-100  |             |
|                                          | 9          |                                                    | Faible alliage (constituants d'alliage ≤ 5%) | 200               | 70-130     | 70-130  |        | 70-130  |             |
|                                          | 10         |                                                    | Haut alliage (constituants d'alliage > 5%)   | 225               | 60-120     | 60-120  |        | 60-120  |             |
| <b>M</b><br>Acier inoxydable             | 11         | Acier inoxydable ferritique                        | Non traité                                   | 200               | 70-130     | 70-130  | 70-150 | 70-130  |             |
|                                          | 12         |                                                    | Traité                                       | 330               | 60-115     | 50-95   | 60-125 | 60-115  |             |
|                                          | 13         | Acier inoxydable Austénitique                      | Austénitique                                 | 180               | 90-140     | 80-120  | 90-160 | 90-140  |             |
|                                          | 14         |                                                    | Super austénitique                           | 200               | 40-110     | 30-100  | 40-120 | 40-110  |             |
|                                          | 15         | Acier inoxydable fondu ferritique                  | Non traité                                   | 200               | 90-120     | 90-120  | 90-150 | 90-120  |             |
|                                          | 16         |                                                    | Traité                                       | 330               | 65-110     | 65-110  | 65-120 | 65-110  |             |
|                                          | 17         | Acier inoxydable fondu austénitique                | Austénitique                                 | 200               | 85-110     | 85-110  | 85-120 | 85-110  |             |
|                                          | 18         |                                                    | Traité                                       | 330               | 60-100     | 60-100  | 60-110 | 60-100  |             |
| <b>K</b><br>Fonte                        | 28         | Fonte malléable                                    | Férritique (copeaux courts)                  | 130               | 60-70      | 70-120  |        | 60-70   |             |
|                                          | 29         |                                                    | Perlitique (copeaux longs)                   | 230               | 60-145     | 70-120  |        | 60-145  |             |
|                                          | 30         | Fonte grise                                        | Acier à faible résistance                    | 180               | 70-130     | 70-130  |        | 70-130  |             |
|                                          | 31         |                                                    | Acier à haute résistance                     | 260               | 60-115     | 60-100  |        | 60-115  |             |
|                                          | 32         | Fonte nodulaire SG                                 | Férritique                                   | 160               | 125-160    | 125-160 |        | 125-160 |             |
|                                          | 33         |                                                    | Perlitique                                   | 260               | 90-120     | 90-120  |        | 90-120  |             |
| <b>N(K)</b><br>Métaux non ferreux        | 34         | Alliages aluminium forge                           | Non Vieilli                                  | 60                | 100-365    | 100-250 |        | 100-365 | 100-250     |
|                                          | 35         |                                                    | Vieilli                                      | 100               | 80-220     | 80-180  |        | 80-220  | 80-160      |
|                                          | 36         | Alliages aluminium                                 | Coulé                                        | 75                | 200-400    | 200-400 |        | 200-400 | 80-120      |
|                                          | 37         |                                                    | Fondu & vieilli                              | 90                | 200-280    | 200-280 |        | 200-280 | 70-100      |
|                                          | 38         | Alliages aluminium                                 | Coulé Si 13-22%                              | 130               | 60-180     | 60-150  |        | 60-180  | 50-120      |
|                                          | 39         | Cuivre & alliages cuivre                           | Laiton                                       | 90                | 80-225     | 80-210  |        | 80-225  | 70-170      |
|                                          | 40         |                                                    | Bronze & cuivre sans plomb                   | 100               | 80-255     | 80-210  |        | 80-255  | 70-170      |
| <b>S(M)</b><br>Matières haute résistance | 19         | Alliages haute température                         | Trempé (à base du fer)                       | 200               | 45-60      | 45-60   |        | 45-60   | 30-50       |
|                                          | 20         |                                                    | Vieilli (à base du fer)                      | 280               | 30-50      | 30-50   |        | 30-50   | 25-40       |
|                                          | 21         |                                                    | Trempé (à base de Nickel ou Cobalt)          | 250               | 20-30      | 20-30   |        | 20-30   | 20-30       |
|                                          | 22         |                                                    | Vieilli (à base de Nickel ou Cobalt)         | 350               | 15-25      | 15-25   |        | 15-25   | 15-25       |
|                                          | 23         | Alliages Titanium                                  | Pur 99.5 Ti                                  | 400Rm             | 140-170    | 140-170 |        | 140-170 | 60-100      |
|                                          | 24         |                                                    | Alliages α+β                                 | 1050Rm            | 50-70      | 50-70   |        | 50-70   | 40-60       |
| <b>H(K)</b><br>Matières dures            | 25         | Acier extra dur                                    | Traité & trempé                              | 45-50HRC          | 45-60      | 45-60   |        | 45-60   |             |
|                                          | 26         |                                                    |                                              | 51-55HRC          | 40-50      | 40-50   |        | 40-50   |             |

## Calcul de N [RPM]

$$N = \frac{1000 \times V_c}{\pi \times D}$$

$$V_c = \frac{N \times \pi \times D}{1000}$$



N - Tours par minute [tr/min]  
V<sub>c</sub> - Vitesse de coupe [m/min]  
D - Diamètre de la pièce à usiner [mm]

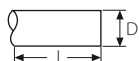
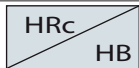
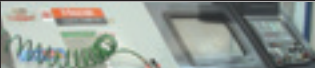
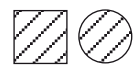
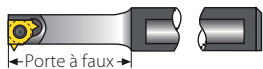
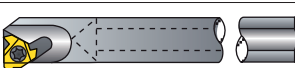
# Vitesse de coupe Vc [m/min] et nuances recommandées Mini, Micro et Microscope

| Groupe de Matière                        | Vardex No. | Matière                                            |                                              | Dureté Brinell HB | Vc [m/min]  |                             |            |            |
|------------------------------------------|------------|----------------------------------------------------|----------------------------------------------|-------------------|-------------|-----------------------------|------------|------------|
|                                          |            |                                                    |                                              |                   | Revêtue     |                             |            |            |
|                                          |            |                                                    |                                              |                   | VMX (Micro) | VKP/VBX (Mini & Microscope) | VTX (Mini) | VHX (Mini) |
| <b>P</b><br>Acier                        | 1          | Acier non allié                                    | Carbone faible (C= 0.1-0.25 %)               | 125               | 50-120      | 140-200                     | 150-200    | 20-50      |
|                                          | 2          |                                                    | Carbone moyen (C=0.25-0.55%)                 | 150               | 40-100      | 120-180                     | 130-180    | 15-40      |
|                                          | 3          |                                                    | Carbone haut (C=0.55-0.85%)                  | 170               | 30-80       | 110-180                     | 120-180    | 15-30      |
|                                          | 4          | Acier faiblement allié (constituants d'alliage≤5%) | Non traité                                   | 180               | 50-70       | 100-155                     | 110-155    | 20-45      |
|                                          | 5          |                                                    | Traité                                       | 275               | 40-60       | 90-145                      | 100-145    | 10-25      |
|                                          | 6          |                                                    | Traité                                       | 350               | 30-50       | 80-135                      | 90-135     | 10-25      |
|                                          | 7          | Acier hautement allié (constituants d'alliage>5%)  | Revenu / Malléable                           | 200               | 30-50       | 65-115                      | 70-115     |            |
|                                          | 8          |                                                    | Traité                                       | 325               | 25-40       | 50-100                      | 60-100     |            |
|                                          | 9          | Acier fondu                                        | Faible alliage (constituants d'alliage ≤ 5%) | 200               | 30-50       | 30-50                       | 30-50      | 25-40      |
|                                          | 10         |                                                    | Haut alliage (constituants d'alliage > 5%)   | 225               | 25-40       | 25-40                       | 30-40      | 25-40      |
| <b>M</b><br>Acier inoxydable             | 11         | Acier inoxydable ferritique                        | Non traité                                   | 200               | 60-100      | 80-120                      | 90-120     |            |
|                                          | 12         |                                                    | Traité                                       | 330               | 40-60       | 55-95                       | 60-95      |            |
|                                          | 13         | Acier inoxydable Austénitique                      | Austénitique                                 | 180               | 50-90       | 60-100                      | 70-100     |            |
|                                          | 14         |                                                    | Super austénitique                           | 200               | 40-60       | 50-90                       | 60-90      |            |
|                                          | 15         | Acier inoxydable Fondu ferritique                  | Non traité                                   | 200               | 40-60       | 60-80                       | 70-80      |            |
|                                          | 16         |                                                    | Traité                                       | 330               | 30-50       | 45-65                       | 50-65      |            |
|                                          | 17         | Acier inoxydable fondu austénitique                | Austénitique                                 | 200               | 40-60       | 50-70                       | 60-70      |            |
|                                          | 18         |                                                    | Traité                                       | 330               | 30-50       | 40-60                       | 40-60      |            |
| <b>K</b><br>Fonte                        | 28         | Fonte malléable                                    | Féritique (copeaux courts)                   | 130               | 50-70       | 60-80                       | 70-80      |            |
|                                          | 29         |                                                    | Perlitique (copeaux longs)                   | 230               | 50-70       | 60-80                       | 70-80      |            |
|                                          | 30         | Fonte grise                                        | Acier à faible résistance                    | 180               | 50-70       | 60-80                       | 70-80      |            |
|                                          | 31         |                                                    | Acier à haute résistance                     | 260               | 40-60       | 40-70                       | 40-70      |            |
|                                          | 32         | Fonte nodulaire SG                                 | Féritique                                    | 160               | 50-70       | 60-80                       | 70-80      |            |
|                                          | 33         |                                                    | Perlitique                                   | 260               | 60-80       | 70-90                       | 80-90      |            |
| <b>N(K)</b><br>Métaux non ferreux        | 34         | Alliages aluminium forge                           | Non Vieilli                                  | 60                | 100-300     | 80-240                      | 90-240     | 30-60      |
|                                          | 35         |                                                    | Vieilli                                      | 100               | 100-150     | 100-170                     | 110-170    | 25-50      |
|                                          | 36         | Alliages aluminium                                 | Coulé                                        | 75                | 100-150     | 100-150                     | 110-150    | 25-50      |
|                                          | 37         |                                                    | Fondu & vieilli                              | 90                | 60-100      | 60-100                      | 70-100     | 20-40      |
|                                          | 38         | Alliages aluminium                                 | Coulé Si 13-22%                              | 130               | 100-150     | 100-150                     | 110-150    | 15-30      |
|                                          | 39         | Cuivre & alliages cuivre                           | Laiton                                       | 90                | 60-100      | 80-200                      | 90-200     | 15-35      |
|                                          | 40         |                                                    | Bronze & cuivre sans plomb                   | 100               | 60-100      | 80-200                      | 90-200     | 15-35      |
| <b>S(M)</b><br>Matières haute résistance | 19         | Alliages haute température                         | Trempé (à base du fer)                       | 200               | 25-45       | 25-45                       | 30-45      |            |
|                                          | 20         |                                                    | Vieilli (à base du fer)                      | 280               | 20-30       | 20-30                       | 20-30      |            |
|                                          | 21         |                                                    | Trempé (à base de Nickel ou Cobalt)          | 250               | 15-20       | 15-20                       | 15-20      |            |
|                                          | 22         |                                                    | Vieill (à base de Nickel ou Cobalt)          | 350               | 10-15       | 10-15                       | 15-20      |            |
|                                          | 23         | Alliages Titanium                                  | Pur 99.5 Ti                                  | 400Rm             | 60-100      | 60-100                      | 70-100     |            |
|                                          | 24         |                                                    | Alliages α+β                                 | 1050Rm            | 40-50       | 40-50                       | 40-50      |            |
| <b>H(K)</b><br>Matières dures            | 25         | Acier extra dur                                    | Traité & trempé                              | 45-50HRc          | 20-40       | 20-40                       | 20-40      |            |
|                                          | 26         |                                                    |                                              | 51-55HRc          | 20-40       | 20-40                       | 20-40      |            |

## Nombre de passes

| Pas                                                 | mm  | 0.50 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75  | 2.00  | 2.50 | 3.00 | 3.50  | 4.00  | 4.50  | 5.00  | 5.50  | 6.00  | 8.00  |
|-----------------------------------------------------|-----|------|------|------|------|------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|
|                                                     | tpi | 48   | 32   | 24   | 20   | 16   | 14    | 12    | 10   | 8    | 7     | 6     | 5.5   | 5     | 4.5   | 4     | 3     |
| Nombre de passes                                    |     | 4-6  | 4-7  | 4-8  | 5-9  | 6-10 | 7-12  | 7-12  | 8-14 | 9-16 | 10-18 | 11-18 | 11-19 | 12-20 | 12-20 | 12-20 | 15-24 |
| Nbre de passes (SCB Brise-copeaux brut de frittage) |     | 3-4  | 3-4  | 3-5  | 4-6  | 5-6  | 6-8   | 6-8   | 8-10 | 9-12 | 10-14 |       |       |       |       |       |       |
| Nombre de passes (Micro / Scope & Mini)             |     | 6-9  | 6-11 | 6-12 | 8-14 | 9-15 | 11-18 | 11-18 |      |      |       |       |       |       |       |       |       |

## Conditions de coupe selon

|                                 |                                                 |                                                                                       |
|---------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Pièce à usiner</b>           | Type matière                                    |    |
|                                 | Dimension: Diamètre et longueur                 |    |
|                                 | Flux des copeaux                                |    |
|                                 | Dureté matière                                  |    |
| <b>Application du filet</b>     | Extérieur ou Intérieur                          |    |
|                                 | (Forme) profil                                  |   |
|                                 | Surface de finition                             |  |
| <b>Machine</b>                  | Stabilité de la Machine                         |  |
|                                 | Tours par minute maxi                           |  |
|                                 | Stabilité du système de serrage                 |  |
| <b>Liquide de lubrification</b> | Type de lubrifiant                              |  |
| <b>Porte-outils</b>             | Surface du Porte-outils                         |  |
|                                 | Porte à faux du Porte-outils                    |  |
|                                 | Option du canal de lubrification                |  |
|                                 | Type de corps Carbure, Alliage, Implant Carbure |  |
| <b>Plaquette</b>                | Nuance                                          |  |
|                                 | Profil: Pas et profondeur                       |  |
|                                 | Rayon                                           |  |
|                                 | Type du Brise-copeaux                           |  |

# Nombre de passes et profondeurs de coupe par passe pour plaquettes Multi+



| Standard      | Plaquettes type |        | Taille plaquette |      | Pas |   | Dents |  | Référence       |  | Passes |  | Profondeur de coupe par passe |      |      |      |
|---------------|-----------------|--------|------------------|------|-----|---|-------|--|-----------------|--|--------|--|-------------------------------|------|------|------|
|               |                 |        | IC               | L mm |     |   |       |  | RH              |  |        |  | 1                             | 2    | 3    | 4    |
| ISO Extérieur | M+              | 3/8"   | 16               | 1.0  | mm  | 3 |       |  | 3ER1.0ISO3M+... |  | 2      |  | 0.32                          | 0.30 |      |      |
|               |                 |        |                  | 1.5  | mm  | 2 |       |  | 3ER1.5ISO2M+... |  | 3      |  | 0.34                          | 0.30 | 0.29 |      |
|               |                 |        |                  | 2.0  | mm  | 2 |       |  | 3ER2.0ISO2M+... |  | 3      |  | 0.45                          | 0.40 | 0.38 |      |
|               |                 | 1/2"   | 22               | 1.5  | mm  | 3 |       |  | 4ER1.5ISO3M+... |  | 2      |  | 0.48                          | 0.45 |      |      |
|               |                 |        |                  | 2.0  | mm  | 2 |       |  | 4ER2.0ISO2M+... |  | 3      |  | 0.45                          | 0.40 | 0.38 |      |
|               |                 |        |                  | 2.0  | mm  | 3 |       |  | 4ER2.0ISO3M+... |  | 2      |  | 0.64                          | 0.59 |      |      |
|               |                 |        |                  | 2.5  | mm  | 2 |       |  | 4ER2.5ISO2M+... |  | 4      |  | 0.46                          | 0.42 | 0.38 | 0.36 |
|               |                 | 5/8"   | 27               | 3.0  | mm  | 2 |       |  | 5ER3.0ISO2M+... |  | 4      |  | 0.53                          | 0.47 | 0.45 | 0.39 |
|               | T+              | 1/2" T | 22               | 1.5  | mm  | 8 |       |  | 4ER1.5ISO8T+... |  | 1      |  | 0.93                          |      |      |      |
|               |                 |        |                  | 2.0  | mm  | 8 |       |  | 4ER2.0ISO8T+... |  | 1      |  | 1.23                          |      |      |      |
| ISO Intérieur | M+              | 3/8"   | 16               | 1.0  | mm  | 3 |       |  | 3IR1.0ISO3M+... |  | 2      |  | 0.30                          | 0.28 |      |      |
|               |                 |        |                  | 1.5  | mm  | 2 |       |  | 3IR1.5ISO2M+... |  | 3      |  | 0.31                          | 0.28 | 0.27 |      |
|               |                 |        |                  | 2.0  | mm  | 2 |       |  | 3IR2.0ISO2M+... |  | 3      |  | 0.42                          | 0.37 | 0.36 |      |
|               |                 | 1/2"   | 22               | 1.5  | mm  | 3 |       |  | 4IR1.5ISO3M+... |  | 2      |  | 0.45                          | 0.41 |      |      |
|               |                 |        |                  | 2.0  | mm  | 2 |       |  | 4IR2.0ISO2M+... |  | 3      |  | 0.42                          | 0.37 | 0.36 |      |
|               |                 |        |                  | 2.0  | mm  | 3 |       |  | 4IR2.0ISO3M+... |  | 2      |  | 0.59                          | 0.56 |      |      |
|               |                 | 5/8"   | 27               | 3.0  | mm  | 2 |       |  | 5IR3.0ISO2M+... |  | 4      |  | 0.49                          | 0.45 | 0.42 | 0.37 |
|               | T+              | 1/2"   | 22               | 1.5  | mm  | 8 |       |  | 4IR1.5ISO8T+... |  | 1      |  | 0.86                          |      |      |      |
|               |                 |        |                  | 2.0  | mm  | 8 |       |  | 4IR2.0ISO8T+... |  | 1      |  | 1.15                          |      |      |      |
| UN Extérieur  | M+              | 3/8"   | 16               | 20   | tpi | 3 |       |  | 3ER20UN3M+...   |  | 2      |  | 0.41                          | 0.38 |      |      |
|               |                 |        |                  | 18   | tpi | 2 |       |  | 3ER18UN2M+...   |  | 3      |  | 0.32                          | 0.28 | 0.27 |      |
|               |                 |        |                  | 18   | tpi | 3 |       |  | 3ER18UN3M+...   |  | 2      |  | 0.45                          | 0.42 |      |      |
|               |                 |        |                  | 16   | tpi | 2 |       |  | 3ER16UN2M+...   |  | 3      |  | 0.36                          | 0.32 | 0.30 |      |
|               |                 |        |                  | 14   | tpi | 2 |       |  | 3ER14UN2M+...   |  | 3      |  | 0.43                          | 0.38 | 0.37 |      |
|               |                 |        |                  | 12   | tpi | 2 |       |  | 3ER12UN2M+...   |  | 3      |  | 0.47                          | 0.43 | 0.40 |      |
|               |                 | 1/2"   | 22               | 16   | tpi | 3 |       |  | 4ER16UN3M+...   |  | 2      |  | 0.51                          | 0.47 |      |      |
|               |                 |        |                  | 14   | tpi | 2 |       |  | 4ER14UN2M+...   |  | 3      |  | 0.43                          | 0.38 | 0.37 |      |
|               |                 |        |                  | 12   | tpi | 2 |       |  | 4ER12UN2M+...   |  | 3      |  | 0.47                          | 0.43 | 0.40 |      |
|               |                 |        |                  | 12   | tpi | 3 |       |  | 4ER12UN3M+...   |  | 2      |  | 0.67                          | 0.63 |      |      |
|               |                 |        |                  | 11   | tpi | 2 |       |  | 4ER11UN2M+...   |  | 4      |  | 0.43                          | 0.38 | 0.36 | 0.32 |
|               |                 |        |                  | 10   | tpi | 2 |       |  | 4ER10UN2M+...   |  | 4      |  | 0.46                          | 0.42 | 0.40 | 0.36 |
|               |                 | 5/8"   | 27               | 8    | tpi | 2 |       |  | 5ER8UN2M+...    |  | 4      |  | 0.56                          | 0.50 | 0.48 | 0.41 |
| UN Intérieur  | M+              | 3/8"   | 16               | 12   | tpi | 2 |       |  | 3IR12UN2M+...   |  | 3      |  | 0.45                          | 0.39 | 0.38 |      |
|               |                 |        |                  | 14   | tpi | 2 |       |  | 3IR14UN2M+...   |  | 3      |  | 0.41                          | 0.36 | 0.34 |      |
|               |                 |        |                  | 16   | tpi | 2 |       |  | 3IR16UN2M+...   |  | 3      |  | 0.33                          | 0.30 | 0.28 |      |
|               |                 | 1/2"   | 22               | 16   | tpi | 3 |       |  | 4IR16UN3M+...   |  | 2      |  | 0.47                          | 0.44 |      |      |
|               |                 |        |                  | 14   | tpi | 2 |       |  | 4IR14UN2M+...   |  | 3      |  | 0.41                          | 0.36 | 0.34 |      |
|               |                 |        |                  | 12   | tpi | 2 |       |  | 4IR12UN2M+...   |  | 3      |  | 0.45                          | 0.39 | 0.38 |      |
|               |                 |        |                  | 12   | tpi | 3 |       |  | 4IR12UN3M+...   |  | 2      |  | 0.63                          | 0.59 |      |      |
|               |                 | 5/8"   | 27               | 8    | tpi | 2 |       |  | 5IR8UN2M+...    |  | 4      |  | 0.52                          | 0.47 | 0.44 | 0.38 |
|               | M+              | 3/8"   | 16               | 28   | tpi | 2 |       |  | 3ER28W2M+...    |  | 3      |  | 0.23                          | 0.20 | 0.20 |      |
|               |                 |        |                  | 19   | tpi | 2 |       |  | 3ER19W2M+...    |  | 3      |  | 0.33                          | 0.28 | 0.27 |      |
|               |                 |        |                  | 19   | tpi | 3 |       |  | 3ER19W3M+...    |  | 2      |  | 0.45                          | 0.41 |      |      |
| BSW Extérieur | M+              | 1/2"   | 22               | 14   | tpi | 2 |       |  | 3ER14W2M+...    |  | 3      |  | 0.43                          | 0.38 | 0.35 |      |
|               |                 |        |                  | 14   | tpi | 3 |       |  | 4ER14W3M+...    |  | 2      |  | 0.60                          | 0.56 |      |      |
|               |                 |        |                  | 11   | tpi | 2 |       |  | 4ER11W2M+...    |  | 4      |  | 0.44                          | 0.38 | 0.36 | 0.30 |

## Nombre de passes et profondeurs de coupe par passe pour plaquettes Multi+

**Multi**plus

| Standard         | Plaquettes type | Taille plaquette |      | Pas      | Dents | Référence        | Passes | Profondeur de coupe par passe |      |      |      |
|------------------|-----------------|------------------|------|----------|-------|------------------|--------|-------------------------------|------|------|------|
|                  |                 | IC               | L mm |          |       |                  |        | 1                             | 2    | 3    | 4    |
| BSW Intérieur    | M+              | 3/8"             | 16   | 14 tpi   | 2     | 3IR14W2M+...     | 3      | 0.43                          | 0.38 | 0.35 |      |
|                  |                 | 1/2"             | 22   | 11 tpi   | 2     | 4IR11W2M+...     | 4      | 0.44                          | 0.38 | 0.36 | 0.30 |
| NPT Extérieur    | M+              | 3/8"             | 16   | 14 tpi   | 2     | 3ER14NPT2M+...   | 3      | 0.52                          | 0.45 | 0.43 |      |
|                  |                 | 1/2"             | 22   | 11.5 tpi | 2     | 4ER11.5NPT2M+... | 4      | 0.46                          | 0.43 | 0.42 | 0.40 |
|                  |                 | 5/8"             | 27   | 11.5 tpi | 3     | 5ER11.5NPT3M+... | 4      | 0.48                          | 0.43 | 0.42 | 0.38 |
|                  |                 |                  |      | 8 tpi    | 2     | 5ER8NPT2M+...    | 4      | 0.72                          | 0.64 | 0.60 | 0.53 |
|                  | Z+              | 1/2"             | 22   | 11.5 tpi | 2     | 4ER11.5NPT2Z+... | 4      | 0.46                          | 0.43 | 0.42 | 0.40 |
|                  |                 |                  |      | 8 tpi    | 2     | 4ER8NPT2Z+...    | 4      | 0.72                          | 0.64 | 0.60 | 0.53 |
| NPT Intérieur    | M+              | 3/8"             | 16   | 14 tpi   | 2     | 3IR14NPT2M+...   | 3      | 0.52                          | 0.45 | 0.43 |      |
|                  |                 | 1/2"             | 22   | 11.5 tpi | 2     | 4IR11.5NPT2M+... | 4      | 0.46                          | 0.43 | 0.42 | 0.40 |
|                  |                 | 5/8"             | 27   | 11.5 tpi | 2     | 5IR11.5NPT3M+... | 4      | 0.48                          | 0.43 | 0.42 | 0.38 |
|                  |                 |                  |      | 8 tpi    | 2     | 5IR8NPT2M+...    | 4      | 0.72                          | 0.64 | 0.60 | 0.53 |
|                  | Z+              | 1/2"             | 22   | 11.5 tpi | 3     | 4IR11.5NPT2Z+... | 4      | 0.46                          | 0.43 | 0.42 | 0.40 |
|                  |                 |                  |      | 8 tpi    | 2     | 4IR8NPT2Z+...    | 4      | 0.72                          | 0.64 | 0.60 | 0.53 |
| NPTF Extérieur   | M+              | 3/8"             | 16   | 14 tpi   | 2     | 3ER14NPTF2M+...  | 3      | 0.51                          | 0.44 | 0.42 |      |
| NPTF Intérieur   | M+              | 3/8"             | 16   | 14 tpi   | 2     | 3IR14NPTF2M+...  | 3      | 0.51                          | 0.44 | 0.42 |      |
| APIBUT Extérieur | M+              | 5/8"             | 27   | 5 tpi    | 2     | 5ER5BUT752M+...  | 4      | 0.46                          | 0.41 | 0.39 | 0.33 |
|                  | T+              | 1/2"             | 22   | 5 tpi    | 3     | 4ER5BUT753T+...  | 3      | 0.57                          | 0.52 | 0.50 |      |
| APIBUT Intérieur | M+              | 5/8"             | 27   | 5 tpi    | 2     | 5IR5BUT752M+...  | 4      | 0.46                          | 0.41 | 0.39 | 0.33 |
|                  | T+              | 1/2"             | 22   | 5 tpi    | 3     | 4IR5BUT753T+...  | 3      | 0.57                          | 0.52 | 0.50 |      |
| APIRD Extérieur  | M+              | 5/8"             | 27   | 10 tpi   | 3     | 5ER10APIRD3M+... | 2      | 0.74                          | 0.69 |      |      |
|                  |                 |                  |      | 8 tpi    | 2     | 5ER8APIRD2M+...  | 3      | 0.66                          | 0.60 | 0.58 |      |
|                  | T+              | 1/2"             | 22   | 10 tpi   | 6     | 4ER10APIRD6T+... | 2      | 0.71                          | 0.71 |      |      |
|                  |                 |                  |      | 8 tpi    | 3     | 4ER8APIRD3T+...  | 2      | 0.94                          | 0.90 |      |      |
|                  |                 |                  |      | 8 tpi    | 5     | 4ER8APIRD5T+...  | 2      | 0.94                          | 0.90 |      |      |
| APIRD Intérieur  | M+              | 1/2"             | 22   | 10 tpi   | 2     | 4IR10APIRD2M+... | 3      | 0.52                          | 0.46 | 0.45 |      |
|                  |                 |                  |      | 8 tpi    | 2     | 4IR8APIRD2M+...  | 3      | 0.66                          | 0.60 | 0.58 |      |
|                  |                 | 5/8"             | 27   | 10 tpi   | 3     | 5IR10APIRD3M+... | 3      | 0.48                          | 0.48 | 0.47 |      |
|                  |                 |                  |      | 8 tpi    | 2     | 5IR8APIRD2M+...  | 3      | 0.66                          | 0.60 | 0.58 |      |
|                  | Z+              | 1/2"             | 22   | 8 tpi    | 2     | 4IR8APIRD2Z+...  | 3      | 0.66                          | 0.60 | 0.58 |      |
|                  |                 |                  |      | 10 tpi   | 6     | 4IR10APIRD6T+... | 2      | 0.71                          | 0.71 |      |      |
|                  | T+              | 1/2"             | 22   | 8 tpi    | 3     | 4IR8APIRD3T+...  | 2      | 0.94                          | 0.90 |      |      |
|                  |                 |                  |      | 8 tpi    | 5     | 4IR8APIRD5T+...  | 2      | 0.94                          | 0.90 |      |      |



Plaquette de type M+

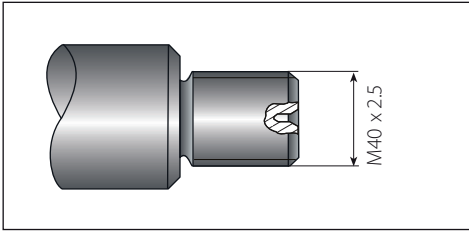


Plaquette de type T+



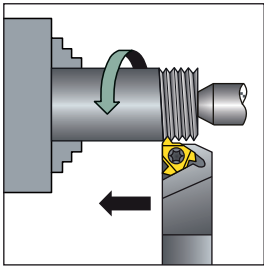
Plaquette de type Z+

# Le filetage étape par étape - Exemple 1



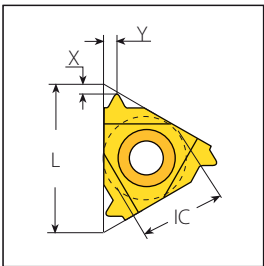
Application:  
Filetage: Extérieur à droite  
ISO Métrique M40x2.5  
Matière: 4140 (25 HRc)

## 1 Choix de la méthode de filetage



La direction d'avances vers le mandrin a été choisie.  
Ainsi, nous choisissons une plaquette et un porte-outils extérieurs à droite.

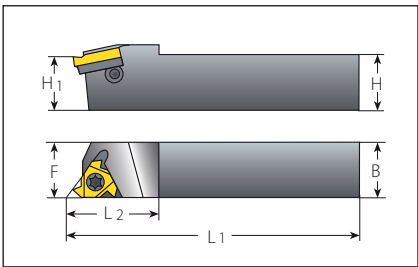
## 2 Choix de la taille de plaquette



Plaquette choisie: 3ER2.5ISO

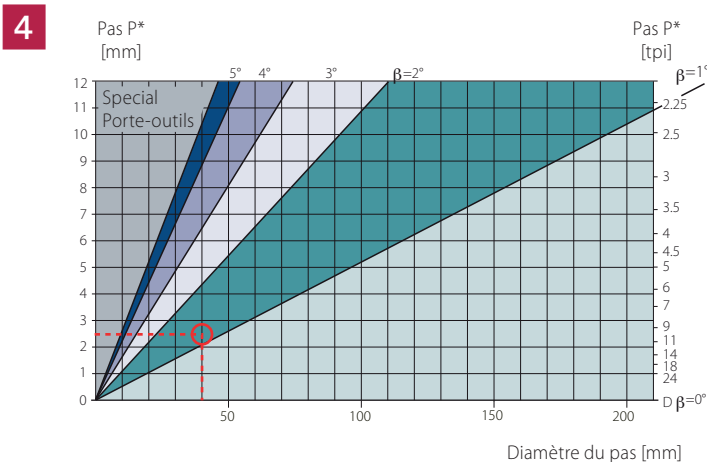
| Taille plaquette |      | Pas | Référence     | Sous-plaquette | Porte-outils |
|------------------|------|-----|---------------|----------------|--------------|
| IC               | L mm | mm  | RH            | RH             |              |
| 3/8"             | 16   | 2.5 | 3ER2.5ISO ... | YE3            | AL...-3 (LH) |

## 3 Choix du Porte-outils



Porte-outils choisi: AL 25-3

| Taille plaquette | Référence | Dimensions mm |    |       |    |
|------------------|-----------|---------------|----|-------|----|
| IC               | RH        | H=H1=B        | F  | L1    | L2 |
| 3/8"             | AL 25-3   | 25            | 25 | 153.6 | 30 |



A l'aide du diagramme, sachant que nous avons un pas de 2,5 mm et une pièce de 40 mm de diamètre, nous pouvons approximativement définir l'angle d'hélice qui, dans ce cas est, de 1.5°.

## 5 Choix de la Sous-plaquette

Sous-plaquette choisie: **YE3**

Angle d'hélice résultant

3.5

2.5

**1.5**

0.5

| Taille plaquette | Référence | Porte-outils | Référence |        |            |        |
|------------------|-----------|--------------|-----------|--------|------------|--------|
| IC               | L mm      |              |           |        |            |        |
| 3/8"             | 16        | ER/IL        | YE3-2P    | YE3-1P | <b>YE3</b> | YE3-1N |

## 6 Choix de la nuance de carbure et de la vitesse de coupe

Nuance de carbure choisie:

**VTX**

Vitesse de coupe: 140 m/min

| Matériau: |            | Dureté Brinell HB | <b>VTX</b>    | VCB     |
|-----------|------------|-------------------|---------------|---------|
| <b>P</b>  | Non traité | 180               | <b>85-145</b> | 100-180 |
|           | Traité     | 275               | 75-140        | 75-140  |
|           | Traité     | 350               | 70-135        | 70-135  |

## 7 Détermination du nombre de passes

Nombre de passes: 10

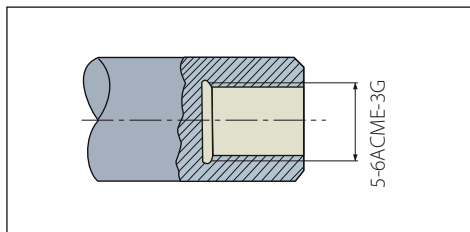
### ISO Extérieur

| Pas              | mm  | 1.50 | 1.75 | 2.00 | <b>2.50</b> | 3.00 | 3.50  | 4.00  |
|------------------|-----|------|------|------|-------------|------|-------|-------|
|                  | tpi | 16   | 14   | 12   | 10          | 8    | 7     | 6     |
| Nombre de passes |     | 6-10 | 7-12 | 7-12 | <b>8-14</b> | 9-16 | 10-18 | 11-18 |

## Résumé

| Type de filetage              | ISO M40x2.5 extérieur à droite |
|-------------------------------|--------------------------------|
| <b>1</b> Direction d'avances: | <b>Vers le mandrin</b>         |
| <b>2</b> Plaquette et nuance: | <b>3ER2.5ISO VTX</b>           |
| <b>3</b> Porte-outils:        | <b>AL 25 - 3</b>               |
| <b>4</b> Angle d'hélice:      | <b>1.5SDgr</b>                 |
| <b>5</b> Sous-plaquette:      | <b>YE3</b>                     |
| <b>6</b> Vitesse de coupe:    | <b>140 m/min</b>               |
| <b>7</b> Nombre de passes:    | <b>14</b>                      |

## Le filetage étape par étape - Exemple 2



Application:

Filet: Intérieur à droite

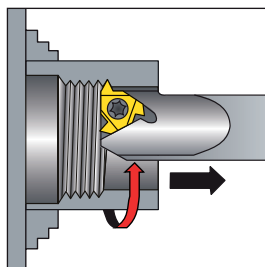
ACME

Pas: 6 tpi

Diam alésage: 5"

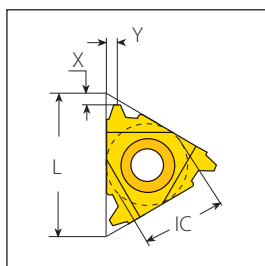
Matière: Acier inoxydable austénitique

### 1 Choix de la méthode de filetage



Pour faciliter l'évacuation du copeau, il a été choisie une direction d'avances vers la contre pointe. Nous devons donc choisir une plaquette et un porte-outils intérieurs à gauche.

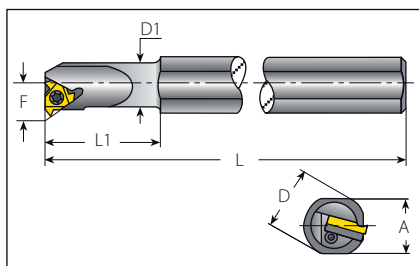
### 2 Choix de la taille de plaquette



Plaquette choisie: 4IL6ACME

| Taille plaquette |      | Pas | Référence   | Sous-plaquette | Porte-outils |
|------------------|------|-----|-------------|----------------|--------------|
| IC               | L mm | tpi | RH          | LH             |              |
| 1/2"             | 22   | 6   | 4IL6ACME... | YE4            | AVR..-4 (LH) |

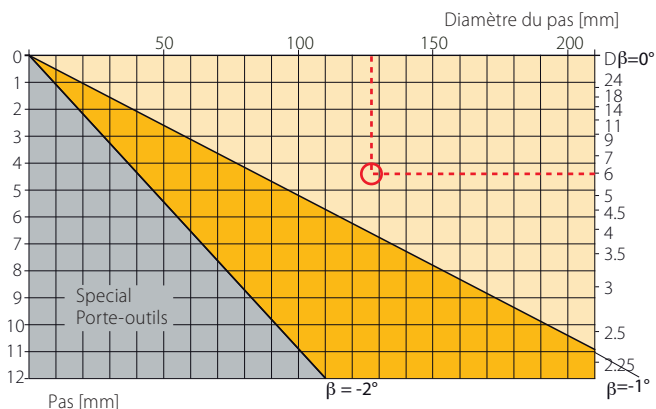
### 3 Choix du Porte-outils



Porte-outils choisi: AVR 40-4LH

| Taille plaquette |  | Référence | Dimensions mm |     |    |    |      | Min Bore |
|------------------|--|-----------|---------------|-----|----|----|------|----------|
| IC               |  | RH        | A             | L   | L1 | D  | D1   | F        |
| 1/2"             |  | AVR 40-4  | 36.0          | 300 | 60 | 40 | 40.0 | 25.8     |
|                  |  |           |               |     |    |    |      | 47       |

### 4 Détermination de l'angle d'hélice



Dans ce cas, un filetage à droite est réalisé avec un porte-outils à gauche. A l'aide du diagramme, nous pouvons définir approximativement l'angle d'hélice qui dans ce cas est de  $-0.65^\circ$  (angle d'hélice inversé).

## 5 Choix de la Sous-plaquette

Sous-plaquette choisie: YE4-2N Angle d'hélice résultant

|                  |      | 1.5       | 0.5 | 0      | -0.5     | -1.5          |
|------------------|------|-----------|-----|--------|----------|---------------|
| Taille plaquette |      | Référence |     |        |          |               |
| IC               | L mm |           |     |        |          |               |
| 1/2"             | 22   | ER/IL     | YE4 | YE4-1N | YE4-1.5N | <b>YE4-2N</b> |
|                  |      |           |     |        |          | YE4-3N        |

## 6 Choix de la nuance de carbure et de la vitesse de coupe

Nuance de carbure choisie: VTX

Vitesse de coupe: 140 m/min

|          | Matière:                      | Dureté Brinell HB  | <b>VTX</b> | VCB    |
|----------|-------------------------------|--------------------|------------|--------|
| <b>M</b> | Acier inoxydable Austénitique | Austénitique       | 180        | 90-140 |
|          |                               | Super austénitique | 200        | 40-110 |
|          |                               |                    |            | 80-120 |
|          |                               |                    |            | 30-100 |

## 7 Détermination du nombre de passes

Nombre de passes: 18

### ACME extérieur et intérieur

| Pas              | mm  | 3.00 | 3.50  | 4.00         | 4.50  | 5.00  | 5.50  | 6.00  |
|------------------|-----|------|-------|--------------|-------|-------|-------|-------|
|                  | tpi | 8    | 7     | <b>6</b>     | 5.5   | 5     | 4.5   | 4     |
| Nombre de passes |     | 9-16 | 10-18 | <b>11-18</b> | 11-19 | 12-20 | 12-20 | 12-20 |

## Résumé

| Type de filetage              | 5"x 6 ACME Intérieur à droite |
|-------------------------------|-------------------------------|
| <b>1</b> Direction d'avances: | <b>Vers la contre pointe</b>  |
| <b>2</b> Plaquette et nuance: | <b>4IL6ACME VTX</b>           |
| <b>3</b> Porte-outils:        | <b>AVR 40-4LH</b>             |
| <b>4</b> Angle d'hélice:      | <b>-0.65SDgr</b>              |
| <b>5</b> Sous-plaquette:      | <b>YE4-2N</b>                 |
| <b>6</b> Vitesse de coupe:    | <b>140 m/min</b>              |
| <b>7</b> Nombre de passes:    | <b>18</b>                     |

# Tableau des correspondances matière

| Groupe de Matière | VardeX No. | USA AISI/SAE        | Allemagne W.-Nr. | Allemagne DIN   | Grande Bretagne BS  | France AFNOR         | Italie UNI        |
|-------------------|------------|---------------------|------------------|-----------------|---------------------|----------------------|-------------------|
| P<br>Acier        | 1          | 1015                | 1.0037           | St37-2          | Fe360B              | E24-2                | Fe360 B FU        |
|                   | 1          | 1020                | 1.0044           | St44-2          | Fe430B FN           | E28-2                | Fe430B FN         |
|                   | 2          | ASTM A570Gr.50      | 1.0050           | St50-2          | Fe490-2 FN          | A50-2                | Fe490             |
|                   | 2          | —                   | 1.0070           | St70-2          | Fe690-2 FN          | A70-2                | Fe690             |
|                   | 1          | 1015                | 1.0401           | C15             | 080M15              | CC12                 | C15C16            |
|                   | 1          | 1020                | 1.0402           | C22             | 050A20              | CC20                 | C20C21            |
|                   | 2          | 1035                | 1.0501           | C35             | 060A35              | CC35                 | C35               |
|                   | 2          | 1045                | 1.0503           | C45             | 080M46              | CC45                 | C45               |
|                   | 2          | 1055                | 1.0535           | C55             | 070M55              | —                    | C55               |
|                   | 2          | 1060                | 1.0601           | C60             | 080A62              | CC55                 | C60               |
|                   | 1          | 1213                | 1.0715           | 95Mn28          | 230M07              | S250                 | CF95Mn28          |
|                   | 1          | 12L13               | 1.0718           | 95MnPb28        | —                   | S250Pb               | CF95MnPb28        |
|                   | 1          | —                   | 1.0722           | 105Pb20         | —                   | 10PbF2               | CF105Pb20         |
|                   | 2          | 1140                | 1.0726           | 35S20           | 212M36              | 35MF4                | —                 |
|                   | 2          | 1215                | 1.0736           | 95Mn36          | 240M07              | S300                 | CF95Mn36          |
|                   | 2          | 12L14               | 1.0737           | 95MnPb36        | —                   | S300Pb               | CF95MnPb36        |
|                   | 2          | 9255                | 1.0904           | 55Si7           | 250A53              | 55S7                 | 55Si8             |
|                   | 2          | 9262                | 1.0961           | 60SiCr7         | —                   | 60SC7                | 60SiCr8           |
|                   | 1          | 1015                | 1.1141           | Ck15            | 080M15              | XC1 2                | C16               |
|                   | 2          | 1039                | 1.1157           | 40Mn4           | 150M36              | 35M5                 | —                 |
|                   | 2          | 1025                | 1.1158           | Ck25            | —                   | —                    | —                 |
|                   | 2          | 1335                | 1.1167           | 36Mn5           | —                   | 40M5                 | —                 |
|                   | 2          | 1330                | 1.1170           | 28Mn6           | 150M28              | 20M5                 | C28Mn             |
|                   | 2          | 1035                | 1.1183           | Cf35            | 060A35              | XC38TS               | C36               |
|                   | 2          | 1045                | 1.1191           | Ck45            | 080M46              | XC42                 | C45               |
|                   | 2          | 1055                | 1.1203           | Ck55            | 070M55              | XC55                 | C50               |
|                   | 3          | 1050                | 1.1213           | Cf53            | 060A52              | XC48TS               | C53               |
|                   | 3          | 1060                | 1.1221           | Ck60            | 080A62              | XC60                 | C60               |
|                   | 8          | 1095                | 1.1274           | Ck101           | 060A96              | —                    | —                 |
|                   | 9          | —                   | 1.3401           | X120Mn12        | Z120M12             | Z120M12              | XG120Mn12         |
|                   | 8          | 52100               | 1.3505           | 100Cr6          | 534A99              | 100C6                | 100Cr6            |
|                   | 8          | ASTM A20Gr.A        | 1.5415           | 15Mo3           | 1501-240            | 15D3                 | 16Mo3KW           |
|                   | 8          | 4520                | 1.5423           | 16Mo5           | 1503-245-420        | —                    | 16Mo5             |
|                   | 4          | ASTMA350LF5         | 1.5622           | 14Ni6           | —                   | 16N6                 | 14Ni6             |
|                   | 8          | ASTM A353           | 1.5662           | X8Ni9           | 1501-509; 510       | —                    | X10Ni9            |
|                   | 8          | 2515                | 1.5680           | 12Ni19          | —                   | Z18N5                | —                 |
|                   | 5          | 3135                | 1.5710           | 36NiCr6         | 640A35              | 35NC6                | —                 |
|                   | 5          | 3415                | 1.5732           | 14NiCr10        | —                   | 14NC11               | 16NiCr11          |
|                   | 5          | 3415; 3310          | 1.5752           | 14NiCr14        | 655M13; 655M12      | 12NC15               | —                 |
|                   | 5          | 9840                | 1.6511           | 36CrNiMo4       | 816M40              | 40NCD3               | 38NiCrMo4(KB)     |
|                   | 5          | 8620                | 1.6523           | 21NiCrMo2       | 805M20              | 20NCD2               | 20NiCrMo2         |
|                   | 5          | 8740                | 1.6546           | 40NiCrMo22      | 311-Type7           | —                    | 40NiCrMo2(KB)     |
|                   | 5          | 4340                | 1.6582           | 34CrNiMo6       | 817M40              | 35NCD6               | 35NiCrMo6(KB)     |
|                   | 5          | —                   | 1.6587           | 17CrNiMo6       | 820A16              | 18NCD6               | —                 |
|                   | 5          | —                   | 1.6657           | 14NiCrMo134     | 832M13              | —                    | 15NiCrMo13        |
|                   | 2          | 5015                | 1.7015           | 15Cr3           | 523M15              | 12C3                 | —                 |
|                   | 5          | 5132                | 1.7033           | 34Cr4           | 530A32              | 32C4                 | 34Cr4(KB)         |
|                   | 5          | 5140                | 1.7035           | 41Cr4           | 530M40              | 42C4                 | 41Cr4             |
|                   | 5          | 5140                | 1.7045           | 42Cr4           | —                   | —                    | —                 |
|                   | 5          | 5115                | 1.7131           | 16MnCr5         | (527M20)            | 16MC5                | 16MnCr5           |
|                   | 5          | 5155                | 1.7176           | 55Cr3           | 527A60              | 55C3                 | —                 |
|                   | 5          | 4130                | 1.7218           | 25CrMo4         | 1717CDS110          | 25CD4                | 25CrMo4(KB)       |
|                   | 5          | 4137; 4135          | 1.7220           | 34CrMo4         | 708A37              | 35CD4                | 35CrMo4           |
|                   | 5          | 4140; 4142          | 1.7223           | 41CrMo4         | 708M40              | 42CD4TS              | 41CrMo4           |
|                   | 5          | 4140                | 1.7225           | 42CrMo4         | 708M40              | 42CD4                | 42CrMo4           |
|                   | 5          | —                   | 1.7262           | 15CrMo5         | —                   | 12CD4                | —                 |
|                   | 5          | ASTM A182; F11; F12 | 1.7335           | 13CrMo4 4       | 1501-620Gr.27       | 15CD3.5; 15CD4.5     | 14CrMo4 5         |
|                   | 5          | —                   | 1.7361           | 32CrMo12        | 722M24              | 30CD12               | 32CrMo12          |
|                   | 5          | ASTM A182; F22      | 1.7380           | 10CrMo9 10      | 1501-622; Gr.31; 45 | 12CD9; 10            | 12CrMo9, 10       |
|                   | 5          | —                   | 1.7715           | 14MoV6 3        | 1503-660-440        | —                    | —                 |
|                   | 5          | 6150                | 1.8159           | 50CrV4          | 735A50              | 50CV4                | 50CrV4            |
|                   | 8          | —                   | 1.8509           | 41CrAlMo7       | 905M39              | 40CAD6, 12           | 41CrAlMo7         |
|                   | 8          | —                   | 1.8523           | 39CrMoV13 9     | 897M39              | —                    | 36CrMoV12         |
|                   | 5          | W.110               | 1.1545           | C105W1          | —                   | Y1105                | C98KU; C100KU     |
|                   | 5          | W.112               | 1.1663           | C125W           | —                   | Y2120                | C120KU            |
|                   | 8          | L3                  | 1.2067           | 100Cr6          | BL3                 | Y100C6               | —                 |
|                   | 10         | D3                  | 1.2080           | X210Cr12        | BD3                 | Z200Cr12             | X210Cr13KU        |
|                   | 10         | —                   | —                | —               | —                   | —                    | X250Cr12KU        |
|                   | 10         | —                   | 1.2311           | 40CrMnMo7       | —                   | —                    | 35CrMo8KU         |
|                   | 10         | —                   | 1.2312           | 40CrMnMoS8-6    | —                   | —                    | —                 |
|                   | 10         | H11                 | 1.2343           | X38CrMoV5-1     | BH11                | Z38CDV5              | X37CrMoV51 1KU    |
|                   | 10         | H13                 | 1.2344           | X40CrMoV5-1     | BH13                | Z40CDV5              | X35CrMoV05KU      |
|                   | 10         | —                   | —                | —               | —                   | —                    | X40CrMoV511KU     |
|                   | 10         | A2                  | 1.2363           | X100CrMoV5-1    | BA2                 | Z1 00CDV5            | X100CrMoV51KU     |
|                   | 10         | —                   | 1.2367           | X38CrMoV5-3     | —                   | Z38CDV5-3            | —                 |
|                   | 10         | D2                  | 1.2379           | X155CrVMo 12-1  | BD2                 | Z160CDV12            | X155CrVMo12 1 KU  |
|                   | 10         | —                   | 1.2419           | 105WCr6         | —                   | 105WC13              | 10WCr6; 107WCr5KU |
|                   | 10         | —                   | 1.2436           | X210CrW12       | —                   | —                    | X215CrW121KU      |
|                   | 10         | S1                  | 1.2542           | 45WCrV17        | BS1                 | —                    | 45WCrV8KU         |
|                   | 10         | H21                 | 1.2581           | X30WCrV9 3      | BH21                | Z30WCV9              | X30WCrV9 3KU      |
|                   | 10         | —                   | 1.2601           | X165CrMoV12     | —                   | —                    | X165CrMoV12KU     |
|                   | 10         | L6                  | 1.2713           | 55NiCrMoV6      | —                   | 55NCDV7              | —                 |
|                   | 10         | —                   | 1.2738           | 40CrMnNiMo8-6-4 | —                   | —                    | —                 |
|                   | 10         | W210                | 1.2833           | 100V1           | BW2                 | Y1105V; 100V2        | —                 |
|                   | 10         | —                   | 1.3243           | S 6-5-2-5       | —                   | Z85WDCV-06-05-04-02  | HS 6-5-2-5        |
|                   | 10         | T4                  | 1.3255           | S 18-1-2-5      | BT4                 | Z80WKCV-18-05-04-01  | X78WCo1805KU      |
|                   | 10         | M2                  | 1.3343           | S 6-5-2         | BM2                 | Z85WDCV-06-05-04-02  | X82WCo0605KU      |
|                   | 10         | M7                  | 1.3348           | S 2-9-2         | —                   | Z100WCVV-09-04-02-02 | HS 2-9-2          |
|                   | 10         | T1                  | 1.3355           | S 18-0-1        | BT1                 | Z80WCV-18-04-01      | X75W18KU          |

| Suède<br>SS | Japon<br>JIS    | Russie<br>GOST        | Espagne<br>UNE                                                 | VardeX No. |  |
|-------------|-----------------|-----------------------|----------------------------------------------------------------|------------|--|
| 1311        | STKM 12A;C      | –                     | Fe360B                                                         | 1          |  |
| 1412        | SM400A;B;C      | St4ps;sp              | Fe430B FN                                                      | 1          |  |
| 1550        | SS490           | St5ps;sp              | A490-2                                                         | 2          |  |
| –           | –               | –                     | A690-2                                                         | 2          |  |
| 1350        | –               | –                     | F0.111                                                         | 1          |  |
| 1450        | –               | 20                    | 1 C 22 ; F.112                                                 | 1          |  |
| 1550        | –               | 30                    | F. 113                                                         | 2          |  |
| 1650        | –               | 45                    | F0.114                                                         | 2          |  |
| 1655        | –               | 55                    | F0.115                                                         | 2          |  |
| –           | –               | 60(G)                 | –                                                              | 2          |  |
| 1912        | SUM22           | –                     | F.2111-11SMn28                                                 | 1          |  |
| 1914        | SUM22L          | –                     | F.2112-11SMnPb28                                               | 1          |  |
| –           | –               | –                     | F.2122-10SPb20                                                 | 1          |  |
| 1957        | –               | –                     | F.210.G                                                        | 2          |  |
| –           | –               | –                     | F.2113-12SMn35                                                 | 2          |  |
| 1926        | –               | –                     | F.2114-12SMnPb35                                               | 2          |  |
| 2085        | –               | 55S2                  | F.1440-56Si7                                                   | 2          |  |
| –           | –               | –                     | F.1442-60SiCr8                                                 | 2          |  |
| 1370        | S15C            | 15                    | F.1110-C15k ; F.1511-C16k                                      | 1          |  |
| –           | –               | 40G                   | –                                                              | 2          |  |
| –           | S25C            | 25                    | F.1120-C25k                                                    | 2          |  |
| 2120        | SMn438(H)       | 35G2 ; 35GL           | F.1203-36Mn6 ; F.8212-36Mn5                                    | 2          |  |
| –           | SCM1            | 30G                   | 28Mn6                                                          | 2          |  |
| 1572        | S35C            | 35                    | –                                                              | 2          |  |
| 1672        | S45C            | 45                    | F.1140-C45k ; F.1142-C48k                                      | 2          |  |
| –           | S55C            | 55                    | F.1150-C55k                                                    | 2          |  |
| 1674        | S50C            | 50                    | –                                                              | 3          |  |
| 1678        | S58C            | 60 ; 60G ; 60GA       | –                                                              | 3          |  |
| 1870        | SUP4            | –                     | –                                                              | 8          |  |
| –           | SCMnH/1         | 110G13L               | F.8251-AM-X120Mn12                                             | 9          |  |
| 2258        | SUJ2            | SchCh15               | F.1310-100Cr6                                                  | 8          |  |
| 2912        | –               | –                     | F.2601-16Mo3                                                   | 8          |  |
| –           | –               | –                     | F.2602-16Mo5                                                   | 8          |  |
| –           | –               | –                     | F.2641-15Ni6                                                   | 4          |  |
| –           | –               | –                     | F.2645-X8Ni09                                                  | 8          |  |
| –           | –               | –                     | –                                                              | 8          |  |
| –           | SNC236          | –                     | –                                                              | 5          |  |
| –           | SNC415(H)       | –                     | F.1540-15NiCr11                                                | 5          |  |
| –           | SNC81 5(H)      | –                     | –                                                              | 5          |  |
| –           | –               | 40ChN2MA ; 40ChGNM    | F.1280-35NiCrMo4                                               | 5          |  |
| 2506        | SNCM220(H)      | 20ChGNM               | F.1552-20NiCrMo2 ; F.1534-20NiMo31                             | 5          |  |
| –           | SNCM240         | 38ChGNM               | F.1204-40NiCrMo2 ; F.1205-40NiCrMo2DF                          | 5          |  |
| 2541        | –               | 38ChN2MA              | F.1272-40NiCrMo7 ; 34CrNiMo6                                   | 5          |  |
| –           | –               | –                     | F.1560-14NiCrMo13                                              | 5          |  |
| –           | –               | –                     | F.1560-14NiCrMo13 ; F.1569-14NiCrMo131                         | 5          |  |
| –           | SCr415(H)       | 15Ch                  | –                                                              | 2          |  |
| –           | SCr430(H)       | 35Ch                  | F.8221-35Cr4                                                   | 5          |  |
| –           | SCr440(H)       | 40Ch                  | F.1211-41Cr4DF ; F.1202-42Cr4                                  | 5          |  |
| 2245        | SCr440          | 40Ch                  | F.1202-42Cr4                                                   | 5          |  |
| 2511        | –               | 18ChG                 | F.1516-16MnCr5 ; F.1517-16MnCr5                                | 5          |  |
| –           | SUP9(A)         | 50ChGA                | F.1431-55Cr3                                                   | 5          |  |
| 2225        | SCM420          | 20ChM ; 30ChM         | F.8372-AM26CrMo4;F.8330-AM25CrMo4;F.1256-30CrMo4-1             | 5          |  |
| 2234        | SCM432; SCCRM3  | AS38ChGM;35ChM;35ChML | F.8331-AM34CrMo4;F.823134CrMo4;F.1250-35CrMo4;F.1254-35CrMo4DF | 5          |  |
| 2244        | SCM440          | 40ChFA                | F.8332-AM42CrMo4;F.8232-42CrMo4;F.1252-40CrMo4                 | 5          |  |
| 2244        | SCM440(H)       | –                     | F.8332-AM42CrMo4;F.8232-42CrMo4;F.1252-40CrMo4                 | 5          |  |
| 2216        | SCM415(H)       | –                     | F.1551-12CrMo4                                                 | 5          |  |
| –           | –               | 12ChM ; 15ChM         | F.2631-14CrMo45                                                | 5          |  |
| 2240        | –               | –                     | F.124.A                                                        | 5          |  |
| 2218        | –               | 12Ch8                 | TU.H                                                           | 5          |  |
| –           | –               | –                     | F.2621-13MoCrV6                                                | 5          |  |
| 2230        | SUP10           | 50ChGFA ; 50CHFA      | F.1430-51CrV4                                                  | 5          |  |
| 2940        | –               | 38ChMJuA              | F.1740-41CrAlMo7                                               | 8          |  |
| –           | –               | –                     | –                                                              | 8          |  |
| 1880        | –               | U10A-1;2              | F0.516                                                         | 5          |  |
| –           | SK2             | U13                   | F.5123 ; C120                                                  | 5          |  |
| –           | –               | Ch                    | F.5230 ; 100Cr6                                                | 8          |  |
| –           | SKD1            | Ch12                  | F.5212 ; X210 Cr12                                             | 10         |  |
| –           | –               | –                     | –                                                              | 10         |  |
| –           | –               | –                     | –                                                              | 10         |  |
| –           | –               | –                     | –                                                              | 10         |  |
| –           | SKD6            | 4ChMFS                | F.5317 ; X37 CrMoV5                                            | 10         |  |
| 2242        | SKD61           | 4ChMF1S               | F.5318 ; X40CrMoC5                                             | 10         |  |
| –           | –               | –                     | –                                                              | 10         |  |
| 2260        | SKD12           | –                     | F.5227 ; X100CrMoV5                                            | 10         |  |
| –           | –               | –                     | –                                                              | 10         |  |
| 2310        | SKD11           | –                     | F.520A                                                         | 10         |  |
| 2140        | SKS31;SKS2,SKS3 | ChWG                  | F.5233 ; 105WCr5                                               | 10         |  |
| 2312        | SKD2            | –                     | F.5213 ; X210CrW12                                             | 10         |  |
| 2710        | –               | 5ChW2SF               | F.5241 ; 45WCrSi8                                              | 10         |  |
| –           | SKD5            | 3Ch2W8F               | F.5323 ; X30WCrV9                                              | 10         |  |
| 2310        | –               | –                     | F.5211 ; X160CrMoV12                                           | 10         |  |
| –           | SKT4            | 5ChNM                 | F.520S                                                         | 10         |  |
| –           | –               | –                     | –                                                              | 10         |  |
| –           | SKS43           | –                     | –                                                              | 10         |  |
| 2723        | SKH55           | 2723                  | R6M5K5                                                         | 10         |  |
| –           | SKH3            | –                     | F.5530 ; 18-1-1-5                                              | 10         |  |
| 2722        | SKH9            | (R6AM5) ; R6M5        | F.5603 ; 6-5-2                                                 | 10         |  |
| 2782        | –               | –                     | F0.5607 ; 18-0-1                                               | 10         |  |
| –           | SKH2            | R18                   | F0.5520 ; 18-0-1                                               | 10         |  |

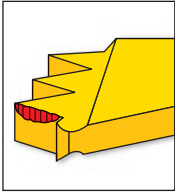
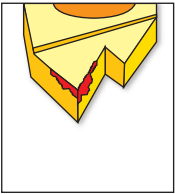
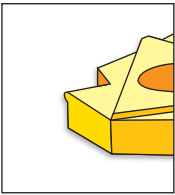
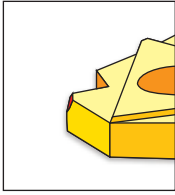
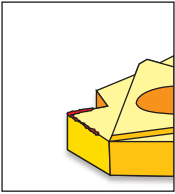
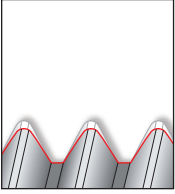
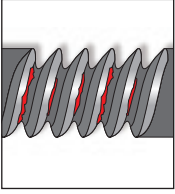
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# Tableau des correspondances matière

| Groupe de Matière                         | Var d e x No. | USA AISI/SAE     | Allemagne W.-Nr. | Allemagne DIN     | Grande Bretagne BS | France AFNOR         | Italie UNI      |
|-------------------------------------------|---------------|------------------|------------------|-------------------|--------------------|----------------------|-----------------|
| <b>M</b><br>Acier inoxydable              | 12            | 403              | 1.4000           | X6Cr13            | 403S17             | Z6C13                | X6Cr13          |
|                                           | 12            | –                | 1.4001           | X7Cr14            | –                  | –                    | –               |
|                                           | 12            | 410              | 1.4006           | X10Cr13           | 410S21             | Z10C14               | X12Cr13         |
|                                           | 12            | 430              | 1.4016           | X6Cr17            | 430S15             | Z8C17                | X8Cr17          |
|                                           | 12            | –                | 1.4027           | G-X20Cr14         | 420C29             | Z20C13M              | –               |
|                                           | 12            | –                | 1.4034           | X46Cr13           | 420S45             | Z40CM;Z38C13M        | X40Cr14         |
|                                           | 12            | 431              | 1.4057           | X20CrNi172        | 431S29             | Z15CNi6.02           | X16CrNi16       |
|                                           | 12            | 430              | 1.4104           | X12CrMoS17        | –                  | Z10CF17              | X10CrS17        |
|                                           | 12            | 434              | 1.4113           | X6CrMo171         | 434S17             | Z8CD17.01            | X8CrMo17        |
|                                           | 12            | –                | 1.4313           | X5CrNi134         | 425C11             | Z4CND13.4M           | –               |
|                                           | 12            | –                | 1.4408           | G-X6CrNiMo18 10   | 316C16             | –                    | –               |
|                                           | 12            | HW3              | 1.4718           | X45CrSi93         | 401S45             | Z45CS 9              | X45CrSi8        |
|                                           | 12            | 405              | 1.4724           | X10CrAl13         | 403S17             | Z10C13               | X101CrAl12      |
|                                           | 11            | –                | 1.4742           | X10CrAl18         | 430S15             | Z12CA518             | X8Cr17          |
|                                           | 12            | HNV6             | 1.4747           | X80CrNiSi20       | 443S65             | Z80CSN20.02          | X80CrSiNi20     |
|                                           | 11            | 446              | 1.4762           | X10CrAl24         | –                  | Z10CA524             | X16Cr26         |
|                                           | 13            | 304              | 1.4301           | X5CrNi18 10       | 304S15             | Z6CN18.09            | X5CrNi1810      |
|                                           | 13            | 303              | 1.4305           | X10CrNiS18 9      | 303S21             | Z10CNF 18.09         | X10CrNiS 18.09  |
|                                           | 13            | 304L             | 1.4306           | X2CrNi19 11       | 304S12;304C12      | Z2CN18.10;Z3CN 19.10 | X2CrNi18.11     |
|                                           | 13            | CF8              | 1.4308           | G-X6CrNi18 9      | 304C15             | Z6CN18.10M           | –               |
|                                           | 13            | 301              | 1.4310           | X12CrNi177        | 301S21             | Z12CN 17.07          | X1 2CrNi1 707   |
|                                           | 13            | 304LN            | 1.4311           | X2CrNi18 10       | 304S62             | Z2CN18.10            | –               |
|                                           | 13            | 316              | 1.4401           | X5CrNiMo17122     | 316S16             | Z6CND17.11           | X5CrNiMo17 12   |
|                                           | 13            | 316LN            | 1.4429           | X2CrNiMoNi17133   | –                  | Z2CND17.13           | –               |
|                                           | 13            | 316L             | 1.4435           | X2CrNiMo18143     | 316S12             | Z2CND17.13           | X2CrNiMo17 13   |
|                                           | 13            | 317L             | 1.4438           | X2CrNiMo17133     | 317S12             | Z2CND19.15           | X2CrNiMo18 16   |
|                                           | 13            | 329              | 1.4460           | X8CrNiMo275       | –                  | –                    | –               |
|                                           | 12            | 321              | 1.4541           | X6CrNiTi18 10     | 2337               | Z6CNT18.10           | X6CrNiTi18 11   |
|                                           | 12            | 347              | 1.4550           | X6CrNiNb18 10     | 347S17             | Z6CNNb18.10          | X6CrNiNb18 11   |
|                                           | 12            | 316Ti            | 1.4571           | X6CrNiMoTi17122   | 320S17             | Z6NDT1 7.12          | X6CrNiMoTi17 12 |
|                                           | 12            | –                | 1.4581           | G-X5CrNiMoNb18 10 | 318C17             | Z4CNDNb18 12M        | XG8CrNiMo18 11  |
|                                           | 12            | 318              | 1.4583           | X10CrNiMoNb18 12  | –                  | Z6CNDNb17 13B        | X6CrNiMoNb17 13 |
|                                           | 13            | 309              | 1.4828           | X15CrNiSi20 12    | 309S24             | Z15CNS20.12          | –               |
|                                           | 13            | 310S             | 1.4845           | X12CrNi25 21      | 310S24             | Z12CN25 20           | X6CrNi25 20     |
|                                           | 13            | 330              | 1.4864           | X12NiCr36 16      | –                  | Z12NCS35.16          | –               |
|                                           | 13            | –                | 1.4865           | G-X40NiCrSi38 18  | 330C11             | –                    | XG50NiCr39 19   |
|                                           | 13            | EV8              | 1.4871           | X53CrMnNiN2 19    | 349S54;321S12      | Z52CMN21.09          | X53CrMnNiN219   |
|                                           | 13            | 321              | 1.4878           | X12CrNiTi18 9     | 321S320            | Z6CNT18.12B          | X6CrNiTi1811    |
| <b>K</b><br>Fonte                         | 30            | No 20 B          | 0.6010           | GG10              | –                  | Ft 10 D              | –               |
|                                           | 30            | No 25 B          | 0.6015           | GG15              | Grade 150          | Ft 15 D              | –               |
|                                           | 30            | No 30 B          | 0.6020           | GG20              | Grade 220          | Ft 20 D              | –               |
|                                           | 29            | No 35 B; No 40 B | 0.6025           | GG25              | Grade 260          | Ft 25 D              | –               |
|                                           | 29            | No 45 B          | 0.6030           | GG30              | Grade 300          | R 30 D               | –               |
|                                           | 29            | No 50 B          | 0.6035           | GG35              | Grade 350          | Ft 35 D              | –               |
|                                           | 29            | No 55 B          | 0.6040           | GG40              | Grade 400          | Ft 40 D              | –               |
|                                           | 29            | ASTM             | –                | DIN4694           | 3468: 1974         | –                    | –               |
|                                           | 29            | A436-72          | –                | GGL-              | –                  | A32-301              | –               |
|                                           | 29            | Type 2           | –                | NiCr20 2          | L-NiCr 20 2        | L-NC 20 2            | –               |
|                                           | 30            | 60-40-18         | 0.7040           | GGG 40            | SNG 420/12         | FCS 400-12           | GS 370-17       |
|                                           | 30            | –                | 0.7043           | GGG 40.3          | SNG 370/17         | FGS 370-17           | –               |
|                                           | 30            | –                | 0.7033           | GGG 35.3          | –                  | –                    | –               |
|                                           | 31            | 80-55-06         | 0.7050           | GGG 50            | SNG 500/7          | FGS 500-7            | GS 500          |
|                                           | 31            | –                | 0.7060           | GGG 60            | SNG 600/3          | FGS 600-3            | –               |
|                                           | 31            | 100-70-03        | 0.7070           | GGG70             | SNG 700/2          | FGS 700-2            | GS 700-2        |
|                                           | 31            | –                | –                | DIN 1694          | –                  | L-NM 13 7            | –               |
|                                           | 31            | Type 2           | –                | GGG NiMn 13 7     | L-NiMn 13 7        | L-NC 20 2            | –               |
|                                           | 31            | –                | –                | GGG NiCr 20 2     | L-NC 20 2          | –                    | –               |
|                                           | 28            | 32510            | 0.8135           | GTS-35            | B 340/12           | MN 35-10             | –               |
|                                           | 29            | 40010            | 0.8145           | GTS-45            | P 440/7            | –                    | –               |
|                                           | 29            | 50005            | 0.8155           | GTS-55            | P 510/4            | MP50-5               | –               |
|                                           | 29            | 70003            | 0.8165           | GTS-65            | P 570/3            | MP 60-3              | –               |
|                                           | 29            | 80002            | 0.8170           | GTS-70            | P690/2             | MP 70-2              | –               |
| <b>N(k)</b><br>Métaux non ferreux         | 36            | –                | –                | G-AISI12          | LM20               | –                    | –               |
|                                           | 36            | –                | –                | GD-AISI12         | –                  | –                    | –               |
|                                           | 36            | –                | –                | GD-AISI8Cu3       | LM24               | –                    | –               |
|                                           | 36            | –                | –                | G-AISI10Mg        | LM9                | –                    | –               |
| <b>S(m)</b><br>Matériaux haute résistance | 36            | –                | –                | G-AISI12          | LM6                | –                    | –               |
|                                           | 19            | 330              | 1.4864           | X12NiCrSi         | –                  | Z12NCS35.16          | –               |
|                                           | 19            | –                | 1.4865           | G-X40NiCrSi       | 330C11             | –                    | XG50NiCr        |
|                                           | 19            | 5.390 A          | 2.4603           | –                 | –                  | NC22FeD              | –               |
|                                           | 19            | –                | 2.4630           | NiCr20Ti          | HR5, 203-4         | NC20T                | –               |
|                                           | 19            | 5666             | 2.4856           | NiCr22Mo9N        | –                  | NC22FeDNB            | –               |
|                                           | 19            | 5537 C           | LW2.496          | CoCr20W15         | –                  | KC20WN               | –               |
|                                           | 19            | 4676             | 2.4375           | NiCu30Al          | 3072-76            | –                    | –               |
|                                           | 19            | –                | 2.4631           | NiCr20TiAk        | Hr40,601           | NC20TA               | –               |
|                                           | 19            | AMS 5399         | 2.4973           | NiCr19Co11        | –                  | NC19KDT              | –               |
|                                           | 21            | 5391             | LW2.467          | S-NiCr13Al6       | 3146-3             | NC12AD               | –               |
|                                           | 21            | 5660             | LW2.466          | NiCr19Fe19        | HR8                | NC19FeNb             | –               |
|                                           | 21            | 5383             | LW2.466          | NiCr19Fe19        | –                  | NC20K14              | –               |
|                                           | 21            | –                | –                | CoCr22W14         | –                  | KC22WN               | –               |
|                                           | 21            | –                | LW2.467          | NiCo15Cr10        | –                  | –                    | –               |
|                                           | 23            | –                | –                | TiAl14Mo4Sn4Si0.5 | –                  | –                    | –               |
|                                           | 23            | –                | –                | TiAl5Sn2.5        | TA14/17            | T-A5E                | –               |
|                                           | 23            | –                | –                | TiAl6V4           | TA10-13/TA2        | T-A6V                | –               |
|                                           | 23            | –                | –                | TiAl6V4ELI        | TA11               | –                    | –               |

| Suède<br>SS | Japon<br>JIS      | Russie<br>GOST                                    | Espagne<br>UNE                                           | Vardex No. |          |
|-------------|-------------------|---------------------------------------------------|----------------------------------------------------------|------------|----------|
| 2301        | SUS403            | 08Ch13                                            | F.3110-X6Cr13 ; F.8401-AM-X12Cr13                        | 12         | <b>M</b> |
| –           | –                 | 08Ch13                                            | F.3110-X6Cr13 ; F.8401-AM-X12Cr13                        | 12         |          |
| 2302        | SUS410            | 12Ch13 ; 15Ch13L                                  | F.3401-X10Cr13                                           | 12         |          |
| 2320        | SUS430            | 12Ch17                                            | F.3113-X6Cr17                                            | 12         |          |
| –           | SCS2              | 20Ch13L                                           | –                                                        | 12         |          |
| 2304        | SUS420J2          | 40Ch13                                            | F.3405-X45Cr13                                           | 12         |          |
| 2321        | SUS431            | 20Ch17N2                                          | F.3427-X19CrNi172                                        | 12         |          |
| 2383        | SUS430F           | –                                                 | F.3117-X10CrS17 ; F.3413-X14CrMoS17                      | 12         |          |
| 2325        | SUS434            | –                                                 | F.3116-X6CrMo171                                         | 12         |          |
| –           | SCS5              | –                                                 | –                                                        | 12         |          |
| –           | SCS14             | 07Ch18N10G2S2M2L                                  | F.8414-AM-X7CrNiMo2010                                   | 12         |          |
| –           | SUH1              | 40Ch9S2                                           | F.3220-X45CrSi09-03                                      | 12         |          |
| –           | SUS405            | 10Ch13SJu                                         | F.3152-X10CrAl13                                         | 12         |          |
| –           | SUH21             | 15Ch18SJu                                         | F.3153-X10CrAl18                                         | 11         |          |
| –           | SUH4              | –                                                 | F.3222-X80CrSiNi20-02                                    | 12         |          |
| 2322        | SUH446            | –                                                 | F.3154-X10CrAl24                                         | 11         |          |
| 2332        | SUS304            | 08Ch18N10                                         | F.3551-X5CrNi1811; F.3541-X5CrNi1810 ; F.3504-X6CrNi1910 | 13         |          |
| 2346        | SUS303            | –                                                 | F.3508-X10CrNiS18-09                                     | 13         |          |
| 2352        | SCS19; SUS304L    | 03Ch18N11                                         | F.3503-X2CrNi1810                                        | 13         |          |
| 2333        | SCS13             | 07Ch18N9L                                         | –                                                        | 13         |          |
| 2331        | SUS301            | –                                                 | F.3517-X12CrNi177                                        | 13         |          |
| 2371        | SUS304LN          | –                                                 | F.3541-X2CrNi1810                                        | 13         |          |
| 2347        | SUS316            | –                                                 | F.3534-X5CrNiMo17122                                     | 13         |          |
| 2375        | SUS316LN          | –                                                 | F.3543-X2CrNiMo17133                                     | 13         |          |
| 2353        | SCS16             | 03Ch17N14M3                                       | F.3533-X2CrNiMo17132                                     | 13         |          |
| 2367        | SUS317L           | –                                                 | F.3539-X2CrNiMo18164                                     | 13         |          |
| 2324        | SUS329L;          | –                                                 | F.3309-X8CrNiMo27-05; F.3552-X8CrNiMo266                 | 13         |          |
| 58B         | SUS321            | 06Ch18N10T; 08Ch18N10T;<br>09Ch18N10T; 12Ch18N10T | F.3523-X6CrNiTi1810                                      | 12         |          |
| 2338        | SUS347            | 08Ch18N12B                                        | F.3524-X6CrNiNb1810                                      | 12         |          |
| 2350        | –                 | 10Ch17N13M2T                                      | F.3535-X6CrNiMoTi17122                                   | 12         |          |
| –           | SCS22             | –                                                 | –                                                        | 12         |          |
| –           | –                 | –                                                 | –                                                        | 12         |          |
| –           | SUH309            | 20Ch20N14S2                                       | F.3312-X15CrNiSi20-12                                    | 13         |          |
| 2361        | SUH310            | 20Ch23N18                                         | –                                                        | 13         |          |
| –           | SUH330            | –                                                 | F.3313-X12CrNiSi36-16                                    | 13         |          |
| –           | SCH15             | –                                                 | –                                                        | 13         |          |
| –           | SUH35,SUH36,SU321 | 55Ch20G9AN4                                       | F.3217-X53CrMnNiN21-09                                   | 13         |          |
| –           | –                 | –                                                 | –                                                        | 13         |          |
| 01 10       | –                 | C410                                              | FG10                                                     | 30         | <b>K</b> |
| 01 15       | –                 | C415                                              | FG15                                                     | 30         |          |
| 01 20       | –                 | C420                                              | FG20                                                     | 30         |          |
| 01 25       | –                 | C425                                              | FG25                                                     | 29         |          |
| 01 30       | –                 | C430                                              | FG30                                                     | 29         |          |
| 01 35       | –                 | C435                                              | FG35                                                     | 29         |          |
| 01 40       | –                 | C440                                              | –                                                        | 29         |          |
| MB          | –                 | –                                                 | –                                                        | 29         |          |
| ISO -215    | –                 | –                                                 | –                                                        | 29         |          |
| 523         | –                 | –                                                 | –                                                        | 29         |          |
| 07 17-02    | –                 | VC42-12                                           | –                                                        | 30         |          |
| 07 17-12    | –                 | VC42-12                                           | –                                                        | 30         |          |
| 07 17-15    | –                 | –                                                 | –                                                        | 30         |          |
| 07 27-02    | –                 | VC50-2                                            | –                                                        | 31         |          |
| 07 32-03    | –                 | VC60-2                                            | –                                                        | 31         |          |
| 07 37-01    | –                 | VC70-2                                            | –                                                        | 31         |          |
| 07 72       | –                 | –                                                 | –                                                        | 31         |          |
| 07 76       | –                 | –                                                 | –                                                        | 31         |          |
| –           | –                 | –                                                 | –                                                        | 31         |          |
| 08 15       | –                 | –                                                 | –                                                        | 28         |          |
| 08 52       | –                 | –                                                 | –                                                        | 29         |          |
| 08 54       | –                 | –                                                 | –                                                        | 29         |          |
| 08 58       | –                 | –                                                 | –                                                        | 29         |          |
| 08 62       | –                 | –                                                 | –                                                        | 29         |          |
| 4260        | –                 | –                                                 | –                                                        | 36         | <b>N</b> |
| 4247        | –                 | –                                                 | –                                                        | 36         |          |
| 4250        | –                 | –                                                 | –                                                        | 36         |          |
| 4253        | –                 | –                                                 | –                                                        | 36         |          |
| 4261        | –                 | –                                                 | –                                                        | 36         | <b>S</b> |
| –           | SUH 330           | –                                                 | F.3313-X12CrNiSi36-16                                    | 19         |          |
| –           | SCH 15            | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 19         |          |
| –           | –                 | –                                                 | –                                                        | 21         |          |
| –           | –                 | –                                                 | –                                                        | 21         |          |
| –           | –                 | –                                                 | –                                                        | 21         |          |
| –           | –                 | –                                                 | –                                                        | 21         |          |
| –           | –                 | –                                                 | –                                                        | 21         |          |
| –           | –                 | –                                                 | –                                                        | 23         |          |
| –           | –                 | –                                                 | –                                                        | 23         |          |
| –           | –                 | –                                                 | –                                                        | 23         |          |

# Problèmes d'usinage et solutions

|                                                                                     | Problème                           | Cause possible                                                  | Solution                                                        |
|-------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
|    | Usure importante du flanc          | Vitesse de coupe trop élevée ----->                             | Réduire la vitesse de coupe / utiliser une nuance revêtue       |
|                                                                                     |                                    | Profondeur de coupe trop faible / passes trop nombreuses -----> | Diminuer le nombre de passes                                    |
|                                                                                     |                                    | Nuance de carbure inadéquate ----->                             | Utiliser une nuance de carbure revêtue                          |
|                                                                                     |                                    | Arrosage insuffisant ----->                                     | Augmenter le débit d'arrosage                                   |
|    | Usure inégale de l'arrête de coupe | Angle d'hélice incorrect ----->                                 | Choisir une sous-plaquette adéquate                             |
|                                                                                     |                                    | Méthode de décalage incorrecte ----->                           | Corriger l'angle de décalage programmé ou décaler en alternant  |
|    | Déformation plastique              | Profondeur de coupe trop importante ----->                      | Diminuer la profondeur de coupe / augmenter le nombre de passes |
|                                                                                     |                                    | Refroidissement insuffisant ----->                              | Augmenter le débit d'arrosage                                   |
|                                                                                     |                                    | Vitesse de coupe trop élevée ----->                             | Réduire la vitesse de coupe                                     |
|                                                                                     |                                    | Nuance de carbure inadéquate ----->                             | Utiliser une nuance de carbure plus tenace                      |
|                                                                                     |                                    | Rayon de pointe trop petit ----->                               | Utiliser une plaquette d'un rayon plus important, si possible   |
|   | Ecaillage de l'arrête de coupe     | Profondeur de coupe trop importante ----->                      | Diminuer la profondeur de coupe / augmenter le nombre de passes |
|                                                                                     |                                    | Déformation plastique de la plaquette ----->                    | Utiliser une nuance de carbure plus tenace                      |
|                                                                                     |                                    | Refroidissement insuffisant ----->                              | Augmenter le débit d'arrosage et / ou corriger sa direction     |
|                                                                                     |                                    | Nuance de carbure inadéquate ----->                             | Utiliser une nuance de carbure plus tenace                      |
|                                                                                     |                                    | Instabilité ----->                                              | Contrôler la stabilité de l'ensemble                            |
|  | Arrêtes rapportées                 | Vitesse de coupe incorrecte ----->                              | Modifier la vitesse de coupe                                    |
|                                                                                     |                                    | Nuance de carbure inadéquate ----->                             | Utiliser une nuance de carbure plus tenace                      |
|  | Profil du filet trop étroit        | L'outil n'est pas à la hauteur de pointe --->                   | Corriger la hauteur de l'outil                                  |
|                                                                                     |                                    | La plaquette n'usine pas le sommet du filet ----->              | Contrôler le diamètre de la pièce                               |
|                                                                                     |                                    | La plaquette est usée ----->                                    | Changer l'arrête de coupe plus tôt                              |
|  | Mauvais état de surface            | Vitesse de coupe insuffisante ----->                            | Augmenter la vitesse de coupe                                   |
|                                                                                     |                                    | Mauvaise Sous-plaquette ----->                                  | Choisir la sous-plaquette adéquate                              |
|                                                                                     |                                    | Méthode de décalage incorrecte ----->                           | Corriger l'angle de décalage programmé                          |



# Gorge



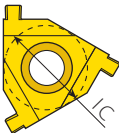
> Plaquettes

# PLAQUETTES DE GORGE

|                                                                   |          |
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## Système de codification Vardex

### Plaquette à gorge

|                                                                                                                                                                                    |        |                                                                                                              |                                       |                                                         |                                                                                                                                                    |                                                                           |                                            |          |                                                                 |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------|----------|-----------------------------------------------------------------|--|
| 5<br>1                                                                                                                                                                             | L<br>2 | I<br>3                                                                                                       | R<br>4                                | 1.1<br>5                                                | -<br>6                                                                                                                                             | D472<br>7                                                                 | -<br>6                                     | 1.3<br>8 | VKP<br>9                                                        |  |
| 1 - Taille plaquette<br>5.0L - IC5.0L<br>2 - IC1/4"<br>3 - IC3/8"<br>4 - IC1/2"<br>5 - IC5/8"<br> |        | 2 - Mod. plaquette<br>L<br> |                                       | 3 - Type de plaquette<br>E - Extérieur<br>I - Intérieur |                                                                                                                                                    | 4 - Plaquette RH / LH<br>R - Plaquette à Droite<br>L - Plaquette à Gauche |                                            |          |                                                                 |  |
| 5 - Largeur à gorge Std<br>0.8 - 2.15 (mm)                                                                                                                                         |        |                                                                                                              | 6 - Type profil<br>C - Profil complet |                                                         | 7 - Gorge standard<br>DIN 471 Partial<br>DIN 471<br>DIN 472 Partial<br>DIN 472<br>DIN 7993 Partial<br>DIN 7993<br>DIN 76 ST, DIN 76 SH<br>DIN 3770 |                                                                           | 8 - Profondeur de gorge<br>0.33 - 2.0 (mm) |          | 9 - Nuance carbure<br>VTX<br>VKP (pour Mini)<br>VHX (pour Mini) |  |

### Plaquette à gorge Micro - Double arrête de coupe

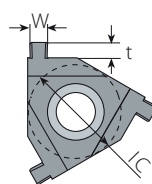
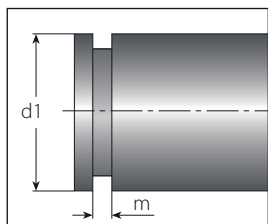
|                                                                                                              |                      |                                                  |                      |                                                                                                                          |                      |                                                                              |                              |                                                    |                        |                                  |  |
|--------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------|------------------------------|----------------------------------------------------|------------------------|----------------------------------|--|
| <b>4.0</b><br><b>1</b>                                                                                       | <b>S</b><br><b>2</b> | <b>I</b><br><b>3</b>                             | <b>R</b><br><b>4</b> | <b>0.7</b><br><b>5</b>                                                                                                   | <b>A</b><br><b>6</b> | <b>-</b>                                                                     | <b>D471/D472</b><br><b>7</b> | <b>-</b>                                           | <b>1.4</b><br><b>8</b> | <b>VMX</b><br><b>9</b>           |  |
| <b>1 - Diam. plaquette</b><br>3.0 - 3.0 mm<br>4.0 - 4.0 mm<br>6.0 - 6.0 mm<br>8.0 - 8.0 mm<br>10.0 - 10.0 mm |                      | <b>2 - Mod. plaquette</b><br>S - Plaquette Micro |                      | <b>3 - Type de plaquette</b><br>I - Intérieur                                                                            |                      | <b>4 - Plaquette RH/LH</b><br>R -Plaquette à Droite<br>L -Plaquette à Gauche |                              | <b>5 - Largeur de gorge Std</b><br>0.9 - 2.15 (mm) |                        |                                  |  |
| <b>6 - Longueur plaquette</b><br>A - Axiale<br>S - Courte<br>M - Moyenne<br>L - Longue                       |                      |                                                  |                      | <b>7 - Gorge standard</b><br>DIN 471<br>DIN 472<br>DIN 7993<br>DIN 76SH, DIN 76ST<br>DIN 3770S, DIN 3770D<br>DIN 471/472 |                      |                                                                              |                              | <b>8 - Profondeur de gorge</b><br>0.5 - 1.5 (mm)   |                        | <b>9 - Nuance carbure</b><br>VMX |  |

### Plaquette à gorge microscope - simple arrête de coupe

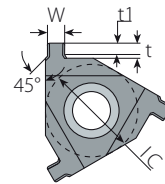
|                                                                                                                               |        |         |                      |                       |                           |                    |          |                  |                    |
|-------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------------------|-----------------------|---------------------------|--------------------|----------|------------------|--------------------|
| M<br>1                                                                                                                        | 4<br>2 | 42<br>3 | GS<br>4              | W<br>5                | 100<br>6                  | L16<br>7           | R/L<br>8 | VBX<br>9         |                    |
| 1 - Gamme de produit                                                                                                          |        |         | 2 - Taille plaquette |                       | 3 - Diam. mini de perçage |                    |          |                  |                    |
| M - Microscope                                                                                                                |        |         | 4, 5, 6, 7           |                       | 4.2 - 7.2                 |                    |          |                  |                    |
| 4 - Type d'application                                                                                                        |        |         |                      | 5-6 - Largeur / Rayon |                           | 7 - Longueur utile |          | 8 - LH ou RH     | 9 - Nuance carbure |
| GS - Gorge<br>GR - Gorge rayonnée<br>FG - Gorge frontale intérieure<br>FP - Gorge frontale extérieure<br>PP - Pre Tronçonnage |        |         |                      | Largeur               |                           | Rayon              |          | R - RH<br>L - LH | VBX                |
|                                                                                                                               |        |         |                      | 1.0-3.0 (mm)          |                           | 0.5-1.0 (mm)       |          |                  |                    |

# Circlips DIN 471 pour arbres

## Extérieur



Standard  
(Profil partiel)



Standard  
(Profil complet)

## Standard (profil partiel)



| Taille plaquette | Référence            | Standard | Dimensions mm |     | Sous-plaquette | Porte-outils |
|------------------|----------------------|----------|---------------|-----|----------------|--------------|
| IC               | RH                   | m (H13)  | W             | t   |                |              |
| 3/8"             | 3ER1.10-D471-1.30... | 1.10     | 1.19          | 1.3 | YE3M-1.5N      | AL...-3      |
|                  | 3ER1.30-D471-1.50... | 1.30     | 1.39          | 1.5 |                |              |
|                  | 3ER1.60-D471-1.85... | 1.60     | 1.69          | 1.8 |                |              |
|                  | 3ER1.85-D471-2.00... | 1.85     | 1.94          | 2.0 |                |              |

Profils également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.

## Standard (profil complet)

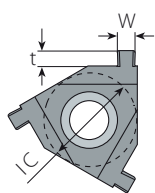
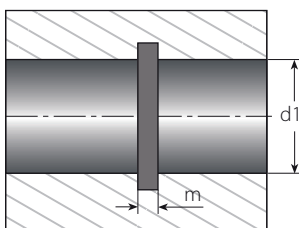


| Taille plaquette | Référence             | Standard | Dimensions mm |      |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|----------|---------------|------|------|------|----------------|--------------|
| IC               | RH                    | m (H13)  | d1            | W    | t1   | t    |                |              |
| 3/8"             | 3ER1.10C-D471-0.35... | 1.10     | 15            | 1.19 | 0.33 | 0.35 | YE3M-1.5N      | AL...-3      |
|                  | 3ER1.10C-D471-0.40... | 1.10     | 16-17         | 1.19 | 0.36 | 0.40 |                |              |
|                  | 3ER1.30C-D471-0.50... | 1.30     | 18-22         | 1.39 | 0.44 | 0.50 |                |              |
|                  | 3ER1.30C-D471-0.55... | 1.30     | 24-26         | 1.39 | 0.45 | 0.55 |                |              |
|                  | 3ER1.60C-D471-0.70... | 1.60     | 28-30         | 1.69 | 0.60 | 0.70 |                |              |
|                  | 3ER1.60C-D471-0.85... | 1.60     | 32-34         | 1.69 | 0.75 | 0.85 |                |              |
|                  | 3ER1.60C-D471-1.00... | 1.60     | 35            | 1.69 | 0.85 | 1.00 |                |              |
|                  | 3ER1.85C-D471-1.00... | 1.85     | 36-38         | 1.94 | 0.85 | 1.00 |                |              |
|                  | 3ER1.85C-D471-1.25... | 1.85     | 40-48         | 1.94 | 1.10 | 1.25 |                |              |
|                  | 3ER2.15C-D471-1.50... | 2.15     | 50-63         | 2.24 | 1.35 | 1.50 |                |              |

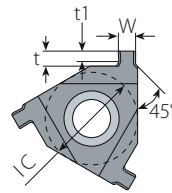
Profils également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.

# Circlips DIN 472 pour alésage

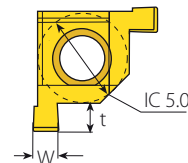
## Intérieur



**Standard  
(Profil partiel)**



**Standard  
(Profil complet)**



**Mini-L  
(Profil partiel)**

## Standard (profil partiel)



| Taille plaquette | Référence            | Standard | Dimensions mm |      |           | Sous-plaquette | Porte-outils |
|------------------|----------------------|----------|---------------|------|-----------|----------------|--------------|
| IC               | RH                   | m (H13)  | W             | t    |           |                |              |
| 3/8"             | 3IR1.10-D472-1.30... | 1.10     | 1.19          | 1.30 | Y13M-1.5N | AVR...3        |              |
|                  | 3IR1.30-D472-1.50... | 1.30     | 1.39          | 1.50 |           |                |              |
|                  | 3IR1.60-D472-1.80... | 1.60     | 1.69          | 1.80 |           |                |              |
|                  | 3IR1.85-D472-2.00... | 1.85     | 1.94          | 2.00 |           |                |              |

Profils également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.  
Pour les diamètres de passages minimum voir page 165.

## Standard (profil complet)



| Taille plaquette | Référence             | Standard | Dimensions mm |      |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|----------|---------------|------|------|------|----------------|--------------|
| IC               | RH                    | m (H13)  | d1            | W    | t1   | t    |                |              |
| 3/8"             | 3IR1.10C-D472-0.50... | 1.10     | 18-22         | 1.19 | 0.36 | 0.50 | Y13M-1.5N      | AVR...3      |
|                  | 3IR1.30C-D472-0.60... | 1.30     | 24-26         | 1.39 | 0.44 | 0.60 |                |              |
|                  | 3IR1.30C-D472-0.70... | 1.30     | 28-30         | 1.39 | 0.60 | 0.70 |                |              |
|                  | 3IR1.30C-D472-0.85... | 1.30     | 31-34         | 1.39 | 0.75 | 0.85 |                |              |
|                  | 3IR1.60C-D472-0.85... | 1.60     | 34            | 1.69 | 0.75 | 0.85 |                |              |
|                  | 3IR1.60C-D472-1.00... | 1.60     | 35-38         | 1.69 | 0.85 | 1.00 |                |              |
|                  | 3IR1.85C-D472-1.25... | 1.85     | 40-48         | 1.94 | 1.10 | 1.25 |                |              |
|                  | 3IR2.15C-D472-1.50... | 2.15     | 50-63         | 2.24 | 1.35 | 1.50 |                |              |

Profils également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.  
Pour les diamètres de passages minimum voir page 165.

## Mini- L (profil partiel)



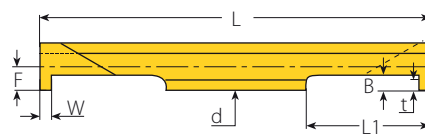
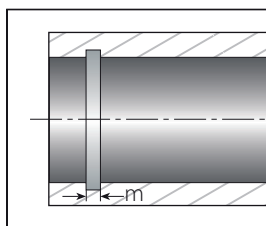
| Taille plaquette | Référence           | Standard | Dimensions mm |     | Diam. mini de perçage (mm) | Porte-outils |
|------------------|---------------------|----------|---------------|-----|----------------------------|--------------|
| IC               | RH                  | m (H13)  | W             | t   |                            |              |
| 5.0L             | 5LIR0.9-D472-0.7... | 0.9      | 0.99          | 0.7 | 8.0                        | .NVR10...5L  |
|                  | 5LIR1.1-D472-1.0... | 1.1      | 1.19          | 1.0 |                            |              |
|                  | 5LIR1.3-D472-1.5... | 1.3      | 1.39          | 1.5 |                            |              |



# Circlips DIN 471 pour alésage



## Intérieur



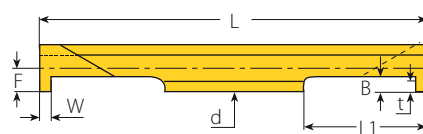
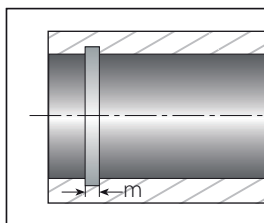
RH-Double arrête  
de coupe à droite

## Micro - double arrête de coupe

| Diam. plaque | Référence               | Standard | Dimensions mm |      |      |     |     |      | Diam. mini de perçage | Porte-outils |
|--------------|-------------------------|----------|---------------|------|------|-----|-----|------|-----------------------|--------------|
| d (mm)       | RH                      | m (H13)  | W             | L1   | L    | B   | t   | F    | mm                    |              |
| 3.0          | 3.0SIR0.90S-D472-0.5... | 0.90     | 0.99          | 9.0  | 36.0 | 0.8 | 0.5 | 1.40 | 3.2                   | SMC.-3.0     |
|              | 3.0SIR0.90M-D472-0.5... | 0.90     | 0.99          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 3.0SIR1.10S-D472-0.5... | 1.10     | 1.19          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 3.0SIR1.10M-D472-0.5... | 1.10     | 1.19          | 16.0 | 50.0 |     |     |      |                       |              |
| 4.0          | 4.0SIR0.90S-D472-1.1... | 0.90     | 0.99          | 9.0  | 36.0 | 1.4 | 1.1 | 1.90 | 4.1                   | SMC.-4.0     |
|              | 4.0SIR0.90M-D472-1.1... | 0.90     | 0.99          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 4.0SIR0.90L-D472-1.1... | 0.90     | 0.99          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 4.0SIR1.10S-D472-1.1... | 1.10     | 1.19          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 4.0SIR1.10M-D472-1.1... | 1.10     | 1.19          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 4.0SIR1.10L-D472-1.1... | 1.10     | 1.19          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 4.0SIR1.30S-D472-1.1... | 1.30     | 1.39          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 4.0SIR1.30M-D472-1.1... | 1.30     | 1.39          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 4.0SIR1.30L-D472-1.1... | 1.30     | 1.39          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 4.0SIR1.60S-D472-1.1... | 1.60     | 1.69          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 4.0SIR1.60M-D472-1.1... | 1.60     | 1.69          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 4.0SIR1.60L-D472-1.1... | 1.60     | 1.69          | 21.0 | 60.0 |     |     |      |                       |              |
| 6.0          | 6.0SIR0.90S-D472-1.5... | 0.90     | 0.99          | 9.0  | 36.0 | 1.8 | 1.5 | 2.90 | 6.1                   | SMC.-6.0     |
|              | 6.0SIR0.90M-D472-1.5... | 0.90     | 0.99          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 6.0SIR0.90L-D472-1.5... | 0.90     | 0.99          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 6.0SIR1.10S-D472-1.5... | 1.10     | 1.19          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 6.0SIR1.10M-D472-1.5... | 1.10     | 1.19          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 6.0SIR1.10L-D472-1.5... | 1.10     | 1.19          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 6.0SIR1.30S-D472-1.5... | 1.30     | 1.39          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 6.0SIR1.30M-D472-1.5... | 1.30     | 1.39          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 6.0SIR1.30L-D472-1.5... | 1.30     | 1.39          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 6.0SIR1.60S-D472-1.5... | 1.60     | 1.69          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 6.0SIR1.60M-D472-1.5... | 1.60     | 1.69          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 6.0SIR1.60L-D472-1.5... | 1.60     | 1.69          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 6.0SIR1.85S-D472-1.5... | 1.85     | 1.94          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 6.0SIR1.85M-D472-1.5... | 1.85     | 1.94          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 6.0SIR1.85L-D472-1.5... | 1.85     | 1.94          | 21.0 | 60.0 |     |     |      |                       |              |
|              | 6.0SIR2.15S-D472-1.5... | 2.15     | 2.24          | 9.0  | 36.0 |     |     |      |                       |              |
|              | 6.0SIR2.15M-D472-1.5... | 2.15     | 2.24          | 16.0 | 50.0 |     |     |      |                       |              |
|              | 6.0SIR2.15L-D472-1.5... | 2.15     | 2.24          | 21.0 | 60.0 |     |     |      |                       |              |

Suite à la page suivante ►

## Intérieur



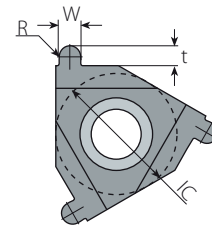
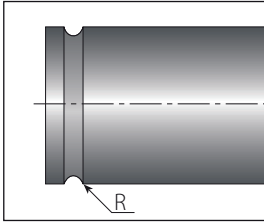
RH-Double arrête  
de coupe à droite

## Micro - double arrête de coupe (Suite)

| Diam. plaque | Référence                | Standard | Dimensions mm |    |    |     |     |     | Diam. mini de perçage | Porte-outils |
|--------------|--------------------------|----------|---------------|----|----|-----|-----|-----|-----------------------|--------------|
| d (mm)       | RH                       | m (H13)  | W             | L1 | L  | B   | t   | F   | mm                    |              |
| 8.0          | 8.0SIR1.10M-D472-2.0...  | 1.10     | 1.19          | 20 | 70 | 2.5 | 2.0 | 3.9 | 8.4                   | SMC...-8.0   |
|              | 8.0SIR1.30M-D472-2.0...  | 1.30     | 1.39          | 20 | 70 | 2.5 | 2.0 |     |                       |              |
|              | 8.0SIR1.60M-D472-2.5...  | 1.60     | 1.69          | 20 | 70 | 3.0 | 2.5 |     |                       |              |
|              | 8.0SIR1.85M-D472-2.5...  | 1.85     | 1.94          | 20 | 70 | 3.0 | 2.5 |     |                       |              |
|              | 8.0SIR2.15M-D472-3.0...  | 2.15     | 2.24          | 20 | 70 | 3.5 | 3.0 |     |                       |              |
|              | 8.0SIR2.65M-D472-3.5...  | 2.65     | 2.74          | 20 | 70 | 4.0 | 3.5 |     |                       |              |
|              | 8.0SIR3.15M-D472-3.5...  | 3.15     | 3.28          | 20 | 70 | 4.0 | 3.5 |     |                       |              |
| 10.0         | 10.0SIR1.30M-D472-3.5... | 1.30     | 1.39          | 25 | 80 | 4.0 | 3.5 | 4.9 | 10.4                  | SMC...-10.0  |
|              | 10.0SIR1.60M-D472-3.5... | 1.60     | 1.69          | 25 | 80 |     |     |     |                       |              |
|              | 10.0SIR1.85M-D472-3.5... | 1.85     | 1.94          | 25 | 80 |     |     |     |                       |              |
|              | 10.0SIR2.15M-D472-3.5... | 2.15     | 2.24          | 25 | 80 |     |     |     |                       |              |
|              | 10.0SIR2.65M-D472-3.5... | 2.65     | 2.74          | 25 | 80 |     |     |     |                       |              |
|              | 10.0SIR3.15M-D472-3.5... | 3.15     | 3.28          | 25 | 80 |     |     |     |                       |              |
|              | 10.0SIR4.15M-D472-3.5... | 4.15     | 4.28          | 25 | 80 |     |     |     |                       |              |
|              | 10.0SIR5.15M-D472-3.5... | 5.15     | 5.28          | 25 | 80 |     |     |     |                       |              |

## DIN 7993 Pour gorges rondes

### Extérieur



Standard  
(Profil partiel)

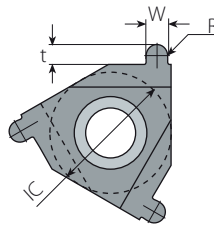
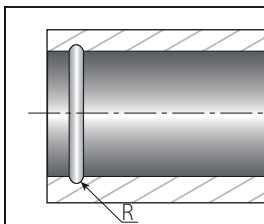
### Standard (profil partiel pour arbres)



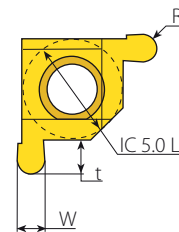
| Taille plaquette | Référence             | Dimensions mm |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|---------------|------|------|----------------|--------------|
| IC               | RH                    | R             | W    | t    |                |              |
| 3/8"             | 3ER0.40-D7993-0.60... | 0.40          | 0.80 | 0.60 | YE3M-1.5N      | AL..-3       |
|                  | 3ER0.60-D7993-0.80... | 0.60          | 1.20 | 0.80 |                |              |
|                  | 3ER0.90-D7993-1.10... | 0.90          | 1.80 | 1.10 |                |              |
|                  | 3ER1.00-D7993-1.20... | 1.00          | 2.00 | 1.20 |                |              |

Profil également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.

### Intérieur



Standard  
(Profil partiel)



Mini-L  
(Profil partiel)

### Standard (profil partiel pour alésage)



| Taille plaquette | Référence             | Dimensions mm |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|---------------|------|------|----------------|--------------|
| IC               | RH                    | R             | W    | t    |                |              |
| 3/8"             | 3IR0.60-D7993-0.80... | 0.60          | 1.20 | 0.80 | YI3M-1.5N      | AVR..-3      |
|                  | 3IR0.90-D7993-1.10... | 0.90          | 1.80 | 1.10 |                |              |
|                  | 3IR1.00-D7993-1.20... | 1.00          | 2.00 | 1.20 |                |              |

Profil également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.  
Pour les diamètres de passages minimum voir page 165.

### Mini-L (profil partiel pour alésage)

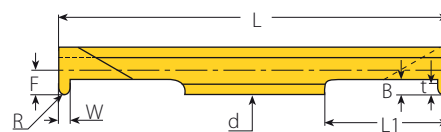
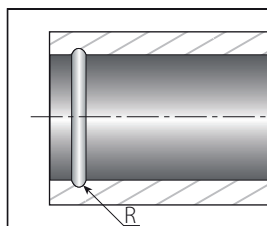


| Taille plaquette | Référence            | Dimensions mm |     |     | Diam. mini de perçage | Porte-outils |
|------------------|----------------------|---------------|-----|-----|-----------------------|--------------|
| IC               | RH                   | R             | W   | t   | mm                    |              |
| 5.0L             | 5LIR0.4-D7993-0.8... | 0.4           | 0.8 | 0.8 | 8.0                   | .NVR10.-5L   |
|                  | 5LIR0.6-D7993-1.0... | 0.6           | 1.2 | 1.0 |                       |              |

# DIN 7993 Pour gorges rondes



## Intérieur



RH-Double arrête  
de coupe à droite

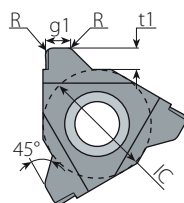
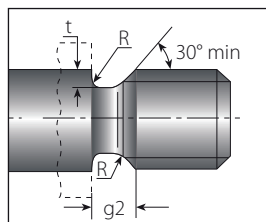
## Micro (profil partiel) - double arrête de coupe

| Diam. plaque            | Référence                | Standard                | Dimensions mm |      |      |      |     | Diam. mini de perçage |      | Porte-outils |
|-------------------------|--------------------------|-------------------------|---------------|------|------|------|-----|-----------------------|------|--------------|
| d (mm)                  | RH                       | R                       | W             | L1   | L    | B    | t   | F                     | mm   |              |
| 3.0                     | 3.0SIR0.4S-D7993-0.6...  | 0.40                    | 0.80          | 9.0  | 36.0 | 0.8  | 0.6 | 1.40                  | 3.2  | SMC..-3.0    |
|                         | 3.0SIR0.4M-D7993-0.6...  | 0.40                    | 0.80          | 16.0 | 50.0 |      |     |                       |      |              |
| 4.0                     | 4.0SIR0.4S-D7993-0.6...  | 0.40                    | 0.80          | 9.0  | 36.0 | 0.9  | 0.6 | 1.90                  | 4.1  | SMC..-4.0    |
|                         | 4.0SIR0.4M-D7993-0.6...  | 0.40                    | 0.80          | 16.0 | 50.0 |      |     |                       |      |              |
|                         | 4.0SIR0.4L-D7993-0.6...  | 0.40                    | 0.80          | 21.0 | 60.0 |      |     |                       |      |              |
|                         | 4.0SIR0.6S-D7993-0.8...  | 0.60                    | 1.20          | 9.0  | 36.0 | 1.1  | 0.8 |                       |      |              |
|                         | 4.0SIR0.6M-D7993-0.8...  | 0.60                    | 1.20          | 16.0 | 50.0 |      |     |                       |      |              |
|                         | 4.0SIR0.6L-D7993-0.8...  | 0.60                    | 1.20          | 21.0 | 60.0 |      |     |                       |      |              |
|                         | 4.0SIR0.9S-D7993-1.1...  | 0.90                    | 1.80          | 9.0  | 36.0 | 1.4  | 1.1 |                       |      |              |
|                         | 4.0SIR0.9M-D7993-1.1...  | 0.90                    | 1.80          | 16.0 | 50.0 |      |     |                       |      |              |
|                         | 4.0SIR0.9L-D7993-1.1...  | 0.90                    | 1.80          | 21.0 | 60.0 |      |     |                       |      |              |
|                         | 6.0                      | 6.0SIR0.9S-D7993-1.1... | 0.90          | 1.80 | 9.0  | 36.0 | 1.4 |                       |      |              |
| 6.0SIR0.9M-D7993-1.1... |                          | 0.90                    | 1.80          | 16.0 | 50.0 |      |     |                       |      |              |
| 6.0SIR0.9L-D7993-1.1... |                          | 0.90                    | 1.80          | 21.0 | 60.0 |      |     |                       |      |              |
| 6.0SIR1.0S-D7993-1.2... |                          | 1.00                    | 2.00          | 9.0  | 36.0 | 1.5  | 1.2 |                       |      |              |
| 6.0SIR1.0M-D7993-1.2... |                          | 1.00                    | 2.00          | 16.0 | 50.0 |      |     |                       |      |              |
| 6.0SIR1.0L-D7993-1.2... |                          | 1.00                    | 2.00          | 21.0 | 60.0 |      |     |                       |      |              |
| 6.0SIR1.1S-D7993-1.3... |                          | 1.10                    | 2.20          | 9.0  | 36.0 | 1.6  | 1.3 |                       |      |              |
| 6.0SIR1.1M-D7993-1.3... |                          | 1.10                    | 2.20          | 16.0 | 50.0 |      |     |                       |      |              |
| 6.0SIR1.1L-D7993-1.3... |                          | 1.10                    | 2.20          | 21.0 | 60.0 |      |     |                       |      |              |
| 8.0                     |                          | 8.0SIR0.9M-D7993-2.0... | 0.90          | 1.80 | 20.0 | 70.0 | 2.5 | 2.0                   | 3.90 | 8.4          |
|                         | 8.0SIR1.1M-D7993-2.0...  | 1.10                    | 2.20          | 20.0 | 70.0 |      |     |                       |      |              |
|                         | 8.0SIR1.4M-D7993-2.0...  | 1.40                    | 2.80          | 20.0 | 70.0 |      |     |                       |      |              |
| 10.0                    | 10.0SIR1.4M-D7993-2.9... | 1.40                    | 2.80          | 25.0 | 80.0 | 3.4  | 2.9 | 4.90                  | 10.4 | SMC..-10.0   |
|                         | 10.0SIR1.8M-D7993-2.9... | 1.80                    | 3.60          | 25.0 | 80.0 |      |     |                       |      |              |

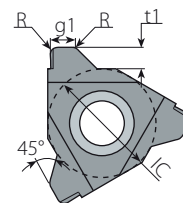
# DIN 76 Sortie de filet

(pour filets ISO Métrique conformément à DIN 13)

## Extérieur



Normale - Type A



Courte - Type B

## Standard (normale - Type A)

| Taille plaquette | Référence             | Pas  | Dimensions mm |      |      |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|------|---------------|------|------|------|------|----------------|--------------|
| IC               | RH                    | mm   | R             | g1   | g2   | t    | t1   |                |              |
| 3/8"             | 3ER0.50-D76ST-0.40... | 0.50 | 0.2           | 1.10 | 1.50 | 0.40 | 2.50 | YE3M-1.5N      | AL..-3       |
|                  | 3ER0.60-D76ST-0.50... | 0.60 | 0.4           | 1.30 | 1.80 | 0.50 | 2.40 |                |              |
|                  | 3ER0.70-D76ST-0.55... | 0.70 | 0.4           | 1.55 | 2.10 | 0.55 | 2.20 |                |              |
|                  | 3ER0.80-D76ST-0.65... | 0.80 | 0.4           | 1.75 | 2.40 | 0.65 | 2.10 |                |              |
|                  | 3ER1.00-D76ST-0.80... | 1.00 | 0.6           | 2.20 | 3.00 | 0.80 | 1.90 |                |              |
| 5/8"             | 5ER1.25-D76ST-1.00... | 1.25 | 0.6           | 2.80 | 3.80 | 1.00 | 3.60 | YE5M-1.5N      | AL..-5       |
|                  | 5ER1.50-D76ST-1.15... | 1.50 | 0.8           | 3.35 | 4.50 | 1.15 | 3.30 |                |              |
|                  | 5ER1.75-D76ST-1.30... | 1.75 | 1.0           | 4.00 | 5.30 | 1.30 | 3.00 |                |              |
|                  | 5ER2.00-D76ST-1.50... | 2.00 | 1.0           | 4.50 | 6.00 | 1.50 | 2.70 |                |              |



## Standard (courte - Type B)

| Taille plaquette | Référence             | Pas  | Dimensions mm |      |      |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|------|---------------|------|------|------|------|----------------|--------------|
| IC               | RH                    | mm   | R             | g1   | g2   | t    | t1   |                |              |
| 3/8"             | 3ER1.00-D76SH-0.80... | 1.00 | 0.6           | 1.20 | 2.00 | 0.80 | 2.50 | YE3M-1.5N      | AL..-3       |
|                  | 3ER1.25-D76SH-1.00... | 1.25 | 0.6           | 1.50 | 2.50 | 1.00 | 2.30 |                |              |
|                  | 3ER1.50-D76SH-1.15... | 1.50 | 0.8           | 1.85 | 3.00 | 1.15 | 2.10 |                |              |
|                  | 3ER1.75-D76SH-1.30... | 1.75 | 1.0           | 2.20 | 3.50 | 1.30 | 1.90 |                |              |
| 5/8"             | 5ER2.00-D76SH-1.50... | 2.00 | 1.0           | 2.50 | 4.00 | 1.50 | 3.80 | YE5M-1.5N      | AL..-5       |
|                  | 5ER2.50-D76SH-1.80... | 2.50 | 1.2           | 3.20 | 5.00 | 1.80 | 3.50 |                |              |
|                  | 5ER3.00-D76SH-2.20... | 3.00 | 1.6           | 3.80 | 6.00 | 2.20 | 3.10 |                |              |

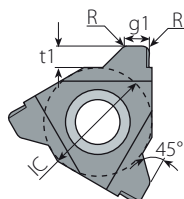
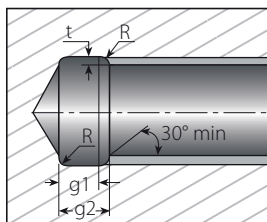


Profilis également disponibles en plaquettes de IC 1/4" et 1/2", sur demande.

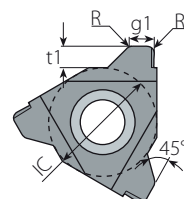
# DIN 76 Sortie de filet

(pour filets ISO Métrique conformément à DIN 13)

## Intérieur



Normale - type C



Court - Type D

## Standard (normale - Type C)



| Taille plaquette | Référence             | Pas  | Dimensions mm |      |      |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|------|---------------|------|------|------|------|----------------|--------------|
| IC               | RH                    | mm   | R             | g1   | g2   | t    | t1   |                |              |
| 3/8"             | 3IR0.50-D76ST-0.40... | 0.50 | 0.2           | 1.10 | 1.50 | 0.40 | 2.50 | Y13M-1.5N      | AVR...3      |
|                  | 3IR0.60-D76ST-0.50... | 0.60 | 0.4           | 1.30 | 1.80 | 0.50 | 2.40 |                |              |
|                  | 3IR0.70-D76ST-0.55... | 0.70 | 0.4           | 1.55 | 2.10 | 0.55 | 2.20 |                |              |
|                  | 3IR0.80-D76ST-0.65... | 0.80 | 0.4           | 1.75 | 2.40 | 0.65 | 2.10 |                |              |
|                  | 3IR1.00-D76ST-0.80... | 1.00 | 0.6           | 2.20 | 3.00 | 0.80 | 1.90 |                |              |

Profil également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.  
Pour les diamètres de passages minimum voir page 165.

## Standard (courte - Type D)



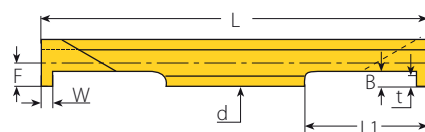
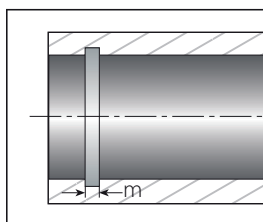
| Taille plaquette | Référence             | Pas  | Dimensions mm |      |      |      |      | Sous-plaquette | Porte-outils |
|------------------|-----------------------|------|---------------|------|------|------|------|----------------|--------------|
| IC               | RH                    | mm   | R             | g1   | g2   | t    | t1   |                |              |
| 3/8"             | 3IR1.00-D76SH-0.80... | 1.00 | 0.6           | 1.20 | 2.00 | 0.80 | 2.50 | Y13M-1.5N      | AVR...3      |
|                  | 3IR1.25-D76SH-1.00... | 1.25 | 0.6           | 1.50 | 2.50 | 1.00 | 2.30 |                |              |
|                  | 3IR1.50-D76SH-1.15... | 1.50 | 0.8           | 1.85 | 3.00 | 1.15 | 2.10 |                |              |
|                  | 3IR1.75-D76SH-1.30... | 1.75 | 1.0           | 2.20 | 3.50 | 1.30 | 1.90 |                |              |

Profil également disponibles en plaquettes de IC 1/4", 1/2" et 5/8", sur demande.  
Pour les diamètres de passages minimum voir page 165.

## DIN 3770 – Gorge



## Intérieur

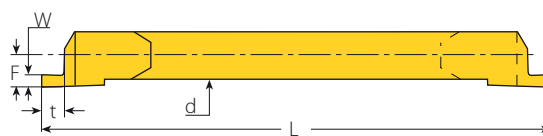
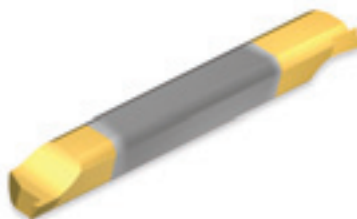
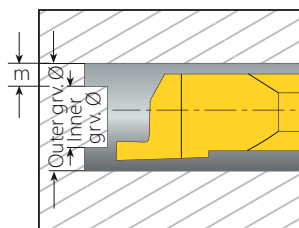


RH-Double arrête  
de coupe à droite

## Micro - double arrête de coupe

| Diam. plaquette | Référence                | Standard | Dimensions mm |      |      |     |     |     | Diam. mini de perçage | Porte-outils |
|-----------------|--------------------------|----------|---------------|------|------|-----|-----|-----|-----------------------|--------------|
| d (mm)          | RH                       | m (H13)  | W             | L1   | L    | B   | t   | F   | mm                    |              |
| 6.0             | 6.0SIR1.6S-D3770S-1.5... | 1.6      | 1.98          | 9.0  | 36.0 | 1.8 | 1.5 | 2.9 | 6.1                   | SMC...-6.0   |
|                 | 6.0SIR1.6M-D3770S-1.5... | 1.6      | 1.98          | 16.0 | 50.0 |     |     |     |                       |              |
|                 | 6.0SIR1.6L-D3770S-1.5... | 1.6      | 1.98          | 21.0 | 60.0 |     |     |     |                       |              |
|                 | 6.0SIR2.0S-D3770D-1.8... | 2.0      | 2.38          | 9.0  | 36.0 | 2.0 | 1.8 | 2.9 |                       |              |
|                 | 6.0SIR2.0M-D3770D-1.8... | 2.0      | 2.38          | 16.0 | 50.0 |     |     |     |                       |              |
|                 | 6.0SIR2.0L-D3770D-1.8... | 2.0      | 2.38          | 21.0 | 60.0 |     |     |     |                       |              |

## Intérieur



RH-Double arrête de coupe à droite

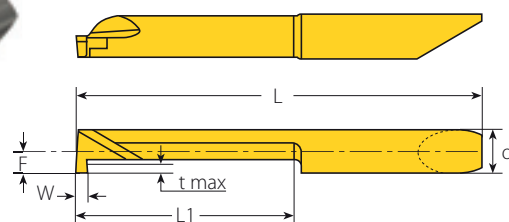
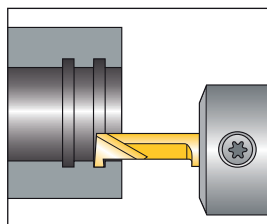
## Micro (Profile Partiel) - Double arrête de coupe

| Diam. plaque | Référence                    | Standard | Dimensions mm |     |    |      |             | Gorge intérieure Ø | Gorge extérieure Ø |
|--------------|------------------------------|----------|---------------|-----|----|------|-------------|--------------------|--------------------|
| d (mm)       | RH                           | m (H13)  | W             | t   | L  | F    | Douille     |                    |                    |
| 4.0          | 4.0SIR0.7A-D471/472-1.4...   | 0.70     | 0.77          | 1.4 | 50 | 1.40 | SMC...-4.0  | 3.50               | 5.00               |
|              | 4.0SIR0.8A-D471/472-1.5...   | 0.80     | 0.87          | 1.5 |    |      |             | 3.40               | 5.20               |
|              | 4.0SIR0.9A-D471/472-1.6...   | 0.90     | 0.97          | 1.6 |    |      |             | 3.30               | 5.30               |
|              | 4.0SIR1.1A-D471/472-1.8...   | 1.10     | 1.19          | 1.8 |    |      |             | 3.10               | 5.50               |
|              | 4.0SIR1.3A-D471/472-2.0...   | 1.30     | 1.39          | 2.0 |    |      |             | 2.90               | 5.70               |
|              | 4.0SIR1.6A-D471/472-2.3...   | 1.60     | 1.69          | 2.3 |    |      |             | 2.60               | 6.00               |
| 6.0          | 6.0SIR0.7A-D471/472-1.4...   | 0.70     | 0.77          | 1.4 | 50 | 1.90 | SMC...-6.0  | 5.50               | 7.00               |
|              | 6.0SIR0.8A-D471/472-1.5...   | 0.80     | 0.87          | 1.5 |    |      |             | 5.40               | 7.20               |
|              | 6.0SIR0.9A-D471/472-1.6...   | 0.90     | 0.97          | 1.6 |    |      |             | 5.30               | 7.30               |
|              | 6.0SIR1.1A-D471/472-1.8...   | 1.10     | 1.19          | 1.8 |    |      |             | 5.10               | 7.50               |
|              | 6.0SIR1.3A-D471/472-2.0...   | 1.30     | 1.39          | 2.0 |    |      |             | 4.90               | 7.70               |
|              | 6.0SIR1.6A-D471/472-2.3...   | 1.60     | 1.69          | 2.3 |    |      |             | 4.60               | 8.00               |
|              | 6.0SIR1.85A-D471/472-2.5...  | 1.85     | 1.94          | 2.5 |    |      |             | 4.40               | 8.20               |
|              | 6.0SIR2.15A-D471/472-2.8...  | 2.15     | 2.24          | 2.8 |    |      |             | 4.10               | 8.50               |
| 8.0          | 8.0SIR1.1A-D471/472-1.8...   | 1.10     | 1.19          | 1.8 | 70 | 3.95 | SMC...-8.0  | 8.06               | 10.44              |
|              | 8.0SIR1.3A-D471/472-2.0...   | 1.30     | 1.39          | 2.0 |    |      |             | 7.66               | 10.44              |
|              | 8.0SIR1.6A-D471/472-2.3...   | 1.60     | 1.69          | 2.3 |    |      |             | 7.06               | 10.44              |
|              | 8.0SIR1.85A-D471/472-2.5...  | 1.85     | 1.94          | 2.5 |    |      |             | 6.56               | 10.44              |
|              | 8.0SIR2.15A-D471/472-2.8...  | 2.15     | 2.24          | 2.8 |    |      |             | 5.96               | 10.44              |
|              | 8.0SIR2.65A-D471/472-3.3...  | 2.65     | 2.74          | 3.3 |    |      |             | 4.96               | 10.44              |
| 10.0         | 10.0SIR1.3A-D471/472-2.0...  | 1.30     | 1.39          | 2.0 | 80 | 4.95 | SMC...-10.0 | 9.66               | 12.44              |
|              | 10.0SIR1.6A-D471/472-2.3...  | 1.60     | 1.69          | 2.3 |    |      |             | 9.06               | 12.44              |
|              | 10.0SIR1.85A-D471/472-2.5... | 1.85     | 1.94          | 2.5 |    |      |             | 8.56               | 12.44              |
|              | 10.0SIR2.15A-D471/472-2.8... | 2.15     | 2.24          | 2.8 |    |      |             | 7.96               | 12.44              |
|              | 10.0SIR2.65A-D471/472-3.3... | 2.65     | 2.74          | 3.3 |    |      |             | 6.96               | 12.44              |
|              | 10.0SIR3.15A-D471/472-3.8... | 3.15     | 3.24          | 3.8 |    |      |             | 5.96               | 12.44              |
|              | 10.0SIR4.15A-D471/472-4.8... | 4.15     | 4.24          | 4.8 |    |      |             | 3.96               | 12.44              |

## Gorge



### Intérieur



RH-Simple arrête  
de coupe à droite

### Micro - simple arrête de coupe

microscope

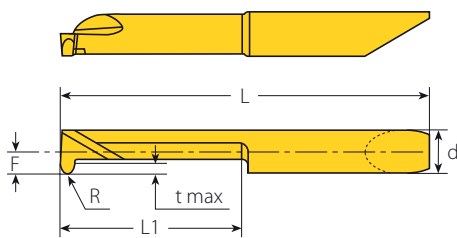
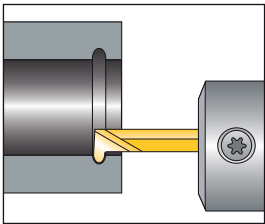
| Dimensions du gorge (mm) |                    | Diam. plaquette    | Référence          | Dimensions mm |                    | Diam. mini de perçage |     |              |    |    |     |     |           |
|--------------------------|--------------------|--------------------|--------------------|---------------|--------------------|-----------------------|-----|--------------|----|----|-----|-----|-----------|
| W± 0.025                 | t max              | d (mm)             | RH/LH              | L1            | L                  | F                     | mm  | Porte-outils |    |    |     |     |           |
| 1.0                      | 0.8                | 4.0                | M442GS W100 L10R/L | 10            | 35                 | 2.0                   | 4.2 | MHC ...-4    |    |    |     |     |           |
|                          |                    |                    | M442GS W100 L15R/L | 15            | 41                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M442GS W100 L20R/L | 20            | 46                 |                       |     |              |    |    |     |     |           |
| 1.0                      | 1.0                | 5.0                | M552GS W100 L10R/L | 10            | 35                 | 2.5                   | 5.2 | MHC ...-5    |    |    |     |     |           |
| M552GS W100 L15R/L       |                    |                    | 15                 | 41            |                    |                       |     |              |    |    |     |     |           |
| M552GS W100 L20R/L       |                    |                    | 20                 | 46            |                    |                       |     |              |    |    |     |     |           |
| 1.5                      |                    |                    | M552GS W150 L10R/L | 10            | 35                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M552GS W150 L15R/L | 15            | 41                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M552GS W150 L20R/L | 20            | 46                 |                       |     |              |    |    |     |     |           |
| 2.0                      |                    |                    | M552GS W200 L10R/L | 10            | 35                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M552GS W200 L15R/L | 15            | 41                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M552GS W200 L20R/L | 20            | 46                 |                       |     |              |    |    |     |     |           |
| 1.0                      | 1.8                | 6.0                | M662GS W100 L10R/L | 10            | 36                 | 3.0                   | 6.2 | MHC ...-6    |    |    |     |     |           |
|                          |                    |                    | M662GS W100 L15R/L | 15            | 42                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M662GS W100 L20R/L | 20            | 47                 |                       |     |              |    |    |     |     |           |
| M662GS W100 L30R/L       |                    |                    | 30                 | 56            |                    |                       |     |              |    |    |     |     |           |
| 1.5                      |                    |                    | M662GS W150 L10R/L | 10            | 36                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M662GS W150 L15R/L | 15            | 42                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M662GS W150 L20R/L | 20            | 47                 |                       |     |              |    |    |     |     |           |
| 2.0                      |                    |                    | M662GS W150 L30R/L | 30            | 56                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M662GS W200 L10R/L | 10            | 36                 |                       |     |              |    |    |     |     |           |
|                          |                    |                    | M662GS W200 L15R/L | 15            | 42                 |                       |     |              |    |    |     |     |           |
| 1.0                      |                    |                    | 2.5                | 7.0           | M772GS W100 L10R/L |                       |     |              | 10 | 36 | 3.5 | 7.2 | MHC ...-7 |
|                          |                    |                    |                    |               | M772GS W100 L15R/L |                       |     |              | 15 | 41 |     |     |           |
|                          | M772GS W100 L25R/L | 25                 |                    |               | 51                 |                       |     |              |    |    |     |     |           |
|                          | M772GS W100 L35R/L | 35                 |                    |               | 61                 |                       |     |              |    |    |     |     |           |
|                          | 1.5                | M772GS W150 L10R/L |                    |               | 10                 | 36                    |     |              |    |    |     |     |           |
|                          |                    | M772GS W150 L15R/L |                    |               | 15                 | 41                    |     |              |    |    |     |     |           |
|                          |                    | M772GS W150 L25R/L |                    |               | 25                 | 51                    |     |              |    |    |     |     |           |
|                          | 2.0                | M772GS W150 L35R/L |                    |               | 35                 | 61                    |     |              |    |    |     |     |           |
|                          |                    | M772GS W200 L10R/L |                    |               | 10                 | 36                    |     |              |    |    |     |     |           |
|                          |                    | M772GS W200 L15R/L |                    |               | 15                 | 41                    |     |              |    |    |     |     |           |
|                          | 2.0                | M772GS W200 L25R/L |                    |               | 25                 | 51                    |     |              |    |    |     |     |           |
|                          |                    | M772GS W200 L35R/L |                    |               | 35                 | 61                    |     |              |    |    |     |     |           |

Outil Microscope à gauche fourni à la demande (Exemple: M442GS W100L10L...)

Gorge rayonnée



Intérieur



RH-Simple arrête  
de coupe à droite

Micro - simple arrête de coupe

microscope

| Dimensions du gorge (mm) |       | Diam. plaque | Référence          | Dimensions (mm) |    |    |      | Diam. mini de perçage | Porte-outils |
|--------------------------|-------|--------------|--------------------|-----------------|----|----|------|-----------------------|--------------|
| W±0.025                  | t max | d (mm)       | RH/LH              | R               | L1 | L  | F    | mm                    |              |
| 1.0                      | 0.8   | 4.0          | M442GR R050 L15R/L | 0.5             | 15 | 39 | 1.95 | 4.2                   | MHC ..-4     |
| 1.0                      | 1.0   | 5.0          | M552GR R050 L20R/L | 0.5             | 20 | 46 | 2.45 | 5.2                   | MHC ..-5     |
| 1.5                      |       |              | M552GR R075 L20R/L | 0.75            |    | 46 |      |                       |              |
| 2.0                      |       |              | M552GR R100 L20R/L | 1.0             |    | 46 |      |                       |              |
| 1.0                      | 1.8   | 6.0          | M662GR R050 L25R/L | 0.5             | 25 | 52 | 2.95 | 6.2                   | MHC ..-6     |
| 1.5                      |       |              | M662GR R075 L25R/L | 0.75            |    | 52 |      |                       |              |
| 2.0                      |       |              | M662GR R100 L25R/L | 1.0             |    | 52 |      |                       |              |

Outil Microscope à gauche fourni à la demande (Exemple: M442GR R050L15L...)

Plaquettes à gorge

## Gorge frontale intérieur



### Micro - simple arrête de coupe

microscope

| Dimensions du gorge (mm) |       | Diam. plaque | Référence         | Dimensions mm |    |    |      | Diam. mini de perçage | Porte-outils |
|--------------------------|-------|--------------|-------------------|---------------|----|----|------|-----------------------|--------------|
| W±0.025                  | t max | d (mm)       | RH/LH             | R             | L1 | L  | F    | mm                    |              |
| 1.0                      | 2     | 6.0          | M662FG W10 L15R/L | 0.1           | 15 | 42 | 2.95 | 6.2                   | MHC ...-6    |
| 1.5                      | 3     |              | M662FG W15 L15R/L |               |    |    |      |                       |              |
| 2.0                      | 4     |              | M662FG W20 L15R/L |               |    |    |      |                       |              |
| 2.5                      | 5     |              | M662FG W25 L15R/L |               |    |    |      |                       |              |
| 3.0                      | 6     |              | M662FG W30 L15R/L |               |    |    |      |                       |              |

Plaquettes à gorge

## Gorge frontale extérieur



### Micro - simple arrête de coupe

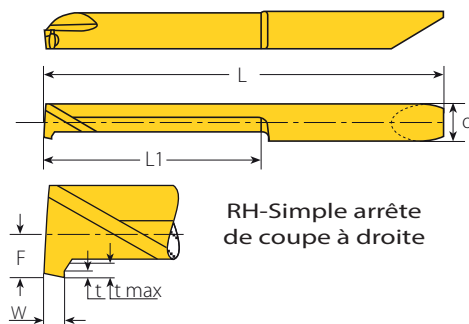
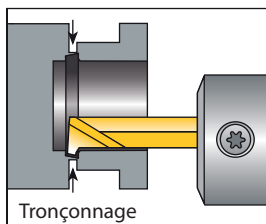
microscope

| Dimensions du gorge (mm) |       | Diam. plaque | Référence         | Dimensions mm |    |    |      | Diam. mini de perçage | Porte-outils |
|--------------------------|-------|--------------|-------------------|---------------|----|----|------|-----------------------|--------------|
| W±0.025                  | t max | d (mm)       | RH/LH             | R             | L1 | L  | F    | mm                    |              |
| 1.0                      | 2     | 6.0          | M662FP W10 L15R/L | 0.1           | 15 | 42 | 2.95 | 6.2                   | MHC ...-6    |
| 1.5                      | 3     |              | M662FP W15 L15R/L |               |    |    |      |                       |              |
| 2.0                      | 4     |              | M662FP W20 L15R/L |               |    |    |      |                       |              |
| 2.5                      | 5     |              | M662FP W25 L15R/L |               |    |    |      |                       |              |
| 3.0                      | 6     |              | M662FP W30 L15R/L |               |    |    |      |                       |              |

## Pre Tronçonnage



### Intérieur



### Micro - simple arrête de coupe

microscope

| Dimensions du gorge (mm) |       | Diam. plaque |                    | Référence |     | Dimensions (mm) |    | Diam. mini de perçage |     |              |
|--------------------------|-------|--------------|--------------------|-----------|-----|-----------------|----|-----------------------|-----|--------------|
| W±0.025                  | t max | d (mm)       | RH/LH              |           | t   | L1              | L  | F                     | mm  | Porte-outils |
| 1.0                      | 0.7   | 5.0          | M552PP W100 L15R/L |           | 0.3 | 15              | 41 | 2.45                  | 5.2 | MHC ..-5     |
|                          |       |              | M552PP W100 L20R/L |           |     | 20              | 46 |                       |     |              |
|                          |       |              | M552PP W100 L25R/L |           |     | 25              | 51 |                       |     |              |
|                          |       |              | M552PP W100 L30R/L |           |     | 30              | 55 |                       |     |              |

Outil Microscope à gauche fourni à la demande (Exemple: M662FP W10 L15L...)



# Gorge

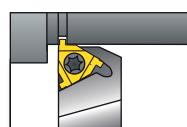


> Porte-outils

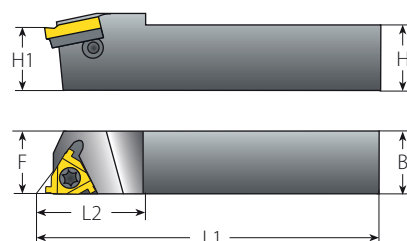
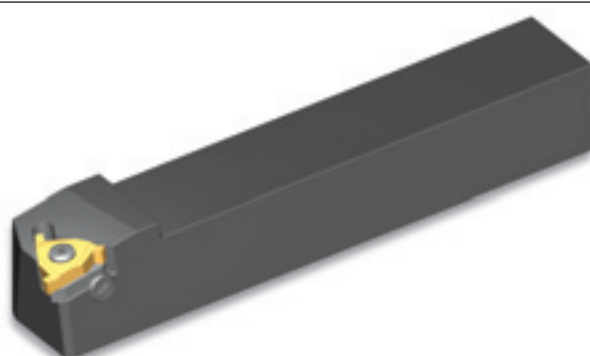
# PORTE-OUTILS DE GORGE

|                                    |          |
|------------------------------------|----------|
| ■ Extérieur Standard .....         | Page 164 |
| ■ Intérieur Standard .....         | Page 165 |
| ■ Intérieur Mini-L .....           | Page 166 |
| ■ Intérieur Mini-L Ajustable ..... | Page 166 |
| ■ Micro .....                      | Page 167 |
| ■ Microscope .....                 | Page 168 |

Pour le système de codification Vardex voir page 99.



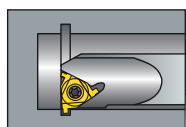
## Porte-outils extérieur



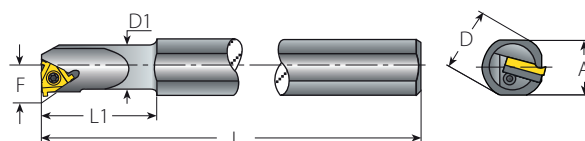
### Standard

| Standard      |           |               |    |       |      | Pièces détachées                                                                    |                                                                                       |                                                                                       |                                                                                       |
|---------------|-----------|---------------|----|-------|------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Taille plaque | Référence | Dimensions mm |    |       |      |  |  |  |  |
| IC            | RH        | H=H1=B        | F  | L1    | L2   | Vis plaque                                                                          | Vis sous-plaquette                                                                    | Clé torx                                                                              | Sous-plaquette RH                                                                     |
| 1/4"          | NL8-2     | 8             | 11 | 136.4 | 17.5 | SN2T                                                                                | -                                                                                     | K2T                                                                                   | -                                                                                     |
|               | NL10-2    | 10            | 11 | 70.0  | 17.5 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | NL12-2    | 12            | 12 | 80.0  | 17.5 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
| 3/8"          | AL3/8-3   | 9.52          | 16 | 63.6  | 20.5 | SA3T                                                                                | SY3T                                                                                  | K3T                                                                                   | YE3M-1.5N                                                                             |
|               | AL12-3    | 12            | 16 | 83.2  | 22.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | AL16-3    | 16            | 16 | 82.3  | 20.5 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | AL20-3    | 20            | 20 | 128.6 | 30.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | AL25-3    | 25            | 25 | 153.6 | 30.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
| 1/2"          | AL32-3    | 32            | 32 | 173.6 | 30.0 | SA4T                                                                                | SY4T                                                                                  | K4T                                                                                   | YE4M-1.5N                                                                             |
|               | AL25-4    | 25            | 25 | 155.7 | 36.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | AL32-4    | 32            | 32 | 175.7 | 36.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
| 5/8"          | AL40-4    | 40            | 40 | 205.7 | 36.0 | SA5T                                                                                | SY5T                                                                                  | K5T                                                                                   | YE5M-1.5N                                                                             |
|               | AL25-5    | 25            | 32 | 151.6 | 35.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | AL32-5    | 32            | 32 | 176.6 | 40.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | AL40-5    | 40            | 40 | 206.6 | 40.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|               | AL50-5    | 50            | 50 | 256.6 | 40.0 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |

\* Les porte-outils sont fournis avec des sous-plaquettes standard. Pour le rainage, merci d'utiliser les sous-plaquettes indiquées dans le tableau ci-dessus.



## Porte-outils intérieur

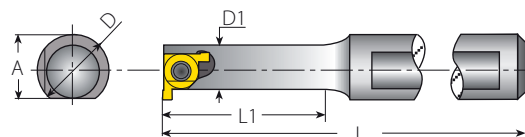
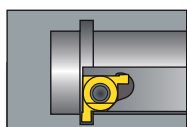


### Standard

| Taille<br>plaquette | Référence | Dimensions mm |     |    |    |      |      | Diam.<br>mini de<br>perçage | Pièces détachées |                    |          |                    |
|---------------------|-----------|---------------|-----|----|----|------|------|-----------------------------|------------------|--------------------|----------|--------------------|
|                     |           | A             | L   | L1 | D  | D1   | F    |                             | Vis plaquette    | Vis sous-plaquette | Clé torx | Sous-plaquette RH* |
| 1/4"                | NVR10D-2  |               | 100 |    | 10 | 10.0 | 7.3  | 13                          |                  |                    |          |                    |
|                     | NVR10-2   | 18.0          | 180 | 25 | 20 | 10.0 | 7.3  | 13                          | SN2T             | -                  | K2T      | -                  |
|                     | NVR13-2   | 18.0          | 180 | 32 | 20 | 13.0 | 8.9  | 16                          |                  |                    |          |                    |
| 3/8"                | NVR13-3   | 18.0          | 180 | 32 | 20 | 12.7 | 10.3 | 17                          |                  |                    |          |                    |
|                     | NVR16-3   | 18.0          | 180 | 40 | 20 | 16.0 | 11.5 | 20                          | SN3T             | -                  | K3T      | -                  |
|                     | NVR16D-3  | 15.2          | 150 | 32 | 16 | 16.0 | 11.3 | 20                          |                  |                    |          |                    |
|                     | AVR20-3   | 18.0          | 180 | 40 | 20 | 20.0 | 13.4 | 24                          |                  |                    |          |                    |
|                     | AVR25-3   | 29.0          | 250 | 60 | 32 | 25.0 | 16.3 | 29                          |                  |                    |          |                    |
|                     | AVR25D-3  | 22.6          | 200 | 45 | 25 | 24.6 | 16.1 | 29                          | SA3T             | SY3T               | K3T      | YI3M-1.5N          |
|                     | AVR32-3   | 29.0          | 250 | 60 | 32 | 32.0 | 19.6 | 36                          |                  |                    |          |                    |
| 1/2"                | AVR40-3   | 36.0          | 300 | 60 | 40 | 40.0 | 23.8 | 44                          |                  |                    |          |                    |
|                     | NVR20-4   | 18.0          | 180 | 50 | 20 | 20.0 | 15.6 | 27                          | SN4T             | -                  | K4T      | -                  |
|                     | AVR25-4   | 29.0          | 250 | 60 | 32 | 25.0 | 17.4 | 32                          |                  |                    |          |                    |
|                     | AVR25D-4  | 22.6          | 200 | 45 | 25 | 24.6 | 17.2 | 32                          | SA4T             | SY4T               | K4T      | YI4M-1.5N          |
|                     | AVR32-4   | 29.0          | 250 | 60 | 32 | 32.0 | 21.5 | 39                          |                  |                    |          |                    |
| 5/8"                | AVR40-4   | 36.0          | 300 | 60 | 40 | 40.0 | 25.8 | 47                          |                  |                    |          |                    |
|                     | AVR32-5   | 29.0          | 250 | 60 | 32 | 32.0 | 22.4 | 40                          | SN5T             | SY5T               | K5T      | YI5M-1.5N          |
|                     | AVR40-5   | 36.0          | 300 | 60 | 40 | 40.0 | 26.4 | 48                          |                  |                    |          |                    |
|                     | AVR50-5   | 45.0          | 350 | 75 | 50 | 50.0 | 31.4 | 58                          | SA5T             | SY5T               | K5T      | YI5M-1.5N          |
|                     | AVR60-5   | 54.0          | 400 | 75 | 60 | 60.0 | 36.4 | 69                          |                  |                    |          |                    |

\* Les porte-outils sont fournis avec des sous-plaquettes standard. Pour le rainurage, merci d'utiliser les sous-plaquettes indiquées dans le tableau ci-dessus.  
Les porte-outils avec canal de lubrification sont disponibles en standard. Pour la référence voir page 99.

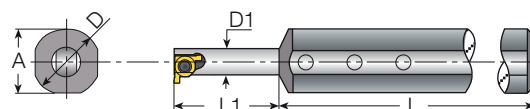
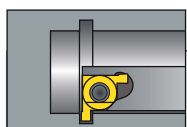
## Porte-outils intérieur



### Mini-L

Pièces détachées

| Taille<br>plaquette | Référence   | Dimensions mm |     |    |    |     | Système<br>d'anti-vibration |  |  |
|---------------------|-------------|---------------|-----|----|----|-----|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  | RH          | A             | L   | L1 | D  | D1  |                             | Vis plaquette                                                                       | Clé torx                                                                            |
| 5.0L                | SNVR 10U-5L | 9.4           | 81  | 16 | 10 | 6.2 | Non                         |  |  |
|                     | BNVR 10S-5L | 9.4           | 87  | 22 | 10 | 6.2 | Carbure implanté            |                                                                                     |                                                                                     |
|                     | BNVR 10M-5L | 9.4           | 97  | 31 | 10 | 6.2 | Carbure implanté            |                                                                                     |                                                                                     |
|                     | BNVR 10L-5L | 9.4           | 109 | 43 | 10 | 6.2 | Carbure implanté            |                                                                                     |                                                                                     |



### Mini-L Ajustable

Pièces détachées

| Taille<br>plaquette | Référence |                 | Dimensions mm |     |      |    |     |  |  |  |  |
|---------------------|-----------|-----------------|---------------|-----|------|----|-----|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| IC                  | Douille   | Porte-outils RH | A             | L   | L1   | D  | D1  | Vis plaquette                                                                       | Clé torx pour vis plaquette                                                          | Vis de Porte-outils x 3                                                               | Clé pour vis plaquette                                                                |
| 5.0L                | SV16-6.2  | BNVR6.2T-5L     | 15.6          | 100 | 8-44 | 16 | 6.2 | SN5LT                                                                               | K5LT                                                                                 | S4.0                                                                                  | K2.0                                                                                  |

## Porte-outils intérieur



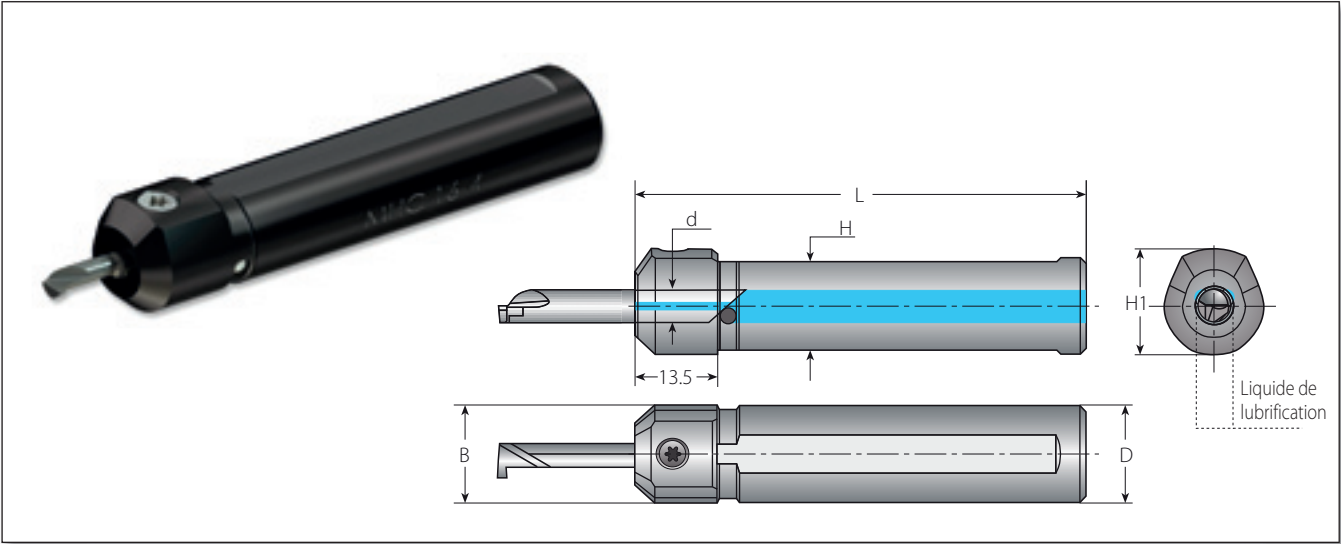
### Micro - double arrête de coupe

#### Pièces détachées



| Diamètre<br>plaquette<br>Micro | Dia. queue | Référence  | Dimensions mm |            |           | Vis de réglage* |    |      | Vis de serrage x 3 |      |
|--------------------------------|------------|------------|---------------|------------|-----------|-----------------|----|------|--------------------|------|
| d (mm)                         | D          |            | L             | L1         | L0        | Vis             | M  | Clé  | Vis                | Clé  |
| 3                              | 10         | SMC10-3.0  | 80            | 9- court   | 89        | 4GISM8X28       | 28 | K4.0 | M4X0.7X4.0         | K2.0 |
|                                | 12         | SMC12-3.0  |               | 16- moyene | 96        | 4GISM8X21       | 21 |      |                    |      |
|                                | 16         | SMC16-3.0  | 95            | 9- court   | 104       | 4GISM8X49       | 49 |      |                    |      |
|                                | 20         | SMC20-3.0  |               | 16- moyene | 111       | 4GISM8X42       | 42 |      |                    |      |
| 4                              | 10         | SMC10-4.0  | 80            | 9- court   | 89        | 4GISM8X28       | 28 |      |                    |      |
|                                | 12         | SMC12-4.0  |               | 16- moyene | 96        | 4GISM8X21       | 21 |      |                    |      |
|                                |            |            |               | 21- long   | 101       | 4GISM8X16       | 16 |      |                    |      |
|                                | 16         | SMC16-4.0  | 95            | 9- court   | 104       | 4GISM8X49       | 49 |      |                    |      |
|                                | 20         | SMC20-4.0  |               | 16- moyene | 111       | 4GISM8X42       | 42 |      |                    |      |
|                                |            |            |               | 21- long   | 116       | 4GISM8X37       | 37 |      |                    |      |
| 6                              | 12         | SMC12-6.0  | 80            | 9- court   | 89        | 4GISM8X28       | 28 |      |                    |      |
|                                |            |            |               | 16- moyene | 96        | 4GISM8X21       | 21 |      |                    |      |
|                                |            |            |               | 21- long   | 101       | 4GISM8X16       | 16 |      |                    |      |
|                                | 16         | SMC16-6.0  | 95            | 9- court   | 104       | 4GISM8X49       | 49 |      |                    |      |
|                                |            |            |               | 16- moyene | 111       | 4GISM8X42       | 42 |      |                    |      |
|                                |            |            |               | 21- long   | 116       | 4GISM8X37       | 37 |      |                    |      |
| 8                              | 16         | SMC16-8.0  | 95            | 12- court  | 107       | 4GISM8X33       | 33 |      |                    |      |
|                                | 20         | SMC20-8.0  |               | 20- moyene | 115       | 4GISM8X25       | 25 |      |                    |      |
|                                |            |            |               | 28- long   | 123       | 4GISM8X17       | 17 |      |                    |      |
|                                |            |            |               | 10         | 16        | SMC16-10.0      | 95 |      | 15- court          | 110  |
| 20                             | SMC20-10.0 | 25- moyene | 120           |            | 4GISM8X20 | 20              |    |      |                    |      |
|                                |            | 35- long   | 130           |            | 4GISM8X10 | 10              |    |      |                    |      |

\* Tous les kits de porte-outils contiennent une gamme complète de vis de réglage

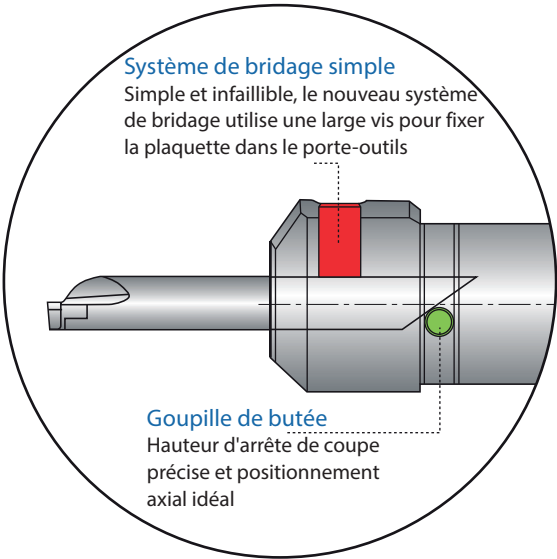


**Micro - simple arrête de coupe**

Pièces détachées **microscope**

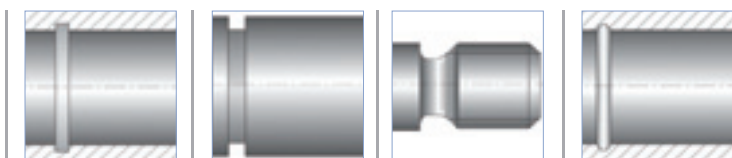
| Micro<br>Diam. plaquette | Référence | Dimensions mm |      |      |    |  |  |
|--------------------------|-----------|---------------|------|------|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| d (mm)                   |           | D=B           | H1   | H    | L  | Vis de serrage                                                                      | Clé                                                                                 |
| 4.0                      | MHC 10-4  | 10            | 14   | 8.8  | 65 | SL7DT15                                                                             | KT15                                                                                |
|                          | MHC 12-4  | 12            | 16   | 10.8 | 70 |                                                                                     |                                                                                     |
|                          | MHC 16-4  | 16            | 17.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                          | MHC 20-4  | 20            | 22   | 18.8 | 84 |                                                                                     |                                                                                     |
| 5.0                      | MHC 10-5  | 10            | 14   | 8.8  | 65 |                                                                                     |                                                                                     |
|                          | MHC 12-5  | 12            | 16   | 10.8 | 70 |                                                                                     |                                                                                     |
|                          | MHC 16-5  | 16            | 18.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                          | MHC 20-5  | 20            | 22   | 18.8 | 84 |                                                                                     |                                                                                     |
| 6.0                      | MHC 12-6  | 12            | 16   | 10.8 | 70 |                                                                                     |                                                                                     |
|                          | MHC 16-6  | 16            | 18.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                          | MHC 20-6  | 20            | 22   | 18.8 | 84 |                                                                                     |                                                                                     |
| 7.0                      | MHC 16-7  | 16            | 18.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                          | MHC 20-7  | 20            | 22   | 18.8 | 84 |                                                                                     |                                                                                     |

Porte-outils à gorge





# Gorge



> Informations  
techniques

## Nuances et vitesses de coupe, Vc [m/min] Recommandées et Avances f [mm/tours]

| Groupe de Matière                                   | Vardex No. | Matière                                            |                                              | Dureté Brinell HB | Vc [m/min]  |                              |            |            | Avances [mm/tours] |      |                    |  |
|-----------------------------------------------------|------------|----------------------------------------------------|----------------------------------------------|-------------------|-------------|------------------------------|------------|------------|--------------------|------|--------------------|--|
|                                                     |            |                                                    |                                              |                   | Revêtue     |                              |            |            | Tracé & Mini       |      | Micro & Microscope |  |
|                                                     |            |                                                    |                                              |                   | VTX (tracé) | VMX/VBX (Micro & Microscope) | VKP (Mini) | VHX (Mini) |                    |      |                    |  |
| <b>P</b><br>Acier                                   | 1          | Acier non allié                                    | Carbone faible (C= 0.1-0.25 %)               | 125               | 140-200     | 50-120                       | 140-200    | 20-50      | 0.3                | 0.03 |                    |  |
|                                                     | 2          |                                                    | Carbone moyen (C=0.25-0.55%)                 | 150               | 120-180     | 40-100                       | 120-180    | 15-40      | 0.15               | 0.02 |                    |  |
|                                                     | 3          |                                                    | Carbone haut (C=0.55-0.85%)                  | 170               | 110-180     | 30-80                        | 110-180    | 15-30      | 0.05               | 0.01 |                    |  |
|                                                     | 4          | Acier faiblement allié (constituants d'alliage≤5%) | Non traité                                   | 180               | 100-155     | 50-70                        | 100-155    | 20-45      | 0.25               | 0.02 |                    |  |
|                                                     | 5          |                                                    | Traité                                       | 275               | 90-145      | 40-60                        | 90-145     | 10-25      | 0.1                | 0.01 |                    |  |
|                                                     | 6          |                                                    | Traité                                       | 350               | 80-135      | 30-50                        | 80-135     | 10-25      | 0.05               | 0.01 |                    |  |
|                                                     | 7          | Acier hautement allié (constituants d'alliage >5%) | Revenu / Malléable                           | 200               | 70-115      | 30-50                        | 65-115     |            | 0.2                | 0.02 |                    |  |
|                                                     | 8          |                                                    | Traité                                       | 325               | 50-100      | 25-40                        | 50-100     |            | 0.05               | 0.01 |                    |  |
|                                                     | 9          | Acier fondu                                        | Faible alliage (constituants d'alliage ≤ 5%) | 200               | 30-50       | 30-50                        | 30-50      | 25-50      | 0.2                | 0.02 |                    |  |
|                                                     | 10         |                                                    | Haut alliage (constituants d'alliage > 5%)   | 225               | 20-40       | 25-40                        | 25-40      | 20-40      | 0.05               | 0.02 |                    |  |
| <b>M</b><br>Acier inoxydable                        | 11         | Acier inoxydable ferritique                        | Non traité                                   | 200               | 70-120      | 60-100                       | 80-120     |            | 0.2                | 0.01 |                    |  |
|                                                     | 12         |                                                    | Traité                                       | 330               | 60-95       | 40-60                        | 55-95      |            | 0.05               | 0.01 |                    |  |
|                                                     | 13         | Acier inoxydable Austénitique                      | Austénitique                                 | 180               | 70-100      | 50-90                        | 60-100     |            | 0.2                | 0.01 |                    |  |
|                                                     | 14         |                                                    | Super austénitique                           | 200               | 40-90       | 40-60                        | 50-90      |            | 0.05               | 0.01 |                    |  |
|                                                     | 15         | Acier inoxydable Fondu ferritique                  | Non traité                                   | 200               | 80-110      | 40-60                        | 60-80      |            | 0.2                | 0.02 |                    |  |
|                                                     | 16         |                                                    | Traité                                       | 330               | 65-110      | 30-50                        | 45-65      |            | 0.05               | 0.01 |                    |  |
|                                                     | 17         | Fondu austénitique                                 | Austénitique                                 | 200               | 85-100      | 40-60                        | 50-70      |            | 0.2                | 0.02 |                    |  |
|                                                     | 18         |                                                    | Traité                                       | 330               | 60-100      | 30-50                        | 40-60      |            | 0.05               | 0.01 |                    |  |
| <b>K</b><br>Fonte                                   | 28         | Fonte malléable                                    | Férritique (copeaux courts)                  | 130               | 70-120      | 50-70                        | 60-80      |            | 0.2                | 0.02 |                    |  |
|                                                     | 29         |                                                    | Perlitique (copeaux longs)                   | 230               | 70-120      | 50-70                        | 60-80      |            | 0.15               | 0.01 |                    |  |
|                                                     | 30         | Fonte grise                                        | Acier à faible résistance                    | 180               | 70-120      | 50-70                        | 60-80      |            | 0.2                | 0.02 |                    |  |
|                                                     | 31         |                                                    | Acier à haute résistance                     | 260               | 60-100      | 40-60                        | 40-70      |            | 0.1                | 0.15 |                    |  |
|                                                     | 32         | Fonte nodulaire SG                                 | Férritique                                   | 160               | 50-80       | 50-70                        | 60-80      |            | 0.2                | 0.02 |                    |  |
|                                                     | 33         |                                                    | Perlitique                                   | 260               | 60-90       | 60-80                        | 70-90      |            | 0.1                | 0.01 |                    |  |
| <b>N<sub>(K)</sub></b><br>Métaux non ferreux        | 34         | Alliages aluminium forgé                           | Non Vieilli                                  | 60                | 100-240     | 100-300                      | 80-240     | 30-60      | 0.4                | 0.03 |                    |  |
|                                                     | 35         |                                                    | Vieilli                                      | 100               | 80-170      | 100-150                      | 100-170    | 25-50      | 0.1                | 0.03 |                    |  |
|                                                     | 36         | Alliages aluminium                                 | Coulé                                        | 75                | 100-150     | 100-150                      | 100-150    | 25-50      | 0.25               | 0.03 |                    |  |
|                                                     | 37         |                                                    | Fondu & vieilli                              | 90                | 80-120      | 60-100                       | 60-100     | 20-40      | 0.15               | 0.03 |                    |  |
|                                                     | 38         | Alliages aluminium                                 | Coulé Si 13-22%                              | 130               | 100-150     | 100-150                      | 100-150    | 15-30      | 0.15               | 0.02 |                    |  |
|                                                     | 39         | Cuivre & alliages cuivre                           | Laiton                                       | 90                | 80-200      | 60-100                       | 80-200     | 15-35      | 0.2                | 0.03 |                    |  |
|                                                     | 40         |                                                    | Bronze & cuivre sans plomb                   | 100               | 80-200      | 60-100                       | 80-200     | 15-35      | 0.15               | 0.03 |                    |  |
| <b>S<sub>(M)</sub></b><br>Matières haute résistance | 19         | Alliages haute température                         | Trempé (à base du fer)                       | 200               | 45-60       | 25-45                        | 25-45      |            | 0.2                | 0.01 |                    |  |
|                                                     | 20         |                                                    | Vieilli (à base du fer)                      | 280               | 35-50       | 20-30                        | 20-30      |            | 0.05               | 0.01 |                    |  |
|                                                     | 21         |                                                    | Trempé (à base de Nickel ou Cobalt)          | 250               | 20-30       | 15-20                        | 15-20      |            | 0.05               | 0.01 |                    |  |
|                                                     | 22         |                                                    | Vieill (à base de Nickel ou Cobalt)          | 350               | 15-25       | 10-15                        | 10-15      |            | 0.05               | 0.01 |                    |  |
|                                                     | 23         | Alliages Titanium                                  | Pur 99.5 Ti                                  | 400Rm             | 140-170     | 60-100                       | 60-100     |            | 0.1                | 0.02 |                    |  |
|                                                     | 24         |                                                    | Alliages α+β                                 | 1050Rm            | 50-70       | 40-50                        | 40-50      |            | 0.05               | 0.02 |                    |  |
| <b>H<sub>(K)</sub></b><br>Matières dures            | 25         | Acier extra dur                                    | Traité & trempé                              | 45-50HRc          | 45-60       | 20-40                        | 20-40      |            | 0.02               | 0.01 |                    |  |
|                                                     | 26         |                                                    |                                              | 51-55HRc          | 40-50       | 20-35                        | 20-35      |            | 0.02               | 0.01 |                    |  |

### Les nuances et leurs applications

| Nuance | Type d'application                                                                                                                                             | Exemple                                                                             | Nuance | Type d'application                                                                                                                                                                       | Exemple                                                                               |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| VTX    | Carbure pour utilisation générale. Un substrat dur sub-micron avec revêtement TiAlN. Fournit une excellente résistance à l'usure.                              |  | VKP    | Carbure pour utilisation générale pour plaquettes Mini. Revêtue TiN.                                |  |
| VMX    | Carbure pour utilisation générale pour plaquettes Micro. Revêtue TiN.       |  | VHX    | Utilisation générale HSS pour plaquettes Mini. Pour usinage à faible vitesse de coupe Revêtue TiN.  |  |
| VBX    | Carbure pour utilisation générale pour plaquettes Microscope Revêtue TiCN.  |  |        |                                                                                                                                                                                          |                                                                                       |



# Alésage



# PLAQUETTES D'ALÉSAGE

|                                        |          |
|----------------------------------------|----------|
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## Système de codification Vardex

### Plaquettes PowerBore

| T | D | 0 | W | 41 | 14 | VTX |
|---|---|---|---|----|----|-----|
| 1 | 2 | 3 | 4 | 5  | 6  | 7   |

| 1 - Forme porte-plaquettes                                       | 2 - Angle de dépouille    | 3 - Classe de tolérance          | 4 - Type de plaquette |
|------------------------------------------------------------------|---------------------------|----------------------------------|-----------------------|
| C - Diamant 80 deg.<br>T - Triangulaire<br>W - Trigone à 80 deg. | C - 7 deg.<br>D - 15 deg. | 0 - Classe de tolérance spéciale | W - Trou + chanfrein  |

| 5 - Dimension plaquette                                                                                                                   | 6 - Rayon de pointe                                  | 7 - Nuance carbure |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------|
| 40-IC 0.156" - épaisseur- 1.02mm<br>41-IC 0.160" - épaisseur-1.19mm<br>42-IC 0.156" - épaisseur-1.57mm<br>50-IC 0.187" - épaisseur-2.44mm | 11- R 0.05<br>12- R 0.18<br>13- R 0.20<br>14- R 0.38 | VTX                |

### Plaquette Micro Alésage - Double arrête de coupe

| 6.0 | S | I | R | 0.2 | M | - | Alésage | - | 1 | VMX |
|-----|---|---|---|-----|---|---|---------|---|---|-----|
| 1   | 2 | 3 | 4 | 5   | 6 |   | 7       |   | 8 | 9   |

| 1 - Diam. plaquette              | 2 - Groupe d'outil   | 3 - Type de plaquette | 4 - RH ou LH                                     | 5 - Rayon de pointe |
|----------------------------------|----------------------|-----------------------|--------------------------------------------------|---------------------|
| 3.0<br>4.0<br>6.0<br>8.0<br>10.0 | S - Carbure monobloc | I - Intérieur         | R - Plaquette à Droite<br>L - Plaquette à Gauche | 0.2                 |

| 6 - Longueur de l'outil                               | 7 - Application de l'outil                                                                                                                 | 8 - Dépouille frontale                   | 9 - Nuance carbure |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------|
| U - Ultra court<br>S - Court<br>M - Moyen<br>L - Long | Bore - Alésage<br>Copy - Copiage<br>Chamfer - Chanfreinage<br>Back - Lamage<br>3527, 3537, 3547 - Longue pointe<br>BD - Perçage et Alésage | 1 - Avec dépouille<br>0 - Sans dépouille | VMX                |

### microscope Plaquettes - Simple arrête de coupe

| M | 4 | 17 | BC | R | 10 | L09 | R/L | VBX |
|---|---|----|----|---|----|-----|-----|-----|
| 1 | 2 | 3  | 4  | 5 | 6  | 7   | 8   | 9   |

| 1 - Gamme de produit | 2 - Taille plaquette | 3 - Diam. mini de perçage | 4 - Type d'application                     | 5 - 6 Rayon de pointe |
|----------------------|----------------------|---------------------------|--------------------------------------------|-----------------------|
| M - Microscope       | 4, 5, 6, 7           | 1.7 - 7.2                 | BC - Alésage<br>CL - Copiage Longue pointe | 0.1, 0.15, 0.2 (mm)   |

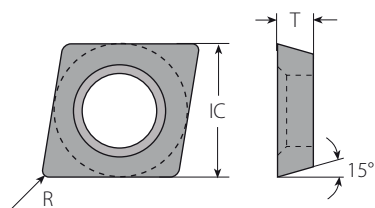
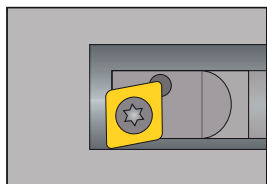
  

| 7 - Longueur utile | 8 - RH ou LH     | 9 - Nuance carbure |
|--------------------|------------------|--------------------|
| L09 - L50          | R - RH<br>L - LH | VBX                |

## Alésage



### Intérieur



CD0W

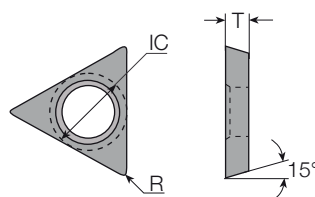
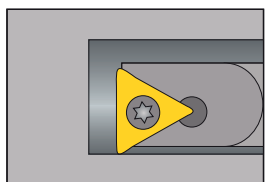
### Plaquettes CD0W

**Power Bore**



| Taille plaquette | Référence   | Dimensions [mm] |      | Vis plaquette  |
|------------------|-------------|-----------------|------|---------------------------------------------------------------------------------------------------|
| IC               |             | R               | T    |                                                                                                   |
| .156"            | CD0W4011... | 0.05            | 1.02 | VS01                                                                                              |
|                  | CD0W4012... | 0.18            | 1.02 |                                                                                                   |
|                  | CD0W4014... | 0.38            | 1.02 |                                                                                                   |

### Intérieur



TD0W

### Plaquettes TD0W

**Power Bore**

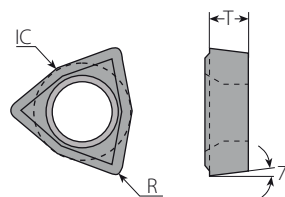
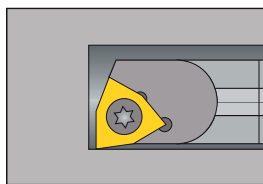


| Taille plaquette | Référence   | Dimensions [mm] |      | Vis plaquette  |
|------------------|-------------|-----------------|------|-----------------------------------------------------------------------------------------------------|
| IC               |             | R               | T    |                                                                                                     |
| .160"            | TD0W4111... | 0.05            | 1.19 | VS01, VS40                                                                                          |
|                  | TD0W4112... | 0.18            | 1.19 |                                                                                                     |
|                  | TD0W4114... | 0.38            | 1.19 |                                                                                                     |

## Alésage



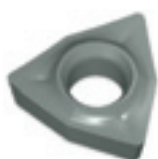
### Intérieur



WCOW 4213, 4214

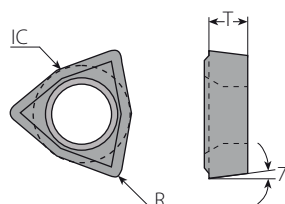
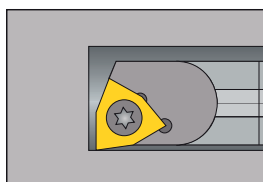
### Plaquettes WCOW

**Power Bore**



| Taille plaquette | Référence   | Dimensions [mm] |      | Vis plaquette  |
|------------------|-------------|-----------------|------|---------------------------------------------------------------------------------------------------|
| IC               |             | R               | T    |                                                                                                   |
| .156"            | WCOW4213... | 0.20            | 1.57 | VS40                                                                                              |
|                  | WCOW4214... | 0.38            | 1.57 |                                                                                                   |

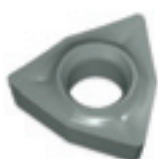
### Intérieur



TDOW

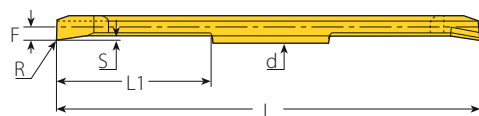
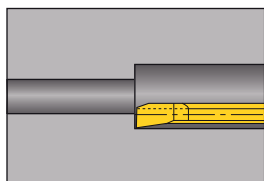
### Plaquettes WCOW

**Power Bore**



| Taille plaquette | Référence   | Dimensions [mm] |      | Vis plaquette  |
|------------------|-------------|-----------------|------|-----------------------------------------------------------------------------------------------------|
| IC               |             | R               | T    |                                                                                                     |
| .187"            | WCOW5013... | 0.20            | 2.44 | VS41                                                                                                |
|                  | WCOW5014... | 0.38            | 2.44 |                                                                                                     |

## Intérieur

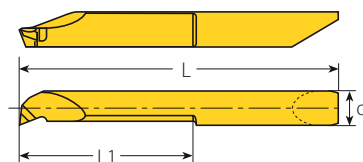
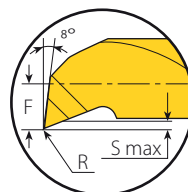
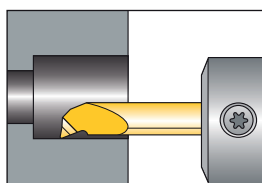


RH-Double arrête  
de coupe à droite

## Micro - double arrête de coupe

| Diam. plaquette | Référence             | Dimensions mm |    |     |      |      | Diam. mini de perçage | Porte-outils |
|-----------------|-----------------------|---------------|----|-----|------|------|-----------------------|--------------|
| d (mm)          | RH                    | R             | L1 | L   | S    | F    | mm                    |              |
| 3.0             | 3.0SIR0.1U-Bore-1...  | 0.1           | 6  | 36  | 0.40 | 0.22 | 2.0                   | SMC...-3.0   |
|                 | 3.0SIR0.1S-Bore-1...  | 0.1           | 9  | 36  | 0.40 | 0.22 |                       |              |
|                 | 3.0SIR0.2S-Bore-1...  | 0.2           | 9  | 36  | 0.66 | 1.42 | 3.2                   |              |
|                 | 3.0SIR0.2M-Bore-1...  | 0.2           | 16 | 50  | 0.66 | 1.42 |                       |              |
| 4.0             | 4.0SIR0.2S-Bore-1...  | 0.2           | 9  | 36  | 0.66 | 1.92 |                       | SMC...-4.0   |
|                 | 4.0SIR0.2M-Bore-1...  | 0.2           | 16 | 50  | 0.66 | 1.92 | 4.2                   |              |
|                 | 4.0SIR0.2L-Bore-1...  | 0.2           | 21 | 60  | 0.66 | 1.92 |                       |              |
| 6.0             | 6.0SIR0.2S-Bore-1...  | 0.2           | 9  | 36  | 0.77 | 2.92 |                       | SMC...-6.0   |
|                 | 6.0SIR0.2M-Bore-1...  | 0.2           | 16 | 50  | 0.77 | 2.92 | 6.2                   |              |
|                 | 6.0SIR0.2L-Bore-1...  | 0.2           | 21 | 60  | 0.77 | 2.92 |                       |              |
| 8.0             | 8.0SIR0.2S-Bore-1...  | 0.2           | 12 | 54  | 0.82 | 3.92 |                       | SMC...-8.0   |
|                 | 8.0SIR0.2M-Bore-1...  | 0.2           | 20 | 70  | 0.82 | 3.92 | 8.2                   |              |
|                 | 8.0SIR0.2L-Bore-1...  | 0.2           | 28 | 86  | 0.82 | 3.92 |                       |              |
| 10.0            | 10.0SIR0.2S-Bore-1... | 0.2           | 15 | 60  | 1.00 | 4.92 |                       | SMC...-10.0  |
|                 | 10.0SIR0.2M-Bore-1... | 0.2           | 25 | 80  | 1.00 | 4.92 | 10.2                  |              |
|                 | 10.0SIR0.2L-Bore-1... | 0.2           | 35 | 100 | 1.00 | 4.92 |                       |              |

## Intérieur



RH-Simple arrête de coupe à droite

## Micro - simple arrête de coupe

microscope

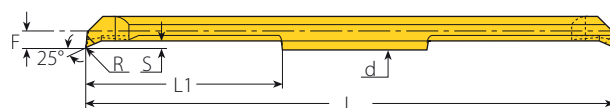
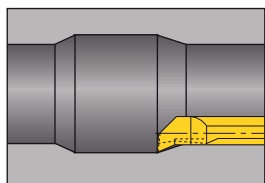
| Diam. plaque | Référence         | Dimensions mm |    |    |       |      | Diam. mini de perçage | Porte-outils |
|--------------|-------------------|---------------|----|----|-------|------|-----------------------|--------------|
| d (mm)       | RH/LH             | R             | L1 | L  | S max | F    | mm                    |              |
| 4.0          | M410BC R10 L06R/L | 0.1           | 6  | 24 | 0.15  | 0.47 | 1.0                   | MHC...-4     |
|              | M415BC R10 L09R/L |               | 9  | 27 |       | 0.66 | 1.5                   |              |
|              | M417BC R10 L09R/L |               | 9  | 28 |       | 0.7  | 1.7                   |              |
|              | M422BC R10 L09R/L | 0.1           | 9  | 28 | 0.15  | 0.95 | 2.2                   |              |
|              | M422BC R10 L14R/L |               | 14 | 33 |       |      |                       |              |
|              | M432BC R15 L10R/L | 0.15          | 10 | 28 | 0.15  | 1.45 | 3.2                   |              |
|              | M432BC R15 L16R/L |               | 16 | 33 |       |      |                       |              |
|              | M432BC R15 L20R/L |               | 20 | 39 |       |      |                       |              |
|              | M442BC R15 L10R/L | 0.15          | 10 | 28 | 0.3   | 1.95 | 4.2                   |              |
|              | M442BC R15 L16R/L |               | 16 | 33 |       |      |                       |              |
|              | M442BC R15 L21R/L |               | 21 | 39 |       |      |                       |              |
|              | M442BC R15 L26R/L |               | 26 | 45 |       |      |                       |              |
| 5.0          | M552BC R20 L10R/L | 0.2           | 10 | 35 | 0.5   | 2.45 | 5.2                   | MHC...-5     |
|              | M552BC R20 L16R/L |               | 16 | 41 |       |      |                       |              |
|              | M552BC R20 L21R/L |               | 21 | 46 |       |      |                       |              |
|              | M552BC R20 L26R/L |               | 26 | 51 |       |      |                       |              |
|              | M552BC R20 L30R/L |               | 30 | 55 |       |      |                       |              |
|              | M552BC R20 L35R/L |               | 35 | 60 |       |      |                       |              |
| 6.0          | M662BC R20 L16R/L | 0.2           | 16 | 42 | 0.5   | 2.95 | 6.2                   | MHC...-6     |
|              | M662BC R20 L21R/L |               | 21 | 47 |       |      |                       |              |
|              | M662BC R20 L26R/L |               | 26 | 52 |       |      |                       |              |
|              | M662BC R20 L30R/L |               | 30 | 56 |       |      |                       |              |
|              | M662BC R20 L35R/L |               | 35 | 61 |       |      |                       |              |
|              | M662BC R20 L40R/L |               | 40 | 66 |       |      |                       |              |
| 7.0          | M772BC R20 L25R/L | 0.2           | 25 | 51 | 0.5   | 3.45 | 7.2                   | MHC...-7     |
|              | M772BC R20 L35R/L |               | 35 | 61 |       |      |                       |              |
|              | M772BC R20 L40R/L |               | 40 | 66 |       |      |                       |              |
|              | M772BC R20 L45R/L |               | 45 | 71 |       |      |                       |              |
|              | M772BC R20 L50R/L |               | 50 | 76 |       |      |                       |              |

Outil Microscope à gauche fourni à la demande (Exemple: M417BC R10L09L...)

## Micro Copiage



### Intérieur



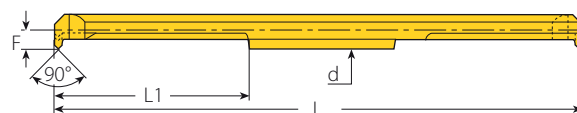
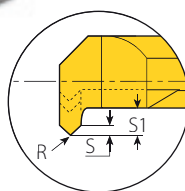
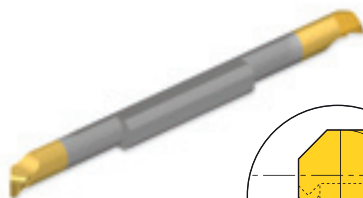
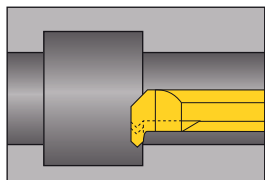
RH-Double arrête  
de coupe à droite

### Micro - double arrête de coupe

| Diam. plaquette | Référence            | Dimensions mm |    |    |     |      | Diam. mini de perçage | Porte-outils |
|-----------------|----------------------|---------------|----|----|-----|------|-----------------------|--------------|
| d (mm)          | RH                   | R             | L1 | L  | S   | F    | mm                    |              |
| 4.0             | 4.0SIR0.2S-Copy-1... | 0.2           | 9  | 36 | 1.0 | 1.92 | 4.2                   | SMC...-4.0   |
|                 | 4.0SIR0.2M-Copy-1... | 0.2           | 16 | 50 | 1.0 | 1.92 |                       |              |
|                 | 4.0SIR0.2L-Copy-1... | 0.2           | 21 | 60 | 1.0 | 1.92 |                       |              |
| 6.0             | 6.0SIR0.2S-Copy-1... | 0.2           | 9  | 36 | 1.3 | 2.92 | 7.0                   | SMC...-6.0   |
|                 | 6.0SIR0.2M-Copy-1... | 0.2           | 16 | 50 | 1.3 | 2.92 |                       |              |
|                 | 6.0SIR0.2L-Copy-1... | 0.2           | 21 | 60 | 1.3 | 2.92 |                       |              |

## Micro Alésage Chanfrein

### Intérieur



RH-Double arrête  
de coupe à droite

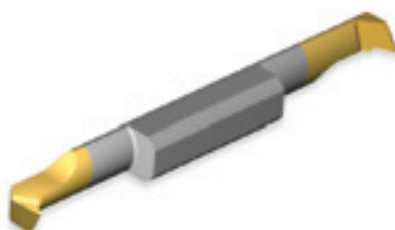
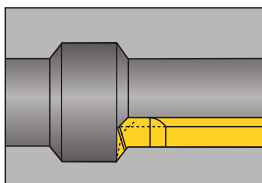
### Micro - double arrête de coupe

| Diam. plaquette | Référence               | Dimensions mm |    |    |      |     |      | Diam. mini de perçage | Porte-outils |
|-----------------|-------------------------|---------------|----|----|------|-----|------|-----------------------|--------------|
| d (mm)          | RH                      | R             | L1 | L  | F    | S1  | S    | mm                    |              |
| 4.0             | 4.0SIR0.2S-Chamfer-0... | 0.2           | 9  | 36 | 1.92 | 1.0 | 0.40 | 4.2                   | SMC...-4.0   |
|                 | 4.0SIR0.2M-Chamfer-0... | 0.2           | 16 | 50 | 1.92 | 1.0 | 0.40 |                       |              |
|                 | 4.0SIR0.2L-Chamfer-0... | 0.2           | 21 | 60 | 1.92 | 1.0 | 0.40 |                       |              |
| 6.0             | 6.0SIR0.2S-Chamfer-0... | 0.2           | 9  | 36 | 2.92 | 1.2 | 0.70 | 6.2                   | SMC...-6.0   |
|                 | 6.0SIR0.2M-Chamfer-0... | 0.2           | 16 | 50 | 2.92 | 1.2 | 0.70 |                       |              |
|                 | 6.0SIR0.2L-Chamfer-0... | 0.2           | 21 | 60 | 2.92 | 1.2 | 0.70 |                       |              |

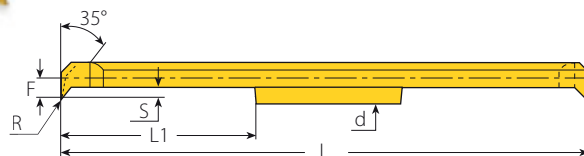
## Micro Alésage - longue pointe



### Intérieur



RH-Double arrêt de coupe à droite

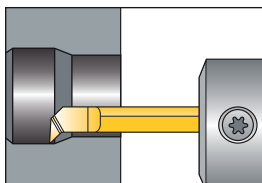


### Micro - double arrêt de coupe

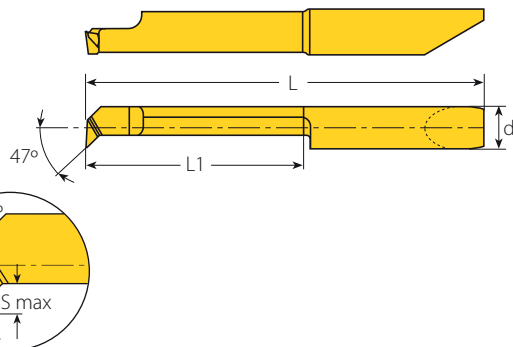
| Diam. plaquette | Référence             | Dimensions mm |    |     |     |      | Diam. mini de perçage | Porte-outils |
|-----------------|-----------------------|---------------|----|-----|-----|------|-----------------------|--------------|
| d (mm)          | RH                    | R             | L1 | L   | S   | F    | mm                    |              |
| 6.0             | 6.0SIR0.2S-3527-1...  | 0.2           | 9  | 36  | 2.7 | 2.92 | 6.9                   | SMC...-6.0   |
|                 | 6.0SIR0.2M-3527-1...  | 0.2           | 16 | 50  | 2.7 | 2.92 |                       |              |
|                 | 6.0SIR0.2L-3527-1...  | 0.2           | 21 | 60  | 2.7 | 2.92 |                       |              |
| 8.0             | 8.0SIR0.2S-3537-1...  | 0.2           | 12 | 54  | 3.7 | 3.92 | 8.9                   | SMC...-8.0   |
|                 | 8.0SIR0.2M-3537-1...  | 0.2           | 20 | 70  | 3.7 | 3.92 |                       |              |
|                 | 8.0SIR0.2L-3537-1...  | 0.2           | 28 | 86  | 3.7 | 3.92 |                       |              |
| 10.0            | 10.0SIR0.2S-3547-1... | 0.2           | 15 | 60  | 4.7 | 4.92 | 10.8                  | SMC...-10.0  |
|                 | 10.0SIR0.2M-3547-1... | 0.2           | 25 | 80  | 4.7 | 4.92 |                       |              |
|                 | 10.0SIR0.2L-3547-1... | 0.2           | 35 | 100 | 4.7 | 4.92 |                       |              |

## Micro Alésage - longue pointe

### Intérieur



RH-Simple arrêt de coupe à droite



### Micro - simple arrêt de coupe

microscope

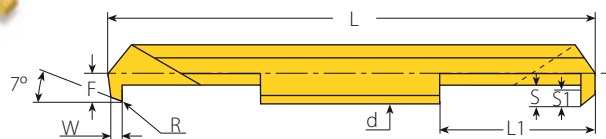
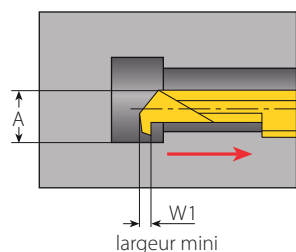
| Diam. plaquette | Référence         | Dimensions mm |    |    |       |      | Diam. mini de perçage | Porte-outils |
|-----------------|-------------------|---------------|----|----|-------|------|-----------------------|--------------|
| d (mm)          | RH/LH             | R             | L1 | L  | S max | F    | mm                    |              |
| 4.0             | M442CL R15 L10R/L | 0.15          | 10 | 28 | 0.75  | 1.95 | 4.2                   | MHC...-4     |
|                 | M442CL R15 L16R/L | 0.15          | 16 | 33 |       |      |                       |              |
|                 | M442CL R15 L21R/L | 0.15          | 21 | 39 |       |      |                       |              |
| 5.0             | M552CL R20 L16R/L | 0.2           | 16 | 41 | 0.95  | 2.45 | 5.2                   | MHC...-5     |
|                 | M552CL R20 L25R/L | 0.2           | 25 | 51 |       |      |                       |              |
|                 | M662CL R20 L16R/L | 0.2           | 16 | 42 |       |      |                       |              |
| 6.0             | M662CL R20 L21R/L | 0.2           | 21 | 47 | 1.75  | 2.95 | 6.2                   | MHC...-6     |
|                 | M662CL R20 L30R/L | 0.2           | 30 | 56 |       |      |                       |              |

Outil Microscope à gauche fourni à la demande (Exemple: M442CL R15 L10L)

## Micro Alésage - Lamage en tirant



### Intérieur



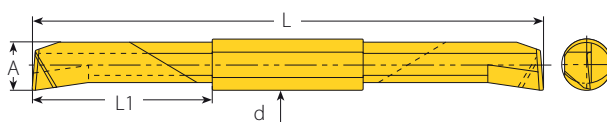
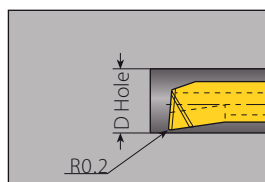
RH-Double arrête  
de coupe à droite

### Micro - double arrête de coupe

| Diam. plaque | Référence            |      |    |    | Dimensions mm |     |      |     |     |      | Diam. mini de perçage | Porte-outils |
|--------------|----------------------|------|----|----|---------------|-----|------|-----|-----|------|-----------------------|--------------|
| d (mm)       | RH                   | R    | L1 | L  | A             | W   | W1   | S   | S1  | F    | mm                    |              |
| 3.0          | 3.0SIRO.2S-Back-1... | 0.05 | 9  | 36 | 3.42          | 1.5 | 1.81 | 0.8 | 0.6 | 1.42 | 3.2                   | SMC...-3.0   |
|              | 3.0SIRO.2M-Back-1... | 0.05 | 16 | 50 |               |     |      |     |     |      |                       |              |
| 4.0          | 4.0SIRO.2S-Back-1... | 0.05 | 9  | 36 | 4.44          | 2.0 | 2.34 | 1.3 | 1.0 | 1.92 | 4.2                   | SMC...-4.0   |
|              | 4.0SIRO.2M-Back-1... | 0.05 | 16 | 50 |               |     |      |     |     |      |                       |              |
|              | 4.0SIRO.2L-Back-1... | 0.05 | 21 | 60 |               |     |      |     |     |      |                       |              |
| 6.0          | 6.0SIRO.2S-Back-1... | 0.05 | 9  | 36 | 6.44          | 2.0 | 2.46 | 1.9 | 1.6 | 2.92 | 6.2                   | SMC...-6.0   |
|              | 6.0SIRO.2M-Back-1... | 0.05 | 16 | 50 |               |     |      |     |     |      |                       |              |
|              | 6.0SIRO.2L-Back-1... | 0.05 | 21 | 60 |               |     |      |     |     |      |                       |              |

## Micro Alésage

### Intérieur



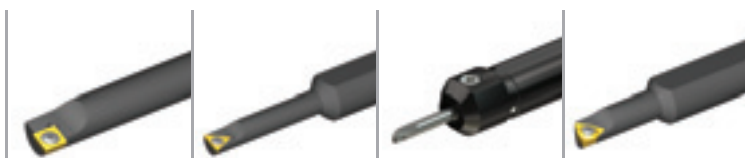
RH-Double arrête  
de coupe à droite

### Micro - double arrête de coupe

| Diam. plaque | Référence          | Dimensions mm |    |      | Diam. mini de perçage | Porte-outils |
|--------------|--------------------|---------------|----|------|-----------------------|--------------|
| d (mm)       | RH                 | L1            | L  | A    | mm                    |              |
| 4.0          | 4.0SIRO.2M-BD-1... | 16            | 50 | 3.53 | 3.74                  | SMC...-4.0   |
| 6.0          | 6.0SIRO.2M-BD-1... | 16            | 50 | 5.20 | 5.80                  | SMC...-6.0   |
|              | 6.0SIRO.2L-BD-1... | 21            | 60 |      |                       |              |
| 8.0          | 8.0SIRO.2S-BD-1... | 12            | 54 | 6.90 | 7.80                  | SMC...-8.0   |
|              | 8.0SIRO.2M-BD-1... | 20            | 70 |      |                       |              |
|              | 8.0SIRO.2L-BD-1... | 28            | 86 |      |                       |              |



# Alésage



> Porte-outils

|                                                                      |          |
|----------------------------------------------------------------------|----------|
| ■ Système de codification Vardex .....                               | Page 182 |
| ■ Barre d'alésage Power Bore pour plaquettes TD0W .....              | Page 183 |
| ■ Barre d'alésage Power Bore pour plaquettes CD0W .....              | Page 184 |
| ■ Barre d'alésage Power Bore pour plaquettes WC0W (4213, 4214) ..... | Page 185 |
| ■ Barre d'alésage Power Bore pour plaquettes WC0W (5013, 5014) ..... | Page 186 |
| ■ Porte-outil Micro 2 Arrête .....                                   | Page 187 |
| ■ Porte-outil Micro 1 arrête .....                                   | Page 188 |

## Système de codification Vardex

### Porte-outils PowerBore

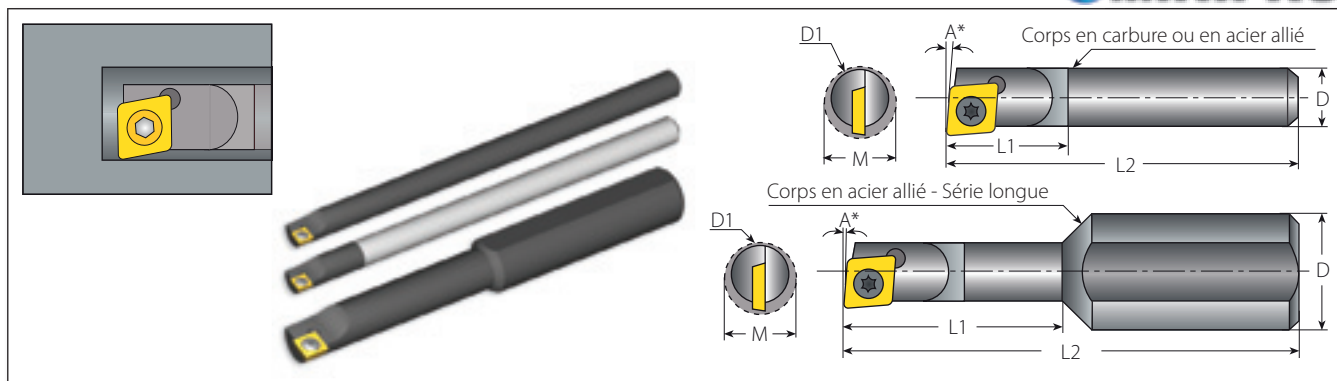
| C                               | 05 | -                                                                                        | D | T                                                                                               | J | -                                                                                                                                                                                                                                                                                                                   | - | 5                                                                    |
|---------------------------------|----|------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------|
| 1                               | 2  |                                                                                          | 3 | 4                                                                                               | 5 |                                                                                                                                                                                                                                                                                                                     |   | 6                                                                    |
| 1 - Type du corps               |    | 2 - Diam. corps.                                                                         |   | 3 - Diam. porte-plaquettes. [D <sub>1</sub> ]                                                   |   | 4 - Forme porte-plaquettes                                                                                                                                                                                                                                                                                          |   | 5 - Longueur porte-outils [L <sub>2</sub> ]                          |
| C - Carbure<br>S - Acier        |    | 04 - 4.0 mm<br>05 - 5.0 mm<br>06 - 6.0 mm<br>08 - 8.0 mm<br>10 - 10.0 mm<br>12 - 12.0 mm |   | A - 4.2<br>B - 4.6<br>C - 4.8<br>D - 5.0<br>E - 5.2<br>F - 6.0<br>G - 6.4<br>H - 7.9<br>J - 8.0 |   |  C-Quatron 80°<br><br> T-Triangulaire<br><br> W-Trigon 80° |   | A - 57<br>C - 64<br>D - 70<br>E - 76<br>G - 89<br>J - 102<br>P - 152 |
| 6 - Angle de dépouille frontale |    |                                                                                          |   |                                                                                                 |   |                                                                                                                                                                                                                                                                                                                     |   |                                                                      |
| 0, 5, 7                         |    |                                                                                          |   |                                                                                                 |   |                                                                                                                                                                                                                                                                                                                     |   |                                                                      |

## Micro & microscope

|   |   |   |    |   |   |
|---|---|---|----|---|---|
| S | M | C | 16 | - | 3 |
| 1 | 2 | 3 | 4  |   | 5 |

|                                                                                           |                                                                               |                                 |                               |                                      |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------|-------------------------------|--------------------------------------|
| <b>1 - Forme porte-plaquettes</b>                                                         | <b>2 - Type porte-outils</b>                                                  | <b>3 - Arrosage</b>             | <b>4 - Diam. porte-outils</b> | <b>5- Taille perçage</b>             |
| S - Douille<br>(Double arrête de coupe)<br><br>M - Microscope<br>(Simple arrête de coupe) | M - Micro (Double arrête de coupe)<br>H - Microscope (Simple arrête de coupe) | C - Avec canal de lubrification | 10, 12, 16, 20                | Taille Micro<br>3, 4, 5, 6, 7, 8, 10 |

## Barre d'alésage Power Bore pour plaquettes CD0W



**Power Bore**

### Corps en acier allié - Taille standard

Pièces détachées

| Corps |           | Référence | Dimensions mm |              |             |              |                 |  |  |  |          |
|-------|-----------|-----------|---------------|--------------|-------------|--------------|-----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|
|       |           |           | A             | D            | D1          | M            | L2              | L1                                                                                  |                                                                                     |                                                                                     |          |
|       |           |           | Angle         | Diam. corps. | Diam. outil | Passage mini | Longueur totale | Longueur utile                                                                      | Plaquettes type                                                                     | Vis                                                                                 | Clé torx |
| 5.0   | S05-ACC-7 | 7°        | 5.0           | 4.2          | 4.6         | 64           | 12              | D1=D                                                                                | CD0W                                                                                | VS01                                                                                | VT51     |
|       | S05-BCC-5 | 5°        | 5.0           | 4.6          | 5.3         | 64           |                 |                                                                                     |                                                                                     |                                                                                     |          |
|       | S05-DCC-5 | 5°        | 5.0           | 5.0          | 6.1         | 64           |                 |                                                                                     |                                                                                     |                                                                                     |          |
|       | S05-DCC-0 | 0°        | 5.0           | 5.0          | 6.4         | 64           |                 |                                                                                     |                                                                                     |                                                                                     |          |
| 6.0   | S06-FCE-5 | 5°        | 6.0           | 6.0          | 7.0         | 76           |                 |                                                                                     |                                                                                     |                                                                                     |          |
|       | S06-FCE-0 | 0°        | 6.0           | 6.0          | 7.3         | 76           |                 |                                                                                     |                                                                                     |                                                                                     |          |

**Power Bore**

### Corps en carbure avec tête en acier brasée - Taille standard

Pièces détachées

| Corps en carbure avec tête en acier traité - Valeurs standard |            |               |              |             |              |                 |                | Accessoires                                                                           |                                                                                       |                                                                                       |
|---------------------------------------------------------------|------------|---------------|--------------|-------------|--------------|-----------------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Corps                                                         | Référence  | Dimensions mm |              |             |              |                 |                |  |  |  |
|                                                               |            | A             | D            | D1          | M            | L2              | L1             |                                                                                       |                                                                                       |                                                                                       |
|                                                               |            | Angle         | Diam. corps. | Diam. outil | Passage mini | Longueur totale | Longueur utile | Plaquettes type                                                                       | Vis                                                                                   | Clé torx                                                                              |
| 4.0                                                           | C04-ACP--7 | 7°            | 4.0          | 4.2         | 4.6          | 152             | 12             | CD0W                                                                                  | VS01                                                                                  | VT51                                                                                  |
|                                                               | C05-CCJ--5 | 5°            | 5.0          | 4.8         | 5.5          | 102             |                |                                                                                       |                                                                                       |                                                                                       |
| 5.0                                                           | C05-DCJ--5 | 5°            | 5.0          | 5.0         | 6.1          | 102             | D1=D           |                                                                                       |                                                                                       |                                                                                       |
|                                                               | C05-DCJ--0 | 0°            | 5.0          | 5.0         | 6.5          | 102             |                |                                                                                       |                                                                                       |                                                                                       |
| 6.0                                                           | C06-FCJ--5 | 5°            | 6.0          | 6.0         | 7.0          | 102             |                |                                                                                       |                                                                                       |                                                                                       |
|                                                               | C06-FCJ--0 | 0°            | 6.0          | 6.0         | 7.3          | 102             |                |                                                                                       |                                                                                       |                                                                                       |

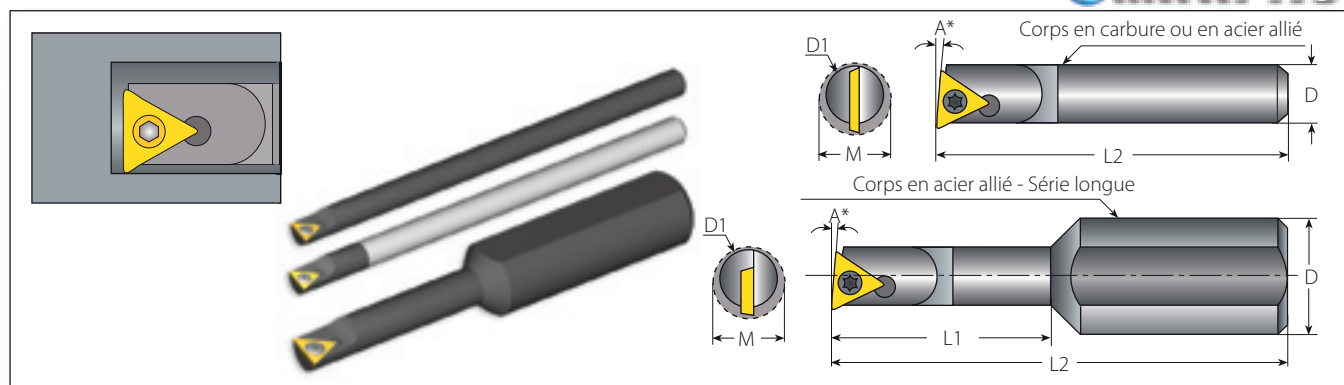
**Power Bore**

### Corps en acier allié - Série longue

Pièces détachées

| Corps en acier d'angle - Série longue |            |               |              |             |              |                 |                | Accessoires                                                                           |                                                                                       |                                                                                       |
|---------------------------------------|------------|---------------|--------------|-------------|--------------|-----------------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Corps                                 | Référence  | Dimensions mm |              |             |              |                 |                |  |  |  |
|                                       |            | A             | D            | D1          | M            | L2              | L1             |                                                                                       |                                                                                       |                                                                                       |
|                                       |            | Angle         | Diam. corps. | Diam. outil | Passage mini | Longueur totale | Longueur utile | Plaquettes type                                                                       | Vis                                                                                   | Clé torx                                                                              |
| 8.0                                   | S08-BCA--5 | 5°            | 8.0          | 4.6         | 5.5          | 57              | 25             | CD0W                                                                                  | VS01                                                                                  | VT51                                                                                  |
|                                       | S08-ECA--5 | 5°            | 8.0          | 5.2         | 5.8          | 57              |                |                                                                                       |                                                                                       |                                                                                       |
|                                       | S08-ECA--0 | 0°            | 8.0          | 5.2         | 6.2          | 57              |                |                                                                                       |                                                                                       |                                                                                       |
|                                       | S08-GCC--5 | 5°            | 8.0          | 6.4         | 7.4          | 64              | 32             |                                                                                       |                                                                                       |                                                                                       |
|                                       | S08-GCC--0 | 0°            | 8.0          | 6.4         | 7.6          | 64              |                |                                                                                       |                                                                                       |                                                                                       |

## Barre d'alésage Power Bore pour plaquettes TD0W



**Power Bore**

Pièces détachées

### Corps en acier allié - Taille standard

| Corps | Référence  | Dimensions mm |             |              |                 |  |  |  |
|-------|------------|---------------|-------------|--------------|-----------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|       |            | A             | D=D1        | M            | L2              |                                                                                    |                                                                                     |                                                                                     |
|       |            | Angle         | Diam. outil | Passage mini | Longueur totale | Plaquettes type                                                                    | Vis                                                                                 | Clé torx                                                                            |
| 5.0   | S05-DTG--5 | 5°            | 5.0         | 7.1          | 89              | TD0W                                                                               | VS01                                                                                | VT51                                                                                |
|       | S05-DTG--0 | 0°            | 5.0         | 7.1          | 89              |                                                                                    |                                                                                     |                                                                                     |
| 6.0   | S06-FTJ--5 | 5°            | 6.0         | 7.3          | 102             |                                                                                    | VS40                                                                                |                                                                                     |
|       | S06-FTJ--0 | 0°            | 6.0         | 7.3          | 102             |                                                                                    |                                                                                     |                                                                                     |
| 8.0   | S08-JTJ--5 | 5°            | 8.0         | 9.2          | 102             |                                                                                    |                                                                                     |                                                                                     |
|       | S08-JTJ--0 | 0°            | 8.0         | 9.2          | 102             |                                                                                    |                                                                                     |                                                                                     |

**Power Bore**

Pièces détachées

### Corps en carbure avec tête en acier brasée - Taille standard

| Corps | Référence  | Dimensions mm |             |              |                 |  |  |  |
|-------|------------|---------------|-------------|--------------|-----------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|       |            | A             | D=D1        | M            | L2              |                                                                                     |                                                                                       |                                                                                       |
|       |            | Angle         | Diam. outil | Passage mini | Longueur totale | Plaquettes type                                                                     | Vis                                                                                   | Clé torx                                                                              |
| 5.0   | C05-DTJ--5 | 5°            | 5.0         | 7.1          | 102             | TD0W                                                                                | VS01                                                                                  | VT51                                                                                  |
|       | C05-DTJ--0 | 0°            | 5.0         | 7.1          | 102             |                                                                                     |                                                                                       |                                                                                       |
| 6.0   | C06-FTJ--5 | 5°            | 6.0         | 7.3          | 102             |                                                                                     | VS40                                                                                  |                                                                                       |
|       | C06-FTJ--0 | 0°            | 6.0         | 7.3          | 102             |                                                                                     |                                                                                       |                                                                                       |
| 8.0   | C08-JTJ--5 | 5°            | 8.0         | 9.2          | 102             |                                                                                     |                                                                                       |                                                                                       |
|       | C08-JTJ--0 | 0°            | 8.0         | 9.2          | 102             |                                                                                     |                                                                                       |                                                                                       |

**Power Bore**

Pièces détachées

### Corps en acier allié - Série longue

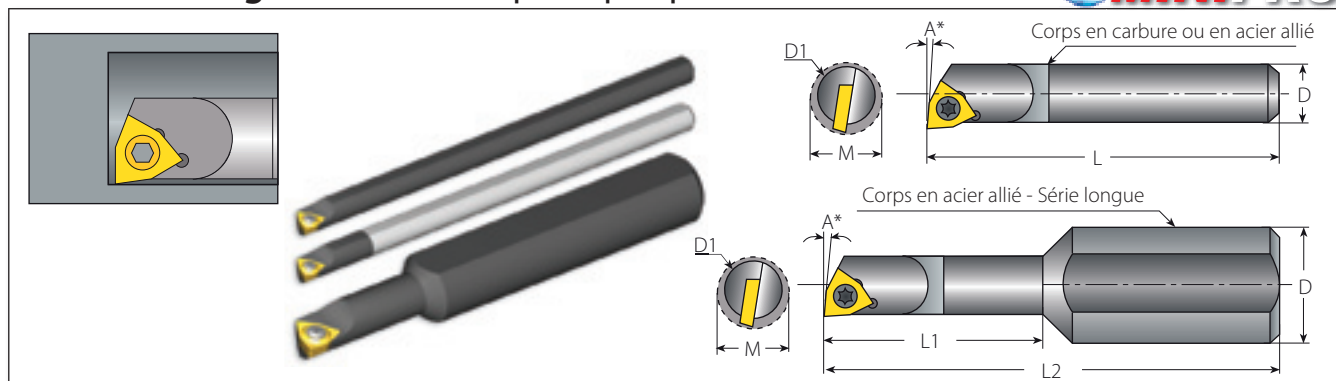
| Corps | Référence  | Dimensions mm |              |             |              |                 |                |  |  |  |
|-------|------------|---------------|--------------|-------------|--------------|-----------------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|       |            | A             | D            | D1          | M            | L2              | L1             |                                                                                       |                                                                                       |                                                                                       |
|       |            | Angle         | Diam. corps. | Diam. outil | Passage mini | Longueur totale | Longueur utile | Plaquettes type                                                                       | Vis                                                                                   | Clé torx                                                                              |
| 12.0  | S12-ETC--5 | 5°            | 12.0         | 5.2         | 6.9          | 64              | 25             | TD0W                                                                                  | VS01                                                                                  | VT51                                                                                  |
|       | S12-ETC--0 | 0°            | 12.0         | 5.2         | 6.9          | 64              |                |                                                                                       |                                                                                       |                                                                                       |
|       | S12-GTD--5 | 5°            | 12.0         | 6.4         | 7.6          | 70              | 32             |                                                                                       |                                                                                       |                                                                                       |
|       | S12-GTD--0 | 0°            | 12.0         | 6.4         | 7.6          | 70              |                |                                                                                       |                                                                                       |                                                                                       |
|       | S12-HTE--5 | 5°            | 12.0         | 7.9         | 9.1          | 76              | 38             |                                                                                       |                                                                                       |                                                                                       |
|       | S12-HTE--0 | 0°            | 12.0         | 7.9         | 9.1          | 76              |                |                                                                                       |                                                                                       |                                                                                       |

**VARDEX**

\* Angle à 5° pour dresser et aléser des trous débouchants

\* Angle 0° pour aléser des trous débouchants et dresser un épaulement

# Barre d'alésage Power Bore pour plaquettes WC0W (4213, 4214)



**Power Bore**

Pièces détachées

## Corps en acier allié - Taille standard

| Corps | Référence  | Dimensions mm |      |     |     |  |  |  |
|-------|------------|---------------|------|-----|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|       |            | A             | D=D1 | M   | L   |                                                                                     |                                                                                     |                                                                                     |
| 5.0   | S05-DWC--5 | 5°            | 5.0  | 6.1 | 64  | WC0W4213                                                                            | VS40                                                                                | VT51                                                                                |
|       | S05-DWC--0 | 0°            | 5.0  | 6.4 |     |                                                                                     |                                                                                     |                                                                                     |
| 6.0   | S06-FWJ--5 | 5°            | 6.0  | 7.0 | 102 | WC0W4214                                                                            | VS40                                                                                | VT51                                                                                |
|       | S06-FWJ--0 | 0°            | 6.0  | 7.3 |     |                                                                                     |                                                                                     |                                                                                     |

**Power Bore**

Pièces détachées

## Corps en carbure avec tête en acier brasée - Taille standard

| Corps | Référence  | Dimensions mm |      |     |     |  |  |  |
|-------|------------|---------------|------|-----|-----|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|       |            | A             | D=D1 | M   | L   |                                                                                       |                                                                                       |                                                                                       |
| 5.0   | C05-DWJ--5 | 5°            | 5.0  | 6.1 | 102 | WC0W4213                                                                              | VS40                                                                                  | VT51                                                                                  |
|       | C05-DWJ--0 | 0°            | 5.0  | 6.4 |     |                                                                                       |                                                                                       |                                                                                       |
| 6.0   | C06-FWJ--5 | 5°            | 6.0  | 7.0 | 102 | WC0W4214                                                                              | VS40                                                                                  | VT51                                                                                  |
|       | C06-FWJ--0 | 0°            | 6.0  | 7.3 |     |                                                                                       |                                                                                       |                                                                                       |

**Power Bore**

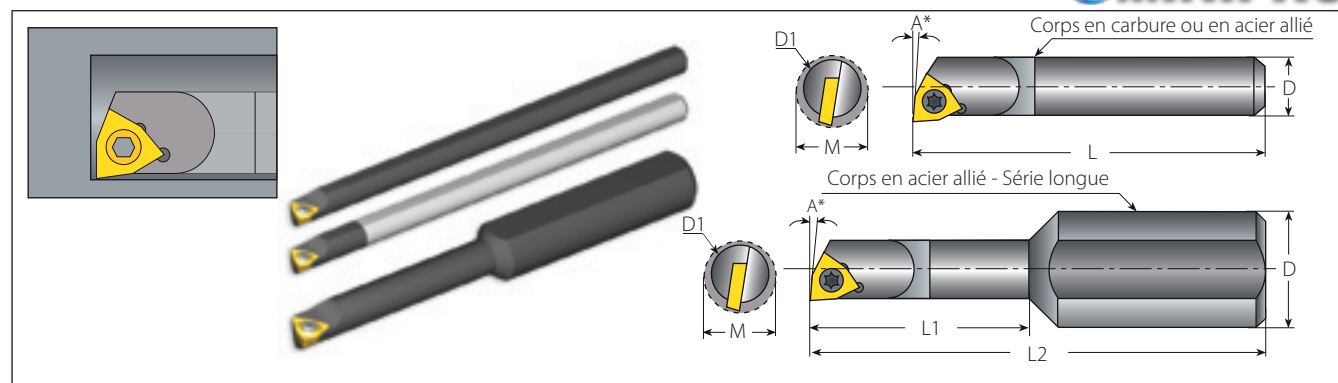
Pièces détachées

## Corps en acier allié - Série longue

| Corps | Référence  | Dimensions mm |              |             |              |                 |                |  |  |  |
|-------|------------|---------------|--------------|-------------|--------------|-----------------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|       |            | A             | D            | D1          | M            | L2              | L1             |                                                                                       |                                                                                       |                                                                                       |
|       |            | Angle         | Diam. corps. | Diam. outil | Passage mini | Longueur totale | Longueur utile | Plaquettes type                                                                       | Vis                                                                                   | Clé torx                                                                              |
| 10.0  | S10-EWA--5 | 5°            | 10.0         | 5.2         | 5.8          | 57              | 13             | WC0W4213<br>WC0W4214                                                                  | VS40                                                                                  | VT51                                                                                  |
|       | S10-EWA--0 | 0°            | 10.0         | 5.2         | 6.2          | 57              |                |                                                                                       |                                                                                       |                                                                                       |
|       | S10-GWC--5 | 5°            | 10.0         | 6.4         | 7.4          | 64              | 19             |                                                                                       |                                                                                       |                                                                                       |
|       | S10-GWC--0 | 0°            | 10.0         | 6.4         | 7.6          | 64              |                |                                                                                       |                                                                                       |                                                                                       |

\* Angle à 5° pour dresser et aléser des trous débouchants  
 \* Angle 0° pour aléser des trous débouchants et dresser un épaulement

## Barre d'alésage Power Bore pour plaquettes (5013, 5014)



**Power Bore**

### Corps en acier allié - Taille standard

Pièces détachées

| Corps | Référence  | Dimensions mm |      |     |     | Plaquettes type | Vis  | Clé torx |
|-------|------------|---------------|------|-----|-----|-----------------|------|----------|
|       |            | A             | D=D1 | M   | L   |                 |      |          |
| 8.0   | S08-JWJ--5 | 5°            | 8.0  | 9.2 | 102 | WC0W5013        | VS41 | VT51     |
|       | S08-JWJ--0 | 0°            | 8.0  | 9.2 |     | WC0W5014        |      |          |

**Power Bore**

### Corps en carbure avec tête en acier brasée - Taille standard

Pièces détachées

| Corps | Référence  | Dimensions mm |      |     |     | Plaquettes type | Vis  | Clé torx |
|-------|------------|---------------|------|-----|-----|-----------------|------|----------|
|       |            | A             | D=D1 | M   | L   |                 |      |          |
| 8.0   | C08-JWJ--5 | 5°            | 8.0  | 9.2 | 102 | WC0W5013        | VS41 | VT51     |
|       | C08-JWJ--0 | 0°            | 8.0  | 9.2 |     | WC0W5014        |      |          |

**Power Bore**

### Corps en acier allié - Série longue

Pièces détachées

| Corps | Référence  | Dimensions mm |      |     |     |    |    |          | Plaquettes type | Vis  | Clé torx |
|-------|------------|---------------|------|-----|-----|----|----|----------|-----------------|------|----------|
|       |            | A             | D    | D1  | M   | L2 | L1 |          |                 |      |          |
| 10.0  | S10-HWE--5 | 5°            | 10.0 | 7.9 | 9.2 | 76 | 38 | WC0W5013 | VS41            | VT51 |          |
|       | S10-HWE--0 | 0°            | 10.0 | 7.9 | 9.2 | 76 |    | WC0W5014 |                 |      |          |

## Porte-outils intérieur



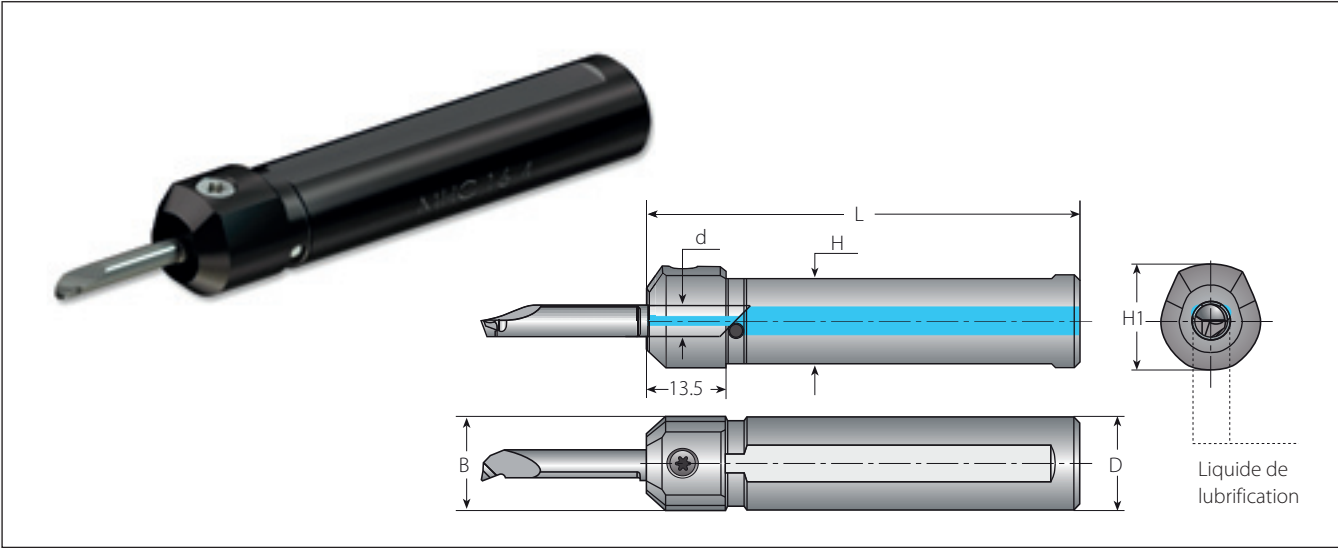
### Pièces détachées



### Micro - double arrête de coupe

| Micro<br>Diam. plaquette | Dia.<br>queue | Référence  | Dimensions mm |            |     | Vis de réglage* |    |      | Vis de serrage x 3 |      |
|--------------------------|---------------|------------|---------------|------------|-----|-----------------|----|------|--------------------|------|
| d (mm)                   | D             |            | L             | L1         | L0  | Vis             | M  | Clé  | Vis                | Clé  |
| 3                        | 10            | SMC10-3.0  | 80            | 9 - court  | 89  | 4GISM8X28       | 28 | K4.0 | M4X0.7X4.0         | K2.0 |
|                          | 12            | SMC12-3.0  |               | 16 - moyen | 96  | 4GISM8X21       | 21 |      |                    |      |
|                          | 16            | SMC16-3.0  | 95            | 9 - court  | 104 | 4GISM8X49       | 49 |      |                    |      |
|                          | 20            | SMC20-3.0  |               | 16 - moyen | 111 | 4GISM8X42       | 42 |      |                    |      |
| 4                        | 10            | SMC10-4.0  | 80            | 9 - court  | 89  | 4GISM8X28       | 28 |      |                    |      |
|                          | 12            | SMC12-4.0  |               | 16 - moyen | 96  | 4GISM8X21       | 21 |      |                    |      |
|                          |               |            |               | 21 - long  | 101 | 4GISM8X16       | 16 |      |                    |      |
|                          | 16            | SMC16-4.0  | 95            | 9 - court  | 104 | 4GISM8X49       | 49 |      |                    |      |
|                          | 20            | SMC20-4.0  |               | 16 - moyen | 111 | 4GISM8X42       | 42 |      |                    |      |
| 6                        |               |            |               | 21 - long  | 116 | 4GISM8X37       | 37 |      |                    |      |
|                          | 12            | SMC12-6.0  | 80            | 9 - court  | 89  | 4GISM8X28       | 28 |      |                    |      |
|                          |               |            |               | 16 - moyen | 96  | 4GISM8X21       | 21 |      |                    |      |
|                          |               |            |               | 21 - long  | 101 | 4GISM8X16       | 16 |      |                    |      |
|                          | 16            | SMC16-6.0  | 95            | 9 - court  | 104 | 4GISM8X49       | 49 |      |                    |      |
|                          | 20            | SMC20-6.0  |               | 16 - moyen | 111 | 4GISM8X42       | 42 |      |                    |      |
| 8                        |               |            |               | 21 - long  | 116 | 4GISM8X37       | 37 |      |                    |      |
|                          | 16            | SMC16-8.0  | 95            | 12 - court | 107 | 4GISM8X33       | 33 |      | M6X1.0X5.0         | K3.0 |
|                          |               |            |               | 20 - moyen | 115 | 4GISM8X25       | 25 |      |                    |      |
|                          | 20            | SMC20-8.0  |               | 28 - long  | 123 | 4GISM8X17       | 17 |      |                    |      |
| 10                       | 16            | SMC16-10.0 | 95            | 15 - court | 110 | 4GISM8X30       | 30 |      |                    |      |
|                          |               |            |               | 25 - moyen | 120 | 4GISM8X20       | 20 |      |                    |      |
|                          | 20            | SMC20-10.0 |               | 35 - long  | 130 | 4GISM8X10       | 10 |      |                    |      |

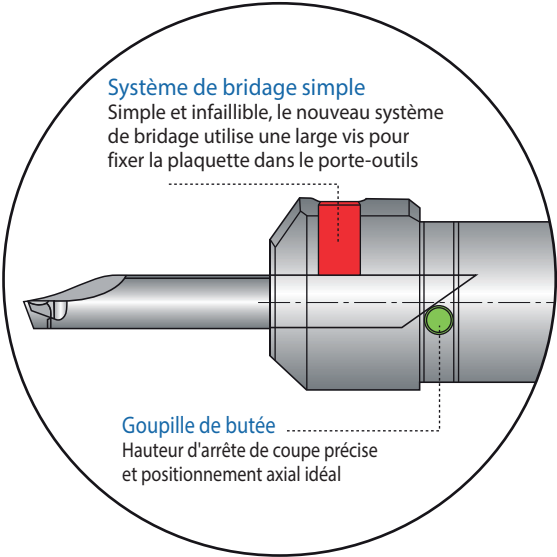
\* Tous les kits de porte-outils contiennent une gamme complète de vis de réglage

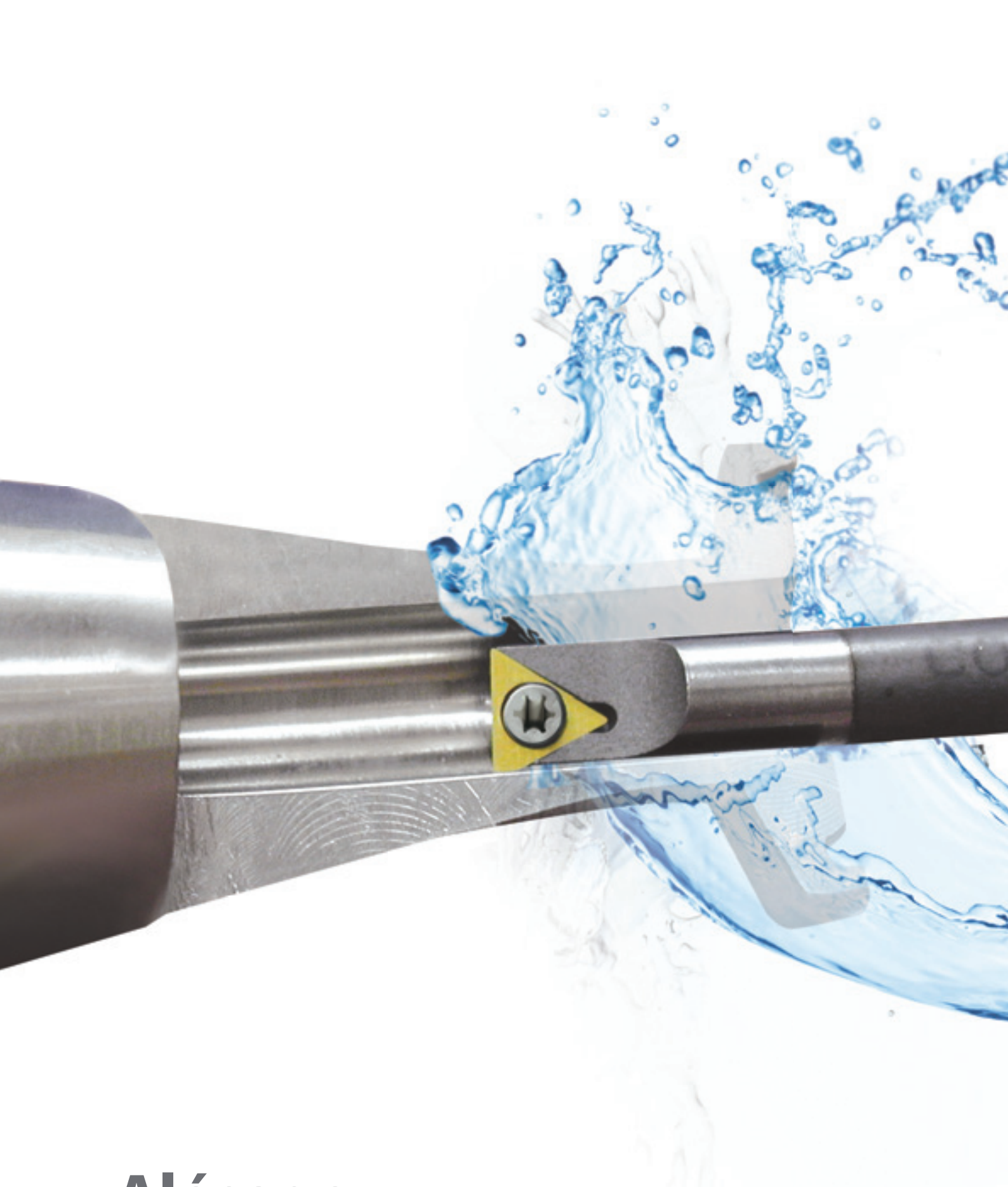


Micro - simple arrête de coupe

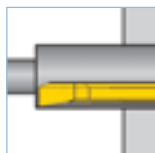
Pièces détachées **microscope**

| Diamètre<br>plaquette Micro | Référence | Dimensions (mm) |      |      |    |  |  |
|-----------------------------|-----------|-----------------|------|------|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                             |           | D=B             | H1   | H    | L  | Vis de serrage                                                                      | Clé                                                                                 |
| 4.0                         | MHC 10-4  | 10              | 14   | 8.8  | 65 | SL7DT15                                                                             | KT15                                                                                |
|                             | MHC 12-4  | 12              | 16   | 10.8 | 70 |                                                                                     |                                                                                     |
|                             | MHC 16-4  | 16              | 17.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                             | MHC 20-4  | 20              | 22   | 18.8 | 84 |                                                                                     |                                                                                     |
| 5.0                         | MHC 10-5  | 10              | 14   | 8.8  | 65 |                                                                                     |                                                                                     |
|                             | MHC 12-5  | 12              | 16   | 10.8 | 70 |                                                                                     |                                                                                     |
|                             | MHC 16-5  | 16              | 18.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                             | MHC 20-5  | 20              | 22   | 18.8 | 84 |                                                                                     |                                                                                     |
| 6.0                         | MHC 12-6  | 12              | 16   | 10.8 | 70 |                                                                                     |                                                                                     |
|                             | MHC 16-6  | 16              | 18.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                             | MHC 20-6  | 20              | 22   | 18.8 | 84 |                                                                                     |                                                                                     |
| 7.0                         | MHC 16-7  | 16              | 18.6 | 14.8 | 75 |                                                                                     |                                                                                     |
|                             | MHC 20-7  | 20              | 22   | 18.8 | 84 |                                                                                     |                                                                                     |





# Alésage



> Informations techniques

|                                                                                      |          |
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## Pièces détachées - Série PowerBore

|                                                                                     |                       |                                  |  |                                           |  |
|-------------------------------------------------------------------------------------|-----------------------|----------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------|
| Plaquette                                                                           | Série de porte-outils | Plaquette                        | Vis Torx                                                                            | Description Vis                           | Clé torx                                                                              |
|  | A                     | CD0W                             | VS01                                                                                | 1-72 Oval X 2.77LG.                       | VT51                                                                                  |
|  | B                     | TD0W Min. Bore 7.1<br>> Bore 7.1 | VS01<br>VS40                                                                        | 1-72 Oval X 2.77LG.<br>M2 X 0.4 X 3.86LG. |                                                                                       |
|  | E                     | WC0W4213, WC0W4214               | VS40                                                                                | M2 X 0.4 X 3.86LG.                        |                                                                                       |
|                                                                                     | F                     | WC0W5013, WC0W5014               | VS41                                                                                | M2 X 0.4 X 4.90LG.                        |                                                                                       |

**Vitesse de coupe Vc [m/min], nuances, Avances f [mm/tour]  
et profondeur maxi [mm] recommandées,**



| Groupe de Matière                             | Vardex No. | Matière                                             |                                              | Dureté Brinell HB | Vc [m/min]      |                               | Avances [mm/rev] |      | Profondeur Maxi [mm] |                   |      |                    |
|-----------------------------------------------|------------|-----------------------------------------------------|----------------------------------------------|-------------------|-----------------|-------------------------------|------------------|------|----------------------|-------------------|------|--------------------|
|                                               |            |                                                     |                                              |                   | Revêtue         |                               |                  |      | PowerBore            |                   |      | Micro / Microscope |
|                                               |            |                                                     |                                              |                   | VTX (PowerBore) | VMX/ VBX (Micro & Microscope) |                  |      | Power Bore           | Micro/ Microscope | CD0W |                    |
| <b>P</b><br>Acier                             | 1          | Acier non allié                                     | Carbone faible (C= 0.1-0.25 %)               | 125               | 115-190         | 50-120                        | 0.25             | 0.05 | 0.5                  | 0.45              | 0.6  | 0.4                |
|                                               | 2          |                                                     | Carbone moyen (C=0.25-0.55%)                 | 150               | 100-175         | 40-100                        | 0.2              | 0.04 | 0.5                  | 0.45              | 0.6  | 0.4                |
|                                               | 3          |                                                     | Carbone haut (C=0.55-0.85%)                  | 170               | 90-165          | 30-80                         | 0.15             | 0.03 | 0.5                  | 0.45              | 0.6  | 0.4                |
|                                               | 4          | Acier faiblement allié (constituants d'alliage ≤5%) | Non traité                                   | 180               | 85-145          | 50-70                         | 0.2              | 0.04 | 0.4                  | 0.35              | 0.5  | 0.3                |
|                                               | 5          |                                                     | Traité                                       | 275               | 75-140          | 40-60                         | 0.15             | 0.04 | 0.4                  | 0.35              | 0.5  | 0.3                |
|                                               | 6          |                                                     | Traité                                       | 350               | 70-135          | 30-50                         | 0.1              | 0.03 | 0.4                  | 0.35              | 0.5  | 0.3                |
|                                               | 7          | Acier hautement allié (constituants d'alliage>5%)   | Revenu / Malléable                           | 200               | 70-110          | 30-50                         | 0.1              | 0.04 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 8          |                                                     | Traité                                       | 325               | 50-100          | 25-40                         | 0.05             | 0.03 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 9          | Acier fondu                                         | Faible alliage (constituants d'alliage ≤ 5%) | 200               | 75-140          | 30-50                         | 0.25             | 0.04 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 10         |                                                     | Haut alliage (constituants d'alliage > 5%)   | 225               | 60-120          | 25-40                         | 0.1              | 0.04 | 0.2                  | 0.18              | 0.4  | 0.15               |
| <b>M</b><br>Inoxydable Acier                  | 11         | Acier inoxydable ferritique                         | Non traité                                   | 200               | 70-130          | 60-100                        | 0.2              | 0.04 | 0.25                 | 0.22              | 0.5  | 0.2                |
|                                               | 12         |                                                     | Traité                                       | 330               | 60-115          | 40-60                         | 0.08             | 0.03 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 13         | Acier inoxydable Austénitique                       | Austénitique                                 | 180               | 90-140          | 50-90                         | 0.2              | 0.04 | 0.25                 | 0.22              | 0.5  | 0.2                |
|                                               | 14         |                                                     | Super austénitique                           | 200               | 40-110          | 40-60                         | 0.08             | 0.04 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 15         | Acier inoxydable fondu ferritique                   | Non traité                                   | 200               | 90-120          | 40-60                         | 0.2              | 0.04 | 0.25                 | 0.22              | 0.5  | 0.2                |
|                                               | 16         |                                                     | Traité                                       | 330               | 65-110          | 30-50                         | 0.08             | 0.03 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 17         | Acier inoxydable Austénitique                       | Austénitique                                 | 200               | 85-110          | 40-60                         | 0.2              | 0.04 | 0.25                 | 0.22              | 0.5  | 0.2                |
|                                               | 18         | Fondu austénitique                                  | Traité                                       | 330               | 60-100          | 30-50                         | 0.08             | 0.03 | 0.2                  | 0.18              | 0.4  | 0.15               |
| <b>K</b><br>Fonte                             | 28         | Malléable Fonte                                     | Férritique (copeaux courts)                  | 130               | 70-160          | 50-70                         | 0.15             | 0.02 | 0.3                  | 0.3               | 0.4  | 0.25               |
|                                               | 29         |                                                     | Perlitique (copeaux longs)                   | 230               | 60-145          | 50-70                         | 0.10             | 0.01 | 0.3                  | 0.3               | 0.4  | 0.25               |
|                                               | 30         | Grise Fonte                                         | Acier à faible résistance                    | 180               | 70-130          | 50-70                         | 0.15             | 0.02 | 0.5                  | 0.45              | 0.6  | 0.4                |
|                                               | 31         | Fonte                                               | Acier à haute résistance                     | 260               | 60-115          | 40-60                         | 0.1              | 0.01 | 0.5                  | 0.45              | 0.6  | 0.4                |
|                                               | 32         | Fonte nodulaire SG                                  | férritique                                   | 160               | 125-160         | 50-70                         | 0.15             | 0.02 | 0.5                  | 0.45              | 0.6  | 0.4                |
|                                               | 33         |                                                     | Perlitique                                   | 260               | 90-120          | 60-80                         | 0.1              | 0.01 | 0.5                  | 0.45              | 0.6  | 0.4                |
| <b>N(K)</b><br>Métaux non ferreux             | 34         | Forge                                               | Non Vieilli                                  | 60                | 100-365         | 100-300                       | 0.3              | 0.03 | 0.76                 | 0.63              | 1.0  | 0.5                |
|                                               | 35         | Alliages aluminium                                  | Vieilli                                      | 100               | 80-220          | 100-150                       | 0.2              | 0.03 | 0.76                 | 0.63              | 1.0  | 0.5                |
|                                               | 36         |                                                     | Coulé                                        | 75                | 200-400         | 100-150                       | 0.3              | 0.03 | 0.76                 | 0.63              | 1.0  | 0.5                |
|                                               | 37         | Alliages aluminium                                  | Fondu & vieilli                              | 90                | 200-280         | 60-100                        | 0.2              | 0.03 | 0.76                 | 0.63              | 1.0  | 0.5                |
|                                               | 38         |                                                     | Coulé Si 13-22%                              | 130               | 60-180          | 100-150                       | 0.3              | 0.02 | 0.76                 | 0.63              | 1.0  | 0.5                |
|                                               | 39         | Cuivre & alliages cuivre                            | Laiton                                       | 90                | 80-225          | 60-100                        | 0.3              | 0.03 | 0.76                 | 0.63              | 1.0  | 0.5                |
|                                               | 40         |                                                     | Bronze & cuivre sans plomb                   | 100               | 80-255          | 60-100                        | 0.2              | 0.03 | 0.76                 | 0.63              | 1.0  | 0.5                |
| <b>S(M)</b><br>Résistant à la chaleur Matière | 19         | Alliages haute température alloys                   | Trempé (à base du fer)                       | 200               | 45-60           | 25-45                         | 0.2              | 0.04 | 0.25                 | 0.22              | 0.5  | 0.2                |
|                                               | 20         |                                                     | Vieilli (à base du fer)                      | 280               | 30-50           | 20-30                         | 0.08             | 0.03 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 21         |                                                     | Trempé (à base de Nickel ou Cobalt)          | 250               | 20-30           | 15-20                         | 0.08             | 0.01 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 22         |                                                     | Vieill (à base de Nickel ou Cobalt)          | 350               | 15-25           | 10-15                         | 0.05             | 0.01 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 23         | Alliages Titanium                                   | Pur 99.5 Ti                                  | 400Rm             | 140-170         | 60-100                        | 0.05             | 0.02 | 0.2                  | 0.18              | 0.4  | 0.15               |
|                                               | 24         |                                                     | Alliages α+β                                 | 1050Rm            | 50-70           | 40-50                         | 0.05             | 0.02 | 0.2                  | 0.18              | 0.4  | 0.15               |
| <b>H(K)</b><br>Traité Matière                 | 25         | Acier extra dur                                     | Traité & trempé                              | 45-50HRc          | 45-65           | 20-45                         | 0.02             | 0.01 | 0.1                  | 0.05              | 0.2  | 0.05               |
|                                               | 26         |                                                     |                                              | 51-55HRc          | 45-60           | 20-40                         | 0.01             | 0.01 | 0.05                 | 0.05              | 0.1  | 0.05               |

## Les nuances et leurs applications

**VTX**

Carbure pour utilisation générale  
Revêtue TiAlN

**VMX**

Carbure pour utilisation générale  
pour plaquettes Micro. Revêtue TiN.

**VBX**

Carbure pour utilisation générale  
pour plaquettes Microscope Revêtue TiCN.



# Fraisage

## > **Fraises à fileter**

Standard

MiTM

TMSD

Carbure monobloc

## > **Fraisage de gorges**

# FRAISE À FILETER

## Filetage

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## Gorge

|                                                            |          |
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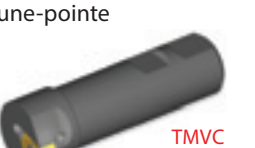
## Vargus a développé un logiciel multi langues pour la programmation CNC

### Logiciel pour les Fraises à fileter

Pour utiliser un système simple de Fraises à fileter VARDEX. Vargus a développé un logiciel multi-langues pour programmer les machines CN. Tout ce que l'opérateur a à faire, c'est d'entrer les paramètres de base du filetage et suivre ensuite, pas à pas, les instructions du logiciel qui va le conduire vers le choix des bons outils pour son filetage. Enfin, le logiciel générera l'interpolation hélicoïdale pour le programme CNC. On ne peut faire plus simple !

Les programmes et mises à jour peuvent être téléchargés sur le site: [www.vargus.com](http://www.vargus.com)

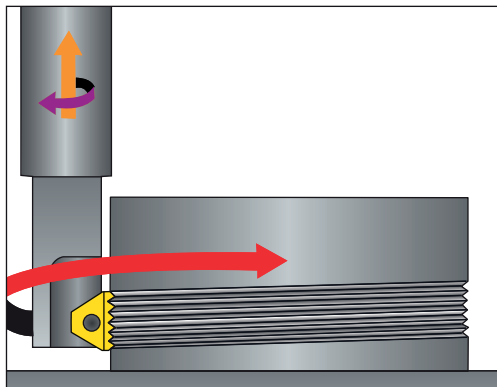
# Un outil pour chaque usinage de filetage par fraisage

|                              |                                                                                                                                                                   |                                                                                                                                                  |                                                                                                                                                                                      |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Filetage Ordinaire           | Standard Filet<br><br>TMC<br>De M15x1.0 (9/16"x32UN)                             | Filetage conique<br><br>TMNC<br>De 1/4"x18NPT                   | Gros pas<br><br>TMC/124...<br>De M10x0.75 (7/16"x20UNF)                                           |
|                              | Filetage court<br><br>TMSC<br>De pas 0.35mm (80 TPI)                             | Filetage long<br><br>TMLC<br>Jusqu'à 98.0mm (3.86")             | Filetage extra long<br><br>TMSD<br>Jusqu'à 144mm (5.7")                                            |
| Court et Long Filetage       | Filetage extra long<br><br>TMSD Torteaux<br>Jusqu'à 200mm (7.88")              | Pas fin<br><br>TMC<br>De pas 0.35mm (80 TPI)                    | Large Multi-dents<br><br>BTMC...-B<br>Jusqu'à ISO 6.0 (4UN)                                         |
|                              | Large une-pointe<br><br>TMVC<br>Jusqu'à ISO 6.0 (4UN)                          | Moins de cycles<br><br>BTMC...-B<br>Jusqu'à 38.9mm (1.53")     | Plaquettes réglables<br><br>TMOC<br>Longueur utile jusqu'à 50.8mm (2.0")                          |
| Petites et grandes Pas       | Petit et moyen diamètre<br><br>MiTM<br>Jusqu'à 5 Goujures                      | Diamètre moyen<br><br>TM2<br>2 Goujures                       | Grand diamètre<br><br>MiTM Torteaux<br>Jusqu'à 8 Goujures                                       |
|                              | Multi-dents pour un usinage plus rapide<br><br>Torteaux<br>Jusqu'à 9 Goujures | Plaquettes indexables<br><br>TMMC<br>De M10x0.75 (7/16"x32UN) | Très petits filetages<br><br>Millipro<br>De M1.0x0.25 (0-80UNF)<br>Millipro HD<br>Jusqu'à 62 HRc |
| Petits diamètres de filetage | Utilisation standard<br><br>Denture droite<br>De M4.5x0.75 (No.8-36UNF)        | Usinage lourd<br><br>Helicool<br>De M3x0.5 (No.10-32UNF)      | Arrosage radial<br><br>Helicool-R (HCR)<br>De M6x1.0                                            |
|                              | Filetage et chanfreinage<br><br>Helicool-C (HCC)<br>De M6x1.0                  | Outil économique<br><br>Helical<br>De M3x0.5 (No.8-36UNF)    | Fraise à percer-fileter-chanfreiner<br><br>HTC<br>De M6x1.0                                     |
|                              |                                                                                                                                                                   |                                                                                                                                                  |                                                                                                                                                                                      |

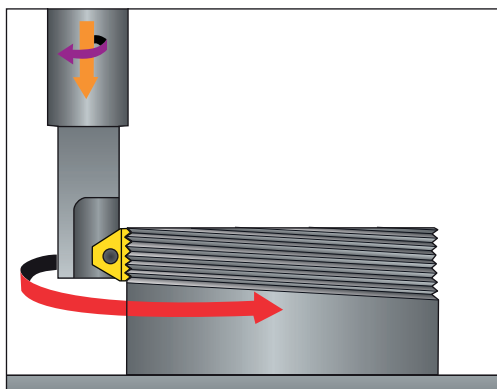
# Méthodes de fraisage

## Extérieur

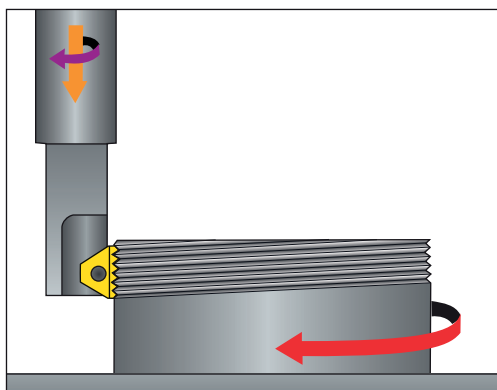
Filetage à droite-  
Fraisage en  
avalant



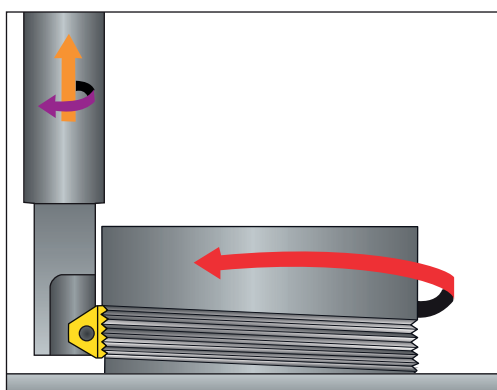
Filetage à gauche-  
Fraisage en  
avalant



Filetage à droite-  
Fraisage en  
opposition

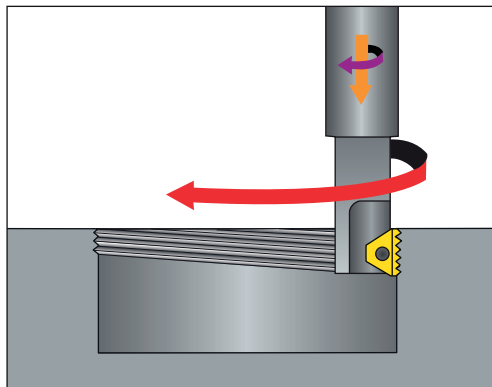


Filetage à gauche-  
Fraisage en  
opposition

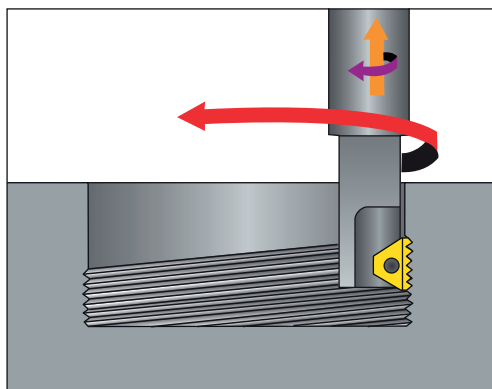


## Intérieur

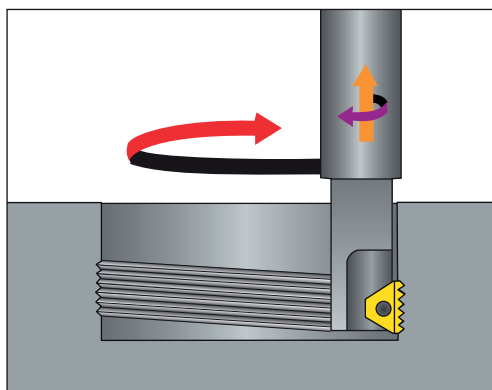
Filetage à droite-  
Fraisage en  
avalant



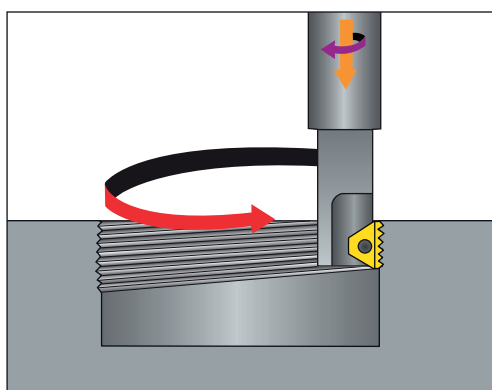
Filetage à gauche-  
Fraisage en  
avalant



Filetage à droite-  
Fraisage en  
opposition



Filetage à gauche-  
Fraisage en  
opposition



## Recommandations d'outils\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

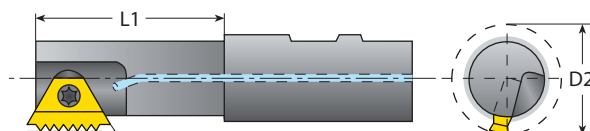
(Pour les outils de fraisage en carbure monobloc, voir page 290)

Le logiciel TM Gen et ses mises à jour peuvent être téléchargés sur le site [www.vargus.com](http://www.vargus.com)



### ISO - Intérieur

| Pas<br>mm | Diam. nominal<br>mm | Porte-outils       | Plaquette               | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|-----------|---------------------|--------------------|-------------------------|------------------------------------|----------------------|--------------------------------|
| 0.75      | 10                  | TMMC12-6.0         | 6.0I0.75ISOTM...028/001 | 12.0                               | 9.0                  | 0.43                           |
|           | 11                  | TMMC12-6.0         | 6.0I0.75ISOTM...        | 12.0                               | 9.0                  |                                |
|           | 12-14               | TMMC12-6.0         | 6.0I1.0ISOTM...         | 12.0                               | 9.0                  |                                |
| 1.0       | 15-18               | TMC12-2            | 2I1.0ISOTM2...          | 12.0                               | 11.5                 | 0.58                           |
|           | 20                  | TMC16-3            | 3I1.0ISOTM2...          | 22.0                               | 17.0                 |                                |
|           | 22                  | BTMC20-3B          | 3BI1.0ISOTM2...         | 29.0                               | 19.0                 |                                |
|           | 24                  | TMC20-3            | 3I1.0ISOTM2...          | 43.0                               | 20.0                 |                                |
|           | 25-28               | TMLC25-3           | 3I1.0ISOTM2...          | 25.0                               | 22.0                 |                                |
|           | 30                  | TM2C25-3           | 3I1.0ISOTM2...          | 43.0                               | 26.0                 |                                |
|           | 12                  | TMMC12-6.0         | 6.0I1.25ISOTM...028/002 | 12.0                               | 9.0                  | 0.72                           |
| 1.25      | 14                  | TMMC12-6.0         | 6.0I1.25ISOTM...        | 12.0                               | 9.0                  |                                |
|           | 14-15               | TMMC12-6.0         | 6.0I1.5ISOTM...         | 12.0                               | 9.0                  |                                |
| 1.5       | 16-20               | TMC12-2            | 2I1.5ISOTM2...          | 12.0                               | 11.5                 | 0.87                           |
|           | 22                  | TMC16-3            | 3I1.5ISOTM2...          | 22.0                               | 17.0                 |                                |
|           | 24                  | BTMC20-3B          | 3BI1.5ISOTM2...         | 29.0                               | 19.0                 |                                |
|           | 25-26               | TMC20-3            | 3I1.5ISOTM2...          | 43.0                               | 20.0                 |                                |
|           | 27-30               | TMLC25-3           | 3I1.5ISOTM2...          | 25.0                               | 22.0                 |                                |
|           | 32-33               | TM2C25-3           | 3I1.5ISOTM2...          | 43.0                               | 26.0                 |                                |
|           | 35-42               | TMC25-5            | 5I1.5ISOTM2...          | 52.0                               | 30.0                 |                                |
|           | 45                  | TMC32-5            | 5I1.5ISOTM2...          | 58.0                               | 37.0                 |                                |
|           | 48-55               | TM2C32-5           | 5I1.5ISOTM2...          | 45.0                               | 42.0                 |                                |
|           | 56-68               | TMSH-D50-22-3      | 3I1.5ISOTM2...          |                                    | 50.0                 |                                |
|           | 70-80               | TMSH-D63-22-5      | 5I1.5ISOTM2...          |                                    | 63.0                 |                                |
| 1.75      | 12                  | TMMC20-6.0 124/003 | 6.0I1.75ISOTM...028/003 | 15.0                               | 9.0                  | 1.01                           |
|           | 14-20               | TMC12-2            | 2I2.0ISOTM...028/004    | 12.0                               | 11.5                 |                                |
|           | 22                  | TMNC16-3           | 3I2.0ISOTM2...          | 22.0                               | 15.5                 |                                |
|           | 24                  | TMC16-3            | 3I2.0ISOTM2...          | 22.0                               | 17.0                 |                                |
|           | 25                  | BTMC20-3B          | 3BI2.0ISOTM2...         | 29.0                               | 19.0                 |                                |
|           | 27                  | TMC20-3            | 3I2.0ISOTM2...          | 43.0                               | 20.0                 |                                |
|           | 28-32               | TMLC25-3           | 3I2.0ISOTM2...          | 25.0                               | 22.0                 |                                |
|           | 33-36               | TM2C25-3           | 3I2.0ISOTM2...          | 43.0                               | 26.0                 |                                |
|           | 39-42               | TMC25-5            | 5I2.0ISOTM2...          | 52.0                               | 30.0                 |                                |
|           | 45-48               | TMC32-5            | 5I2.0ISOTM2...          | 58.0                               | 37.0                 |                                |
|           | 50-56               | TM2C32-5           | 5I2.0ISOTM2...          | 45.0                               | 42.0                 |                                |
| 2.0       | 58-68               | TMSH-D50-22-3      | 3I2.0ISOTM2...          |                                    | 50.0                 | 1.15                           |
|           | 70-85               | TMSH-D63-22-5      | 5I2.0ISOTM2...          |                                    | 63.0                 |                                |
|           | 90-105              | TMSH-D80-27-5      | 5I2.0ISOTM2...          |                                    | 80.0                 |                                |
|           | 110-130             | TMSH-D100-32-5     | 5I2.0ISOTM2...          |                                    | 100.0                |                                |
|           | 135-150             | TMSH-D125-40-5     | 5I2.0ISOTM2...          |                                    | 125.0                |                                |
|           | 20                  | TMC16-3 124/001    | 3I2.5ISOTM...028/005    | 20.5                               | 15.50                |                                |
|           | 22                  | TMC25-4 124/002    | 4I2.5ISOTM...028/006    | 30.0                               | 18.0                 |                                |
|           |                     |                    |                         |                                    |                      |                                |
|           |                     |                    |                         |                                    |                      |                                |
|           |                     |                    |                         |                                    |                      |                                |
|           |                     |                    |                         |                                    |                      |                                |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

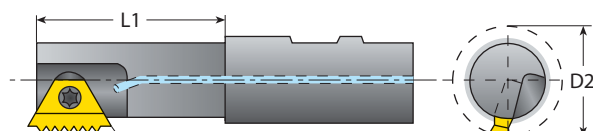
(Pour les outils de fraisage en carbure monobloc, voir page 290)

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### ISO - Intérieur

| Pas<br>mm | Diam. nominal<br>mm | Porte-outils    | Plaquette            | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|-----------|---------------------|-----------------|----------------------|------------------------------------|----------------------|--------------------------------|
| 3.0       | 24-33               | TMC25-4 124/002 | 4I3.0ISOTM...028/007 | 30.0                               | 18.0                 | 1.73                           |
|           | 36-40               | TMC25-5         | 5I3.0ISOTM...028/009 | 52.0                               | 30.0                 |                                |
|           | 42-48               | TMC25-5         | 5I3.0ISOTM2...       | 52.0                               | 30.0                 |                                |
|           | 50-52               | TMC32-5         | 5I3.0ISOTM2...       | 58.0                               | 37.0                 |                                |
|           | 55-72               | TM2C32-5        | 5I3.0ISOTM2...       | 45.0                               | 42.0                 |                                |
|           | 75-90               | TMSH-D63-22-5   | 5I3.0ISOTM2...       |                                    | 63.0                 |                                |
|           | 95-110              | TMSH-D80-27-5   | 5I3.0ISOTM2...       |                                    | 80.0                 |                                |
|           | 115-135             | TMSH-D100-32-5  | 5I3.0ISOTM2...       |                                    | 100.0                |                                |
| 3.5       | 140-250             | TMSH-D125-40-5  | 5I3.0ISOTM2...       |                                    | 125.0                | 2.02                           |
|           | 30-33               | TMC25-5 124/004 | 5I3.5ISOTM...028/008 | 40.0                               | 25.0                 |                                |
| 4.0       | 36-42               | TMC25-5         | 5I4.0ISOTM...028/010 | 52.0                               | 30.0                 | 2.31                           |
|           | 45-52               | TMC25-5         | 5I4.0ISOTM2...       | 52.0                               | 30.0                 |                                |
|           | 55                  | TMC32-6B        | 6BI4.0ISOTM2...      | 55.0                               | 35.0                 |                                |
|           | 56-58               | TMC32-5         | 5I4.0ISOTM2...       | 58.0                               | 37.0                 |                                |
|           | 60-65               | TMC40-6B        | 6BI4.0ISOTM2...      | 65.0                               | 46.0                 |                                |
|           | 68-76               | TM2C40-6B       | 6BI4.0ISOTM2...      | 65.0                               | 52.0                 |                                |
|           | 80-90               | TMSH-D63-22-6B  | 6BI4.0ISOTM2...      |                                    | 63.0                 |                                |
|           | 95-110              | TMSH-D80-27-6B  | 6BI4.0ISOTM2...      |                                    | 80.0                 |                                |
|           | 115-135             | TMSH-D100-32-6B | 6BI4.0ISOTM2...      |                                    | 100.0                |                                |
|           | 140-300             | TMSH-D125-40-6B | 6BI4.0ISOTM2...      |                                    | 125.0                |                                |
| 4.5       | 42-45               | TMC25-5         | 5I4.5ISOTM...028/011 | 52.0                               | 30.0                 | 2.60                           |
| 5.0       | 48-52               | TMC25-5         | 5I5.0ISOTM...028/075 | 52.0                               | 30.0                 | 2.89                           |
|           |                     | TMC32-6B        | 6BI5.0ISOTM2...      | 55.0                               | 35.0                 |                                |
| 5.5       | 56                  | TMC32-6B        | 6BI5.5ISOTM2...      | 55.0                               | 35.0                 | 3.17                           |
|           | 60                  | TMC40-6B        | 6BI5.5ISOTM2...      | 65.0                               | 46.0                 |                                |
| 6.0       | 64-68               | TMC40-6B        | 6BI6.0ISOTM2...      | 65.0                               | 46.0                 | 3.46                           |
|           | 70-80               | TM2C40-6B       | 6BI6.0ISOTM2...      | 65.0                               | 52.0                 |                                |
|           | 85-100              | TMSH-D63-22-6B  | 6BI6.0ISOTM2...      |                                    | 63.0                 |                                |
|           | 105-120             | TMSH-D80-27-6B  | 6BI6.0ISOTM2...      |                                    | 80.0                 |                                |
|           | 125-145             | TMSH-D100-32-6B | 6BI6.0ISOTM2...      |                                    | 100.0                |                                |
|           | 150-300             | TMSH-D125-40-6B | 6BI6.0ISOTM2...      |                                    | 125.0                |                                |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

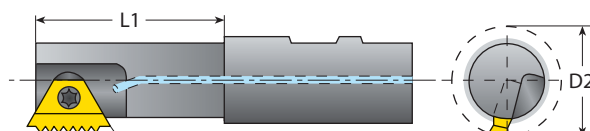
(Pour les outils de fraisage en carbure monobloc, voir page 290)

Le logiciel TM Gen et ses mises à jour peuvent être téléchargés sur le site [www.vargus.com](http://www.vargus.com)



### UN - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils  | Plaquette            | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|---------------|----------------------|------------------------------------|----------------------|--------------------------------|
| 32         | 7/16-1/2               | TMMC12-6.0    | 6.0I32UNTM...        | 12.0                               | 9.0                  | 0.46                           |
|            | 9/16-11/16             | TMC12-2       | 2I32UNTM2...         | 12.0                               | 11.5                 |                                |
|            | 3/4-13/16              | TMC16-3       | 3I32UNTM2...         | 22.0                               | 17.0                 |                                |
|            | 7/8-15/16              | TMC20-3       | 3I32UNTM2...         | 43.0                               | 20.0                 |                                |
|            | 1                      | TMLC25-3      | 3I32UNTM2...         | 25.0                               | 22.0                 |                                |
| 28         | 7/16-1/2               | TMMC12-6.0    | 6.0I28UNTM...        | 12.0                               | 9.0                  | 0.52                           |
|            | 9/16-3/4               | TMC12-2       | 2I28UNTM2...         | 12.0                               | 11.5                 |                                |
|            | 13/16-7/8              | TMC16-3       | 3I28UNTM2...         | 22.0                               | 17.0                 |                                |
|            | 15/16                  | TMC20-3       | 3I28UNTM2...         | 43.0                               | 20.0                 |                                |
|            | 1-1 1/8                | TMLC25-3      | 3I28UNTM2...         | 25.0                               | 22.0                 |                                |
| 24         | 1 3/16-1 1/2           | TM2C25-3      | 3I28UNTM2...         | 43.0                               | 26.0                 | 0.61                           |
|            | 9/16-11/16             | TMC12-2       | 2I24UNTM2...         | 12.0                               | 11.5                 |                                |
|            | 7/16                   | TMMC12-6.0    | 6.0I20UNTM...028/012 | 12.0                               | 9.0                  |                                |
|            | 1/2-9/16               | TMMC12-6.0    | 6.0I20UNTM...        | 12.0                               | 9.0                  |                                |
|            | 5/8-13/16              | TMC12-2       | 2I20UNTM2...         | 12.0                               | 11.5                 |                                |
| 20         | 7/8                    | TMC16-3       | 3I20UNTM2...         | 22.0                               | 17.0                 | 0.73                           |
|            | 15/16-1                | TMC20-3       | 3I20UNTM2...         | 43.0                               | 20.0                 |                                |
|            | 1 1/16-1 1/8           | TMLC25-3      | 3I20UNTM2...         | 25.0                               | 22.0                 |                                |
|            | 1 3/16-1 5/16          | TM2C25-3      | 3I20UNTM2...         | 43.0                               | 26.0                 |                                |
|            | 1 3/8-1 5/8            | TMC25-5       | 5I20UNTM2...         | 52.0                               | 30.0                 |                                |
|            | 1 11/16-1 13/16        | TMC32-5       | 5I20UNTM2...         | 58.0                               | 37.0                 |                                |
|            | 1 7/8-2 1/8            | TM2C32-5      | 5I20UNTM2...         | 45.0                               | 42.0                 |                                |
|            | 2 1/4-2 5/8            | TMSH-D50-22-3 | 3I20UNTM2...         |                                    | 50.0                 |                                |
|            | 2 3/4-3                | TMSH-D63-22-5 | 5I20UNTM2...         |                                    | 63.0                 |                                |
| 18         | 9/16                   | TMC12-2       | 2I18UNTM...028/017   | 12.0                               | 11.5                 | 0.81                           |
|            | 5/8                    | TMC12-2       | 2I18UNTM2...         | 12.0                               | 11.5                 |                                |
|            | 1 1/16-1 3/16          | TMLC25-3      | 3I18UNTM2...         | 25.0                               | 22.0                 |                                |
|            | 1 1/4-1 3/8            | TM2C25-3      | 3I18UNTM2...         | 43.0                               | 26.0                 |                                |
|            | 1 7/16-1 5/8           | TMC25-5       | 5I18UNTM2...         | 52.0                               | 30.0                 |                                |
|            | 1 11/16                | TMC32-5       | 5I18UNTM2...         | 58.0                               | 37.0                 |                                |
| 16         | 7/16-5/8               | TMMC12-6.0    | 6.0I16UNTM...028/014 | 12.0                               | 9.0                  | 0.92                           |
|            | 11/16-13/16            | TMC12-2       | 2I16UNTM2...         | 12.0                               | 11.5                 |                                |
|            | 7/8-15/16              | TMC16-3       | 3I16UNTM2...         | 22.0                               | 17.0                 |                                |
|            | 1                      | TMC20-3       | 3I16UNTM2...         | 43.0                               | 20.0                 |                                |
|            | 1 1/16-1 3/16          | TMLC25-3      | 3I16UNTM2...         | 25.0                               | 22.0                 |                                |
|            | 1 1/4-1 3/8            | TM2C25-3      | 3I16UNTM2...         | 43.0                               | 26.0                 |                                |
|            | 1 7/16-1 5/8           | TMC25-5       | 5I16UNTM2...         | 52.0                               | 30.0                 |                                |
|            | 1 11/16-1 7/8          | TMC32-5       | 5I16UNTM2...         | 58.0                               | 37.0                 |                                |
|            | 1 15/16-2 3/16         | TM2C32-5      | 5I16UNTM2...         | 45.0                               | 42.0                 |                                |
|            | 2 1/4-2 5/8            | TMSH-D50-22-3 | 3I16UNTM2...         |                                    | 50.0                 |                                |
|            | 2 3/4-3 3/8            | TMSH-D63-22-5 | 5I16UN TM2...        |                                    | 63.0                 |                                |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

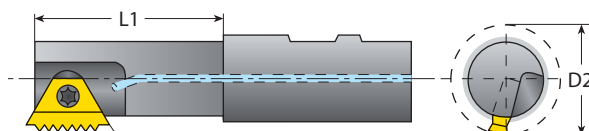
(Pour les outils de fraisage en carbure monobloc, voir page 290)

Le logiciel TM Gen et ses mises à jour peuvent être téléchargés sur le site [www.vargus.com](http://www.vargus.com)



### UN - Intérieur

| Pas tpi | Diam. nominal pouce | Porte-outils       | Plaquette            | L1-Porte à faux du porte-outils | D2-Diam. inscrit* | hmin. - Profondeur du filet |
|---------|---------------------|--------------------|----------------------|---------------------------------|-------------------|-----------------------------|
| 16      | 3 1/2-4             | TMSH-D80-27-5      | 5I16UNTM2...         |                                 | 80.0              | 0.92                        |
| 14      | 7/16                | TMMC20-6.0 124/003 | 6.0I14UNTM...028/013 | 15.0                            | 9.0               | 1.05                        |
|         | 7/8                 | TMC12-2            | 2I14UNTM2...         | 12.0                            | 11.5              |                             |
| 13      | 1/2                 | TMC20-2 124/005    | 2I13UNTM...028/015   | 15.5                            | 10.0              | 1.13                        |
| 12      | 9/16-11/16          | TMC20-2 124/005    | 2I12UNTM...028/016   | 15.5                            | 10.0              | 1.22                        |
|         | 3/4                 | TMNC16-3           | 3I12UNTM...028/020   | 22.0                            | 15.5              |                             |
|         | 13/16               | TMC16-3            | 3I12UNTM...028/020   | 22.0                            | 17.0              |                             |
|         | 7/8                 | TMNC16-3           | 3I12UNTM2...         | 22.0                            | 15.5              |                             |
|         | 15/16               | TMC16-3            | 3I12UNTM2...         | 22.0                            | 17.0              |                             |
|         | 1                   | BTMC20-3B          | 3BI12UNTM2...        | 29.0                            | 19.0              |                             |
|         | 1 1/16              | TMC20-3            | 3I12UNTM2...         | 43.0                            | 20.0              |                             |
|         | 1 1/8-1 1/4         | TMLC25-3           | 3I12UNTM2...         | 25.0                            | 22.0              |                             |
|         | 1 5/16-1 7/16       | TM2C25-3           | 3I12UNTM2...         | 43.0                            | 26.0              |                             |
|         | 1 1/2-1 11/16       | TMC25-5            | 5I12UNTM2...         | 52.0                            | 30.0              |                             |
|         | 1 3/4-1 15/16       | TMC32-5            | 5I12UNTM2...         | 58.0                            | 37.0              |                             |
|         | 2-2 1/4             | TM2C32-5           | 5I12UNTM2...         | 45.0                            | 42.0              |                             |
|         | 2 3/8-2 3/4         | TMSH-D50-22-3      | 3I12UNTM2...         |                                 | 50.0              |                             |
|         | 2 7/8-3 3/8         | TMSH-D63-22-5      | 5I12UNTM2...         |                                 | 63.0              |                             |
|         | 3 1/2-4             | TMSH-D80-27-5      | 5I12UNTM2...         |                                 | 80.0              |                             |
| 11      | 5/8                 | TMC20-2 124/006    | 2I11UNTM...028/018   | 15.5                            | 12.0              | 1.33                        |
| 10      | 3/4                 | TMC16-3 124/001    | 3I10UNTM...028/019   | 20.5                            | 15.5              | 1.47                        |
| 9       | 7/8                 | TMC25-4 124/002    | 4I9UNTM...028/021    | 30.0                            | 18.0              | 1.63                        |
| 8       | 1-1 3/16            | TMC25-4 124/007    | 4I8UNTM...028/022    | 40.0                            | 20.0              | 1.83                        |
|         | 1 1/4-1 3/8         | TMC25-5 124/004    | 5I8UNTM...028/024    | 40.0                            | 25.0              |                             |
|         | 1 7/16-1 5/8        | TMC25-5            | 5I8UNTM...028/024    | 52.0                            | 30.0              |                             |
|         | 1 11/16-1 15/16     | TMC25-5            | 5I8UNTM2...          | 52.0                            | 30.0              |                             |
|         | 2-2 1/8             | TMC32-5            | 5I8UNTM2...          | 58.0                            | 37.0              |                             |
|         | 2 1/4-2 7/8         | TM2C32-5           | 5I8UNTM2...          | 45.0                            | 42.0              |                             |
|         | 3-3 5/8             | TMSH-D63-22-5      | 5I8UNTM2...          |                                 | 63.0              |                             |
|         | 3 3/4-4             | TMSH-D80-27-5      | 5I8UNTM2...          |                                 | 80.0              |                             |
| 7       | 1 1/8-1 1/4         | TMC25-4 124/002    | 4I7UNTM...028/023    | 30.0                            | 18.0              | 2.09                        |
| 6       | 1 3/8-1 9/16        | TMC25-5 124/004    | 5I6UNTM...028/025    | 40.0                            | 25.0              | 2.44                        |
|         | 1 5/8-1 15/16       | TMC25-5            | 5I6UNTM...028/025    | 52.0                            | 30.0              |                             |
|         | 2-2 1/8             | TMC25-5            | 5I6UNTM2...          | 52.0                            | 30.0              |                             |
|         | 2 1/4               | TMC32-5            | 5I6UNTM2...          | 58.0                            | 37.0              |                             |
|         | 2 3/8-2 1/2         | TMC40-6B           | 6BI6UNTM2...         | 65.0                            | 46.0              |                             |
|         | 2 5/8-3 1/8         | TM2C40-6B          | 6BI6UNTM2...         | 65.0                            | 52.0              |                             |
|         | 3 1/4-3 3/4         | TMSH-D63-22-6B     | 6BI6UNTM2...         |                                 | 63.0              |                             |
| 5       | 3 7/8-4             | TMSH-D80-27-6B     | 6BI6UNTM2...         |                                 | 80.0              | 2.93                        |
|         | 1 3/4               | TMC25-5            | 5I5UNTM...028/077    | 52.0                            | 30.0              |                             |
| 4.5     | 2-2 1/4             | TMC32-6B           | 6BI4.5UNTM2...       | 55.0                            | 35.0              | 3.26                        |
| 4       | 2 1/2               | TMC40-6B           | 6BI4UNTM2...         | 65.0                            | 46.0              | 3.67                        |
|         | 2 3/4-3             | TM2C40-6B          | 6BI4UNTM2...         | 65.0                            | 52.0              |                             |
|         | 3 1/4-4             | TMSH-D63-22-6B     | 6BI4UNTM2...         |                                 | 63.0              |                             |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

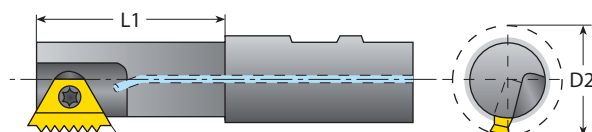
(Pour les outils de fraisage en carbure monobloc, voir page 290)

Le logiciel TM Gen et ses mises à jour peuvent être téléchargés sur le site [www.vargus.com](http://www.vargus.com)



### UNJ - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils   | Plaquette      | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|----------------|----------------|------------------------------------|----------------------|--------------------------------|
| 24         | 9/16-11/16             | TMC12-2        | 2I24UNJTM2...  | 12.0                               | 11.5                 | 0.55                           |
| 20         | 1/2                    | TMMC12-6.0     | 6.0I20UNJTM... | 12.0                               | 9.0                  | 0.66                           |
|            | 3/4-13/16              | TMC12-2        | 2I20UNJTM2...  | 12.0                               | 11.5                 |                                |
|            | 7/8                    | TMC16-3        | 3I20UNJTM2...  | 22.0                               | 17.0                 |                                |
|            | 15/16-1                | TMC20-3        | 3I20UNJTM2...  | 43.0                               | 20.0                 |                                |
| 18         | 5/8                    | TMC12-2        | 2I18UNJTM2...  | 12.0                               | 11.5                 | 0.74                           |
|            | 1 1/16-1 3/16          | TMLC25-3       | 3I18UNJTM2...  | 25.0                               | 22.0                 |                                |
|            | 1 1/4-1 11/16          | TM2C25-3       | 3I18UNJTM2...  | 43.0                               | 26.0                 |                                |
| 16         | 11/16-13/16            | TMC12-2        | 2I16UNJTM2...  | 12.0                               | 11.5                 | 0.83                           |
|            | 7/8-15/16              | TMC16-3        | 3I16UNJTM2...  | 22.0                               | 17.0                 |                                |
|            | 1                      | TMC20-3        | 3I16UNJTM2...  | 43.0                               | 20.0                 |                                |
|            | 1 1/16-1 3/16          | TMLC25-3       | 3I16UNJTM2...  | 25.0                               | 22.0                 |                                |
|            | 1 1/4-1 3/8            | TM2C25-3       | 3I16UNJTM2...  | 43.0                               | 26.0                 |                                |
|            | 1 7/16-1 5/8           | TMC25-5        | 5I16UNJTM2...  | 52.0                               | 30.0                 |                                |
|            | 1 11/16-1 7/8          | TMC32-5        | 5I16UNJTM2...  | 58.0                               | 37.0                 |                                |
|            | 1 15/16-2 1/8          | TM2C32-5       | 5I16UNJTM2...  | 45.0                               | 42.0                 |                                |
| 14         | 2 1/4-2 3/8            | TMSH-D50-22-3  | 3I16UNJTM2...  |                                    | 50.0                 | 0.95                           |
|            | 7/8                    | TMC12-2        | 2I14UNJTM2...  | 12.0                               | 11.5                 |                                |
| 12         | 7/8                    | TMNC16-3       | 3I12UNJTM2...  | 22.0                               | 15.5                 | 1.11                           |
|            | 15/16-1                | TMC16-3        | 3I12UNJTM2...  | 22.0                               | 17.0                 |                                |
|            | 1 1/16                 | TMC20-3        | 3I12UNJTM2...  | 43.0                               | 20.0                 |                                |
|            | 1 1/8-1 1/4            | TMLC25-3       | 3I12UNJTM2...  | 25.0                               | 22.0                 |                                |
|            | 1 5/16-1 7/16          | TM2C25-3       | 3I12UNJTM2...  | 43.0                               | 26.0                 |                                |
|            | 1 1/2-1 11/16          | TMC25-5        | 5I12UNJTM2...  | 52.0                               | 30.0                 |                                |
|            | 1 3/4-1 15/16          | TMC32-5        | 5I12UNJTM2...  | 58.0                               | 37.0                 |                                |
|            | 2-2 1/4                | TM2C32-5       | 5I12UNJTM2...  | 45.0                               | 42.0                 |                                |
|            | 2 3/8-2 3/4            | TMSH-D50-22-3  | 3I12UNJTM2...  |                                    | 50.0                 |                                |
|            | 2 7/8-3 3/8            | TMSH-D63-22-5  | 5I12UNJTM2...  |                                    | 63.0                 |                                |
|            | 3 1/2-4 1/4            | TMSH-D80-27-5  | 5I12UNJTM2...  |                                    | 80.0                 |                                |
|            | 4 3/8-5 1/4            | TMSH-D100-32-5 | 5I12UNJTM2...  |                                    | 100.0                |                                |
|            | 5 3/8-6                | TMSH-D125-40-5 | 5I12UNJTM2...  |                                    | 125.0                |                                |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

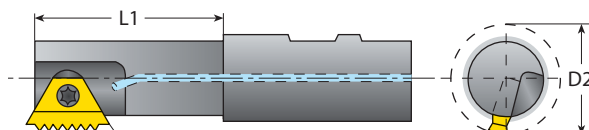
(Pour les outils de fraisage en carbure monobloc, voir page 290)

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### W - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils    | Plaquette           | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin.-<br>Profondeur du filet |
|------------|------------------------|-----------------|---------------------|------------------------------------|----------------------|-------------------------------|
| 26         | 7/16                   | TMMC12-6.0      | 6.0I26WTM...028/036 | 12.0                               | 9.0                  | 0.63                          |
|            | 1/2-9/16               | TMMC12-6.0      | 6.0EI26WTM...       | 12.0                               | 9.0                  |                               |
|            | 5/8-3/4                | TMC12-2         | 2EI26WTM2...        | 12.0                               | 11.5                 |                               |
|            | 13/16-7/8              | TMC16-3         | 3EI26WTM2...        | 22.0                               | 17.0                 |                               |
|            | 15/16-1                | TMC20-3         | 3EI26WTM2...        | 43.0                               | 20.0                 |                               |
|            | 1 1/16-1 1/8           | TMLC25-3        | 3EI26WTM2...        | 25.0                               | 22.0                 |                               |
|            | 1 3/16-1 5/8           | TM2C25-3        | 3EI26WTM2...        | 43.0                               | 26.0                 |                               |
|            | 1 3/4-2                | TMSH-D38-16-2   | 2EI26WTM2...        |                                    | 38.0                 |                               |
| 20         | 1/2                    | TMMC12-6.0      | 6.0I20WTM...028/037 | 12.0                               | 9.0                  | 0.81                          |
|            | 9/16                   | TMMC12-6.0      | 6.0EI20WTM2...      | 12.0                               | 9.0                  |                               |
|            | 5/8-13/16              | TMC12-2         | 2EI20WTM2...        | 12.0                               | 11.5                 |                               |
|            | 7/8-15/16              | TMC16-3         | 3EI20WTM2...        | 22.0                               | 17.0                 |                               |
|            | 1                      | TMC20-3         | 3EI20WTM2...        | 43.0                               | 20.0                 |                               |
|            | 1 1/16-1 3/16          | TMLC25-3        | 3EI20WTM2...        | 25.0                               | 22.0                 |                               |
|            | 1 1/4-1 5/8            | TM2C25-3        | 3EI20WTM2...        | 43.0                               | 26.0                 |                               |
|            | 1 3/4-2 1/8            | TMSH-D38-16-2   | 2EI20WTM2...        |                                    | 38.0                 |                               |
| 18         | 2 1/4-3                | TMSH-D50-22-3   | 3EI20WTM2...        |                                    | 50.0                 | 0.90                          |
|            | 7/16                   | TMMC12-6.0      | 6.0I18WTM...028/035 | 12.0                               | 9.0                  |                               |
|            | 1/2                    | TMC20-2 124/005 | 2I16WTM...028/051   | 15.5                               | 10.0                 |                               |
|            | 9/16-3/4               | TMC12-2         | 2I16WTM...028/038   | 12.0                               | 11.5                 |                               |
|            | 13/16                  | TMNC16-3        | 3EI16WTM2...        | 22.0                               | 15.5                 |                               |
|            | 7/8-15/16              | TMC16-3         | 3EI16WTM2...        | 22.0                               | 17.0                 |                               |
|            | 1-1 1/16               | TMC20-3         | 3EI16WTM2...        | 43.0                               | 20.0                 |                               |
|            | 1 1/8-1 1/4            | TMLC25-3        | 3EI16WTM2...        | 25.0                               | 22.0                 |                               |
| 16         | 1 5/16-1 3/8           | TM2C25-3        | 3EI16WTM2...        | 43.0                               | 26.0                 | 1.02                          |
|            | 1.4-1 5/8              | TMC25-5         | 5EI16WTM2...        | 52.0                               | 30.0                 |                               |
|            | 1 3/4-1.9              | TMC32-5         | 5EI16WTM2...        | 58.0                               | 37.0                 |                               |
|            | 2-2 1/4                | TM2C32-5        | 5EI16WTM2...        | 45.0                               | 42.0                 |                               |
|            | 2 3/8-2 3/4            | TMSH-D50-22-3   | 3EI16WTM2...        |                                    | 50.0                 |                               |
|            | 2 7/8-3 3/8            | TMSH-D63-22-5   | 5EI16WTM2...        |                                    | 63.0                 |                               |
|            | 3 1/2-4 1/8            | TMSH-D80-27-5   | 5EI16WTM2...        |                                    | 80.0                 |                               |
|            | 4 1/4-5 1/8            | TMSH-D100-32-5  | 5EI16WTM2...        |                                    | 100.0                |                               |
|            | 5 1/4-7                | TMSH-D125-40-5  | 5EI16WTM2...        |                                    | 125.0                |                               |
|            | 5/8-11/16              | TMC20-2 124/006 | 2I14WTM...028/039   | 15.5                               | 12.0                 |                               |
| 14         | 3/4                    | TMC16-3 124/001 | 3I12WTM...028/040   | 20.5                               | 15.5                 | 1.16                          |
|            | 13/16                  | TMC16-3         | 3I12WTM...028/041   | 22.0                               | 17.0                 |                               |
|            | 15/16-1 5/16           | TMC20-3         | 3I12WTM...028/041   | 43.0                               | 20.0                 |                               |
|            | 1 3/8-1 7/16           | TMC25-5         | 5I12WTM...028/050   | 52.0                               | 30.0                 |                               |
|            | 1 1/2-1 3/4            | TMC25-5         | 5EI12WTM2...        | 52.0                               | 30.0                 |                               |
|            | 1 7/8                  | TMC32-5         | 5EI12WTM2...        | 58.0                               | 37.0                 |                               |
|            | 2-2 1/4                | TM2C32-5        | 5EI12WTM2...        | 45.0                               | 42.0                 |                               |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

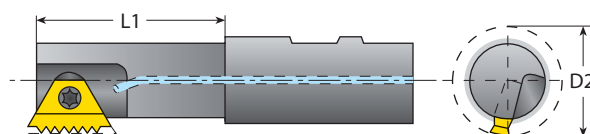
(Pour les outils de fraisage en carbure monobloc, voir page 290)

Le logiciel TM Gen et ses mises à jour peuvent être téléchargés sur le site [www.vargus.com](http://www.vargus.com)



### W - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils    | Plaquette         | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|-----------------|-------------------|------------------------------------|----------------------|--------------------------------|
| 12         | 2 3/8 - 2 3/4          | TMSH-D50-22-3   | 3EI12WTM2...      |                                    | 50.0                 | 1.36                           |
|            | 2 7/8 - 3 3/8          | TMSH-D63-22-5   | 5EI12WTM2...      |                                    | 63.0                 |                                |
|            | 3 1/2 - 4 1/8          | TMSH-D80-27-5   | 5EI12WTM2...      |                                    | 80.0                 |                                |
|            | 4 1/4 - 5 1/8          | TMSH-D100-32-5  | 5EI12WTM2...      |                                    | 100.0                |                                |
|            | 5 1/4 - 7              | TMSH-D125-40-5  | 5EI12WTM2...      |                                    | 125.0                |                                |
| 11         | 7/8                    | TMC25-4 124/002 | 4I11WTM...028/043 | 30.0                               | 18.0                 | 1.48                           |
| 10         | 1                      | TMC25-4 124/002 | 4I10WTM...028/045 | 30.0                               | 18.0                 | 1.63                           |
| 9          | 7/8 - 1 1/4            | TMC25-4 124/002 | 4I9WTM...028/042  | 30.0                               | 18.0                 | 1.81                           |
| 8          | 1                      | TMC25-4 124/002 | 4I8WTM...028/044  | 30.0                               | 18.0                 | 2.03                           |
|            | 1 3/16 - 1.4           | TMC25-5 124/004 | 5I8WTM...028/047  | 40.0                               | 25.0                 |                                |
|            | 1 7/16 - 1 5/8         | TMC25-5         | 5I8WTM...028/047  | 52.0                               | 30.0                 |                                |
|            | 1 7/8 - 1.9            | TMC25-5         | 5EI8WTM2...       | 52.0                               | 30.0                 |                                |
|            | 2.1 - 2 1/8            | TMC32-5         | 5EI8WTM2...       | 58.0                               | 37.0                 |                                |
|            | 2 1/4 - 3              | TM2C32-5        | 5EI8WTM2...       | 45.0                               | 42.0                 |                                |
|            | 3 1/8 - 3 5/8          | TMSH-D63-22-5   | 5EI8WTM2...       |                                    | 63.0                 |                                |
|            | 3 3/4 - 4 3/8          | TMSH-D80-27-5   | 5EI8WTM2...       |                                    | 80.0                 |                                |
|            | 4 5/8 - 5 1/2          | TMSH-D100-32-5  | 5EI8WTM2...       |                                    | 100.0                |                                |
|            | 5 5/8 - 7              | TMSH-D125-40-5  | 5EI8WTM2...       |                                    | 125.0                |                                |
| 7          | 1 1/8                  | TMC25-5 124/008 | 5I7WTM...028/046  | 40.0                               | 22.0                 | 2.32                           |
|            | 1 1/4                  | TMC25-5 124/004 | 5I7WTM...028/048  | 40.0                               | 25.0                 |                                |
|            | 1 3/4                  | TMC25-5         | 5I7WTM...028/048  | 52.0                               | 30.0                 |                                |
|            | 2                      | TMC25-5         | 5EI7WTM2...       | 52.0                               | 30.0                 |                                |
| 6          | 1 5/16 - 1 1/2         | TMC25-5 124/004 | 5I6WTM...028/049  | 40.0                               | 25.0                 | 2.71                           |
|            | 1.6 - 1 5/8            | TMC25-5         | 5I6WTM...028/049  | 52.0                               | 30.0                 |                                |
|            | 1 7/8 - 1.9            | TMC32-5         | 5I6WTM...028/049  | 58.0                               | 37.0                 |                                |
|            | 2.1 - 2 1/8            | TMC25-5         | 5EI6WTM2...       | 52.0                               | 30.0                 |                                |
|            | 2 1/4                  | TMC32-6B        | 6BEI6WTM2...      | 55.0                               | 35.0                 |                                |
|            | 2 3/8 - 2.6            | TMC32-5         | 5EI6WTM2...       | 58.0                               | 37.0                 |                                |
|            | 2 5/8 - 2 3/4          | TMC40-6B        | 6BEI6WTM2...      | 65.0                               | 46.0                 |                                |
|            | 2 7/8 - 3 1/4          | TM2C40-6B       | 6BEI6WTM2...      | 65.0                               | 52.0                 |                                |
|            | 3 3/8 - 3 7/8          | TMSH-D63-22-6B  | 6BEI6WTM2...      |                                    | 63.0                 |                                |
|            | 4 - 4 3/4              | TMSH-D80-27-6B  | 6BEI6WTM2...      |                                    | 80.0                 |                                |
|            | 4 7/8 - 5 3/4          | TMSH-D100-32-6B | 6BEI6WTM2...      |                                    | 100.0                |                                |
| 5          | 5 7/8 - 7              | TMSH-D125-40-6B | 6BEI6WTM2...      |                                    | 125.0                |                                |
|            | 3                      | TMC40-6B        | 6BEI5WTM2...      | 65.0                               | 46.0                 | 3.25                           |
|            | 3 1/4                  | TM2C40-6B       | 6BEI5WTM2...      | 65.0                               | 52.0                 |                                |
| 4.5        | 3 1/2                  | TMC40-6B        | 6BEI4.5WTM2...    | 65.0                               | 46.0                 | 3.61                           |
|            | 3 3/4 - 4              | TM2C40-6B       | 6BEI4.5WTM2...    | 65.0                               | 52.0                 |                                |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

(Pour les outils de fraisage en carbure monobloc, voir page 290)

Le logiciel TM Gen et ses mises à jour peuvent être téléchargés sur le site [www.vargus.com](http://www.vargus.com)



### BSP - Intérieur

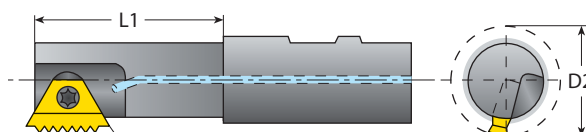
| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils    | Plaquette     | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|-----------------|---------------|------------------------------------|----------------------|--------------------------------|
| 19         | 1/4                    | TMMC20-6.0      | 6.0EI19WTM... | 17.0                               | 9.0                  | 0.86                           |
|            | 3/8                    | TMC20-2         | 2EI19WTM2...  | 20.0                               | 11.5                 |                                |
| 14         | 1/2-5/8                | TMC20-2         | 2EI14WTM2...  | 20.0                               | 11.5                 | 1.16                           |
|            | 3/4-7/8                | TMC16-3         | 3EI14WTM2...  | 22.0                               | 17.0                 |                                |
| 11         | 1                      | TMC25-5 124/004 | 5EI11WTM2...  | 40.0                               | 25.0                 | 1.48                           |
|            | 1 1/4-1 1/2            | TMC25-5         | 5EI11WTM2...  | 52.0                               | 30.0                 |                                |
|            | 1 3/4                  | TMC32-5         | 5EI11WTM2...  | 58.0                               | 37.0                 |                                |
|            | 2-2 1/4                | TM2C32-5        | 5EI11WTM2...  | 45.0                               | 42.0                 |                                |
|            | 2 1/2-3                | TMSH-D63-22-5   | 5EI11WTM2...  |                                    | 63.0                 |                                |
|            | 3 1/2                  | TMSH-D80-27-5   | 5EI11WTM2...  |                                    | 80.0                 |                                |
|            | 4                      | TMSH-D100-32-5  | 5EI11WTM2...  |                                    | 100.0                |                                |
|            | 5-6                    | TMSH-D125-40-5  | 5EI11WTM2...  |                                    | 125.0                |                                |

### BSPT - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils | Plaquette      | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|--------------|----------------|------------------------------------|----------------------|--------------------------------|
| 19         | 3/8                    | TMC20-2      | 2EI19BSPTTM... | 20.0                               | 11.5                 | 0.86                           |
| 14         | 1/2-3/4                | TMNC16-3     | 3EI14BSPTTM... | 22.0                               | 15.5                 | 1.16                           |
| 11         | 1-1 1/4                | TMNC20-3     | 3EI11BSPTTM... | 23.0                               | 19.0                 | 1.48                           |
|            | 1 1/2                  | TMC25-5      | 5EI11BSPTTM... | 52.0                               | 30.0                 |                                |
|            | 2-6                    | TMNC32-5     | 5EI11BSPTTM... | 58.0                               | 37.0                 |                                |

### NPT - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils    | Plaquette           | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|-----------------|---------------------|------------------------------------|----------------------|--------------------------------|
| 18         | 1/4-3/8                | TMC20-2 124/009 | 2I18NPTTM...028/074 | 15.5                               | 10.0                 | 1.01                           |
| 14         | 1/2                    | TMNC16-3        | 3EI14NPTTM...       | 22.0                               | 15.5                 | 1.33                           |
|            | 3/4                    | TMNC20-3        | 3EI14NPTTM...       | 23.0                               | 19.0                 |                                |
| 11.5       | 1                      | TMNC20-3        | 3EI11.5NPTTM...     | 23.0                               | 19.0                 | 1.64                           |
|            | 1 1/4                  | TMC25-5         | 5EI11.5NPTTM...     | 52.0                               | 30.0                 |                                |
|            | 1 1/2-2                | TMNC32-5        | 5EI11.5NPTTM...     | 58.0                               | 37.0                 |                                |
| 8          | 2 1/2                  | TMNC32-5        | 5EI8NPTTM...        | 58.0                               | 37.0                 | 2.42                           |
|            | 3-24                   | TMC40-6B        | 6BEI8NPTTM...       | 65.0                               | 46.0                 |                                |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

(Pour les outils de fraisage en carbure monobloc, voir page 290)

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### NPTF - Intérieur

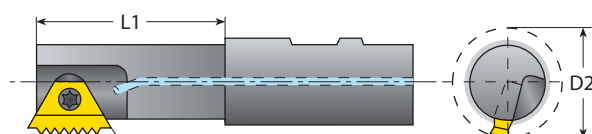
| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils    | Plaquette            | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|-----------------|----------------------|------------------------------------|----------------------|--------------------------------|
| 18         | 1/4-3/8                | TMC20-2 124/009 | 2I18NPTFTM...028/078 | 15.5                               | 10.0                 | 1.00                           |
| 14         | 1/2                    | TMNC16-3        | 3EI14NPTFTM...       | 22.0                               | 15.5                 | 1.35                           |
|            | 3/4                    | TMNC20-3        | 3EI14NPTFTM...       | 23.0                               | 19.0                 |                                |
| 11.5       | 1                      | TMNC20-3        | 3EI11.5NPTFTM...     | 23.0                               | 19.0                 | 1.63                           |
|            | 1 1/4                  | TMC25-5 124/004 | 5EI11.5NPTFTM...     | 40.0                               | 25.0                 |                                |
|            | 1 1/2                  | TMC25-5         | 5EI11.5NPTFTM...     | 52.0                               | 30.0                 |                                |
|            | 2                      | TMNC32-5        | 5EI11.5NPTFTM...     | 58.0                               | 37.0                 |                                |
| 8          | 2 1/2                  | TMNC32-5        | 5EI8NPTFTM...        | 58.0                               | 37.0                 | 2.38                           |
|            | 3                      | TMC40-6B        | 6BEI8NPTFTM...       | 65.0                               | 46.0                 |                                |

### PG - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils    | Plaquette      | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|-----------------|----------------|------------------------------------|----------------------|--------------------------------|
| 20         | PG7                    | TMMC12-6.0      | 6.0EI20PGTM... | 12.0                               | 9.0                  | 0.61                           |
| 18         | PG9                    | TMC12-2         | 2EI18PGTM2...  | 12.0                               | 11.5                 | 0.67                           |
|            | PG11                   | TMNC16-3        | 3EI18PGTM2...  | 22.0                               | 15.5                 |                                |
|            | PG13.5                 | TMC16-3         | 3EI18PGTM2...  | 22.0                               | 17.0                 |                                |
|            | PG16                   | TMC20-3         | 3EI18PGTM2...  | 43.0                               | 20.0                 |                                |
| 16         | PG21                   | TMC25-5 124/004 | 5EI16PGTM2...  | 40.0                               | 25.0                 | 0.76                           |
|            | PG29                   | TMC25-5         | 5EI16PGTM2...  | 52.0                               | 30.0                 |                                |
|            | PG36                   | TM2C32-5        | 5EI16PGTM2...  | 45.0                               | 42.0                 |                                |
|            | PG42-PG48              | TMSH-D50-22-3   | 3EI16PGTM2...  | 50.0                               | 50.0                 |                                |

### TR - Intérieur

| Pas<br>mm | Diam. nominal<br>pouce | Porte-outils    | Plaquette           | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|-----------|------------------------|-----------------|---------------------|------------------------------------|----------------------|--------------------------------|
| 2.0       | TR16                   | TMC20-2 124/006 | 2I2.0TRTM...028/028 | 15.5                               | 12.0                 | 1.25                           |
|           | TR18-TR20              | TMC20-2 124/006 | 2I2.0TRTM...028/029 | 15.5                               | 12.0                 |                                |
| 3.0       | TR24                   | TMC25-4 124/002 | 4I3.0TRTM...028/030 | 30.0                               | 18.0                 | 1.75                           |
|           | TR26-TR30              | TMC25-4 124/002 | 4I3.0TRTM...028/031 | 30.0                               | 18.0                 |                                |
|           | TR32-TR36              | TMC25-4 124/007 | 4I3.0TRTM...028/032 | 40.0                               | 20.0                 |                                |
|           | TR38-TR42              | TMC25-5 124/004 | 5I3.0TRTM...028/033 | 40.0                               | 25.0                 |                                |
|           | TR44-TR48              | TMC25-5         | 5I3.0TRTM...028/033 | 52.0                               | 30.0                 |                                |
|           | TR50-TR60              | TMC32-5         | 5I3.0TRTM...028/033 | 58.0                               | 37.0                 |                                |
| 4.0       | TR65-TR110             | TMC32-5         | 5I4.0TRTM...028/034 | 58.0                               | 37.0                 | 2.25                           |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).

## Recommandations d'outils (Suite)\*

(pour MiTM, voir page 254)

(Pour les outils Fraises à fileter pour alésages profonds, voir page 274)

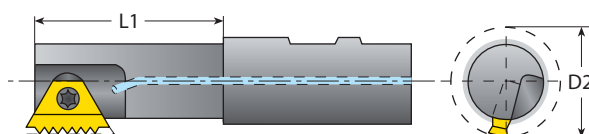
(Pour les outils de fraisage en carbure monobloc, voir page 290)

Le logiciel TM Gen et ses  
mises à jour peuvent être  
téléchargés sur le site  
[www.vargus.com](http://www.vargus.com)

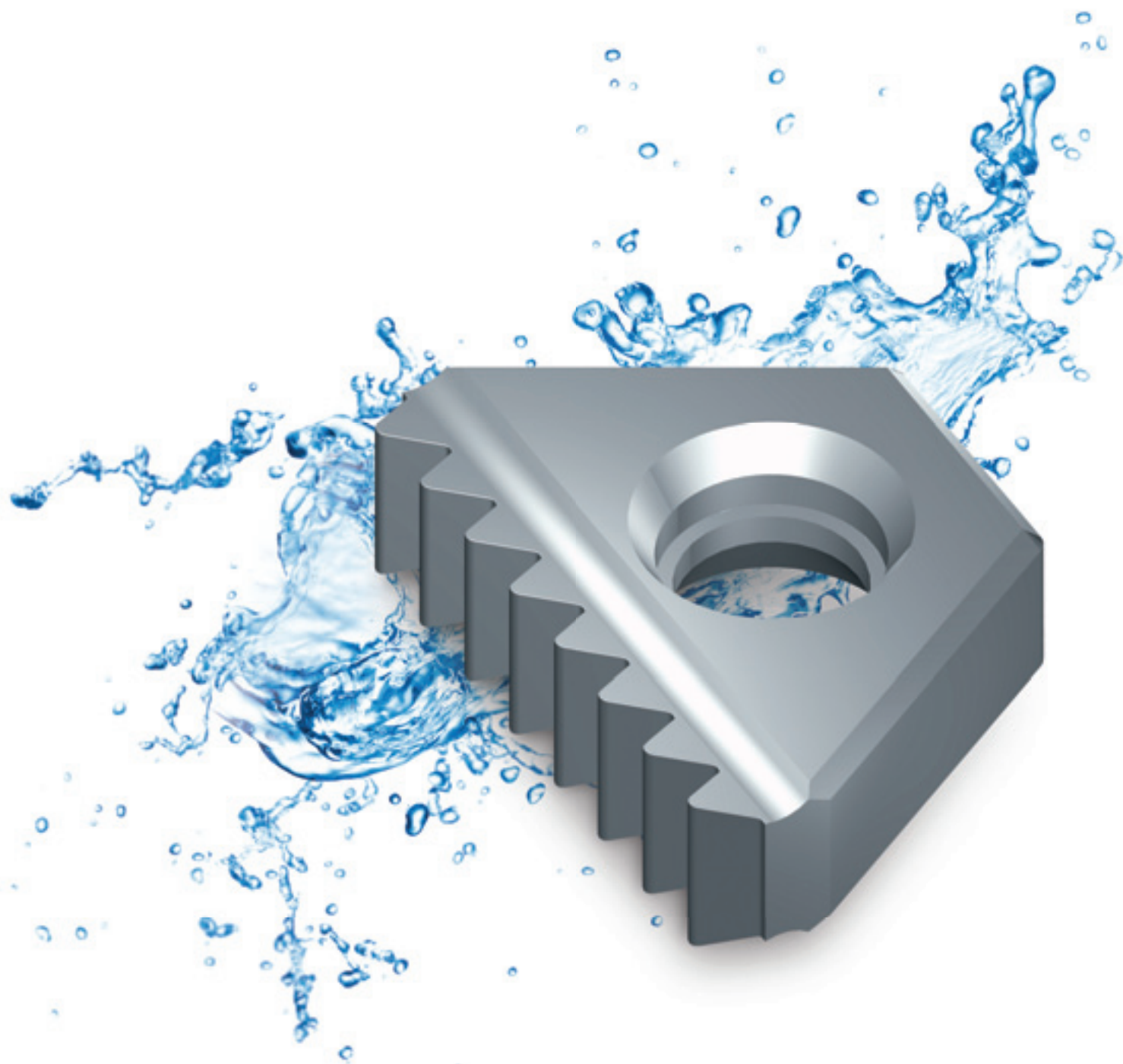


### ACME - Intérieur

| Pas<br>tpi | Diam. nominal<br>pouce | Porte-outils    | Plaquette              | L1-Porte à faux du<br>porte-outils | D2-Diam.<br>inscrit* | hmin. -<br>Profondeur du filet |
|------------|------------------------|-----------------|------------------------|------------------------------------|----------------------|--------------------------------|
| 16         | 1/2                    | TMMC12-6.0      | 6.0I16ACMETM...028/052 | 12.0                               | 9.0                  | 0.92                           |
|            | 5/8                    | TMC12-2         | 2I16ACMETM...028/053   | 12.0                               | 11.5                 |                                |
|            | 3/4                    | TMC12-2         | 2I16ACMETM...028/055   | 12.0                               | 11.5                 |                                |
| 14         | 5/8                    | TMC20-2 124/005 | 2I14ACMETM...028/054   | 15.5                               | 10.0                 | 1.03                           |
|            | 3/4                    | TMC20-2 124/006 | 2I14ACMETM...028/083   | 15.5                               | 12.0                 |                                |
|            | 7/8                    | TMNC16-3        | 3I14ACMETM...028/057   | 22.0                               | 15.5                 |                                |
|            | 1                      | TMC16-3         | 3I14ACMETM...028/059   | 22.0                               | 17.0                 |                                |
| 12         | 3/4                    | TMC20-2 124/006 | 2I12ACMETM...028/056   | 15.5                               | 12.0                 | 1.19                           |
|            | 7/8                    | TMC20-2 124/006 | 2I12ACMETM...028/058   | 15.5                               | 12.0                 |                                |
|            | 1                      | TMNC16-3        | 3I12ACMETM...028/060   | 22.0                               | 15.5                 |                                |
|            | 1 1/8                  | TMC16-3         | 3I12ACMETM...028/060   | 22.0                               | 17.0                 |                                |
|            | 1 1/4                  | TMC20-3         | 3I12ACMETM...028/060   | 43.0                               | 20.0                 |                                |
| 10         | 1                      | TMC25-4 124/002 | 4I10ACMETM...028/061   | 30.0                               | 18.0                 | 1.52                           |
|            | 1 1/8                  | TMC25-4 124/007 | 4I10ACMETM...028/084   | 40.0                               | 20.0                 |                                |
|            | 1 1/4                  | TMC25-5 124/004 | 5I10ACMETM...028/064   | 40.0                               | 25.0                 |                                |
|            | 1 3/8                  | TMC25-5 124/004 | 5I10ACMETM...028/065   | 40.0                               | 25.0                 |                                |
|            | 1 1/2                  | TMC25-5         | 5I10ACMETM...028/068   | 52.0                               | 30.0                 |                                |
|            | 1 3/4                  | TMC32-5         | 5I10ACMETM...028/064   | 58.0                               | 37.0                 |                                |
| 8          | 1                      | TMC25-4 124/002 | 4I8ACMETM...028/062    | 30.0                               | 18.0                 | 1.84                           |
|            | 1 1/8-1 1/4            | TMC25-4 124/002 | 4I8ACMETM...028/063    | 30.0                               | 18.0                 |                                |
|            | 1 3/8                  | TMC25-5 124/004 | 5I8ACMETM...028/066    | 40.0                               | 25.0                 |                                |
|            | 1 1/2                  | TMC25-5 124/004 | 5I8ACMETM...028/069    | 40.0                               | 25.0                 |                                |
|            | 1 3/4                  | TMC25-5         | 5I8ACMETM...028/069    | 52.0                               | 30.0                 |                                |
|            | 2                      | TMC32-5         | 5I8ACMETM...028/069    | 58.0                               | 37.0                 |                                |
| 6          | 1 3/8                  | TMC25-5 124/008 | 5I6ACMETM...028/067    | 40.0                               | 22.0                 | 2.37                           |
|            | 1 1/2                  | TMC25-5 124/004 | 5I6ACMETM...028/070    | 40.0                               | 25.0                 |                                |
|            | 1 3/4                  | TMC25-5         | 5I6ACMETM...028/070    | 52.0                               | 30.0                 |                                |
|            | 2                      | TMC25-5         | 5I6ACMETM...028/072    | 52.0                               | 30.0                 |                                |
|            | 2 1/4                  | TMC32-5         | 5I6ACMETM...028/072    | 58.0                               | 37.0                 |                                |
| 5          | 1 3/4                  | TMC25-5 124/004 | 5I5ACMETM...028/071    | 40.0                               | 25.0                 | 2.79                           |
|            | 2                      | TMC25-5         | 5I5ACMETM...028/071    | 52.0                               | 30.0                 |                                |
|            | 2 1/4                  | TMC25-5         | 5I5ACMETM...028/073    | 52.0                               | 30.0                 |                                |
|            | 2 1/2                  | TMC32-5         | 5I5ACMETM...028/073    | 58.0                               | 37.0                 |                                |



\* La fraise à fileter recommandée est toujours la plus large pour les spécifications données, mais une fraise plus petite ou de (D2) diamètre égal peut aussi être utilisée (excepté les plaquettes 028/...).



# Fraises à fileter



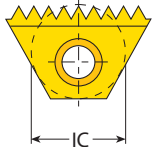
> Plaquettes standards

# PLAQUETTES POUR FRAISES À FILETER

|                                                                       |          |
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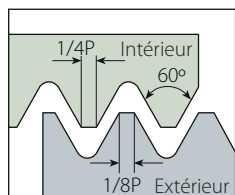
## Système de codification Vardex

### pour Fraises à fileter

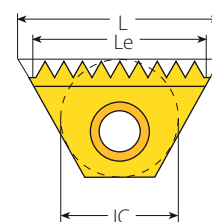
| 3                                                                                                                                                                                                           | B                                                  | I                                                                                         | 1.5                          | ISO                                                                                                                                                                                                                                                 | TM2                             | F                                              | VBX                                   | 028/...                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------|---------------------------------------|----------------------------------------------|
| 1                                                                                                                                                                                                           | 2                                                  | 3                                                                                         | 4                            | 5                                                                                                                                                                                                                                                   | 6                               | 7                                              | 8                                     | 9                                            |
| <b>1 - Taille plaque</b><br>6.0 - 6,0 mm<br>2 - 1/4"<br>3 - 3/8"<br>3B - 3/8"B<br>4 - 1/2"<br>5 - 5/8"<br>6B - 3/4"B<br> | <b>2 - Longueur de l'arrêt de coupe</b><br>B - TMB | <b>3 - Type de plaque</b><br>E - Extérieur<br>I - Intérieur<br>EI - Extérieur + Intérieur | <b>4 - Pas</b><br>0.35 - 6.0 | <b>5 - Standard</b><br>ISO- ISO Métrique<br>UN- Américain UN<br>UNJ- UNJ<br>W- Whitworth pour BSW, BSP<br>NPT - NPT<br>NPTF - NPTF<br>NPS - NPS<br>BSPT- British Standard Pipe<br>Filetage<br>PG- Pg DIN 40430<br>ACME- ACME<br>TR- Trapèze DIN 103 | <b>6 - Système</b><br>TM2<br>TM | <b>8 - Nuance carbure</b><br>VBX<br>VTX<br>VK2 | <b>7 - Type de pas</b><br>F = Pas fin | <b>9 - Plaquettes pas normaux</b><br>028/... |

# Métrique ISO

## Extérieur / Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Standard TM

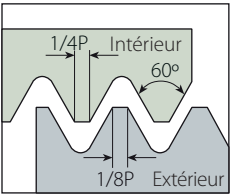
## Standard TM

| Taille plaquette |      | Pas  | Référence        |                  | Le    | Dents | Porte-outils             |
|------------------|------|------|------------------|------------------|-------|-------|--------------------------|
| IC               | L mm | mm   | Extérieur        | Intérieur        | mm    |       |                          |
| 6.0mm            | 10.4 | 0.5  |                  | 6.0I0.5ISOTM...  | 10.0  | 20    | TMMC...-6.0              |
|                  |      | 0.75 |                  | 6.0I0.75ISOTM... | 9.75  | 13    |                          |
|                  |      | 1.0  |                  | 6.0I1.0ISOTM...  | 9.0   | 9     |                          |
|                  |      | 1.25 |                  | 6.0I1.25ISOTM... | 8.75  | 7     |                          |
|                  |      | 1.5  |                  | 6.0I1.5ISOTM...  | 9.0   | 6     |                          |
| 1/4"             | 11   | 0.5  |                  | 2I0.5ISOTM2...   | 10.0  | 20    | TMC...-2<br>TMSH...-2    |
|                  |      | 0.75 | 2E0.75ISOTM2...  | 2I0.75ISOTM2...  | 10.5  | 14    |                          |
|                  |      | 1.0  | 2E1.0ISOTM2...   | 2I1.0ISOTM2...   | 10.0  | 10    |                          |
|                  |      | 1.25 | 2E1.25ISOTM2...  |                  | 10.0  | 8     |                          |
|                  |      | 1.25 |                  | 2I1.25ISOTM2...  | 8.75  | 7     |                          |
|                  |      | 1.5  | 2E1.5ISOTM2...   |                  | 9.0   | 6     |                          |
|                  |      | 1.5  |                  | 2I1.5ISOTM2...   | 10.5  | 7     |                          |
| 3/8"             | 16   | 0.5  |                  | 3I0.5ISOTM2...   | 15.0  | 30    | TMC...-3<br>TMSH...-3    |
|                  |      | 0.75 | 3E0.75ISOTM2...  | 3I0.75ISOTM2...  | 15.0  | 20    |                          |
|                  |      | 0.8  |                  | 3I0.8ISOTM2...   | 14.4  | 18    |                          |
|                  |      | 1.0  | 3E1.0ISOTM2...   |                  | 14.0  | 14    |                          |
|                  |      | 1.0  |                  | 3I1.0ISOTM2...   | 15.0  | 15    |                          |
|                  |      | 1.25 | 3E1.25ISOTM2...  | 3I1.25ISOTM2...  | 15.0  | 12    |                          |
|                  |      | 1.5  | 3E1.5ISOTM2...   | 3I1.5ISOTM2...   | 15.0  | 10    |                          |
|                  |      | 1.75 | 3E1.75ISOTM2...  | 3I1.75ISOTM2...  | 14.0  | 8     |                          |
|                  |      | 2.0  | 3E2.0ISOTM2...   | 3I2.0ISOTM2...   | 14.0  | 7     |                          |
| 3/8"B            | 22   | 1.0  | 3BE1.0ISOTM2...  | 3BI1.0ISOTM2...  | 22.0  | 22    | BTMC...-3B<br>TMSH...-3B |
|                  |      | 1.25 | 3BE1.25ISOTM2... | 3BI1.25ISOTM2... | 21.25 | 17    |                          |
|                  |      | 1.5  | 3BE1.5ISOTM2...  | 3BI1.5ISOTM2...  | 21.0  | 14    |                          |
|                  |      | 1.75 | 3BE1.75ISOTM2... | 3BI1.75ISOTM2... | 21.0  | 12    |                          |
|                  |      | 2.0  | 3BE2.0ISOTM2...  | 3BI2.0ISOTM2...  | 22.0  | 11    |                          |
| 5/8"             | 27   | 1.0  | 5E1.0ISOTM2...   | 5I1.0ISOTM2...   | 26.0  | 26    | TMC...-5<br>TMSH...-5    |
|                  |      | 1.25 | 5E1.25ISOTM2...  | 5I1.25ISOTM2...  | 25.0  | 20    |                          |
|                  |      | 1.5  | 5E1.5ISOTM2...   | 5I1.5ISOTM2...   | 25.5  | 17    |                          |
|                  |      | 1.75 | 5E1.75ISOTM2...  | 5I1.75ISOTM2...  | 24.5  | 14    |                          |
|                  |      | 2.0  | 5E2.0ISOTM2...   | 5I2.0ISOTM2...   | 24.0  | 12    |                          |
|                  |      | 2.5  | 5E2.5ISOTM2...   | 5I2.5ISOTM2...   | 25.0  | 10    |                          |
|                  |      | 3.0  | 5E3.0ISOTM2...   | 5I3.0ISOTM2...   | 24.0  | 8     |                          |
|                  |      | 3.5  | 5E3.5ISOTM2...   | 5I3.5ISOTM2...   | 24.5  | 7     |                          |
|                  |      | 4.0  | 5E4.0ISOTM2...   | 5I4.0ISOTM2...   | 24.0  | 6     |                          |
|                  |      | 4.5  | 5E4.5ISOTM2...   | 5I4.5ISOTM2...   | 22.5  | 5     |                          |

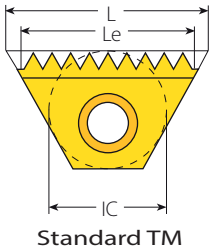
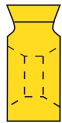
Suite à la page suivante ►

ISO Métrique (Suite)

Extérieur / Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



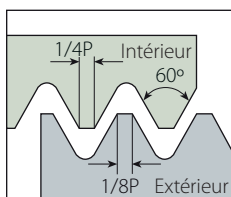
Standard TM (Suite)

| Taille plaquette |      | Pas | Référence       |                 | Le   | Dents | Porte-outils          |
|------------------|------|-----|-----------------|-----------------|------|-------|-----------------------|
| IC               | L mm | mm  | Extérieur       | Intérieur       | mm   |       |                       |
| 3/4"B            | 38.5 | 1.5 | 6BE1.5ISOTM2... | 6BI1.5ISOTM2... | 36.0 | 24    | TMC..-6B<br>TMSH..-6B |
|                  |      | 2.0 | 6BE2.0ISOTM2... | 6BI2.0ISOTM2... | 36.0 | 18    |                       |
|                  |      | 2.5 | 6BE2.5ISOTM2... | 6BI2.5ISOTM2... | 35.0 | 14    |                       |
|                  |      | 3.0 | 6BE3.0ISOTM2... | 6BI3.0ISOTM2... | 36.0 | 12    |                       |
|                  |      | 4.0 | 6BE4.0ISOTM2... | 6BI4.0ISOTM2... | 32.0 | 8     |                       |
|                  |      | 4.5 | 6BE4.5ISOTM2... | 6BI4.5ISOTM2... | 31.5 | 7     |                       |
|                  |      | 5.0 | 6BE5.0ISOTM2... | 6BI5.0ISOTM2... | 30.0 | 6     |                       |
|                  |      | 5.5 | 6BE5.5ISOTM2... | 6BI5.5ISOTM2... | 33.0 | 6     |                       |
|                  |      | 6.0 | 6BE6.0ISOTM2... | 6BI6.0ISOTM2... | 30.0 | 5     |                       |

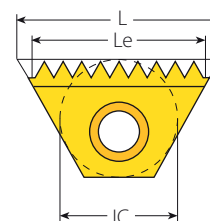
Exemple de commande: 5I2.0ISOTM2 VBX  
Toutes les plaquettes possèdent 2 Arrête de coupe sauf la plaquette Mini (IC 6.0 mm) qui n'en possède qu'une.  
Pour les informations relatives aux porte-outil, voir page 234.

## ISO Métrique (Suite)

### Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Fraise à fileter  
pas normaux

### Fraise à fileter pas normaux

| Filet      | Taille plaquette |      | Référence               | Arrête de coupe | Le   | Dents | Porte-outils       | mini de perçage gamme |
|------------|------------------|------|-------------------------|-----------------|------|-------|--------------------|-----------------------|
|            | IC               | L mm | Intérieur               |                 | mm   |       |                    | mm                    |
| M10 X 0.75 | 6.0 mm           | 10.4 | 6.0I0.75ISOTM...028/001 | 1               | 9.75 | 13    | TMMC12-6.0         | 9.1-10                |
| M10 X 0.75 | 6.0 mm           | 10.4 | 6.0I0.75ISOTM...028/001 | 1               | 9.75 | 13    | TMMC20-6.0         | 9.1-10                |
| M12 X 1.25 | 6.0 mm           | 10.4 | 6.0I1.25ISOTM...028/002 | 1               | 8.75 | 7     | TMMC12-6.0         | 10.6-11.4             |
| M12 X 1.25 | 6.0 mm           | 10.4 | 6.0I1.25ISOTM...028/002 | 1               | 8.75 | 7     | TMMC20-6.0         | 10.6-11.4             |
| M12 X 1.75 | 6.0 mm           | 10.4 | 6.0I1.75ISOTM...028/003 | 1               | 8.75 | 5     | TMMC20-6.0 124/003 | 10.1-19               |
| M14 X 2.0  | 1/4"             | 11   | 2I2.0ISOTM...028/004    | 2               | 10.0 | 5     | TMC12-2            | 11.8-19.5             |
| M14 x 2.0  | 1/4"             | 11   | 2I2.0ISOTM...028/004    | 2               | 10.0 | 5     | TMC20-2            | 11.8-19.5             |
| M16 X 2.0  | 1/4"             | 11   | 2I2.0ISOTM...028/004    | 2               | 10.0 | 5     | TMC12-2            | 11.8-19.5             |
| M16 X 2.0  | 1/4"             | 11   | 2I2.0ISOTM...028/004    | 2               | 10.0 | 5     | TMC20-2            | 11.8-19.5             |
| M20 X 2.5  | 3/8"             | 16   | 3I2.5ISOTM...028/005    | 1               | 12.5 | 5     | TMC16-3 124/001    | 17.2-19.2             |
| M22 X 2.5  | 1/2"             | 22   | 4I2.5ISOTM...028/006    | 1               | 17.5 | 7     | TMC25-4 124/002    | 19.2-31.6             |
| M24 X 3.0  | 1/2"             | 22   | 4I3.0ISOTM...028/007    | 1               | 18.0 | 6     | TMC25-4 124/002    | 20.7-32.7             |
| M27 X 3.0  | 1/2"             | 22   | 4I3.0ISOTM...028/007    | 1               | 18.0 | 6     | TMC25-4 124/002    | 20.7-32.7             |
| M30 X 3.5  | 5/8"             | 27   | 5I3.5ISOTM...028/008    | 2               | 24.5 | 7     | TMC25-5 124/004    | 26.2-35.9             |
| M33 X 3.5  | 5/8"             | 27   | 5I3.5ISOTM...028/008    | 2               | 24.5 | 7     | TMC25-5 124/004    | 26.2-35.9             |
| M36 X 3.0  | 5/8"             | 27   | 5I3.0ISOTM...028/009    | 2               | 24.0 | 8     | TMC25-5            | 32.7-39               |
| M36 X 4.0  | 5/8"             | 27   | 5I4.0ISOTM...028/010    | 2               | 24.0 | 6     | TMC25-5            | 31.6-38.5             |
| M39 X 3.0  | 5/8"             | 27   | 5I3.0ISOTM...028/009    | 2               | 24.0 | 8     | TMC25-5            | 32.7-39               |
| M39 X 4.0  | 5/8"             | 27   | 5I4.0ISOTM...028/010    | 2               | 24.0 | 6     | TMC25-5            | 31.6-38.5             |
| M42 X 4.5  | 5/8"             | 27   | 5I4.5ISOTM...028/011    | 2               | 22.5 | 5     | TMC25-5            | 37.1-48               |
| M45 X 4.5  | 5/8"             | 27   | 5I4.5ISOTM...028/011    | 2               | 22.5 | 5     | TMC25-5            | 37.1-48               |
| M48 X 5.0  | 5/8"             | 27   | 5I5.0ISOTM...028/075    | 2               | 20.0 | 4     | TMC25-5            | 38.9-∞                |
| M52 X 5.0  | 5/8"             | 27   | 5I5.0ISOTM...028/075    | 2               | 20.0 | 4     | TMC25-5            | 38.9-∞                |

Exemple de demande pour le filetage **M14x2.0**.

Référence:

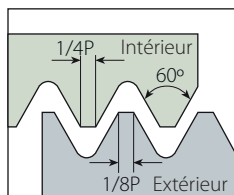
Plaquette: **2I2.0ISOTMVBX028/004**

Fraise à fileter: **TMC20-2**

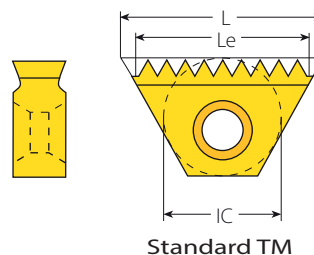
Pour les informations relatives aux porte-outil, voir page 234.

# ISO Métrique (Suite)

## Extérieur / Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



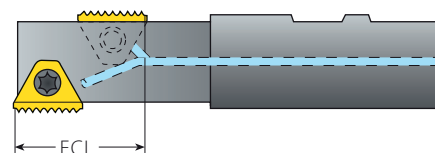
## Plaquettes jumelées pour Fraises à fileter TMO

| Taille plaquette |      | Pas  | Référence       |                      | Porte-outils | ECL   |
|------------------|------|------|-----------------|----------------------|--------------|-------|
| IC               | L mm | mm   | Extérieur       | Intérieur            | TMO          | mm    |
| 1/4"             | 11   | 0.5  |                 | 2I0.5ISOTM2...       | TMOC20-2-8   | 19    |
|                  |      | 0.75 | 2E0.75ISOTM2... | 2I0.75ISOTM2...      | TMOC20-2-9   | 19.5  |
|                  |      | 1.0  | 2E1.0ISOTM2...  | 2I1.0ISOTM2...       | TMOC20-2-8   | 19    |
|                  |      | 1.25 | 2E1.25ISOTM2... |                      | TMOC20-2-10  | 18.75 |
|                  |      | 1.25 |                 | 2I1.25ISOTM2...      | TMOC20-2-10  | 16.25 |
|                  |      | 1.5  | 2E1.5ISOTM2...  |                      | TMOC20-2-8   | 18    |
|                  |      | 1.5  |                 | 2I1.5ISOTM2...       | TMOC20-2-8   | 19.5  |
| 3/8"             | 16   | 0.5  |                 | 3I0.5ISOTM2...       | TMOC20-3-1   | 28.5  |
|                  |      | 0.5  |                 | 3I0.5ISOTM2...       | TMOC20-3-10  | 29    |
|                  |      | 0.75 | 3E0.75ISOTM2... | 3I0.75ISOTM2...      | TMOC20-3-11  | 28.5  |
|                  |      | 1.0  | 3E1.0ISOTM2...  |                      | TMOC20-3-10  | 28    |
|                  |      | 1.0  |                 | 3I1.0ISOTM2...       | TMOC20-3-10  | 29    |
|                  |      | 1.25 | 3E1.25ISOTM2... | 3I1.25ISOTM2...      | TMOC20-3-7   | 28.75 |
|                  |      | 1.5  | 3E1.5ISOTM2...  | 3I1.5ISOTM2...       | TMOC20-3-1   | 28.5  |
|                  |      | 1.75 | 3E1.75ISOTM2... | 3I1.75ISOTM2...      | TMOC20-3-12  | 26.25 |
| 5/8"             | 27   | 2.0  | 3E2.0ISOTM2...  | 3I2.0ISOTM2...       | TMOC20-3-10  | 28    |
|                  |      | 1.0  | 5E1.0ISOTM2...  | 5I1.0ISOTM2...       | TMOC25-5-12  | 46    |
|                  |      | 1.0  | 5E1.0ISOTM2...  | 5I1.0ISOTM2...       | TMOC25-5-16  | 47    |
|                  |      | 1.25 | 5E1.25ISOTM2... | 5I1.25ISOTM2...      | TMOC25-5-13  | 48.75 |
|                  |      | 1.5  | 5E1.5ISOTM2...  | 5I1.5ISOTM2...       | TMOC25-5-14  | 48    |
|                  |      | 1.5  | 5E1.5ISOTM2...  | 5I1.5ISOTM2...       | TMOC25-5-16  | 46.5  |
|                  |      | 1.75 | 5E1.75ISOTM2... | 5I1.75ISOTM2...      | TMOC25-5-15  | 47.25 |
|                  |      | 2.0  | 5E2.0ISOTM2...  | 5I2.0ISOTM2...       | TMOC25-5-12  | 44    |
|                  |      | 2.5  | 5E2.5ISOTM2...  | 5I2.5ISOTM2...       | TMOC25-5-12  | 45    |
|                  |      | 2.5  | 5E2.5ISOTM2...  | 5I2.5ISOTM2...       | TMOC25-5-14  | 47.5  |
|                  |      | 3.0  | 5E3.0ISOTM2...  | 5I3.0ISOTM2...       | TMOC25-5-16  | 45    |
|                  |      | 3.5  | 5E3.5ISOTM2...  | 5I3.5ISOTM2...       | TMOC25-5-16  | 45.5  |
|                  |      | 4.0  | 5E4.0ISOTM2...  | 5I4.0ISOTM2...       | TMOC25-5-12  | 44    |
|                  |      | 4.5  | 5E4.5ISOTM2...  | 5I4.5ISOTM2...       | TMOC25-5-14  | 45    |
|                  |      | 5.0  |                 | 5I5.0ISOTM...028/075 | TMOC25-5-12  | 40    |

Exemple de commande: **2E0.75ISOTM2 VBX**

Pour la côte Le et le nombre de dents des plaquettes ci-dessus, voir le tableau pour plaquettes standards 209-210.

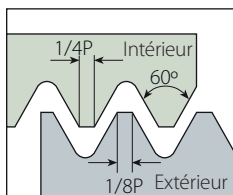
Pour les informations relatives aux porte-outil, voir page 239.



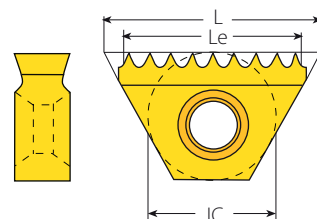
LCE – Longueur de Coupe Effective

## ISO Métrique (Suite)

### Extérieur / Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



Fraise à fileter  
pas fin

### Fraise à fileter pas fin

| Taille plaquette |      | Pas  | Référence         |                   | Le    | Dents | Porte-outils        |
|------------------|------|------|-------------------|-------------------|-------|-------|---------------------|
| IC               | L mm | mm   | Extérieur         | Intérieur         | mm    |       |                     |
| 6.0mm            | 10.4 | 0.35 | 6.0E0.35ISOTMF... | 6.0I0.35ISOTMF... | 9.45  | 14    | TMMC..-6.0          |
|                  |      | 0.4  | 6.0E0.4ISOTMF...  | 6.0I0.4ISOTMF...  | 9.2   | 12    |                     |
|                  |      | 0.45 | 6.0E0.45ISOTMF... | 6.0I0.45ISOTMF... | 9.45  | 11    |                     |
|                  |      | 0.5  | 6.0E0.5ISOTMF...  |                   | 9.5   | 10    |                     |
|                  |      | 0.6  | 6.0E0.6ISOTMF...  |                   | 9.0   | 8     |                     |
|                  |      | 0.7  | 6.0E0.7ISOTMF...  |                   | 9.1   | 7     |                     |
|                  |      | 0.75 | 6.0E0.75ISOTMF... |                   | 8.25  | 6     |                     |
|                  |      | 0.8  | 6.0E0.8ISOTMF...  |                   | 8.8   | 6     |                     |
|                  |      | 0.9  | 6.0E0.9ISOTMF...  |                   | 8.1   | 5     |                     |
| 1/4"             | 11   | 0.35 | 2E0.35ISOTM2F...  | 2I0.35ISOTM2F...  | 10.15 | 15    | TMC..-2<br>TMSH..-2 |
|                  |      | 0.4  | 2E0.4ISOTM2F...   | 2I0.4ISOTM2F...   | 10.0  | 13    |                     |
|                  |      | 0.45 | 2E0.45ISOTM2F...  | 2I0.45ISOTM2F...  | 9.45  | 11    |                     |
|                  |      | 0.5  | 2E0.5ISOTM2F...   |                   | 9.5   | 10    |                     |
|                  |      | 0.6  | 2E0.6ISOTM2F...   |                   | 10.2  | 9     |                     |
|                  |      | 0.7  | 2E0.7ISOTM2F...   |                   | 9.1   | 7     |                     |
|                  |      | 0.8  | 2E0.8ISOTM2F...   |                   | 8.8   | 6     |                     |
|                  |      | 0.9  | 2E0.9ISOTM2F...   |                   | 9.9   | 6     |                     |
| 3/8"             | 16   | 0.35 | 3E0.35ISOTM2F...  | 3I0.35ISOTM2F...  | 14.35 | 21    | TMC..-3<br>TMSH..-3 |
|                  |      | 0.4  | 3E0.4ISOTM2F...   | 3I0.4ISOTM2F...   | 14.8  | 19    |                     |
|                  |      | 0.45 | 3E0.45ISOTM2F...  | 3I0.45ISOTM2F...  | 14.85 | 17    |                     |
|                  |      | 0.5  | 3E0.5ISOTM2F...   |                   | 13.5  | 14    |                     |
|                  |      | 0.6  | 3E0.6ISOTM2F...   |                   | 13.8  | 12    |                     |
|                  |      | 0.7  | 3E0.7ISOTM2F...   |                   | 14.7  | 11    |                     |
|                  |      | 0.8  | 3E0.8ISOTM2F...   |                   | 13.6  | 9     |                     |
|                  |      | 0.9  | 3E0.9ISOTM2F...   |                   | 13.5  | 8     |                     |

Remarque: Deux tours sont nécessaires pour achever le filet. Les plaquettes pour Fraises à fileter à pas fins réalisent des profils partiels.

Exemple de commande: **6.0E0.35ISOTMF VBX**

Toutes les plaquettes possèdent 2 Arrête de coupe sauf la plaquette Mini (IC 6.0 mm) qui n'en possède qu'une.

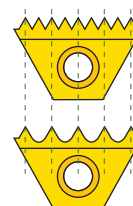
Pour les informations relatives aux porte-outil, voir page 234.

### Filetage à pas fins

Le filetage à pas fins est un filetage avec des petits pas. Il est difficile de réaliser des plaquettes multi-dents pour les petits pas à cause du petit rayon entre les dents. Vargus a mis au point des plaquettes où chaque seconde dent a été diminuée pour agrandir l'angle entre les dents.

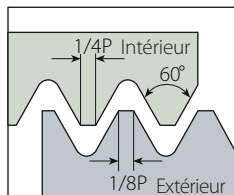
#### Important!

- Les plaquettes à pas fins ont toutes un profil partiel (à cause d'un rayon agrandi).

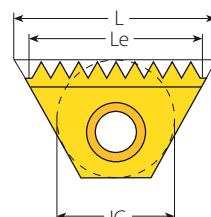


# Américain UN

## Extérieur / Intérieur



Norme: ANSI B1,10,74  
Classe de tolérance: Class 2A/2B



Standard TM

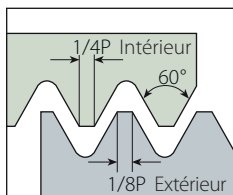
## Standard TM

| Taille plaquette |      | Pas  | Référence      |                | Le    | Dents | Porte-outils             |
|------------------|------|------|----------------|----------------|-------|-------|--------------------------|
| IC               | L mm | tpi  | Extérieur      | Intérieur      | mm    |       |                          |
| 6.0mm            | 10.4 | 32   |                | 6.0I32UNTM...  | 9.53  | 12    | TMMC...-6.0              |
|                  |      | 28   |                | 6.0I28UNTM...  | 9.07  | 10    |                          |
|                  |      | 24   |                | 6.0I24UNTM...  | 9.53  | 9     |                          |
|                  |      | 20   |                | 6.0I20UNTM...  | 8.89  | 7     |                          |
|                  |      | 18   |                | 6.0I18UNTM...  | 8.47  | 6     |                          |
|                  |      | 16   |                | 6.0I16UNTM...  | 7.94  | 5     |                          |
| 1/4"             | 11   | 48   |                | 2I48UNTM2...   | 10.05 | 19    | TMC...-2<br>TMSH...-2    |
|                  |      | 40   |                | 2I40UNTM2...   | 10.16 | 16    |                          |
|                  |      | 32   |                | 2I32UNTM2...   | 10.32 | 13    |                          |
|                  |      | 28   | 2E28UNTM2...   | 2I28UNTM2...   | 9.98  | 11    |                          |
|                  |      | 27   | 2E27UNTM2...   | 2I27UNTM2...   | 10.35 | 11    |                          |
|                  |      | 24   | 2E24UNTM2...   | 2I24UNTM2...   | 9.53  | 9     |                          |
|                  |      | 20   | 2E20UNTM2...   | 2I20UNTM2...   | 10.16 | 8     |                          |
|                  |      | 18   | 2E18UNTM2...   | 2I18UNTM2...   | 9.88  | 7     |                          |
|                  |      | 16   | 2E16UNTM2...   | 2I16UNTM2...   | 9.53  | 6     |                          |
|                  |      | 14   | 2E14UNTM2...   | 2I14UNTM2...   | 9.07  | 5     |                          |
| 3/8"             | 16   | 40   |                | 3I40UNTM2...   | 14.61 | 23    | TMC...-3<br>TMSH...-3    |
|                  |      | 32   |                | 3I32UNTM2...   | 15.08 | 19    |                          |
|                  |      | 28   | 3E28UNTM2...   | 3I28UNTM2...   | 14.51 | 16    |                          |
|                  |      | 27   | 3E27UNTM2...   | 3I27UNTM2...   | 14.11 | 15    |                          |
|                  |      | 26   | 3E26UNTM2...   | 3I26UNTM2...   | 14.65 | 15    |                          |
|                  |      | 24   | 3E24UNTM2...   | 3I24UNTM2...   | 14.82 | 14    |                          |
|                  |      | 20   | 3E20UNTM2...   | 3I20UNTM2...   | 13.97 | 11    |                          |
|                  |      | 18   | 3E18UNTM2...   | 3I18UNTM2...   | 14.11 | 10    |                          |
|                  |      | 16   | 3E16UNTM2...   | 3I16UNTM2...   | 14.29 | 9     |                          |
|                  |      | 14   | 3E14UNTM2...   | 3I14UNTM2...   | 14.51 | 8     |                          |
|                  |      | 13   | 3E13UNTM2...   | 3I13UNTM2...   | 13.68 | 6     |                          |
|                  |      | 12   | 3E12UNTM2...   | 3I12UNTM2...   | 14.82 | 7     |                          |
|                  |      | 11.5 | 3E11.5UNTM2... | 3I11.5UNTM2... | 13.25 | 6     |                          |
| 3/8"B            | 22   | 24   | 3BE24UNTM2...  | 3BI24UNTM2...  | 21.16 | 20    | BTMC...-3B<br>TMSH...-3B |
|                  |      | 20   | 3BE20UNTM2...  | 3BI20UNTM2...  | 21.59 | 17    |                          |
|                  |      | 18   | 3BE18UNTM2...  | 3BI18UNTM2...  | 21.17 | 15    |                          |
|                  |      | 16   | 3BE16UNTM2...  | 3BI16UNTM2...  | 20.64 | 13    |                          |
|                  |      | 14   | 3BE14UNTM2...  | 3BI14UNTM2...  | 21.77 | 12    |                          |
|                  |      | 13   | 3BE13UNTM2...  | 3BI13UNTM2...  | 21.49 | 11    |                          |
|                  |      | 12   | 3BE12UNTM2...  | 3BI12UNTM2...  | 21.17 | 10    |                          |

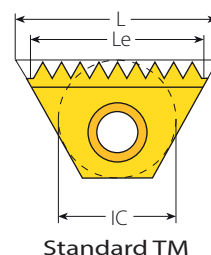
Exemple de commande: **3E24UNTM2 VBX** Toutes les plaquettes possèdent 2 Arrête de coupe sauf la plaquette Mini (IC 6.0 mm) qui n'en possède qu'une. Pour les informations relatives aux porte-outil, voir page 234.

## Américain UN (Suite)

### Extérieur / Intérieur



Norme: ANSI B1,10,74  
Classe de tolérance: Class 2A/2B



### Standard TM

| Taille plaquette |      | Pas  | Référence      |                | Le    | Dents | Porte-outils            |
|------------------|------|------|----------------|----------------|-------|-------|-------------------------|
| IC               | L mm | tpi  | Extérieur      | Intérieur      | mm    |       |                         |
| 5/8"             | 27   | 24   | 5E24UNTM2...   | 5I24UNTM2...   | 25.40 | 24    | TMC...-5<br>TMSH...-5   |
|                  |      | 20   | 5E20UNTM2...   | 5I20UNTM2...   | 25.40 | 20    |                         |
|                  |      | 18   | 5E18UNTM2...   | 5I18UNTM2...   | 25.40 | 18    |                         |
|                  |      | 16   | 5E16UNTM2...   | 5I16UNTM2...   | 25.40 | 16    |                         |
|                  |      | 14   | 5E14UNTM2...   | 5I14UNTM2...   | 25.40 | 14    |                         |
|                  |      | 13   | 5E13UNTM2...   | 5I13UNTM2...   | 25.40 | 13    |                         |
|                  |      | 12   | 5E12UNTM2...   | 5I12UNTM2...   | 25.40 | 12    |                         |
|                  |      | 11.5 | 5E11.5UNTM2... | 5I11.5UNTM2... | 24.30 | 11    |                         |
|                  |      | 11   | 5E11UNTM2...   | 5I11UNTM2...   | 25.40 | 11    |                         |
|                  |      | 10   | 5E10UNTM2...   |                | 22.86 | 9     |                         |
|                  |      | 10   |                | 5I10UNTM2...   | 25.40 | 10    |                         |
|                  |      | 9    | 5E9UNTM2...    | 5I9UNTM2...    | 22.58 | 8     |                         |
|                  |      | 8    | 5E8UNTM2...    | 5I8UNTM2...    | 22.23 | 7     |                         |
|                  |      | 7    | 5E7UNTM2...    |                | 21.77 | 6     |                         |
|                  |      | 7    |                | 5I7UNTM2...    | 25.40 | 7     |                         |
|                  |      | 6    | 5E6UNTM2...    |                | 21.17 | 5     |                         |
|                  |      | 6    |                | 5I6UNTM2...    | 25.40 | 6     |                         |
| 3/4"B            | 38.5 | 6    | 6BE6UNTM2...   | 6BI6UNTM2...   | 38.87 | 8     | TMC...-6B<br>TMSH...-6B |
|                  |      | 5    | 6BE5UNTM2...   | 6BI5UNTM2...   | 30.48 | 6     |                         |
|                  |      | 4.5  | 6BE4.5UNTM2... | 6BI4.5UNTM2... | 33.87 | 6     |                         |
|                  |      | 4    | 6BE4UNTM2...   | 6BI4UNTM2...   | 31.75 | 5     |                         |

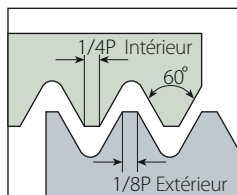
Exemple de commande: **5E24UNTM2 VBX**

Toutes les plaquettes possèdent 2 Arrête de coupe sauf la plaquette Mini (IC 6.0 mm) qui n'en possède qu'une.

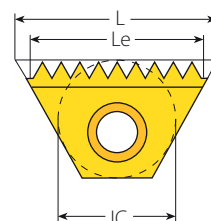
Pour les informations relatives aux porte-outil, voir page 234.

## Américain UN (Suite)

### Intérieur



Norme: ANSI B1,10,74  
Classe de tolérance: Class 2A/2B



Fraise à fileter  
pas normaux

### Fraise à fileter pas normaux

| Filet       | Taille plaquette |      | Référence            | Arrête de coupe | Le    | Dents | Porte-outils       | mini de perçage gamme |
|-------------|------------------|------|----------------------|-----------------|-------|-------|--------------------|-----------------------|
|             | IC               | L mm | Intérieur            |                 | mm    |       |                    | mm                    |
| 7/16"-20UNF | 6.0mm            | 10.4 | 6.0I20UNTM...028/012 | 1               | 8.89  | 7     | TMMC12-6.0         | 9.7-11.4              |
| 7/16"-20UNF | 6.0mm            | 10.4 | 6.0I20UNTM...028/012 | 1               | 8.89  | 7     | TMMC20-6.0         | 9.7-11.4              |
| 7/16"-16UN  | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC12-6.0         | 9.3-14.1              |
| 7/16"-16UN  | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC20-6.0         | 9.3-14.1              |
| 7/16"-14UNC | 6.0mm            | 10.4 | 6.0I14UNTM...028/013 | 1               | 9.07  | 5     | TMMC20-6.0 124/003 | 9.1-9.9               |
| 1/2"-13UNC  | 1/4"             | 11   | 2I13UNTM...028/015   | 1               | 9.77  | 5     | TMC20-2 124/005    | 10.5-19.5             |
| 1/2"-16UN   | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC12-6.0         | 9.3-14.1              |
| 1/2"-16UN   | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC20-6.0         | 9.3-14.1              |
| 9/16"-12UNC | 1/4"             | 11   | 2I12UNTM...028/016   | 1               | 8.47  | 4     | TMC20-2 124/005    | 11.9-15.6             |
| 9/16"-18UNF | 1/4"             | 11   | 2I18UNTM...028/017   | 2               | 9.88  | 7     | TMC12-2            | 12.7-14.5             |
| 9/16"-18UNF | 1/4"             | 11   | 2I18UNTM...028/017   | 2               | 9.88  | 7     | TMC20-2            | 12.7-14.5             |
| 9/16"-16UN  | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC12-6.0         | 9.3-14.1              |
| 9/16"-16UN  | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC20-6.0         | 9.3-14.1              |
| 5/8"-11UNC  | 1/4"             | 11   | 2I11UNTM...028/018   | 1               | 9.24  | 4     | TMC20-2 124/006    | 13.3-18.5             |
| 5/8"-12UN   | 1/4"             | 11   | 2I12UNTM...028/016   | 1               | 8.47  | 4     | TMC20-2 124/005    | 11.9-15.6             |
| 5/8"-16UN   | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC12-6.0         | 9.3-14.1              |
| 5/8"-16UN   | 6.0mm            | 10.4 | 6.0I16UNTM...028/014 | 1               | 7.94  | 5     | TMMC20-6.0         | 9.3-14.1              |
| 11/16"-12UN | 1/4"             | 11   | 2I12UNTM...028/016   | 1               | 8.47  | 4     | TMC20-2 124/005    | 11.9-15.6             |
| 3/4"-10UNC  | 3/8"             | 16   | 3I10UNTM...028/019   | 1               | 12.70 | 5     | TMC16-3 124/001    | 16.3-31.6             |
| 3/4"-12UN   | 3/8"             | 16   | 3I12UNTM...028/020   | 2               | 14.82 | 7     | TMNC16-3           | 16.7-18.3             |
| 13/16"-12UN | 3/8"             | 16   | 3I12UNTM...028/020   | 2               | 14.82 | 7     | TMC16-3            | 18.3-19.5             |
| 7/8"-9UNC   | 1/2"             | 22   | 4I9UNTM...028/021    | 1               | 16.93 | 6     | TMC25-4 124/002    | 19.1-32.5             |

Suite à la page suivante ►

Exemple de demande pour le filetage 9/16"-12 UNC

Référence:

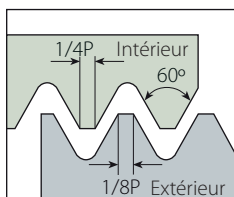
Plaquette: 2I12UNTM VBX 028/016

Fraise à fileter: TMC20-2 124/005

Pour les informations relatives aux porte-outil, voir page 234.

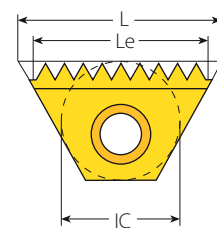
## Américain UN (Suite)

### Intérieur



Norme: ANSI B1,10,74

Classe de tolérance: Class 2A/2B



Fraise à fileter  
pas normaux

### Fraise à fileter pas normaux (Suite)

| Filet        | Taille plaquette |      | Référence         | Arrête de coupe | Le    | Dents | Porte-outils    | mini de perçage gamme |
|--------------|------------------|------|-------------------|-----------------|-------|-------|-----------------|-----------------------|
|              | IC               | L mm | Intérieur         |                 | mm    |       |                 | mm                    |
| 1"-8UNC      | 1/2"             | 22   | 418UNTM...028/022 | 1               | 19.05 | 6     | TMC25-4 124/007 | 21.9-28.3             |
| *1 1/16"-8UN | 1/2"             | 22   | 418UNTM...028/022 | 1               | 19.05 | 6     | TMC25-4 124/007 | 21.9-28.3             |
| 1 1/8"-7UNC  | 1/2"             | 22   | 417UNTM...028/023 | 1               | 18.14 | 5     | TMC25-4 124/002 | 24.6-35.9             |
| *1 1/8"-8UN  | 1/2"             | 22   | 418UNTM...028/022 | 1               | 19.05 | 6     | TMC25-4 124/007 | 21.9-28.3             |
| *1 3/16"-8UN | 1/2"             | 22   | 418UNTM...028/022 | 1               | 19.05 | 6     | TMC25-4 124/007 | 21.9-28.3             |
| 1 1/4"-7UNC  | 1/2"             | 22   | 417UNTM...028/023 | 1               | 18.14 | 5     | TMC25-4 124/002 | 24.6-35.9             |
| *1 1/4"-8UN  | 5/8"             | 27   | 518UNTM...028/024 | 2               | 22.23 | 7     | TMC25-5 124/004 | 28.3-33.0             |
| *1 5/16"-8UN | 5/8"             | 27   | 518UNTM...028/024 | 2               | 22.23 | 7     | TMC25-5 124/004 | 28.3-33.0             |
| 1 3/8"-6UNC  | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5 124/004 | 30.3-36.7             |
| *1 3/8"-8UN  | 5/8"             | 27   | 518UNTM...028/024 | 2               | 22.23 | 7     | TMC25-5 124/004 | 28.3-33.0             |
| 1 7/16"-6UN  | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5 124/004 | 30.3-36.7             |
| *1 7/16"-8UN | 5/8"             | 27   | 518UNTM...028/024 | 2               | 22.23 | 7     | TMC25-5         | 33.0-39.0             |
| 1 1/2"-6UNC  | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5 124/004 | 30.3-36.7             |
| *1 1/2"-8UN  | 5/8"             | 27   | 518UNTM...028/024 | 2               | 22.23 | 7     | TMC25-5         | 33.0-39.0             |
| 1 9/16"-6UN  | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5 124/004 | 30.3-36.7             |
| *1 9/16"-8UN | 5/8"             | 27   | 518UNTM...028/024 | 2               | 22.23 | 7     | TMC25-5         | 33.0-39.0             |
| 1 5/8"-6UN   | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5         | 36.7-45.0             |
| *1 5/8"-8UN  | 5/8"             | 27   | 518UNTM...028/024 | 2               | 22.23 | 7     | TMC25-5         | 33.0-39.0             |
| 1 11/16"-6UN | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5         | 36.7-45.0             |
| 1 3/4"-5UNC  | 5/8"             | 27   | 515UNTM...028/077 | 2               | 20.32 | 4     | TMC25-5         | 38.9-∞                |
| 1 3/4"-6UN   | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5         | 36.7-45.0             |
| 1 13/16"-6UN | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5         | 36.7-45.0             |
| 1 7/8"-6UN   | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5         | 36.7-45.0             |
| 1 15/16"-6UN | 5/8"             | 27   | 516UNTM...028/025 | 2               | 25.40 | 6     | TMC25-5         | 36.7-45.0             |

Exemple de demande pour le filetage 1 9/16"-6 UN

Référence:

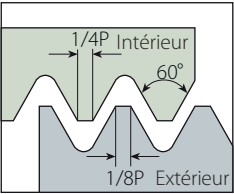
Plaquette: **516UNTM VBX 028/025**

Fraise à fileter: **TMC 25-5 124/004**

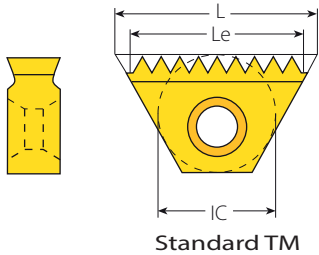
Pour les informations relatives aux porte-outil, voir page 234.

# Américain UN (Suite)

## Extérieur / Intérieur



Norme: ANSI B1,10,74  
Classe de tolérance: Class 2A/2B



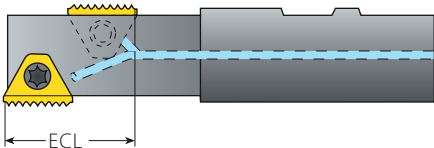
Standard TM

## Plaquettes jumelées pour fraises à fileter TMO

| Taille plaquette |      | Pas  | Référence      |                | Porte-outils | ECL   |
|------------------|------|------|----------------|----------------|--------------|-------|
| IC               | L mm | tpi  | Extérieur      | Intérieur      | TMO          | mm    |
| 1/4"             | 11   | 48   |                | 2I48UNTM2...   | TMOC20-2-1   | 19.58 |
|                  |      | 48   |                | 2I48UNTM2...   | TMOC20-2-2   | 18.52 |
|                  |      | 48   |                | 2I48UNTM2...   | TMOC20-2-9   | 19.05 |
|                  |      | 32   |                | 2I32UNTM2...   | TMOC20-2-1   | 19.85 |
|                  |      | 28   | 2E28UNTM2...   | 2I28UNTM2...   | TMOC20-2-3   | 17.24 |
|                  |      | 24   | 2E24UNTM2...   | 2I24UNTM2...   | TMOC20-2-2   | 17.99 |
|                  |      | 20   | 2E20UNTM2...   | 2I20UNTM2...   | TMOC20-2-4   | 19.05 |
|                  |      | 18   | 2E18UNTM2...   | 2I18UNTM2...   | TMOC20-2-2   | 18.34 |
|                  |      | 16   | 2E16UNTM2...   | 2I16UNTM2...   | TMOC20-2-1   | 19.05 |
|                  |      | 14   | 2E14UNTM2...   | 2I14UNTM2...   | TMOC20-2-3   | 16.33 |
| 3/8"             | 16   | 32   |                | 3I32UNTM2...   | TMOC20-3-3   | 27.78 |
|                  |      | 32   |                | 3I32UNTM2...   | TMOC20-3-11  | 28.58 |
|                  |      | 28   | 3E28UNTM2...   | 3I28UNTM2...   | TMOC20-3-3   | 27.21 |
|                  |      | 27   | 3E27UNTM2...   | 3I27UNTM2...   | TMOC20-3-4   | 27.28 |
|                  |      | 24   | 3E24UNTM2...   | 3I24UNTM2...   | TMOC20-3-6   | 27.52 |
|                  |      | 20   | 3E20UNTM2...   | 3I20UNTM2...   | TMOC20-3-6   | 26.67 |
|                  |      | 18   | 3E18UNTM2...   | 3I18UNTM2...   | TMOC20-3-6   | 26.82 |
|                  |      | 16   | 3E16UNTM2...   | 3I16UNTM2...   | TMOC20-3-6   | 26.99 |
|                  |      | 14   | 3E14UNTM2...   | 3I14UNTM2...   | TMOC20-3-6   | 27.21 |
|                  |      | 13   | 3E13UNTM2...   | 3I13UNTM2...   | TMOC20-3-2   | 25.4  |
|                  |      | 12   | 3E12UNTM2...   | 3I12UNTM2...   | TMOC20-3-6   | 27.52 |
|                  |      | 11.5 | 3E11.5UNTM2... | 3I11.5UNTM2... | TMOC20-3-5   | 24.3  |

Suite à la page suivante ►

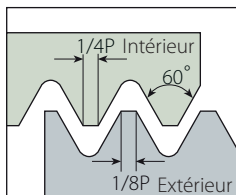
Exemple de commande: **2E16UNTM2 VBX**  
 Pour la côte Le et le nombre de dents des plaquettes ci-dessus,  
 voir tableau pour plaquettes standards pages 214-215.  
 Pour les informations relatives aux porte-outil, voir page 239.



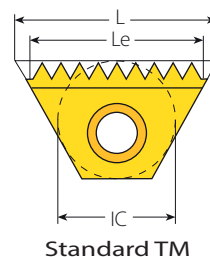
LCE – Longueur de Coupe Effective

## Américain UN (Suite)

### Extérieur / Intérieur



Norme: ANSI B1,10,74  
Classe de tolérance: Class 2A/2B



Standard TM

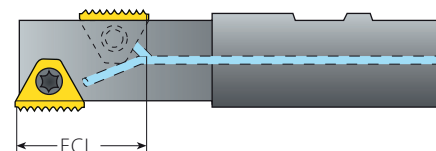
### Plaquettes jumelées pour fraises à fileter TMO (continu)

| Taille plaquette |      | Pas  | Référence      |                | Porte-outils | ECL   |
|------------------|------|------|----------------|----------------|--------------|-------|
| IC               | L mm | tpi  | Extérieur      | Intérieur      | TMO          | mm    |
| 5/8"             | 27   | 24   | 5E24UNTM2...   | 5I24UNTM2...   | TMOC25-5-1   | 50.80 |
|                  |      | 24   | 5E24UNTM2...   | 5I24UNTM2...   | TMOC25-5-2   | 46.57 |
|                  |      | 20   | 5E20UNTM2...   | 5I20UNTM2...   | TMOC25-5-1   | 50.80 |
|                  |      | 18   | 5E18UNTM2...   | 5I18UNTM2...   | TMOC25-5-1   | 50.80 |
|                  |      | 18   | 5E18UNTM2...   | 5I18UNTM2...   | TMOC25-5-2   | 46.57 |
|                  |      | 16   | 5E16UNTM2...   | 5I16UNTM2...   | TMOC25-5-3   | 47.63 |
|                  |      | 14   | 5E14UNTM2...   | 5I14UNTM2...   | TMOC25-5-1   | 50.80 |
|                  |      | 14   | 5E14UNTM2...   | 5I14UNTM2...   | TMOC25-5-4   | 47.17 |
|                  |      | 13   | 5E13UNTM2...   | 5I13UNTM2...   | TMOC25-5-1   | 50.80 |
|                  |      | 12   | 5E12UNTM2...   | 5I12UNTM2...   | TMOC25-5-2   | 46.57 |
|                  |      | 12   | 5E12UNTM2...   | 5I12UNTM2...   | TMOC25-5-1   | 50.80 |
|                  |      | 11.5 | 5E11.5UNTM2... | 5I11.5UNTM2... | TMOC25-5-5   | 46.38 |
|                  |      | 11   | 5E11UNTM2...   | 5I11UNTM2...   | TMOC25-5-6   | 48.49 |
|                  |      | 11   | 5E11UNTM2...   | 5I11UNTM2...   | TMOC25-5-1   | 46.18 |
|                  |      | 10   | 5E10UNTM2...   | 5I10UNTM2...   | TMOC25-5-7   | 43.18 |
|                  |      | 10   | 5E10UNTM2...   | 5I10UNTM2...   | TMOC25-5-7   | 45.72 |
|                  |      | 9    | 5E9UNTM2...    | 5I9UNTM2...    | TMOC25-5-8   | 45.16 |
|                  |      | 8    | 5E8UNTM2...    | 5I8UNTM2...    | TMOC25-5-9   | 44.45 |
|                  |      | 7    | 5E7UNTM2...    | 5I7UNTM2...    | TMOC25-5-10  | 43.54 |
|                  |      | 7    | 5E7UNTM2...    | 5I7UNTM2...    | TMOC25-5-10  | 47.17 |
|                  |      | 6    | 5E6UNTM2...    | 5I6UNTM2...    | TMOC25-5-2   | 42.33 |
|                  |      | 6    | 5E6UNTM2...    | 5I6UNTM2...    | TMOC25-5-2   | 46.57 |
|                  |      | 5    | 5E5UNTM2...    | 5I5UNTM2...    | TMOC25-5-7   | 40.64 |

Exemple de commande: **5E16UNTM2 VBX**

Pour la côte Le et le nombre de dents des plaquettes ci-dessus, voir tableau pour plaquettes standards pages 214-215.

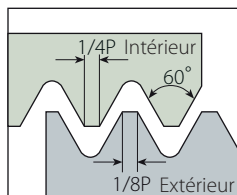
Pour les informations relatives aux porte-outil, voir page 239.



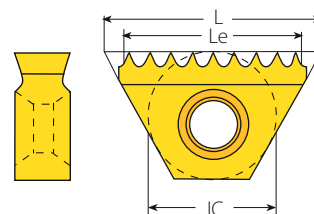
LCE – Longueur de Coupe Effective

## Américain UN (continu)

### Extérieur / Intérieur



Norme: ANSI B1,10,74  
Classe de tolérance: Class 2A/2B



Fraise à fileter pas fin

### Fraise à fileter pas fin

| Taille plaquette |      | Pas | Référence      |                | Le    | Dents | Porte-outils          |
|------------------|------|-----|----------------|----------------|-------|-------|-----------------------|
| IC               | L mm | tpi | Extérieur      | Intérieur      | mm    |       |                       |
| 6.0mm            | 10.4 | 80  | 6.0E80UNTMF... | 6.0I80UNTMF... | 9.84  | 16    | TMMC...-6.0           |
|                  |      | 72  | 6.0E72UNTMF... | 6.0I72UNTMF... | 9.53  | 14    |                       |
|                  |      | 64  | 6.0E64UNTMF... | 6.0I64UNTMF... | 9.13  | 12    |                       |
|                  |      | 56  | 6.0E56UNTMF... | 6.0I56UNTMF... | 9.53  | 11    |                       |
|                  |      | 48  | 6.0E48UNTMF... |                | 9.00  | 9     |                       |
|                  |      | 44  | 6.0E44UNTMF... |                | 8.66  | 8     |                       |
|                  |      | 40  | 6.0E40UNTMF... |                | 8.26  | 7     |                       |
|                  |      | 36  | 6.0E36UNTMF... |                | 9.17  | 7     |                       |
|                  |      | 32  | 6.0E32UNTMF... |                | 8.73  | 6     |                       |
| 1/4"             | 11   | 80  | 2E80UNTM2F...  | 2I80UNTM2F...  | 9.84  | 16    | TMC...-2<br>TMSH...-2 |
|                  |      | 72  | 2E72UNTM2F...  | 2I72UNTM2F...  | 10.23 | 15    |                       |
|                  |      | 64  | 2E64UNTM2F...  | 2I64UNTM2F...  | 9.92  | 13    |                       |
|                  |      | 56  | 2E56UNTM2F...  | 2I56UNTM2F...  | 9.53  | 11    |                       |
|                  |      | 48  | 2E48UNTM2F...  |                | 10.05 | 10    |                       |
|                  |      | 44  | 2E44UNTM2F...  |                | 9.81  | 9     |                       |
|                  |      | 40  | 2E40UNTM2F...  |                | 9.53  | 8     |                       |
|                  |      | 36  | 2E36UNTM2F...  |                | 9.17  | 7     |                       |
|                  |      | 32  | 2E32UNTM2F...  |                | 8.73  | 6     |                       |
| 3/8"             | 16   | 80  | 3E80UNTM2F...  | 3I80UNTM2F...  | 14.29 | 23    | TMC...-3<br>TMSH...-3 |
|                  |      | 72  | 3E72UNTM2F...  | 3I72UNTM2F...  | 14.46 | 21    |                       |
|                  |      | 64  | 3E64UNTM2F...  | 3I64UNTM2F...  | 14.68 | 19    |                       |
|                  |      | 56  | 3E56UNTM2F...  | 3I56UNTM2F...  | 14.06 | 16    |                       |
|                  |      | 48  | 3E48UNTM2F...  |                | 14.29 | 14    |                       |
|                  |      | 44  | 3E44UNTM2F...  |                | 14.43 | 13    |                       |
|                  |      | 40  | 3E40UNTM2F...  |                | 14.61 | 12    |                       |
|                  |      | 36  | 3E36UNTM2F...  |                | 14.82 | 11    |                       |
|                  |      | 32  | 3E32UNTM2F...  |                | 13.49 | 9     |                       |

Remarque: Deux révolutions sont nécessaires pour achever le filet. Les plaquettes pour Fraises à fileter à pas fins réalisent des profils partiels.

Exemple de commande: **6.0E80UNTMF VBX**

Toutes les plaquettes possèdent 2 Arrête de coupe sauf la plaquette Mini (IC 6.0 mm) qui n'en possède qu'une.

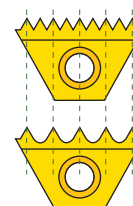
Pour les informations relatives aux porte-outil, voir page 234.

### Filetage à pas fins

Le filetage à pas fins est un filetage avec des petits pas. Il est difficile de réaliser des plaquettes multi-dents pour les petits pas à cause du petit rayon entre les dents. Vargus a mis au point des plaquettes où chaque seconde dent a été diminuée pour agrandir l'angle entre les dents.

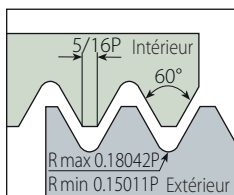
#### Important!

- Les plaquettes à pas fins ont toutes un profil partiel (à cause d'un rayon agrandi).

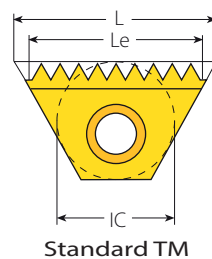


# UNJ

## Extérieur / Intérieur



Norme: MIL-S-8879C  
Classe de tolérance: 3A/3B



Standard TM

## Standard TM

| Taille plaquette |      | Pas | Référence     |                | Le    | Dents | Porte-outils          |
|------------------|------|-----|---------------|----------------|-------|-------|-----------------------|
| IC               | L mm | tpi | Extérieur     | Intérieur      | mm    |       |                       |
| 6.0mm            | 10.4 | 24  |               | 6.0I24UNJTM... | 9.53  | 9     | TMMC...-6.0           |
|                  |      | 20  |               | 6.0I20UNJTM... | 8.89  | 7     |                       |
|                  |      | 18  |               | 6.0I18UNJTM... | 8.47  | 6     |                       |
|                  |      | 16  |               | 6.0I16UNJTM... | 9.53  | 6     |                       |
| 1/4"             | 11   | 24  | 2E24UNJTM2... | 2I24UNJTM2...  | 9.53  | 9     | TMC...-2<br>TMSH...-2 |
|                  |      | 20  | 2E20UNJTM2... | 2I20UNJTM2...  | 10.16 | 8     |                       |
|                  |      | 18  |               | 2I18UNJTM2...  | 9.88  | 7     |                       |
|                  |      | 16  | 2E16UNJTM2... | 2I16UNJTM2...  | 9.53  | 6     |                       |
|                  |      | 14  | 2E14UNJTM2... | 2I14UNJTM2...  | 9.07  | 5     |                       |
| 3/8"             | 16   | 24  | 3E24UNJTM2... | 3I24UNJTM2...  | 14.82 | 14    | TMC...-3<br>TMSH...-3 |
|                  |      | 20  | 3E20UNJTM2... | 3I20UNJTM2...  | 13.97 | 11    |                       |
|                  |      | 18  | 3E18UNJTM2... | 3I18UNJTM2...  | 14.11 | 10    |                       |
|                  |      | 16  | 3E16UNJTM2... | 3I16UNJTM2...  | 14.29 | 9     |                       |
|                  |      | 14  | 3E14UNJTM2... | 3I14UNJTM2...  | 14.51 | 8     |                       |
|                  |      | 13  | 3E13UNJTM2... |                | 13.68 | 7     |                       |
|                  |      | 12  | 3E12UNJTM2... | 3I12UNJTM2...  | 14.82 | 7     |                       |
| 5/8"             | 27   | 16  | 5E16UNJTM2... | 5I16UNJTM2...  | 25.40 | 16    | TMC...-5<br>TMSH...-5 |
|                  |      | 12  | 5E12UNJTM2... | 5I12UNJTM2...  | 25.40 | 12    |                       |
|                  |      | 11  | 5E11UNJTM2... | 5I11UNJTM2...  | 25.40 | 11    |                       |

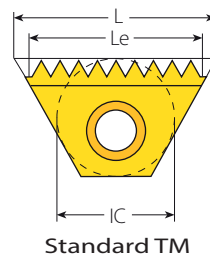
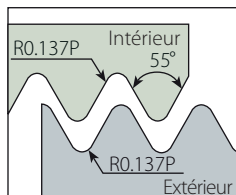
Référence plaquette: **3E16UNJTM2VBX**

Toutes les plaquettes possèdent 2 Arrête de coupe sauf la plaquette Mini (IC 6.0 mm) qui n'en possède qu'une.

Pour les informations relatives aux porte-outil, voir page 234.

## W pour BSW, BSP

### Extérieur / Intérieur



Norme: B.S.84:1956, DIN 259, ISO228/1:1982

Norme: B.S.2779:1956

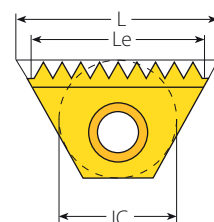
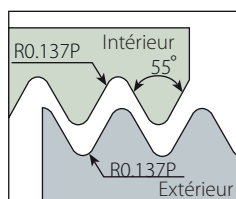
Classe de tolérance: BSW-Classe moyenne A, BSP-Classe moyenne

### Standard TM

| Taille plaquette |      | Pas | Référence             | Le    | Dents | Porte-outils            |
|------------------|------|-----|-----------------------|-------|-------|-------------------------|
| IC               | L mm | tpi | Extérieur + Intérieur | mm    |       |                         |
| 6.0mm            | 10.4 | 28  | 6.0EI28WTM...         | 9.07  | 10    | TMMC...-6.0             |
|                  |      | 26  | 6.0EI26WTM...         | 8.79  | 9     |                         |
|                  |      | 24  | 6.0EI24WTM...         | 9.53  | 9     |                         |
|                  |      | 20  | 6.0EI20WTM...         | 8.89  | 7     |                         |
|                  |      | 19  | 6.0EI19WTM...         | 9.36  | 7     |                         |
| 1/4"             | 11   | 28  | 2EI28WTM2...          | 9.98  | 11    | TMC...-2<br>TMSH...-2   |
|                  |      | 26  | 2EI26WTM2...          | 9.77  | 10    |                         |
|                  |      | 24  | 2EI24WTM2...          | 9.53  | 9     |                         |
|                  |      | 20  | 2EI20WTM2...          | 10.16 | 8     |                         |
|                  |      | 19  | 2EI19WTM2...          | 9.36  | 7     |                         |
| 3/8"             | 16   | 14  | 2EI14WTM2...          | 9.07  | 5     | TMC...-3<br>TMSH...-3   |
|                  |      | 26  | 3EI26WTM2...          | 14.65 | 15    |                         |
|                  |      | 24  | 3EI24WTM2...          | 14.82 | 14    |                         |
|                  |      | 20  | 3EI20WTM2...          | 13.97 | 11    |                         |
|                  |      | 19  | 3EI19WTM2...          | 14.71 | 11    |                         |
|                  |      | 18  | 3EI18WTM2...          | 14.11 | 10    |                         |
|                  |      | 16  | 3EI16WTM2...          | 14.29 | 9     |                         |
|                  |      | 14  | 3EI14WTM2...          | 14.51 | 8     |                         |
| 3/8"B            | 22   | 12  | 3EI12WTM2...          | 14.82 | 7     | TMC...-3B<br>TMSH...-3B |
|                  |      | 11  | 3EI11WTM2...          | 13.85 | 6     |                         |
|                  |      | 24  | 3BEI24WTM2...         | 21.17 | 20    |                         |
|                  |      | 20  | 3BEI20WTM2...         | 21.59 | 17    |                         |
|                  |      | 19  | 3BEI19WTM2...         | 21.39 | 16    |                         |
|                  |      | 18  | 3BEI18WTM2...         | 21.17 | 15    |                         |
|                  |      | 16  | 3BEI16WTM2...         | 20.64 | 13    |                         |
|                  |      | 14  | 3BEI14WTM2...         | 21.77 | 12    |                         |
| 5/8"             | 27   | 12  | 3BEI12WTM2...         | 21.17 | 10    | TMC...-5<br>TMSH...-5   |
|                  |      | 11  | 3BEI11WTM2...         | 20.78 | 9     |                         |
|                  |      | 16  | 5EI16WTM2...          | 25.40 | 16    |                         |
|                  |      | 14  | 5EI14WTM2...          | 25.40 | 14    |                         |
|                  |      | 12  | 5EI12WTM2...          | 23.28 | 11    |                         |
|                  |      | 11  | 5EI11WTM2...          | 23.09 | 10    |                         |
|                  |      | 10  | 5EI10WTM2...          | 25.40 | 10    |                         |
|                  |      | 9   | 5EI9WTM2...           | 22.58 | 8     |                         |
| 3/4"B            | 38.5 | 8   | 5EI8WTM2...           | 22.23 | 7     | TMC...-6B<br>TMSH...-6B |
|                  |      | 7   | 5EI7WTM2...           | 21.77 | 6     |                         |
|                  |      | 6   | 5EI6WTM2...           | 21.17 | 5     |                         |
|                  |      | 11  | 6BEI11WTM2...         | 34.64 | 15    |                         |
|                  |      | 6   | 6BEI6WTM2...          | 33.87 | 8     |                         |
|                  |      | 5   | 6BEI5WTM2...          | 30.48 | 6     |                         |
|                  |      | 4.5 | 6BEI4.5WTM2...        | 33.87 | 6     |                         |

## W pour BSW seulement (Suite)

### Extérieur / Intérieur



Fraise à fileter  
pas normaux

Norme: B.S.84:1956, DIN259, ISO228/1:1982

Classe de tolérance: Classe moyenne A

### Fraise à fileter pas normaux

| Filet      | Taille plaquette |      | Référence            | Arrête de coupe | Le    | Dents | Porte-outils    | mini de perçage |
|------------|------------------|------|----------------------|-----------------|-------|-------|-----------------|-----------------|
| pouce      | IC               | L mm | Intérieur            |                 | mm    |       |                 | mm              |
| 7/16"-18   | 6.0mm            | 10.4 | 6.0I18WTM...028/035  | 1               | 8.47  | 6     | TMMC12-6.0      | 9.3-14.2        |
| 7/16"-18   | 6.0mm            | 10.4 | 6.0I18WTM...028/035  | 1               | 8.47  | 6     | TMMC20-6.0      | 9.3-14.2        |
| 7/16"-26   | 6.0mm            | 10.4 | 6.0I26WTM... 028/036 | 1               | 8.79  | 9     | TMMC12-6.0      | 9.8-10.5        |
| 7/16"-26   | 6.0mm            | 10.4 | 6.0I26WTM... 028/036 | 1               | 8.79  | 9     | TMMC20-6.0      | 9.8-10.5        |
| 1/2"-16    | 1/4"             | 11   | 2I16WTM... 028/051   | 1               | 9.53  | 6     | TMC20-2 124/005 | 10.6-12.2       |
| 1/2"-20    | 6.0mm            | 10.4 | 6.0I20WTM...028/037  | 1               | 8.89  | 7     | TMMC12-6.0      | 11.0-11.4       |
| 1/2"-20    | 6.0mm            | 10.4 | 6.0I20WTM...028/037  | 1               | 8.89  | 7     | TMMC20-6.0      | 11.0-11.4       |
| 9/16"-16   | 1/4"             | 11   | 2I16WTM...028/038    | 2               | 9.53  | 6     | TMC12-2         | 12.2-18.5       |
| 9/16"-16   | 1/4"             | 11   | 2I16WTM...028/038    | 2               | 9.53  | 6     | TMC20-2         | 12.2-18.5       |
| 5/8"-14    | 1/4"             | 11   | 2I14WTM...028/039    | 1               | 9.07  | 5     | TMC20-2 124/006 | 13.5-19.0       |
| 11/16"-14  | 1/4"             | 11   | 2I14WTM...028/039    | 1               | 9.07  | 5     | TMC20-2 124/006 | 13.5-19.0       |
| 11/16"-16  | 1/4"             | 11   | 2I16WTM...028/038    | 2               | 9.53  | 6     | TMC12-2         | 12.2-18.5       |
| 11/16"-16  | 1/4"             | 11   | 2I16WTM...028/038    | 2               | 9.53  | 6     | TMC20-2         | 12.2-18.5       |
| 3/4"-12    | 3/8"             | 16   | 3I12WTM...028/040    | 1               | 14.82 | 7     | TMC16-3 124/001 | 16.3-17.9       |
| 3/4"-16    | 1/4"             | 11   | 2I16WTM...028/038    | 2               | 9.53  | 6     | TMC12-2         | 12.2-18.5       |
| 3/4"-16    | 1/4"             | 11   | 2I16WTM...028/038    | 2               | 9.53  | 6     | TMC20-2         | 12.2-18.5       |
| 13/16"-12  | 3/8"             | 16   | 3I12WTM...028/041    | 2               | 14.82 | 7     | TMC16-3         | 17.9-21.0       |
| 7/8"-9     | 1/2"             | 22   | 4I9WTM...028/042     | 1               | 16.93 | 6     | TMC25-4 124/002 | 18.6-32.5       |
| 7/8"-11    | 1/2"             | 22   | 4I11WTM...028/043    | 1               | 18.47 | 8     | TMC25-4 124/002 | 19.2-22.0       |
| 15/16"-12  | 3/8"             | 16   | 3I12WTM...028/041    | 2               | 14.82 | 7     | TMC20-3         | 21.0-30.6       |
| 1"-8       | 1/2"             | 22   | 4I8WTM...028/044     | 1               | 15.88 | 5     | TMC25-4 124/002 | 21.3-26.0       |
| 1"-10      | 1/2"             | 22   | 4I10WTM...028/045    | 1               | 17.78 | 7     | TMC25-4 124/002 | 22.1-31.6       |
| 1"-12      | 3/8"             | 16   | 3I12WTM...028/041    | 2               | 14.82 | 7     | TMC20-3         | 21.0-30.6       |
| 1 1/16"-12 | 3/8"             | 16   | 3I12WTM...028/041    | 2               | 14.82 | 7     | TMC20-3         | 21.0-30.6       |
| 1 1/8"-7   | 5/8"             | 27   | 5I7WTM...028/046     | 1               | 21.77 | 6     | TMC25-5 124/008 | 23.9-27.1       |
| 1 1/8"-9   | 1/2"             | 22   | 4I9WTM...028/042     | 1               | 16.93 | 6     | TMC25-4 124/002 | 18.6-32.5       |
| 1 1/8"-12  | 3/8"             | 16   | 3I12WTM...028/041    | 2               | 14.82 | 7     | TMC20-3         | 21.0-30.6       |
| 1 3/16"-8  | 5/8"             | 27   | 5I8WTM...028/047     | 2               | 22.23 | 7     | TMC25-5 124/004 | 26.0-32.4       |
| 1 3/16"-12 | 3/8"             | 16   | 3I12WTM...028/041    | 2               | 14.82 | 7     | TMC20-3         | 21.0-30.6       |
| 1 1/4"-7   | 5/8"             | 27   | 5I7WTM...028/048     | 2               | 21.77 | 6     | TMC25-5 124/004 | 21.7-35.9       |
| 1 1/4"-9   | 1/2"             | 22   | 4I9WTM...028/042     | 1               | 16.93 | 6     | TMC25-4 124/002 | 18.6-32.5       |
| 1 1/4"-12  | 3/8"             | 16   | 3I12WTM...028/041    | 2               | 14.82 | 7     | TMC20-3         | 21.0-30.6       |
| 1 5/16"-6  | 5/8"             | 27   | 5I6WTM...028/049     | 2               | 21.17 | 5     | TMC25-5 124/004 | 27.9-32.6       |
| 1 5/16"-8  | 5/8"             | 27   | 5I8WTM...028/047     | 2               | 22.23 | 7     | TMC25-5 124/004 | 26.0-32.4       |

Suite à la page suivante ►

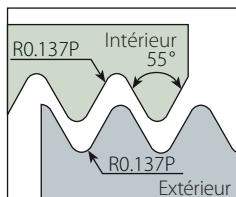
Exemple de demande pour le filetage 7/16"-18 BSW

Référence: Plaquette: **6.0I18WTM VBX 028/035** Porte-outils: **TMMC 20-6.0**

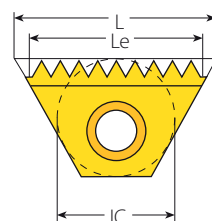
Pour les informations relatives aux porte-outil, voir page 234.

## W pour BSW seulement (Suite)

### Intérieur



Norme: B.S.84:1956, DIN259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A



Fraise à fileter  
pas normaux

### Fraise à fileter pas normaux

| Filet      | Taille plaquette |      | Référence         | Arrête de coupe | Le    | Dents | Porte-outils    | mini de perçage |
|------------|------------------|------|-------------------|-----------------|-------|-------|-----------------|-----------------|
|            | IC               | L mm | Intérieur         |                 | mm    |       |                 | mm              |
| 1 5/16"-12 | 3/8"             | 16   | 3I12WTM...028/041 | 2               | 14.82 | 7     | TMC20-3         | 21.0-30.6       |
| 1 3/8"-8   | 5/8"             | 27   | 5I8WTM...028/047  | 2               | 22.23 | 7     | TMC25-5 124/004 | 26.0-32.4       |
| 1 3/8"-6   | 5/8"             | 27   | 5I6WTM...028/049  | 2               | 21.17 | 5     | TMC25-5 124/004 | 27.9-32.6       |
| 1 3/8"-12  | 5/8"             | 27   | 5I12WTM...028/050 | 2               | 23.28 | 11    | TMC25-5         | 32.2-34.6       |
| 1.4-6      | 5/8"             | 27   | 5I6WTM...028/049  | 2               | 21.17 | 5     | TMC25-5 124/004 | 27.9-32.6       |
| 1.4-8      | 5/8"             | 27   | 5I8WTM...028/047  | 2               | 22.23 | 7     | TMC25-5124/004  | 26.0-32.4       |
| 1.4-12     | 5/8"             | 27   | 5I12WTM...028/050 | 2               | 23.28 | 11    | TMC25-5         | 32.2-34.6       |
| 1 7/16"-6  | 5/8"             | 27   | 5I6WTM...028/049  | 2               | 21.17 | 5     | TMC25-5 124/004 | 27.9-32.6       |
| 1 7/16"-8  | 5/8"             | 27   | 5I8WTM...028/047  | 2               | 22.23 | 7     | TMC25-5         | 32.4-39.0       |
| 1 7/16"-12 | 5/8"             | 27   | 5I12WTM...028/050 | 2               | 23.28 | 11    | TMC25-5         | 32.2-34.6       |
| 1 1/2"-6   | 5/8"             | 27   | 5I6WTM...028/049  | 2               | 21.17 | 5     | TMC25-5 124/004 | 27.9-32.7       |
| 1 1/2"-8   | 5/8"             | 27   | 5I8WTM...028/047  | 2               | 22.23 | 7     | TMC25-5         | 32.4-39.0       |
| 1.6-6      | 5/8"             | 27   | 5I6WTM...028/049  | 2               | 21.17 | 5     | TMC25-5         | 32.6-38.5       |
| 1.6-8      | 5/8"             | 27   | 5I8WTM...028/047  | 2               | 22.23 | 7     | TMC25-5         | 32.4-39.0       |
| 1 5/8"-8   | 5/8"             | 27   | 5I8WTM...028/047  | 2               | 22.23 | 7     | TMC25-5         | 32.4-39.0       |
| 1 5/8"-6   | 5/8"             | 27   | 5I6WTM...028/049  | 2               | 21.17 | 5     | TMC25-5         | 32.6-38.5       |
| 1 3/4"-7   | 5/8"             | 27   | 5I7WTM...028/048  | 2               | 21.77 | 6     | TMC25-5         | 39.8-42.0       |
| 1 7/8"-6   | 5/8"             | 27   | 5I6 WTM...028/049 | 2               | 21.17 | 5     | TMC32-5         | 42.2-45.0       |
| 1.9-6      | 5/8"             | 27   | 5I6 WTM...028/049 | 2               | 21.17 | 5     | TMC32-5         | 42.2-45.0       |

Exemple de demande pour le filetage 1 5/16"-12 BSW

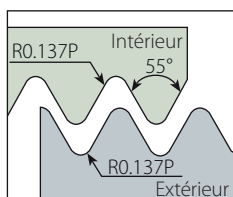
Référence: Plaquette: **3I12WTM VBX 028/041**

Fraise à fileter: **TMC 20-3**

Pour les informations relatives aux porte-outil, voir page 234.

## W pour BSW seulement (Suite)

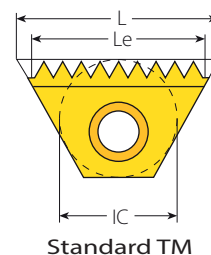
### Extérieur / Intérieur



Norme: B.S.84:1956, DIN 259, ISO228/1:1982

Norme: B.S.2779:1956

Classe de tolérance: BSW-Classe moyenne A, BSP-Classe moyenne



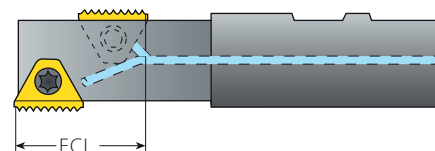
### Plaquettes jumelées pour fraises à fileter TMO

| Taille plaquette |      | Pas | Référence             |             | ECL   |
|------------------|------|-----|-----------------------|-------------|-------|
| IC               | L mm | tpi | Extérieur + Intérieur | TMO         | mm    |
| 1/4"             | 11   | 28  | 2EI28WTM2...          | TMOC20-2-3  | 17.24 |
|                  |      | 26  | 2EI26WTM2...          | TMOC20-2-5  | 18.56 |
|                  |      | 24  | 2EI24WTM2...          | TMOC20-2-2  | 17.99 |
|                  |      | 20  | 2EI20WTM2...          | TMOC20-2-6  | 19.05 |
|                  |      | 19  | 2EI19WTM2...          | TMOC20-2-7  | 17.38 |
|                  |      | 14  | 2EI14WTM2...          | TMOC20-2-3  | 16.33 |
| 3/8"             | 16   | 26  | 3EI26WTM2...          | TMOC20-3-2  | 27.35 |
|                  |      | 26  | 3EI26WTM2...          | TMOC20-3-6  | 26.38 |
|                  |      | 24  | 3EI24WTM2...          | TMOC20-3-7  | 28.57 |
|                  |      | 20  | 3EI20WTM2...          | TMOC20-3-6  | 26.67 |
|                  |      | 19  | 3EI19WTM2...          | TMOC20-3-8  | 28.07 |
|                  |      | 18  | 3EI18WTM2...          | TMOC20-3-6  | 26.81 |
|                  |      | 16  | 3EI16WTM2...          | TMOC20-3-6  | 26.99 |
|                  |      | 14  | 3EI14WTM2...          | TMOC20-3-6  | 27.21 |
|                  |      | 12  | 3EI12WTM2...          | TMOC20-3-6  | 27.52 |
|                  |      | 11  | 3EI11WTM2...          | TMOC20-3-9  | 27.71 |
| 5/8"             | 27   | 16  | 5EI16WTM2...          | TMOC25-5-3  | 47.63 |
|                  |      | 14  | 5EI14WTM2...          | TMOC25-5-1  | 50.80 |
|                  |      | 14  | 5EI14WTM2...          | TMOC25-5-4  | 47.17 |
|                  |      | 12  | 5EI12WTM2...          | TMOC25-5-2  | 44.45 |
|                  |      | 11  | 5EI11WTM2...          | TMOC25-5-6  | 46.18 |
|                  |      | 10  | 5EI10WTM2...          | TMOC25-5-7  | 45.72 |
|                  |      | 9   | 5EI9WTM2...           | TMOC25-5-8  | 45.16 |
|                  |      | 8   | 5EI8WTM2...           | TMOC25-5-9  | 44.45 |
|                  |      | 7   | 5EI7WTM2...           | TMOC25-5-4  | 43.54 |
|                  |      | 6   | 5EI6WTM2...           | TMOC25-5-11 | 42.33 |

Exemple de commande: **3EI19WTM2 VBX**

Pour la côte Le et le nombre de dents des plaquettes ci-dessus, voir tableau pour plaquettes standards page 222.

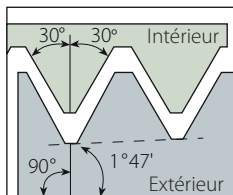
Pour les informations relatives aux porte-outil, voir page 239.



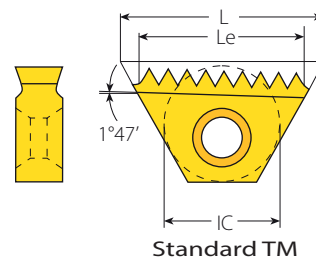
LCE – Longueur de Coupe Effective

## NPT

### Extérieur / Intérieur



Norme: USAS B2.1:1968  
Classe de tolérance: Standard NPT



Standard TM

### Standard TM

| Taille plaquette |      | Pas  | Référence             | Le    | Dents | Porte-outils |               |
|------------------|------|------|-----------------------|-------|-------|--------------|---------------|
| IC               | L mm | tpi  | Extérieur + Intérieur | mm    |       | RH           | LH            |
| 3/8"             | 16   | 18   | 3E18NPTTM2... **      | 14.11 | 10    | TMNC...-3    | TMNC...-3LH   |
|                  |      | 14   | 3E14NPTTM2...         | 14.51 | 8     |              |               |
|                  |      | 11.5 | 3E11.5NPTTM2...       | 13.25 | 6     |              |               |
| 3/8"B            | 22   | 14   | 3BE14NPTTM2...        | 21.77 | 12    | BTMNC...-3B  | BTMNC...-3BLH |
|                  |      | 11.5 | 3BE11.5NPTTM2... *    | 19.88 | 9     |              |               |
| 5/8"             | 27   | 11.5 | 5E11.5NPTTM2...       | 24.30 | 11    | TM.C...-5    | TM.C...-5LH   |
|                  |      | 8    | 5E18NPTTM2...         | 22.23 | 7     |              |               |
| 3/4"B            | 38.5 | 11.5 | 6BE11.5NPTTM2...      | 35.34 | 16    | TMC...-6B    | TMC...-6BLH   |
|                  |      | 8    | 6BE18NPTTM2...        | 31.75 | 10    |              |               |

\* Plaquette à simple arrête de coupe – uniquement à droite

\*\* Uniquement pour filetage extérieur

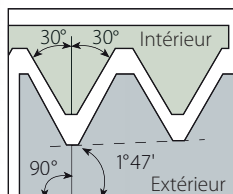
Exemple de commande: **3E14NPTTM VBX**

**Remarque:** Une fraise à fileter à gauche (ajouter LH à la fin de la référence) est nécessaire pour utiliser les plaquettes avec arrête de coupe "L".

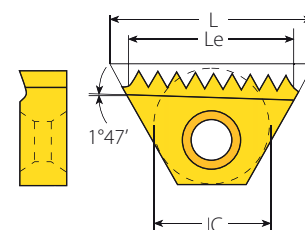
Pour les informations relatives aux porte-outil, voir page 234.

## NPT

### Intérieur



Norme: USAS B2.1:1968  
Classe de tolérance: Standard NPT



Fraise à fileter  
pas normaux

### Fraise à fileter pas normaux

| Filet   | Taille plaquette |      | Référence           | Le | Dents | Porte-outils |                  |
|---------|------------------|------|---------------------|----|-------|--------------|------------------|
| pouce   | IC               | L mm | Intérieur           | mm |       |              |                  |
| 1/4"-18 | 1/4"             | 11   | 2I18NPTTM...028/074 | 1  | 9.88  | 7            | TMC 20-2 124/009 |
| 3/8"-18 | 1/4"             | 11   | 2I18NPTTM...028/074 | 1  | 9.88  | 7            | TMC 20-2 124/009 |

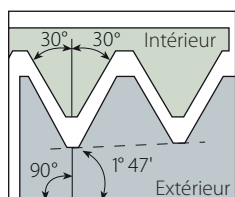
Exemple de commande: **2I18NPTTM VBX 028/074**

**Remarque:** Une fraise à fileter à gauche (ajouter LH à la fin de la référence) est nécessaire pour utiliser plaquettes marquées L.

Pour les informations relatives aux porte-outil, voir page 234.

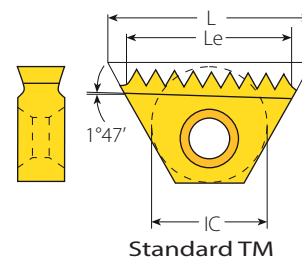
## NPTF (avec joint étanche)

### Extérieur / Intérieur



Norme: ANSI 1.20.3-1976

Classe de tolérance: Standard NPTF



### Standard TM

| Taille plaquette |      | Pas  | Référence             | Le    | Dents | Porte-outils |               |
|------------------|------|------|-----------------------|-------|-------|--------------|---------------|
| IC               | L mm | tpi  | Extérieur + Intérieur | mm    |       | RH           | LH            |
| 3/8"             | 16   | 14   | 3EI14NPTFTM2...       | 14.51 | 8     | TMNC...-3    | TMNC...-3LH   |
|                  |      | 11.5 | 3EI11.5NPTFTM2...     | 13.25 | 6     |              |               |
| 3/8"B            | 22   | 14   | 3BEI14NPTFTM2...      | 21.77 | 12    | BTMNC...-3B  | BTMNC...-3BLH |
|                  |      | 11.5 | 3BEI11.5NPTFTM2...    | 19.88 | 9     |              |               |
| 5/8"             | 27   | 11.5 | 5EI11.5NPTFTM2...     | 24.30 | 11    | TM.C...-5    | TM.C...-5LH   |
|                  |      | 8    | 5EI8NPTFTM2...        | 22.23 | 7     |              |               |
| 3/4"B            | 38.5 | 11.5 | 6BEI11.5NPTFTM2...    | 35.34 | 16    | TMC...-6B    | TMC...-6BLH   |
|                  |      | 8    | 6BEI8NPTFTM2...       | 31.75 | 10    |              |               |

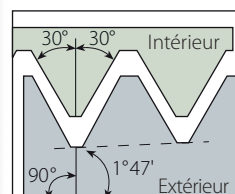
Exemple de commande: **3EI14NPTFTM VBX**

Remarque: Une fraise à fileter à gauche (ajouter LH à la fin de la référence) est nécessaire pour utiliser plaquettes marquées L.

Pour les informations relatives aux porte-outil, voir page 234.

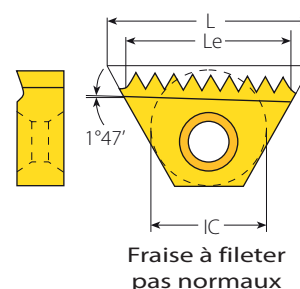
## NPTF (avec joint étanche)

### Intérieur



Norme: ANSI 1.20.3-1976

Classe de tolérance: Standard NPTF



### Fraise à fileter pas normaux

| Filet   | Taille plaquette |      | Référence            | Arrête de coupe | Le   | Dents | Porte-outils    |
|---------|------------------|------|----------------------|-----------------|------|-------|-----------------|
| pouce   | IC               | L mm | Intérieur            |                 | mm   |       |                 |
| 1/4"-18 | 1/4"             | 11   | 2I18NPTFTM...028/078 | 1               | 9.88 | 7     | TMC20-2 124/009 |
| 3/8"-18 | 1/4"             | 11   | 2I18NPTFTM...028/078 | 1               | 9.88 | 7     | TMC20-2 124/009 |

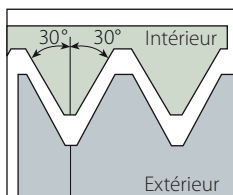
Exemple de demande pour le filetage 1/4" - 18NPTF

Références: Plaquette: **2I18NPTFTM VBX 028/078**

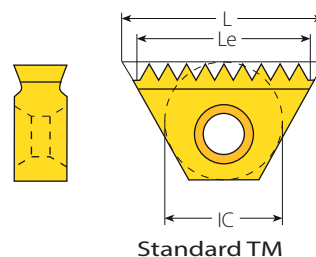
Porte-outils: **TMC20-2 124/009**

## NPS

### Extérieur / Intérieur



Norme: USA NBS H28 (1957)  
Classe de tolérance: Standard NPS



### Standard TM

| Taille plaquette |      | Pas  |                       | Référence | Le    | Dents | Taille filetage nominal | Porte-outils |
|------------------|------|------|-----------------------|-----------|-------|-------|-------------------------|--------------|
| IC               | L mm | tpi  | Extérieur + Intérieur |           | mm    |       |                         |              |
| 3/8"             | 16   | 14   | 3EI14NPSTM2...        |           | 14.51 | 8     | 1/2"                    | TMNC16-3     |
|                  |      | 14   | 3EI14NPSTM2...        |           | 14.51 | 8     | 3/4"                    | TMNC20-3     |
|                  |      | 11.5 | 3EI11.5NPSTM2...      |           | 13.25 | 6     | 1", 1 1/4"              | TMNC20-3     |
| 3/8"B            | 22   | 11.5 | 3BEI11.5NPSTM2...*    |           | 19.88 | 9     | 1", 1 1/4"              | BTMNC20-3B   |
| 5/8"             | 27   | 11.5 | 5EI11.5NPSTM2...      |           | 24.30 | 11    | 1 1/2", 2"              | TMC25-5      |
|                  |      | 8    | 5EI8NPSTM2...         |           | 22.23 | 7     | 2 1/2" & larger         | TMC32-5      |

Référence plaquette: 5EI11.5NPSTM2VBX

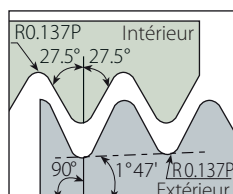
Toutes les plaquettes ont 2 Arrête de coupe.

Pour les informations relatives aux porte-outil, voir page 234.

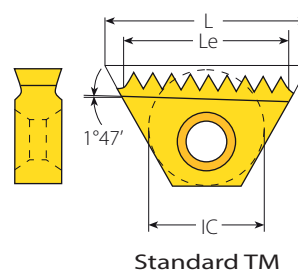
\* 1 arrête de coupe.

## BSPT

### Extérieur / Intérieur



Norme: B.S. 21:1985  
Classe de tolérance: Standard BSPT



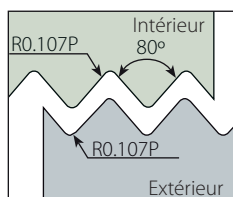
### Standard TM

| Taille plaquette |      | Pas |                       | Référence | Le    | Dents | Porte-outils |             |
|------------------|------|-----|-----------------------|-----------|-------|-------|--------------|-------------|
| IC               | L mm | tpi | Extérieur + Intérieur |           | mm    |       | RH           | LH          |
| 1/4"             | 11   | 19  | 2EI19BSPTTM2...       |           | 9.36  | 7     | TMNC...-2    | TMNC...-2LH |
| 3/8"             | 16   | 14  | 3EI14BSPTTM2...       |           | 14.51 | 8     | TMNC...-3    | TMNC...-3LH |
|                  |      | 11  | 3EI11BSPTTM2...       |           | 13.85 | 6     |              |             |
| 5/8"             | 27   | 11  | 5EI11BSPTTM2...       |           | 23.09 | 10    | TMNC...-5    | TMNC...-5LH |

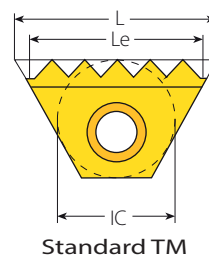
Référence plaquette: 5EI11BSPTTM VBX

Remarque: Une fraise à fileter à gauche (ajouter LH à la fin de la référence) est nécessaire pour utiliser plaquettes marquées L.

Pour les informations relatives aux porte-outil, voir page 234.

**Pg****Extérieur / Intérieur**

Norme: DIN 40430  
Classe de tolérance: Standard

**Standard TM****Standard TM**

| Taille plaquette |      | Pas | Référence             | Le    | Dents | Taille filetage nominal      | Porte-outils        |
|------------------|------|-----|-----------------------|-------|-------|------------------------------|---------------------|
| IC               | L mm | tpi | Extérieur + Intérieur | mm    |       |                              |                     |
| 6.0mm            | 10.4 | 20  | 6.0EI20PGTM...        | 8.99  | 7     | Pg7                          | TMMC...-6.0         |
| 1/4"             | 11   | 20  | 2EI20PGTM2...         | 10.16 | 8     | Pg7                          | TMC...-2            |
|                  |      | 18  | 2EI18PGTM2...         | 9.88  | 7     | Pg9, Pg11, Pg13.5, Pg16      | TMSH...-2           |
|                  |      | 16  | 2EI16PGTM2...         | 9.53  | 6     | Pg21, Pg29, Pg36, Pg42, Pg48 |                     |
| 3/8"             | 16   | 20  | 3EI20PGTM2...         | 13.97 | 11    | Pg7                          | TMC...-3            |
|                  |      | 18  | 3EI18PGTM2...         | 14.11 | 10    | Pg9, Pg11, Pg13.5, Pg16      | TMSH...-3           |
|                  |      | 16  | 3EI16PGTM2...         | 14.29 | 9     | Pg21, Pg29, Pg36, Pg42, Pg48 |                     |
| 5/8"             | 27   | 16  | 5EI16PGTM2...         | 25.40 | 16    | Pg21, Pg29, Pg36, Pg42, Pg48 | TMC...-5, TMSH...-5 |

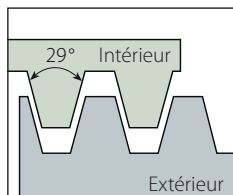
Référence plaquette: **5EI16PGTM2VBX**

Toutes les plaquettes possèdent 2 Arrête de coupe sauf la plaquette Mini (IC 6.0 mm) qui n'en possède qu'une.

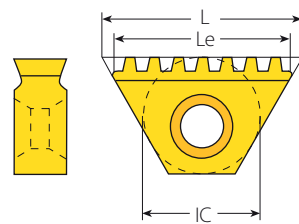
Pour les informations relatives aux porte-outil, voir page 234.

# ACME

## Intérieur



Norme: ANSI B1/5:1988  
Classe de tolérance: 3G



Fraise à fileter  
pas normaux

## Fraise à fileter pas normaux

| Filet     | Taille plaquette |      | Référence              | Arrête de coupe | Le    | Dents | Porte-outils    | mini de perçage |
|-----------|------------------|------|------------------------|-----------------|-------|-------|-----------------|-----------------|
| pouce     | IC               | L mm | Intérieur              |                 | mm    |       |                 | mm              |
| 1/2"-16   | 6.0mm            | 10.4 | 6.0I16ACMETM...028/052 | 1               | 7.94  | 5     | TMMC12-6.0      | 11.1            |
| 1/2"-16   | 6.0mm            | 10.4 | 6.0I16ACMETM...028/052 | 1               | 7.94  | 5     | TMMC20-6.0      | 11.1            |
| 5/8"-16   | 1/4"             | 11   | 2I16ACMETM...028/053   | 2               | 9.53  | 6     | TMC12-2         | 14.2            |
| 5/8"-16   | 1/4"             | 11   | 2I16ACMETM...028/053   | 2               | 9.53  | 6     | TMC20-2         | 14.2            |
| 5/8"-14   | 1/4"             | 11   | 2I14ACMETM...028/054   | 1               | 9.07  | 5     | TMC20-2 124/005 | 14.0            |
| 3/4"-16   | 1/4"             | 11   | 2I16ACMETM...028/055   | 2               | 9.53  | 6     | TMC12-2         | 17.4            |
| 3/4"-16   | 1/4"             | 11   | 2I16ACMETM...028/055   | 2               | 9.53  | 6     | TMC20-2         | 17.4            |
| 3/4"-14   | 1/4"             | 11   | 2I14ACMETM...028/083   | 1               | 9.07  | 5     | TMC20-2 124/006 | 17.2            |
| 3/4"-12   | 1/4"             | 11   | 2I12ACMETM...028/056   | 1               | 8.47  | 4     | TMC20-2 124/006 | 16.9            |
| 7/8"-14   | 3/8"             | 16   | 3I14ACMETM...028/057   | 2               | 14.51 | 8     | TMNC16-3        | 20.4            |
| 7/8"-12   | 1/4"             | 11   | 2I12ACMETM...028/058   | 1               | 8.47  | 4     | TMC20-2 124/006 | 20.1            |
| 1"-14     | 3/8"             | 16   | 3I14ACMETM...028/059   | 2               | 14.51 | 8     | TMC16-3         | 23.5            |
| 1"-12     | 3/8"             | 16   | 3I12ACMETM...028/060   | 2               | 14.82 | 7     | TMNC16-3        | 23.2            |
| 1"-10     | 1/2"             | 22   | 4I10ACMETM...028/061   | 1               | 17.78 | 7     | TMC25-4 124/002 | 22.8            |
| 1"-8      | 1/2"             | 22   | 4I8ACMETM...028/062    | 1               | 19.05 | 6     | TMC25-4 124/002 | 22.2            |
| 1 1/8"-12 | 3/8"             | 16   | 3I12ACMETM...028/060   | 2               | 14.82 | 7     | TMC16-3         | 26.4            |
| 1 1/8"-10 | 1/2"             | 22   | 4I10ACMETM...028/084   | 1               | 17.78 | 7     | TMC25-4 124/007 | 26.0            |
| 1 1/8"-8  | 1/2"             | 22   | 4I8ACMETM...028/063    | 1               | 19.05 | 6     | TMC25-4 124/002 | 25.4-28.5       |
| 1 1/4"-12 | 3/8"             | 16   | 3I12ACMETM...028/060   | 2               | 14.82 | 7     | TMC20-3         | 29.6            |
| 1 1/4"-10 | 5/8"             | 27   | 5I10ACMETM...028/064   | 2               | 22.86 | 9     | TMC25-5 124/004 | 29.2            |
| 1 1/4"-8  | 1/2"             | 22   | 4I8ACMETM...028/063    | 1               | 19.05 | 6     | TMC25-4 124/002 | 25.4-28.5       |
| 1 3/8"-10 | 5/8"             | 27   | 5I10ACMETM...028/065   | 2               | 22.86 | 9     | TMC25-5 124/004 | 32.3            |
| 1 3/8"-8  | 5/8"             | 27   | 5I8ACMETM...028/066    | 2               | 22.23 | 7     | TMC25-5 124/004 | 31.7            |
| 1 3/8"-6  | 5/8"             | 27   | 5I6ACMETM...028/067    | 1               | 21.17 | 5     | TMC25-5 124/008 | 30.6            |
| 1 1/2"-10 | 5/8"             | 27   | 5I10ACMETM...028/068   | 2               | 22.86 | 9     | TMC25-5         | 35.5            |
| 1 1/2"-8  | 5/8"             | 27   | 5I8ACMETM...028/069    | 2               | 22.23 | 7     | TMC25-5 124/004 | 34.9            |
| 1 1/2"-6  | 5/8"             | 27   | 5I6ACMETM...028/070    | 2               | 21.17 | 5     | TMC25-5 124/004 | 33.8            |
| 1 3/4"-10 | 5/8"             | 27   | 5I10ACMETM...028/064   | 2               | 22.86 | 9     | TMC32-5         | 41.9            |
| 1 3/4"-8  | 5/8"             | 27   | 5I8ACMETM...028/069    | 2               | 22.23 | 7     | TMC25-5         | 41.2            |
| 1 3/4"-6  | 5/8"             | 27   | 5I6ACMETM...028/070    | 2               | 21.17 | 5     | TMC25-5         | 40.2            |
| 1 3/4"-5  | 5/8"             | 27   | 5I5ACMETM...028/071    | 2               | 20.32 | 4     | TMC25-5 124/004 | 39.3            |
| 2"-8      | 5/8"             | 27   | 5I8ACMETM...028/069    | 2               | 22.23 | 7     | TMC32-5         | 47.6            |
| 2"-6      | 5/8"             | 27   | 5I6ACMETM...028/072    | 2               | 21.17 | 5     | TMC25-5         | 46.5            |
| 2"-5      | 5/8"             | 27   | 5I5ACMETM...028/071    | 2               | 20.32 | 4     | TMC25-5         | 45.7            |
| 2 1/4"-6  | 5/8"             | 27   | 5I6ACMETM...028/072    | 2               | 21.17 | 5     | TMC32-5         | 52.9            |
| 2 1/4"-5  | 5/8"             | 27   | 5I5ACMETM...028/073    | 2               | 20.32 | 4     | TMC25-5         | 52.0            |
| 2 1/2"-5  | 5/8"             | 27   | 5I5ACMETM...028/073    | 2               | 20.32 | 4     | TMC32-5         | 58.4            |

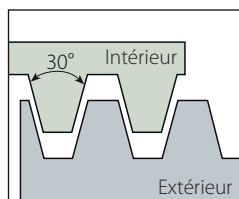
Exemple de demande de filetage ACME 1 3/4"-5

Références: Plaquette: 5I5ACME VBX 028/071 Porte-outils: TMC25-5 124/004

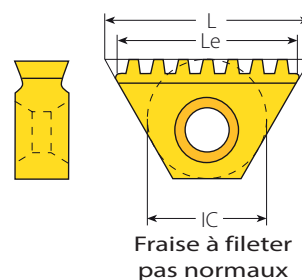
Pour les informations relatives aux porte-outil, voir page 234.

# TR

## Intérieur



Norme: Trapèze DIN 103  
Classe de tolérance: 7e/7H



Fraise à fileter  
pas normaux

## Fraise à fileter pas normaux

| Filet      | Taille plaquette |      | Référence           | Arrête de coupe | Le | Dents | Porte-outils    | mini de perçage |
|------------|------------------|------|---------------------|-----------------|----|-------|-----------------|-----------------|
| mm         | IC               | L mm | Intérieur           |                 | mm |       |                 | mm              |
| TR 16X2.0  | 1/4"             | 11   | 2I2.0TRTM...028/028 | 1               | 10 | 5     | TMC20-2 124/006 | 14.0            |
| TR 18X2.0  | 1/4"             | 11   | 2I2.0TRTM...028/029 | 1               | 10 | 5     | TMC20-2 124/006 | 16.0-18.0       |
| TR 20X2.0  | 1/4"             | 11   | 2I2.0TRTM...028/029 | 1               | 10 | 5     | TMC20-2 124/006 | 16.0-18.0       |
| TR 24X3.0  | 1/2"             | 22   | 4I3.0TRTM...028/030 | 1               | 18 | 6     | TMC25-4 124/002 | 21.0            |
| TR 26X3.0  | 1/2"             | 22   | 4I3.0TRTM...028/031 | 1               | 18 | 6     | TMC25-4 124/002 | 23.0-27.0       |
| TR 28X3.0  | 1/2"             | 22   | 4I3.0TRTM...028/031 | 1               | 18 | 6     | TMC25-4 124/002 | 23.0-27.0       |
| TR 30X3.0  | 1/2"             | 22   | 4I3.0TRTM...028/031 | 1               | 18 | 6     | TMC25-4 124/002 | 23.0-27.0       |
| TR 32X3.0  | 1/2"             | 22   | 4I3.0TRTM...028/032 | 1               | 18 | 6     | TMC25-4 124/007 | 29.0-33.0       |
| TR 34X3.0  | 1/2"             | 22   | 4I3.0TRTM...028/032 | 1               | 18 | 6     | TMC25-4 124/007 | 29.0-33.0       |
| TR 36X3.0  | 1/2"             | 22   | 4I3.0TRTM...028/032 | 1               | 18 | 6     | TMC25-4 124/007 | 29.0-33.0       |
| TR 38X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC25-5 124/004 | 35.0-39.0       |
| TR 40X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC25-5 124/004 | 35.0-39.0       |
| TR 42X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC25-5 124/004 | 35.0-39.0       |
| TR 44X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC25-5         | 41.0-45.0       |
| TR 46X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC25-5         | 41.0-45.0       |
| TR 48X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC25-5         | 41.0-45.0       |
| TR 50X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC32-5         | 47.0-57.0       |
| TR 52X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC32-5         | 47.0-57.0       |
| TR 55X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC32-5         | 47.0-57.0       |
| TR 60X3.0  | 5/8"             | 27   | 5I3.0TRTM...028/033 | 2               | 24 | 8     | TMC32-5         | 47.0-57.0       |
| TR 65X4.0  | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 70X4.0  | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 75X4.0  | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 80X4.0  | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 85X4.0  | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 90X4.0  | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 95X4.0  | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 100X4.0 | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 105X4.0 | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |
| TR 110X4.0 | 5/8"             | 27   | 5I4.0TRTM...028/034 | 2               | 24 | 6     | TMC32-5         | 61.0-106.0      |

Exemple de demande pour le filetage TR 38x3.0

Référence: Plaquette: **5I3.0TRTM VBX 028/033** Porte-outils: **TMC25-5 124/004**

Pour les informations relatives aux porte-outil, voir page 234.





# Fraises à fileter



> Porte-Outils  
Standards

# FRAISE À FILETER

|   |                                                                            |          |
|---|----------------------------------------------------------------------------|----------|
| ■ | Système de codification Vardex.....                                        | Page 234 |
| ■ | Fraise à fileter standards.....                                            | Page 235 |
| ■ | Fraise à fileter série longue TML.....                                     | Page 236 |
| ■ | Fraise à fileter pour pas normaux 124/.....                                | Page 237 |
| ■ | Fraise à fileter coniques TMN (Pour Filets NPT, NPYF, BSPT).....           | Page 237 |
| ■ | Fraise à fileter à plaquettes jumelées TM2.....                            | Page 238 |
| ■ | Fraise à fileter à plaquettes décalées TMO.....                            | Page 239 |
| ■ | Fraise à fileter monodent TMS.....                                         | Page 240 |
| ■ | Fraise à fileter pour plaquettes verticales TMV.....                       | Page 240 |
| ■ | Tourteaux de filets.....                                                   | Page 241 |
| ■ | Pièces détachées pour Fraises à fileter et têtes de fraisage de filet..... | Page 242 |

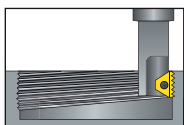
## Système de codification Vardex

### Fraise à fileter

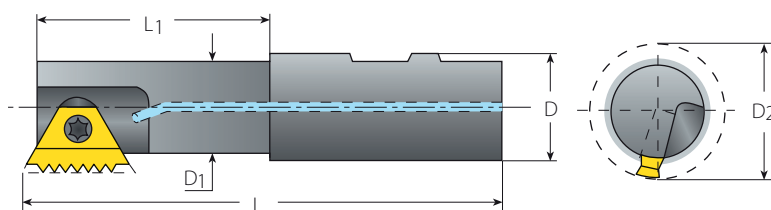
| B                          | TM | N                                                                                       | C | 20                                                                                                                                                                                               | - | 3                                                | B |                            | LH |    |
|----------------------------|----|-----------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------|---|----------------------------|----|----|
| 1                          | 2  | 3                                                                                       | 4 | 5                                                                                                                                                                                                |   | 6                                                | 7 | 8                          | 9  | 10 |
| 1 - Type de queue          |    | 2 - Système                                                                             |   | 3 - Type porte-outils                                                                                                                                                                            |   |                                                  |   | 4 - Arrosage               |    |    |
| B - Système Anti-Vibration |    | TM - Fraise à fileter                                                                   |   | 2 - Plaquettes jumelées V - Fraise à fileter verticale<br>M - Mini S - 1 arrête de coupe<br>L - Série longue O - Plaquettes décalée<br>N - Fraise à fileter cônica W - Diam. de coupe large Dia. |   |                                                  |   | C - Canal de lubrification |    |    |
| 5 - Diam. queue            |    | 6 - Taille plaquette IC                                                                 |   | 7 - Longueur de coupe effective Edge Length                                                                                                                                                      |   | 9 - Fraise à fileter à droite RH/à gauche LH     |   |                            |    |    |
| 10, 12, 16, 20, 25, 32, 40 |    | 6.0 - 6.0mm<br>2 - 1/4"<br>3 - 3/8"<br>3B - 3/8"B<br>4 - 1/2"<br>5 - 5/8"<br>6B - 3/4"B |   | B - TMB                                                                                                                                                                                          |   | Néant - indication à droite<br>LH - A gauche     |   |                            |    |    |
|                            |    |                                                                                         |   | 8 - No Série                                                                                                                                                                                     |   | 10 - No Série                                    |   |                            |    |    |
|                            |    |                                                                                         |   | (pour fraise à fileter TMO)<br>1 - 16                                                                                                                                                            |   | (pour fraise à fileter à pas normaux)<br>124/... |   |                            |    |    |

### Tourteaux

| TMSH                            | - | D63                      | - | 22 | -                     | 3 | B                                                                                           |
|---------------------------------|---|--------------------------|---|----|-----------------------|---|---------------------------------------------------------------------------------------------|
| 1                               |   | 2                        |   | 3  |                       | 4 | 5                                                                                           |
| 1 - Système                     |   | 2 - Diam. inscrit        |   |    | 3 - Alésage intérieur |   | 4 - Taille plaquette IC<br><br>2 - 1/4"<br>3 - 3/8"<br>3B - 3/8"B<br>5 - 5/8"<br>6B - 3/4"B |
| Tortaux                         |   | 38, 50, 63, 80, 100, 125 |   |    | 16, 22, 27, 32, 40    |   |                                                                                             |
| 5 - Longueur de coupe effective |   |                          |   |    |                       |   |                                                                                             |
| B - TMB                         |   |                          |   |    |                       |   |                                                                                             |



## Porte-outils intérieur et extérieur



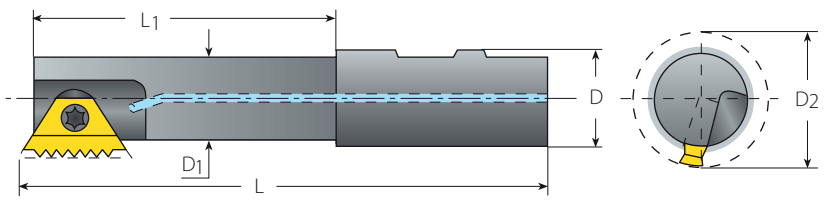
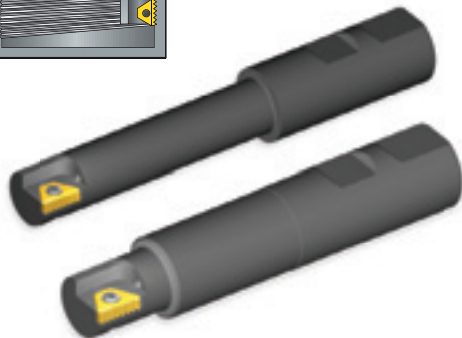
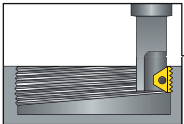
### Standard TM

### Pièces détachées

| Taille<br>plaquette | Référence  | Dimensions mm |      |    |      |      |  |  |
|---------------------|------------|---------------|------|----|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  |            | L             | L1   | D  | D1   | D2   | Vis plaquette                                                                       | Clé torx                                                                            |
| 6.0mm               | TMMC12-6.0 | 69.0          | 12.0 | 12 | 6.8  | 9.0  | SN7T                                                                                | K7T                                                                                 |
|                     | TMMC20-6.0 | 84.0          | 17.0 | 20 | 6.8  | 9.0  |                                                                                     |                                                                                     |
| 1/4"                | TMC12-2    | 70.0          | 12.0 | 12 | 8.9  | 11.5 | SN2TM                                                                               | K2T                                                                                 |
|                     | TMC20-2    | 85.0          | 20.0 | 20 | 8.9  | 11.5 |                                                                                     |                                                                                     |
| 3/8"                | TMC16-3    | 90.0          | 22.0 | 16 | 13.6 | 17.0 | SN3TM                                                                               | K3T                                                                                 |
|                     | TMC20-3    | 95.0          | 43.0 | 20 | 16.6 | 20.0 |                                                                                     |                                                                                     |
| 3/8"B               | BTMC16-3B  | 79.5          | 29.0 | 16 | 13.5 | 17.0 | SN3TM                                                                               | K3T                                                                                 |
|                     | BTMC20-3B  | 81.5          | 29.0 | 20 | 15.5 | 19.0 |                                                                                     |                                                                                     |
|                     | BTMC25-3B  | 92.3          | 30.0 | 25 | 15.5 | 19.0 | SN3T                                                                                | K3T                                                                                 |
|                     | BTMWC25-3B | 90.8          | 30.0 | 25 | 18.5 | 22.0 |                                                                                     |                                                                                     |
| 5/8"                | TMC25-5    | 110.0         | 52.0 | 25 | 24.0 | 30.0 | SN5TM                                                                               | K5T                                                                                 |
|                     | TMC25-5LH  | 110.0         | 52.0 | 25 | 24.0 | 30.0 |                                                                                     |                                                                                     |
|                     | TMC32-5    | 120.0         | 58.0 | 32 | 31.0 | 37.0 |                                                                                     |                                                                                     |
| 3/4"B               | TMC32-6B   | 115.0         | 53.0 | 32 | 27.0 | 35.0 | SM7T                                                                                | K30T                                                                                |
|                     | TMC40-6B   | 135.0         | 63.0 | 40 | 38.0 | 46.0 |                                                                                     |                                                                                     |

Référence plaquette: **TMC12-2**

## Porte-outils intérieur et extérieur

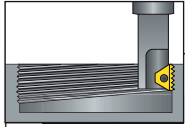


### Fraise à fileter série longue TML

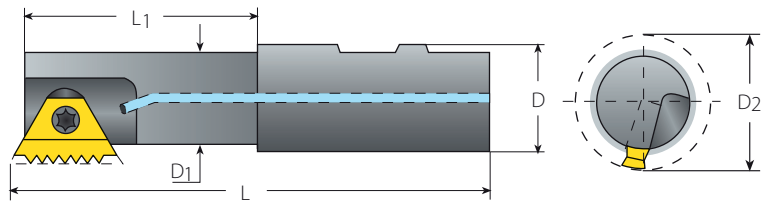
Pièces détachées

| Taille<br>plaquette | Référence  | Dimensions<br>mm |      |    |      |      |  |  |
|---------------------|------------|------------------|------|----|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  |            | L                | L1   | D  | D1   | D2   | Vis plaquette                                                                       | Clé torx                                                                            |
| 1/4"                | TMLC25-2   | 125.0            | 17.0 | 25 | 8.9  | 11.5 | SN2TM                                                                               | K2T                                                                                 |
| 3/8"                | TMLC25-3   | 125.0            | 25.0 | 25 | 18.6 | 22.0 | SN3T                                                                                | K3T                                                                                 |
|                     | BTMLC25-3  | 125.0            | 63.5 | 25 | 18.6 | 22.0 |                                                                                     |                                                                                     |
| 3/8"B               | BTMLC20-3B | 96.5             | 44.0 | 20 | 15.5 | 19.0 | SN3T                                                                                | K3T                                                                                 |
|                     | BTMLC25-3B | 125.0            | 63.5 | 25 | 18.6 | 22.0 |                                                                                     |                                                                                     |
| 5/8"                | TMLC25-5   | 150.0            | 92.0 | 25 | 24.0 | 30.0 | SN5TM                                                                               | K5T                                                                                 |
|                     | TMLC32-5   | 160.0            | 98.0 | 32 | 31.0 | 37.0 |                                                                                     |                                                                                     |
| 3/4"B               | TMLC40-6B  | 165.0            | 93.0 | 40 | 38.0 | 46.0 | SM7T                                                                                | K30T                                                                                |

Référence plaquette: TMLC25-3



## Porte-outils intérieur et extérieur

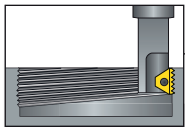


### 124/.. - Fraise à fileter pour pas normaux

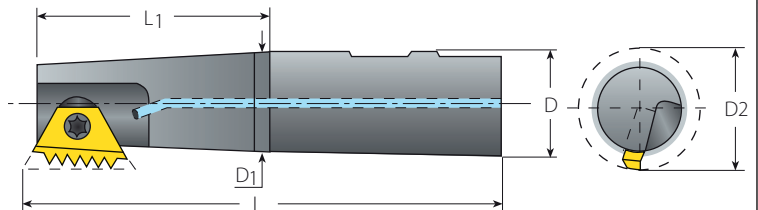
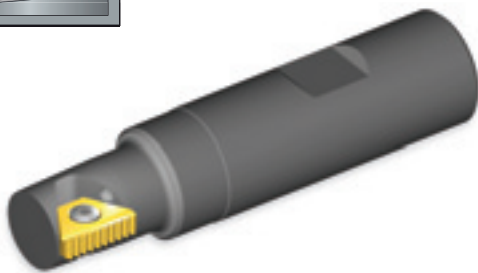
Pièces détachées

| Taille<br>plaquette | Référence          | Dimensions mm |      |    |      |      |  |  |
|---------------------|--------------------|---------------|------|----|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  |                    | L             | L1   | D  | D1   | D2   | Vis plaquette                                                                       | Clé torx                                                                            |
| 6.0mm               | TMMC20-6.0 124/003 | 85            | 15.0 | 20 | 6.7  | 9.0  | SN7T                                                                                | K7T                                                                                 |
| 1/4"                | TMC20-2 124/005    | 77            | 15.5 | 20 | 7.4  | 10.0 | SN2TM                                                                               | K2T                                                                                 |
|                     | TMC20-2 124/006    | 77            | 15.5 | 20 | 9.0  | 12.0 |                                                                                     |                                                                                     |
|                     | TMC20-2 124/009    | 77            | 15.5 | 20 | 7.4  | 10.0 |                                                                                     |                                                                                     |
| 3/8"                | TMC16-3 124/001    | 91            | 20.5 | 16 | 12.2 | 15.5 | SN3TM                                                                               | K3T                                                                                 |
| 1/2"                | TMC25-4 124/002    | 88            | 30.0 | 25 | 13.4 | 18.0 | SN4TM                                                                               | K4T                                                                                 |
|                     | TMC25-4 124/007    | 98            | 40.0 | 25 | 16.0 | 20.0 | SA4TM                                                                               |                                                                                     |
| 5/8"                | TMC25-5 124/004    | 98            | 40.0 | 25 | 19.0 | 25.0 | SA5TM                                                                               | K5T                                                                                 |
|                     | TMC25-5 124/008    | 98            | 40.0 | 25 | 16.4 | 22.0 | SN5TM                                                                               |                                                                                     |

Référence plaquette: TMMC 20-6 124/003



## Porte-outils intérieur et extérieur



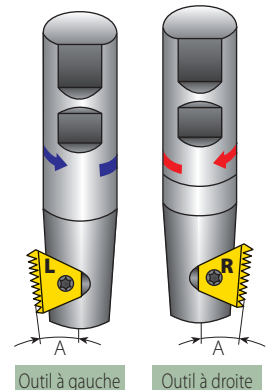
### TMN – Fraise à fileter pour filets coniques TMN (NPT, NPTF, BSPT)

Pièces détachées

| Taille<br>plaquette | Référence  |               | Dimensions mm |      |    |      |      |  |  |
|---------------------|------------|---------------|---------------|------|----|------|------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| IC                  | RH         | LH            | L             | L1   | D  | D1   | D2   | Vis plaquette                                                                        | Clé torx                                                                              |
| 3/8"                | TMNC16-3   | TMNC16-3 LH   | 90.0          | 22.0 | 16 | 12.5 | 15.5 | SN3TM                                                                                | K3T                                                                                   |
|                     | TMNC20-3   | TMNC16-3 LH   | 85.0          | 23.0 | 20 | 15.0 | 19.0 |                                                                                      |                                                                                       |
| 3/8"B               | BTMNC16-3B | BTMNC16-3B LH | 79.5          | 29.0 | 16 | 13.5 | 17.0 | SN3TM                                                                                | K3T                                                                                   |
|                     | BTMNC20-3B | BTMNC20-3B LH | 81.5          | 29.0 | 20 | 15.5 | 19.0 |                                                                                      |                                                                                       |
| 5/8"                | TMNC32-5   | TMNC32-5 LH   | 120.0         | 58.0 | 32 | 31.0 | 37.0 | SN5TM                                                                                | K5T                                                                                   |

Référence plaquette: TMNC20-3

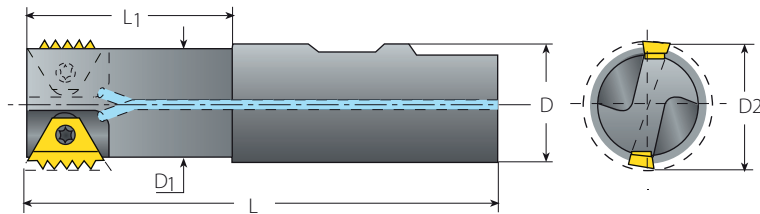
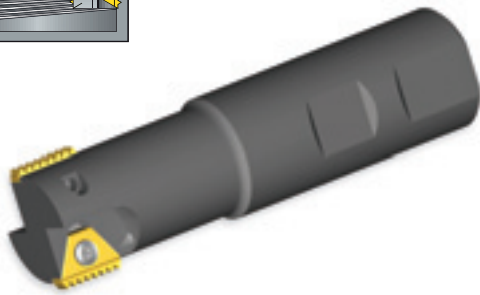
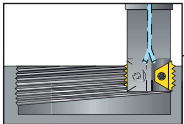
**Remarque:** Une fraise à fileter à gauche LH est nécessaire pour utiliser les plaquettes avec arrête de coupe marquée "L". Ajouter LH à la référence de la fraise à fileter.



Outil à gauche

Outil à droite

## Porte-outils intérieur et extérieur

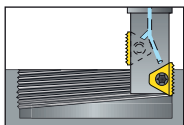


### TM2 - Fraise à fileter à plaquettes jumelées

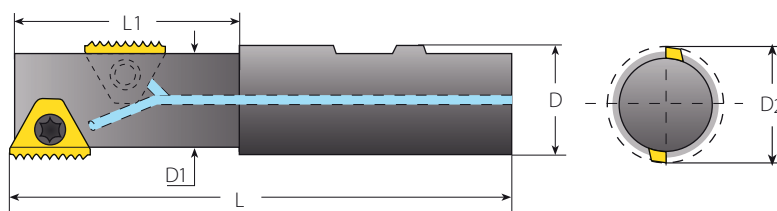
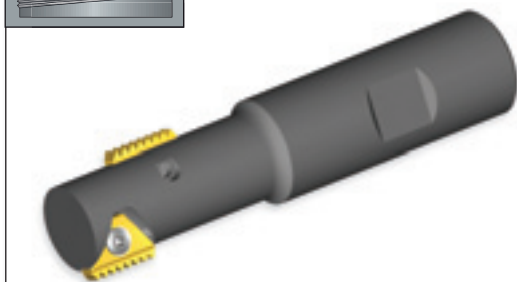
Pièces détachées

| Taille<br>plaquette | Référence  | Dimensions mm |      |    |      |    |  |  |
|---------------------|------------|---------------|------|----|------|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  |            | L             | L1   | D  | D1   | D2 | Vis plaquette                                                                       | Clé torx                                                                            |
| 1/4"                | TM2C20-2   | 85            | 20.0 | 20 | 14.4 | 17 | SN2TM                                                                               | K2T                                                                                 |
| 3/8"                | TM2C25-3   | 100           | 43.0 | 25 | 22.5 | 26 | SN3T                                                                                | K3T                                                                                 |
| 3/8"B               | BTM2C25-3B | 104.2         | 46.0 | 25 | 22.5 | 26 |                                                                                     |                                                                                     |
| 5/8"                | TM2C32-5   | 120           | 45.0 | 32 | 36.0 | 42 | SN5TM                                                                               | K5T                                                                                 |
| 3/4"B               | TM2C40-6B  | 137.2         | 65.0 | 40 | 44.0 | 52 | SM7T                                                                                | K30T                                                                                |

Référence plaquette: **TM2C32-5**



## Porte-outils intérieur et extérieur



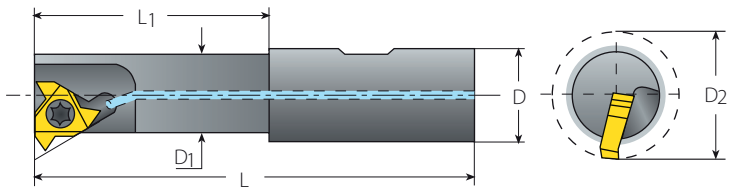
### TMO - Fraise à fileter à plaquettes décalées

Pièces détachées

| Plaquette<br>Taille | Référence   | Filets applicables  |                        |                           | Dimensions mm |    |    |      |      | Vis plaquette |     | Clé torx |  |
|---------------------|-------------|---------------------|------------------------|---------------------------|---------------|----|----|------|------|---------------|-----|----------|--|
| IC                  |             | Extérieur           | Intérieur              | Extérieur et Intérieur    | L             | L1 | D  | D1   | D2   |               |     |          |  |
| 1/4"                | TMOC20-2-1  | 16UN                | 48/32/16UN             |                           | 90            | 25 | 20 | 11.9 | 14.5 | SN2TM         | K2T |          |  |
|                     | TMOC20-2-2  | 24/18UN             | 48/24/18UN             | 24W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-3  | 28/14UN             | 28/14UN                | 28/14W                    |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-4  | 20UN                | 20UN                   |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-5  |                     |                        | 26W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-6  |                     |                        | 20W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-7  |                     |                        | 19W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-8  | 1.0/1.5ISO          | 0.5/1.0/1.5ISO         |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-9  | 0.75ISO             | 48UN, 0.75ISO          |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-2-10 | 1.25ISO             | 1.25ISO                |                           |               |    |    |      |      |               |     |          |  |
| 3/8"                | TMOC20-3-1  | 1.5ISO              | 0,5/1.5ISO             |                           | 95            | 43 | 20 | 16.6 | 20   | SN3T          | K3T |          |  |
|                     | TMOC20-3-2  | 13UN                | 13UN                   | 26W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-3  | 28UN                | 32/28UN                |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-4  | 27UN                | 27UN                   |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-5  |                     | 11.5UN                 | 11.5NPS                   |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-6  | 24/20/18/16/14/12UN | 24/20/18/16/14/12UN    | 26/20/18/16/14/12W, 14NPS |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-7  | 1.25ISO             | 1.25ISO                | 24W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-8  |                     |                        | 19W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-9  |                     |                        | 11W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-10 | 1.0/2.0ISO          | 0.5/1.0/2.0ISO         |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-11 | 0.75ISO             | 32UN, 0.75ISO          |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC20-3-12 | 1.75ISO             | 1.75ISO                |                           |               |    |    |      |      |               |     |          |  |
| 5/8"                | TMOC25-5-1  | 24/20/18/14/13/12UN | 24/20/18/14/13/11UN    | 14W                       | 110           | 52 | 25 | 24   | 30   | SN5TM         | K5T |          |  |
|                     | TMOC25-5-2  | 24/18/12UN          | 24/18/12/6UN           | 12W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-3  | 16UN                | 16UN                   | 16W, 8NPS                 |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-4  | 14/7UN              | 14UN                   | 14/7W                     |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-5  |                     | 11.5UN                 | 11.5NPS                   |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-6  | 11UN                | 11UN                   | 11W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-7  | 10UN                | 10/5UN                 | 10W                       |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-8  | 9UN                 | 9UN                    | 9W                        |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-9  | 8UN                 | 8UN                    | 8W                        |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-10 |                     | 7UN                    |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-11 | 6UN                 |                        | 6W                        |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-12 | 1.0/2.0/2.5/4.0ISO  | 1.0/2.0/2.5/4.0/5.0ISO |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-13 | 1.25ISO             | 1.25ISO                |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-14 | 1.5/2.5/4.5ISO      | 1.5/2.5/4.5/ISO        |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-15 | 1.75ISO             | 1.75ISO                |                           |               |    |    |      |      |               |     |          |  |
|                     | TMOC25-5-16 | 1.0/1.5/3.0/3.5ISO  | 1.0/1.5/3.0/3.5ISO     |                           |               |    |    |      |      |               |     |          |  |



## Porte-outils intérieur et extérieur



### TMS - Mono-dent (Plaquettes standards)

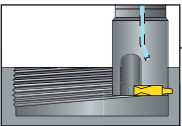
Pièces détachées

| Taille plaquette | Référence | Dimensions mm |    |    |     |      |               |          |
|------------------|-----------|---------------|----|----|-----|------|---------------|----------|
| IC               |           | L             | L1 | D  | D1  | D2   | Vis plaquette | Clé torx |
| 1/4"             | TMSC10-2  | 65            | 25 | 10 | 9.3 | 12.5 | SN2T8         | K2T      |

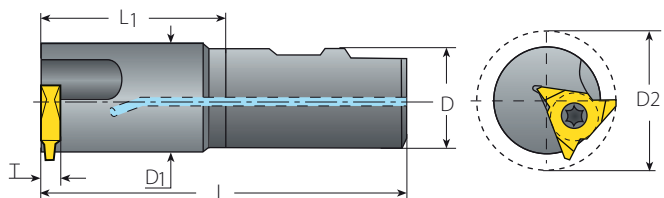
Référence plaquette: **TMSC10-2**

**Remarque:** Utiliser des plaquettes de filetage standards. Voir nos plaquettes de filetage page 18.

Utiliser des plaquettes extérieures à gauche LH pour des filets extérieur et des plaquettes intérieures à droite RH pour des filets intérieur.



## Porte-outils intérieur et extérieur



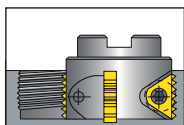
### TMV - Mono-dent (Plaquettes verticales)

Pièces détachées

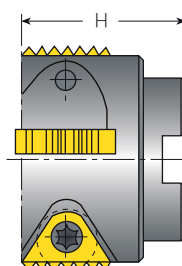
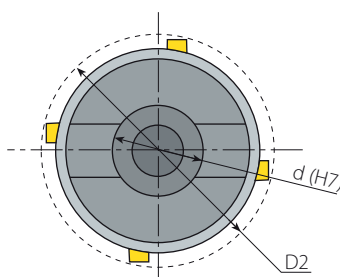
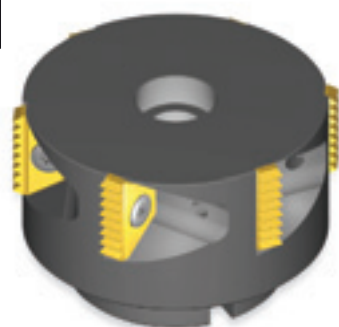
| Taille plaquette | Référence | Dimensions mm |    |    |      |    |               |          |
|------------------|-----------|---------------|----|----|------|----|---------------|----------|
| IC               |           | L             | L1 | D  | D1   | D2 | Vis plaquette | Clé torx |
| 5/8"V            | TMVC32-5  | 120           | 60 | 32 | 35.6 | 46 | SN6T          | K6T      |

Référence plaquette: **TMVC32-5**

**Remarque:** Utiliser des plaquettes de filetage verticales IC 5/8" (Largeur T=6). Utiliser des plaquettes extérieures à gauche LH pour des filets extérieur Voir nos plaquettes de filetage page 18.



## Porte-outils intérieur et extérieur



sens de coupe  
ISO 240-1975 (mm)

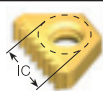
### Tourteau de filetage

### Pièces détachées

| Taille<br>plaquette | Référence       | Nbre<br>plaquettes | Dimensions mm |       |      |  |  |  |
|---------------------|-----------------|--------------------|---------------|-------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| IC                  |                 |                    | D2            | d(H7) | H    | Vis plaquette                                                                       | Clé torx                                                                            | Vis fraise à fileter                                                                |
| 1/4"                | TMSH-D38-16-2   | 6                  | 38.0          | 16.0  | 40.0 | SN2T                                                                                | HK2T                                                                                | M8X1.25X35                                                                          |
| 1/4"                | TMSH-D50-22-2   | 8                  | 50.0          | 22.0  | 40.0 |                                                                                     |                                                                                     | M10X1.50X35                                                                         |
| 3/8"                | TMSH-D50-22-3   | 6                  | 50.0          | 22.0  | 40.0 |                                                                                     |                                                                                     | M10X1.50X35                                                                         |
| 3/8B"               | TMSH-D63-22-3B  | 6                  | 63.0          | 22.0  | 40.0 | SN3TM                                                                               | HK3T                                                                                | M10X1.50X35                                                                         |
| 5/8"                | TMSH-D63-22-5   | 4                  | 63.0          | 22.0  | 45.0 | SN5TM                                                                               | HK5T                                                                                | M10X1.50X35                                                                         |
| 3/4B"               | TMSH-D63-22-6B  | 4                  | 63.0          | 22.0  | 50.0 | SM7T                                                                                | HK7T                                                                                | M10X1.50X35                                                                         |
| 5/8"                | TMSH-D80-27-5   | 6                  | 80.0          | 27.0  | 50.0 | SN5TM                                                                               | HK5T                                                                                | M12X1.75X40                                                                         |
| 3/4B"               | TMSH-D80-27-6B  | 5                  | 80.0          | 27.0  | 50.0 | SM7T                                                                                | HK7T                                                                                | M12X1.75X40                                                                         |
| 5/8"                | TMSH-D100-32-5  | 7                  | 100.0         | 32.0  | 55.0 | SN5TM                                                                               | HK5T                                                                                | M16X2.00X40                                                                         |
| 3/4B"               | TMSH-D100-32-6B | 6                  | 100.0         | 32.0  | 55.0 | SM7T                                                                                | HK7T                                                                                | M16X2.00X40                                                                         |
| 5/8"                | TMSH-D125-40-5  | 9                  | 125.0         | 40.0  | 63.0 | SN5TM                                                                               | HK5T                                                                                | M20X2.50X50                                                                         |
| 3/4B"               | TMSH-D125-40-6B | 8                  | 125.0         | 40.0  | 63.0 | SM7T                                                                                | HK7T                                                                                | M20X2.50X50                                                                         |

## Pièces détachées

### Pour fraise à fileter et tourteau de filetage Vardex



Plaquette IC

Porte-outils

Vis fraise à fileter

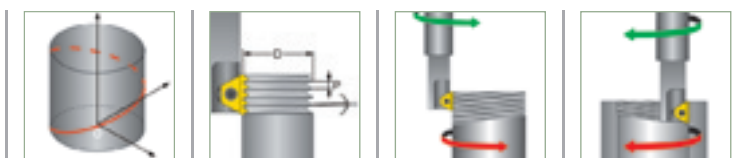
Vis plaquette

Clé torx

|       |                             |             | Désignation  | Filet           |      |
|-------|-----------------------------|-------------|--------------|-----------------|------|
| 6.0mm | TMMC...-6.0                 |             | SN7T         | M2.2x0.45x5.0   | K7T  |
| 1/4"  | TM.C...-2                   |             | SN2TM        | M2.6x0.45x5.9   | K2T  |
| 3/8"  | TM.C...-3, TMC...-3 124/... |             | SN3T, SN3TM  | UNC5x9.5, 8.0   | K3T  |
| 3/8"B | BTM.C...-3B                 |             | SN3T         | UNC5x.9.5       | K3T  |
| 1/2"  | TMC...-4 124/...            |             | SN4TM, SA4TM | UNC8x10.7, 11.6 | K4T  |
| 5/8"  | TM.C...-5, TMC...-5 124/... |             | SN5TM, SA5TM | M5x0.8x15.0     | K5T  |
| 3/4"B | TM.C...-6B                  |             | SM7T         | M7x1.0x15.0     | K30T |
| 1/4"  | TMSH-D38-16-2               | M8X1.25X35  | SN2T         | M2.6x0.45x6.5   | HK2T |
| 1/4"  | TMSH-D50-22-2               | M10X1.50X35 | SN2T         | M2.6x0.45x6.5   | HK2T |
| 3/8"  | TMSH-D50-22-3               | M10X1.50X35 | SN3TM        | UNC5x8.0        | HK3T |
| 3/8"B | TMSH-D63-22-3B              | M10X1.50X35 | SN3TM        | UNC5x8.0        | HK3T |
| 5/8"  | TMSH-D63-22-5               | M10X1.50X35 | SN5TM        | M5x0.8x15.0     | HK5T |
| 3/4"B | TMSH-D63-22-6B              | M10X1.50X35 | SM7T         | M7x1.0x15.0     | HK7T |
| 5/8"  | TMSH-D80-27-5               | M12X1.75X40 | SN5TM        | M5x0.8x15.0     | HK5T |
| 3/4"B | TMSH-D80-27-6B              | M12X1.75X40 | SM7T         | M7x1.0x15.0     | HK7T |
| 5/8"  | TMSH-D100-32-5              | M16X2.00X40 | SN5TM        | M5x0.8x15.0     | HK5T |
| 3/4"B | TMSH-D100-32-6B             | M16X2.00X40 | SM7T         | M7x1.0x15.0     | HK7T |
| 5/8"  | TMSH-D125-40-5              | M20X2.50X50 | SN5TM        | M5x0.8x15.0     | HK5T |
| 3/4"B | TMSH-D125-40-6B             | M20X2.50X50 | SM7T         | M7x1.0x15.0     | HK7T |



# Filetage par fraisage



> Données techniques

## INFORMATIONS TECHNIQUES POUR FRAISES A FILETER

|                                                   |          |
|---------------------------------------------------|----------|
| ■ Tout sur le filetage par fraisage.....          | Page 245 |
| ■ Accostage radial et sur arc tangentiel.....     | Page 246 |
| ■ Préparation de l'opération de filetage.....     | Page 247 |
| ■ Codes "G" de commande numérique.....            | Page 248 |
| ■ Nuances et applications.....                    | Page 248 |
| ■ Conditions de coupe recommandées.....           | Page 249 |
| ■ Diamètres minimum pour fraiser le filetage..... | Page 250 |
| ■ Problèmes d'usinage et solutions.....           | Page 252 |

**Pour plus d'informations, voir  
notre manuel relatif au filetage  
par méthode de fraisage**



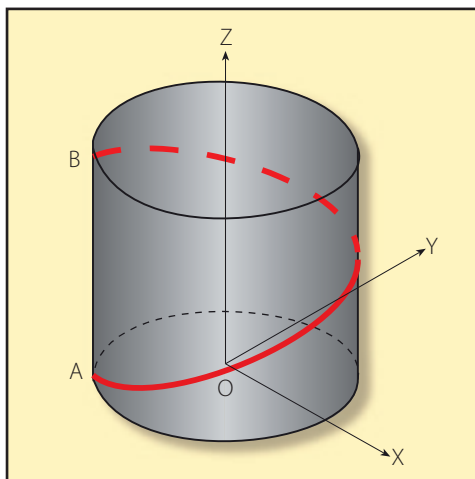
## Sur les fraises à fileter

Pour l'opération de fraisage d'un filet, une fraiseuse à commandes numériques CNC à 3 axes avec option "interpolation hélicoïdale" est nécessaire. L'interpolation hélicoïdale est une fonction CNC qui permet à l'outil de se déplacer sur une trajectoire hélicoïdale. Ce mouvement hélicoïdal combine un mouvement circulaire sur un axe avec un mouvement simultané sur un autre axe perpendiculaire au premier. Par exemple, la trajectoire du point A vers le point B (Fig. A) sur l'enveloppe du cylindre, combine un mouvement circulaire sur le plan xy avec un déplacement linéaire sur l'axe z.

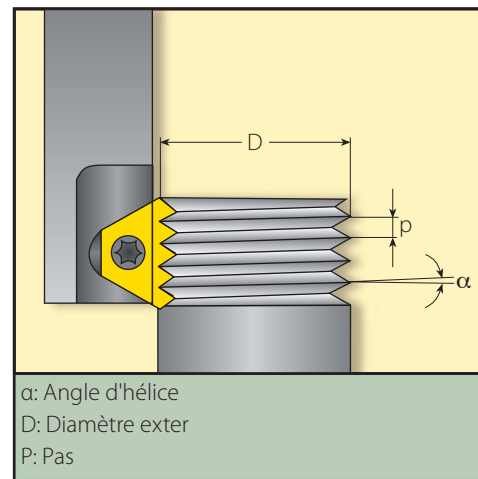
Sur la plupart des machines CNC, cette fonction peut être exécutée de deux façons différentes:

**G02:** Interpolation hélicoïdale dans le sens des aiguilles d'une montre

**G03:** Interpolation hélicoïdale dans le sens inverse des aiguilles d'une montre



**Fig. A**



**Fig. B**

Le fraisage de filet (Fig. B) consiste en une rotation circulaire de l'outil sur son axe, combinée à une interpolation circulaire à l'intérieur ou à l'extérieur de la pièce à usiner.

En une seule rotation de 360°, l'outil réalise verticalement un déplacement égal à la longueur du pas. Ces mouvements combinés avec la géométrie de la plaquette, vont créer la forme de filet souhaitée.

Il existe trois méthodes de pénétration pour commencer un fraisage de filet:

**1 Entrée sur un arc tangent**

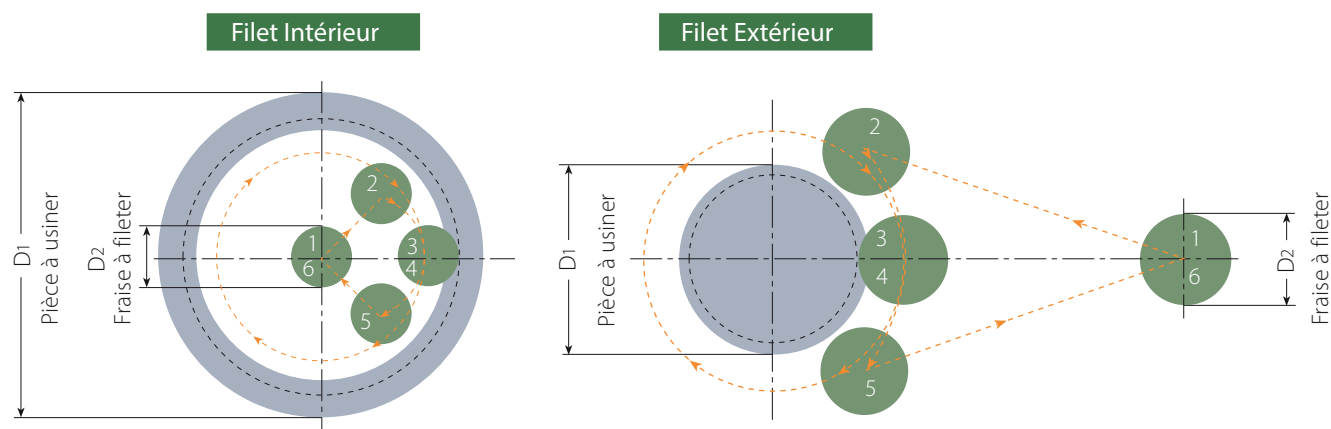
**2 Entrée radiale**

**1 Entrée sur une tangente**

## 1 Entrée sur un arc tangent

Avec cette méthode, l'outil pénètre et ressort de la pièce à usiner en douceur. L'outil laisse aucune marque sur la pièce à usiner et il n'y a pas de vibration, même dans les matières les plus dures.

Bien que cette méthode nécessite une programmation plus complexe que pour l'entrée radiale (voir ci-dessous), c'est la méthode recommandée pour le fraisage des filets de haute qualité.



**1-2:** Approche en avances rapide

**2-3:** Entrée sur un arc tangent avec un mouvement dans l'axe z simultané

**3-4:** Mouvement hélicoïdal de 360°

**4-5:** Sortie sur un arc tangent avec mouvement dans l'axe z

**5-6:** Sortie en avances rapide

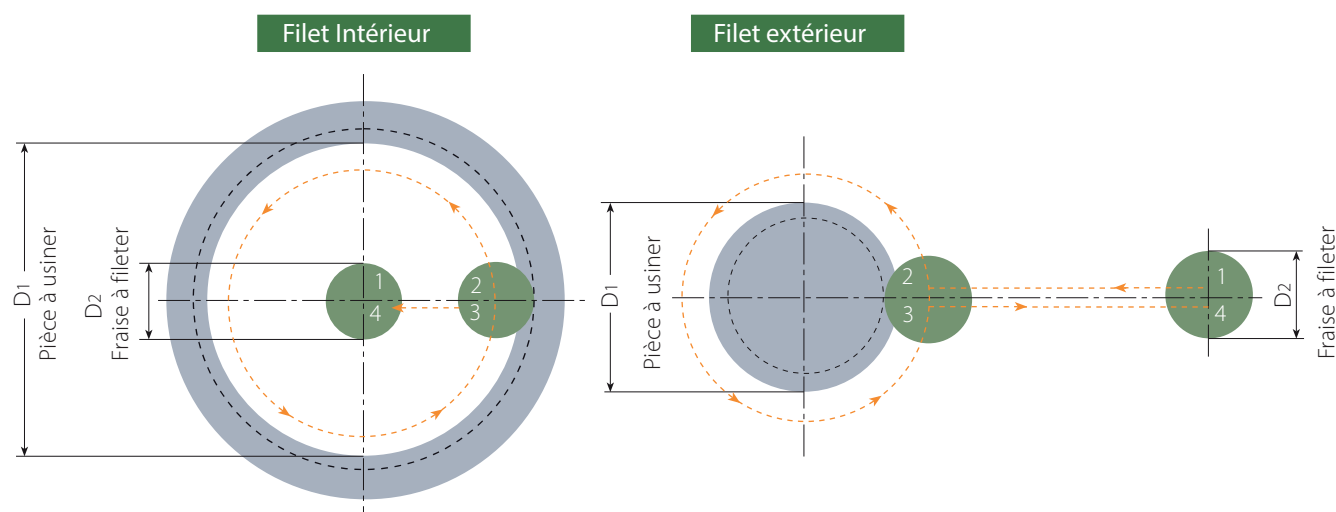
## 2 Entrée radiale

Il s'agit de la méthode la plus simple. Toutefois, nous la déconseillons pour 2 raisons:

**A.** Une petite marque verticale est souvent visible au point d'entrée (et de sortie). Cela n'a pas de conséquence sur le pas lui-même.

**B.** Lorsqu'on utilise cette méthode avec des matériaux très résistants, l'outil peut avoir tendance à vibrer quand il atteint la profondeur complète du filet.

**Remarque:** Si cette méthode doit être utilisée, entrez avec l'avance de travail réduite au tiers! réduite de 1/3! sur l'avance circulaire !



**1-2:** Entrée radiale

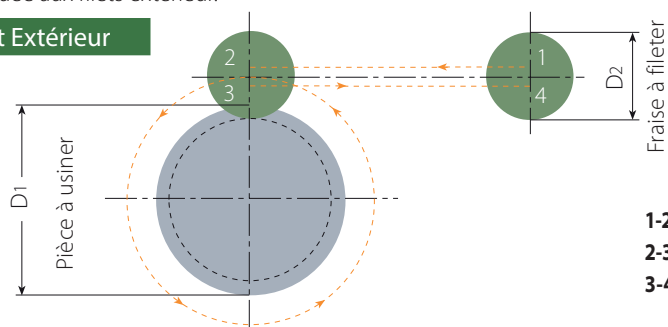
**2-3:** Mouvement hélicoïdal de 360°

**3-4:** Sortie radiale

### 3 Entrée sur une tangente

Cette méthode est très simple et possède tous les avantages de l'entrée sur un arc tangent. Cependant, elle peut uniquement être appliquée aux filets extérieurs.

#### Filet Extérieur



1-2: Entrée linéaire sur la tangente avec un mouvement dans l'axe z simultané

2-3: Mouvement hélicoïdal de 360°

3-4: Sortie radiale

## Préparation du fraisage de filets

### 1 Calcul de la vitesse de rotation et avances de coupe

$$N = \frac{1000 \times V}{\pi \times D_2}$$

$$V = \frac{N \times \pi \times D_2}{1000}$$

$$F_1 = N \times z \times f$$

N - Vitesse de rotation [R.P.M.]

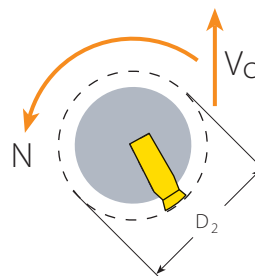
V - Vitesse de coupe [m/min]

D<sub>2</sub> - Diamètre de coupe de l'outil [mm]

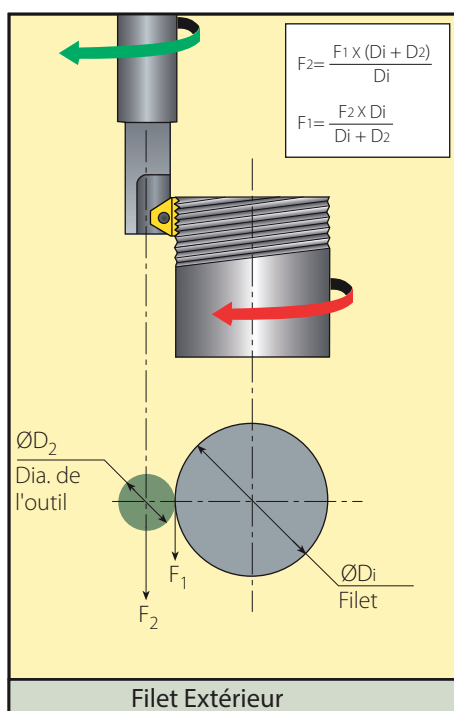
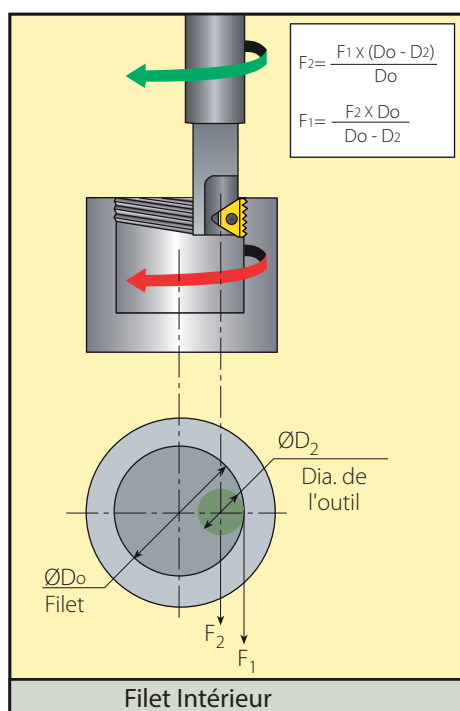
F<sub>1</sub> - Avances effective de l'outil [mm/min]

z - Nombre d'arrête de coupe

f - Avances par dent par rotation [mm/dent]



### 2 Calcul de l'avances effective sur l'axe de l'outil



Pour la plupart des machines CNC, l'avances demandée pour la programmation est celle de l'axe de l'outil. Lorsque l'on fait appel à un mouvement d'outil linéaire, l'avances sur l'arrête de coupe et l'axe sont identiques, mais ce n'est pas le cas avec un déplacement circulaire de l'outil. Les équations définissent la relation entre les taux d'avances sur l'arrête de coupe et l'axe de l'outil.

## Liste des codes "G" (ISO) pour machines à commandes numériques

| Code | Description                                                       | Code | Description                              |
|------|-------------------------------------------------------------------|------|------------------------------------------|
| %    | Code de reconnaissance (ISO ou EIA), + Fin du programme           | H    | Numéro du correcteur de longueur d'outil |
| G00  | Avances linéaire rapide de positionnement                         | D    | Numéro du correcteur de rayon d'outil    |
| G01  | Interpolation linéaire                                            | X    | Axe X                                    |
| G02  | Interpolation circulaire hélicoïdale sens horaire                 | Y    | Axe Y                                    |
| G03  | Interpolation circulaire hélicoïdale sens horaire trigonométrique | Z    | Axe Z                                    |
| G40  | Annulation de correction de rayon                                 | R    | Rayon d'entrée et de sortie              |
| G41  | Correction de rayon à gauche du profil                            | I    | Centre de l'interpolation de l'axe X     |
| G42  | Correction de rayon à droite du profil                            | J    | Centre de l'interpolation de l'axe Y     |
| G43  | Correction de longueur d'outil (positive)                         | M3   | Mise en rotation de la broche            |
| G49  | Annulation - Correction de longueur d'outil                       | M5   | Arrêt broche                             |
| G57  | Sélection du système de travail des axes                          | M30  | Fin de programme                         |
| G90  | Déplacement en absolu                                             | O    | Numéro de programme                      |
| G91  | Déplacement en incrémental                                        | N    | Numéro de bloc (peut être évité)         |
| F    | Avances mm/min                                                    | (    | Début du programme                       |
| S    | Vitesse de rotation de la broche par minute (tour/min.)           | )    | Fin du programme                         |

## Les nuances et leurs applications

| Nuance     | Application:                                                                                                                                               | Exemple                                                                               |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>VBX</b> | <b>Premier choix pour acier et fonte</b><br>Un substrat sub-micron dur avec revêtement TiCN.<br>Bonne ténacité et une excellente résistance à l'usure.     |  |
| <b>VTX</b> | <b>Premier choix pour acier inoxydable.</b><br>Un substrat dur sub-micron avec revêtement TiAlN.<br>Bonne ténacité et une excellente résistance à l'usure. |  |
| <b>VK2</b> | Nuance non revêtue pour usinage de la fonte & Métaux non-ferreux.                                                                                          |  |

## Nuances, vitesses de coupe Vc [m/min] et avances f [mm/dent] recommandées

| Groupe de Matière                                   | Vardex No. | Matière                                            |                                              | Dureté Brinell HB | Vc [mm/min] |         |             | Avances f [mm/dent]   |
|-----------------------------------------------------|------------|----------------------------------------------------|----------------------------------------------|-------------------|-------------|---------|-------------|-----------------------|
|                                                     |            |                                                    |                                              |                   | Revêtue     |         | Non revêtue | Plaquettes indexables |
|                                                     |            |                                                    |                                              |                   | VBX         | VTX     | VK2         |                       |
| <b>P</b><br>Acier                                   | 1          | Acier non allié                                    | Carbone faible (C= 0.1-0.25 %)               | 125               | 100-210     | 90-180  |             | 0.05-0.3              |
|                                                     | 2          |                                                    | Carbone moyen (C=0.25-0.55%)                 | 150               | 100-180     | 90-170  |             | 0.05-0.25             |
|                                                     | 3          |                                                    | Carbone haut (C=0.55-0.85%)                  | 170               | 100-170     | 90-160  |             | 0.05-0.2              |
|                                                     | 4          | Acier faiblement allié (constituants d'alliage≤5%) | Non traité                                   | 180               | 90-160      | 90-155  |             | 0.05-0.25             |
|                                                     | 5          |                                                    | Traité                                       | 275               | 80-180      | 80-160  |             | 0.05-0.2              |
|                                                     | 6          |                                                    | Traité                                       | 350               | 70-140      | 70-150  |             | 0.05-0.15             |
|                                                     | 7          | Acier hautement allié (constituants d'alliage>5%)  | Revenu / Malléable                           | 200               | 60-130      | 70-115  |             | 0.05-0.2              |
|                                                     | 8          |                                                    | Traité                                       | 325               | 70-110      | 60-100  |             | 0.05-0.1              |
|                                                     | 9          | Acier fondu                                        | Faible alliage (constituants d'alliage ≤ 5%) | 200               | 100-170     | 100-170 | 100-150     | 0.05-0.15             |
|                                                     | 10         |                                                    | Haut alliage (constituants d'alliage > 5%)   | 225               | 70-120      | 70-130  | 60-130      | 0.05-0.1              |
| <b>M</b><br>Acier inoxydable                        | 11         | Acier inoxydable ferritique                        | Non traité                                   | 200               | 100-170     | 120-180 |             | 0.05-0.15             |
|                                                     | 12         |                                                    | Traité                                       | 330               | 100-170     | 120-180 |             | 0.05-0.1              |
|                                                     | 13         | Acier inoxydable Austénitique                      | Austénitique                                 | 180               | 70-140      | 100-140 |             | 0.05-0.15             |
|                                                     | 14         |                                                    | Super austénitique                           | 200               | 70-140      | 100-140 |             | 0.05-0.1              |
|                                                     | 15         | Acier inoxydable Fondu ferritique                  | Non traité                                   | 200               | 70-140      | 100-140 |             | 0.05-0.15             |
|                                                     | 16         |                                                    | Traité                                       | 330               | 70-140      | 100-140 |             | 0.05-0.1              |
|                                                     | 17         | Acier inoxydable fondu austénitique                | Austénitique                                 | 200               | 70-120      | 100-120 |             | 0.05-0.15             |
|                                                     | 18         |                                                    | Traité                                       | 330               | 70-120      | 100-120 |             | 0.05-0.1              |
| <b>K</b><br>Fonte                                   | 28         | Malléable Fonte                                    | Férritique (copeaux courts)                  | 130               | 60-130      | 100-120 |             | 0.02-0.8              |
|                                                     | 29         |                                                    | Perlitique (copeaux longs)                   | 230               | 60-120      | 80-100  |             | 0.02-0.05             |
|                                                     | 30         | Fonte grise                                        | Acier à faible résistance                    | 180               | 60-130      | 80-100  |             | 0.05-0.15             |
|                                                     | 31         |                                                    | Acier à haute résistance                     | 260               | 60-100      | 80-100  |             | 0.05-0.1              |
|                                                     | 32         | Fonte nodulaire SG                                 | Férritique                                   | 160               | 60-125      | 80-100  |             | 0.05-0.15             |
|                                                     | 33         |                                                    | Perlitique                                   | 260               | 50-90       | 60-90   |             | 0.05-0.1              |
| <b>N<sub>(K)</sub></b><br>Métaux non ferreux        | 34         | Alliages aluminium forge                           | Non Vieilli                                  | 60                | 100-250     |         | 200-300     | 0.1-0.4               |
|                                                     | 35         |                                                    | Vieilli                                      | 100               | 100-180     |         | 60-110      | 0.1-0.3               |
|                                                     | 36         | Alliages aluminium                                 | Coulé                                        | 75                | 150-400     |         | 60-120      | 0.1-0.3               |
|                                                     | 37         |                                                    | Fondu & vieilli                              | 90                | 150-280     |         | 60-100      | 0.05-0.25             |
|                                                     | 38         | Alliages aluminium                                 | Coulé Si 13-22%                              | 130               | 80-150      |         | 20-50       | 0.1-0.3               |
|                                                     | 39         | Cuivre & alliages cuivre                           | Laiton                                       | 90                | 120-210     | 100-200 | 50-70       | 0.1-0.3               |
|                                                     | 40         |                                                    | Bronze & cuivre sans plomb                   | 100               | 120-210     | 100-200 | 50-70       | 0.05-0.25             |
| <b>S<sub>(M)</sub></b><br>Matières Haute Resistance | 19         | Alliages haute température alloys                  | Trempé (à base du fer)                       | 200               | 20-45       | 20-40   | 20-30       | 0.05-0.1              |
|                                                     | 20         |                                                    | Vieilli (à base du fer)                      | 280               | 20-30       | 20-30   | 15-25       | 0.02-0.05             |
|                                                     | 21         |                                                    | Trempé (à base de Nickel ou Cobalt)          | 250               | 20-50       | 15-20   | 15-20       | 0.02-0.05             |
|                                                     | 22         |                                                    | Vieill (à base de Nickel ou Cobalt)          | 350               | 10-15       | 10-15   | 10-15       | 0.02-0.05             |
|                                                     | 23         | Alliages Titanium                                  | Pur 99.5 Ti                                  | 400Rm             | 70-140      | 70-120  | 40-60       | 0.02--0.05            |
|                                                     | 24         |                                                    | Alliages α+β                                 | 1050Rm            | 20-50       | 20-50   | 20-40       | 0.02-0.05             |
| <b>H<sub>(K)</sub></b><br>Matières dures            | 25         | Acier extra dur                                    | Traité & trempé                              | 45-50HRC          | 20-45       | 20-45   |             | 0.01-0.03             |
|                                                     | 26         |                                                    |                                              | 51-55HRC          | 20-45       | 20-45   |             | 0.01-0.02             |

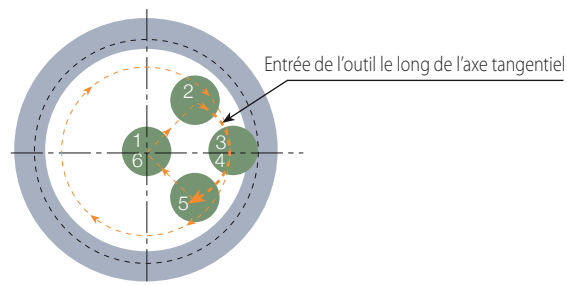
### Recommandation:

Avances [mm/dent] de 70 % plus faible que l'avances de filetage pour une entrée de l'outil.

### Exemple:

Avances filetage: 0.3[mm/dent]

Avances entrée outil: 0.09[mm/dent]



## Diamètres de passage minimum pour fraises à fileter

| Pas mm                    |      | 0.5                                 | 0.6  | 0.7  | 0.75<br>0.80 | 0.9  | 1.0      | 1.25     | 1.5      | 1.75 | 2.0      |            | 2.5  | 3.0    | 3.5  | 4.0  | 4.5  | 5.0  | 5.5  |      | 6.0  |      |
|---------------------------|------|-------------------------------------|------|------|--------------|------|----------|----------|----------|------|----------|------------|------|--------|------|------|------|------|------|------|------|------|
| Pas tpi                   |      | 48                                  | 44   | 36   | 32           | 28   | 26<br>24 | 20<br>19 | 18<br>16 | 14   | 13<br>12 | 11.5<br>11 | 10   | 9<br>8 | 7    | 6    |      | 5    |      | 4.5  |      | 4    |
| Porte-outils<br>Référence | D2   | Diamètre d'alésage minimum<br>Di mm |      |      |              |      |          |          |          |      |          |            |      |        |      |      |      |      |      |      |      |      |
| TMMC 12-6.0               | 9.0  | 9.5                                 | 9.7  | 9.9  | 10.0         | 10.4 | 10.7     | 11.4     | 12.0     |      |          |            |      |        |      |      |      |      |      |      |      |      |
| TMMC 20-6.0               | 9.0  | 9.5                                 | 9.7  | 9.9  | 10.0         | 10.4 | 10.7     | 11.4     | 12.0     |      |          |            |      |        |      |      |      |      |      |      |      |      |
| TMMC 20-6.0 124/003       | 9.0  | 9.5                                 | 9.7  | 9.9  | 10.0         | 10.4 | 10.7     | 11.4     | 12.0     |      |          |            |      |        |      |      |      |      |      |      |      |      |
| TMC 12-2                  | 11.5 | 12.0                                | 12.2 | 12.4 | 12.5         | 12.9 | 13.2     | 13.9     | 14.5     | 15.1 |          |            |      |        |      |      |      |      |      |      |      |      |
| TMC 20-2                  | 11.5 | 12.0                                | 12.2 | 12.4 | 12.5         | 12.9 | 13.2     | 13.9     | 14.5     | 15.1 |          |            |      |        |      |      |      |      |      |      |      |      |
| TMLC 25-2                 | 11.5 | 12.0                                | 12.2 | 12.4 | 12.5         | 12.9 | 13.2     | 13.9     | 14.5     | 15.1 |          |            |      |        |      |      |      |      |      |      |      |      |
| TMSC 10-2                 | 12.5 | 13.0                                | 12.6 | 13.6 | 13.5         | 13.9 | 14.2     | 14.9     | 15.5     | 16.1 |          |            |      |        |      |      |      |      |      |      |      |      |
| TMOc 20-2                 | 14.5 | 15.1                                | 15.2 | 15.3 | 15.4         | 16.0 | 16.4     | 17.0     | 17.8     | 18.6 |          |            |      |        |      |      |      |      |      |      |      |      |
| TMNC 16-3                 | 15.5 | 16.0                                | 16.2 | 16.4 | 16.5         | 16.9 | 17.2     | 17.9     | 18.5     | 19.0 | 19.5     | 20.0       |      |        |      |      |      |      |      |      |      |      |
| TMC 16-3 124/001          | 15.5 | 16.0                                | 16.2 | 16.4 | 16.5         | 16.9 | 17.2     | 17.9     | 18.5     | 19.0 | 19.5     | 20.0       |      |        |      |      |      |      |      |      |      |      |
| TMC 16-3                  | 17.0 | 17.6                                | 17.8 | 18.0 | 18.2         | 18.7 | 19.0     | 19.6     | 20.0     | 20.5 | 21.0     | 21.5       |      |        |      |      |      |      |      |      |      |      |
| BTMC 16-3B                | 17.0 | 17.6                                | 17.8 | 18.0 | 18.2         | 18.7 | 19.0     | 19.6     | 20.0     | 20.5 | 21.0     | 21.5       |      |        |      |      |      |      |      |      |      |      |
| TM2C 20-2                 | 17.0 | 17.6                                | 17.8 | 18.0 | 18.2         | 18.7 | 19.0     | 19.6     | 20.0     | 20.5 |          |            |      |        |      |      |      |      |      |      |      |      |
| BTMC 20-3B                | 19.0 | 19.7                                | 20.0 | 20.2 | 20.4         | 20.8 | 21.0     | 21.6     | 22.0     | 22.5 | 23.0     | 23.5       |      |        |      |      |      |      |      |      |      |      |
| TMNC 20-3                 | 19.0 | 19.7                                | 20.0 | 20.2 | 20.4         | 20.8 | 21.0     | 21.6     | 22.0     | 22.5 | 23.0     | 23.5       |      |        |      |      |      |      |      |      |      |      |
| TMC 20-3                  | 20.0 | 20.7                                | 21.0 | 21.2 | 21.4         | 21.8 | 22.0     | 22.6     | 23.0     | 23.5 | 24.0     | 24.5       |      |        |      |      |      |      |      |      |      |      |
| TMOc 20-3                 | 20.0 | 20.7                                | 21.0 | 21.2 | 21.4         | 21.8 | 22.0     | 22.6     | 23.0     | 23.5 | 24.0     | 24.5       |      |        |      |      |      |      |      |      |      |      |
| BTMWC 25-3B               | 22.0 | 22.7                                | 23.0 | 23.2 | 23.4         | 23.8 | 24.0     | 24.6     | 25.0     | 25.5 | 26.0     | 26.5       |      |        |      |      |      |      |      |      |      |      |
| BTMLC 25-3B               | 22.0 | 22.7                                | 23.0 | 23.2 | 23.4         | 23.8 | 24.0     | 24.6     | 25.0     | 25.5 | 26.0     | 26.5       |      |        |      |      |      |      |      |      |      |      |
| TMLC 25-3                 | 22.0 | 22.7                                | 23.0 | 23.2 | 23.4         | 23.8 | 24.0     | 24.6     | 25.0     | 25.5 | 26.0     | 26.5       |      |        |      |      |      |      |      |      |      |      |
| TMC 25-5 124/004          | 25.0 | 25.7                                | 26.0 | 26.2 | 26.4         | 26.8 | 27.0     | 27.7     | 28.2     | 28.7 | 29.2     | 29.7       | 31.3 | 33.7   | 36.7 | 39.7 | 42.7 |      |      |      |      |      |
| TM2C 25-3                 | 26.0 | 26.7                                | 27.0 | 27.2 | 27.4         | 27.8 | 28.0     | 28.7     | 29.3     | 29.8 | 30.3     | 30.8       |      |        |      |      |      |      |      |      |      |      |
| BTM2C 25-3B               | 26.0 | 26.7                                | 27.0 | 27.2 | 27.4         | 27.8 | 28.0     | 28.7     | 29.3     | 29.8 | 30.3     | 30.8       |      |        |      |      |      |      |      |      |      |      |
| TMC 25-5                  | 30.0 | 30.7                                | 31.0 | 31.2 | 31.4         | 31.8 | 32.0     | 32.8     | 33.5     | 34.1 | 34.6     | 35.6       | 36.6 | 39.0   | 42.0 | 45.0 | 48.0 |      |      |      |      |      |
| TMLC 25-5                 | 30.0 | 30.7                                | 31.0 | 31.2 | 31.4         | 31.8 | 32.0     | 32.8     | 33.5     | 34.1 | 34.6     | 35.6       | 36.6 | 39.0   | 42.0 | 45.0 | 48.0 |      |      |      |      |      |
| TMOc 25-5                 | 30.0 | 30.7                                | 31.0 | 31.2 | 31.4         | 31.8 | 32.0     | 32.8     | 33.5     | 34.1 | 34.6     | 35.6       | 36.6 | 39.0   | 42.0 | 45.0 | 48.0 |      |      |      |      |      |
| TMC 32-6B                 | 35.0 |                                     |      |      |              |      |          |          | 38.5     | 39.1 | 39.6     | 40.6       | 42.0 | 44.0   | 47.0 | 50.0 | 53.4 | 42.5 | 50.0 | 44.6 | 57.5 | 56.6 |
| TMC 32-5                  | 37.0 | 38.0                                | 38.2 | 38.4 | 38.6         | 39.1 | 39.5     | 40.4     | 41.0     | 41.5 | 42.0     | 43.0       | 44.0 | 46.5   | 49.0 | 52.0 | 55.5 |      |      |      |      |      |
| TMLC 32-5                 | 37.0 | 38.0                                | 38.2 | 38.4 | 38.6         | 39.1 | 39.5     | 40.4     | 41.0     | 41.5 | 42.0     | 43.0       | 44.0 | 46.5   | 49.0 | 52.0 | 55.5 |      |      |      |      |      |
| TMNC 32-5                 | 37.0 | 38.0                                | 38.2 | 38.4 | 38.6         | 39.1 | 39.5     | 40.4     | 41.0     | 41.5 | 42.0     | 43.0       | 44.0 | 46.5   | 49.0 | 52.0 | 55.5 |      |      |      |      |      |
| TMSH D38-16-2             | 38.0 | 38.5                                | 38.7 | 38.9 | 39.0         | 39.6 | 40.0     | 41.0     | 42.0     | 43.0 |          |            |      |        |      |      |      |      |      |      |      |      |
| TM2C 32-5                 | 42.0 | 43.2                                | 43.4 | 43.6 | 43.8         | 44.5 | 45.0     | 46.0     | 46.5     | 47.0 | 47.4     | 48.2       | 49.0 | 52.0   | 54.5 | 57.5 | 61.0 |      |      |      |      |      |
| TMVC 32-5                 | 46.0 |                                     |      |      |              |      |          |          |          |      |          |            |      |        |      |      |      |      |      |      | 62.5 |      |
| TMC 40-6B                 | 46.0 |                                     |      |      |              |      |          |          | 49.5     | 50.1 | 50.6     | 51.6       | 53.0 | 55.0   | 55.2 | 55.6 | 55.0 | 52.5 | 54.0 | 54.5 | 57.5 | 56.6 |
| TMLC 40-6B                | 46.0 |                                     |      |      |              |      |          |          | 49.5     | 50.1 | 50.6     | 51.6       | 53.0 | 55.0   | 55.2 | 55.6 | 55.0 | 52.5 | 54.0 | 54.5 | 57.5 | 56.6 |
| TMSH D50-22-2             | 50.0 | 50.5                                | 50.7 | 50.9 | 51.0         | 51.6 | 52.0     | 53.0     | 54.0     | 54.5 |          |            |      |        |      |      |      |      |      |      |      |      |
| TMSH D50-22-3             | 50.0 | 50.5                                | 50.7 | 50.9 | 51.0         | 51.6 | 52.0     | 53.0     | 54.0     | 54.5 | 55.0     | 55.5       |      |        |      |      |      |      |      |      |      |      |

## Diamètres de passage minimum pour fraises à fileter (Suite)

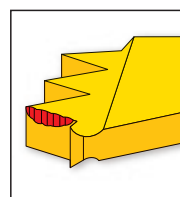
| Pas mm                    |       | 0.5                                 | 0.6   | 0.7   | 0.75<br>0.80 | 0.9   | 1.0      | 1.25     | 1.5      | 1.75  | 2.0      |            | 2.5   | 3.0    | 3.5   | 4.0   | 4.5   | 5.0   | 5.5   |       | 6.0   |       |
|---------------------------|-------|-------------------------------------|-------|-------|--------------|-------|----------|----------|----------|-------|----------|------------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| Pas tpi                   |       | 48                                  | 44    | 36    | 32           | 28    | 26<br>24 | 20<br>19 | 18<br>16 | 14    | 13<br>12 | 11.5<br>11 | 10    | 9<br>8 | 7     | 6     |       | 5     |       | 4.5   |       | 4     |
| Porte-outils<br>Référence | D2    | Diamètre d'alésage minimum<br>Di mm |       |       |              |       |          |          |          |       |          |            |       |        |       |       |       |       |       |       |       |       |
| TM2C 40-6B                | 52.0  |                                     |       |       |              |       |          |          | 56.0     | 56.2  | 56.5     | 57.0       | 59.0  | 61.5   |       | 63.0  | 64.0  | 66.0  | 67.0  | 67.6  | 69.0  | 70.0  |
| TMSH D63-22-3B            | 63.0  | 63.5                                | 63.7  | 63.9  | 64.0         | 64.6  | 65.0     | 66.0     | 67.0     | 67.5  | 68.0     | 69.0       |       |        |       |       |       |       |       |       |       |       |
| TMSH D63-22-5             | 63.0  | 63.5                                | 63.7  | 63.9  | 64.0         | 64.6  | 65.0     | 66.0     | 67.0     | 67.5  | 68.0     | 69.0       | 70.0  | 72.0   | 73.0  | 74.0  | 75.0  |       |       |       |       |       |
| TMSH D63-22-6B            | 63.0  |                                     |       |       |              |       |          |          | 67.0     | 67.5  | 68.0     | 69.0       | 70.0  | 72.0   | 73.0  | 74.0  | 75.0  | 77.0  | 78.0  | 78.6  | 80.0  | 81.0  |
| TMSH D80-27-5             | 80.0  | 80.5                                | 80.7  | 80.9  | 81.0         | 81.6  | 82.0     | 83.0     | 84.0     | 84.5  | 85.0     | 86.0       | 87.0  | 89.0   | 90.0  | 91.0  | 92.0  |       |       |       |       |       |
| TMSH D80-27-6B            | 80.0  |                                     |       |       |              |       |          |          | 84.0     | 84.5  | 85.0     | 86.0       | 87.0  | 89.0   | 90.0  | 91.0  | 92.0  | 94.0  | 95.0  | 95.6  | 97.0  | 98.0  |
| TMSH D100-32-5            | 100.0 | 100.5                               | 100.7 | 100.9 | 101.0        | 101.6 | 102.0    | 103.0    | 104.0    | 104.5 | 105.0    | 106.0      | 107.0 | 109.0  | 110.0 | 111.0 | 112.0 |       |       |       |       |       |
| TMSH D100-32-6B           | 100.0 |                                     |       |       |              |       |          |          | 104.0    | 104.5 | 105.0    | 106.0      | 107.0 | 109.0  | 110.0 | 111.0 | 112.0 | 114.0 | 115.0 | 115.6 | 117.0 | 118.0 |
| TMSH D125-40-5            | 125.0 | 125.5                               | 125.7 | 125.9 | 126.0        | 126.6 | 127.0    | 128.0    | 129.0    | 129.5 | 130.0    | 131.0      | 132.0 | 134.0  | 135.0 | 136.0 | 137.0 |       |       |       |       |       |
| TMSH D125-40-6B           | 125.0 |                                     |       |       |              |       |          |          | 129.0    | 129.5 | 130.0    | 131.0      | 132.0 | 134.0  | 135.0 | 136.0 | 137.0 | 139.0 | 140.0 | 140.6 | 142.0 | 143.0 |

### Outils pour pas normaux:

Ce tableau n'est pas applicable au système pour pas normaux (Pas normaux).

Pour le fraisage de filets dans des trous inférieurs à ceux mentionnés ci-dessus, voir les sections "as normaux" des différents pas standards.

## Problèmes d'usinage et solutions



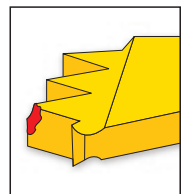
**Usure importante du flanc de la plaquette**

**Cause possible**

- Vitesse de coupe trop élevée ----->
- Copeaux trop fins ----->
- Arrosage insuffisant ----->

**Solution**

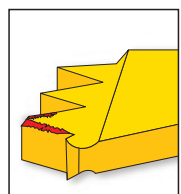
- Réduire la vitesse de coupe / Utiliser des plaquettes revêtues
- Augmenter la vitesse d'avances
- Augmenter le débit d'arrosage



**Erosion de l'arrête de coupe**

- Copeaux trop épais ----->
- Vibrations ----->

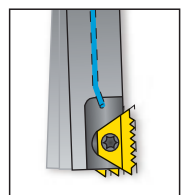
- Réduire la vitesse d'avances
- Utiliser la méthode d'entrée sur arc tangent
- Augmenter le nombre de tours par minute
- Contrôler la stabilité



**Accumulation de matière sur l'arrête de coupe**

- Vitesse de coupe incorrecte ----->
- Nuance de carbure inadéquate ----->

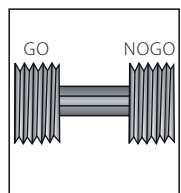
- Changer la vitesse de coupe
- Utiliser une nuance de carbure revêtue



**Broutage / Vibration**

- Vitesse d'avances trop élevée ----->
- Profil trop profond ----->
- Longueur du filetage trop long ----->

- Réduire la vitesse d'avances
- Exécuter 2 passes, chacune avec une profondeur de coupe accrue
- Exécuter 2 passes, chacune ne taillant que la moitié de la longueur du filetage
- Exécuter 2 passes, chacune ne taillant que la moitié de la longueur du filetage



**Précision de filetage insuffisante**

- Déviation de l'outil ----->

- Réduire le taux d'avances
- Exécuter une coupe zéro



# MiTM

Système de filetage par fraisage très rapide

- > Plaquettes
- > Porte-outils
- > Information techniques



|                                        |          |
|----------------------------------------|----------|
| ■ Système de codification Vardex ..... | Page 256 |
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## Plaquettes

|                                |          |
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| ■ Métrique ISO .....           | Page 257 |
| ■ American UN .....            | Page 258 |
| ■ NPT .....                    | Page 259 |
| ■ NPTF .....                   | Page 259 |
| ■ Whitworth for BSF, BSP ..... | Page 260 |
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## Porte-outils

|                                          |          |
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| ■ Porte-outils coniques (MiTM 24) .....  | Page 263 |
| ■ Porte-outils standards (MiTM 25) ..... | Page 264 |
| ■ Porte-outils coniques (MiTM 25) .....  | Page 265 |
| ■ Tourteau (MiTM 25) .....               | Page 266 |
| ■ Porte-outils standards (MiTM 40) ..... | Page 267 |
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## Technical Data

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TM Gen: Le programme et les mises à jour peuvent être téléchargés sur le site [www.vargus.com](http://www.vargus.com)

Les Fraises à fileter MiTM réduisent les temps de cycle machine.  
Avec des plaquettes longues et une grande variété de porte-outils

### MiTM 24 (M)

Pour petits alésages



Standard  
Nombre de Dents (Z) 1-2  
Ø de Coupe (D2) 13.6-16  
Portée de l'outil (L1) 26-36



Conique  
Nombre de Dents (Z) 1  
Ø de Coupe (D2) 13.9  
Portée de l'outil (L1) 26

### MiTM 25 (S)

Pour application standard



Standard  
Nombre de Dents (Z) 2-5  
Ø de Coupe (D2) 17-30  
Portée de l'outil (L1) 26-80



Conique  
Nombre de Dents (Z) 2-4  
Ø de Coupe (D2) 17-28  
Portée de l'outil (L1) 26-43



Tourteau  
Nombre de Dents (Z) 5-8  
Ø de Coupe (D2) 36-52  
Portée de l'outil (L1) max.200



Tourteau  
Nombre de Dents (Z) 5  
Ø de Coupe (D2) 36  
Portée de l'outil (L1) max.200

### MiTM 40 (L)

Pour filetages longs



Standard  
Nombre de Dents (Z) 3-4  
Ø de Coupe (D2) 22-30  
Portée de l'outil (L1) 43-80



Tourteau  
Nombre de Dents (Z) 6-8  
Ø de Coupe (D2) 44-52  
Portée de l'outil (L1) max.200



Tourteau  
Nombre de Dents (Z) 6  
Ø de Coupe (D2) 45  
Portée de l'outil (L1) max.200

### MiTM 41 (B)

Pour grands filetages



Standard  
Nombre de Dents (Z) 2-5  
Ø de Coupe (D2) 24.5-36  
Portée de l'outil (L1) 43-65



Tourteau  
Nombre de Dents (Z) 5-6  
Ø de Coupe (D2) 48-58  
Portée de l'outil (L1) max.200

## Plaquettes MiTM

| R                   | 25                      | I | 1.00                                                                           | ISO | TM                     | VBX                                                                                      |             |                    |
|---------------------|-------------------------|---|--------------------------------------------------------------------------------|-----|------------------------|------------------------------------------------------------------------------------------|-------------|--------------------|
| 1                   | 2                       | 3 | 4                                                                              | 5   | 6                      | 7                                                                                        |             |                    |
|                     |                         |   |                                                                                |     |                        |                                                                                          |             |                    |
| 1- Gamme de produit | 2 - Taille de Plaquette |   | 3 - Type de Plaquette                                                          |     | 4 - Pas                | 5 - Standard                                                                             | 6 - Système | 7 - Nuance carbure |
| R- Gamme MiTM       | 24, 25, 40, 41          |   | I - Intérieur<br>E - Extérieur<br>EI-Extérieur+Intérieur<br>NC- Plaquette Plug |     | 0.5-6.0 mm<br>32-4 tpi | ISO- ISO Métrique<br>UN-Américain UN<br>W- BSW, BSP<br>NPT-NPT<br>NPTF-NPTF<br>BSPT-BSPT | TM          | VBX<br>VTX         |

## Porte-outils MiTM (Standard & Conique)

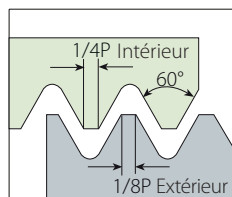
|                                                        |    |                                                          |  |                                      |    |                      |    |                     |   |
|--------------------------------------------------------|----|----------------------------------------------------------|--|--------------------------------------|----|----------------------|----|---------------------|---|
| R                                                      | TM | C                                                        |  | 25                                   | 17 | -                    | 26 | S                   | 2 |
| 1                                                      | 2  | 3                                                        |  | 4                                    | 5  |                      | 6  | 7                   | 8 |
| 1 - Gamme de produit                                   |    | 2 - Type porte-outils                                    |  | 3 - Arrosage                         |    | 4 - Diam. queue [mm] |    | 5 - Ø de Coupe [mm] |   |
| R- Gamme MiTM<br>BR - MiTM avec système anti-vibration |    | TM - Porte-outils standard<br>TMN - Porte-outils conique |  | C - Avec canal de lubrification      |    | 20, 25, 32           |    | 13.6 - 36           |   |
| 6 - Longueur utile [mm]                                |    |                                                          |  | 7 - Taille de Plaquette              |    | 8 - Nombre de Dents  |    |                     |   |
| 26 - 80                                                |    |                                                          |  | M - 24<br>S - 25<br>L - 40<br>B - 41 |    | 1 - 5                |    |                     |   |

## Tourteaux MiTM

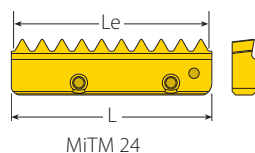
|                         |    |   |                                                          |     |                                 |   |                     |   |                            |  |
|-------------------------|----|---|----------------------------------------------------------|-----|---------------------------------|---|---------------------|---|----------------------------|--|
| R                       | TM | C |                                                          | D36 | 16                              | - | 25S                 | 5 |                            |  |
| 1                       | 2  | 3 |                                                          | 4   | 5                               |   | 6                   | 7 |                            |  |
| 1 - Gamme de produit    |    |   | 2 - Type porte-outils                                    |     | 3 - Arrosage                    |   | 4 - Ø de Coupe [mm] |   | 5 - Alésage intérieur [mm] |  |
| R- Gamme MiTM           |    |   | TM - Porte-outils standard<br>TMN - Porte-outils conique |     | C - Avec canal de lubrification |   | 36 - 58             |   | 16, 22, 27                 |  |
| 6 - Taille de Plaquette |    |   | 7 - Nombre de Dents                                      |     |                                 |   |                     |   |                            |  |
| 25S<br>40L<br>41B       |    |   | 5 - 8                                                    |     |                                 |   |                     |   |                            |  |

# Métrique ISO

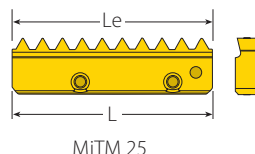
## Extérieur / Intérieur



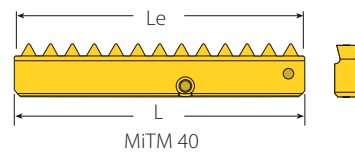
Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



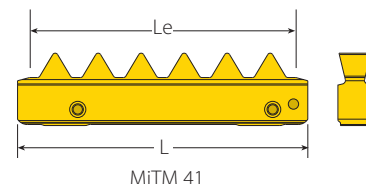
MiTM 24



MiTM 25



MiTM 40



MiTM 41

## MiTM Standard

|                                                                                     | L<br>mm | Pas<br>mm | Référence         |                   | Arrête de coupe | Dents<br>Zt | Porte-outils |
|-------------------------------------------------------------------------------------|---------|-----------|-------------------|-------------------|-----------------|-------------|--------------|
|                                                                                     |         |           | Extérieur         | Intérieur         |                 |             |              |
|    | 24      | 0.50      |                   | R24I0.50ISOTM...  | 1               | 24.50       | RTMC....M    |
|                                                                                     |         | 0.75      |                   | R24I0.75ISOTM...  | 1               | 24.75       |              |
|                                                                                     |         | 1.00      |                   | R24I1.00ISOTM...  | 1               | 24.00       |              |
|                                                                                     |         | 1.25      |                   | R24I1.25ISOTM...  | 1               | 25.00       |              |
|                                                                                     |         | 1.50      |                   | R24I1.50ISOTM...  | 1               | 24.00       |              |
|                                                                                     |         | 1.75      |                   | R24I1.75ISOTM...  | 1               | 24.50       |              |
|                                                                                     |         | 2.00      |                   | R24I2.00ISOTM...  | 1               | 24.00       |              |
|                                                                                     |         | 2.50      |                   | R24I2.50ISOTM...  | 1               | 25.00       |              |
|  | 25      | 1.00      | R25E1.00ISOTM...  | R25I1.00ISOTM...  | 2               | 24.00       | (B)RTMC....S |
|                                                                                     |         | 1.50      | R25E1.50ISOTM...  | R25I1.50ISOTM...  | 2               | 24.00       |              |
|                                                                                     |         | 2.00      | R25E2.00ISOTM...  | R25I2.00ISOTM...  | 2               | 24.00       |              |
|                                                                                     |         | 2.50      | R25E2.50ISOTM...  | R25I2.50ISOTM...  | 2               | 25.00       |              |
|                                                                                     |         | 3.00      | *R25E3.00ISOTM... | *R25I3.00ISOTM... | 2               | 24.00       |              |
|  | 40      | 1.00      |                   | R40I1.00ISOTM...  | 2               | 39.00       | (B)RTMC....L |
|                                                                                     |         | 1.50      |                   | R40I1.50ISOTM...  | 2               | 39.00       |              |
|                                                                                     |         | 2.00      |                   | R40I2.00ISOTM...  | 2               | 38.00       |              |
|                                                                                     |         | 2.50      |                   | R40I2.50ISOTM...  | 2               | 37.50       |              |
|                                                                                     |         | 3.00      |                   | R40I3.00ISOTM...  | 2               | 39.00       |              |
|  | 41      | 3.00      | R41E3.00ISOTM...  | R41I3.00ISOTM...  | 2               | 39.00       | RTMC....B    |
|                                                                                     |         | 3.50      | R41E3.50ISOTM...  | R41I3.50ISOTM...  | 2               | 38.50       |              |
|                                                                                     |         | 4.00      | R41E4.00ISOTM...  | R41I4.00ISOTM...  | 2               | 40.00       |              |
|                                                                                     |         | 4.50      | R41E4.50ISOTM...  | R41I4.50ISOTM...  | 2               | 40.50       |              |
|                                                                                     |         | 5.00      | R41E5.00ISOTM...  | R41I5.00ISOTM...  | 2               | 40.00       |              |
|                                                                                     |         | 5.50      | R41E5.50ISOTM...  | R41I5.50ISOTM...  | 2               | 38.50       |              |
|                                                                                     |         | 6.00      | R41E6.00ISOTM...  | R41I6.00ISOTM...  | 2               | 36.00       |              |

\* Remarque: Plaquette 3.0 ISO ne se montent pas sur les porte-outils RTMC2517...  
Pour la plaquette 3.0 ISO, utiliser le programme CNC (D2 + 0.5mm)

Les plaquettes MiTM de 25, 40 et 41 sont proposées avec 2 Arrête de coupe. Dans le cas d'une évacuation difficile des copeaux, les plaquettes avec 1 arrête de coupe peuvent être commandées sur demande. Exemple: R25I2.00ISOTM(S)...



## Américain UN

**Extérieur / Intérieur**

Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B

MiTM 24

MiTM 40

MiTM 25

MiTM 41

## MiTM Standard

|  | L<br>mm | Pas<br>tpi | Référence      |                | Arrête de coupe | Dents |    | Porte-outils             |
|--|---------|------------|----------------|----------------|-----------------|-------|----|--------------------------|
|  |         |            | Extérieur      | Intérieur      |                 | Le    | Zt |                          |
|  | 24      | 32         |                | R24I32UNTM...  | 1               | 24.61 | 31 | RTMC....M                |
|  |         | 28         |                | R24I28UNTM...  | 1               | 24.49 | 27 |                          |
|  |         | 24         |                | R24I24UNTM...  | 1               | 24.34 | 23 |                          |
|  |         | 20         |                | R24I20UNTM...  | 1               | 24.13 | 19 |                          |
|  |         | 18         |                | R24I18UNTM...  | 1               | 23.99 | 17 |                          |
|  |         | 16         |                | R24I16UNTM...  | 1               | 23.81 | 15 |                          |
|  |         | 14         |                | R24I14UNTM...  | 1               | 23.59 | 13 |                          |
|  |         | 12         |                | R24I12UNTM...  | 1               | 23.28 | 11 |                          |
|  | 25      | 10         |                | R24I10UNTM...  | 1               | 22.86 | 9  | (B)RTMC....S             |
|  |         | 20         | R25E20UNTM...  | R25I20UNTM...  | 2               | 24.13 | 19 |                          |
|  |         | 18         | R25E18UNTM...  | R25I18UNTM...  | 2               | 23.99 | 17 |                          |
|  |         | 16         | R25E16UNTM...  | R25I16UNTM...  | 2               | 23.81 | 15 |                          |
|  |         | 14         | R25E14UNTM...  | R25I14UNTM...  | 2               | 23.58 | 13 |                          |
|  |         | 12         | R25E12UNTM...  | R25I12UNTM...  | 2               | 23.28 | 11 |                          |
|  |         | 10         | R25E10UNTM...  | R25I10UNTM...  | 2               | 22.86 | 9  |                          |
|  |         | 9          | *R25E9UNTM...  | *R25I9UNTM...  | 2               | 22.58 | 8  |                          |
|  | 40      | 8          | *R25E8UNTM...  | *R25I8UNTM...  | 2               | 22.22 | 7  | Voir remarque ci-dessous |
|  |         | 20         |                | R40I20UNTM...  | 2               | 39.37 | 31 |                          |
|  |         | 18         |                | R40I18UNTM...  | 2               | 39.51 | 28 |                          |
|  |         | 16         |                | R40I16UNTM...  | 2               | 39.69 | 25 |                          |
|  |         | 14         |                | R40I14UNTM...  | 2               | 39.91 | 22 |                          |
|  |         | 12         |                | R40I12UNTM...  | 2               | 38.10 | 18 |                          |
|  |         | 10         |                | R40I10UNTM...  | 2               | 38.10 | 15 |                          |
|  |         | 9          |                | R40I9UNTM...   | 2               | 39.51 | 14 |                          |
|  | 41      | 8          |                | R40I8UNTM...   | 2               | 38.10 | 12 | (B)RTMC....L             |
|  |         | 8          | R41E8UNTM...   | R41I8UNTM...   | 2               | 38.10 | 12 |                          |
|  |         | 7          | R41E7UNTM...   | R41I7UNTM...   | 2               | 39.91 | 11 |                          |
|  |         | 6          | R41E6UNTM...   | R41I6UNTM...   | 2               | 38.10 | 9  |                          |
|  |         | 5          | R41E5UNTM...   | R41I5UNTM...   | 2               | 35.56 | 7  |                          |
|  |         | 4.5        | R41E4.5UNTM... | R41I4.5UNTM... | 2               | 39.51 | 7  |                          |
|  |         | 4          | R41E4UNTM...   | R41I4UNTM...   | 2               | 38.10 | 6  |                          |

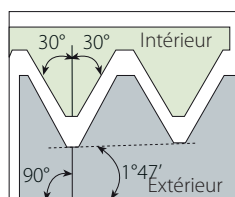
\* Remarque: Les plaquettes 8 & 9 UN ne se montent pas sur les porte-outils RTMC2517...  
Pour les plaquettes extérieur 8 UN utiliser le programme CNC (D2 + 0.5mm)

Les plaquettes MiTM de 25, 40 et 41 sont proposées avec 2 Arrête de coupe. Dans le cas d'une évacuation difficile des copeaux, les plaquettes avec 1 arrête de coupe peuvent être commandées sur demande. Exemple: R25I20UNTM(S)...



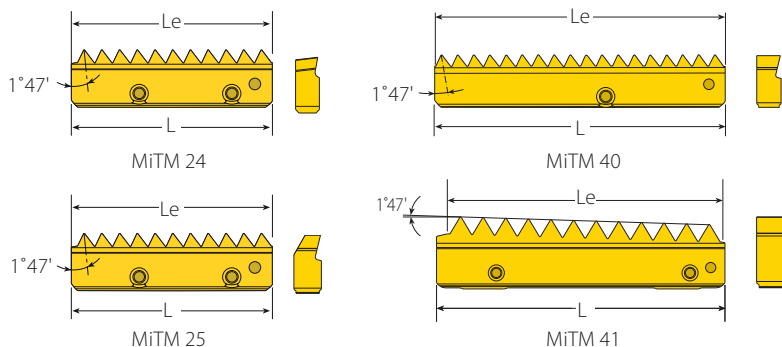
## NPT

### Extérieur / Intérieur



Norme: USAS B2.1:1968

Classe de tolérance: Standard NPT



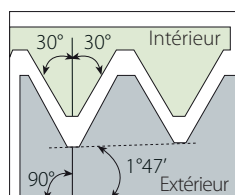
### MiTM Standard



| L  | Pas  | Référence             | Arrête de coupe | Dents | Porte-outils |
|----|------|-----------------------|-----------------|-------|--------------|
| mm | tpi  | Extérieur + Intérieur |                 | Le    | Zt           |
| 24 | 18   | R24EI18NPTTM...       | 1               | 23.99 | 17           |
|    | 14   | R25EI14NPTTM...       | 1               | 23.58 | 13           |
| 25 | 11.5 | R25EI11.5NPTTM...     | 1               | 24.30 | 11           |
|    | 8    | R25EI8NPTTM...        | 1               | 22.22 | 7            |
| 40 | 11.5 | R40EI11.5NPTTM...     | 1               | 37.55 | 17           |
|    | 8    | R40EI8NPTTM...        | 1               | 38.10 | 12           |
| 41 | 8    | R41EI8NPTTM...        | 1               | 38.10 | 12           |

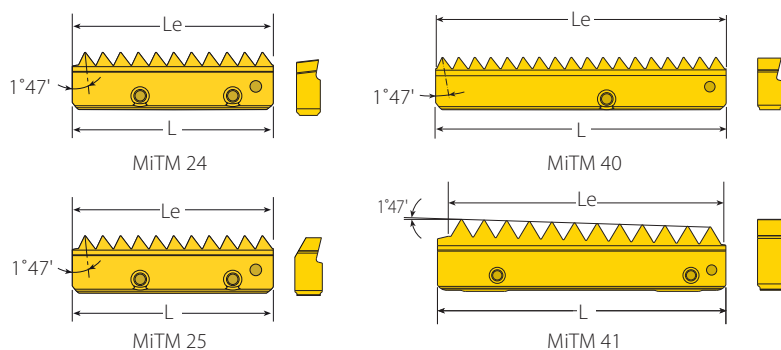
## NPTF

### Extérieur / Intérieur



Norme: ANSI B1.20.3-1976

Classe de tolérance: Standard NPTF



### MiTM Standard



| L  | Pas  | Référence             | Arrête de coupe | Dents | Porte-outils |
|----|------|-----------------------|-----------------|-------|--------------|
| mm | tpi  | Extérieur + Intérieur |                 | Le    | Zt           |
| 24 | 18   | R24EI18NPTFTM...      | 1               | 23.99 | 17           |
|    | 14   | R25EI14NPTFTM...      | 1               | 23.58 | 13           |
| 25 | 11.5 | R25EI11.5NPTFTM...    | 1               | 24.30 | 11           |
|    | 8    | R25EI8NPTFTM...       | 1               | 22.22 | 7            |
| 40 | 11.5 | R40EI11.5NPTFTM...    | 1               | 37.55 | 17           |
|    | 8    | R40EI8NPTFTM...       | 1               | 38.10 | 12           |
| 41 | 8    | R41EI8NPTFTM...       | 1               | 38.10 | 12           |

# Whitworth pour BSF, BSP

Extérieur / Intérieur

Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A

MiTM 24

MiTM 25

MiTM 40

MiTM 41

## MiTM Standard

|                                                                                     | L  | Pas | Référence             |             | Arrête de coupe | Dents |    | Porte-outils         |
|-------------------------------------------------------------------------------------|----|-----|-----------------------|-------------|-----------------|-------|----|----------------------|
|                                                                                     | mm | tpi | Extérieur + Intérieur | Intérieur   |                 | Le    | Zt |                      |
|    | 24 | 19  | R24EI19WTM...         |             | 1               | 24.06 | 18 | RTMC.... <b>M</b>    |
|                                                                                     |    | 14  | R24EI14WTM...         |             | 1               | 23.59 | 13 |                      |
|                                                                                     |    | 12  | R24EI12WTM...         |             | 1               | 23.28 | 11 |                      |
|  | 25 | 16  | R25EI16WTM...         |             | 2               | 23.81 | 15 | (B)RTMC.... <b>S</b> |
|                                                                                     |    | 14  | R25EI14WTM...         |             | 2               | 23.58 | 13 |                      |
|                                                                                     |    | 12  | R25EI12WTM...         |             | 2               | 23.28 | 11 |                      |
|                                                                                     |    | 11  | R25EI11WTM...         |             | 2               | 23.09 | 10 |                      |
|                                                                                     | 40 | 16  | R40EI16WTM...         |             | 2               | 39.69 | 25 | (B)RTMC.... <b>L</b> |
|                                                                                     |    | 14  | R40EI14WTM...         |             | 2               | 39.91 | 22 |                      |
|                                                                                     |    | 12  | R40EI12WTM...         |             | 2               | 38.10 | 18 |                      |
|                                                                                     |    | 11  | R40EI11WTM...         |             | 2               | 39.25 | 17 |                      |
|                                                                                     | 41 | 8   |                       | R41I8WTM... | 2               | 38.10 | 12 | RTMC.... <b>B</b>    |
|                                                                                     |    | 7   |                       | R41I7WTM... | 2               | 39.91 | 11 |                      |
|                                                                                     |    | 6   |                       | R41I6WTM... | 2               | 38.10 | 9  |                      |

Les plaquettes MiTM de 25, 40 et 41 sont proposées avec 2 Arrête de coupe. Dans le cas d'une évacuation difficile des copeaux, les plaquettes avec 1 arrête de coupe peuvent être commandées sur demande. Exemple: R25EI16WTM(**S**)...

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# BSPT

### Extérieur / Intérieur

Norme: B.S. 21:1985  
Classe de tolérance: Standard BSPT

MiTM 24  
MiTM 40  
MiTM 25

## MiTM Standard

|  | L  | Pas | Référence             | Arrête de coupe | Dents | Porte-outils |
|--|----|-----|-----------------------|-----------------|-------|--------------|
|  | mm | tpi | Extérieur + Intérieur |                 | Le    | Zt           |
|  | 24 | 19  | R24EI19BSPTTM...      | 1               | 24.06 | 18           |
|  | 25 | 14  | R25EI14BSPTTM...      | 1               | 23.58 | 13           |
|  |    | 11  | R25EI11BSPTTM...      | 1               | 23.09 | 10           |
|  | 40 | 11  | R40EI11BSPTTM...      | 1               | 39.25 | 17           |

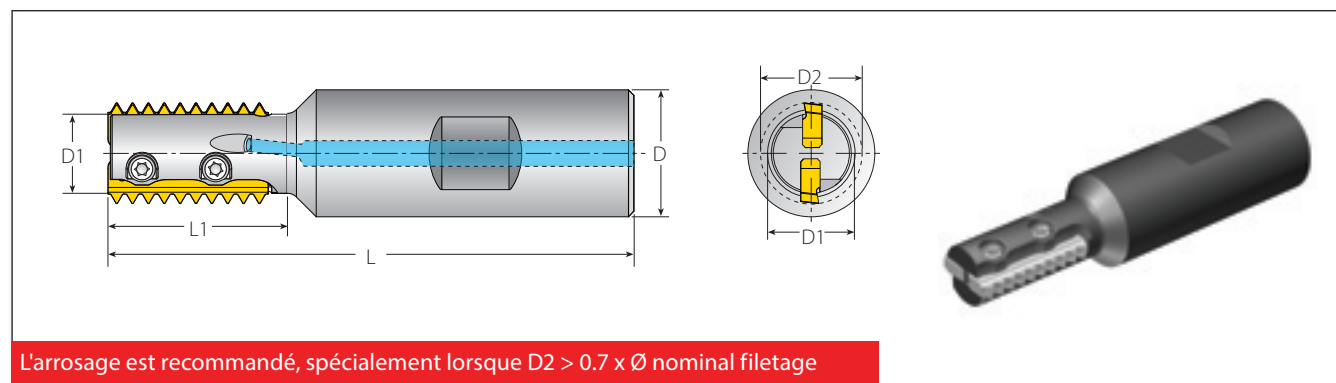
## Plaquette Plug\*

|  | L  | Référence             | Dents      | Porte-outils             |
|--|----|-----------------------|------------|--------------------------|
|  | mm | Extérieur + Intérieur | Zt         |                          |
|  | 24 | R24NC                 | Nbre dents | RTMC...M                 |
|  | 25 | R25NC                 |            | (B)RTMC...S<br>RTMNC...S |
|  | 40 | R40NC                 |            | (B)RTMC...L<br>RTMNC...L |
|  | 41 | R41NC                 |            | RTMC...B                 |

\* Insérer des plaquettes Plug (R40NC) dans les sièges non utilisés ceci assure l'équilibre, préserve l'instabilité et l'endommagement dû aux copeaux dans les sièges vides.

MiTM

## Porte-outils Standard (MiTM 24)

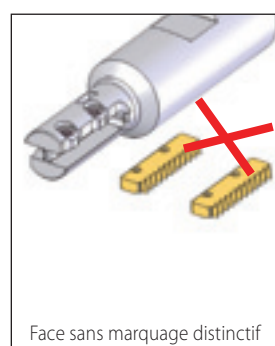
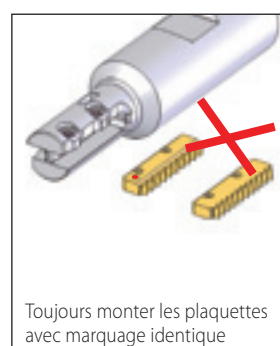
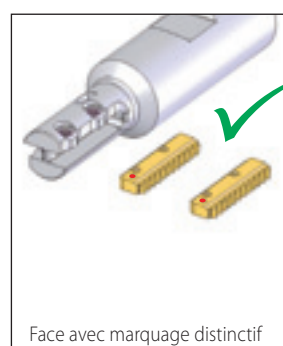


### RTMC - Pour Filetages Standards

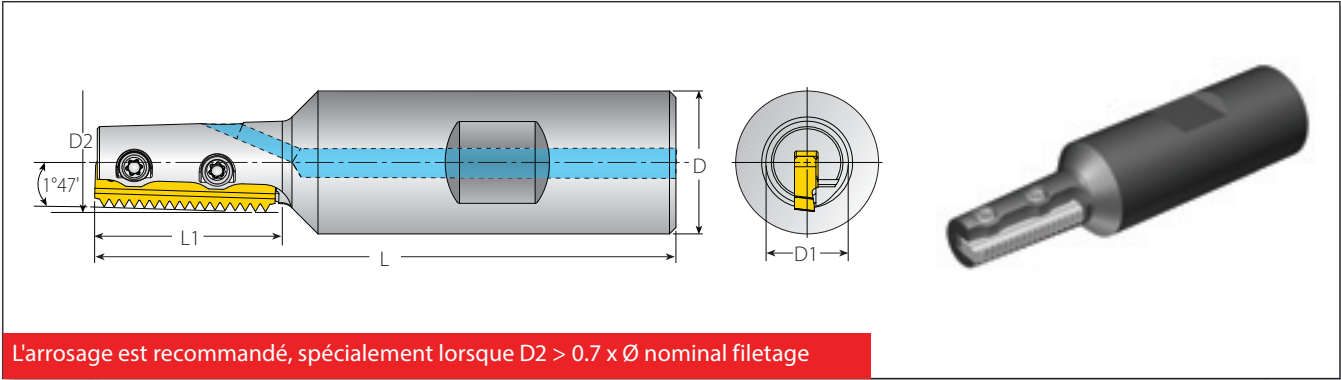
| RTMC - Pour Filetages Standards |                |                 |    |    |                 |      |   | Pièces détachées                                                                    |                                                                                                            |
|---------------------------------|----------------|-----------------|----|----|-----------------|------|---|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Mod. plaquette                  | Référence      | Dimensions (mm) |    |    | Nombre de Dents |      |   |  |                         |
| mm                              |                | L               | L1 | D  | D1              | D2   | Z | Vis de réglage x 2                                                                  | Torx+ tournevis                                                                                            |
| 24                              | RTMC 2013-26M1 | 82              | 26 | 20 | 10.7            | 13.6 | 1 | SLD4IP8<br>(M4x0.7)                                                                 | <b>KIP8</b><br>• Utiliser uniquement la clé Torx + le tournevis inclus<br>• Max. recommandé torque 1.2 NxM |
|                                 | RTMC 2015-30M1 | 85              | 30 | 20 | 11.9            | 15.1 | 1 |                                                                                     |                                                                                                            |
|                                 | RTMC 2016-28M2 | 83              | 28 | 20 | 12.6            | 16   | 2 |                                                                                     |                                                                                                            |
|                                 | RTMC 2016-36M1 | 91              | 36 | 20 | 12.6            | 16   | 1 |                                                                                     |                                                                                                            |

### Application Filetage Standard par Porte-Outils

| Porte-outils   |         | Ø Mini Filetage |                                                              |                   |                                                                                                                                                                                    |                                       |                   |
|----------------|---------|-----------------|--------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------|
|                | D2 (mm) | ISO (normal)    | ISO (fin)                                                    | UNC               | UN/UNF/UNEF/UNS                                                                                                                                                                    | BSF                                   | BSP(G)            |
| RTMC 2013-26M1 | 13.6    | M16x2           | M14.5x0.5; M15X0.75; M15x1; M15x1.25; M16x1.5; M16x1.75      | -                 | $\frac{1}{16}$ -12UN; $\frac{5}{16}$ -14UNS; $\frac{5}{16}$ -16UN; $\frac{5}{16}$ -18UNF; $\frac{5}{16}$ -20UN; $\frac{5}{16}$ -24UNEF; $\frac{5}{16}$ -28UN; $\frac{5}{16}$ -32UN | $\frac{1}{16}$ -14; $\frac{3}{4}$ -12 | $\frac{3}{8}$ -19 |
| RTMC 2015-30M1 | 15.1    | M18x2.5         | M16x0.5; M17X0.75; M17x1; M17x1.25; M17x1.5; M18x1.75; M18x2 | $\frac{3}{4}$ -10 | $\frac{3}{4}$ -12UN; $\frac{3}{4}$ -14UNS; $\frac{1}{16}$ -16UN; $\frac{1}{16}$ -20UN; $\frac{1}{16}$ -24UNEF; $\frac{1}{16}$ -28UN; $\frac{1}{16}$ -32UN                          | $\frac{3}{4}$ -12                     | -                 |
| RTMC 2016-28M2 | 16      | M20x2.5         | M17x0.5; M17x0.75; M18x1; M18x1.25; M18x1.5; M18x1.75; M19x2 | $\frac{3}{4}$ -10 | $\frac{3}{4}$ -12UN; $\frac{3}{4}$ -14UNS; $\frac{3}{4}$ -16UN; $\frac{3}{4}$ -18UNS; $\frac{3}{4}$ -20UNEF; $\frac{1}{16}$ -24UNEF; $\frac{1}{16}$ -28UN; $\frac{1}{16}$ -32UN    | $\frac{3}{4}$ -12                     | -                 |
| RTMC 2016-36M1 | 16      | M20x2.5         | M17x0.5; M17x0.75; M18x1; M18x1.25; M18x1.5; M18x1.75; M19x2 | $\frac{3}{4}$ -10 | $\frac{3}{4}$ -12UN; $\frac{3}{4}$ -14UNS; $\frac{3}{4}$ -16UN; $\frac{3}{4}$ -18UNS; $\frac{3}{4}$ -20UNEF; $\frac{1}{16}$ -24UNEF; $\frac{1}{16}$ -28UN; $\frac{1}{16}$ -32UN    | $\frac{3}{4}$ -12                     | -                 |



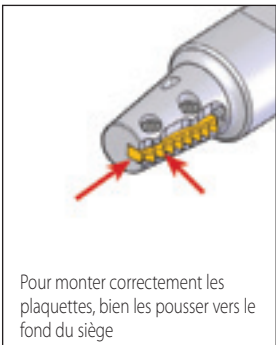
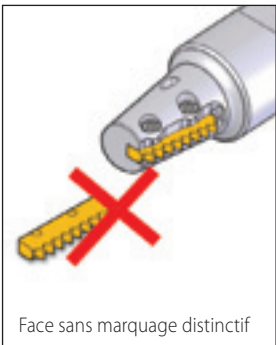
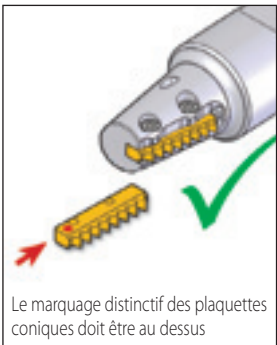
# Porte-outils Conique (MiTM 24)



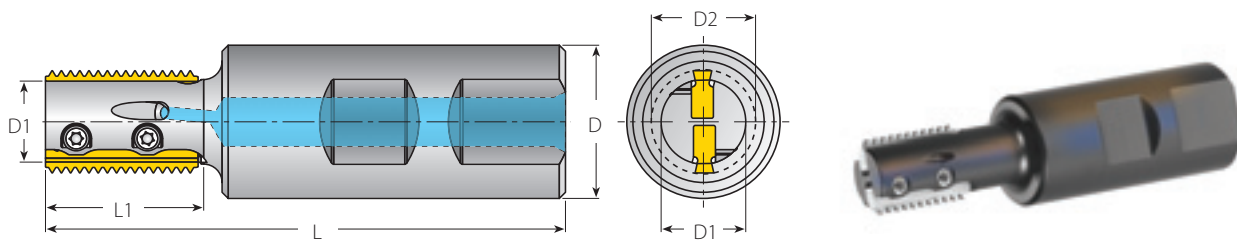
| RTMC - Pour Filetages Standards |                 |                 |    |    |                 |      |   | Pièces détachées                                                                    |                                                                                                                                                               |
|---------------------------------|-----------------|-----------------|----|----|-----------------|------|---|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mod. plaque                     | Référence       | Dimensions (mm) |    |    | Nombre de Dents |      |   |  |                                                                            |
| mm                              |                 | L               | L1 | D  | D1              | D2   | Z | Vis de réglage x 2                                                                  | Torx+ tournevis                                                                                                                                               |
| 24                              | RTMNC 2014-26M1 | 81              | 26 | 20 | 11.5            | 13.9 | 1 | SLD4IP8 (M4x0.7)                                                                    | <b>KIP8</b> <ul style="list-style-type: none"> <li>•Utiliser uniquement la clé Torx + le tournevis inclus</li> <li>•Max. recommandé torque 1.2 NxM</li> </ul> |

## Application Filetage Standard par Porte-Outils

| Porte-outils    |         |        |        |        |
|-----------------|---------|--------|--------|--------|
|                 | D2 (mm) | NPT    | NPTF   | BSPT   |
| RTMNC 2014-26M1 | 13.9    | 3/8-18 | 3/8-18 | 3/8-19 |



## Porte-outils Standard (MiTM 25)



L'arrosage est recommandé, spécialement lorsque  $D2 > 0.7 \times \text{Ø nominal filetage}$

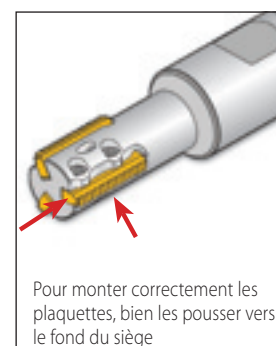
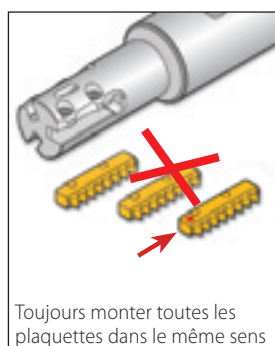
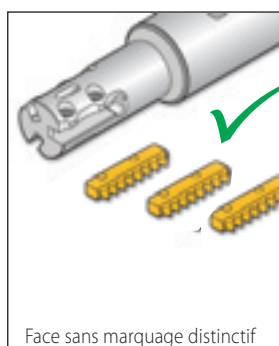
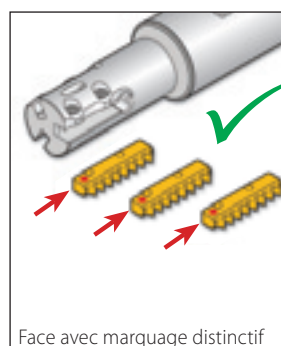
### RTMC - Pour Filetages Standards

Pièces détachées

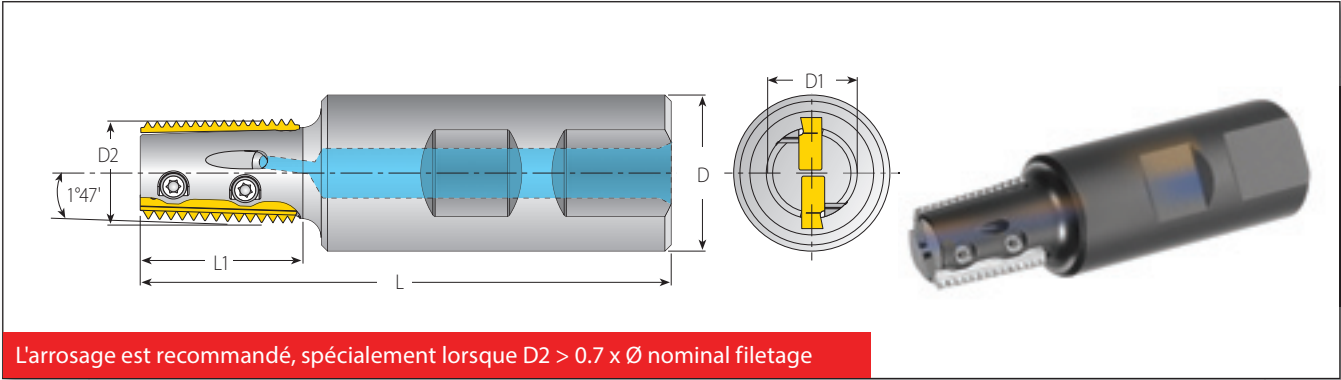
| Mod. plaque | Référence       | Dimensions (mm) |    |    |      |      |   | Nombre de Dents  |  |  |
|-------------|-----------------|-----------------|----|----|------|------|---|------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| mm          |                 | L               | L1 | D  | D1   | D2   | Z |                  | Vis de réglage x 2                                                                  | Torx+ tournevis                                                                     |
| 25          | RTMC 2517-26S2  | 85              | 26 | 25 | 14   | 17   | 2 | SLD4IP8 (M4x0.7) |  |  |
|             | RTMC 2517-36S2  | 95              | 36 |    | 14   | 17   | 2 |                  |                                                                                     |                                                                                     |
|             | RTMC 2519-32S2  | 92              | 32 |    | 15   | 19   | 2 |                  |                                                                                     |                                                                                     |
|             | RTMC 2519-44S2  | 104             | 44 |    | 15   | 19   | 2 |                  |                                                                                     |                                                                                     |
|             | RTMC 2520-37S3  | 96              | 37 |    | 16.5 | 20.5 | 3 |                  |                                                                                     |                                                                                     |
|             | RTMC 2520-44S3  | 103             | 44 |    | 16.5 | 20.5 | 3 |                  |                                                                                     |                                                                                     |
|             | RTMC 2522-43S3  | 102             | 43 |    | 18   | 22   | 3 |                  |                                                                                     |                                                                                     |
|             | RTMC 2522-55S3  | 114             | 55 |    | 18   | 22   | 3 |                  |                                                                                     |                                                                                     |
|             | RTMC 2530-55S5  | 115             | 55 |    | 26   | 30   | 5 |                  |                                                                                     |                                                                                     |
|             | BRTMC 2530-80S4 | 140             | 80 |    | 26   | 30   | 4 |                  |                                                                                     |                                                                                     |

### Application Filetage Standard par Porte-Outils

| Porte-outils    | Ø Mini Filetage |                |                                       |                       |                                                                                                                                                                                         |                                                                                    |                   |
|-----------------|-----------------|----------------|---------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------|
|                 | D2 (mm)         | ISO (normal)   | ISO (fin)                             | UNC                   | UN/UNF/UNEF/UNS                                                                                                                                                                         | BSF                                                                                | BSP(G)            |
| RTMC 2517-26S2  | 17              | M20x2.5        | M19x1; M19x1.5; M20x2                 | -                     | $\frac{7}{8}$ -10UNS; $\frac{13}{16}$ -12UN; $\frac{7}{8}$ -14UNF; $\frac{3}{4}$ -16UNF; $\frac{3}{4}$ -18UNS; $\frac{3}{4}$ -20UNEF                                                    | $\frac{7}{8}$ -11; $\frac{7}{8}$ -12; $\frac{7}{8}$ -14; $\frac{7}{8}$ -16         | $\frac{1}{2}$ -14 |
| RTMC 2517-36S2  |                 |                |                                       |                       |                                                                                                                                                                                         |                                                                                    |                   |
| RTMC 2519-32S2  | 19              | M22x2.5; M24x3 | M21x1; M21x1.5; M22x2                 | $\frac{7}{8}$ -9; 1-8 | $\frac{7}{8}$ -20UNEF; $\frac{7}{8}$ -18UNS; $\frac{7}{8}$ -16UN; $\frac{7}{8}$ -14UNF; $\frac{7}{8}$ -12UN; $\frac{7}{8}$ -10UNS                                                       | $\frac{7}{8}$ -16; $\frac{7}{8}$ -14; $\frac{15}{16}$ -12; $\frac{15}{16}$ -11     | $\frac{5}{8}$ -14 |
| RTMC 2519-44S2  |                 |                |                                       |                       |                                                                                                                                                                                         |                                                                                    |                   |
| RTMC 2520-37S3  | 20.5            | M24x3          | M22x1; M23x1.5; M23x2; M23.5x2.5      | 1-8                   | $\frac{15}{16}$ -9UN; 1-10UNS; $\frac{15}{16}$ -12UN; 1-14UNS; $\frac{15}{16}$ -16UN; $\frac{7}{8}$ -18UNS; $\frac{7}{8}$ -20UNEF                                                       | 1-11; 1-12; 1-14; 1-16                                                             | $\frac{5}{8}$ -14 |
| RTMC 2520-44S3  |                 |                |                                       |                       |                                                                                                                                                                                         |                                                                                    |                   |
| RTMC 2522-43S3  | 22              | M27x3          | M24x1; M24x1.5; M25x2; M25x2.5        | -                     | 1 $\frac{1}{16}$ -8UN; 1-9UN; 1-10UNS; 1-12UNF; 1-14UNS; 1-16UN; 1-18UN; $\frac{15}{16}$ -20UNEF                                                                                        | 1-11; 1-12; 1-14; 1-16                                                             | $\frac{3}{4}$ -14 |
| RTMC 2522-55S3  |                 |                |                                       |                       |                                                                                                                                                                                         |                                                                                    |                   |
| RTMC 2530-55S5  | 30              | -              | M32x1; M32x1.5; M33x2; M33x2.5; M34x3 | -                     | 1 $\frac{3}{8}$ -8UN; 1 $\frac{3}{8}$ -9UN; 1 $\frac{3}{8}$ -10UN; 1 $\frac{1}{2}$ -12UN; 1 $\frac{1}{2}$ -14UNS; 1 $\frac{1}{2}$ -16UN; 1 $\frac{1}{2}$ -18UNEF; 1 $\frac{1}{2}$ -20UN | 1 $\frac{3}{8}$ -11; 1 $\frac{3}{8}$ -12; 1 $\frac{3}{8}$ -14; 1 $\frac{3}{8}$ -16 | 1-11              |
| BRTMC 2530-80S4 |                 |                |                                       |                       |                                                                                                                                                                                         |                                                                                    |                   |



# Porte-outils Conique (MiTM 25)

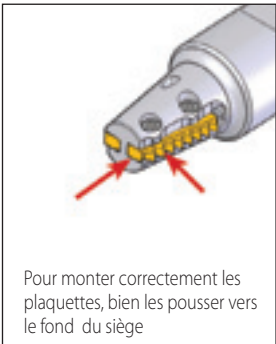
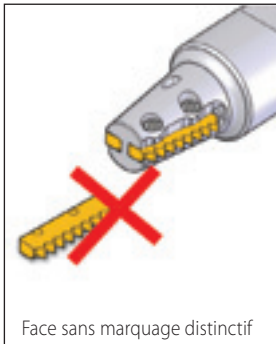


## RTMNC - Pour Filetages Standards

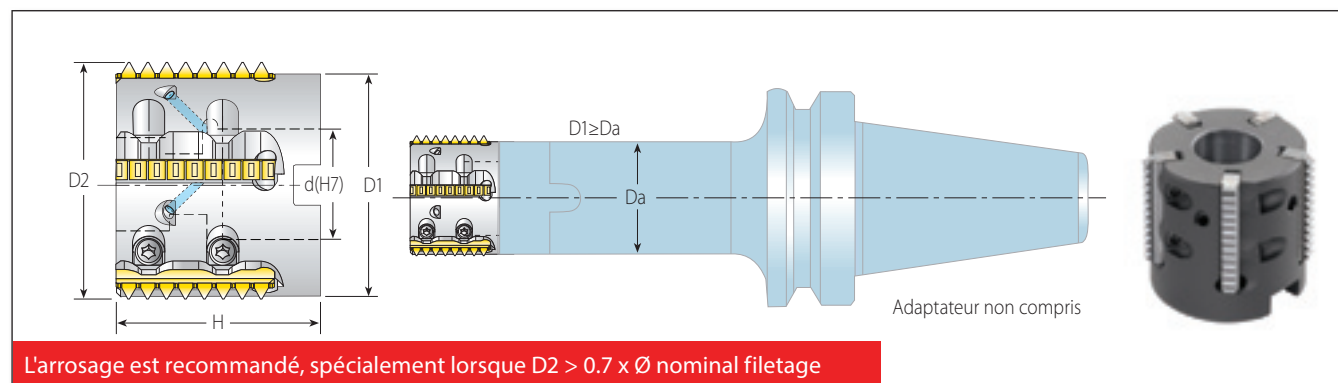
|             |                 |                 |    |    |                 |    |   | Pièces détachées                                                                    |                                                                                                          |
|-------------|-----------------|-----------------|----|----|-----------------|----|---|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Mod. plaque | Référence       | Dimensions (mm) |    |    | Nombre de Dents |    |   |  |                       |
| mm          |                 | L               | L1 | D  | D1              | D2 | Z | Vis de réglage x 2                                                                  | Torx+ tournevis                                                                                          |
| 25          | RTMNC 2517-26S2 | 85              | 26 | 25 | 14              | 17 | 2 | SLD4IP8<br>(M4x0.7)                                                                 | <b>KIP8</b><br>•Utiliser uniquement la clé Torx + le tournevis inclus<br>•Max. recommandé torque 1.2 NxM |
|             | RTMNC 2522-43S3 | 102             | 43 | 25 | 18              | 22 | 3 |                                                                                     |                                                                                                          |
|             | RTMNC 2528-43S4 | 103             | 43 | 25 | 25              | 28 | 4 |                                                                                     |                                                                                                          |

## Application Filetage Conique par Porte-Outils

| Porte-outils    |        | Ø Filetage                                   |                                               |                                                               |
|-----------------|--------|----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
|                 | D2(mm) | NPT                                          | NPTF                                          | BSPT                                                          |
| RTMNC 2517-26S2 | 17     | ½-14; ¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5 | ½ -14; ¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5 | ½ -14; ¾-14                                                   |
| RTMNC 2522-43S3 | 22     | ¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5       | ¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5        | ¾-14; 1-11; 1¼-11; 1½-11; 2-11; 2½-11; 3-11; 4-11; 5-11; 6-11 |
| RTMNC 2528-43S4 | 28     | 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5             | 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5              | 1-11; 1¼-11; 1½-11; 2-11; 2½-11; 3-11; 4-11; 5-11; 6-11       |



## Tourteau (MiTM 25)



### Tourteau Conique et Standard

#### Pièces détachées

| Mod. plaquette | Référence | Dimensions (mm)   |    |       |    |      | Nombre de Dents |                    |                                                                                                     |                      |
|----------------|-----------|-------------------|----|-------|----|------|-----------------|--------------------|-----------------------------------------------------------------------------------------------------|----------------------|
| mm             |           | D1                | D2 | d(H7) | H  | Z    |                 | Vis de réglage x 2 | Torx+ tournevis                                                                                     | Vis fraise à fileter |
| Standard       | 25        | RTMC D36-16-25S5  | 32 | 36    | 16 | 33.5 | 5               | SLD4IP8 (M4x0.7)   | KIP8<br>• Utiliser uniquement la clé Torx + le tournevis inclus<br>• Max. recommandé torque 1.2 NxM | M8x1.25x30           |
|                |           | RTMC D44-22-25S6  | 40 | 44    | 22 | 38   | 6               |                    |                                                                                                     | M10x1.50x35          |
|                |           | RTMC D52-27-25S8  | 48 | 52    | 27 | 40   | 8               |                    |                                                                                                     | M12x1.75x30          |
| Conique        |           | RTMNC D36-16-25S5 | 32 | 36*   | 16 | 33.5 | 5               |                    |                                                                                                     | M8x1.25x30           |

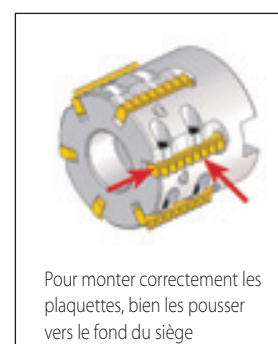
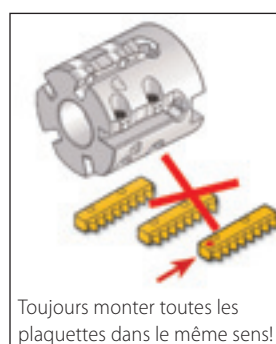
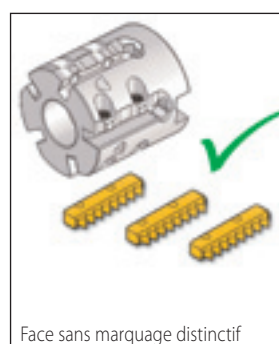
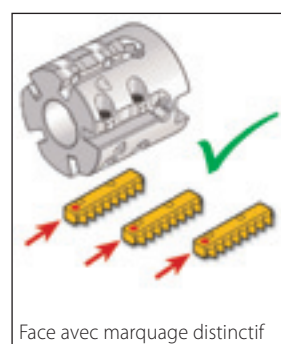
\* Pour les plaquettes 8 NPT & 8NPTF, utiliser le programme CNC ( $D2 + 0.5\text{mm}$ )

### Application Filetage Standard par Porte-Outils

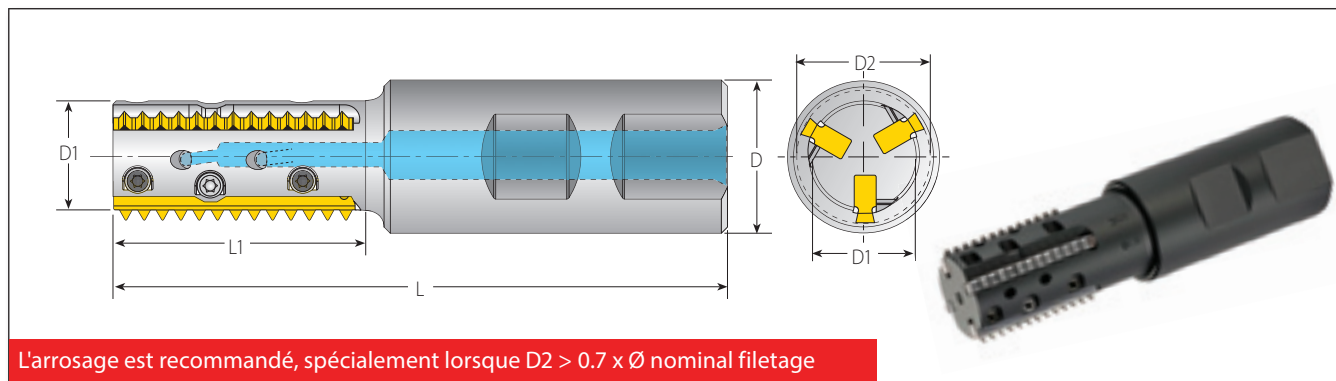
| Porte-outils |                  | Ø Mini Filetage |                              |                                                                                                                                                                |  |                                            |
|--------------|------------------|-----------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------|
|              |                  | D2(mm)          | ISO (fin)                    | UN/UNF/UNEF/UNS                                                                                                                                                |  | BSP(G)                                     |
| Standard     | RTMC D36-16-25S5 | 36              | M38x1; M39x1.5; M39x2; M40x3 | 1 $\frac{1}{16}$ -12UN; 1 $\frac{1}{8}$ -14UNS; 1 $\frac{1}{16}$ -16UN; 1 $\frac{1}{2}$ -18UNEF; 1 $\frac{1}{2}$ -20UN                                         |  | 1 $\frac{1}{4}$ -16<br>1 $\frac{1}{4}$ -12 |
|              | RTMC D44-22-25S6 | 44              | M48x1; M48x1.5; M48x2; M48x3 | 1 $\frac{1}{8}$ -12UN; 1 $\frac{1}{16}$ -16UN; 1 $\frac{1}{16}$ -20UN; 1 $\frac{1}{16}$ -8UN; 1 $\frac{1}{8}$ -10UNS; 1 $\frac{1}{8}$ -14UNS                   |  | 2-16<br>2-12                               |
|              | RTMC D52-27-25S8 | 52              | M55x1; M55x1.5; M55x2; M56x3 | 2 $\frac{1}{4}$ -8UN; 2 $\frac{1}{4}$ -10UN; 2 $\frac{1}{4}$ -12UN; 2 $\frac{1}{4}$ -14UN; 2 $\frac{1}{4}$ -16UN; 2 $\frac{1}{4}$ -18UN; 2 $\frac{1}{4}$ -20UN |  | 2 $\frac{1}{4}$ -16<br>2 $\frac{1}{4}$ -12 |

### Application Filetage Conique par Porte-Outils

| Porte-outils |                   | Ø Filetage |                                                                                           |                                                                                 |                       |
|--------------|-------------------|------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------|
|              |                   | D2(mm)     | NPT                                                                                       | NPTF                                                                            | BSPT                  |
| Conique      | RTMNC D36-16-25S5 | 36         | 1 $\frac{1}{4}$ -11.5; 1 $\frac{1}{2}$ -11.5; 2-11.5<br>2 $\frac{1}{2}$ -8 (et au dessus) | 1 $\frac{1}{4}$ -11.5; 1 $\frac{1}{2}$ -11.5; 2-11.5<br>2 $\frac{1}{2}$ -8; 3-8 | 1 $\frac{1}{2}$ -6x11 |



## Porte-outils Standard (MiTM 40)

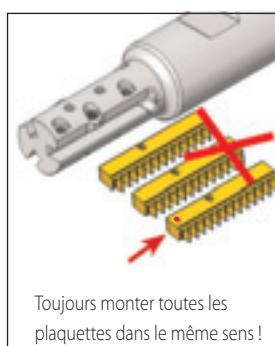
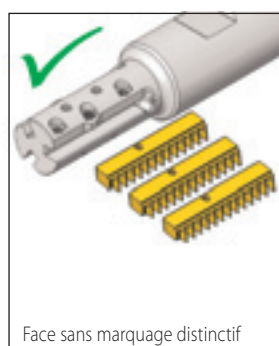
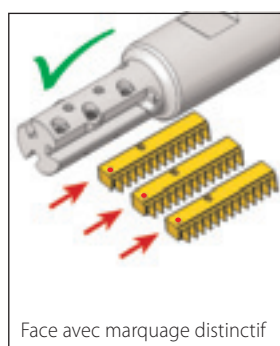


### RTMC - Pour Filetages Standards

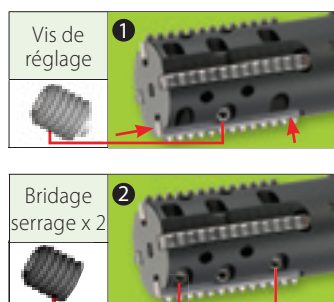
| RTMC - Pour Filetages Standards |                 |                 |    |    |                 |    |   | Pièces détachées                                                                   |                                                                                     |                                                                                                            |
|---------------------------------|-----------------|-----------------|----|----|-----------------|----|---|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Mod. plaque                     | Référence       | Dimensions (mm) |    |    | Nombre de Dents |    |   |  |  |                         |
| mm                              |                 | L               | L1 | D  | D1              | D2 | Z | Vis de réglage                                                                     | Vis de serrage x 2                                                                  | Torx+ tournevis                                                                                            |
| 40                              | RTMC 2522-43L3  | 102             | 43 | 25 | 18              | 22 | 3 | SLD4IP8A<br>(M4x0.7)                                                               | SCD4IP8<br>(M4x0.7)                                                                 | <b>KIP8</b><br>• Utiliser uniquement la clé Torx + le tournevis inclus<br>• Max. recommandé torque 1.2 NxM |
|                                 | RTMC 2522-65L3  | 124             | 65 | 25 | 18              | 22 | 3 |                                                                                    |                                                                                     |                                                                                                            |
|                                 | RTMC 3230-55L4  | 117             | 55 | 32 | 26              | 30 | 4 |                                                                                    |                                                                                     |                                                                                                            |
|                                 | BRTMC 3230-80L3 | 142             | 80 | 32 | 26              | 30 | 3 |                                                                                    |                                                                                     |                                                                                                            |

### Application Filetage Standard par Porte-Outils

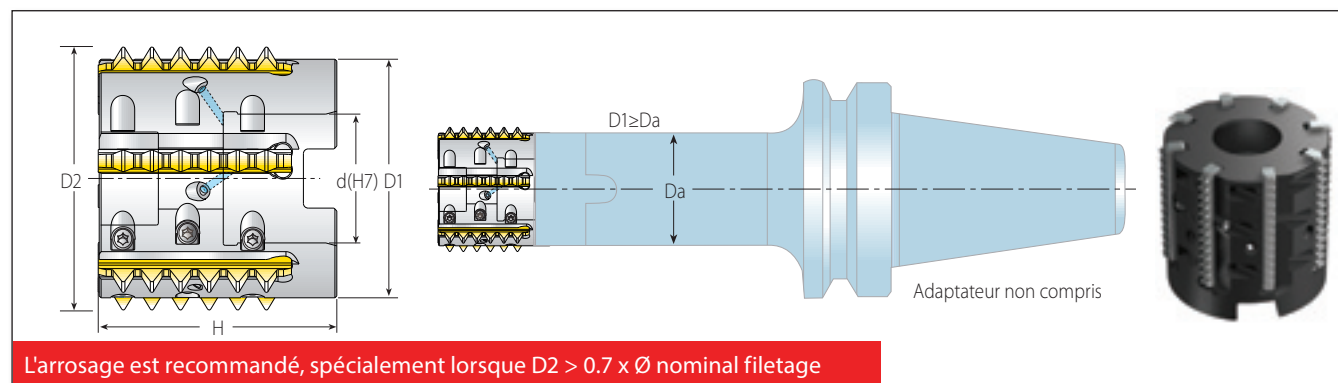
| Porte-outils    |         | Ø Mini Filetage |                                         |     |                                                                                                        |  |                                           |        |
|-----------------|---------|-----------------|-----------------------------------------|-----|--------------------------------------------------------------------------------------------------------|--|-------------------------------------------|--------|
|                 | D2 (mm) | ISO (normal)    | ISO (fin)                               | UNC | UN/UNF/UNEF/UNS                                                                                        |  | BSF                                       | BSP(G) |
| RTMC 2522-43L3  | 22      | M27x3           | M24x1; M24x1.5<br>M25x2; M25x2.5        | -   | 1 1/16-8UN; 1-9UN; 1-10UNS; 1-12UNF;<br>1-14UNS; 1-16UN; 1-18UN; 1 1/16-20UNEF                         |  | 1-11; 1-12;<br>1-14; 1-16;                | 3/4-14 |
| RTMC 2522-65L3  | 22      | M27x3           | M24x1; M24x1.5<br>M25x2; M25x2.5        | -   | 1 1/16-8UN; 1-9UN; 1-10UNS; 1-12UNF;<br>1-14UNS; 1-16UN; 1-18UN; 1 1/16-20UNEF                         |  | 1-11; 1-12;<br>1-14; 1-16;                | 3/4-14 |
| RTMC 3230-55L4  | 30      | -               | M32x1; M32x1.5<br>M33x2; M33x2.5; M34x3 | -   | 1 3/8-8UN; 1 3/8-9UN; 1 3/8-10UN; 1 1/16-12UN;<br>1 3/8-14UNS; 1 1/16-16UN; 1 1/16-18UNEF; 1 1/16-20UN |  | 1 3/8-11; 1 3/8-12;<br>1 3/8-14; 1 3/8-16 | 1-11   |
| BRTMC 3230-80L3 | 30      | -               | M32x1; M32x1.5<br>M33x2; M33x2.5; M34x3 | -   | 1 3/8-8UN; 1 3/8-9UN; 1 3/8-10UN; 1 1/16-12UN;<br>1 3/8-14UNS; 1 1/16-16UN; 1 1/16-18UNEF; 1 1/16-20UN |  | 1 3/8-11; 1 3/8-12;<br>1 3/8-14; 1 3/8-16 | 1-11   |



Système de serrage en 2 étapes!



## Tourteau (MiTM 40)



## Tourteau Conique et Standard

### Pièces détachées

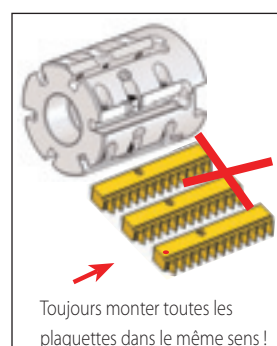
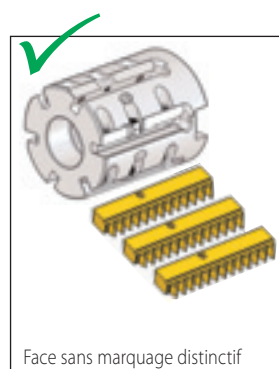
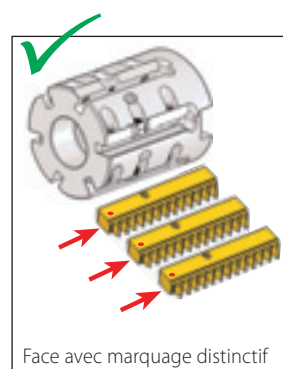
| Mod. plaque | Référence         | Dimensions (mm) |    |       |    |   | Nombre de Dents   |  |        |  |  |
|-------------|-------------------|-----------------|----|-------|----|---|-------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| mm          |                   | D1              | D2 | d(H7) | H  | Z |                   | Vis de réglage                                                                    | Bridage serrage x 2                                                                       | Torx+ tournevis                                                                     | Porte-outils Vis                                                                    |
| Standard    | RTMC D44-22-40L6  | 40              | 44 | 22    | 48 | 6 | SLD4IP8A (M4x0.7) | SCD4IP8 (M4x0.7)                                                                  | •Utiliser uniquement la clé Torx + le tournevis inclus<br>•Max. recommandé torque 1.2 NxM | KIP8                                                                                | M10x1.5x40                                                                          |
|             | RTMC D52-27-40L8  | 48              | 52 | 27    | 50 | 8 |                   |                                                                                   |                                                                                           |                                                                                     | M12x1.75x40                                                                         |
| Conique     | RTMNC D45-22-40L6 | 40              | 45 | 22    | 48 | 6 |                   |                                                                                   |                                                                                           |                                                                                     | M10x1.5x40                                                                          |

## Application Filetage Standard par Porte-Outils

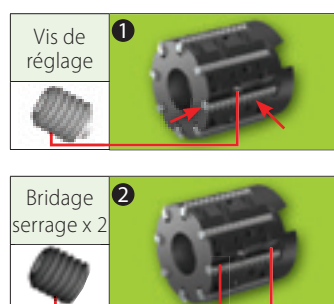
| Porte-outils |                  | Ø Mini Filetage |                              |                                                                                   |                      |          |
|--------------|------------------|-----------------|------------------------------|-----------------------------------------------------------------------------------|----------------------|----------|
|              |                  | D2(mm)          | ISO (fin)                    | UN/UNF/UNEF/UNS                                                                   | BSW                  | BSP(G)   |
| Standard     | RTMC D44-22-40L6 | 44              | M48x1; M48x1.5; M48x2; M48x3 | 1 7/8-12UN; 1 3/16-16UN; 1 1/16-20UN; 1 1/8-8UN; 1 7/8-10UNS; 1 7/8-14UNS         | 2-16<br>2-12         | 1 1/2-11 |
|              | RTMC D52-27-40L8 | 52              | M55x1; M55x1.5; M55x2; M56x3 | 2 1/4-8UN; 2 1/4-10UN; 2 1/4-12UN; 2 1/4-14UN; 2 1/4-16UN; 2 1/4-18UN; 2 1/4-20UN | 2 1/4-16<br>2 1/4-12 | 2-11     |

## Application Filetage Conique par Porte-Outils

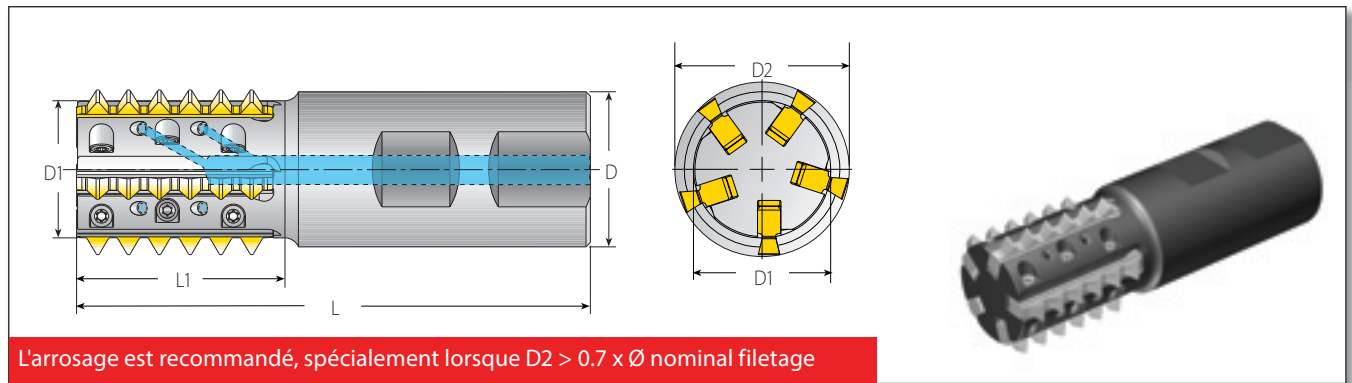
| Porte-outils |                   | Ø Mini Filetage |                                |                      |        |
|--------------|-------------------|-----------------|--------------------------------|----------------------|--------|
|              |                   | D2(mm)          | NPT                            | NPTF                 | BSPT   |
| Conique      | RTMNC D45-22-40L6 | 45              | 2-11.5; 2 1/2-8 (et au dessus) | 2-11.5; 2 1/2-8; 3-8 | 2-6x11 |



### Système de serrage en 2 étapes



## Porte-outils Standard (MiTM 41)



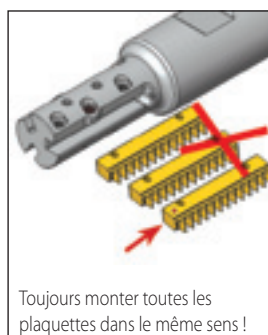
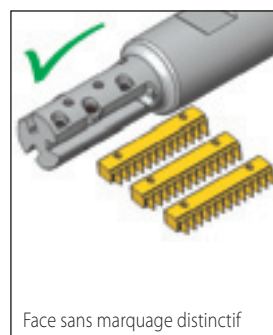
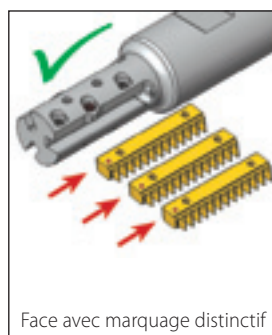
### RTMC - Pour Filetages Standards

| RTMC - Pour Filetages Standards |                |                 |    |    |      |      |   | Pièces détachées     |                     |                                                                                                           |
|---------------------------------|----------------|-----------------|----|----|------|------|---|----------------------|---------------------|-----------------------------------------------------------------------------------------------------------|
| Mod. plaque                     | Référence      | Dimensions (mm) |    |    |      |      |   | Nombre de Dents      |                     |                                                                                                           |
| mm                              |                | L               | L1 | D  | D1   | D2*  | Z | Vis de réglage x 2   | Vis de serrage      | Torx+ tournevis                                                                                           |
| 41                              | RTMC 2524-43B2 | 104             | 43 | 25 | 19.2 | 24.5 | 2 | SLD4IP8A<br>(M4x0.7) | SCD4IP8<br>(M4x0.7) | <b>KIP8</b><br>• Utiliser uniquement la clé Torx+ le tournevis inclus<br>• Max. recommandé torque 1.2 NxM |
|                                 | RTMC 3230-43B3 | 106.5           | 43 | 32 | 24.2 | 30   | 3 |                      |                     |                                                                                                           |
|                                 | RTMC 3230-65B3 | 128.5           | 65 | 32 | 24.2 | 30   | 3 |                      |                     |                                                                                                           |
|                                 | RTMC 3236-43B5 | 106             | 43 | 32 | 28.3 | 36   | 5 |                      |                     |                                                                                                           |
|                                 | RTMC 3236-65B4 | 128             | 65 | 32 | 28.3 | 36   | 4 |                      |                     |                                                                                                           |

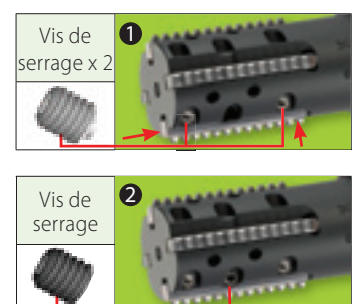
### Application Filetage Standard par Porte-Outils

| Porte-outils   | Ø Mini Filetage |                                |                              |                         |                       |                                    |         |         |
|----------------|-----------------|--------------------------------|------------------------------|-------------------------|-----------------------|------------------------------------|---------|---------|
|                | D2*<br>(mm)     | ISO<br>(normal)                | ISO<br>(fin)                 | UNC                     | UN/UNF/UNEF/UNS       | BSW/BSF                            | NPT     | NPTF    |
| RTMC 2524-43B2 | 24.5            | M30x3.5; M36x4                 | M28X3; M45x4                 | 1 1/8-7; 1 3/8-6        | 1 1/8-8UN; 1 1/16-6UN | 1 3/8-8BSF; 1 1/4-7BSW             | -       | -       |
| RTMC 3230-43B3 | 30              | M36x4; M42x4.5                 | M34X3; M34x3.5; M45x4        | 1 3/8-6                 | 1 3/8-8UN; 1 1/16-6UN | 1 3/8-8BSF; 1 3/4-7BSF; 1 1/2-6BSW | -       | -       |
| RTMC 3230-65B3 | 30              | M36x4; M42x4.5                 | M34X3; M34x3.5; M45x4        | 1 3/8-6                 | 1 3/8-8UN; 1 1/16-6UN | 1 3/8-8BSF; 1 3/4-7BSF; 1 1/2-6BSW | -       | -       |
| RTMC 3236-43B5 | 36              | M42x4.5; M48x5; M56x5.5; M64x6 | M40x3; M40x3.5; M42x4; M70x6 | 1 3/4-5; 2-4.5; 2 1/2-4 | 1 3/8-8UN; 1 3/8-6UN  | 1 3/8-8BSF; 1 3/4-7BSF; 1 1/2-6BSF | 2 1/2-8 | 2 1/2-8 |
| RTMC 3236-65B4 | 36              | M42x4.5; M48x5; M56x5.5; M64x6 | M40x3; M40x3.5; M42x4; M70x6 | 1 3/4-5; 2-4.5; 2 1/2-4 | 1 3/8-8UN; 1 3/8-6UN  | 1 3/8-8BSF; 1 3/4-7BSF; 1 1/2-6BSF | 2 1/2-8 | 2 1/2-8 |

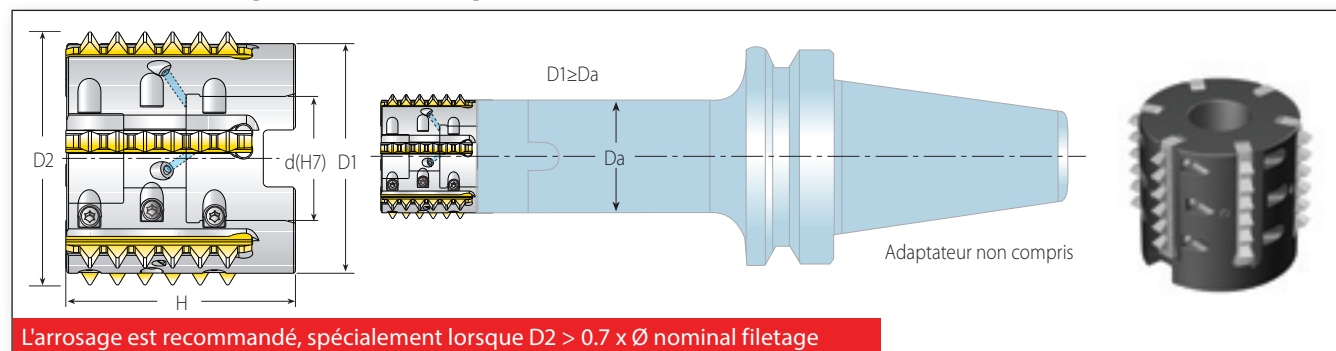
\* Pour les applications extérieur, les plaquettes R41E..., utiliser le programme CNC (D2 + 0.6mm)



Système de serrage en 2 étapes!



## Tourteau (MiTM 41)



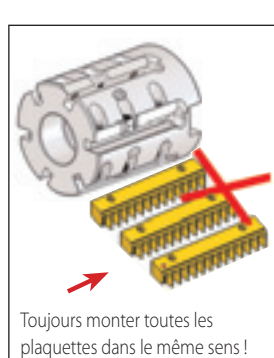
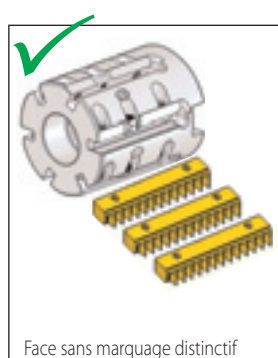
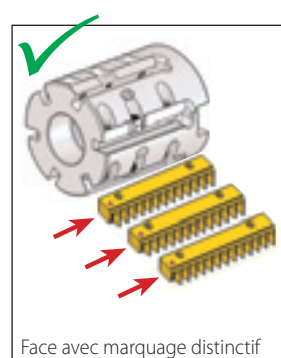
### Tourteau Standard

| Tourteau Standard |                  |                 |     |       |    |   | Pièces détachées     |                     |                                                                                                     |                 |
|-------------------|------------------|-----------------|-----|-------|----|---|----------------------|---------------------|-----------------------------------------------------------------------------------------------------|-----------------|
| Mod. plaque       | Référence        | Dimensions (mm) |     |       |    |   | Nombre de Dents      |                     |                                                                                                     |                 |
| mm                |                  | D1              | D2* | d(H7) | H  | Z |                      | Vis de réglage x2   | Vis de serrage                                                                                      | Torx+ tournevis |
| 41                | RTMC D48-22-41B5 | 40              | 48  | 22    | 50 | 5 | SLD4IP8A<br>(M4x0.7) | SCD4IP8<br>(M4x0.7) | KIP8<br>• Utiliser uniquement la clé Torx + le tournevis inclus<br>• Max. recommandé torque 1.2 NxM | M10x1.5x40      |
|                   | RTMC D58-27-41B6 | 50              | 58  | 27    | 50 | 6 |                      |                     |                                                                                                     | M12x1.75x40     |

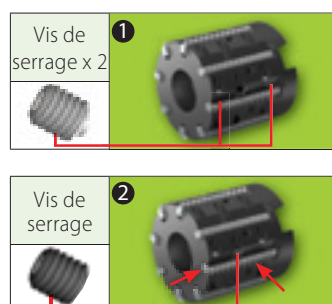
### Application Filetage Standard par Porte-Outils

| Porte-outils     |          | Ø Mini Filetage |               |                    |                      |                  |         |         |
|------------------|----------|-----------------|---------------|--------------------|----------------------|------------------|---------|---------|
|                  | D2* (mm) | ISO (normal)    | ISO (fin)     | UNC                | UN/UNF/UNEF/UNS      | BSF              | NPT     | NPTF    |
| RTMC D48-22-41B5 | 48       | M56x5.5; M64x6  | M55x4; M70x6; | 2 1/4-4.5; 2 1/2-4 | 2 1/8-8UN; 2 1/8-6UN | 2 1/4-8; 2 1/4-6 | 2 1/2-8 | 2 1/2-8 |
| RTMC D58-27-41B6 | 58       | M68x6           | M64x4; M70x6  | 2 3/4-4            | 2 1/2-8UN; 2 1/2-6UN | 2 1/2-8; 2 1/4-6 | 2 1/2-8 | 2 1/2-8 |

\* Pour les applications extérieur, les plaquettes R41E... , utiliser le programme CNC (D2 + 0.6mm)



Système de serrage en 2 étapes!



## Nuances, vitesses de coupe Vc [m/min] et avances f [mm/dent] recommandées

| Accumulation<br>Groupe                                    | Vardex No. | Accumulation                                            |                                              | Dureté<br>Brinell<br>HB | Vc [m/min] |         | Avances f [mm/dent] |
|-----------------------------------------------------------|------------|---------------------------------------------------------|----------------------------------------------|-------------------------|------------|---------|---------------------|
|                                                           |            |                                                         |                                              |                         | VBX        | VTX     | f                   |
| <b>P</b><br>Acier                                         | 1          | Acier non allié                                         | Carbone faible (C= 0.1-0.25 %)               | 125                     | 100-210    | 90-180  | 0.1-0.35            |
|                                                           | 2          |                                                         | Carbone moyen (C=0.25-0.55%)                 | 150                     | 100-180    | 90-170  | 0.1-0.4             |
|                                                           | 3          |                                                         | Carbone haut (C=0.55-0.85%)                  | 170                     | 100-170    | 90-160  | 0.1-0.35            |
|                                                           | 4          | Acier faiblement allié<br>(constituants d'alliage ≤ 5%) | Non traité                                   | 180                     | 90-60      | 90-155  | 0.1-0.4             |
|                                                           | 5          |                                                         | Traité                                       | 275                     | 80-150     | 80-160  | 0.1-0.35            |
|                                                           | 6          |                                                         | Traité                                       | 350                     | 70-140     | 70-150  | 0.1-0.3             |
|                                                           | 7          | Acier hautement allié<br>(constituants d'alliage > 5%)  | Revenu / Malléable                           | 200                     | 60-130     | 70-115  | 0.1-0.35            |
|                                                           | 8          |                                                         | Traité                                       | 325                     | 70-110     | 60-100  | 0.1-0.2             |
|                                                           | 9          | Acier fondu                                             | Faible alliage (constituants d'alliage ≤ 5%) | 200                     | 100-170    | 100-170 | 0.1-0.3             |
|                                                           | 10         |                                                         | Haut alliage (constituants d'alliage > 5%)   | 225                     | 70-120     | 70-130  | 0.1-0.2             |
| <b>M</b><br>Acier<br>inoxydable                           | 11         | Acier inoxydable<br>ferritique                          | Non traité                                   | 200                     | 100-170    | 120-180 | 0.1-0.3             |
|                                                           | 12         |                                                         | Traité                                       | 330                     | 100-170    | 120-180 | 0.1-0.2             |
|                                                           | 13         | Acier inoxydable<br>Austénitique                        | Austénitique                                 | 180                     | 70-140     | 100-140 | 0.1-0.3             |
|                                                           | 14         |                                                         | Super austénitique                           | 200                     | 70-140     | 100-140 | 0.1-0.2             |
|                                                           | 15         | Acier inoxydable<br>Fondu ferritique                    | Non traité                                   | 200                     | 70-140     | 100-140 | 0.1-0.3             |
|                                                           | 16         |                                                         | Traité                                       | 330                     | 70-140     | 100-140 | 0.1-0.2             |
|                                                           | 17         | Acier inoxydable<br>fondu austénitique                  | Austénitique                                 | 200                     | 70-120     | 100-120 | 0.1-0.3             |
|                                                           | 18         |                                                         | Traité                                       | 330                     | 70-120     | 100-120 | 0.1-0.2             |
| <b>K</b><br>Fonte                                         | 28         | Malléable<br>Fonte                                      | Férritique (copeaux courts)                  | 130                     | 60-130     | 100-120 | 0.05-0.16           |
|                                                           | 29         |                                                         | Perlitique (copeaux longs)                   | 230                     | 60-120     | 80-100  | 0.04-0.10           |
|                                                           | 30         | Fonte grise                                             | Acier à faible résistance                    | 180                     | 60-130     | 80-100  | 0.1-0.3             |
|                                                           | 31         |                                                         | Acier à haute résistance                     | 260                     | 60-100     | 80-100  | 0.1-0.2             |
|                                                           | 32         | Fonte nodulaire SG                                      | Férritique                                   | 160                     | 60-125     | 80-100  | 0.1-0.3             |
|                                                           | 33         |                                                         | Perlitique                                   | 260                     | 50-90      | 60-90   | 0.1-0.2             |
| <b>N<sub>(K)</sub></b><br>Métaux non<br>ferreux           | 34         | Alliages aluminium<br>forge                             | Non Vieilli                                  | 60                      | 100-250    |         | 0.15-0.55           |
|                                                           | 35         |                                                         | Vieilli                                      | 100                     | 100-180    |         | 0.15-0.5            |
|                                                           | 36         | Alliages aluminium                                      | Coulé                                        | 75                      | 150-400    |         | 0.15-0.5            |
|                                                           | 37         |                                                         | Fondu & vieilli                              | 90                      | 150-280    |         | 0.1-0.4             |
|                                                           | 38         | Alliages aluminium                                      | Coulé Si 13-22%                              | 130                     | 80-150     |         | 0.15-0.5            |
|                                                           | 39         | Cuivre &<br>alliages cuivre                             | Laiton                                       | 90                      | 120-210    | 100-200 | 0.15-0.5            |
| <b>S<sub>(M)</sub></b><br>Matières<br>haute<br>résistance | 40         |                                                         | Bronze & cuivre sans plomb                   | 100                     | 120-210    | 100-200 | 0.1-0.4             |
|                                                           | 19         | Alliages haute<br>température<br>alloys                 | Trempe (à base du fer)                       | 200                     | 20-45      | 20-40   | 0.1-0.2             |
|                                                           | 20         |                                                         | Vieilli (à base du fer)                      | 280                     | 20-30      | 20-30   | 0.04-0.10           |
|                                                           | 21         |                                                         | Trempe (à base de Nickel ou Cobalt)          | 250                     | 15-20      | 15-20   | 0.04-0.10           |
|                                                           | 22         |                                                         | Vieilli (à base de Nickel ou Cobalt)         | 350                     | 10-15      | 10-15   | 0.04-0.10           |
|                                                           | 23         | Alliages Titanium                                       | Pur 99.5 Ti                                  | 400Rm                   | 70-140     | 70-120  | 0.04-0.10           |
| <b>H<sub>(K)</sub></b><br>Matières<br>dures               | 24         |                                                         | Alliages α+β                                 | 1050Rm                  | 20-50      | 20-50   | 0.04-0.10           |
|                                                           | 25         | Acier extra dur                                         | Traité & trempé                              | 45-50HRc                | 15-45      | 15-45   | 0.06-0.12           |
|                                                           | 26         |                                                         |                                              | 51-55HRc                | 15-40      | 15-40   | 0.04-0.08           |

### Nuance

| Nuance     | Application:                                                                              | Exemple                                                                             |
|------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>VBX</b> | Nuance carbure TiCN<br>Nuance excellente pour les aciers & les utilisations polyvalentes. |  |
| <b>VTX</b> | Nuance carbure TiAlN<br>Excellent pour les inox                                           |  |





# TMSD

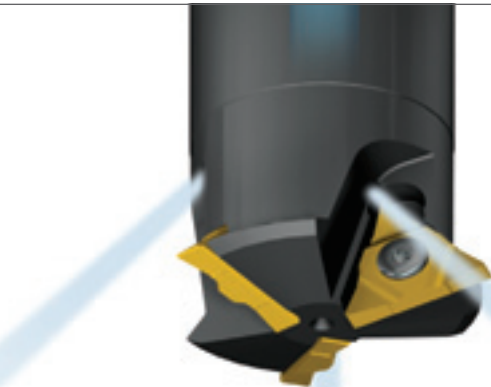
Fraisage pour trous profonds

- > Plaquettes
- > Porte-outils
- > Informations techniques



# TMSD-FRAISE À FILETER POUR ALÉSAGES PROFONDS

|                                                 |          |
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Une solution économique pour fraiser un filetage dans un alésage profond

## Coupe douce

- Réduit les efforts grâce à une pointe

## Grande variété de pas

- Profil partiel

## Economique

- Jusqu'à 3 arêtes par plaquette
- Très haute avances par dent

## Rapide

- Multi dents, jusqu'à 7 dents (plaquettes)

## Longueur utile importante

- Jusqu'à 144mm (200 mm avec un tourteau)

## Diamètre d'outil

- À partir de 13 mm

## Arrosage central

- Pour une meilleure évacuation des copeaux et un Refroidissement de l'arête de coupe



TM Gen: Le programme et les mises à jour peuvent être téléchargés sur le site: [www.vargus.com](http://www.vargus.com)

# TMSD

## Fraisage pour trous profonds

Une solution multi-dents, pour une haute productivité, économique, conçue pour le fraisage dans des alésages très profonds

### Mini-L

Pour Petits Alésages & L2 Court

Queue Weldon



Portée de l'outil (L1) 29-42  
Ø de Coupe (D2) 13-17.7  
Nombre de Dents (Z) 1-3

Queue Cylindrique Carbure



Portée de l'outil (L1) max 65  
Ø de Coupe (D2) 13-17.7  
Nombre de Dents (Z) 1-3

### Type U

Pour grands filetages

Queue Weldon



Portée de l'outil (L1) 40-120  
Ø de Coupe (D2) 14.75-42  
Nombre de Dents (Z) 1-4

Queue Cylindrique Carbure



Portée de l'outil (L1) Max 135  
Ø de Coupe (D2) 14.75-20.65  
Nombre de Dents (Z) 1-2

Queue Cylindrique Acier



Portée de l'outil (L1) Max 144  
Ø de Coupe (D2) 23.3-36.5  
Nombre de Dents (Z) 2-4

Tourteau



Portée de l'outil (L1) Max 200  
Ø de Coupe (D2) 42-98  
Nombre de Dents (Z) 4-7

### Type A

Pour L2 court

Queue Cylindrique Acier

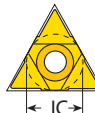


Portée de l'outil (L1) Max 144  
Ø de Coupe (D2) 26-35.3  
Nombre de Dents (Z) 3

# Système de codification Vardex

## Porte-outils TMSD

|          |          |          |           |           |           |            |
|----------|----------|----------|-----------|-----------|-----------|------------|
| <b>2</b> | <b>U</b> | <b>I</b> | <b>DB</b> | <b>60</b> | <b>TM</b> | <b>VBX</b> |
| <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b>  | <b>5</b>  | <b>6</b>  | <b>7</b>   |

|                                                                                   |                                                                                                                                                                                                                                                                         |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-------------------------------------------------------------------------------|-----|---------|----|---------|-------|----|---------|-------|----|---------|------|----|---------|------|----|---------|------|----|---------|-----|----|---------|-----|----|---|------|----|-----|----|----|---------|-------|----|---------|------|----|---|-------|----|---------|------|--|
| <b>1 - Taille plaquette IC</b>                                                    | <b>2 - Type de plaquette</b>                                                                                                                                                                                                                                            | <b>3 - Type de Plaquette</b> | <b>4 - Pas</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  | <b>5 - Standard</b>                                                           |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| 5L - IC5.0L mm<br>2 - IC1/4"<br>3 - IC3/8"<br>4 - IC1/2"                          | U - <br>A - <br>L -  | I - Intérieur                | <b>Profil Complet - Variété de Pas</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  | 60° - Partial Profile 60°<br>55° - Partial Profile 55°<br>TR- Trapèze DIN 103 |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
|  |                                                                                                                                                                                                                                                                         |                              | <table><tr><td>mm</td><td>tpi</td></tr><tr><td>2.0-5.0</td><td>-</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  | mm                                                                            | tpi | 2.0-5.0 | -  |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| mm                                                                                | tpi                                                                                                                                                                                                                                                                     |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| 2.0-5.0                                                                           | -                                                                                                                                                                                                                                                                       |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
|                                                                                   |                                                                                                                                                                                                                                                                         |                              | <b>Profil partiel - Variété de pas</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  | <b>6 - Système</b>                                                            |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
|                                                                                   |                                                                                                                                                                                                                                                                         |                              | <table><tr><td></td><td>mm</td><td>tpi</td></tr><tr><td>DA</td><td>0.5-1.5</td><td>48-16</td></tr><tr><td>DB</td><td>1.5-2.0</td><td>16-12</td></tr><tr><td>DC</td><td>2.5-4.0</td><td>10-6</td></tr><tr><td>DD</td><td>2.0-2.5</td><td>9-12</td></tr><tr><td>DE</td><td>2.5-3.5</td><td>10-7</td></tr><tr><td>DH</td><td>4.0-6.0</td><td>6-4</td></tr><tr><td>DK</td><td>6.0-8.0</td><td>4-3</td></tr><tr><td>DL</td><td>-</td><td>11-7</td></tr><tr><td>DM</td><td>2.5</td><td>10</td></tr><tr><td>DN</td><td>1.0-2.0</td><td>24-11</td></tr><tr><td>DP</td><td>1.5-3.0</td><td>16-8</td></tr><tr><td>DR</td><td>-</td><td>26-14</td></tr><tr><td>DT</td><td>2.0-4.0</td><td>12-6</td></tr></table> |  |  |                                                                               | mm  | tpi     | DA | 0.5-1.5 | 48-16 | DB | 1.5-2.0 | 16-12 | DC | 2.5-4.0 | 10-6 | DD | 2.0-2.5 | 9-12 | DE | 2.5-3.5 | 10-7 | DH | 4.0-6.0 | 6-4 | DK | 6.0-8.0 | 4-3 | DL | - | 11-7 | DM | 2.5 | 10 | DN | 1.0-2.0 | 24-11 | DP | 1.5-3.0 | 16-8 | DR | - | 26-14 | DT | 2.0-4.0 | 12-6 |  |
|                                                                                   | mm                                                                                                                                                                                                                                                                      | tpi                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DA                                                                                | 0.5-1.5                                                                                                                                                                                                                                                                 | 48-16                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DB                                                                                | 1.5-2.0                                                                                                                                                                                                                                                                 | 16-12                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DC                                                                                | 2.5-4.0                                                                                                                                                                                                                                                                 | 10-6                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DD                                                                                | 2.0-2.5                                                                                                                                                                                                                                                                 | 9-12                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DE                                                                                | 2.5-3.5                                                                                                                                                                                                                                                                 | 10-7                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DH                                                                                | 4.0-6.0                                                                                                                                                                                                                                                                 | 6-4                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DK                                                                                | 6.0-8.0                                                                                                                                                                                                                                                                 | 4-3                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DL                                                                                | -                                                                                                                                                                                                                                                                       | 11-7                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DM                                                                                | 2.5                                                                                                                                                                                                                                                                     | 10                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DN                                                                                | 1.0-2.0                                                                                                                                                                                                                                                                 | 24-11                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DP                                                                                | 1.5-3.0                                                                                                                                                                                                                                                                 | 16-8                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DR                                                                                | -                                                                                                                                                                                                                                                                       | 26-14                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
| DT                                                                                | 2.0-4.0                                                                                                                                                                                                                                                                 | 12-6                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                               |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
|                                                                                   |                                                                                                                                                                                                                                                                         |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  | <b>7 - Nuance carbure</b>                                                     |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |
|                                                                                   |                                                                                                                                                                                                                                                                         |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  | VBX, VTX                                                                      |     |         |    |         |       |    |         |       |    |         |      |    |         |      |    |         |      |    |         |     |    |         |     |    |   |      |    |     |    |    |         |       |    |         |      |    |   |       |    |         |      |  |

## Porte-outils TMSD

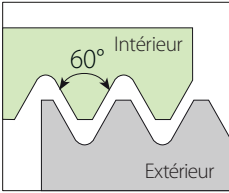
| C                                                             | TM                                                                                       | 2                                            | S                                                 | C                                          | 14                             | C                                                             | 17                                   | - | 65 | - | 2  | U  |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------------------------|--------------------------------------------|--------------------------------|---------------------------------------------------------------|--------------------------------------|---|----|---|----|----|
| 1                                                             | 2                                                                                        | 3                                            | 4                                                 | 5                                          | 6                              | 7                                                             | 8                                    |   | 9  |   | 10 | 11 |
| <b>1 - Type du corps</b><br>Sans - Acier<br>C - Queue carbure | <b>2 - Système</b><br>TM                                                                 | <b>3 - Nombre de Dents</b><br>1 - 4          | <b>4 - Type de plaquette</b><br>S - Simple Arrête | <b>5 - Arrosage</b><br>C - Refroidissement | <b>6 - Ø Queue</b><br>9.5 - 40 | <b>7 - Type de queue</b><br>W - Weldon<br>C - Refroidissement | <b>8 - Diam. de coupe</b><br>13 - 42 |   |    |   |    |    |
| <b>9 - Portée Maxi</b><br>29 - 144                            | <b>10 - Taille plaquette</b><br>5L - IC5.0L mm<br>2 - IC1/4"<br>3 - IC3/8"<br>4 - IC1/2" | <b>11 - Type de plaquette</b><br>U<br>A<br>L |                                                   |                                            |                                |                                                               |                                      |   |    |   |    |    |

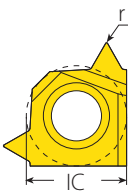
## Tourteau TMSD

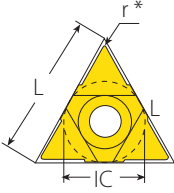
| TM                       | 4                                 | S                                                 | C                                          |                                      | D42                                             | -                                                       | 16                                | - | 3 | U |
|--------------------------|-----------------------------------|---------------------------------------------------|--------------------------------------------|--------------------------------------|-------------------------------------------------|---------------------------------------------------------|-----------------------------------|---|---|---|
| 1                        | 2                                 | 3                                                 | 4                                          |                                      | 5                                               |                                                         | 6                                 |   | 7 | 8 |
| <b>1 - Système</b><br>TM | <b>2 - Nombre de Dents</b><br>4-7 | <b>3 - Type de plaquette</b><br>S - Simple Arrête | <b>4 - Arrosage</b><br>C - Refroidissement | <b>5 - Diam. de coupe</b><br>42 - 98 | <b>6 - Diam. de l'alésage</b><br>16, 22, 27, 32 | <b>7 - Taille plaquette</b><br>3 - IC3/8"<br>4 - IC1/2" | <b>8 - Type de plaquette</b><br>U |   |   |   |

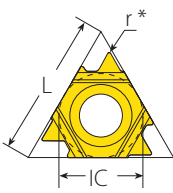
# TMSD - Profil Partiel 60°

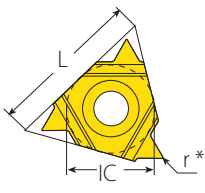
Intérieur



  
Type Mini-L

  
Type U

  
2UIDM60 TM...  
2UIDD60 TM...

  
Type A

## Mini-L

|  | Taille plaquette |      | Pas     |       | Référence     | Dimensions (mm) |              |
|-----------------------------------------------------------------------------------|------------------|------|---------|-------|---------------|-----------------|--------------|
|                                                                                   | IC               | L mm | mm      | tpi   | Intérieur     | r *             | Porte-outils |
|                                                                                   | 5.0L             | -    | 0.5-1.5 | 48-16 | 5LIDA60 TM... | 0.04            | TM.SC...5L   |
|                                                                                   |                  |      | 1.0-2.0 | 24-11 | 5LIDN60 TM... | 0.06            | CTM. SC...5L |

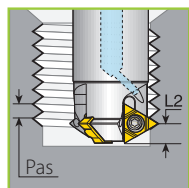
## Type U

| <br>2UIDM60 TM...<br>2UIDD60 TM... | Taille plaquette |      | Pas     |       | Référence     | Dimensions (mm) |                            |
|-----------------------------------------------------------------------------------------------------------------------|------------------|------|---------|-------|---------------|-----------------|----------------------------|
|                                                                                                                       | IC               | L mm | mm      | tpi   | Intérieur     | r *             | Porte-outils               |
|                                                                                                                       | 1/4"U            | 11   | 0.5-1.5 | 48-16 | 2UIDA60 TM... | 0.05            | TM.SC...2U                 |
|                                                                                                                       |                  |      | 1.5-2.0 | 16-12 | 2UIDB60 TM... | 0.06            | CTM. SC...2U               |
|                                                                                                                       |                  |      | 2.0-2.5 | 9-12  | 2UIDD60 TM... | 0.11            | CTM2SC 14C17-65-2U         |
|                                                                                                                       |                  |      | 2.5     | 10    | 2UIDM60 TM... | 0.11            |                            |
|                                                                                                                       |                  |      | 2.5-4.0 | 10-6  | 2UIDC60 TM... | 0.14            | TM.SC...2U<br>CTM. SC...2U |
|                                    | 3/8"U            | 16   | 1.5-2.0 | 16-12 | 3UIDB60 TM... | 0.06            | TM.SC...3U                 |
|                                                                                                                       |                  |      | 2.5-3.5 | 10-7  | 3UIDE60 TM... | 0.14            |                            |
|                                                                                                                       |                  |      | 4.0-6.0 | 6-4   | 3UIDH60 TM... | 0.25            |                            |
|                                                                                                                       | 1/2"U            | 22   | 6.0-8.0 | 4-3   | 4UIDK60 TM... | 0.30            | TM.SC D...4U               |

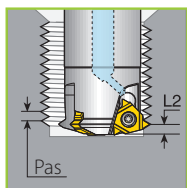
## Type A

|  | Taille plaquette |      | Pas     |      | Référence     | Dimensions (mm) |              |
|-------------------------------------------------------------------------------------|------------------|------|---------|------|---------------|-----------------|--------------|
|                                                                                     | IC               | L mm | mm      | tpi  | Intérieur     | r *             | Porte-outils |
|                                                                                     | 1/4"A            | 11   | 1.5-3.0 | 16-8 | 2AIDP60 TM... | 0.06            | TM.SC...2A   |
|                                                                                     | 3/8"A            | 16   | 2.0-4.0 | 12-6 | 3AIDT60 TM... | 0.08            | TM.SC...3A   |

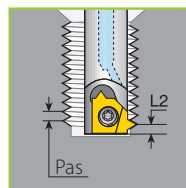
\* Le rayon mentionné (r) ne concerne que les plaquettes avec rayon.



Type U  
Pour grands filetages



Type A  
Pour L2 court



Type Mini-L  
Pour Petits Alésages & L2 Court

# TMSD - Profil Partiel 55°

Intérieur

Type Mini-L

Type U

## Mini-L



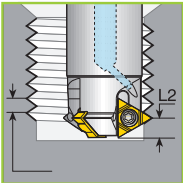
| Taille plaquette | Pas   | Référence     | Dimensions (mm) |                            |
|------------------|-------|---------------|-----------------|----------------------------|
| IC               | tpi   | Intérieur     | r*              | Porte-outils               |
| 5.0L             | 26-14 | 5LIDR55 TM... | 0.10            | TM.SC...5L<br>CTM. SC...5L |

## Type U

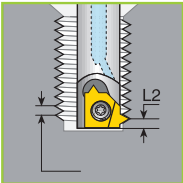


| Taille plaquette |      | Pas   | Référence     | Dimensions (mm) |                            |
|------------------|------|-------|---------------|-----------------|----------------------------|
| IC               | L mm | tpi   | Intérieur     | r*              | Porte-outils               |
| 1/4"U            | 11   | 48-16 | 2UIDA55 TM... | 0.11            | TM.SC...2U<br>CTM. SC...2U |
|                  |      | 16-12 | 2UIDB55 TM... | 0.08            |                            |
|                  |      | 11-7  | 2UIDL55 TM... | 0.24            |                            |
| 3/8"U            | 16   | 16-12 | 3UIDB55 TM... | 0.08            | TM.SC...3U                 |
|                  |      | 11-7  | 3UIDL55 TM... | 0.24            |                            |
|                  |      | 6-4   | 3UIDH55 TM... | 0.27            |                            |
| 1/2"U            | 22   | 4-3   | 4UIDK55 TM... | 0.50            | TM.SC...4U                 |

\* Le rayon mentionné (r) ne concerne que les plaquettes avec rayon.



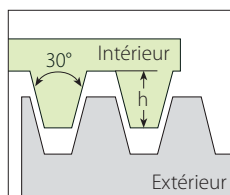
Type U  
Pour grands filetages



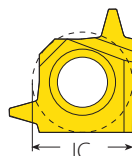
Type Mini-L  
Pour Petits Alésages & L2 court

# TMSD - Trapèze

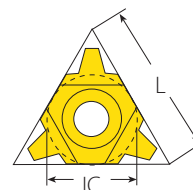
## Intérieur



Norme: DIN 103  
Classe de tolérance: 7e/7H



Type Mini-L



Type U

## Mini-L



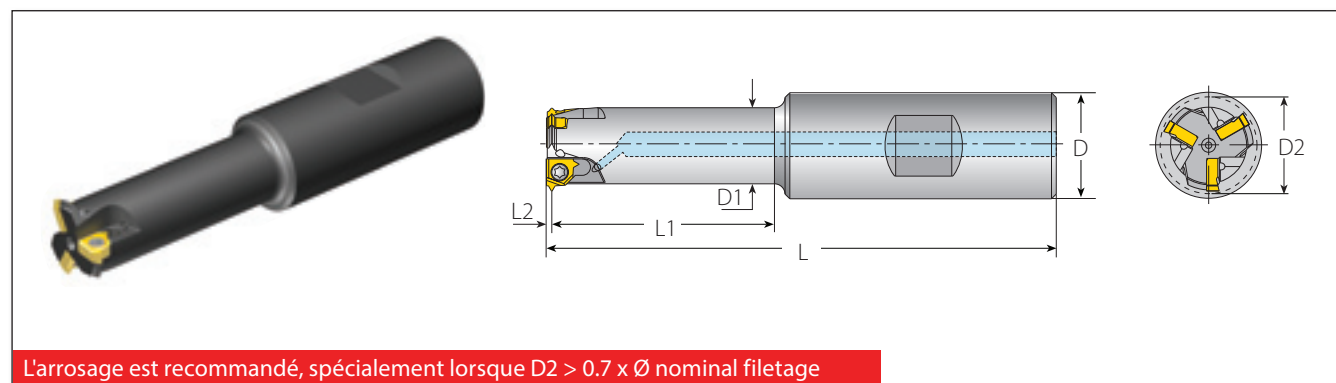
| Taille plaquette | Pas | Référence        | Application:   |                    |
|------------------|-----|------------------|----------------|--------------------|
| IC               | mm  | Intérieur        | Intérieur      | Porte-outils       |
| 5.0L             | 2.0 | 5LI2.0TR-1 TM... | TR16x2, TR20x2 | Voir pages 280-281 |
|                  |     | 5LI2.0TR-2 TM... | TR18x2         |                    |

## Type U



| Taille plaquette |      | Pas | Référence        | Application:   |                    |
|------------------|------|-----|------------------|----------------|--------------------|
| IC               | L mm | mm  | Intérieur        | Intérieur      | Porte-outils       |
| 1/4"U            | 11   | 3.0 | 2UI3.0TR-1 TM... | (TR22-TR30)x3  | Voir pages 282-283 |
|                  |      |     | 2UI3.0TR-2 TM... | (TR32-TR60)x3  |                    |
|                  |      | 4.0 | 2UI4.0TR-1 TM... | (TR20-TR28)x4  |                    |
|                  |      |     | 2UI4.0TR-2 TM... | (TR65-TR110)x4 |                    |
|                  |      | 5.0 | 2UI5.0TR-1 TM... | TR22x5; TR28x5 |                    |
|                  |      |     | 2UI5.0TR-2 TM... | TR24x5; TR26x5 |                    |

## Porte-outils Standard TMSD - Queue Weldon (Type Mini-L)



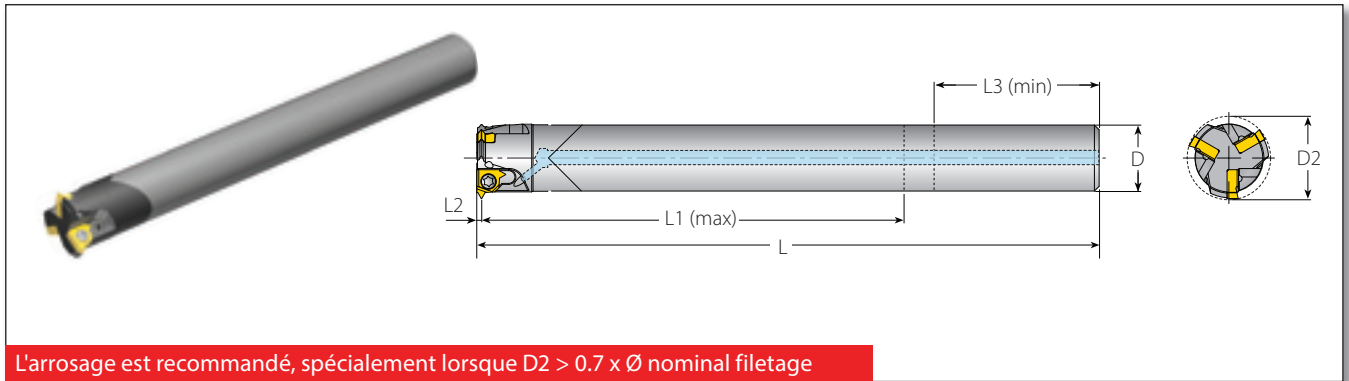
### Queue Weldon pour Plaquettes Mini-L

| Queue Weldon pour Plaquettes Mini-L |                   |                 |    |     |    |      |      |   | Pièces détachées |                                                                                                                                                                                                   |
|-------------------------------------|-------------------|-----------------|----|-----|----|------|------|---|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Taille plaquette                    | Référence         | Dimensions (mm) |    |     |    |      |      |   | Nombre de Dents  |                                                                                                                                                                                                   |
| IC                                  |                   | L               | L1 | L2  | D  | D1   | D2   | Z |                  |                                                                                                                                                                                                   |
| 5.0L                                | TM1SC 16W13-29-5L | 81              | 29 |     | 16 | 9.8  | 13   | 1 |                  |                                                                                                                                                                                                   |
|                                     | TM2SC 16W14-33-5L | 85              | 33 | 1.1 | 16 | 10.3 | 13.5 | 2 |                  |                                                                                                                                                                                                   |
|                                     | TM3SC 20W18-42-5L | 96              | 42 |     | 20 | 14.3 | 17.7 | 3 |                  |                                                                                                                                                                                                   |
|                                     |                   |                 |    |     |    |      |      |   |                  |  Vis plaquette<br> Clé torx |
|                                     |                   |                 |    |     |    |      |      |   |                  | SN5LTR<br>K7T                                                                                                                                                                                     |

### Applications pour porte-outils de Type Mini-L (Queue Weldon)

| Porte-outils      |      | Ø Mini Filetage |                                                |                                                                                                                                                                                                                  |  |                   |                     |                |
|-------------------|------|-----------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------|---------------------|----------------|
|                   | D2   | ISO Standard    | ISO Fin                                        | UN/UNF/UNEF/UNS                                                                                                                                                                                                  |  | BSP(G)            | Partiel 55°         | Trapèze        |
| TM1SC 16W13-29-5L | 13   | M16x2           | M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0 | $\frac{1}{16}$ -32UN; $\frac{1}{16}$ -28UN; $\frac{1}{16}$ -27UNS;<br>$\frac{1}{16}$ -24UNEF; $\frac{5}{16}$ -20UN; $\frac{5}{16}$ -18UNF;<br>$\frac{3}{8}$ -16UN; $\frac{3}{8}$ -14UNS; $\frac{1}{2}$ -12UN     |  | $\frac{3}{8}$ -19 | $\frac{5}{8}$ -14   | TR16X2; TR18X2 |
| TM2SC 16W14-33-5L | 13.5 | M16x2           | M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0   | $\frac{5}{16}$ -32UN; $\frac{5}{16}$ -28UN; $\frac{5}{16}$ -27UNS;<br>$\frac{5}{16}$ -24UNEF; $\frac{5}{16}$ -20UN; $\frac{5}{16}$ -18UNF;<br>$\frac{5}{16}$ -16UN; $\frac{5}{16}$ -14UNS; $\frac{11}{16}$ -12UN |  | $\frac{3}{8}$ -19 | $\frac{11}{16}$ -14 | TR16X2; TR18X2 |
| TM3SC 20W18-42-5L | 17.7 | -               | M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0   | $\frac{3}{4}$ -32UN; $\frac{3}{4}$ -28UN; $\frac{7}{8}$ -27UNS;<br>$\frac{3}{4}$ -24UNS; $\frac{13}{16}$ -20UNEF; $\frac{7}{8}$ -18UNS;<br>$\frac{13}{16}$ -16UN; $\frac{7}{8}$ -14UNF; $\frac{13}{16}$ -12UN    |  | $\frac{1}{2}$ -14 | -                   | TR20X2         |

## Porte-outils Standard TMSD - Queue Cylindrique (Type Mini-L)



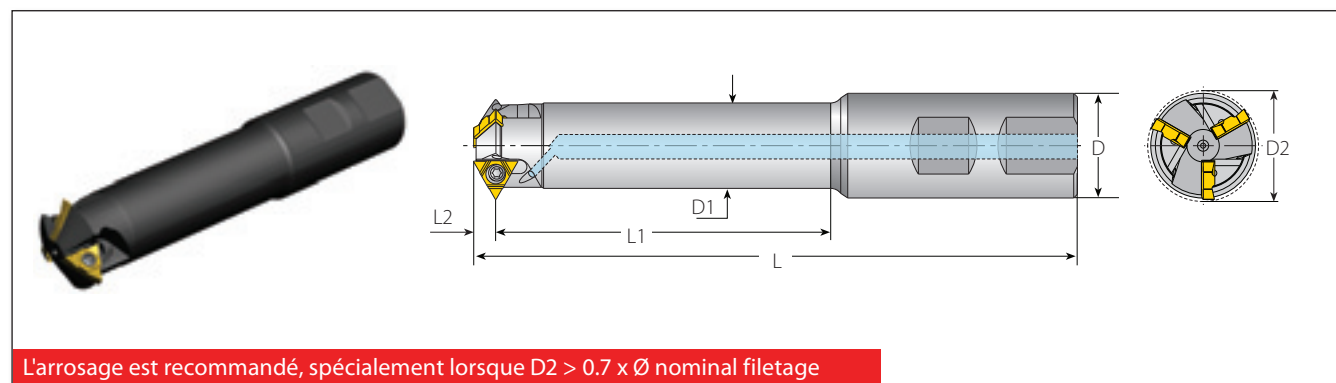
### Queue Weldon pour Plaquettes Mini-L

| Queue Weldon pour Plaquettes Mini-L |                    |                 |          |     |          |     |      |   | Pièces détachées |          |
|-------------------------------------|--------------------|-----------------|----------|-----|----------|-----|------|---|------------------|----------|
| Taille plaque                       | Référence          | Dimensions (mm) |          |     |          |     |      |   | Nombre de Dents  |          |
| IC                                  |                    | L               | L1 (max) | L2  | L3 (min) | D   | D2   | Z |                  |          |
| 5.0L                                | CTM1SC 09C13-43-5L | 109             | 43       | 1.1 | 20       | 9.5 | 13   | 1 | SN5LTR           | Clé torx |
|                                     | CTM2SC 10C14-50-5L | 116             | 50       |     | 22       | 10  | 13.5 | 2 |                  |          |
|                                     | CTM3SC 14C18-65-5L | 132             | 65       |     | 30       | 14  | 17.7 | 3 |                  |          |

### Applications pour porte-outils de Type Mini-L (Queue Weldon)

| Porte-outils       |      | Ø Mini Filetage |                                                |                                                                                                        |  |        |             |                |
|--------------------|------|-----------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------|--|--------|-------------|----------------|
|                    | D2   | ISO Standard    | ISO Fin                                        | UN/UNF/UNEF/UNS                                                                                        |  | BSP(G) | Partiel 55° | Trapèze        |
| CTM1SC 09C13-43-5L | 13   | M16x2           | M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0 | 1/16-32UN; 1/16-28UN; 1/16-27UNS; 1/16-24UNEF; 5/16-20UN; 5/16-18UNF; 5/16-16UN; 5/16-14UNS; 5/16-12UN |  | 3/8-19 | 5/16-14     | TR16X2; TR18X2 |
| CTM2SC 10C14-50-5L | 13.5 | M16x2           | M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0   | 5/16-32UN; 5/16-28UN; 5/16-27UNS; 5/16-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN; 5/8-14UNS; 11/16-12UN    |  | 3/8-19 | 11/16-14    | TR16X2; TR18X2 |
| CTM3SC 14C18-65-5L | 17.7 | -               | M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0   | 3/4-32UN; 3/4-28UN; 7/8-27UNS; 3/4-24UNS; 13/16-20UNEF; 7/8-18UNS; 13/16-16UN; 7/8-14UNF; 13/16-12UN   |  | 1/2-14 | -           | TR20X2         |

## Porte-outils Standard TMSD - Queue Weldon (Type U)



### Queue Weldon pour plaquettes de type U

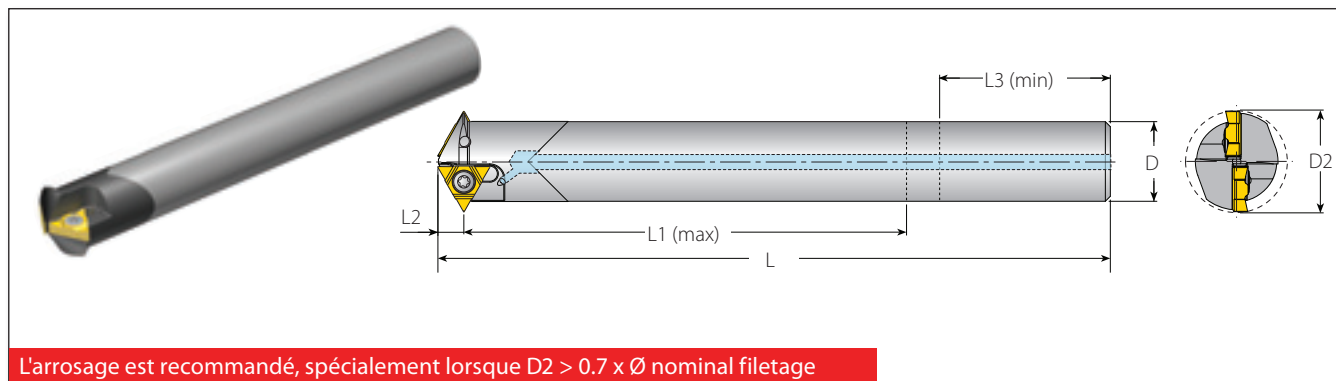
| Queue Weldon pour plaquettes de type U |                    |                 |     |     |    |      |        |   | Pièces détachées |      |
|----------------------------------------|--------------------|-----------------|-----|-----|----|------|--------|---|------------------|------|
| Taille plaquette                       | Référence          | Dimensions (mm) |     |     |    |      |        |   | Nombre de Dents  |      |
| IC                                     |                    | L               | L1  | L2  | D  | D1   | D2     | Z |                  |      |
| 1/4"U                                  | TM1SC 16W15-40-2U  | 95              | 40  | 5.4 | 16 | 11   | 14.75* | 1 | SN2T             | HK2T |
|                                        | TM2SC 25W21-60-2U  | 123             | 60  |     | 25 | 16   | 20.65* | 2 |                  |      |
|                                        | TM2SC 25W23-70-2U  | 135             | 70  |     | 25 | 17.7 | 23     | 2 |                  |      |
|                                        | TM3SC 25W26-80-2U  | 147             | 80  |     | 25 | 20.4 | 26     | 3 |                  |      |
|                                        | TM4SC 32W31-95-2U  | 164             | 95  |     | 32 | 25.7 | 31     | 4 |                  |      |
| 3/8"U                                  | TM3SC 32W36-95-3U  | 166             | 95  | 8.0 | 32 | 29   | 36.5   | 3 | SA3T             | HK3T |
|                                        | TM3SC 32W36-145-3U | 225             | 145 |     | 32 | 28   | 36.5   | 3 |                  |      |
|                                        | TM4SC 40W42-120-3U | 201             | 120 |     | 40 | 34.2 | 42     | 4 | SN3T             |      |

### Applications pour porte-outils de Type U (Queue Weldon)

| Porte-outils                            |        | Ø Mini Filetage                    |                                                                                   |                         |                                                                                                                   |                      |                                                          |                |
|-----------------------------------------|--------|------------------------------------|-----------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------|----------------|
|                                         | D2     | ISO Standard                       | ISO Fin                                                                           | UNC                     | UN/UNF/UNEF/UNS                                                                                                   | BSP(G)               | Partiel 55°                                              | Trapèze        |
| TM1SC 16W15-40-2U                       | 14.75* | M18x2.5, M24x3.0                   | M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0                            | 3/4-10                  | 5/8-32UN, 5/8-28UN, 5/8-27UNS, 11/16-24UN, 11/16-20UN, 11/16-16UN, 3/4-14UNS, 3/4-12UN                            | 3/8-19, 1/2-14, 1-11 | 11/16-14; 3/4-12; 7/8-11; 3/4-10; 7/8-9; 1-8; 1 1/8-7    | TR22x3, TR24x3 |
| TM2SC 25W21-60-2U                       | 20.65* | M24x3.0, M30x3.5                   | M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0                            | 1-8, 1 1/8-7, 1 3/8-6   | 7/8-32UN, 7/8-28UN, 7/8-27UNS, 7/8-24UNS, 7/8-20UNEF, 1-18UNS, 1 1/8-16UN, 1-14UNS, 1 1/8-12UN, 1-10UNS           | 3/4-14, 1-11         | 1-26, 1-20, 1-16, 1-12, 1-10, 1 1/8-9, 1-8, 1 1/8-7      | (TR26-TR60x3)  |
| TM2SC 25W23-70-2U                       | 23     | M27x3.0, M30x3.5, M36x4.0          | M24x0.5, M24x0.75, M25x1.0, M25x1.25, M26x1.5, M26x2.0, M27x2.5                   | 1 1/8-7                 | 1-32UN, 1-28UN, 1-27UNS, 1-24UNS, 1-20UNEF, 1-18UNS, 1-16UN, 1-14UNS, 1-12UNF, 1 1/8-10UNS, 1 1/8-8UN             | 3/4-14, 1-11         | 1-26, 1-20, 1-16, 1 1/8-12, 1 1/8-9, 1 1/8-7             | -              |
| TM3SC 25W26-80-2U                       | 26     | M30x3.5, M36x4.0                   | M27x0.5, M27x0.75, M28x1.0, M28x1.25, M28x1.5, M29x2.0, M30x2.5, M30x3.0          | 1 1/4-7, 1 3/8-6        | 1 1/8-28UN, 1 1/8-24UNS, 1 1/8-20UN, 1 1/8-18UNEF, 1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UNF, 1 1/4-10UNS, 1 3/8-8UN   | 7/8-14, 1-11         | 1 1/8-26, 1 1/8-20, 1 3/8-16, 1 3/8-12, 1 3/8-8, 1 1/4-7 | -              |
| TM4SC 32W31-95-2U                       | 31     | M36x4.0                            | M32x0.5, M32x0.75, M33x1.0, M33x1.25, M33x1.5, M34x2.0, M34x2.5, M35x3.0, M36x3.5 | 1 1/2-6                 | 1 5/16-28UN, 1 3/8-24UNS, 1 5/16-20UN, 1 3/8-18UNEF, 1 3/8-16UN, 1 3/8-14UNS, 1 3/8-12UNF, 1 3/8-10UNS, 1 3/8-8UN | 1 1/8-11             | 1 3/8-26, 1 3/8-20, 1 3/8-16, 1 3/8-12, 1 1/8-8          | -              |
| TM3SC 32W36-95-3U<br>TM3SC 32W36-145-3U | 36.5   | M42x4.5, M48x5.0, M56x5.5, M64x6.0 | M39x1.5, M39x2.0, M40x2.5, M41x3.0, M42x3.5, M42x4.0                              | 1 3/4-5, 2-4.5, 2 1/2-4 | 1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UN, 1 1/8-10UNS, 1 1/8-8UN, 1 1/8-6UN                                            | 1 1/4-11             | 1 5/8-16, 1 5/8-12, 1 5/8-8, 2 1/4-6, 1 3/4-5            | -              |
| TM4SC 40W42-120-3U                      | 42     | M48x5.0, M56x5.5, M64x6.0          | M45x1.5, M45x2.0, M46x2.5, M48x3.0, M48x3.5, M48x4.0                              | 2-4.5, 2 1/2-4          | 1 3/4-16UN, 1 3/4-14UNS, 1 13/16-12UN, 1 13/16-8UN, 1 15/16-6UN                                                   | 1 1/2-11             | 1 7/8-16, 1 7/8-12, 1 7/8-8, 1 7/8-6, 2 1/4-6, 2-4.5     | -              |

\* Pour les plaquettes TR, utiliser le programme à commandes numériques (D2+0.25mm)

## Porte-outils Standard TMSD - Queue Cylindrique Carbure (Type U)



### Queue cylindrique carbure pour plaquettes type U

| Taille de plaquette | Référence            | Dimensions (mm) |          |     |          | Nombre de Dents |        | Pièces détachées |                              |
|---------------------|----------------------|-----------------|----------|-----|----------|-----------------|--------|------------------|------------------------------|
| IC                  |                      | L               | L1 (max) | L2  | L3 (min) | D               | D2     | Z                |                              |
| 1/4"U               | CTM1SC 08C15-40-2U   | 109             | 40       | 5.4 | 18       | 8               | 14.75* | 1                | Vis de plaquette<br>Clé torx |
|                     | CTM1SC 11C15-60-2U   | 120             | 60       | 5.4 | 25       | 10.7            | 14.75* | 1                |                              |
|                     | CTM2SC 14C17-65-2U** | 132             | 65       | 3.4 | 30       | 14              | 17.2** | 2                |                              |
|                     | CTM2SC 14C21-65-2U   | 136             | 65       | 5.4 | 30       | 14              | 20.65* | 2                |                              |
|                     | CTM2SC 16C21-80-2U   | 135             | 80       | 5.4 | 34       | 16              | 20.65* | 2                |                              |
|                     | CTM3SC 20C26-110-2U  | 165             | 110      | 5.4 | 40       | 20              | 26.0*  | 3                |                              |
|                     | CTM4SC 25C31-135-2U  | 186             | 135      | 5.4 | 46       | 25              | 31.0*  | 4                |                              |

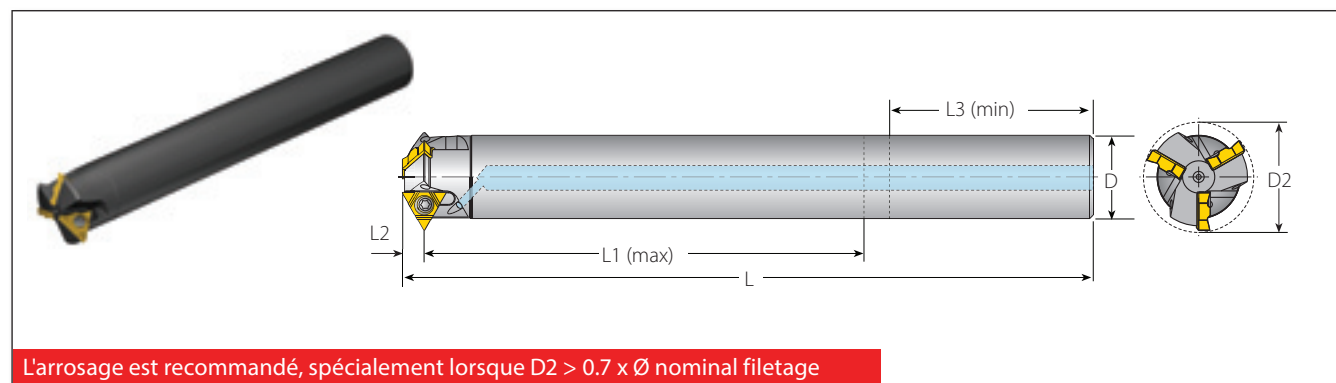
### Applications pour porte-outils de type U (Queue cylindrique carbure)

| Porte-outils        |        | Ø Mini Filetage                    |                                                                                   |                                      |                                                                                                                 |              |                                                                                         |                                                        |
|---------------------|--------|------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|
|                     | D2     | ISO standard                       | ISO Fin                                                                           | UNC                                  | UN/UNF/UNEF/UNS                                                                                                 | BSP (G)      | Partiel 55°                                                                             | Trapèze                                                |
| CTM1SC 08C15-40-2U  | 14.75* | M18x2.5, M24x3.0, M30x3.5, M36x4.0 | M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0                            | 3/4-10, 7/8-9, 1-8, 1 1/8-7, 1 3/8-6 | 5/8-32UN, 5/8-28UN, 5/8-27UNS, 1 1/16-24UNEF, 1 1/16-20UN, 1 1/16-16UN, 3/4-14UNS, 1 1/16-12UN                  | 1/2-14, 1-11 | 1 1/16-26, 1 1/16-20, 1 1/16-16, 1 1/16-14, 3/4-12, 7/8-11, 7/8-10, 7/8-9, 1-8, 1 1/8-7 | TR22x3, TR24x3, TR20x4, TR22x5, TR24x5, TR26x5, TR28x5 |
| CTM1SC 11C15-60-2U  | 14.75* | M18x2.5, M24x3.0                   | M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0                            | 3/4-10, 7/8-9, 1-8                   | 5/8-32UN, 5/8-28UN, 5/8-27UNS, 1 1/16-24UNEF, 1 1/16-20UN, 1 1/16-16UN, 3/4-14UNS, 1 1/16-12UN                  | 1/2-14, 1-11 | 1 1/16-26, 1 1/16-20, 1 1/16-16, 1 1/16-14, 3/4-12, 7/8-11, 7/8-10, 7/8-9               | TR22x3, TR24x3                                         |
| CTM2SC 14C17-65-2U  | 17.2** | M20x2.5, M22x2.5                   | M21x2.0                                                                           | 7/8-9                                | 7/8-10UNS; 1 3/16-12UN                                                                                          | -            | -                                                                                       | -                                                      |
| CTM2SC 14C21-65-2U  | 20.65* | M24x3.0, M30x3.5, M36x4.0          | M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0                            | 1-8, 1 1/8-7, 1 3/8-6                | 7/8-32UN, 7/8-28UN, 7/8-27UNS, 7/8-24UNS, 7/8-20UNEF, 1-18UNS, 1 1/16-16UN, 1-14UNS, 1 1/16-12UN, 1-10UNS       | 3/4-14, 1-11 | 1-26, 1-20, 1-16, 1-12, 1-10, 1 1/8-9, 1-8, 1 1/8-7                                     | (TR26-TR60)x3, TR28x4, (TR65-TR110)x4, TR28x5          |
| CTM2SC 16C21-80-2U  | 20.65* | M24x3.0, M30x3.5                   | M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0                            | 1-8, 1 1/8-7, 1 3/8-6                | 7/8-32UN, 7/8-28UN, 7/8-27UNS, 7/8-24UNS, 7/8-20UNEF, 1-18UNS, 1 1/16-16UN, 1-14UNS, 1 1/16-12UN, 1-10UNS       | 3/4-14, 1-11 | 1-26, 1-20, 1-16, 1-12, 1-10, 1 1/8-9, 1-8, 1 1/8-7                                     | (TR26-TR60)x3                                          |
| CTM3SC 20C26-110-2U | 26     | M30x3.5, M36x4.0                   | M27x0.5, M27x0.75, M28x1.0, M28x1.25, M28x1.5, M29x2.0, M30x2.5, M30x3.0          | 1 1/4-7, 1 3/8-6                     | 1 1/8-28UN, 1 1/8-24UNS, 1 1/8-20UN, 1 1/8-18UNEF, 1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UNF, 1 1/8-10UNS, 1 1/8-8UN | 7/8-14, 1-11 | 1 1/8-26, 1 1/8-20, 1 3/16-16, 1 3/16-12, 1 3/16-8, 1 1/4-7                             | (TR40-TR60)x3 (TR65-TR110)x4                           |
| CTM4SC 25C31-135-2U | 31     | M36x4.0                            | M32x0.5, M32x0.75, M33x1.0, M33x1.25, M33x1.5, M34x2.0, M34x2.5, M35x3.0, M36x3.5 | 1 1/2-6                              | 1 1/2-28UN, 1 1/2-24UNS, 1 1/2-20UN, 1 1/2-18UNEF, 1 1/2-16UN, 1 1/2-14UNS, 1 1/2-12UNF, 1 1/2-10UNS, 1 1/2-8UN | 1 1/8-11     | 1 1/2-26, 1 1/2-20, 1 3/8-16, 1 3/8-12, 1 1/2-8                                         | (TR50-TR60)x3 (TR65-TR110)x4                           |

\* Pour plaquettes TR utiliser pour le programme CN (D2+0.25mm)

\*\* A n'utiliser qu'avec les plaquettes 2UIDD60TM... ou 2UIDM60TM...  
Pour les plaquettes 2UIDD60TM... utiliser pour le programme CN (D2+0.7mm)

## Porte-outils Standard TMSD - Queue Cylindrique Acier (Type U)

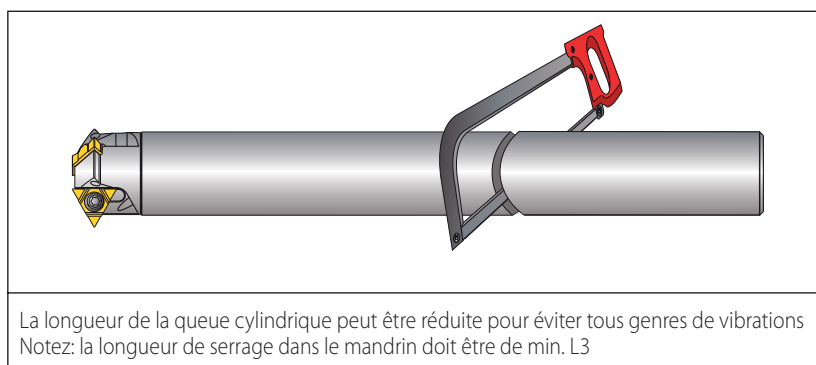


### Queue Cylindrique Acier pour plaquettes de type U

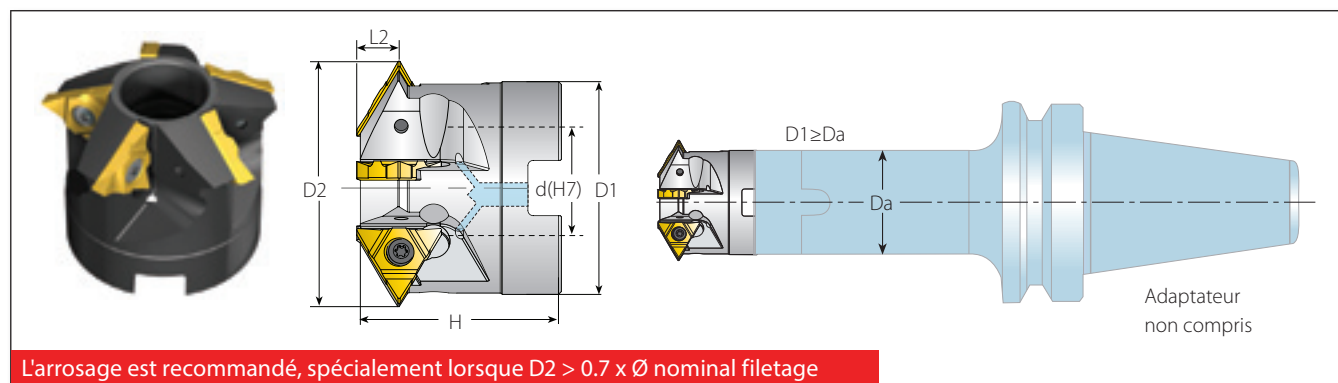
| Queue Cylindrique Acier pour plaquettes de type U |                                                                                                      |           |          |                 |          |    |      |                 | Pièces détachées                                                                    |                                                                                     |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------|----------|-----------------|----------|----|------|-----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Taille de plaquette                               |                                                                                                      | Référence |          | Dimensions (mm) |          |    |      | Nombre de Dents |  |  |
| IC                                                |                                                                                                      | L         | L1 (max) | L2              | L3 (min) | D  | D2   | Z               | Vis de plaquette                                                                    | Clé torx                                                                            |
| 1/4"U                                             | TM2SC 18C23-86-2U                                                                                    | 166       | 86       | 5.4             | 40       | 18 | 23.3 | 2               | SN2T                                                                                | HK2T                                                                                |
|                                                   | TM3SC 20C26-105-2U                                                                                   | 186       | 105      |                 | 40       | 20 | 26   | 3               |                                                                                     |                                                                                     |
|                                                   | TM4SC 25C31-115-2U                                                                                   | 196       | 115      |                 | 46       | 25 | 31   | 4               |                                                                                     |                                                                                     |
| 3/8"U                                             |  TM3SC 25C36-125-3U | 193       | 125      | 8.0             | 46       | 25 | 36.5 | 3               | SA3T                                                                                | HK3T                                                                                |
|                                                   | TM3SC 28C36-144-3U                                                                                   | 222       | 144      |                 | 60       | 28 | 36.5 | 3               |                                                                                     |                                                                                     |

### Applications pour porte-outils de type U (Queue Cylindrique Acier)

| Porte-outils                             |      | Ø mini du filetage                   |                                                                                   |                         |                                                                                                                 |              |                                                             |
|------------------------------------------|------|--------------------------------------|-----------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------|
|                                          | D2   | ISO Standard                         | ISO Fin                                                                           | UNC                     | UN/UNF/UNEF/UNS                                                                                                 | BSP(G)       | Partiel 55°                                                 |
| TM2SC 18C23-86-2U                        | 23.3 | M27x3.0, M30x3.5, M36x4.0            | M24x0.5, M25x0.75, M25x1.0, M25x1.25, M26x1.5, M26x2.0, M27x2.5                   | 1 1/8-7                 | 1-32UN, 1-28UN, 1-27UN, 1-24UNS, 1-20UNEF, 1-18UNS, 1-16UN, 1-14UNS, 1 1/16-12UN, 1 1/8-10UNS, 1 1/8-8UN        | 3/4-14, 1-11 | 1-26, 1-20, 1 1/8-16, 1 1/8-12, 1 1/8-9, 1 1/8-7            |
| TM3SC 20C26-105-2U                       | 26   | M30x3.5, M36x4.0                     | M27x0.5, M27x0.75, M28x1.0, M28x1.25, M28x1.5, M29x2.0, M30x2.5, M30x3.0          | 1 1/4-7, 1 3/8-6        | 1 1/8-28UN, 1 1/8-24UNS, 1 1/8-20UN, 1 1/8-18UNEF, 1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UNF, 1 3/8-10UNS, 1 1/8-8UN | 7/8-14, 1-11 | 1 1/8-26, 1 1/8-20, 1 3/16-16, 1 3/16-12, 1 3/16-8, 1 1/4-7 |
| TM4SC 25C31-115-2U                       | 31   | M36x4.0                              | M32x0.5, M32x0.75, M33x1.0, M33x1.25, M33x1.5, M34x2.0, M34x2.5, M35x3.0, M36x3.5 | 1 1/2-6                 | 1 1/8-28UN, 1 1/8-24UNS, 1 1/2-20UN, 1 1/2-18UNEF, 1 3/8-16UN, 1 3/8-14UNS, 1 3/8-12UNF, 1 3/8-10UNS, 1 1/8-8UN | 1 1/8-11     | 1 3/16-26, 1 3/16-20, 1 3/8-16, 1 3/8-12, 1 1/8-8           |
| TM3SC 25C36-125-3U<br>TM3SC 28C36-144-3U | 36.5 | M42.5x4.5, M48x5.0, M56x5.5, M64x6.0 | M39x1.5, M40x2.5, M41x3.0, M42x3.5, M42x4.0                                       | 1 3/4-5, 2-4.5, 2 1/2-4 | 1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UN, 1 1/8-10UNS, 1 1/8-8UN, 1 1/8-6UN                                          | 1 1/4-11     | 1 3/8-16, 1 3/8-12, 1 3/8-8, 1 3/8-6, 1 3/4-5               |



## TMSD - Tourteau (Type U)



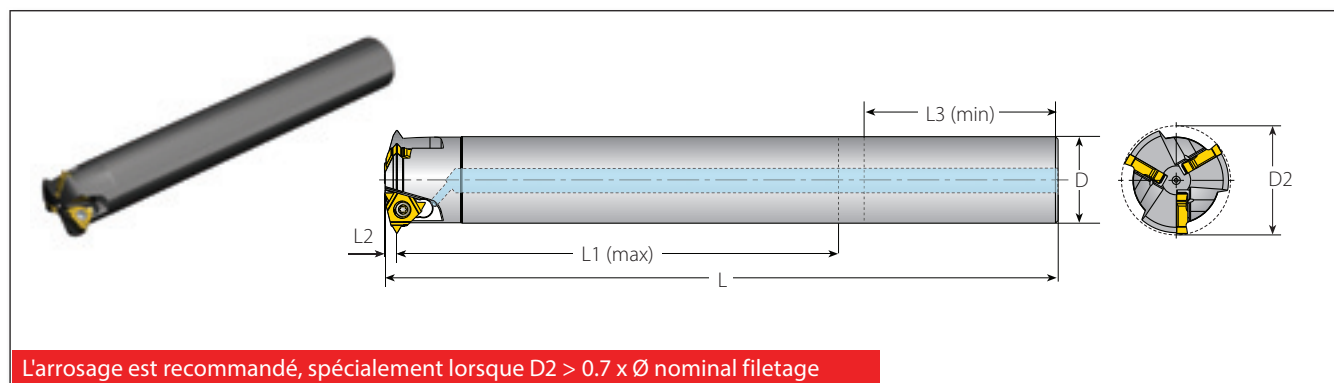
### Tourteau pour Plaquettes de Type U

| Tourteau pour Plaquettes de Type U |                 |           |    |                 |    |      |                 | Pièces détachées                                                                   |                                                                                     |                                                                                     |                                                                                     |
|------------------------------------|-----------------|-----------|----|-----------------|----|------|-----------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Taille plaquette                   |                 | Référence |    | Dimensions (mm) |    |      | Nombre de Dents |  |  |  |  |
| IC                                 |                 | D1        | D2 | d(H7)           | H  | L2   | Z               | Vis plaquette                                                                      | Clé torx                                                                            | Vis fraise à fileter                                                                | Tournevis de porte-outils                                                           |
| 3/8"U                              | TM4SC D42-16-3U | 34        | 42 | 16              | 40 | 8.0  | 4               | SN3T                                                                               | HK3T                                                                                | SA5T-C5 (M8x1.25x28)                                                                | TK5T<br>-<br>-                                                                      |
|                                    | TM5SC D48-22-3U | 40        | 48 | 22              | 40 | 8.0  | 5               |                                                                                    |                                                                                     | M10x1.50x35                                                                         |                                                                                     |
|                                    | TM6SC D56-22-3U | 48        | 56 | 22              | 40 | 8.0  | 6               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| 1/2"U                              | TM6SC D88-27-4U | 76        | 88 | 27              | 50 | 10.8 | 6               | SA4T                                                                               | HK4T                                                                                | M12x1.75x40                                                                         | -                                                                                   |
|                                    | TM7SC D98-32-4U | 85        | 98 | 32              | 55 | 10.8 | 7               |                                                                                    |                                                                                     | M16x2.00x40                                                                         |                                                                                     |

### Applications Pour Tourteau De Type U

| Porte-outils    |    | Ø Mini Filetage            |                                                      |                  |                                                     |         |                                             |
|-----------------|----|----------------------------|------------------------------------------------------|------------------|-----------------------------------------------------|---------|---------------------------------------------|
|                 | D2 | ISO Standard               | ISO Fin                                              | UNC              | UN/UNF/UNEF/UNS                                     | BSP(G)  | Partiel 55°                                 |
| TM4SC D42-16-3U | 42 | M48x5.0, M56x5.5, M64x6.0, | M45x1.5, M45x2.0, M46x2.5, M48x3.0, M48x3.5, M48x4.0 | 2-4.5, 2½ - 4    | 1¼-16UN, 1¼-14UNS, 1½-12UN, 1½-8UN, 1½-6UN          | 1½ - 11 | 1½-16, 1½-12, 1½-8, 1½-6, 2-4.5             |
| TM5SC D48-22-3U | 48 | M56x5.5, M64x6.0           | M52x1.5, M52x2.0, M52x2.5, M52x3.0, M55x4.0          | 2¼ - 4.5, 2½ - 4 | 2-16UN, 2-14UN, 2-12UN, 2¼-10UNS, 2½-8UN, 2½-6UN    | 1¾ - 11 | 2-16, 2¼-12, 2¼-8, 2¼-6, 3-5, 3½-4.5, 2¼-4  |
| TM6SC D56-22-3U | 56 | M64x6.0                    | M60x1.5, M60x2.0, M60x2.5, M60x3.0, M64x4.0          | 2½ - 4           | 2½-16UN, 2½-14UN, 2½-12UN, 2½-10UNS, 2½-8UN, 2½-6UN | 2 - 11  | 2½-16, 2½-12, 2½-8, 2½-6, 3-5, 3½-4.5, 4¼-4 |
| TM6SC D88-27-4U | 88 | -                          | M95x6.0, M125x8                                      | 4- 4             | 4¼-4UN                                              | 3½ - 11 | 4-3, 4¼-4                                   |
| TM7SC D98-32-4U | 98 | -                          | M105x6.0, M125x8                                     | -                | 4¼-4UN                                              | 4 - 11  | 4¼-4                                        |

## Porte-outils Standard TMSD - Queue Cyllindrique Acier (Type A)

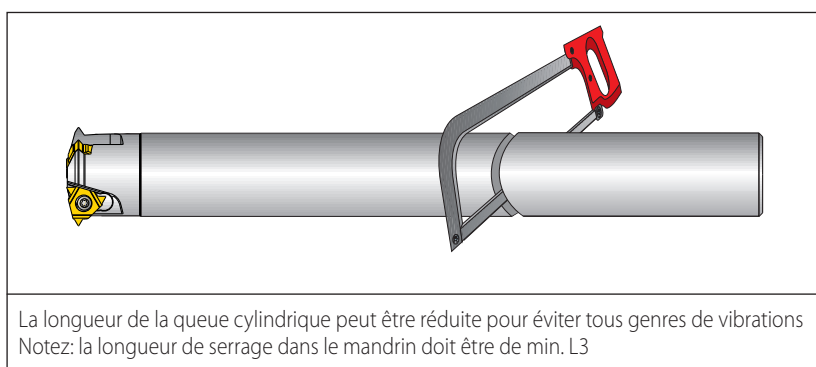


### Queue Cyllindrique Acier pour Plaquettes de Type A

| Taille<br>plaquette | Référence          | Dimensions (mm) |          |     |          |    |      |   | Pièces détachées                                                                    |                                                                                     |
|---------------------|--------------------|-----------------|----------|-----|----------|----|------|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                     |                    | L               | L1 (max) | L2  | L3 (min) | D  | D2   | Z |  |  |
| 1/4"A               | TM3SC 20C26-105-2A | 184             | 105      | 3.0 | 40       | 20 | 26   | 3 | SN2T                                                                                | HK2T                                                                                |
| 3/8"A               | TM3SC 28C35-144-3A | 218             | 144      | 4.0 | 46       | 28 | 35.3 | 3 | SA3T                                                                                | HK3T                                                                                |

### Applications pour porte-outils de Type A (Queue Cyllindrique Acier)

| Porte-outils       | Ø Mini Filetage |              |                                    |     |                                                               |        |
|--------------------|-----------------|--------------|------------------------------------|-----|---------------------------------------------------------------|--------|
|                    | D2              | ISO Standard | ISO Fin                            | UNC | UN/UNF/UNEF/UNS                                               | BSP(G) |
| TM3SC 20C26-105-2A | 26              | -            | M28x1.5, M29x2.0, M30x2.5, M30x3.0 | -   | 1 1/8-16UN, 1 1/8-14UNS, 1 3/16-12UN, 1 1/4-10UNS, 1 3/16-8UN | -      |
| TM3SC 28C35-144-3A | 35.3            | -            | M38x2.0, M39x2.5, M39x3.0, M40x4.0 | -   | 1 1/16-12UN, 1 1/16-10UNS, 1 1/8-8UN, 1 1/8-6UN               | -      |



## Nuances, vitesses de coupe Vc [m/min] et avances f [mm/dent] recommandées

| Groupe de Matière                                 | Vardex No. | Accumulation                                         |                                                 | Dureté Brinell HB | Vc [m/min] |         | Avances* f [mm/dent] par Ø de Coupe (D2) |           |           |
|---------------------------------------------------|------------|------------------------------------------------------|-------------------------------------------------|-------------------|------------|---------|------------------------------------------|-----------|-----------|
|                                                   |            |                                                      |                                                 |                   | VBX        | VTX     | 13-23                                    | 24-42     | Torteaux  |
| <b>P</b><br>Acier                                 | 1          | Acier non allié                                      | Carbone faible (C= 0.1-0.25 %)                  | 125               | 100-210    | 90-180  | 0.20-0.32                                | 0.30-0.50 | 0.30-0.75 |
|                                                   | 2          |                                                      | Carbone moyen (C=0.25-0.55%)                    | 150               | 100-180    | 90-170  | 0.20-0.32                                | 0.30-0.50 | 0.30-0.75 |
|                                                   | 3          |                                                      | Carbone haut (C=0.55-0.85%)                     | 170               | 100-170    | 90-160  | 0.15-0.23                                | 0.25-0.35 | 0.25-0.52 |
|                                                   | 4          | Acier faiblement allié (constituants d'alliage ≤ 5%) | Non traité                                      | 180               | 60-90      | 90-155  | 0.17-0.28                                | 0.28-0.45 | 0.28-0.67 |
|                                                   | 5          |                                                      | Traité                                          | 275               | 80-150     | 80-160  | 0.15-0.28                                | 0.25-0.45 | 0.25-0.67 |
|                                                   | 6          |                                                      | Traité                                          | 350               | 70-140     | 70-150  | 0.15-0.25                                | 0.25-0.40 | 0.25-0.60 |
|                                                   | 7          | Acier hautement allié (constituants d'alliage > 5%)  | Revenu / Malléable                              | 200               | 60-130     | 70-115  | 0.15-0.22                                | 0.20-0.30 | 0.20-0.45 |
|                                                   | 8          |                                                      | Traité                                          | 325               | 70-110     | 60-100  | 0.13-0.21                                | 0.18-0.30 | 0.18-0.45 |
|                                                   | 9          | Acier fondu                                          | Faiblement allié (constituants d'alliages < 5%) | 200               | 100-170    | 100-170 | 0.15-0.22                                | 0.20-0.30 | 0.20-0.45 |
|                                                   | 10         |                                                      | Haut alliage (constituants d'alliage > 5%)      | 225               | 70-120     | 70-130  | 0.12-0.22                                | 0.17-0.30 | 0.17-0.45 |
| <b>M</b><br>Inoxydable Acier                      | 11         | Acier inoxydable ferritique                          | Non traité                                      | 200               | 100-170    | 120-180 | 0.15-0.22                                | 0.22-0.34 | 0.22-0.50 |
|                                                   | 12         |                                                      | Traité                                          | 330               | 100-170    | 120-180 | 0.16-0.23                                | 0.21-0.32 | 0.21-0.48 |
|                                                   | 13         | Acier inoxydable Austénitique                        | Austénitique                                    | 180               | 70-140     | 100-140 | 0.15-0.25                                | 0.25-0.40 | 0.25-0.60 |
|                                                   | 14         |                                                      | Super austénitique                              | 200               | 70-140     | 100-140 | 0.12-0.20                                | 0.17-0.26 | 0.17-0.39 |
|                                                   | 15         | Acier inoxydable Fondu ferritique                    | Non traité                                      | 200               | 70-140     | 100-140 | 0.16-0.24                                | 0.25-0.37 | 0.25-0.55 |
|                                                   | 16         |                                                      | Traité                                          | 330               | 70-140     | 100-140 | 0.12-0.20                                | 0.17-0.26 | 0.17-0.39 |
|                                                   | 17         | Acier inoxydable fondu austénitique                  | Austénitique                                    | 200               | 70-120     | 100-120 | 0.15-0.22                                | 0.20-0.30 | 0.20-0.45 |
|                                                   | 18         |                                                      | Traité                                          | 330               | 70-120     | 100-120 | 0.12-0.20                                | 0.17-0.26 | 0.17-0.39 |
| <b>K</b><br>Fonte                                 | 28         | Malléable Fonte                                      | Férritique (copeaux courts)                     | 130               | 60-130     | 100-120 | 0.16-0.24                                | 0.25-0.37 | 0.25-0.55 |
|                                                   | 29         |                                                      | Perlitique (copeaux longs)                      | 230               | 60-120     | 80-100  | 0.15-0.22                                | 0.20-0.30 | 0.20-0.45 |
|                                                   | 30         | Fonte grise                                          | Acier à faible résistance                       | 180               | 60-130     | 80-100  | 0.15-0.22                                | 0.22-0.34 | 0.22-0.50 |
|                                                   | 31         |                                                      | Acier à haute résistance                        | 260               | 60-100     | 80-100  | 0.15-0.22                                | 0.20-0.30 | 0.20-0.45 |
|                                                   | 32         | Fonte nodulaire SG                                   | Férritique                                      | 160               | 60-125     | 80-100  | 0.10-0.20                                | 0.15-0.25 | 0.15-0.37 |
|                                                   | 33         |                                                      | Perlitique                                      | 260               | 50-90      | 60-90   | 0.15-0.22                                | 0.20-0.30 | 0.20-0.45 |
| <b>N<sub>(K)</sub></b><br>Métaux non ferreux      | 34         | Alliages aluminium forge                             | Non Vieilli                                     | 60                | 100-250    |         | 0.30-0.50                                | 0.60-1.00 | 0.60-1.50 |
|                                                   | 35         |                                                      | Vieilli                                         | 100               | 100-180    |         | 0.28-0.50                                | 0.50-0.90 | 0.50-1.20 |
|                                                   | 36         | Alliages aluminium                                   | Coulé                                           | 75                | 150-400    |         | 0.28-0.50                                | 0.50-0.90 | 0.50-1.20 |
|                                                   | 37         |                                                      | Fondu & vieilli                                 | 90                | 150-280    |         | 0.25-0.40                                | 0.40-0.60 | 0.40-0.90 |
|                                                   | 38         | Alliages aluminium                                   | Coulé Si 13-22%                                 | 130               | 80-150     |         | 0.28-0.50                                | 0.50-0.90 | 0.50-1.20 |
|                                                   | 39         | Cuivre & alliages cuivre                             | Laiton                                          | 90                | 120-210    | 100-200 | 0.30-0.50                                | 0.60-1.00 | 0.60-1.50 |
| <b>S<sub>(M)</sub></b><br>résistance à la chaleur | 40         |                                                      | Bronze & cuivre sans plomb                      | 100               | 120-210    | 100-200 | 0.28-0.50                                | 0.50-0.90 | 0.50-1.20 |
|                                                   | 19         | Alliages haute température alloys                    | Trempé (à base du fer)                          | 200               | 20-45      | 20-40   | 0.09-0.15                                | 0.12-0.22 | 0.12-0.33 |
|                                                   | 20         |                                                      | Vieilli (à base du fer)                         | 280               | 20-30      | 20-30   | 0.07-0.13                                | 0.10-0.20 | 0.10-0.30 |
|                                                   | 21         |                                                      | Trempé (à base de Nickel ou Cobalt)             | 250               | 15-20      | 15-20   | 0.08-0.15                                | 0.08-0.20 | 0.08-0.30 |
|                                                   | 22         |                                                      | Vieill (à base de Nickel ou Cobalt)             | 350               | 10-15      | 10-15   | 0.08-0.15                                | 0.08-0.20 | 0.08-0.30 |
|                                                   | 23         | Alliages Titanium                                    | Pur 99.5 Ti                                     | 400Rm             | 70-140     | 70-120  | 0.07-0.13                                | 0.10-0.20 | 0.10-0.30 |
| <b>H<sub>(K)</sub></b><br>Matières dures          | 24         |                                                      | Alliages α+β                                    | 1050Rm            | 20-50      | 20-50   | 0.07-0.13                                | 0.10-0.20 | 0.10-0.30 |
|                                                   | 25         | Acier extra dur                                      | Traité & trempé                                 | 45-50HRC          | 15-45      | 15-45   | 0.05-0.12                                | 0.05-0.18 | 0.05-0.27 |
|                                                   | 26         |                                                      |                                                 | 51-55HRC          | 15-40      | 15-40   | 0.05-0.12                                | 0.05-0.18 | 0.05-0.27 |

\* A l'utilisation du tourteau, l'avances peut être augmentée de moitié.

### Nuance

| Nuance     | Application:                                                                              |
|------------|-------------------------------------------------------------------------------------------|
| <b>VBX</b> | Nuance carbure TiCN<br>Nuance excellente pour les aciers & les utilisations polyvalentes. |
| <b>VTX</b> | Nuance carbure TiAlN<br>Excellent pour les inox                                           |

Type U



Type A



Type Mini-L







# TM Solid

Fraises à fileter en carbure monobloc

> Outils  
> Informations  
techniques



# FRAISES À FILETER CARBURE MONOBLOC

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## Fraises à fileter en carbure monobloc

| HC                                                                                                                                        |   | 10                                                                            | 082                                                                                                                                                                                                                                     | L15                                                                                                                           | - | I                      | 1.50           | ISO                                                                             | TM                                |                     | VTH                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---|------------------------|----------------|---------------------------------------------------------------------------------|-----------------------------------|---------------------|--------------------------------------------------------------|
| 1                                                                                                                                         | 2 | 3                                                                             | 4                                                                                                                                                                                                                                       | 5                                                                                                                             |   | 6                      | 7              | 8                                                                               | 9                                 | 10                  | 11                                                           |
|                                                                                                                                           |   |                                                                               |                                                                                                                                                                                                                                         |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| 1- Gamme                                                                                                                                  |   | 2- Nombre de Dents                                                            |                                                                                                                                                                                                                                         | 3 - Ø Queue                                                                                                                   |   |                        | 4 - Ø de Coupe |                                                                                 | 5 - Longueur de Coupe de l'outils |                     | 6 - Nuance Carbure                                           |
| HC - Helicool<br>HCR - Helicool R<br>HCC - Helicool C<br>H - Hélicoïdal<br>S - Goujures droites<br>D - Filetage en profondeur ou MilliPro |   | 1T - 1 Dent<br>3T - 3 Dents (MilliPro)<br>2L - 2 dents à gauche (MilliPro HD) |                                                                                                                                                                                                                                         | 03 - 3.0 mm<br>04 - 4.0<br>06 - 6.0<br>08 - 8.0<br>10 - 10.0<br>12 - 12.0<br>14 - 14.0<br>16 - 16.0<br>18 - 18.0<br>20 - 20.0 |   |                        | 0.7 - 19.9 mm  |                                                                                 | Jusqu'à 3Do                       |                     | E - Extérieur<br>I - Intérieur<br>EI - Extérieur + Intérieur |
|                                                                                                                                           |   |                                                                               |                                                                                                                                                                                                                                         |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| 7 - Pas                                                                                                                                   |   |                                                                               | 8 - Standard                                                                                                                                                                                                                            |                                                                                                                               |   | 9 - Système            |                | 10 - Nombre de Dents                                                            |                                   | 11 - Nuance carbure |                                                              |
| Profil Complet - Variété de pas                                                                                                           |   |                                                                               | ISO- ISO Métrique<br>UN- Américain UN<br>UNC - UN Standard<br>UNF - UN Fin<br>UNEF - UN Extra Fin<br>UNJ - UNJ<br>MJ - MJ<br>BSW - Whit. Standard<br>BSP - BSP<br>BSF - Whit. Fin<br>BSPT - BSPT<br>NPT - NPT<br>NPTF - NPTF<br>PG - PG |                                                                                                                               |   | TM<br>TML - Extra Long |                | 3 - 3 Dents<br>5 - 5 Dents<br>Denture droite lorsque 2 options sont disponibles |                                   | VTS<br>VTH          |                                                              |
| mm                                                                                                                                        |   | tpi                                                                           |                                                                                                                                                                                                                                         |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| 0.25-6.0                                                                                                                                  |   | 80-4.5                                                                        |                                                                                                                                                                                                                                         |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| Profil partiel - Variété de pas                                                                                                           |   |                                                                               |                                                                                                                                                                                                                                         |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| mm                                                                                                                                        |   | tpi                                                                           |                                                                                                                                                                                                                                         |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| TA                                                                                                                                        |   | 0.5-0.8                                                                       | 32-56                                                                                                                                                                                                                                   |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| TB                                                                                                                                        |   | 0.5-1.0                                                                       | 24-56                                                                                                                                                                                                                                   |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| TC                                                                                                                                        |   | 1.0-1.50                                                                      | 16-24                                                                                                                                                                                                                                   |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| TD                                                                                                                                        |   | 1.0-1.75                                                                      | 14-24                                                                                                                                                                                                                                   |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |
| TF                                                                                                                                        |   | 0.5-1.25                                                                      | 20-48                                                                                                                                                                                                                                   |                                                                                                                               |   |                        |                |                                                                                 |                                   |                     |                                                              |

## HTC - Fraise à percer fileter

| HTC                                                                                                                                                                                                                                                                     | M6          | 1.0        | 2D                    | VTN                |           |             |         |                       |                    |                               |          |            |            |            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|-----------------------|--------------------|-----------|-------------|---------|-----------------------|--------------------|-------------------------------|----------|------------|------------|------------|
| 1                                                                                                                                                                                                                                                                       | 2           | 3          | 4                     | 5                  |           |             |         |                       |                    |                               |          |            |            |            |
| <table> <tr> <th>1 - Gamme</th><th>2 - Ø Filet</th><th>3 - Pas</th><th>4 - Longueur Du Filet</th><th>5 - Nuance carbure</th></tr> <tr> <td>HTC - Fraise à percer fileter</td><td>M6 - M12</td><td>1 - 1.75mm</td><td>2D<br/>2.5D</td><td>VTN<br/>VTS</td></tr> </table> |             |            |                       |                    | 1 - Gamme | 2 - Ø Filet | 3 - Pas | 4 - Longueur Du Filet | 5 - Nuance carbure | HTC - Fraise à percer fileter | M6 - M12 | 1 - 1.75mm | 2D<br>2.5D | VTN<br>VTS |
| 1 - Gamme                                                                                                                                                                                                                                                               | 2 - Ø Filet | 3 - Pas    | 4 - Longueur Du Filet | 5 - Nuance carbure |           |             |         |                       |                    |                               |          |            |            |            |
| HTC - Fraise à percer fileter                                                                                                                                                                                                                                           | M6 - M12    | 1 - 1.75mm | 2D<br>2.5D            | VTN<br>VTS         |           |             |         |                       |                    |                               |          |            |            |            |

## Un outil pour chaque application de fraisage

### Filetages mini MilliPro

MilliPro &  
MilliPro EL  
A partir de M1.6x0.35  
(1-72UNF)

MilliPro HD  
Jusqu'à 62 HRC

MilliPro à Dents  
A partir de M1.0x0.25 (0-80UNF)



### Filets longs Filetages profonds

Profil complet

Profil partiel

Jusqu'à 3XDo



### Utilisation standard Goujures Droites

A partir de M4.5x0.75 (No.8-36UNF)



### Usinage lourd Helicool

A partir de M3x0.5 (No.10-32UNF)



### Arrosage radial Helicool-R (HCR)

A partir de M6x1.0



### Helicool & chanfrein Helicool-C (HCC)

A partir de M6x1.0



### Outil économique Helical

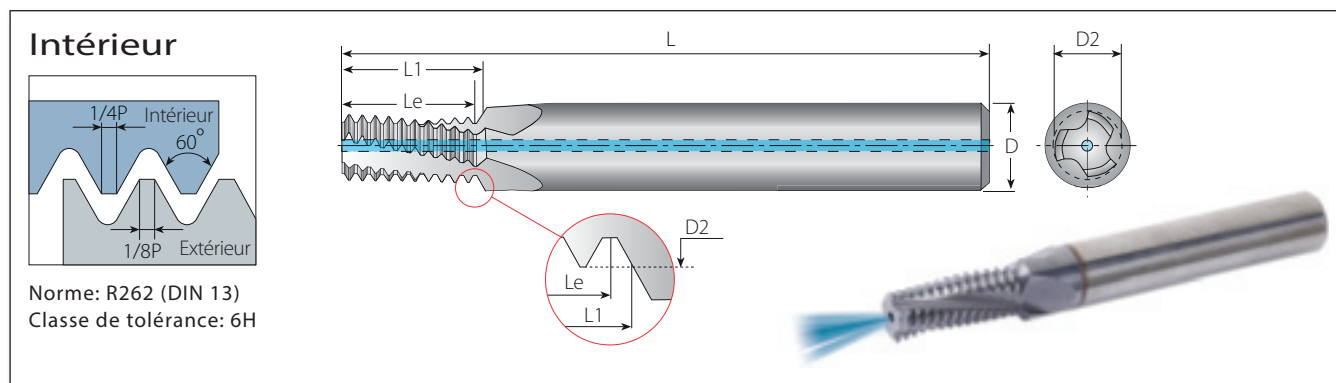
A partir de M3x0.5 (No.8-36UNF)



### Perçage, filetage & chanfrein HTC

A partir de M6x1.0





## Goujures Hélicoïdales avec Arrosage Central

1.5 x Do (L1 ≤ 1.5 x Ø Filet)

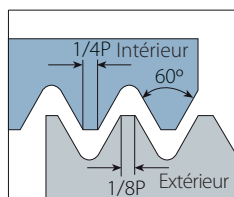
| Filet      | Pas          | Référence | Dimensions mm             | Nombre de Dents | Dents mini de perçage        |
|------------|--------------|-----------|---------------------------|-----------------|------------------------------|
| M Standard | M Fin        | Intérieur | D D2 L Le L1              | Z               | Zt mm                        |
| M3x0.5     | M3.5-M16x0.5 | 0.5       | HC04024L04-I0.50ISO TM... | 4               | 2.40 45 4.5 4.7 3 9 2.5      |
| M4x0.7     |              | 0.7       | HC04031L06-I0.70ISO TM... | 4               | 3.15 45 6.3 6.6 3 9 3.3      |
| M5x0.8     |              | 0.8       | HC04039L07-I0.80ISO TM... | 4               | 3.90 45 7.2 7.6 3 9 4.2      |
| M6x1.0     | M8-M40x1.0   | 1.0       | HC06048L09-I1.00ISO TM... | 6               | 4.80 57 9.0 9.5 3 9 5.0      |
| M8x1.25    |              | 1.25      | HC08065L13-I1.25ISO TM... | 8               | 6.50 61 12.5 13.1 3 10 6.8   |
| M10x1.5    | M12-M48x1.5  | 1.5       | HC10082L15-I1.50ISO TM... | 10              | 8.20 73 15.0 15.7 3 10 8.5   |
| M12x1.75   |              | 1.75      | HC10099L18-I1.75ISO TM... | 10              | 9.90 73 17.5 18.4 4 10 10.2  |
| M14x2.0    | M17-M80x2.0  | 2.0       | HC12116L21-I2.00ISO TM... | 12              | 11.60 73 20.0 21.0 4 10 12.0 |
| M16x2.0    | M17-M80x2.0  | 2.0       | HC14136L25-I2.00ISO TM... | 14              | 13.60 92 24.0 25.0 4 12 14.0 |

## Goujures Hélicoïdales avec Arrosage Central

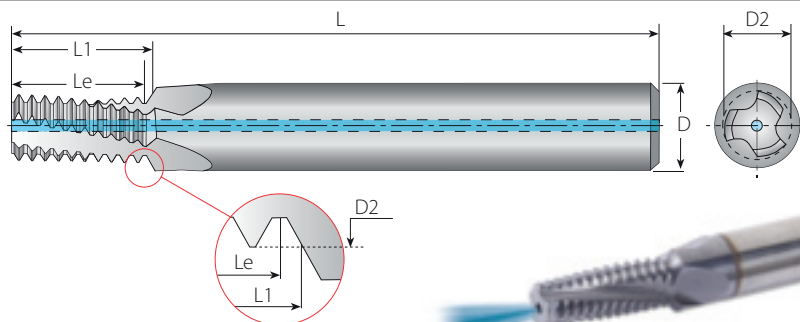
2 x Do (L1 ≤ 2 x Ø Filet)

| Filet      | Pas          | Référence | Dimensions mm             | Nombre de Dents | Dents mini de perçage         |
|------------|--------------|-----------|---------------------------|-----------------|-------------------------------|
| M Standard | M Fin        | Intérieur | D D2 L Le L1              | Z               | Zt mm                         |
| M3x0.5     | M3.5-M16x0.5 | 0.5       | HC04024L06-I0.50ISO TM... | 4               | 2.40 45 6.0 6.2 3 12 2.5      |
|            | M4x0.5       | 0.5       | HC04032L08-I0.50ISO TM... | 4               | 3.20 45 8.0 8.2 3 16 3.5      |
|            | M5x0.5       | 0.5       | HC06042L10-I0.50ISO TM... | 6               | 4.20 57 10.0 10.2 3 20 4.5    |
| M4x0.7     |              | 0.7       | HC04031L08-I0.70ISO TM... | 4               | 3.15 45 8.4 8.7 3 12 3.3      |
|            | M6x0.75      | 0.75      | HC06050L12-I0.75ISO TM... | 6               | 5.00 57 12.0 12.4 3 16 5.3    |
| M5x0.8     |              | 0.8       | HC04039L10-I0.80ISO TM... | 4               | 3.90 45 10.4 10.8 3 13 4.2    |
| M6x1.0     | M8-M40x1.0   | 1.0       | HC06048L12-I1.00ISO TM... | 6               | 4.80 57 12.0 12.5 3 12 5.0    |
|            | M8x1.0       | 1.0       | HC08067L16-I1.00ISO TM... | 8               | 6.70 61 16.0 16.5 3 16 7.0    |
|            | M10x1.0      | 1.0       | HC10087L20-I1.00ISO TM... | 10              | 8.70 73 20.0 20.5 3 20 9.0    |
|            | M12x1.0      | 1.0       | HC12107L24-I1.00ISO TM... | 12              | 10.70 73 24.0 24.5 4 24 11.0  |
| M8x1.25    |              | 1.25      | HC08065L16-I1.25ISO TM... | 8               | 6.50 61 16.2 16.9 3 13 6.8    |
|            | M10x1.25     | 1.25      | HC10085L20-I1.25ISO TM... | 10              | 8.50 73 20.0 20.6 3 16 8.8    |
| M10x1.5    | M12-M48x1.5  | 1.5       | HC10082L20-I1.50ISO TM... | 10              | 8.20 73 19.5 20.2 3 13 8.5    |
|            | M12x1.5      | 1.5       | HC10099L24-I1.50ISO TM... | 10              | 9.90 73 24.0 24.7 4 16 10.5   |
|            | M14x1.5      | 1.5       | HC12119L29-I1.50ISO TM... | 12              | 11.90 80 28.5 29.2 4 19 12.5  |
|            | M16x1.5      | 1.5       | HC14139L32-I1.50ISO TM... | 14              | 13.90 92 31.5 32.2 4 21 14.5  |
| M12x1.75   |              | 1.75      | HC10099L25-I1.75ISO TM... | 10              | 9.90 73 24.5 25.4 4 14 10.2   |
| M14x2.0    | M17-M80x2.0  | 2.0       | HC12116L29-I2.00ISO TM... | 12              | 11.60 80 28.0 29.0 4 14 12.0  |
| M16x2.0    | M17-M80x2.0  | 2.0       | HC14136L33-I2.00ISO TM... | 14              | 13.60 92 32.0 33.0 4 16 14.0  |
| M18x2.5    |              | 2.5       | HC16148L36-I2.50ISO TM... | 16              | 14.80 92 35.0 36.2 4 14 15.5  |
| M20x2.5    |              | 2.5       | HC18171L41-I2.50ISO TM... | 18              | 17.10 102 40.0 41.2 4 16 17.5 |
| M24x3.0    |              | 3.0       | HC20199L49-I3.00ISO TM... | 20              | 19.90 102 48.0 49.5 4 16 21.0 |

## Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2B



## Goujures Hélicoïdales avec Arrosage Central

1.5 x Do (L1 ≤ 1.5 x Ø Filet)

| Filet    |                |                    | Pas | Référence               | Dimensions mm |       |    |      | Nombre de Dents Dents mini de perçage |   |    |      |
|----------|----------------|--------------------|-----|-------------------------|---------------|-------|----|------|---------------------------------------|---|----|------|
| UNC      | UNF            | UNEF               | tpi | Intérieur               | D             | D2    | L  | Le   | L1                                    | Z | Zt | mm   |
| No.10-24 | 5/16", 3/8"x24 | 9/16"-11/16"x24    | 24  | HC04035L07-I24UNC TM... | 4             | 3.58  | 45 | 7.4  | 7.9                                   | 3 | 7  | 3.8  |
| No.12-24 | 5/16", 3/8"x24 | 9/16"-11/16"x24    | 24  | HC06041L08-I24UNC TM... | 6             | 4.15  | 57 | 8.5  | 9.0                                   | 3 | 8  | 4.5  |
| 1/4"x20  | 7/16", 1/2"x20 | 3/4"-1"x20         | 20  | HC06048L09-I20UNC TM... | 6             | 4.88  | 57 | 8.9  | 9.5                                   | 3 | 7  | 5.2  |
| 5/16"x18 | 9/16", 5/8"x18 | 11/16"-1 1/16" x18 | 18  | HC08061L11-I18UNC TM... | 8             | 6.15  | 61 | 11.3 | 12.0                                  | 3 | 8  | 6.5  |
| 3/8"x16  | 3/4"x16        |                    | 16  | HC08076L15-I16UNC TM... | 8             | 7.65  | 61 | 14.3 | 15.1                                  | 3 | 9  | 8.0  |
| 7/16"x14 | 7/8"x14        |                    | 14  | HC10090L17-I14UNC TM... | 10            | 9.00  | 73 | 16.3 | 17.2                                  | 3 | 9  | 9.3  |
| 1/2"x13  |                |                    | 13  | HC12104L20-I13UNC TM... | 12            | 10.35 | 73 | 19.5 | 20.5                                  | 4 | 10 | 10.8 |
| 9/16"x12 | 1"-1 1/2"x12   |                    | 12  | HC12118L22-I12UNC TM... | 12            | 11.80 | 73 | 21.2 | 22.2                                  | 4 | 10 | 12.3 |

## Goujures Hélicoïdales avec Arrosage Central

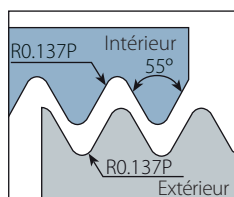
2 x Do (L1 ≤ 2 x Ø Filet)

| Filet    |                |                    | Pas | Référence                | Dimensions mm |       |     |      | Nombre de Dents Dents mini de perçage |   |    |      |
|----------|----------------|--------------------|-----|--------------------------|---------------|-------|-----|------|---------------------------------------|---|----|------|
| UNC      | UNF            | UNEF               | tpi | Intérieur                | D             | D2    | L   | Le   | L1                                    | Z | Zt | mm   |
| No.10-32 |                | No.12-3/8"x32      | 32  | HC04038L09-I32UNF TM...  | 4             | 3.80  | 45  | 9.5  | 9.9                                   | 3 | 12 | 4.0  |
|          |                | No.12-3/8"x32      | 32  | HC06044L11-I32UNEF TM... | 6             | 4.40  | 57  | 11.1 | 11.5                                  | 3 | 14 | 4.7  |
|          | No.12, 1/4"x28 | 7/16", 1/2"x28     | 28  | HC06043L11-I28UNF TM...  | 6             | 4.30  | 57  | 10.9 | 11.3                                  | 3 | 12 | 4.6  |
|          | 1/4"x28        | 7/16", 1/2"x28     | 28  | HC06052L13-I28UNF TM...  | 6             | 5.15  | 57  | 12.7 | 13.1                                  | 3 | 14 | 5.5  |
|          |                | 7/16", 1/2"x28     | 28  | HC10099L22-I28UNEF TM... | 10            | 9.90  | 73  | 21.8 | 22.2                                  | 3 | 24 | 10.2 |
| No.10-24 | 5/16", 3/8"x24 | 9/16"-11/16"x24    | 24  | HC04035L10-I24UNC TM...  | 4             | 3.58  | 45  | 9.5  | 10.0                                  | 3 | 9  | 3.8  |
| No.12-24 | 5/16", 3/8"x24 | 9/16"-11/16"x24    | 24  | HC06041L11-I24UNC TM...  | 6             | 4.15  | 57  | 10.6 | 11.1                                  | 3 | 10 | 4.5  |
|          | 5/16", 3/8"x24 | 9/16"-11/16"x24    | 24  | HC08066L16-I24UNF TM...  | 8             | 6.68  | 61  | 15.9 | 16.4                                  | 3 | 15 | 6.8  |
|          | 3/8"x24        | 9/16"-11/16"x24    | 24  | HC10082L19-I24UNF TM...  | 10            | 8.20  | 73  | 19.0 | 19.6                                  | 3 | 18 | 8.5  |
|          |                | 9/16"-11/16"x24    | 24  | HC14129L29-I24UNEF TM... | 14            | 12.90 | 92  | 28.6 | 29.1                                  | 4 | 27 | 13.2 |
| 1/4"x20  | 7/16", 1/2"x20 | 3/4"-1"x20         | 20  | HC06048L13-I20UNC TM...  | 6             | 4.88  | 57  | 12.7 | 13.3                                  | 3 | 10 | 5.2  |
|          | 7/16", 1/2"x20 | 3/4"-1"x20         | 20  | HC10096L22-I20UNF TM...  | 10            | 9.60  | 73  | 21.6 | 22.2                                  | 3 | 17 | 9.8  |
|          | 1/2"x20        | 3/4"-1"x20         | 20  | HC12111L26-I20UNF TM...  | 12            | 11.10 | 80  | 25.4 | 26.0                                  | 4 | 20 | 11.5 |
|          |                | 3/4"-1"x20         | 20  | HC18174L38-I20UNEF TM... | 18            | 17.40 | 102 | 38.1 | 38.7                                  | 4 | 30 | 17.8 |
| 5/16"x18 | 9/16", 5/8"x18 | 11/16"-1 1/16" x18 | 18  | HC08061L16-I18UNC TM...  | 8             | 6.15  | 61  | 15.5 | 16.2                                  | 3 | 11 | 6.5  |
|          | 9/16", 5/8"x18 | 11/16"-1 1/16" x18 | 18  | HC14125L28-I18UNF TM...  | 14            | 12.50 | 92  | 28.2 | 28.9                                  | 4 | 20 | 12.8 |
|          | 5/8"x18        | 11/16"-1 1/16" x18 | 18  | HC16141L31-I18UNF TM...  | 16            | 14.10 | 92  | 31.0 | 31.7                                  | 4 | 22 | 14.5 |
| 3/8"x16  | 3/4"x16        |                    | 16  | HC08076L19-I16UNC TM...  | 8             | 7.65  | 61  | 19.0 | 19.8                                  | 3 | 12 | 8.0  |
|          | 3/4"x16        |                    | 16  | HC18170L38-I16UNF TM...  | 18            | 17.00 | 102 | 38.1 | 38.8                                  | 4 | 24 | 17.5 |
| 7/16"x14 | 7/8"x14        |                    | 14  | HC10090L22-I14UNC TM...  | 10            | 9.00  | 73  | 21.8 | 22.7                                  | 3 | 12 | 9.3  |
|          | 7/8"x14        |                    | 14  | HC20199L44-I14UNF TM...  | 20            | 19.90 | 102 | 43.5 | 44.4                                  | 4 | 24 | 20.5 |
| 1/2"x13  |                |                    | 13  | HC12104L26-I13UNC TM...  | 12            | 10.35 | 80  | 25.4 | 26.4                                  | 4 | 13 | 10.8 |
| 9/16"x12 | 1"-1 1/2"x12   |                    | 12  | HC12118L28-I12UNC TM...  | 12            | 11.80 | 80  | 27.5 | 28.6                                  | 4 | 13 | 12.3 |
|          | 1"-1 1/2"x12   |                    | 12  | HC20199L51-I12UNF TM...  | 20            | 19.90 | 102 | 50.8 | 51.9                                  | 4 | 24 | 23.5 |
| 5/8"x11  |                |                    | 11  | HC14131L33-I11UNC TM...  | 14            | 13.10 | 92  | 32.3 | 33.5                                  | 4 | 14 | 13.5 |
| 3/4"x10  |                |                    | 10  | HC16159L39-I10UNC TM...  | 16            | 15.90 | 92  | 38.1 | 39.4                                  | 4 | 15 | 16.5 |
| 7/8"x9   |                |                    | 9   | HC20190L46-I9UNC TM...   | 20            | 19.00 | 102 | 45.2 | 46.6                                  | 4 | 16 | 19.5 |
| 1"x8     |                |                    | 8   | HC20199L52-I8UNC TM...   | 20            | 19.90 | 102 | 50.8 | 52.4                                  | 4 | 16 | 22.0 |

\* Ø d'alésage permettant le plus petit Ø

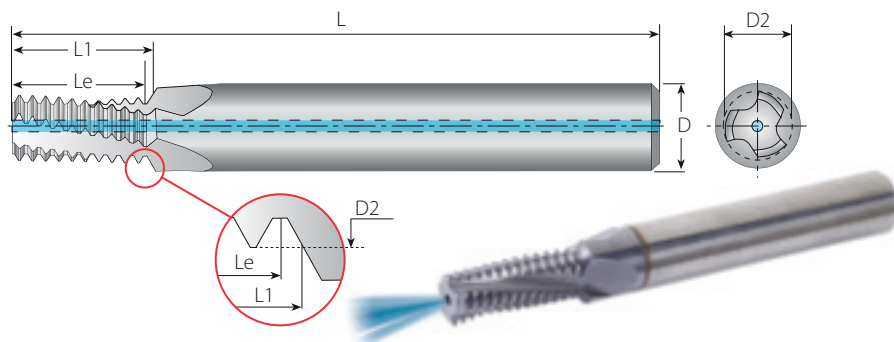
Longueur maximum du filet = L1 -  $\frac{\text{Pas}}{4}$

## Extérieur / Intérieur



Norme: B.S.84:1956,  
DIN 259, ISO228/1:1982

Classe de tolérance: Classe moyenne A



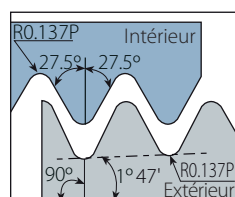
## Goujures Hélicoïdales avec Arrosage Central

2 x Do ( $L1 \leq 2 \times \varnothing \text{ Filet}$ )

| Filet     |                 | Pas | Référence                | Dimensions mm |       |     |      |      | No. de Dents | Dents | mini de perçage |
|-----------|-----------------|-----|--------------------------|---------------|-------|-----|------|------|--------------|-------|-----------------|
| BSW       | BSF             | tpi | Extérieur / Intérieur    | D             | D2    | L   | Le   | L1   | Z            | Zt    | mm              |
|           | 1/4"x26         | 26  | HC06050L13-EI26BSF TM... | 6             | 5.00  | 57  | 12.7 | 13.2 | 3            | 13    | 5.3             |
|           | 5/16"x22        | 22  | HC08063L16-EI22BSF TM... | 8             | 6.35  | 61  | 16.2 | 16.7 | 3            | 14    | 6.7             |
| 1/4"x20   | 3/8"x20         | 20  | HC06044L13-EI20BSW TM... | 6             | 4.45  | 57  | 12.7 | 13.3 | 3            | 10    | 5.0             |
|           | 3/8"x20         | 20  | HC08076L19-EI20BSF TM... | 8             | 7.65  | 61  | 19.0 | 19.7 | 3            | 15    | 8.2             |
| 5/16"x18  | 7/16"x18        | 18  | HC06058L16-EI18BSW TM... | 6             | 5.85  | 57  | 15.5 | 16.2 | 3            | 11    | 6.5             |
|           | 7/16"x18        | 18  | HC10092L23-EI18BSF TM... | 10            | 9.20  | 73  | 22.6 | 23.3 | 3            | 16    | 9.7             |
| 3/8"x16   | 1/2", 9/16"x16  | 16  | HC08072L19-EI16BSW TM... | 8             | 7.20  | 61  | 19.0 | 19.8 | 3            | 12    | 7.9             |
|           | 1/2", 9/16"x16  | 16  | HC12105L26-EI16BSF TM... | 12            | 10.50 | 80  | 25.4 | 26.2 | 4            | 16    | 11.1            |
|           | 9/16"x16        | 16  | HC14122L29-EI16BSF TM... | 14            | 12.15 | 92  | 28.6 | 29.4 | 4            | 18    | 12.6            |
| 7/16"x14  | 5/8", 11/16"x14 | 14  | HC10085L22-EI14BSW TM... | 10            | 8.50  | 73  | 21.8 | 22.7 | 3            | 12    | 9.2             |
|           | 5/8", 11/16"x14 | 14  | HC14134L31-EI14BSF TM... | 14            | 13.40 | 92  | 30.8 | 31.7 | 4            | 17    | 14.0            |
|           | 11/16"x14       | 14  | HC16150L35-EI14BSF TM... | 16            | 15.00 | 92  | 34.5 | 35.4 | 4            | 19    | 15.6            |
| 1/2"x12   | 3/4"x12         | 12  | HC10096L26-EI12BSW TM... | 10            | 9.65  | 73  | 25.4 | 26.5 | 3            | 12    | 10.5            |
| 9/16"x12  | 3/4"x12         | 12  | HC12113L28-EI12BSW TM... | 12            | 11.25 | 80  | 27.5 | 28.6 | 4            | 13    | 12.1            |
|           | 3/4"x12         | 12  | HC18162L39-EI12BSF TM... | 18            | 16.20 | 102 | 38.1 | 39.2 | 4            | 18    | 16.8            |
| 5/8"x11   | 7/8"x11         | 11  | HC14126L33-EI11BSW TM... | 14            | 12.60 | 92  | 32.3 | 33.5 | 4            | 14    | 13.4            |
| 11/16"x11 |                 | 11  | HC16142L35-EI11BSW TM... | 16            | 14.20 | 92  | 34.6 | 35.8 | 4            | 15    | 15.0            |

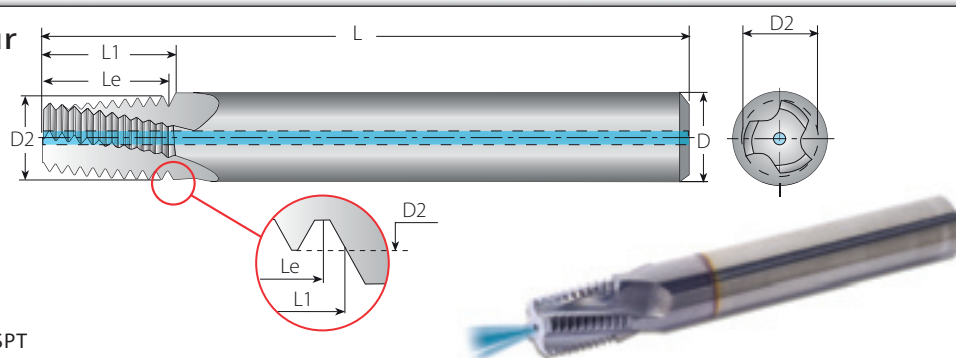
## BSPT

## Extérieur / Intérieur



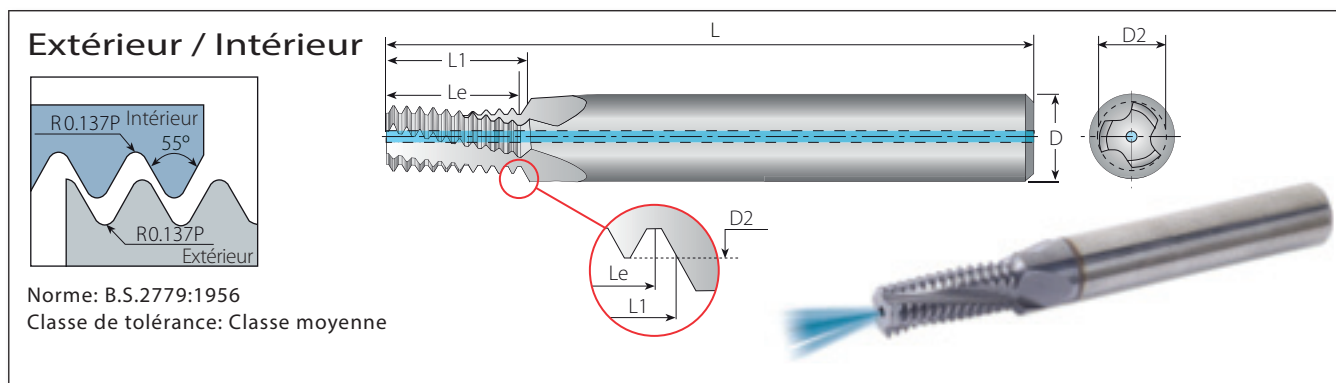
Norme: B.S.21:1985

Classe de tolérance: Standard BSPT



## Goujures Hélicoïdales avec Arrosage Central

| Filet                     | Pas | Référence                 | Dimensions mm |       |     |      |      | Nombre de Dents | Dents | mini de perçage |
|---------------------------|-----|---------------------------|---------------|-------|-----|------|------|-----------------|-------|-----------------|
| Standard                  | tpi | Extérieur / Intérieur     | D             | D2    | L   | Le   | L1   | Z               | Zt    | mm              |
| 1/16"x28                  | 28  | HC06059L10-EI28BSPT TM... | 6             | 5.90  | 57  | 10.0 | 10.2 | 3               | 11    | 6.7             |
| 1/8"x28                   | 28  | HC08076L10-EI28BSPT TM... | 8             | 7.65  | 61  | 10.0 | 10.2 | 3               | 11    | 8.7             |
| 1/4"x19                   | 19  | HC10099L15-EI19BSPT TM... | 10            | 9.90  | 73  | 14.7 | 15.4 | 3               | 11    | 11.8            |
| 3/8"x19                   | 19  | HC12111L15-EI19BSPT TM... | 12            | 11.15 | 73  | 14.7 | 15.4 | 4               | 11    | 15.2            |
| 1/2", 3/4"x14             | 14  | HC16142L22-EI14BSPT TM... | 16            | 14.25 | 92  | 21.8 | 22.7 | 4               | 12    | 19.0            |
| 1", 1 1/2", 2", 2 1/2"x11 | 11  | HC20196L28-EI11BSPT TM... | 20            | 19.60 | 102 | 27.7 | 28.9 | 4               | 12    | 30.7            |



### Goujures Hélicoïdales avec Arrosage Central

1.5 x Do ( $L1 \leq 1.5 \times \text{Ø Filet}$ )

| Filet          | Pas | Référence                | Dimensions mm |       |     |      |      | Nombre de Dents | Dents | mini de perçage |
|----------------|-----|--------------------------|---------------|-------|-----|------|------|-----------------|-------|-----------------|
| Standard       | tpi | Extérieur / Intérieur    | D             | D2    | L   | Le   | L1   | Z               | Zt    | mm              |
| 1/16", 1/8"x28 | 28  | HC08064L12-EI28BSP TM... | 8             | 6.40  | 61  | 11.8 | 12.2 | 3               | 13    | 6.7             |
| 1/8"x28        | 28  | HC10082L15-EI28BSP TM... | 10            | 8.20  | 73  | 14.5 | 15.0 | 3               | 16    | 8.7             |
| 1/4", 3/8"x19  | 19  | HC12110L20-EI19BSP TM... | 12            | 11.00 | 80  | 20.0 | 20.7 | 4               | 15    | 11.8            |
| 3/8"x19        | 19  | HC16145L26-EI19BSP TM... | 16            | 14.50 | 92  | 25.4 | 26.1 | 4               | 19    | 15.2            |
| 1"-4"x11       | 11  | HC20199L42-EI11BSP TM... | 20            | 19.90 | 102 | 41.6 | 42.7 | 4               | 18    | 30.7            |

### Goujures Hélicoïdales avec Arrosage Central

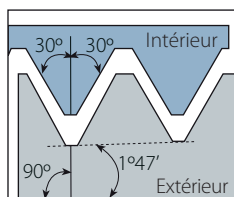
2 x Do ( $L1 \leq 2 \times \text{Ø Filet}$ )

| Filet          | Pas | Référence                | Dimensions mm |       |     |      |      | Nombre de Dents | Dents | mini de perçage |
|----------------|-----|--------------------------|---------------|-------|-----|------|------|-----------------|-------|-----------------|
| Standard       | tpi | Extérieur / Intérieur    | D             | D2    | L   | Le   | L1   | Z               | Zt    | mm              |
| 1/16", 1/8"x28 | 28  | HC08064L15-EI28BSP TM... | 8             | 6.40  | 61  | 15.4 | 15.9 | 3               | 17    | 6.7             |
| 1/8"x28        | 28  | HC10082L19-EI28BSP TM... | 10            | 8.20  | 73  | 19.0 | 19.5 | 3               | 21    | 8.7             |
| 1/4", 3/8"x19  | 19  | HC12110L27-EI19BSP TM... | 12            | 11.00 | 80  | 26.7 | 27.4 | 4               | 20    | 11.8            |
| 3/8"x19        | 19  | HC16145L34-EI19BSP TM... | 16            | 14.50 | 92  | 33.4 | 34.1 | 4               | 25    | 15.2            |
| 1/2"-7/8"x14   | 14  | HC18179L42-EI14BSP TM... | 18            | 17.90 | 102 | 41.7 | 42.6 | 4               | 23    | 19.0            |

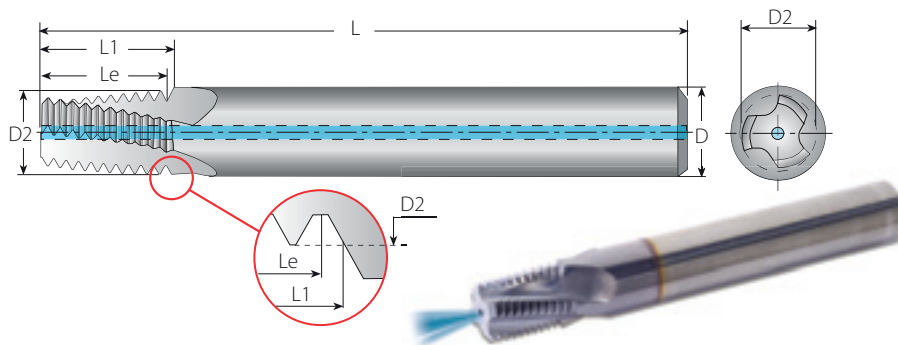
## NPT

## Helicool

### Extérieur / Intérieur



Norme: USAS B2.1:1968  
Classe de tolérance: Standard NPT



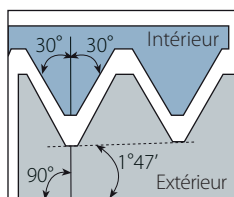
### Goujures Hélicoïdales avec Arrosage Central

| Filet                       | Pas  | Référence                  | Dimensions mm |       |     |      | Nombre de Dents | Dents | mini de perçage        |
|-----------------------------|------|----------------------------|---------------|-------|-----|------|-----------------|-------|------------------------|
| Standard                    | tpi  | Extérieur / Intérieur      | D             | D2    | L   | Le   | L1              | Zt    | mm                     |
| 1/16"x27                    | 27   | HC06059L09-EI27NPT TM...   | 6             | 5.90  | 57  | 9.4  | 9.9             | 3     | 6.3                    |
| 1/8"x27                     | 27   | HC08076L09-EI27NPT TM...   | 8             | 7.65  | 61  | 9.4  | 9.9             | 3     | 8.5                    |
| 1/4"x18                     | 18   | HC10099L14-EI18NPT TM...   | 10            | 9.90  | 73  | 14.1 | 14.8            | 3     | 11.1                   |
| 3/8"x18                     | 18   | HC12111L14-EI18NPT TM...   | 12            | 11.15 | 73  | 14.1 | 14.8            | 4     | 14.5                   |
| 1/2", 3/4"x14               | 14   | HC16142L19-EI14NPT TM...   | 16            | 14.25 | 92  | 18.1 | 19.0            | 4     | 17.7, 23.0             |
| 1", 1 1/4", 1 1/2", 2"x11.5 | 11.5 | HC20196L23-EI11.5NPT TM... | 20            | 19.60 | 102 | 22.1 | 23.2            | 4     | 29.0, 37.7, 44.0, 56.0 |
| 2 1/2", 3"x8                | 8    | HC20196L33-EI8NPT TM...    | 20            | 19.60 | 102 | 31.7 | 33.3            | 4     | 66.5, 82.1             |

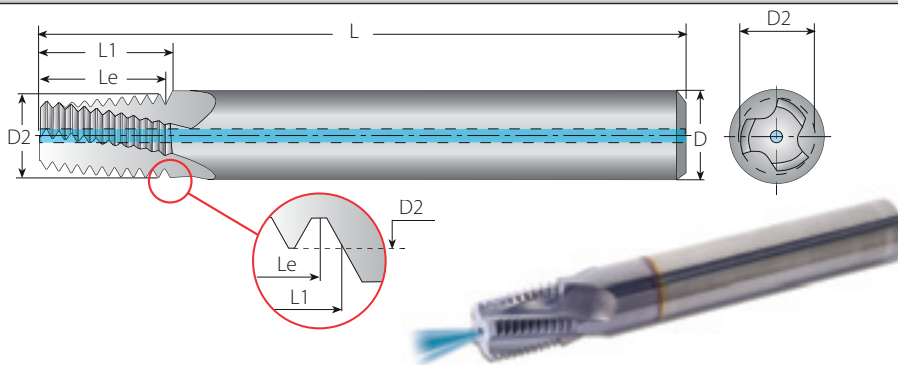
## NPTF

## Helicool

### Extérieur / Intérieur



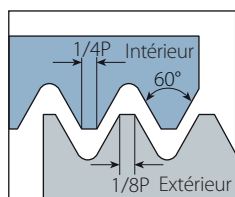
Norme: ANSI 1.20.3-1976  
Classe de tolérance: Standard NPTF



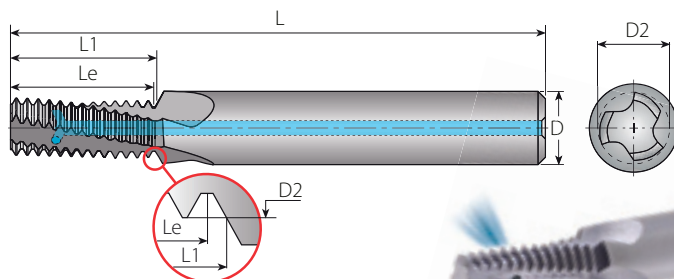
### Goujures Hélicoïdales avec Arrosage Central

| Filet                       | Pas  | Référence                   | Dimensions mm |       |     |      | Nombre de Dents | Dents | mini de perçage        |
|-----------------------------|------|-----------------------------|---------------|-------|-----|------|-----------------|-------|------------------------|
| Standard                    | tpi  | Extérieur / Intérieur       | D             | D2    | L   | Le   | L1              | Zt    | mm                     |
| 1/16"x27                    | 27   | HC06059L09-EI27NPTF TM...   | 6             | 5.90  | 57  | 9.4  | 9.9             | 3     | 6.3                    |
| 1/8"x27                     | 27   | HC08076L09-EI27NPTF TM...   | 8             | 7.65  | 61  | 9.4  | 9.9             | 3     | 8.4                    |
| 1/4"x18                     | 18   | HC10099L14-EI18NPTF TM...   | 10            | 9.90  | 73  | 14.1 | 14.8            | 3     | 11.1                   |
| 3/8"x18                     | 18   | HC12111L14-EI18NPTF TM...   | 12            | 11.15 | 73  | 14.1 | 14.8            | 4     | 14.7                   |
| 1/2", 3/4"x14               | 14   | HC16142L19-EI14NPTF TM...   | 16            | 14.25 | 92  | 18.1 | 19.0            | 4     | 17.9, 23.4             |
| 1", 1 1/4", 1 1/2", 2"x11.5 | 11.5 | HC20196L23-EI11.5NPTF TM... | 20            | 19.60 | 102 | 22.1 | 23.2            | 4     | 29.0, 37.7, 43.7, 55.6 |
| 2 1/2", 3"x8                | 8    | HC20196L33-EI8NPTF TM...    | 20            | 19.60 | 102 | 31.7 | 33.3            | 4     | 66.3, 82.1             |

## Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6H

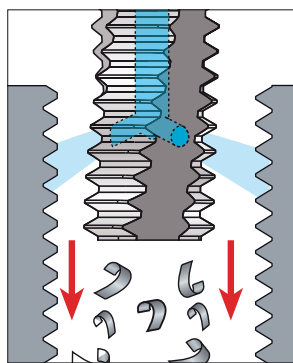


## HeliCool-R (HCR)

Goujures hélicoïdales avec arrosage radial

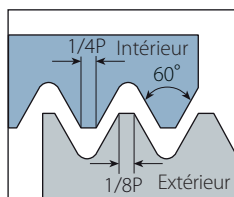
2 x Do (L1 ≤ 2 x Ø Filet)

| Filet      |             | Pas  | Référence                  | Dimensions [mm] |      |    |      | Dents | Dents | mini de perçage |      |
|------------|-------------|------|----------------------------|-----------------|------|----|------|-------|-------|-----------------|------|
| M Standard | M Fin       | mm   | Intérieur                  | D               | D2   | L  | Le   | L1    | Z     | Zt              | mm   |
| M6x1.0     | M8-M40x1.0  | 1.0  | HCR06048L12-I1.00ISO TM... | 6               | 4.8  | 57 | 12.0 | 12.5  | 3     | 12              | 5.0  |
|            | M10x1.0     | 1.0  | HCR10087L20-I1.00ISO TM... | 10              | 8.7  | 73 | 20.0 | 20.5  | 3     | 20              | 9.0  |
|            | M12x1.0     | 1.0  | HCR12107L24-I1.00ISO TM... | 12              | 10.7 | 73 | 24.0 | 24.5  | 4     | 24              | 11.0 |
| M8x1.25    |             | 1.25 | HCR08065L16-I1.25ISO TM... | 8               | 6.5  | 64 | 16.3 | 16.9  | 3     | 13              | 6.8  |
| M10x1.5    | M12-M48x1.5 | 1.5  | HCR10082L20-I1.50ISO TM... | 10              | 8.2  | 73 | 19.5 | 20.3  | 3     | 13              | 8.5  |
|            | M12x1.5     | 1.5  | HCR10099L24-I1.50ISO TM... | 10              | 9.9  | 73 | 24.0 | 24.8  | 4     | 16              | 10.5 |
|            | M14x1.5     | 1.5  | HCR12119L29-I1.50ISO TM... | 12              | 11.9 | 84 | 28.5 | 29.3  | 4     | 19              | 12.5 |
|            | M16x1.5     | 1.5  | HCR14139L32-I1.50ISO TM... | 14              | 13.9 | 84 | 31.5 | 32.3  | 4     | 21              | 14.5 |
| M12x1.75   |             | 1.75 | HCR10099L25-I1.75ISO TM... | 10              | 9.9  | 73 | 24.5 | 25.4  | 4     | 14              | 10.2 |

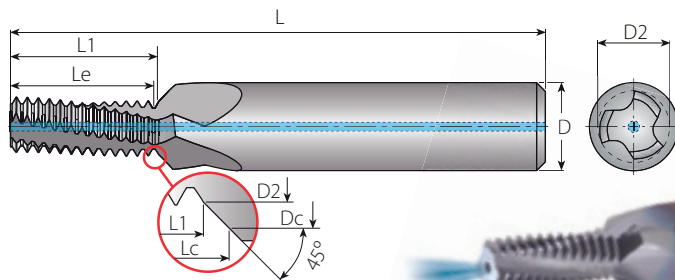


Helicool-R pour améliorer l'évacuation des copeaux grâce à l'arrosage radial

## Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6H



Dc = chanfrein minimum recommandé

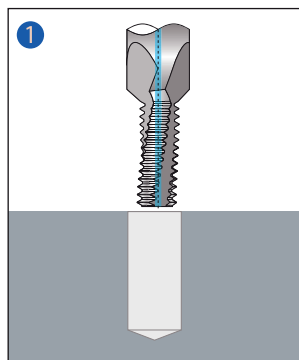
## HeliCool-C (HCC)

Goujures hélicoïdales avec arrosage axial et chanfrein

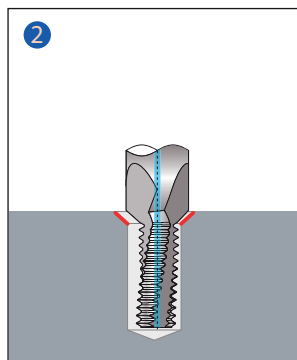
2 x Do ( $L1 \leq 2 \times \text{Ø Filet}$ )

| Filet      |             | Pas  | Référence                  | Dimensions [mm] |      |      |    |      |      |      |   | Nombre de Dents |                       |  |
|------------|-------------|------|----------------------------|-----------------|------|------|----|------|------|------|---|-----------------|-----------------------|--|
| M Standard | M Fin       | mm   | Intérieur                  | D               | D2   | Dc   | L  | Le   | L1   | Lc   | Z | Zt              | Dents mini de perçage |  |
| M6x1.0     | M8-M40x1.0  | 1.0  | HCC08048L12-I1.00ISO TM... | 8               | 4.8  | 6.3  | 61 | 12.0 | 12.5 | 13.3 | 3 | 12              | 5.0                   |  |
|            | M10x1.0     | 1.0  | HCC12087L20-I1.00ISO TM... | 12              | 8.7  | 10.3 | 73 | 20.0 | 20.5 | 21.3 | 3 | 20              | 9.0                   |  |
|            | M12x1.0     | 1.0  | HCC14107L24-I1.00ISO TM... | 14              | 10.7 | 12.3 | 80 | 24.0 | 24.5 | 25.3 | 4 | 24              | 11.0                  |  |
| M8x1.25    |             | 1.25 | HCC10065L16-I1.25ISO TM... | 10              | 6.5  | 8.3  | 73 | 16.3 | 16.9 | 17.8 | 3 | 13              | 6.8                   |  |
| M10x1.5    | M12-M48x1.5 | 1.5  | HCC12082L20-I1.50ISO TM... | 12              | 8.2  | 10.3 | 80 | 19.5 | 20.3 | 21.3 | 3 | 13              | 8.5                   |  |
|            | M12x1.5     | 1.5  | HCC14099L24-I1.50ISO TM... | 14              | 9.9  | 12.3 | 80 | 24.0 | 24.8 | 26.0 | 4 | 16              | 10.5                  |  |
|            | M14x1.5     | 1.5  | HCC16119L29-I1.50ISO TM... | 16              | 11.9 | 14.3 | 92 | 28.5 | 29.3 | 30.5 | 4 | 19              | 12.5                  |  |
|            | M16x1.5     | 1.5  | HCC18139L32-I1.50ISO TM... | 18              | 13.9 | 16.3 | 92 | 31.5 | 32.3 | 33.5 | 4 | 21              | 14.5                  |  |
| M12x1.75   |             | 1.75 | HCC14099L25-I1.75ISO TM... | 14              | 9.9  | 12.3 | 80 | 24.5 | 25.4 | 26.6 | 4 | 14              | 10.2                  |  |

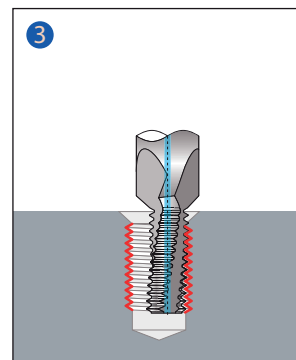
## Mode d'emploi de l'Helicool-C



Positionnement

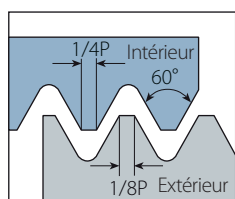


Chanfreinage

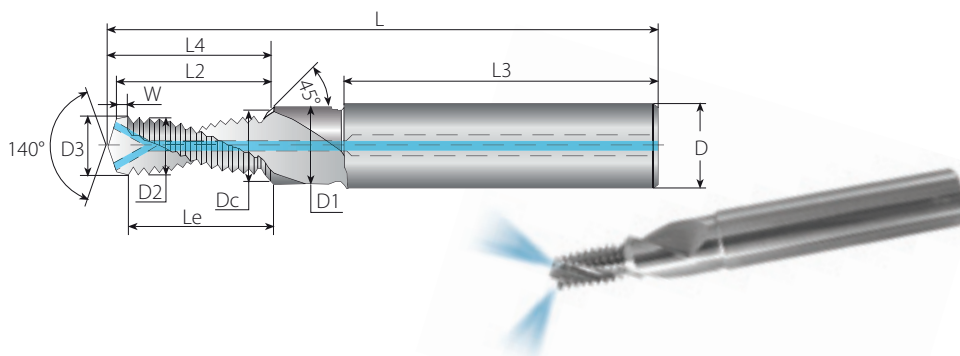


Fraisage du filet

## Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6H

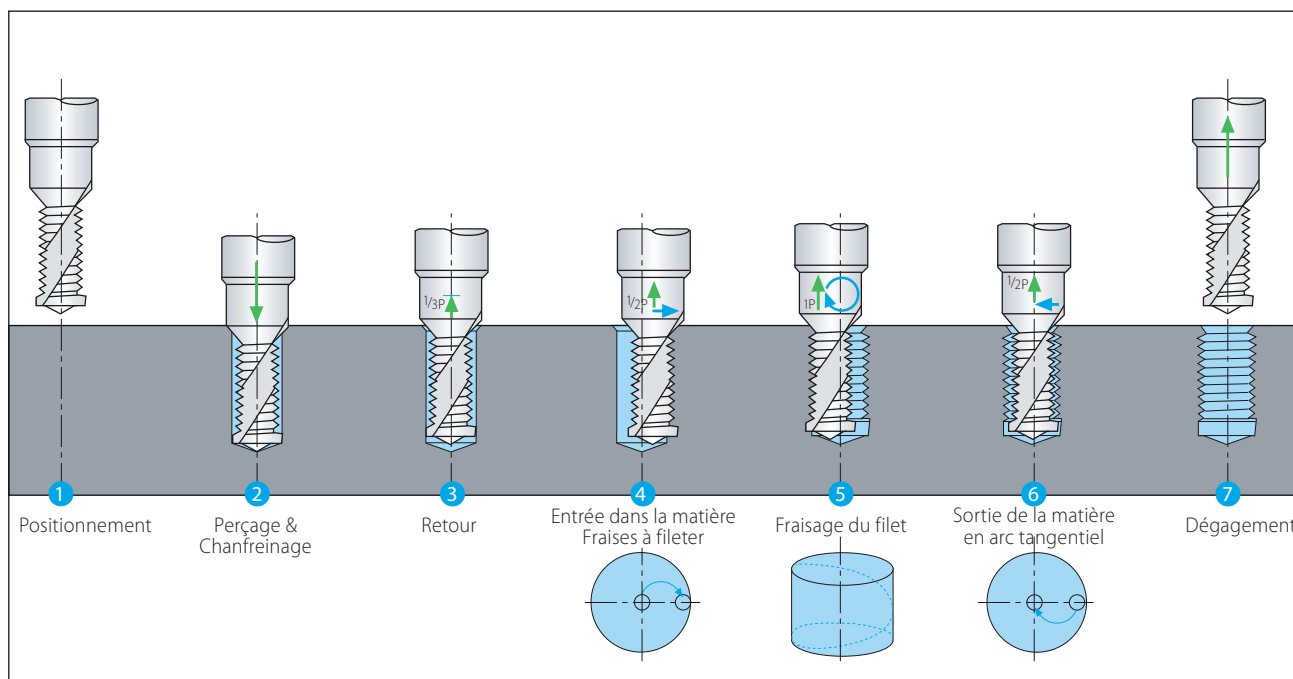


## HTC - Fraise à percer fileter

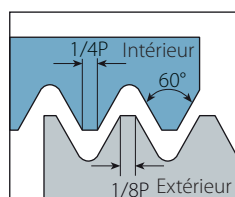
Perçage, chanfreinage et filetage avec arrosage central

| Filet                  | Référence           | Pas  | Dimensions |      |      |    |     |      |      |    |      |      |      | Nombre de Dents |    |
|------------------------|---------------------|------|------------|------|------|----|-----|------|------|----|------|------|------|-----------------|----|
| ISO 2xD <sub>o</sub>   | Intérieur           | mm   | L          | L4   | L2   | L3 | W   | Le   | D3   | D  | D1   | Dc   | D2   | Z               | Zt |
| M6x1.0                 | HTC M6x1.0x2D...    | 1.00 | 62.0       | 14.5 | 13.7 | 36 | 1.0 | 12.7 | 5.0  | 8  | 6.6  | 6.3  | 4.85 | 2               | 11 |
| M8x1.25                | HTC M8x1.25x2D ...  | 1.25 | 74.0       | 18.2 | 17.1 | 40 | 1.3 | 15.8 | 6.8  | 10 | 9.0  | 8.3  | 6.45 | 2               | 11 |
| M10x1.5                | HTC M10x1.5x2D ...  | 1.50 | 79.0       | 23.4 | 22.1 | 45 | 1.5 | 20.6 | 8.5  | 12 | 11.0 | 10.3 | 8.08 | 2               | 12 |
| M12x1.75               | HTC M12x1.75x2D...  | 1.75 | 89.0       | 27.1 | 25.5 | 45 | 1.5 | 24.0 | 10.3 | 14 | 13.5 | 12.3 | 9.74 | 2               | 12 |
| ISO 2.5xD <sub>o</sub> |                     |      |            |      |      |    |     |      |      |    |      |      |      |                 |    |
| M6x1.0                 | HTC M6x1.0x2.5D ... | 1.00 | 62.0       | 16.5 | 15.7 | 36 | 1.0 | 14.7 | 5.0  | 8  | 6.6  | 6.3  | 4.85 | 2               | 13 |
| M8x1.25                | HTC M8x1.25x2.5D... | 1.25 | 74.0       | 23.2 | 22.1 | 40 | 1.3 | 20.8 | 6.8  | 10 | 9.0  | 8.3  | 6.45 | 2               | 15 |
| M10x1.5                | HTC M10x1.5x2.5D... | 1.50 | 79.0       | 27.9 | 26.6 | 45 | 1.5 | 25.1 | 8.5  | 12 | 11.0 | 10.3 | 8.08 | 2               | 15 |

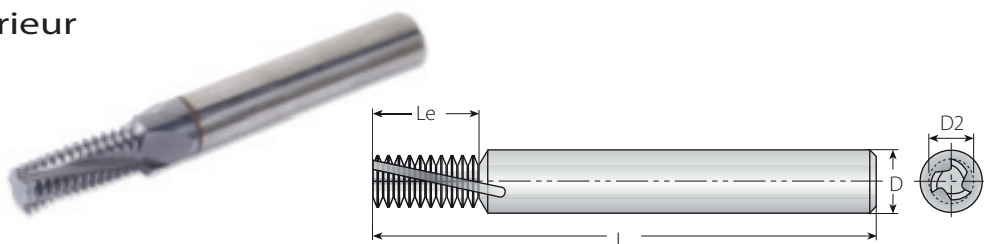
## HTC - Mode d'emploi de la fraise à percer fileter



## Extérieur / Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



## Helical - Extérieur

2 x Do ( $L1 \leq 2 \times \varnothing$  Filet)

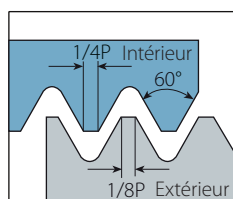
| Filet      | Pas  | Référence                | Dimensions mm |     |    |       | Nombre de Dents | Dents |
|------------|------|--------------------------|---------------|-----|----|-------|-----------------|-------|
| M Standard | mm   | Extérieur                | D             | D2  | L  | Le    | Z               | Zt    |
| M3x0.5     | 0.5  | H04039L06-E0.5ISO TM...  | 4             | 3.9 | 45 | 6.0   | 3               | 12    |
| M4.5x0.75  | 0.75 | H04039L09-E0.75ISO TM... | 4             | 3.9 | 45 | 9.0   | 3               | 12    |
| M6x1.0     | 1.0  | H04039L12-E1.0ISO TM...  | 4             | 3.9 | 45 | 12.0  | 3               | 12    |
| M8x1.25    | 1.25 | H06059L16-E1.25ISO TM... | 6             | 5.9 | 57 | 16.25 | 3               | 13    |
| M10x1.5    | 1.5  | H08079L21-E1.5ISO TM...  | 8             | 7.9 | 63 | 21.0  | 3               | 14    |
| M14x2.0    | 2.0  | H10099L28-E2.0ISO TM...  | 10            | 9.9 | 73 | 28.0  | 4               | 14    |

## Helical - Intérieur

2 x Do ( $L1 \leq 2 \times \varnothing$  Filet)

| Filet       |              | Pas  | Référence                | Dimensions mm |      |    |       | Nombre de Dents | Dents | mini de perçage |
|-------------|--------------|------|--------------------------|---------------|------|----|-------|-----------------|-------|-----------------|
| M Standard  | M Fin        | mm   | Intérieur                | D             | D2   | L  | Le    | Z               | Zt    | mm              |
| M3x0.5      | M3.5-M16x0.5 | 0.5  | H04022L06-I0.5ISO TM...  | 4             | 2.2  | 45 | 6.0   | 3               | 12    | 2.5             |
|             | M4x0.5       | 0.5  | H04030L08-I0.5ISO TM...  | 4             | 3.0  | 45 | 8.0   | 3               | 16    | 3.5             |
|             | M5x0.5       | 0.5  | H04039L10-I0.5ISO TM...  | 4             | 3.9  | 45 | 10.0  | 3               | 20    | 4.5             |
| M4x0.7      |              | 0.7  | H04028L08-I0.7ISO TM...  | 4             | 2.8  | 45 | 8.4   | 3               | 12    | 3.3             |
|             | M6x0.75      | 0.75 | H04039L12-I0.75ISO TM... | 4             | 3.9  | 45 | 12.0  | 3               | 16    | 5.3             |
| M5x0.8      |              | 0.8  | H04035L10-I0.8ISO TM...  | 4             | 3.5  | 45 | 10.4  | 3               | 13    | 4.2             |
| M6x1.0      | M8-M40x1.0   | 1.0  | H04039L12-I1.0ISO TM...  | 4             | 3.9  | 45 | 12.0  | 3               | 12    | 5.0             |
|             | M8x1.0       | 1.0  | H06059L16-I1.0ISO TM...  | 6             | 5.9  | 57 | 16.0  | 3               | 16    | 7.0             |
|             | M10x1.0      | 1.0  | H08079L20-I1.0ISO TM...  | 8             | 7.9  | 63 | 20.0  | 3               | 20    | 9.0             |
|             | M12x1.0      | 1.0  | H10099L24-I1.0ISO TM...  | 10            | 9.9  | 73 | 24.0  | 4               | 24    | 11.0            |
| M8x1.25     |              | 1.25 | H06058L16-I1.25ISO TM... | 6             | 5.8  | 57 | 16.25 | 3               | 13    | 6.8             |
|             | M10x1.25     | 1.25 | H08077L20-I1.25ISO TM... | 8             | 7.7  | 63 | 20.0  | 3               | 16    | 8.8             |
| M10x1.5     | M12-M48x1.5  | 1.5  | H08077L21-I1.5ISO TM...  | 8             | 7.7  | 63 | 21.0  | 3               | 14    | 8.5             |
|             | M12x1.5      | 1.5  | H10094L24-I1.5ISO TM...  | 10            | 9.4  | 73 | 24.0  | 4               | 16    | 10.5            |
|             | M14x1.5      | 1.5  | H12112L28-I1.5ISO TM...  | 12            | 11.2 | 83 | 28.5  | 4               | 19    | 12.5            |
|             | M16x1.5      | 1.5  | H12119L33-I1.5ISO TM...  | 12            | 11.9 | 83 | 33.0  | 4               | 22    | 14.5            |
| M12x1.75    |              | 1.75 | H10087L24-I1.75ISO TM... | 10            | 8.7  | 73 | 24.5  | 4               | 14    | 10.2            |
| M14x2.0     | M17-M80x2.0  | 2.0  | H10099L28-I2.0ISO TM...  | 10            | 9.9  | 73 | 28.0  | 4               | 14    | 12.0            |
| M16x2.0     | M17-M80x2.0  | 2.0  | H12119L32-I2.0ISO TM...  | 12            | 11.9 | 83 | 32.0  | 4               | 16    | 14.0            |
| M18-M22x2.5 |              | 2.5  | H16139L40-I2.5ISO TM...  | 16            | 13.9 | 92 | 40.0  | 5               | 16    | 15.5            |
| M24x3.0     |              | 3.0  | H16159L42-I3.0ISO TM...  | 16            | 15.9 | 92 | 42.0  | 4               | 14    | 21.0            |

## Extérieur / Intérieur



Norme: ANSI B1,10,74  
Classe de tolérance: 2A/2B



## Helical - Extérieur

2 x Do (L1 ≤ 2 x Ø Filet)

| Filet    |          | Pas | Référence              | Dimensions mm |      |    |      | Nombre de Dents | Dents |
|----------|----------|-----|------------------------|---------------|------|----|------|-----------------|-------|
| UNC      | UNF      | tpi | Extérieur              | D             | D2   | L  | Le   | Z               | Zt    |
| No.8-32  |          | 32  | H04039L09-E32UNC TM... | 4             | 3.9  | 45 | 8.7  | 3               | 11    |
|          | No.12-28 | 28  | H04039L12-E28UNF TM... | 4             | 3.9  | 45 | 11.8 | 3               | 13    |
| No.12-24 |          | 24  | H04039L12-E24UNC TM... | 4             | 3.9  | 45 | 11.6 | 3               | 11    |
| 1/4"x20  |          | 20  | H04039L13-E20UNC TM... | 4             | 3.9  | 45 | 12.7 | 3               | 10    |
| 5/16"x18 |          | 18  | H06059L17-E18UNC TM... | 6             | 5.9  | 57 | 16.9 | 3               | 12    |
| 3/8"x16  |          | 16  | H08079L19-E16UNC TM... | 8             | 7.9  | 63 | 19.1 | 3               | 12    |
| 9/16"x12 |          | 12  | H12119L30-E12UNC TM... | 12            | 11.9 | 83 | 29.6 | 4               | 14    |

## Helical - Intérieur

2 x Do (L1 ≤ 2 x Ø Filet)

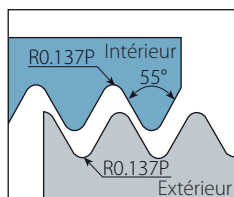
| Filet    |                   |                    | Pas | Référence               | Dimensions mm |      |     |      | Nombre de Dents | Dents | mini de perçage |
|----------|-------------------|--------------------|-----|-------------------------|---------------|------|-----|------|-----------------|-------|-----------------|
| UNC      | UNF               | UNEF               | tpi | Intérieur               | D             | D2   | L   | Le   | Z               | Zt    | mm              |
|          | No.8-36           |                    | 36  | H04030L09-I36UNF TM...  | 4             | 3.0  | 45  | 8.5  | 3               | 12    | 3.5             |
|          | No.10-32          | No.12-3/8"x32      | 32  | H04033L11-I32UNF TM...  | 4             | 3.3  | 45  | 11.1 | 3               | 14    | 4.0             |
|          | No.12-28, 1/4"x28 | 7/16", 1/2"x28     | 28  | H04038L12-I28UNF TM...  | 4             | 3.8  | 45  | 11.8 | 3               | 13    | 4.6             |
|          | 1/4"x28           | 7/16", 1/2"x28     | 28  | H06046L13-I28UNF TM...  | 6             | 4.6  | 57  | 12.7 | 3               | 14    | 5.5             |
|          |                   | 7/16", 1/2"x28     | 28  | H10092L23-I28UNEF TM... | 10            | 9.2  | 73  | 22.7 | 4               | 25    | 10.2            |
| No.10-24 | 5/16", 3/8"x24    | 9/16"-11/16"x24    | 24  | H04029L11-I24UNC TM...  | 4             | 2.9  | 45  | 10.6 | 3               | 10    | 3.8             |
| No.12-24 | 5/16", 3/8"x24    | 9/16"-11/16"x24    | 24  | H04035L12-I24UNC TM...  | 4             | 3.5  | 45  | 11.6 | 3               | 11    | 4.5             |
|          | 5/16", 3/8"x24    | 9/16"-11/16"x24    | 24  | H06057L16-I24UNF TM...  | 6             | 5.7  | 57  | 15.9 | 3               | 15    | 6.8             |
|          | 3/8"x24           | 9/16"-11/16"x24    | 24  | H08074L19-I24UNF TM...  | 8             | 7.4  | 63  | 19.1 | 3               | 18    | 8.5             |
|          |                   | 9/16"-11/16"x24    | 24  | H12119L29-I24UNEF TM... | 12            | 11.9 | 83  | 28.6 | 4               | 27    | 13.2            |
| 1/4"x20  | 7/16", 1/2"x20    | 3/4"-1"x20         | 20  | H04039L13-I20UNC TM...  | 4             | 3.9  | 45  | 12.7 | 3               | 10    | 5.2             |
|          | 7/16", 1/2"x20    | 3/4"-1"x20         | 20  | H10085L23-I20UNF TM...  | 10            | 8.5  | 73  | 22.9 | 4               | 18    | 9.8             |
|          | 1/2"x20           | 3/4"-1"x20         | 20  | H10099L26-I20UNF TM...  | 10            | 9.9  | 73  | 25.4 | 4               | 20    | 11.5            |
|          |                   | 3/4"-1"x20         | 20  | H16159L38-I20UNEF TM... | 16            | 15.9 | 92  | 38.1 | 5               | 30    | 17.8            |
| 5/16"x18 | 9/16", 5/8"x18    | 11/16"-1 11/16"x18 | 18  | H06052L17-I18UNC TM...  | 6             | 5.2  | 57  | 16.9 | 3               | 12    | 6.5             |
|          | 9/16", 5/8"x18    | 11/16"-1 11/16"x18 | 18  | H12113L30-I18UNF TM...  | 12            | 11.3 | 83  | 29.6 | 4               | 21    | 12.8            |
|          | 5/8"x18           | 11/16"-1 11/16"x18 | 18  | H12119L33-I18UNF TM...  | 12            | 11.9 | 83  | 32.5 | 4               | 23    | 14.5            |
| 3/8"x16  | 3/4"x16           |                    | 16  | H08067L19-I16UNC TM...  | 8             | 6.7  | 63  | 19.1 | 3               | 12    | 8.0             |
|          | 3/4"x16           |                    | 16  | H16159L38-I16UNF TM...  | 16            | 15.9 | 92  | 38.1 | 4               | 24    | 17.5            |
| 7/16"x14 | 7/8"x14           |                    | 14  | H08076L24-I14UNC TM...  | 8             | 7.6  | 63  | 23.6 | 4               | 13    | 9.3             |
|          | 7/8"x14           |                    | 14  | H20187L44-I14UNF TM...  | 20            | 18.7 | 104 | 44.4 | 4               | 24    | 20.5            |
| 1/2"x13  |                   |                    | 13  | H10089L26-I13UNC TM...  | 10            | 8.9  | 73  | 25.4 | 4               | 13    | 10.8            |
| 9/16"x12 | 1"-1 1/2"x12      |                    | 12  | H12103L30-I12UNC TM...  | 12            | 10.3 | 83  | 29.6 | 4               | 14    | 12.3            |
|          | 1"-1 1/2"x12      |                    | 12  | H20199L51-I12UNF TM...  | 20            | 19.9 | 104 | 50.8 | 5               | 24    | 23.5            |
| 5/8"x11  |                   |                    | 11  | H12110L32-I11UNC TM...  | 12            | 11.0 | 83  | 32.3 | 4               | 14    | 13.5            |
| 3/4"x10  |                   |                    | 10  | H16135L38-I10UNC TM...  | 16            | 13.5 | 92  | 38.1 | 5               | 15    | 16.5            |
| 7/8"x9   |                   |                    | 9   | H16152L45-I9UNC TM...   | 16            | 15.2 | 92  | 45.2 | 4               | 16    | 19.5            |
| 1"x8     |                   |                    | 8   | H20170L51-I8UNC TM...   | 20            | 17.0 | 104 | 50.8 | 4               | 16    | 22.0            |

\* Ø d'alésage permettant le plus petit Ø

## BSP(G)

## Helical

### Extérieur / Intérieur



Norme: B.S.2779:1956  
Classe de tolérance: Classe moyenne



## Helical

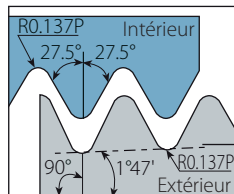
2 x Do ( $L1 \leq 2 \times \text{Ø Filet}$ )

| Filet                     | Pas | Référence               | Dimensions mm |      |     | Nombre de Dents | Dents | mini de perçage |
|---------------------------|-----|-------------------------|---------------|------|-----|-----------------|-------|-----------------|
| Standard                  | tpi | Extérieur / Intérieur   | D             | D2   | L   | Le              | Zt    | mm              |
| 1/16"x28, 1/8"x28         | 28  | H06058L16-EI28BSP TM... | 6             | 5.8  | 57  | 16.3            | 3     | 6.7             |
| 1/8"x28                   | 28  | H08077L20-EI28BSP TM... | 8             | 7.7  | 63  | 20.0            | 3     | 8.7             |
| 1/4"x19, 3/8"x19          | 19  | H10099L27-EI19BSP TM... | 10            | 9.9  | 73  | 26.7            | 4     | 11.8            |
| 3/8"x19                   | 19  | H16134L33-EI19BSP TM... | 16            | 13.4 | 92  | 33.4            | 4     | 15.2            |
| 1/2", 3/4"x14             | 14  | H16157L44-EI14BSP TM... | 16            | 15.7 | 92  | 43.5            | 5     | 19.0            |
| 1", 1 1/2", 2", 2 1/2"x11 | 11  | H20199L42-EI11BSP TM... | 20            | 19.9 | 104 | 41.6            | 5     | 30.7            |

## BSPT

## Helical

### Extérieur / Intérieur



Norme: B.S.21:1985  
Classe de tolérance: Standard BSPT



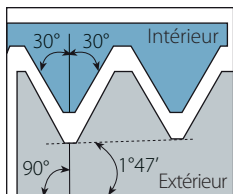
## Helical

| Filet                     | Pas | Référence                | Dimensions mm |      |     | Nombre de Dents | Dents | mini de perçage |
|---------------------------|-----|--------------------------|---------------|------|-----|-----------------|-------|-----------------|
| Standard                  | tpi | Extérieur / Intérieur    | D             | D2   | L   | Le              | Zt    | mm              |
| 1/16"x28                  | 28  | H06058L16-EI28BSPT TM... | 6             | 5.8  | 57  | 16.3            | 3     | 6.7             |
| 1/8"x28                   | 28  | H08077L20-EI28BSPT TM... | 8             | 7.7  | 63  | 20.0            | 3     | 8.7             |
| 1/4"x19                   | 19  | H10099L27-EI19BSPT TM... | 10            | 9.9  | 73  | 26.7            | 4     | 11.8            |
| 3/8"x19                   | 19  | H16134L33-EI19BSPT TM... | 16            | 13.4 | 92  | 33.4            | 4     | 15.2            |
| 1/2", 3/4"x14             | 14  | H16157L44-EI14BSPT TM... | 16            | 15.7 | 92  | 43.5            | 5     | 19.0            |
| 1", 1 1/2", 2", 2 1/2"x11 | 11  | H20199L42-EI11BSPT TM... | 20            | 19.9 | 104 | 41.6            | 5     | 30.7            |

## NPT

## Helical

### Extérieur / Intérieur



Norme: USAS B2.1:1968

Classe de tolérance: Standard NPT

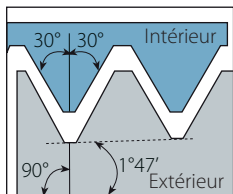
### Helical

| Filet         | Pas  | Référence                 | Dimensions mm |      |     |      | Nombre de Dents | Dents | mini de perçage |
|---------------|------|---------------------------|---------------|------|-----|------|-----------------|-------|-----------------|
| Standard      | tpi  | Extérieur / Intérieur     | D             | D2   | L   | Le   | Z               | Zt    | mm              |
| 1/16"x27      | 27   | H06053L09-EI27NPT TM...   | 6             | 5.3  | 57  | 9.4  | 3               | 10    | 6.3             |
| 1/8"x27       | 27   | H08075L09-EI27NPT TM...   | 8             | 7.5  | 63  | 9.4  | 4               | 10    | 8.5             |
| 1/4"x18       | 18   | H10094L14-EI18NPT TM...   | 10            | 9.4  | 73  | 14.1 | 4               | 10    | 11.1            |
| 3/8"x18       | 18   | H12119L14-EI18NPT TM...   | 12            | 11.9 | 83  | 14.1 | 4               | 10    | 14.5            |
| 1/2", 3/4"x14 | 14   | H16155L25-EI14NPT TM...   | 16            | 15.5 | 92  | 25.4 | 5               | 14    | 17.7, 23.0      |
| 1"-2"x11.5    | 11.5 | H20199L33-EI11.5NPT TM... | 20            | 19.9 | 104 | 33.1 | 5               | 15    | 29.0-56.0       |
| 2 1/2", 3"x8  | 8    | H20199L38-EI8NPT TM...    | 20            | 19.9 | 104 | 38.1 | 4               | 12    | 66.5            |

## NPTF

## Helical

### Extérieur / Intérieur



Norme: ANSI 1.20.3-1976

Classe de tolérance: Standard NPTF

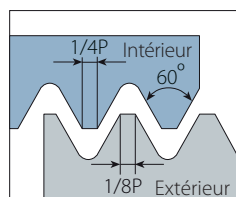
### Helical

| Filet         | Pas  | Référence                  | Dimensions mm |      |     |      | Nombre de Dents | Dents | mini de perçage |
|---------------|------|----------------------------|---------------|------|-----|------|-----------------|-------|-----------------|
| Standard      | tpi  | Extérieur / Intérieur      | D             | D2   | L   | Le   | Z               | Zt    | mm              |
| 1/16"x27      | 27   | H06053L09-EI27NPTF TM...   | 6             | 5.3  | 57  | 9.4  | 3               | 10    | 6.3             |
| 1/8"x27       | 27   | H08075L09-EI27NPTF TM...   | 8             | 7.5  | 63  | 9.4  | 4               | 10    | 8.4             |
| 1/4"x18       | 18   | H10094L14-EI18NPTF TM...   | 10            | 9.4  | 73  | 14.1 | 4               | 10    | 11.1            |
| 3/8"x18       | 18   | H12119L14-EI18NPTF TM...   | 12            | 11.9 | 83  | 14.1 | 4               | 10    | 14.7            |
| 1/2", 3/4"x14 | 14   | H16155L25-EI14NPTF TM...   | 16            | 15.5 | 92  | 25.4 | 5               | 14    | 17.9, 23.4      |
| 1"-2"x11.5    | 11.5 | H20199L33-EI11.5NPTF TM... | 20            | 19.9 | 104 | 33.1 | 5               | 15    | 29.4-56.2       |
| 2 1/2", 3"x8  | 8    | H20199L38-EI8NPTF TM...    | 20            | 19.9 | 104 | 38.1 | 4               | 12    | 67.0            |

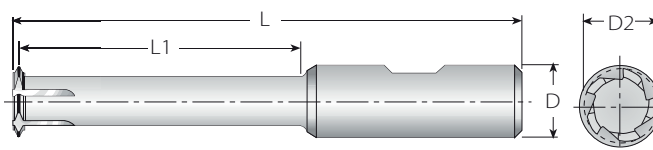
## Métrique ISO

## Filetage en profondeur

### Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6H



### Filetage en profondeur - Outils longs pour filetage en profondeur

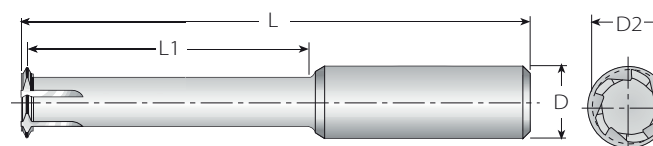
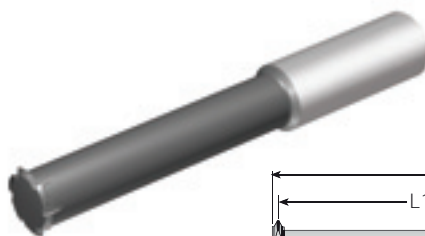
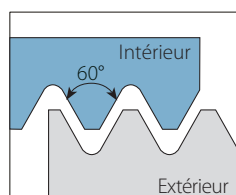
3 x Do (L1 ≤ 3 x Ø Filet)

| Filet      | Pas  | Référence               | Dimensions mm |      |     |    | Nombre de Dents | Dents | mini de perçage |
|------------|------|-------------------------|---------------|------|-----|----|-----------------|-------|-----------------|
| M Standard | mm   | Intérieur               | D             | D2   | L   | L1 | Z               | Zt    | mm              |
| M6x1       | 1.0  | D1T08041-I1.0ISO TM...  | 8             | 4.1  | 63  | 19 | 3               | 1     | 5.0             |
| M8x1.25    | 1.25 | D1T10058-I1.25ISO TM... | 10            | 5.8  | 73  | 26 | 3               | 1     | 6.8             |
| M10x1.5    | 1.50 | D1T10077-I1.50ISO TM... | 10            | 7.7  | 73  | 32 | 3               | 1     | 8.5             |
| M12x1.5    | 1.50 | D1T12094-I1.50ISO TM... | 12            | 9.4  | 83  | 38 | 4               | 1     | 10.5            |
| M12x1.75   | 1.75 | D1T12087-I1.75ISO TM... | 12            | 8.7  | 83  | 38 | 4               | 1     | 10.2            |
| M14x2      | 2.0  | D1T16102-I2.0ISO TM...  | 16            | 10.2 | 92  | 44 | 4               | 1     | 12.0            |
| M16x2      | 2.0  | D1T16122-I2.0ISO TM...  | 16            | 12.2 | 100 | 50 | 4               | 1     | 14.0            |
| M18x2.5    | 2.50 | D1T16129-I2.5ISO TM...  | 16            | 12.9 | 108 | 57 | 5               | 1     | 15.5            |
| M20x2.5    | 2.50 | D1T16148-I2.5ISO TM...  | 16            | 14.8 | 114 | 63 | 5               | 1     | 17.5            |

### Profil Partiel 60°

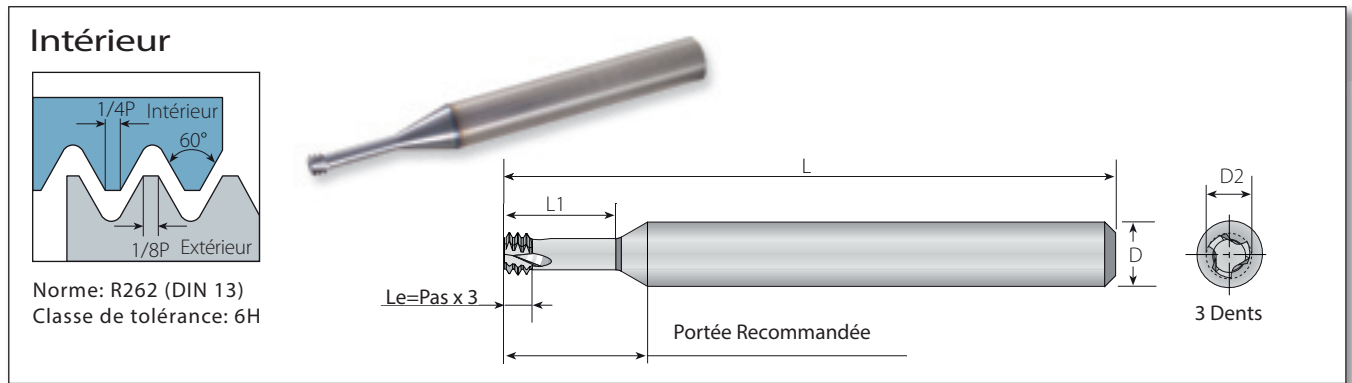
## Filetage en profondeur

### Intérieur



### Filetage en profondeur - Outils longs pour filetage en profondeur

| Min. Filetage |                                    |                                                                                       | Pas      |       | Référence                | Dimensions |       |    |    |   |    |
|---------------|------------------------------------|---------------------------------------------------------------------------------------|----------|-------|--------------------------|------------|-------|----|----|---|----|
| M Standard    | M Fin                              | UN, UNS, UNF, UNEF                                                                    | mm       | tpi   | Intérieur                | D          | D2    | L  | L1 | Z | Zt |
| M5x0.8        | M5x0.5,<br>M5X0.75                 | No.10-56UNS, No.10-48UNS, No.10-40UNS,<br>No.10-36UNS, No.10-32UNF                    | 0.5-0.8  | 32-56 | D1T04390L160-ITA60 TM... | 4          | 3.90  | 45 | 16 | 4 | 1  |
| M6x1.0        | M6x0.5,<br>M6X0.75                 | No.12-56UNS, No.12-48UNS, ¼-40UNS,<br>¼-36UNS, ¼-32UNEF, ¼-28UNF,<br>¼-27UNS, ¼-24UNS | 0.5-1.0  | 24-56 | D1T06485L200-ITB60 TM... | 6          | 4.85  | 51 | 20 | 5 | 1  |
| M8x1.25       | M7x0.5,<br>M7x0.75,<br>M7.5x1.0    | ⅝-48UNS, ⅝-40UNS, ⅝-36UNS,<br>⅝-32UNEF, ⅝-28UN, ⅝-27UNS,<br>⅝-24UNS, ⅝-20UN           | 0.5-1.25 | 20-48 | D1T06590L250-ITF60 TM... | 6          | 5.90  | 64 | 25 | 5 | 1  |
| -             | M10.5x0.5,<br>M11x0.75,<br>M11x1.0 | ⅞-32UN, ⅞-28UNEF, ⅞-27UNS,<br>⅞-24UNS                                                 | 0.5-1.0  | 24-56 | D1T10990L350-ITB60 TM... | 10         | 9.90  | 73 | 35 | 6 | 1  |
| M10x1.5       | M10x1.0,<br>M10X1.25               | ⅜-24UNF, ⅜-20UN, ⅞-18UNS,<br>⅞-16UN                                                   | 1.0-1.50 | 16-24 | D1T08790L320-ITC60 TM... | 8          | 7.90  | 63 | 32 | 6 | 1  |
| M12x1.75      | M12x1.0,<br>M12X1.25,<br>M12x1.5   | ½-24UNS, ½-20UNS, ½-18UNS,<br>½-16UNS, ½-14UNS                                        | 1.0-1.75 | 14-24 | D1T10990L380-ITD60 TM... | 10         | 9.90  | 73 | 38 | 6 | 1  |
| -             | M13.5x1.0,<br>M14x1.25,<br>M14x1.5 | ⅞-24UNEF                                                                              | 1.0-1.75 | 14-24 | D1T12119L450-ITD60 TM... | 12         | 11.90 | 83 | 45 | 6 | 1  |



## Millipro

### Fraise à Fileter Mini

2 x Do ( $L1 \leq 2 \times \varnothing \text{ Filet}$ )

| Filet     | Pas          | Référence | Dimensions mm               |    |       |    | Nombre de Dents | Dents | mini de perçage |      |
|-----------|--------------|-----------|-----------------------------|----|-------|----|-----------------|-------|-----------------|------|
| M         | M Fin        | mm        | Intérieur                   | D  | D2    | L  | L1              | Z     | Zt              | mm   |
| M1.6x0.35 |              | 0.35      | D3T03012L034-I0.35ISO TM... | 3  | 1.20  | 30 | 3.4             | 3     | 3               | 1.25 |
| M2x0.4    |              | 0.4       | D3T06015L042-I0.4ISO TM...  | 6  | 1.55  | 57 | 4.2             | 3     | 3               | 1.6  |
| M2.2x0.45 |              | 0.45      | D3T06016L046-I0.45ISO TM... | 6  | 1.65  | 57 | 4.6             | 3     | 3               | 1.75 |
| M2.5x0.45 |              | 0.45      | D3T06019L052-I0.45ISO TM... | 6  | 1.95  | 57 | 5.2             | 3     | 3               | 2.05 |
| M3x0.5    | M3.5-M16x0.5 | 0.5       | D3T06024L062-I0.5ISO TM...  | 6  | 2.40  | 57 | 6.2             | 3     | 3               | 2.5  |
| M3.5x0.6  |              | 0.6       | D3T06027L073-I0.6ISO TM...  | 6  | 2.75  | 57 | 7.3             | 3     | 3               | 2.9  |
| M4x0.7    |              | 0.7       | D3T06031L083-I0.7ISO TM...  | 6  | 3.15  | 57 | 8.3             | 3     | 3               | 3.3  |
| M5x0.8    |              | 0.8       | D3T06040L104-I0.8ISO TM...  | 6  | 4.05  | 57 | 10.4            | 3     | 3               | 4.2  |
| M6x1.0    | M8-M40x1.0   | 1.0       | D3T06048L125-I1.0ISO TM...  | 6  | 4.80  | 57 | 12.5            | 3     | 3               | 5.0  |
| M8x1.25   |              | 1.25      | D3T08065L166-I1.25ISO TM... | 8  | 6.50  | 63 | 16.6            | 3     | 3               | 6.8  |
| M10x1.5   | M12-M48x1.50 | 1.50      | D3T10082L208-I1.50ISO TM... | 10 | 8.20  | 73 | 20.8            | 3     | 3               | 8.5  |
| M12x1.75  |              | 1.75      | D3T10099L250-I1.75ISO TM... | 10 | 9.90  | 73 | 25.0            | 3     | 3               | 10.3 |
| M16x2.0   |              | 2.0       | D3T12119L330-I2.0ISO TM...  | 12 | 11.90 | 83 | 33.0            | 3     | 3               | 14.0 |
| M20x2.5   |              | 2.50      | D3T16159L413-I2.5ISO TM...  | 16 | 15.90 | 92 | 41.3            | 3     | 3               | 17.5 |

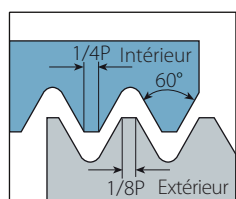
## Millipro

### Fraise à Fileter Mini

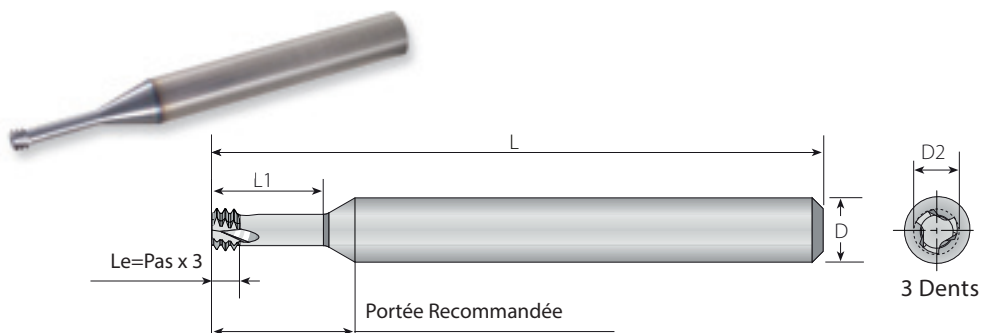
3 x Do ( $L1 \leq 3 \times \varnothing \text{ Filet}$ )

| Filet     | Pas          | Référence | Dimensions mm               |   |      |    | Nombre de Dents | Dents | mini de perçage |      |
|-----------|--------------|-----------|-----------------------------|---|------|----|-----------------|-------|-----------------|------|
| M         | M Fin        | mm        | Intérieur                   | D | D2   | L  | L1              | Z     | Zt              | mm   |
| M1.6X0.35 |              | 0.35      | D3T03012L050-I0.35ISO TM... | 3 | 1.20 | 30 | 5.0             | 3     | 3               | 1.25 |
| M2x0.4    |              | 0.4       | D3T03015L062-I0.4ISO TM...  | 3 | 1.55 | 30 | 6.2             | 3     | 3               | 1.6  |
| M2X0.4    |              | 0.4       | D3T06015L062-I0.4ISO TM...  | 6 | 1.55 | 57 | 6.2             | 3     | 3               | 1.6  |
| M2.5x0.45 |              | 0.45      | D3T03019L077-I0.45ISO TM... | 3 | 1.95 | 30 | 7.7             | 3     | 3               | 2.05 |
| M2.5x0.45 |              | 0.45      | D3T06019L077-I0.45ISO TM... | 6 | 1.95 | 57 | 7.7             | 3     | 3               | 2.05 |
| M3X0.5    | M3.5-M16x0.5 | 0.5       | D3T03024L092-I0.5ISO TM...  | 3 | 2.40 | 30 | 9.2             | 3     | 3               | 2.5  |
| M3x0.5    | M3.5-M16x0.5 | 0.5       | D3T06024L092-I0.5ISO TM...  | 6 | 2.40 | 57 | 9.2             | 3     | 3               | 2.5  |
| M4x0.7    |              | 0.7       | D3T06031L123-I0.7ISO TM...  | 6 | 3.15 | 57 | 12.3            | 3     | 3               | 3.3  |
| M5x0.8    |              | 0.8       | D3T06040L154-I0.8ISO TM...  | 6 | 4.05 | 57 | 15.4            | 3     | 3               | 4.2  |
| M6x1.0    | M8-M40x1.0   | 1.00      | D3T06048L185-I1.0ISO TM...  | 6 | 4.80 | 57 | 18.5            | 3     | 3               | 5.0  |
| M8x1.25   |              | 1.25      | D3T08065L246-I1.25ISO TM... | 8 | 6.50 | 63 | 24.6            | 3     | 3               | 6.8  |

## Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2B



## Millipro

### Fraise à Fileter Mini

2 x Do ( $L1 \leq 2 \times \varnothing \text{ Filet}$ )

| Filet         | Pas      | Référence | Dimensions mm            |    |      |    | Nombre de Dents | Dents | mini de perçage |     |
|---------------|----------|-----------|--------------------------|----|------|----|-----------------|-------|-----------------|-----|
| UNC           | UNF      | tpi       | Intérieur                | D  | D2   | L  | L1              | Z     | Zt              | mm  |
|               | No.1-72  | 72        | D3T06014L039-I72UN TM... | 6  | 1.45 | 57 | 3.9             | 3     | 3               | 1.6 |
| No.1-64       | No.2-64  | 64        | D3T06014L042-I64UN TM... | 6  | 1.40 | 57 | 4.2             | 3     | 3               | 1.5 |
| No.2-56       | No.3-56  | 56        | D3T06016L050-I56UN TM... | 6  | 1.65 | 57 | 5.0             | 3     | 3               | 1.8 |
| No.3-48       | No.4-48  | 48        | D3T06019L060-I48UN TM... | 6  | 1.90 | 57 | 6.0             | 3     | 3               | 2.1 |
| No.4, No.5-40 | No.6-40  | 40        | D3T06021L060-I40UN TM... | 6  | 2.10 | 57 | 6.0             | 3     | 3               | 2.3 |
| No.5-40       | No.6-40  | 40        | D3T06024L072-I40UN TM... | 6  | 2.45 | 57 | 7.2             | 3     | 3               | 2.6 |
|               | No.8-36  | 36        | D3T06033L087-I36UN TM... | 6  | 3.30 | 57 | 8.7             | 3     | 3               | 3.5 |
| No.6, No.8-32 | No.10-32 | 32        | D3T06025L074-I32UN TM... | 6  | 2.55 | 57 | 7.4             | 3     | 3               | 2.8 |
| No.8-32       | No.10-32 | 32        | D3T06032L100-I32UN TM... | 6  | 3.20 | 57 | 10.0            | 3     | 3               | 3.5 |
|               | 1/4"x28  | 28        | D3T06052L132-I28UN TM... | 6  | 5.25 | 57 | 13.2            | 3     | 3               | 5.5 |
| No.10-24      | 5/16"x24 | 24        | D3T06035L102-I24UN TM... | 6  | 3.58 | 57 | 10.2            | 3     | 3               | 3.9 |
|               | 5/16"x24 | 24        | D3T08066L165-I24UN TM... | 8  | 6.68 | 63 | 16.5            | 3     | 3               | 6.9 |
| 1/4"x20       | 7/16"x20 | 20        | D3T06048L134-I20UN TM... | 6  | 4.88 | 57 | 13.4            | 3     | 3               | 5.2 |
|               | 7/16"x20 | 20        | D3T10095L230-I20UN TM... | 10 | 9.55 | 73 | 23.0            | 3     | 3               | 9.9 |
| 3/8"x16       |          | 16        | D3T08067L191-I16UN TM... | 8  | 6.70 | 63 | 19.1            | 3     | 3               | 8.0 |
| 7/16"x14      |          | 14        | D3T10090L233-I14UN TM... | 10 | 9.00 | 73 | 23.3            | 3     | 3               | 9.4 |

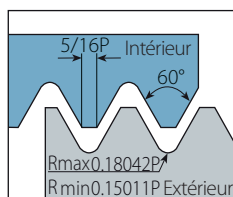
## Millipro

### Fraise à Fileter Mini

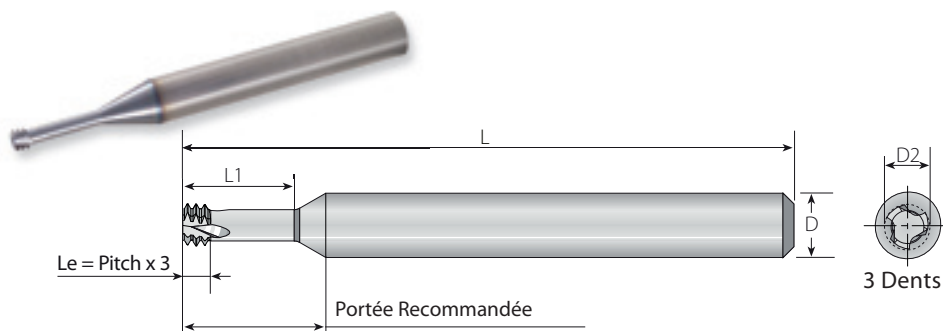
3 x Do ( $L1 \leq 3 \times \varnothing \text{ Filet}$ )

| Filet         |          | Pas | Référence                | Dimensions mm |      |    |      | Nombre de Dents | Dents | mini de perçage |
|---------------|----------|-----|--------------------------|---------------|------|----|------|-----------------|-------|-----------------|
| UNC           | UNF      | tpi | Intérieur                | D             | D2   | L  | L1   | Z               | Zt    | mm              |
|               | No.1-72  | 72  | D3T03014L057-I72UN TM... | 3             | 1.45 | 30 | 5.75 | 3               | 3     | 1.6             |
|               | No.1-72  | 72  | D3T06014L057-I72UN TM... | 6             | 1.45 | 57 | 5.75 | 3               | 3     | 1.6             |
| No.2-56       | No.3-56  | 56  | D3T03016L070-I56UN TM... | 3             | 1.65 | 30 | 7.0  | 3               | 3     | 1.8             |
| No.4, No.5-40 | No.6-40  | 40  | D3T03021L090-I40UN TM... | 3             | 2.10 | 30 | 9.0  | 3               | 3     | 2.3             |
| No.4, No.5-40 | No.6-40  | 40  | D3T06021L090-I40UN TM... | 6             | 2.10 | 57 | 9.0  | 3               | 3     | 2.3             |
| No.5-40       | No.6-40  | 40  | D3T06024L100-I40UN TM... | 6             | 2.45 | 57 | 10.0 | 3               | 3     | 2.6             |
| No.6, No.8-32 | No.10-32 | 32  | D3T03025L110-I32UN TM... | 3             | 2.55 | 30 | 11.0 | 3               | 3     | 2.8             |
| No.6, No.8-32 | No.10-32 | 32  | D3T06025L110-I32UN TM... | 6             | 2.55 | 57 | 11.0 | 3               | 3     | 2.8             |
| No.8-32       | No.10-32 | 32  | D3T06032L130-I32UN TM... | 6             | 3.20 | 57 | 13.0 | 3               | 3     | 3.4             |
|               | 1/4"x28  | 28  | D3T06052L196-I28UN TM... | 6             | 5.25 | 57 | 19.6 | 3               | 3     | 5.5             |
|               | 5/16"x24 | 24  | D3T08066L245-I24UN TM... | 8             | 6.68 | 63 | 24.5 | 3               | 3     | 6.9             |
| 1/4"x20       | 7/16"x20 | 20  | D3T06048L198-I20UN TM... | 6             | 4.88 | 57 | 19.8 | 3               | 3     | 5.1             |

## Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 3B



## Millipro - Fraises à Fileter Mini

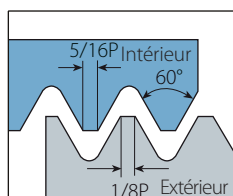
3 x Do ( $L1 \leq 3 \times \varnothing \text{ Filet}$ )

| Filet           | Pas             | Référence | Dimensions mm             |    |      |    | Nombre de Dents | Dents | mini de perçage |      |
|-----------------|-----------------|-----------|---------------------------|----|------|----|-----------------|-------|-----------------|------|
| UNJC            | UNJF            | tpi       | Intérieur                 | D  | D2   | L  | L1              | Z     | Zt              | mm   |
| 0.138" (#6)     | 0.190" (#10)    | 32        | D3T06027L110-I32UNJ TM... | 6  | 2.70 | 57 | 11.0            | 3     | 3               | 2.8  |
|                 | 0.250" (1/4")   | 28        | D3T06054L195-I28UNJ TM... | 6  | 5.40 | 57 | 19.5            | 3     | 3               | 5.6  |
| 0.190" (#10)    |                 | 24        | D3T06037L149-I24UNJ TM... | 6  | 3.70 | 57 | 14.9            | 3     | 3               | 4.0  |
|                 | 0.3125" (5/16") | 24        | D3T08067L241-I24UNJ TM... | 8  | 6.70 | 63 | 24.1            | 3     | 3               | 7.0  |
| 0.250" (1/4")   |                 | 20        | D3T06050L195-I20UNJ TM... | 6  | 5.00 | 57 | 19.5            | 3     | 3               | 5.3  |
|                 | 0.4375" (7/16") | 20        | D3T10096L335-I20UNJ TM... | 10 | 9.60 | 73 | 33.5            | 3     | 3               | 10.0 |
| 0.3125" (5/16") | 0.5625" (9/16") | 18        | D3T08064L241-I18UNJ TM... | 8  | 6.40 | 63 | 24.1            | 3     | 3               | 6.75 |
| 0.375" (3/8")   | 0.750" (3/4")   | 16        | D3T08077L290-I16UNJ TM... | 8  | 7.70 | 63 | 29.0            | 3     | 3               | 8.1  |
| 0.4375" (7/16") | 0.875" (7/8")   | 14        | D3T10092L335-I14UNJ TM... | 10 | 9.20 | 73 | 33.5            | 3     | 3               | 9.5  |
| 0.500" (1/2")   |                 | 13        | D3T10099L385-I13UNJ TM... | 10 | 9.90 | 73 | 38.5            | 3     | 3               | 11.0 |

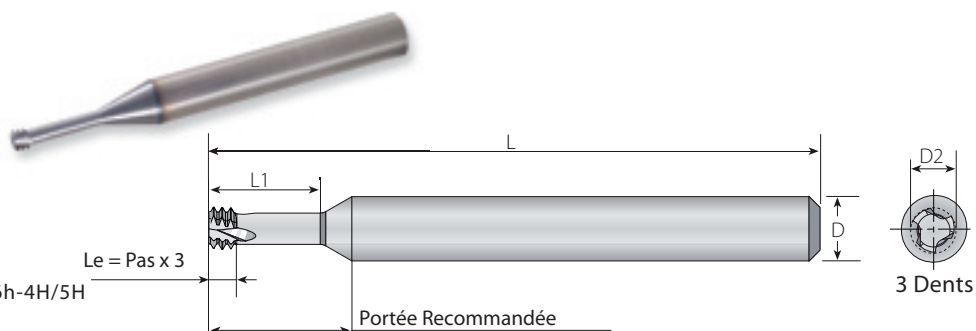
## MJ

## Millipro

## Intérieur



Norme: ISO 5855  
Classe de tolérance: 4h/6h-4H/5H



## Millipro - Fraises à Fileter Mini

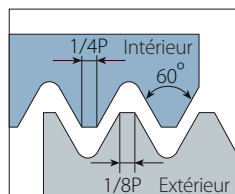
3 x Do ( $L1 \leq 3 \times \varnothing \text{ Filet}$ )

| Filet     | Pas  | Référence                  | Dimensions mm |       |    |      | Nombre de Dents | Dents | mini de perçage |
|-----------|------|----------------------------|---------------|-------|----|------|-----------------|-------|-----------------|
| Standard  | mm   | Intérieur                  | D             | D2    | L  | L1   | Z               | Zt    | mm              |
| MJ3x0.5   | 0.5  | D3T06024L092-I0.5MJ TM...  | 6             | 2.40  | 57 | 9.2  | 3               | 3     | 2.6             |
| MJ3.5x0.6 | 0.6  | D3T06028L110-I0.6MJ TM...  | 6             | 2.85  | 57 | 11.0 | 3               | 3     | 3.0             |
| MJ4x0.7   | 0.7  | D3T06031L123-I0.7MJ TM...  | 6             | 3.15  | 57 | 12.3 | 3               | 3     | 3.4             |
| MJ5x0.8   | 0.8  | D3T06040L154-I0.8MJ TM...  | 6             | 4.05  | 57 | 15.4 | 3               | 3     | 4.3             |
| MJ6x1.0   | 1.0  | D3T06048L185-I1.0MJ TM...  | 6             | 4.80  | 57 | 18.5 | 3               | 3     | 5.1             |
| MJ8x1.25  | 1.25 | D3T08065L246-I1.25MJ TM... | 8             | 6.50  | 63 | 24.6 | 3               | 3     | 6.9             |
| MJ10x1.5  | 1.50 | D3T10082L308-I1.50MJ TM... | 10            | 8.20  | 73 | 30.8 | 3               | 3     | 8.7             |
| MJ12x1.75 | 1.75 | D3T10099L370-I1.75MJ TM... | 10            | 9.90  | 73 | 37.0 | 3               | 3     | 10.4            |
| MJ14x2    | 2.0  | D3T12119L425-I2.0MJ TM...  | 12            | 11.90 | 83 | 42.5 | 3               | 3     | 12.25           |

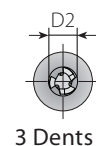
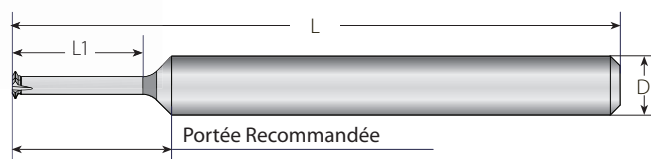
## Métrique ISO

## Millipro à Dents

### Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6H



3 Dents

## Millipro

### Fraise À Fileter Mini Pour Implants Dentaires

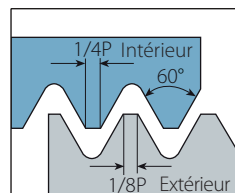
3xDo (L1 ≤ 3 x Ø Filet)

| Filet     |           | Pas  | Référence                   | Dimensions mm |      |    |     | Nombre de Dents | Dents | mini de perçage |
|-----------|-----------|------|-----------------------------|---------------|------|----|-----|-----------------|-------|-----------------|
| M         | M Fin     | mm   | Intérieur                   | D             | D2   | L  | L1  | Z               | Zt    | mm              |
| M1.0x0.25 | M1.4x0.25 | 0.25 | D1T03007L031-I0.25ISO TM... | 3             | 0.70 | 31 | 3.1 | 3               | 1     | 0.75            |
| M1.2x0.25 | M1.4x0.25 | 0.25 | D1T03009L038-I0.25ISO TM... | 3             | 0.90 | 31 | 3.8 | 3               | 1     | 0.95            |
| M1.4x0.3  |           | 0.30 | D1T03011L044-I0.30ISO TM... | 3             | 1.05 | 31 | 4.4 | 3               | 1     | 1.15            |
| M1.6x0.35 |           | 0.35 | D1T03012L050-I0.35ISO TM... | 3             | 1.20 | 31 | 5.0 | 3               | 1     | 1.30            |
| M1.8x0.35 | M2.0x0.35 | 0.35 | D1T03014L056-I0.35ISO TM... | 3             | 1.40 | 31 | 5.6 | 3               | 1     | 1.50            |
| M2.0x0.4  |           | 0.40 | D1T03015L062-I0.40ISO TM... | 3             | 1.50 | 31 | 6.2 | 3               | 1     | 1.65            |
| M2.5x0.45 |           | 0.45 | D1T03019L077-I0.45ISO TM... | 3             | 1.95 | 31 | 7.7 | 3               | 1     | 2.10            |

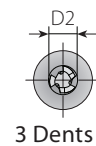
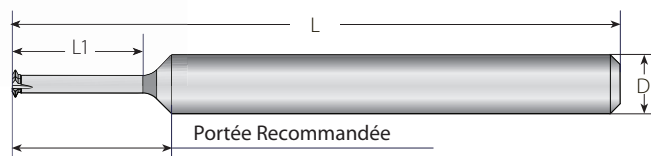
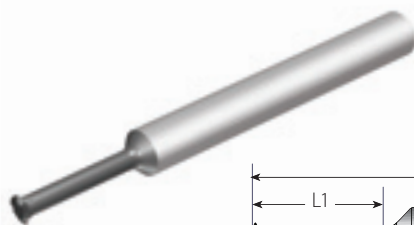
## Américain UN

## Millipro à Dents

### Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2B



3 Dents

## Millipro

### Fraise À Fileter Mini Pour Implants Dentaires

3xDo (L1 ≤ 3 x Ø Filet)

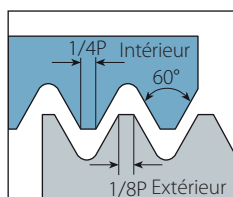
| Filet | Pas | Référence                | Dimensions mm |      |    | Nombre de Dents | Dents | mini de perçage |      |
|-------|-----|--------------------------|---------------|------|----|-----------------|-------|-----------------|------|
| UNF   | tpi | Intérieur                | D             | D2   | L  | L1              | Z     | Zt              | mm   |
| 0-80  | 80  | D1T03011L046-I80UN TM... | 3             | 1.15 | 31 | 4.6             | 3     | 1               | 1.30 |
| 1-72  | 72  | D1T03014L065-I72UN TM... | 3             | 1.45 | 31 | 6.5             | 3     | 1               | 1.60 |

La gamme de dentures Millipro a été spécialement conçue pour l'usinage du Titane & de l'inox dans une vitesse de rotation accrue. Les outils à dentures Millipro D1T conviennent également pour des utilisations polyvalentes.

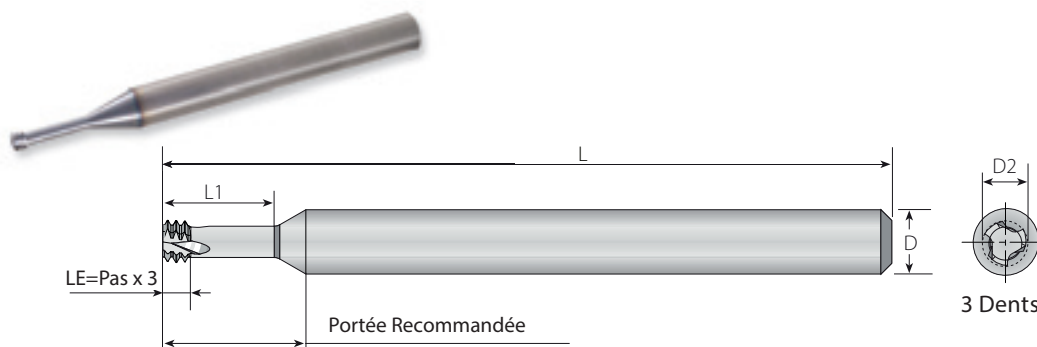
## Métrique ISO

## Millipro EL

### Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6H



### Millipro EL

Fraise a Fileter Mini, Outils Extra Longs

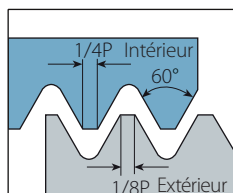
$2 \times D_o$  ( $L1 \leq 2 \times \varnothing$  Filet)

| Filet     | Pas          | Référence                    | Dimensions mm |      |     |     | Nombre de Dents | Dents | mini de perçage |
|-----------|--------------|------------------------------|---------------|------|-----|-----|-----------------|-------|-----------------|
| M         | M Fin        | Intérieur                    | D             | D2   | L   | L1  | Z               | Zt    | mm              |
| M2x0.4    |              | D3T06015L042-I0.4ISO TML...  | 6             | 1.55 | 100 | 4.2 | 3               | 3     | 1.6             |
| M2.5x0.45 |              | D3T06019L052-I0.45ISO TML... | 6             | 1.95 | 100 | 5.2 | 3               | 3     | 2.05            |
| M3x0.5    | M3.5-M16x0.5 | D3T06024L062-I0.5ISO TML...  | 6             | 2.40 | 100 | 6.2 | 3               | 3     | 2.5             |

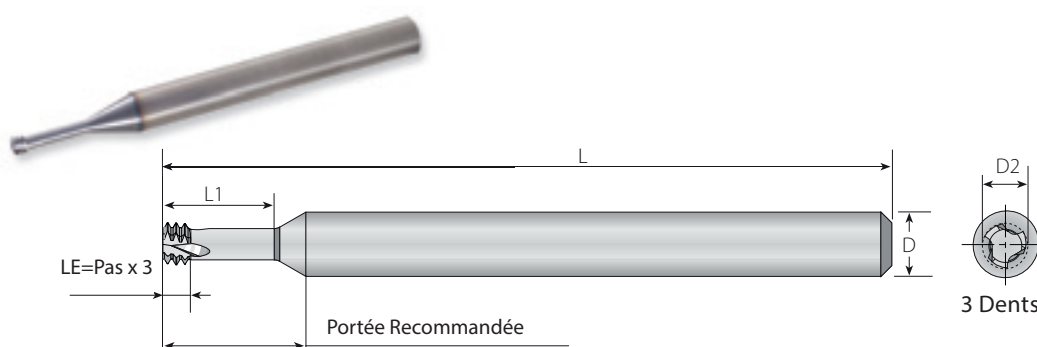
## Américain UN

## Millipro EL

### Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2B



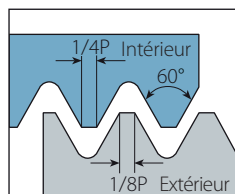
### Millipro EL

Fraise a Fileter Mini, Outils Extra Longs

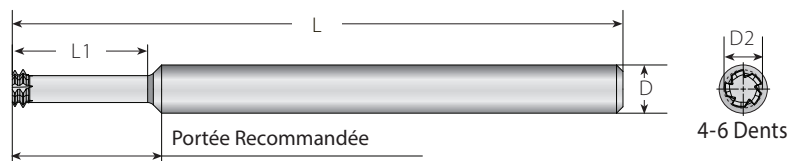
$2 \times D_o$  ( $L1 \leq 2 \times \varnothing$  Filet)

| Filet         | Pas      | Référence                 | Dimensions mm |      |     |      | Nombre de Dents | Dents | mini de perçage |
|---------------|----------|---------------------------|---------------|------|-----|------|-----------------|-------|-----------------|
| UNC           | UNF      | Intérieur                 | D             | D2   | L   | L1   | Z               | Zt    | mm              |
| No.2-56       | No.3-56  | D3T06016L050-I56UN TML... | 6             | 1.65 | 100 | 5.0  | 3               | 3     | 1.8             |
| No.4, No.5-40 | No.6-40  | D3T06016L050-I56UN TML... | 6             | 2.10 | 100 | 6.0  | 3               | 3     | 2.3             |
| No.6, No.8-32 | No.10-32 | D3T06025L074-I32UN TML... | 6             | 2.55 | 100 | 7.4  | 3               | 3     | 2.8             |
| No.8-32       | No.10-32 | D3T06032L100-I32UN TML... | 6             | 3.20 | 100 | 10.0 | 3               | 3     | 3.4             |

## Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6H



4-6 Dents

Outil à gauche

## Millipro HD

Fraises à Fileter Mini pour Matières dures Jusqu'à 62Hrc

2 x Do ( $L1 \leq 2 \times \varnothing$  Filet)

| Filet     | Pas          | Référence                   | Dimensions mm     | No. de Dents | Dents | mini de perçage |
|-----------|--------------|-----------------------------|-------------------|--------------|-------|-----------------|
| M         | M Fin        | Intérieur                   | D D2 L L1         | Z            | Zt    | mm              |
| M2x0.4    |              | S2L06015L042-I0.4ISO TM...  | 6 1.55 76 4.60    | 4            | 2     | 1.6             |
| M2.2x0.45 |              | S2L06016L046-I0.45ISO TM... | 6 1.65 76 5.05    | 4            | 2     | 1.8             |
| M2.5x0.45 |              | S2L06019L052-I0.45ISO TM... | 6 1.95 76 5.65    | 4            | 2     | 2.05            |
| M3x0.5    | M3.5-M16x0.5 | S2L06024L062-I0.5ISO TM...  | 6 2.40 76 6.75    | 4            | 2     | 2.55            |
| M3.5x0.6  |              | S2L06027L073-I0.6ISO TM...  | 6 2.75 76 7.90    | 4            | 2     | 2.95            |
| M4x0.7    |              | S2L06031L083-I0.7ISO TM...  | 6 3.15 76 9.05    | 4            | 2     | 3.35            |
| M5x0.8    |              | S2L06040L104-I0.8ISO TM...  | 6 4.05 76 11.20   | 4            | 2     | 4.3             |
| M6x1.0    | M8x-M40x1.0  | S2L06048L125-I1.0ISO TM...  | 6 4.80 76 13.50   | 5            | 2     | 5.1             |
| M8x1.25   |              | S2L08065L166-I1.25ISO TM... | 8 6.50 80 17.85   | 5            | 2     | 6.8             |
| M10x1.5   | M12-M48x1.50 | S2L08079L208-I1.50ISO TM... | 8 7.90 80 22.30   | 6            | 2     | 8.6             |
| M12x1.75  |              | S2L10099L250-I1.75ISO TM... | 10 9.90 101 26.75 | 6            | 2     | 10.4            |

## Millipro HD

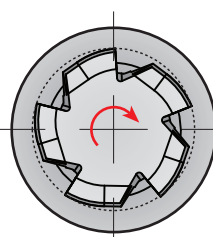
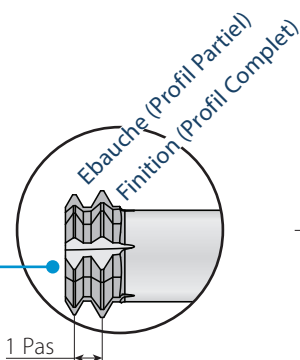
Fraises à Fileter Mini pour Matières dures Jusqu'à 62Hrc

3 x Do ( $L1 \leq 3 \times \varnothing$  Filet)

| Filet     | Pas          | Référence                   | Dimensions mm   | Nombre de Dents | Dents | mini de perçage |
|-----------|--------------|-----------------------------|-----------------|-----------------|-------|-----------------|
| M         | M Fin        | Intérieur                   | D D2 L L1       | Z               | Zt    | mm              |
| M2x0.4    |              | S2L06015L062-I0.4ISO TM...  | 6 1.55 76 6.60  | 4               | 2     | 1.6             |
| M2.5x0.45 |              | S2L06019L077-I0.45ISO TM... | 6 1.95 76 8.15  | 4               | 2     | 2.05            |
| M3x0.5    | M3.5-M16x0.5 | S2L06024L092-I0.5ISO TM...  | 6 2.40 76 9.75  | 4               | 2     | 2.55            |
| M4x0.7    |              | S2L06031L123-I0.7ISO TM...  | 6 3.15 76 13.05 | 4               | 2     | 3.35            |
| M5x0.8    |              | S2L06040L154-I0.8ISO TM...  | 6 4.05 76 16.20 | 4               | 2     | 4.3             |
| M6x1.0    | M8-M40x1.0   | S2L06048L185-I1.0ISO TM...  | 6 4.80 76 19.50 | 5               | 2     | 5.1             |
| M8x1.25   |              | S2L08065L246-I1.25ISO TM... | 8 6.50 80 25.85 | 5               | 2     | 6.8             |

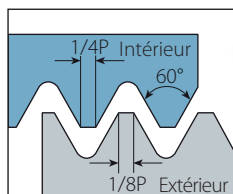
Dent à 2 Arrête de coupe: Profil partiel pour dent d'ébauche suivi du profil complet pour la finition.

Le sens d'usinage doit commencer à partir du haut vers le bas (fraisage en avalant).



Les outils Millipro HD sont à gauche. Pour les machines à commandes numériques, utiliser le code M04.

## Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2B



Outil à gauche

## Millipro HD

Fraises à Fileter Mini pour Matières dures Jusqu'à 62Hrc

2 x Do ( $L1 \leq 2 \times \varnothing \text{ Filet}$ )

| Filet            |          | Pas | Référence                | Dimensions mm |      |     |       | Nombre de Dents | Dents | mini de perçage |
|------------------|----------|-----|--------------------------|---------------|------|-----|-------|-----------------|-------|-----------------|
| UNC              | UNF      | tpi | Intérieur                | D             | D2   | L   | L1    | Z               | Zt    | mm              |
| No.2-56          | No.3-56  | 56  | S2L06016L050-I56UN TM... | 6             | 1.65 | 76  | 5.45  | 4               | 2     | 1.80            |
| No.3-48          | No.4-48  | 48  | S2L06019L060-I48UN TM... | 6             | 1.90 | 76  | 6.53  | 4               | 2     | 2.10            |
| No.4-40, No.5-40 | No.6-40  | 40  | S2L06021L060-I40UN TM... | 6             | 2.10 | 76  | 6.64  | 4               | 2     | 2.35            |
| No.5-40          | No.6-40  | 40  | S2L06024L072-I40UN TM... | 6             | 2.45 | 76  | 7.84  | 4               | 2     | 2.65            |
|                  | No.8-36  | 36  | S2L06033L087-I36UN TM... | 6             | 3.30 | 76  | 9.41  | 4               | 2     | 3.55            |
| No.6-32, No.8-32 | No.10-32 | 32  | S2L06025L074-I32UN TM... | 6             | 2.55 | 76  | 8.20  | 4               | 2     | 2.85            |
| No.8-32          | No.10-32 | 32  | S2L06032L100-I32UN TM... | 6             | 3.20 | 76  | 10.79 | 4               | 2     | 3.50            |
|                  | No.10-32 | 32  | S2L06037L100-I32UN TM... | 6             | 3.70 | 76  | 10.80 | 4               | 2     | 4.17            |
|                  | 1/4"x28  | 28  | S2L06052L132-I28UN TM... | 6             | 5.25 | 76  | 14.11 | 5               | 2     | 5.55            |
| No.10-24         | 5/16"x24 | 24  | S2L06035L102-I24UN TM... | 6             | 3.58 | 76  | 11.26 | 4               | 2     | 3.90            |
|                  | 5/16"x24 | 24  | S2L08066L165-I24UN TM... | 8             | 6.68 | 80  | 17.56 | 5               | 2     | 7.00            |
| 1/4"-20          | 7/16"x20 | 20  | S2L06048L134-I20UN TM... | 6             | 4.88 | 76  | 14.67 | 5               | 2     | 5.20            |
|                  | 7/16"x20 | 20  | S2L10095L230-I20UN TM... | 10            | 9.55 | 101 | 24.27 | 6               | 2     | 9.90            |
| 3/8"x16          |          | 16  | S2L08076L197-I16UN TM... | 8             | 7.65 | 80  | 21.29 | 5               | 2     | 8.00            |
| 7/16"x14         |          | 14  | S2L10090L233-I14UN TM... | 10            | 9.00 | 101 | 25.11 | 6               | 2     | 9.50            |
| 1/2"x13          |          | 13  | S2L10099L256-I13UN TM... | 10            | 9.90 | 101 | 27.55 | 6               | 2     | 10.90           |

## Millipro HD

Fraises à Fileter Mini pour Matières dures Jusqu'à 62Hrc

3 x Do ( $L1 \leq 3 \times \varnothing \text{ Filet}$ )

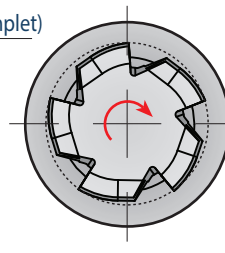
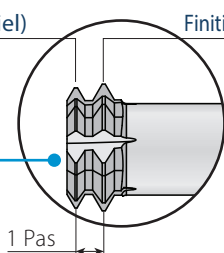
| Filet            |          | Pas | Référence                | Dimensions mm |      |     |       | Nombre de Dents | Dents | mini de perçage |
|------------------|----------|-----|--------------------------|---------------|------|-----|-------|-----------------|-------|-----------------|
| UNC              | UNF      | tpi | Intérieur                | D             | D2   | L   | L1    | Z               | Zt    | mm              |
| No.4-40, No.5-40 | No.6-40  | 40  | S2L06021L090-I40UN TM... | 6             | 2.10 | 76  | 9.64  | 4               | 2     | 2.35            |
| No.5-40          | No.6-40  | 40  | S2L06024L100-I40UN TM... | 6             | 2.45 | 76  | 10.64 | 4               | 2     | 2.65            |
| No.6-32, No.8-32 | No.10-32 | 32  | S2L06025L110-I32UN TM... | 6             | 2.55 | 76  | 11.79 | 4               | 2     | 2.85            |
| No.8-32          | No.10-32 | 32  | S2L06032L130-I32UN TM... | 6             | 3.20 | 76  | 13.79 | 4               | 2     | 3.50            |
|                  | 1/4"x28  | 28  | S2L06052L196-I28UN TM... | 6             | 5.25 | 76  | 20.51 | 5               | 2     | 5.55            |
|                  | 5/16"x24 | 24  | S2L08066L245-I24UN TM... | 8             | 6.68 | 80  | 25.56 | 5               | 2     | 7.00            |
| 1/4"x20          | 7/16"x20 | 20  | S2L06048L198-I20UN TM... | 6             | 4.88 | 76  | 21.07 | 5               | 2     | 5.20            |
| 7/16"x14         |          | 14  | S2L10090L335-I14UN TM... | 10            | 9.00 | 101 | 35.31 | 6               | 2     | 9.50            |

Ebauche (Profil Partiel)

Finition (Profil Complet)

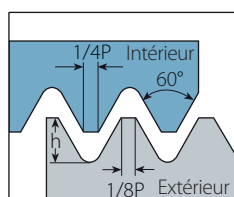
Dent à 2 Arrête de coupe: Profil partiel pour dent d'ébauche suivi du profil complet pour la finition.

Le sens d'usinage doit commencer à partir du haut vers le bas (fraisage en avalant).

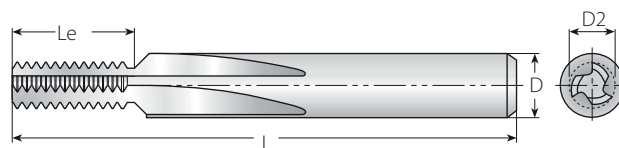


Les outils Millipro HD sont à gauche. Pour les machines à commandes numériques, utiliser le code M04.

## Extérieur / Intérieur



Norme: R262 (DIN 13)  
Classe de tolérance: 6g/6H



## Goujures Droites - Extérieur

| Filet     | Pas  | Référence             | Dimensions mm |       |     | Nombre de Dents |        | Dents |      |
|-----------|------|-----------------------|---------------|-------|-----|-----------------|--------|-------|------|
| Min. Dia. | mm   | Extérieur             | D             | D2    | L   | Le              | Z      | Zt    | h mm |
| M3        | 0.50 | S06059-E0.5ISO TM...  | 6             | 5.90  | 57  | 15.0            | 3      | 30    | 0.31 |
| M4.5      | 0.75 | S08079-E0.75ISO TM... | 8             | 7.90  | 63  | 19.5            | 3, 5 * | 26    | 0.46 |
| M6        | 1.00 | S10099-E1.0ISO TM...  | 10            | 9.90  | 72  | 24.0            | 5      | 24    | 0.61 |
| M10       | 1.50 | S12119-E1.5ISO TM...  | 12            | 11.90 | 83  | 30.0            | 5      | 20    | 0.92 |
| M14       | 2.00 | S12119-E2.0ISO TM...  | 12            | 11.90 | 83  | 30.0            | 5      | 15    | 1.23 |
| M24       | 3.00 | S16159-E3.0ISO TM...  | 16            | 15.90 | 92  | 36.0            | 5      | 12    | 1.84 |
| M36       | 4.00 | S16159-E4.0ISO TM...  | 16            | 15.90 | 92  | 40.0            | 5      | 10    | 2.45 |
| M64       | 6.00 | S20199-E6.0ISO TM...  | 20            | 19.90 | 104 | 36.0            | 5      | 6     | 3.68 |

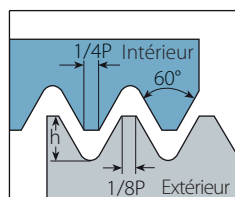
\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## Goujures Droites - Intérieur

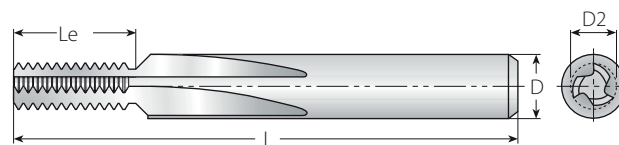
| Filet     | Pas  | Référence             | Dimensions mm |       |     | Nombre de Dents |        | Dents |      |
|-----------|------|-----------------------|---------------|-------|-----|-----------------|--------|-------|------|
| Min. Dia. | mm   | Intérieur             | D             | D2    | L   | Le              | Z      | Zt    | h mm |
| M4.5      | 0.75 | S04030-I0.75ISO TM... | 4             | 3.00  | 42  | 6.7             | 3      | 9     | 0.43 |
| M8        | 0.75 | S06059-I0.75ISO TM... | 6             | 5.90  | 57  | 15.0            | 3      | 20    | 0.43 |
| M5        | 0.80 | S04036-I0.8ISO TM...  | 4             | 3.60  | 42  | 8.0             | 3      | 10    | 0.46 |
| M6        | 1.00 | S06040-I1.0ISO TM...  | 6             | 4.00  | 57  | 9.0             | 3      | 9     | 0.58 |
| M12       | 1.00 | S08079-I1.0ISOTM...   | 8             | 7.90  | 63  | 20.0            | 3, 5 * | 20    | 0.58 |
| M8        | 1.25 | S06050-I1.25ISO TM... | 6             | 5.00  | 57  | 12.5            | 3      | 10    | 0.72 |
| M10       | 1.50 | S06059-I1.5ISO TM...  | 6             | 5.90  | 57  | 15.0            | 3      | 10    | 0.87 |
| M14       | 1.50 | S10099-I1.5ISO TM...  | 10            | 9.90  | 72  | 24.0            | 5      | 16    | 0.87 |
| M18       | 1.50 | S12119-I1.5ISO TM...  | 12            | 11.90 | 83  | 30.0            | 5      | 20    | 0.87 |
| M12       | 1.75 | S08079-I1.75ISO TM... | 8             | 7.90  | 63  | 19.2            | 3, 5 * | 11    | 1.01 |
| M16       | 2.00 | S10099-I2.0ISO TM...  | 10            | 9.90  | 72  | 24.0            | 5      | 12    | 1.15 |
| M18       | 2.00 | S12119-I2.0ISO TM...  | 12            | 11.90 | 83  | 30.0            | 5      | 15    | 1.15 |
| M20       | 2.50 | S12119-I2.5ISO TM...  | 12            | 11.90 | 83  | 30.0            | 5      | 12    | 1.44 |
| M24       | 3.00 | S16159-I3.0ISO TM...  | 16            | 15.90 | 92  | 36.0            | 5      | 12    | 1.73 |
| M30       | 3.50 | S16159-I3.5ISO TM...  | 16            | 15.90 | 92  | 38.5            | 5      | 11    | 2.02 |
| M36       | 4.00 | S16159-I4.0ISO TM...  | 16            | 15.90 | 92  | 40.0            | 5      | 10    | 2.31 |
| M48       | 5.00 | S20199-I5.0ISO TM...  | 20            | 19.90 | 104 | 40.0            | 5      | 8     | 2.89 |
| M64       | 6.00 | S20199-I6.0ISO TM...  | 20            | 19.90 | 104 | 36.0            | 5      | 6     | 3.46 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## Extérieur / Intérieur



Norme: ANSI B1.1:74  
Classe de tolérance: 2A/2B



## Goujures Droites - Extérieur

| Filet     | Pas | Référence          | Dimensions mm |       |     |      | Nombre de Dents | Dents |      |
|-----------|-----|--------------------|---------------|-------|-----|------|-----------------|-------|------|
| Min. Dia. | tpi | Extérieur          | D             | D2    | L   | Le   | Z               | Zt    | h mm |
| No.6      | 32  | S06059-E32UN TM... | 6             | 5.90  | 57  | 14.3 | 3               | 18    | 0.49 |
| No.12     | 28  | S08079-E28UN TM... | 8             | 7.90  | 63  | 19.9 | 3, 5 *          | 22    | 0.56 |
| 1/4"      | 20  | S10099-E20UN TM... | 10            | 9.90  | 72  | 22.9 | 5               | 18    | 0.78 |
| 5/16"     | 18  | S10099-E18UN TM... | 10            | 9.90  | 72  | 24.0 | 5               | 17    | 0.87 |
| 3/8"      | 16  | S12119-E16UN TM... | 12            | 11.90 | 83  | 28.6 | 5               | 18    | 0.97 |
| 9/16"     | 12  | S12119-E12UN TM... | 12            | 11.90 | 83  | 29.6 | 5               | 14    | 1.30 |
| 1"        | 8   | S16159-E8UN TM...  | 16            | 15.90 | 92  | 38.1 | 5               | 12    | 1.95 |
| 1 3/8"    | 6   | S20199-E6UN TM...  | 20            | 19.90 | 104 | 38.1 | 5               | 9     | 2.60 |

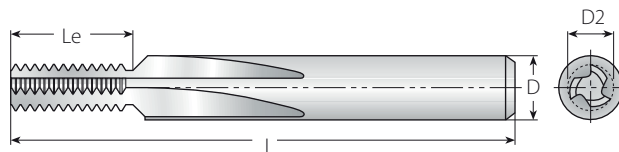
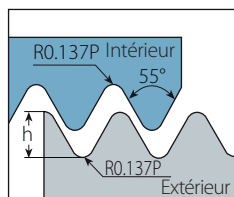
\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## Goujures Droites - Intérieur

| Filet     | Pas | Référence           | Dimensions mm |       |     |      | Nombre de Dents | Dents |      |
|-----------|-----|---------------------|---------------|-------|-----|------|-----------------|-------|------|
| Min. Dia. | tpi | Intérieur           | D             | D2    | L   | Le   | Z               | Zt    | h mm |
| No.8      | 36  | S04030-I36UN TM...  | 4             | 3.00  | 42  | 6.3  | 3               | 9     | 0.41 |
| No.8      | 32  | S04030-I32UN TM...  | 4             | 3.00  | 42  | 6.3  | 3               | 8     | 0.46 |
| 5/16"     | 32  | S06059-I32UN TM...  | 6             | 5.90  | 57  | 14.3 | 3               | 18    | 0.46 |
| No.12     | 28  | S04036-I28UN TM...  | 4             | 3.60  | 42  | 8.2  | 3               | 9     | 0.52 |
| 7/16"     | 28  | S08079-I28UN TM...  | 8             | 7.90  | 63  | 19.9 | 3, 5*           | 22    | 0.52 |
| No.12     | 24  | S06040-I24UN TM...  | 6             | 4.00  | 57  | 8.5  | 3               | 8     | 0.61 |
| 1/4"      | 20  | S06040-I20UN TM...  | 6             | 4.00  | 57  | 10.2 | 3               | 8     | 0.73 |
| 9/16"     | 20  | S10099-I20UN TM...  | 10            | 9.90  | 72  | 22.9 | 5               | 18    | 0.73 |
| 5/16"     | 18  | S06050-I18UN TM...  | 6             | 5.00  | 57  | 12.7 | 3               | 9     | 0.81 |
| 9/16"     | 18  | S10099-I18UN TM...  | 10            | 9.90  | 72  | 24.0 | 5               | 17    | 0.81 |
| 3/8"      | 16  | S06059-I16UN TM...  | 6             | 5.90  | 57  | 14.3 | 3               | 9     | 0.92 |
| 3/4"      | 16  | S12119-I16UN TM...  | 12            | 11.90 | 83  | 28.6 | 5               | 18    | 0.92 |
| 7/16"     | 14  | S08079-I14UN TM...  | 8             | 7.90  | 63  | 18.1 | 3, 5*           | 10    | 1.05 |
| 1/2"      | 13  | S08079-I13UN TM...  | 8             | 7.90  | 63  | 19.5 | 3, 5*           | 10    | 1.13 |
| 9/16"     | 12  | S10099-I12UN TM...  | 10            | 9.90  | 72  | 23.3 | 5               | 11    | 1.22 |
| 1"        | 12  | S12119-I12UN TM...  | 12            | 11.90 | 83  | 29.6 | 5               | 14    | 1.22 |
| 5/8"      | 11  | S10099-I11UN TM...  | 10            | 9.90  | 72  | 23.1 | 5               | 10    | 1.33 |
| 3/4"      | 10  | S12119-I10UN TM...  | 12            | 11.90 | 83  | 27.9 | 5               | 11    | 1.47 |
| 7/8"      | 9   | S16159-I9UN TM...   | 16            | 15.90 | 92  | 33.3 | 5               | 12    | 1.63 |
| 1"        | 8   | S16159-I8UN TM...   | 16            | 15.90 | 92  | 38.1 | 5               | 12    | 1.83 |
| 1 1/8"    | 7   | S16159-I7UN TM...   | 16            | 15.90 | 92  | 36.3 | 5               | 10    | 2.09 |
| 1 3/8"    | 6   | S20199-I6UN TM...   | 20            | 19.90 | 104 | 38.1 | 5               | 9     | 2.44 |
| 1 3/4"    | 5   | S20199-I5UN TM...   | 20            | 19.90 | 104 | 40.6 | 5               | 8     | 2.93 |
| 2"        | 4.5 | S20199-I4.5UN TM... | 20            | 19.90 | 104 | 39.5 | 5               | 7     | 3.26 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## Extérieur / Intérieur



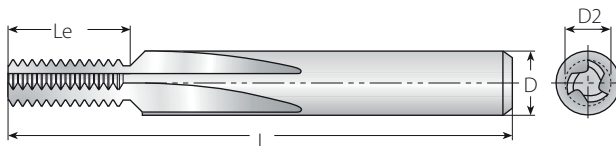
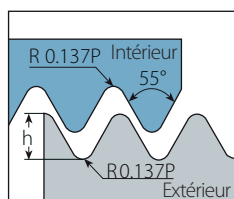
Norme: B.S.84:1956, DIN 259, ISO228/1:1982  
Classe de tolérance: Classe moyenne A

## Goujures droites

| Filet     | Pas | Référence             | Dimensions mm |       |     | Nombre de Dents | Dents |    |      |
|-----------|-----|-----------------------|---------------|-------|-----|-----------------|-------|----|------|
| Min. Dia. | tpi | Extérieur / Intérieur | D             | D2    | L   | Le              | Z     | Zt | h mm |
| 1/4"      | 20  | S06040-EI20BSW TM...  | 6             | 4.00  | 57  | 10.16           | 3     | 8  | 0.81 |
| 5/16"     | 18  | S06050-EI18BSW TM...  | 6             | 5.00  | 57  | 11.29           | 3     | 8  | 0.90 |
| 3/8"      | 16  | S06059-EI16BSW TM...  | 6             | 5.90  | 57  | 14.29           | 3     | 9  | 1.02 |
| 7/16"     | 14  | S08079-EI14BSW TM...  | 8             | 7.90  | 63  | 18.14           | 3, 5* | 10 | 1.16 |
| 1/2"      | 12  | S08079-EI12BSW TM...  | 8             | 7.90  | 63  | 19.05           | 3, 5* | 9  | 1.36 |
| 5/8"      | 11  | S10099-EI11BSW TM...  | 10            | 9.90  | 72  | 23.09           | 5     | 10 | 1.48 |
| 3/4"      | 10  | S12119-EI10BSW TM...  | 12            | 11.90 | 83  | 27.94           | 5     | 11 | 1.63 |
| 7/8"      | 9   | S12119-EI9BSW TM...   | 12            | 11.90 | 83  | 28.22           | 5     | 10 | 1.81 |
| 1"        | 8   | S16159-EI8BSW TM...   | 16            | 15.90 | 92  | 38.10           | 5     | 12 | 2.03 |
| 1 1/8"    | 7   | S16159-EI7BSW TM...   | 16            | 15.90 | 92  | 36.29           | 5     | 10 | 2.32 |
| 1 3/8"    | 6   | S16159-EI6BSW TM...   | 16            | 15.90 | 92  | 38.10           | 5     | 9  | 2.71 |
| 1 5/8"    | 5   | S20199-EI5BSW TM...   | 20            | 19.90 | 104 | 40.64           | 5     | 8  | 3.25 |
| 1 7/8"    | 4.5 | S20199-EI4.5BSW TM... | 20            | 19.90 | 104 | 39.51           | 5     | 7  | 3.61 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## Extérieur / Intérieur



Norme: B.S.2779:1956  
Classe de tolérance: Classe moyenne

## Goujures droites

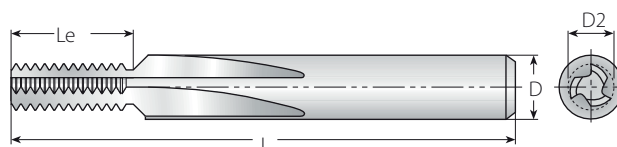
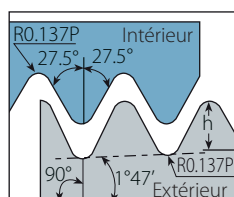
| Filet     | Pas | Référence             | Dimensions mm |       |    | Nombre de Dents | Dents |    |      |
|-----------|-----|-----------------------|---------------|-------|----|-----------------|-------|----|------|
| Min. Dia. | tpi | Extérieur / Intérieur | D             | D2    | L  | Le              | Z     | Zt | h mm |
| 1/16"     | 28  | S06059-EI28BSP TM...  | 6             | 5.90  | 57 | 14.51           | 3     | 16 | 0.58 |
| 1/4"      | 19  | S08079-EI19BSP TM...  | 8             | 7.90  | 63 | 18.72           | 3, 5* | 14 | 0.86 |
| 1/2"      | 14  | S12119-EI14BSP TM...  | 12            | 11.90 | 83 | 29.03           | 5     | 16 | 1.16 |
| 1"        | 11  | S16159-EI11BSP TM...  | 16            | 15.90 | 92 | 34.64           | 5     | 15 | 1.48 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## BSPT

## Droites

### Extérieur / Intérieur



Norme: B.S.21:1985

Classe de tolérance: Standard BSPT

### Goujures droites

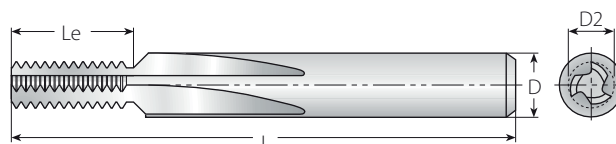
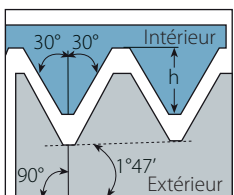
| Filet     | Pas | Référence             | Dimensions mm |       |    | Nombre de Dents | Dents |    |      |
|-----------|-----|-----------------------|---------------|-------|----|-----------------|-------|----|------|
| Min. Dia. | tpi | Extérieur / Intérieur | D             | D2    | L  | Le              | Z     | Zt | h mm |
| 1/16"     | 28  | S06059-EI28BSPT TM... | 6             | 5.90  | 57 | 9.98            | 3     | 11 | 0.58 |
| 1/4"      | 19  | S08079-EI19BSPT TM... | 8             | 7.90  | 63 | 14.71           | 3, 5* | 11 | 0.86 |
| 1/2"      | 14  | S12119-EI14BSPT TM... | 12            | 11.90 | 83 | 19.96           | 5     | 11 | 1.16 |
| 1"        | 11  | S16159-EI11BSPT TM... | 16            | 15.90 | 92 | 39.25           | 5     | 17 | 1.48 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## NPT

## Droites

### Extérieur / Intérieur



Norme: USAS B2.1:1968

Classe de tolérance: Standard NPT

### Goujures droites

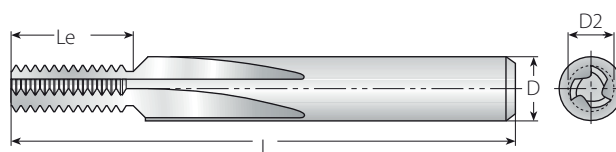
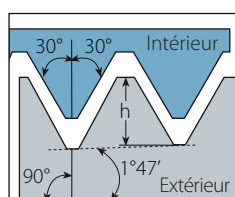
| Filet     | Pas  | Référence              | Dimensions mm |       |    | Nombre de Dents | Dents |    |      |
|-----------|------|------------------------|---------------|-------|----|-----------------|-------|----|------|
| Min. Dia. | tpi  | Extérieur / Intérieur  | D             | D2    | L  | Le              | Z     | Zt | h mm |
| 1/16"     | 27   | S06059-EI27NPT TM...   | 6             | 5.90  | 57 | 9.41            | 3     | 10 | 0.66 |
| 1/4"      | 18   | S08079-EI18NPT TM...   | 8             | 7.90  | 63 | 14.11           | 3, 5* | 10 | 1.01 |
| 1/2"      | 14   | S12119-EI14NPT TM...   | 12            | 11.90 | 83 | 19.96           | 5     | 11 | 1.33 |
| 1"        | 11.5 | S16159-EI11.5NPT TM... | 16            | 15.90 | 92 | 26.51           | 5     | 12 | 1.64 |
| 2 1/2"    | 8    | S16159-EI8NPT TM...    | 16            | 15.90 | 92 | 38.10           | 5     | 12 | 2.42 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## NPTF

## Droites

### Extérieur / Intérieur



Norme: ANSI 1.20.3-1976  
Classe de tolérance: Standard NPTF

### Goujures droites

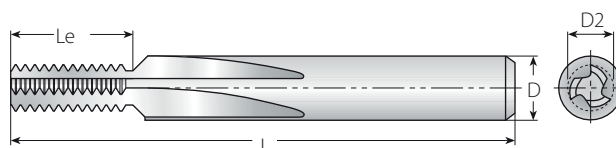
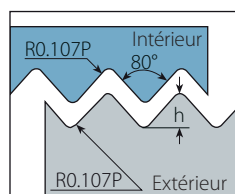
| Filet     | Pas  | Référence               | Dimensions mm |       |    | Nombre de Dents | Dents |    |      |
|-----------|------|-------------------------|---------------|-------|----|-----------------|-------|----|------|
| Min. Dia. | tpi  | Extérieur / Intérieur   | D             | D2    | L  | Le              | Z     | Zt | h mm |
| 1/16"     | 27   | S06059-EI27NPTF TM...   | 6             | 5.90  | 57 | 9.41            | 3     | 10 | 0.64 |
| 1/4"      | 18   | S08079-EI18NPTF TM...   | 8             | 7.90  | 63 | 14.11           | 3, 5* | 10 | 1.0  |
| 1/2"      | 14   | S12119-EI14NPTF TM...   | 12            | 11.90 | 83 | 19.96           | 5     | 11 | 1.35 |
| 1"        | 11.5 | S16159-EI11.5NPTF TM... | 16            | 15.90 | 92 | 26.51           | 5     | 12 | 1.63 |
| 2 1/2"    | 8    | S16159-EI8NPTF TM...    | 16            | 15.90 | 92 | 38.10           | 5     | 12 | 2.38 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## Pg

## Droites

### Extérieur / Intérieur



Norme: DIN 40430  
Classe de tolérance: Standard

### Goujures droites

| Filet                | Pas | Référence             | Dimensions mm |       |    |       | Nombre de Dents | Dents |      |
|----------------------|-----|-----------------------|---------------|-------|----|-------|-----------------|-------|------|
|                      | tpi | Extérieur / Intérieur | D             | D2    | L  | Le    | Z               | Zt    | h mm |
| Pg7                  | 20  | S08079-EI20PG TM...   | 8             | 7.90  | 63 | 19.05 | 3, 5*           | 15    | 0.61 |
| Pg9, 11, 13.5, 16    | 18  | S10099-EI18PG TM...   | 10            | 9.90  | 72 | 23.99 | 5               | 17    | 0.67 |
| Pg21, 29, 36, 42, 48 | 16  | S12119-EI16PG TM...   | 12            | 11.90 | 83 | 28.58 | 5               | 18    | 0.76 |

\* Disponible en 3 & 5 goujures. Ajouter 3 ou 5 à la référence (TM3.../TM5...)

## Les nuances et leurs applications

### VTH



### VTS



### VTS



### VTN



Les logiciels TM Gen & mises à jour peuvent être téléchargés à partir de [www.vargus.com](http://www.vargus.com)

## Vitesses de Coupe Vc [m/min] et Avances f [mm/dent]

| Groupe de Matière                        | Vardex No. | Accumulation                                         |                                                 | Dureté Brinell HB | Vc [m/min]                                                  |         |        | Avances f [mm/dent] |             |                        |                  |            |
|------------------------------------------|------------|------------------------------------------------------|-------------------------------------------------|-------------------|-------------------------------------------------------------|---------|--------|---------------------|-------------|------------------------|------------------|------------|
|                                          |            |                                                      |                                                 |                   | Helicool, HCR, HCC, Helical, Droite, Filetage en profondeur |         |        | Hélicoidal          | Droit       | Filetage en profondeur | Helicool HCC HCR | Millipro   |
|                                          |            |                                                      |                                                 |                   | VTH                                                         | VTS     | VTH    |                     |             |                        |                  |            |
| <b>P</b><br>Acier                        | 1          | Acier non allié                                      | Carbone faible (C= 0.1-0.25 %)                  | 125               | 80-250                                                      | 50-180  | 60-120 | 0.03-0.15           | 0.01-0.1    | 0.10-0.35              | 0.025-0.3        | 0.02-0.16  |
|                                          | 2          |                                                      | Carbone moyen (C=0.25-0.55%)                    | 150               | 80-230                                                      | 50-140  | 60-120 | 0.03-0.1            | 0.01-0.08   | 0.08-0.30              | 0.02-0.26        | 0.02-0.16  |
|                                          | 3          |                                                      | Carbone haut (C=0.55-0.85%)                     | 170               | 80-200                                                      | 50-120  | 60-90  | 0.03-0.08           | 0.01-0.06   | 0.08-0.30              | 0.02-0.23        | 0.02-0.16  |
|                                          | 4          | Acier faiblement allié (constituants d'alliage ≤ 5%) | Non traité                                      | 180               | 60-180                                                      | 60-170  | 60-90  | 0.03-0.1            | 0.03-0.07   | 0.08-0.30              | 0.02-0.22        | 0.015-0.16 |
|                                          | 5          |                                                      | Traité                                          | 275               | 60-170                                                      | 60-160  | 50-80  | 0.03-0.07           | 0.03-0.07   | 0.08-0.30              | 0.01-0.15        | 0.015-0.07 |
|                                          | 6          |                                                      | Traité                                          | 350               | 60-160                                                      | 60-150  | 50-80  | 0.01-0.03           | 0.005-0.01  | 0.05-0.15              | 0.01-0.1         | 0.015-0.03 |
|                                          | 7          | Acier hautement allié (constituants d'alliage > 5%)  | Revenu / Malléable                              | 200               | 40-100                                                      | 40-90   | 50-80  | 0.03-0.05           | 0.01-0.03   | 0.10-0.24              | 0.01-0.13        | 0.015-0.09 |
|                                          | 8          |                                                      | Traité                                          | 325               | 30-80                                                       | 30-70   | 50-80  | 0.01-0.03           | 0.005-0.01  | 0.05-0.15              | 0.01-0.12        | 0.015-0.03 |
|                                          | 9          | Acier fondu                                          | Faiblement allié (constituants d'alliages < 5%) | 200               | 80-250                                                      | 70-200  | 70-90  | 0.03-0.1            | 0.01-0.03   | 0.08-0.30              | 0.01-0.15        | 0.015-0.16 |
|                                          | 10         |                                                      | Haut alliage (constituants d'alliage > 5%)      | 225               | 60-170                                                      | 60-150  | 60-80  | 0.01-0.03           | 0.005-0.01  | 0.05-0.15              | 0.01-0.1         | 0.015-0.03 |
| <b>M</b><br>Acier inoxydable             | 11         | Acier inoxydable ferritique                          | Non traité                                      | 200               | 60-150                                                      | 50-140  | 60-90  | 0.04-0.1            | 0.01-0.05   | 0.11-0.35              | 0.01-0.13        | 0.015-0.16 |
|                                          | 12         |                                                      | Traité                                          | 330               | 60-120                                                      | 50-110  | 50-80  | 0.01-0.05           | 0.005-0.01  | 0.05-0.24              | 0.01-0.12        | 0.015-0.03 |
|                                          | 13         | Acier inoxydable Austénitique                        | Austénitique                                    | 180               | 60-140                                                      | 60-130  | 60-90  | 0.04-0.1            | 0.007-0.02  | 0.11-0.35              | 0.01-0.12        | 0.015-0.16 |
|                                          | 14         |                                                      | Super austénitique                              | 200               | 60-130                                                      | 50-120  | 50-80  | 0.04-0.1            | 0.007-0.02  | 0.11-0.35              | 0.01-0.1         | 0.015-0.16 |
|                                          | 15         | Acier inoxydable Fondu ferritique                    | Non traité                                      | 200               | 60-160                                                      | 50-150  | 60-90  | 0.04-0.1            | 0.01-0.03   | 0.11-0.35              | 0.01-0.15        | 0.015-0.16 |
|                                          | 16         |                                                      | Traité                                          | 330               | 60-110                                                      | 50-100  | 50-80  | 0.03-0.05           | 0.005-0.01  | 0.10-0.24              | 0.01-0.1         | 0.015-0.03 |
|                                          | 17         | Acier inoxydable fondu austénitique                  | Austénitique                                    | 200               | 60-150                                                      | 50-140  | 60-90  | 0.04-0.1            | 0.01-0.03   | 0.11-0.35              | 0.01-0.12        | 0.015-0.16 |
|                                          | 18         |                                                      | Traité                                          | 330               | 60-100                                                      | 50-90   | 50-80  | 0.03-0.05           | 0.005-0.01  | 0.10-0.24              | 0.01-0.1         | 0.015-0.03 |
| <b>K</b><br>Fonte                        | 28         | Malléable Fonte                                      | Féritique (copeaux courts)                      | 130               | 60-70                                                       | 60-150  | 50-80  | 0.01-0.03           | 0.007-0.02  | 0.05-0.15              | 0.01-0.15        | 0.015-0.03 |
|                                          | 29         |                                                      | Perlitique (copeaux longs)                      | 230               | 60-150                                                      | 80-100  | 60-90  | 0.03-0.05           | 0.005-0.01  | 0.10-0.24              | 0.01-0.12        | 0.02-0.12  |
|                                          | 30         | Fonte grise                                          | Acier à faible résistance                       | 180               | 70-160                                                      | 50-140  | 70-100 | 0.025-0.1           | 0.007-0.02  | 0.09-0.25              | 0.01-0.13        | 0.02-0.16  |
|                                          | 31         |                                                      | Acier à haute résistance                        | 260               | 40-120                                                      | 40-110  | 60-90  | 0.03-0.05           | 0.005-0.01  | 0.10-0.24              | 0.01-0.12        | 0.02-0.12  |
|                                          | 32         | Fonte nodulaire SG                                   | Féritique                                       | 160               | 40-110                                                      | 40-100  | 70-100 | 0.05-0.1            | 0.007-0.02  | 0.09-0.25              | 0.01-0.13        | 0.02-0.16  |
|                                          | 33         |                                                      | Perlitique                                      | 260               | 40-100                                                      | 40-90   | 60-90  | 0.03-0.05           | 0.005-0.01  | 0.10-0.24              | 0.01-0.12        | 0.02-0.12  |
| <b>N(K)</b><br>Métaux non ferreux        | 34         | Alliages aluminium forge                             | Non Vieilli                                     | 60                | 200-300                                                     | 150-250 | 60-250 | 0.1-0.25            | 0.05-0.15   | 0.12-0.40              | 0.04-0.4         | 0.025-0.15 |
|                                          | 35         |                                                      | Vieilli                                         | 100               | 150-250                                                     | 100-220 | 60-150 | 0.1-0.2             | 0.03-0.1    | 0.10-0.32              | 0.03-0.36        | 0.025-0.16 |
|                                          | 36         | Alliages aluminium                                   | Coulé                                           | 75                | 100-200                                                     | 80-150  | 60-250 | 0.1-0.2             | 0.05-0.15   | 0.10-0.32              | 0.03-0.36        | 0.025-0.16 |
|                                          | 37         |                                                      | Fondu & vieilli                                 | 90                | 120-220                                                     | 90-160  | 60-150 | 0.1-0.15            | 0.03-0.1    | 0.10-0.30              | 0.1-0.3          | 0.015-0.16 |
|                                          | 38         | Alliages aluminium                                   | Coulé Si 13-22%                                 | 130               | 200-300                                                     | 150-250 | 250    | 0.1-0.2             | 0.05-0.15   | 0.10-0.32              | 0.03-0.36        | 0.03-0.15  |
|                                          | 39         | Cuivre & alliages cuivre                             | Laiton                                          | 90                | 200-300                                                     | 150-250 | 60-250 | 0.1-0.25            | 0.05-0.15   | 0.12-0.40              | 0.04-0.43        | 0.025-0.16 |
|                                          | 40         |                                                      | Bronze & cuivre sans plomb                      | 100               | 150-250                                                     | 100-220 | 60-150 | 0.1-0.2             | 0.03-0.1    | 0.10-0.32              | 0.03-0.36        | 0.03-0.15  |
| <b>S(M)</b><br>Matières Haute Résistance | 19         | Alliages haute température alloys                    | Trempé (à base du fer)                          | 200               | 30-60                                                       | 30-50   | 60     | 0.04-0.1            | 0.007-0.02  | 0.11-0.35              | 0.007-0.09       | 0.015-0.16 |
|                                          | 20         |                                                      | Vieilli (à base du fer)                         | 280               | 20-50                                                       | 20-40   | 50     | 0.01-0.03           | 0.005-0.01  | 0.05-0.15              | 0.006-0.07       | 0.015-0.03 |
|                                          | 21         |                                                      | Trempé (à base de Nickel ou Cobalt)             | 250               | 15-35                                                       | 15-30   | 35     | 0.01-0.03           | 0.005-0.01  | 0.05-0.15              | 0.005-0.06       | 0.015-0.03 |
|                                          | 22         |                                                      | Vieilli (à base de Nickel ou Cobalt)            | 350               | 15-30                                                       | 15-25   | 30     | 0.01-0.03           | 0.005-0.01  | 0.05-0.15              | 0.005-0.06       | 0.015-0.03 |
|                                          | 23         | Alliages Titanium                                    | Pur 99.5 Ti                                     | 400Rm             | 40-80                                                       | 30-70   | 30-50  | 0.03-0.05           | 0.007-0.02  | 0.10-0.24              | 0.006-0.07       | 0.015-0.07 |
|                                          | 24         |                                                      | Alliages α+β                                    | 1050Rm            | 20-50                                                       | 20-45   | 25-35  | 0.03-0.05           | 0.007-0.02  | 0.10-0.24              | 0.006-0.07       | 0.015-0.07 |
| <b>H(K)</b><br>Matières dures            | 25         | Acier extra dur                                      | Traité & trempé                                 | 45-50HRC          | 15-45                                                       | 15-35   | 45     | 0.005-0.01          | 0.003-0.006 | 0.025-0.06             | 0.004-0.04       | -          |
|                                          | 26         |                                                      |                                                 | 51-55HRC          | 15-40                                                       | 15-30   | 30     | 0.005-0.01          | 0.003-0.006 | 0.025-0.06             | 0.004-0.04       | -          |

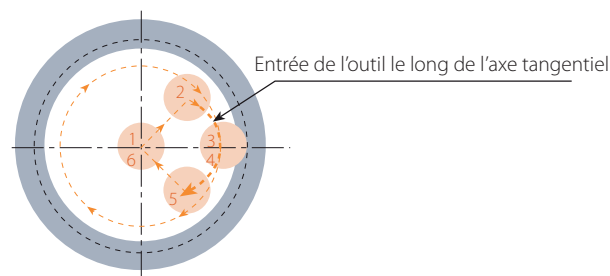
### \* Recommendation:

Avances [mm/dent] de 70 % plus faible que l'avances de filetage pour une entrée de l'outil.

### Exemple:

Avances du Filetage: 0.3[mm/dent]

Avances entrée outil: 0.09[mm/dent]



## Millipro HD

### Vitesses de Coupe Vc [m/min] et Avances f [mm/dent]

| Groupe de Matière                        | Vardex No. | Accumulation                                        |                                     | Dureté Brinell HB | Vc [m/min] |  | Avances f [mm/dent] pour diamètre de coupe |       |      |      |      |
|------------------------------------------|------------|-----------------------------------------------------|-------------------------------------|-------------------|------------|--|--------------------------------------------|-------|------|------|------|
|                                          |            |                                                     |                                     |                   | VTH        |  | 1.5-2.5                                    | 2.5-5 | 5-7  | 7-9  | 9-11 |
| <b>P</b><br>Acier                        | 6          | Acier faiblement allié (constituants d'alliage ≤5%) | Traité                              | 350               | 25-160     |  | 0.04                                       | 0.05  | 0.06 | 0.07 | 0.08 |
|                                          | 8          | Acier hautement allié (constituants d'alliage >5%)  | Traité                              | 325               | 25-180     |  |                                            |       |      |      |      |
| <b>M</b><br>Acier inoxydable             | 12         | Acier inoxydable ferritique                         | Traité                              | 330               | 25-120     |  | 0.04                                       | 0.05  | 0.06 | 0.07 | 0.08 |
|                                          | 16         | Acier inoxydable Fondu ferritique                   | Traité                              | 330               | 25-110     |  |                                            |       |      |      |      |
|                                          | 18         | Acier inoxydable fondu austénitique                 | Traité                              | 330               | 25-100     |  |                                            |       |      |      |      |
| <b>K</b><br>Fonte                        | 28         | Fonte malléable                                     | Féritique (copeaux courts)          | 130               | 25-160     |  | 0.05                                       | 0.06  | 0.07 | 0.08 | 0.1  |
|                                          | 29         |                                                     | Perlitique (copeaux longs)          | 230               | 25-150     |  | 0.04                                       | 0.05  | 0.06 | 0.07 | 0.08 |
|                                          | 30         | Fonte grise                                         | Acier à faible résistance           | 180               | 25-130     |  | 0.05                                       | 0.06  | 0.07 | 0.08 | 0.1  |
|                                          | 31         |                                                     | Acier à haute résistance            | 260               | 25-100     |  | 0.04                                       | 0.05  | 0.06 | 0.07 | 0.08 |
|                                          | 32         | Fonte nodulaire SG                                  | Féritique                           | 160               | 25-125     |  | 0.04                                       | 0.05  | 0.06 | 0.07 | 0.09 |
|                                          | 33         |                                                     | Perlitique                          | 260               | 25-90      |  | 0.03                                       | 0.04  | 0.05 | 0.06 | 0.07 |
| <b>S(M)</b><br>Matières Haute Resistance | 21         | Alliages haute température alloys                   | Trempé (à base de Nickel ou Cobalt) | 250               | 15-35      |  | 0.03                                       | 0.04  | 0.05 | 0.06 | 0.07 |
|                                          | 22         |                                                     | Vieill (à base de Nickel ou Cobalt) | 350               | 15-30      |  |                                            |       |      |      |      |
|                                          | 23         | Alliages Titanium                                   | Pur 99.5 Ti                         | 400Rm             | 25-70      |  |                                            |       |      |      |      |
|                                          | 24         |                                                     | Alliages α+β                        | 1050Rm            | 25-50      |  |                                            |       |      |      |      |
| <b>H(K)</b><br>Matières dures            | 25         | Acier extra dur                                     | Traité & trempé                     | 45-50HRC          | 25-70      |  | 0.04                                       | 0.05  | 0.06 | 0.07 | 0.08 |
|                                          | 26         |                                                     |                                     | 51-55HRC          | 25-60      |  | 0.03                                       | 0.04  | 0.05 | 0.06 | 0.07 |
|                                          | 27         |                                                     |                                     | 56-62HRC          | 25-50      |  | 0.02                                       | 0.03  | 0.04 | 0.05 | 0.06 |

### Nuances, Vitesses de Coupe et Avances Recommandées pour HTC

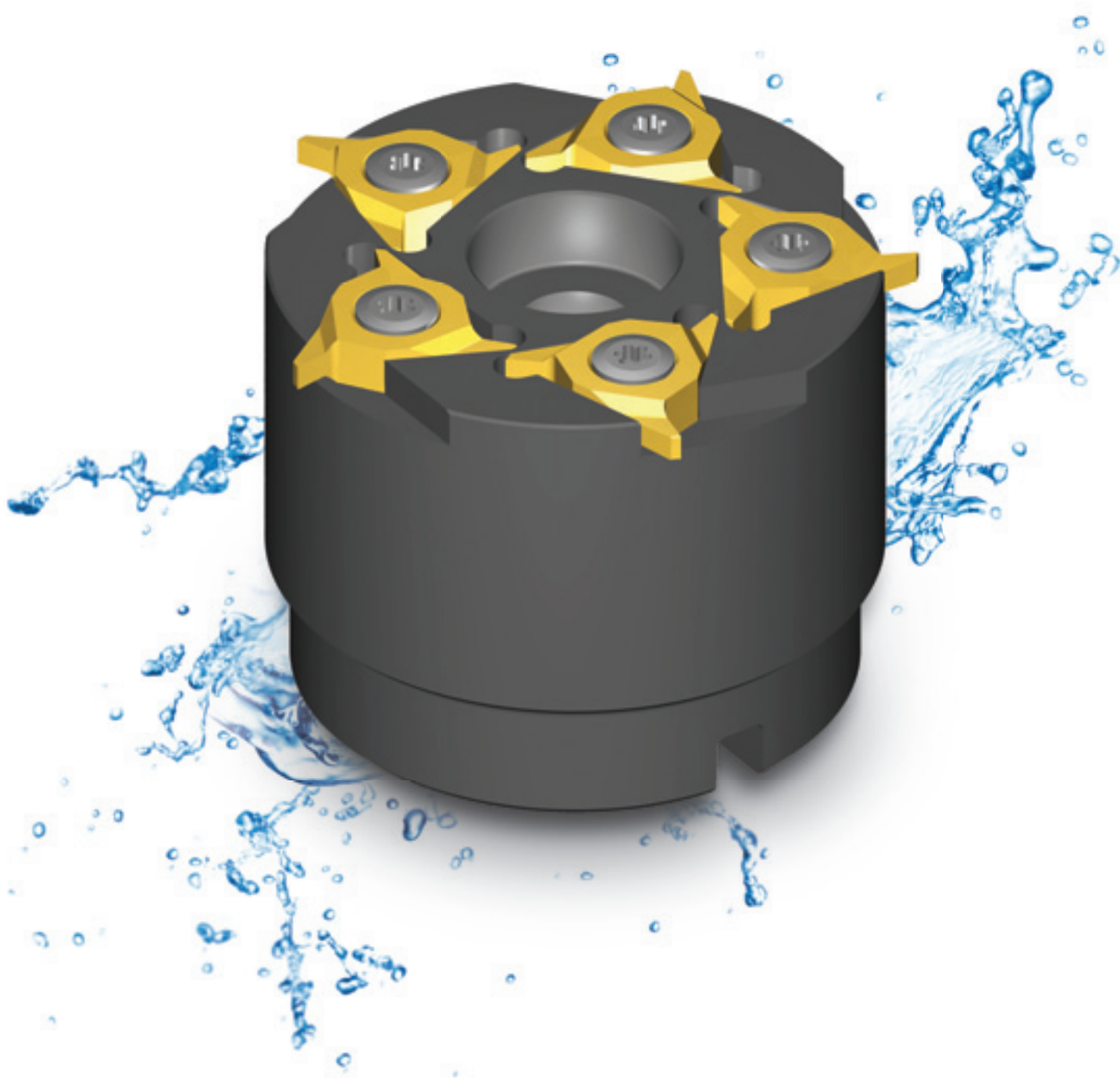
| Groupe de Matière                 | Accumulation          |                                                     | Dureté Brinell HB | Force (N-mm <sup>2</sup> ) | Vc [m/min] |         | fb[mm/rev] |           | fz[mm/dent] |           |
|-----------------------------------|-----------------------|-----------------------------------------------------|-------------------|----------------------------|------------|---------|------------|-----------|-------------|-----------|
|                                   |                       |                                                     |                   |                            | VTN        | VTS     | ≤6mm       | ≤12mm     | ≤6mm        | ≤12mm     |
| <b>K</b><br>Fonte                 | Fonte                 | Fonte grise                                         | ≤150              | ≤500                       | 50-80      | 80-120  | 0.10-0.15  | 0.15-0.22 | 0.02-0.05   | 0.05-0.10 |
|                                   |                       | Fonte grise, traité                                 | 150-300           | 500-1000                   | 50-80      | 80-120  | 0.10-0.15  | 0.15-0.22 | 0.02-0.05   | 0.05-0.10 |
|                                   |                       | Fonte sphéroïdale. Graphique                        | ≤200              | ≤700                       | 50-80      | 80-120  | 0.10-0.15  | 0.15-0.22 | 0.02-0.05   | 0.05-0.10 |
|                                   | Cuivre                | Copeaux courts, laiton, bronze, laiton rouge        | ≤200              | ≤700                       | 100-300    | —       | 0.10-0.30  | 0.06-0.10 | 0.03-0.06   | 0.06-0.10 |
| <b>N(K)</b><br>Métaux non ferreux | Aluminium / Magnesium | Aluminium / Magnesium non allié                     | ≤100              | ≤350                       | 100-400    | 100-400 | 0.10-0.25  | 0.25-0.30 | 0.03-0.06   | 0.06-0.10 |
|                                   |                       | Aluminium, alliages, rupture de l'effort (A5) < 14% | ≤180              | ≤600                       | 100-400    | 100-400 | 0.10-0.25  | 0.25-0.30 | 0.03-0.06   | 0.06-0.10 |
|                                   |                       | Aluminium, alliages rupture de l'effort (A5) > 14 % | ≤180              | ≤600                       | 100-400    | 100-400 | 0.03-0.06  | 0.06-0.12 | 0.03-0.06   | 0.06-0.10 |
|                                   |                       | Aluminium, alliages moulés, Si<10%                  | ≤180              | ≤600                       | 100-300    | 100-400 | 0.10-0.25  | 0.25-0.30 | 0.03-0.06   | 0.06-0.10 |
|                                   |                       | Aluminium, alliages moulés, Si > 10 %               | ≤180              | ≤600                       | —          | 100-300 | 0.10-0.25  | 0.25-0.30 | 0.03-0.06   | 0.06-0.10 |
| <b>K</b>                          | Plastiques            | Thermoplastiques                                    | —                 | —                          | 60-120     | 60-120  | 0.10-0.25  | 0.25-0.30 | 0.03-0.06   | 0.06-0.10 |
|                                   |                       | Plastiques thermodurcissables                       | —                 | —                          | 60-100     | 60-100  | 0.10-0.25  | 0.25-0.30 | 0.03-0.06   | 0.06-0.10 |
|                                   |                       | Plastiques à fibres armées                          | —                 | —                          | 40-60      | 60-80   | 0.10-0.15  | 0.15-0.22 | 0.02-0.05   | 0.05-0.10 |

Vc - Vitesse de Coupe [m/min]

fb (Perçage) - Avances par tour [mm/tour]

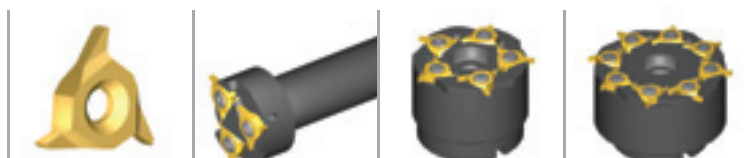
fz (Filetage) - Avances par dent [mm/dent]





# Fraisage de gorges

- > Plaquettes
- > Porte-outils
- > Informations techniques



# FRAISAGE DE GORGES

|                                                            |          |
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## Système de codification Vardex

### Fraisage de gorge

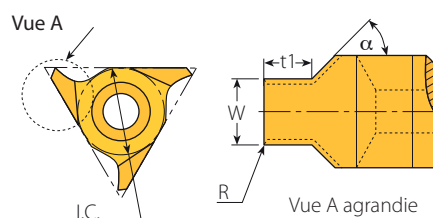
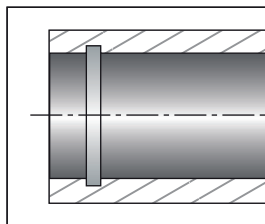
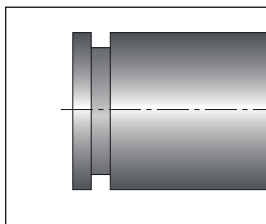
|                            |          |                                                                          |            |                         |                                                                                         |                                     |                               |          |             |            |
|----------------------------|----------|--------------------------------------------------------------------------|------------|-------------------------|-----------------------------------------------------------------------------------------|-------------------------------------|-------------------------------|----------|-------------|------------|
| <b>4</b>                   | <b>W</b> | <b>GM</b>                                                                | <b>1.6</b> | <b>C</b>                | <b>-</b>                                                                                | <b>D3770</b>                        | <b>S</b>                      | <b>-</b> | <b>1.38</b> | <b>VKX</b> |
| <b>1</b>                   | <b>2</b> | <b>3</b>                                                                 | <b>4</b>   | <b>5</b>                |                                                                                         | <b>6</b>                            | <b>7</b>                      |          | <b>8</b>    | <b>9</b>   |
| <b>1- Taille plaquette</b> |          | <b>2- Type de plaquette</b>                                              |            | <b>3- Système</b>       |                                                                                         | <b>4- Largeur de gorge standard</b> |                               |          |             |            |
| 4 - IC1/2"                 |          | W - Plaquettes verticales                                                |            | GM - Fraisage de gorges |                                                                                         | 1.1 - 3.15                          |                               |          |             |            |
| <b>5- Profile</b>          |          | <b>6- Gorges standards</b>                                               |            |                         | <b>7- Modèle de gorges</b>                                                              |                                     | <b>8- Profondeur de gorge</b> |          |             |            |
| C - Avec chanfrein         |          | CIRC - Circlip<br>DIN471/472<br>DIN3770D<br>DIN3770S<br>BS1806<br>BS4518 |            |                         | D - Dynamique<br>S - Statique<br>DP- Dynamique pneumatique<br>DH- Dynamique hydraulique |                                     | 0.3 - 3.8                     |          |             |            |
|                            |          |                                                                          |            |                         |                                                                                         |                                     | <b>9- Nuance carbure</b>      |          |             |            |
|                            |          |                                                                          |            |                         |                                                                                         |                                     | VKX                           |          |             |            |

### Tourteau

|                          |          |                          |          |                              |          |                            |
|--------------------------|----------|--------------------------|----------|------------------------------|----------|----------------------------|
| <b>SGM</b>               | <b>-</b> | <b>D48</b>               | <b>-</b> | <b>25</b>                    | <b>-</b> | <b>4</b>                   |
| <b>1</b>                 |          | <b>2</b>                 |          | <b>3</b>                     |          | <b>4</b>                   |
| <b>1- Système</b>        |          | <b>2- Diam. de coupe</b> |          | <b>3- Diam. de l'alésage</b> |          | <b>4- Taille plaquette</b> |
| SGM - Fraisage de gorges |          | 48, 63, 80               |          | 22, 25, 27                   |          | 4 - IC1/2"                 |

# Circlip Non Standard

Extérieur / Intérieur



SGM vertical

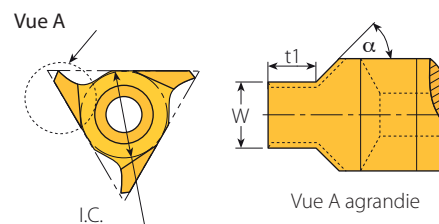
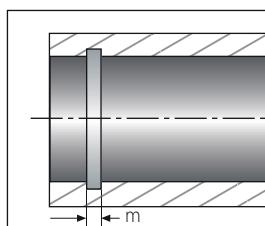
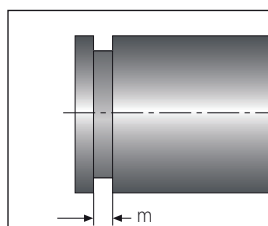
## SGM Vertical



| Taille plaquette |      | Référence              | Dimensions mm |     |     | $\alpha$ | Porte-outils |
|------------------|------|------------------------|---------------|-----|-----|----------|--------------|
| IC               | L mm |                        | W             | R   | t1  |          |              |
| 1/2"             | 22   | 4WGM1.25C-CIRC-1.5...  | 1.25          | 0.2 | 1.3 | 45°      | SGM-D...-4   |
|                  |      | 4WGM1.35C-CIRC-1.5...  | 1.35          | 0.2 | 1.3 |          |              |
|                  |      | 4WGM1.45C-CIRC-1.5...  | 1.45          | 0.2 | 1.3 |          |              |
|                  |      | 4WGM1.50C-CIRC-1.5...  | 1.50          | 0.2 | 1.3 |          |              |
|                  |      | 4WGM1.65C-CIRC-2.0...  | 1.65          | 0.2 | 1.8 |          |              |
|                  |      | 4WGM1.75C-CIRC-2.0...  | 1.75          | 0.2 | 1.8 |          |              |
|                  |      | 4WGM1.85C-CIRC-2.50... | 1.85          | 0.2 | 2.3 |          |              |
|                  |      | 4WGM2.00C-CIRC-2.50... | 2.00          | 0.2 | 2.3 |          |              |
|                  |      | 4WGM2.20C-CIRC-3.50... | 2.20          | 0.2 | 3.3 |          |              |
|                  |      | 4WGM2.30C-CIRC-3.50... | 2.30          | 0.2 | 3.3 |          |              |
|                  |      | 4WGM2.50C-CIRC-3.50... | 2.50          | 0.3 | 3.3 |          |              |
|                  |      | 4WGM2.65C-CIRC-3.50... | 2.65          | 0.3 | 3.3 |          |              |
|                  |      | 4WGM2.70C-CIRC-3.50... | 2.70          | 0.3 | 3.3 |          |              |
|                  |      | 4WGM2.80C-CIRC-3.50... | 2.80          | 0.3 | 3.3 |          |              |
|                  |      | 4WGM3.00C-CIRC-3.50... | 3.00          | 0.3 | 3.3 |          |              |
|                  |      | 4WGM3.20C-CIRC-3.50... | 3.20          | 0.3 | 3.3 |          |              |
|                  |      | 4WGM3.30C-CIRC-3.50... | 3.30          | 0.3 | 3.3 |          |              |
|                  |      | 4WGM3.50C-CIRC-4.00... | 3.50          | 0.3 | 3.8 |          |              |
|                  |      | 4WGM3.70C-CIRC-4.00... | 3.70          | 0.3 | 3.8 |          |              |
|                  |      | 4WGM3.90C-CIRC-4.00... | 3.90          | 0.3 | 3.8 |          |              |
|                  |      | 4WGM4.00C-CIRC-4.00... | 4.00          | 0.3 | 3.8 |          |              |

## Circlip DIN 471/472

Extérieur / Intérieur



SGM Vertical

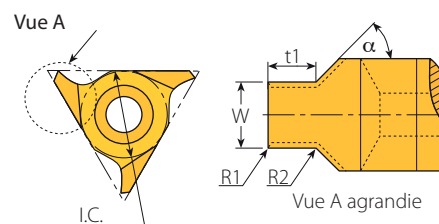
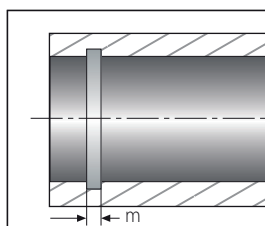
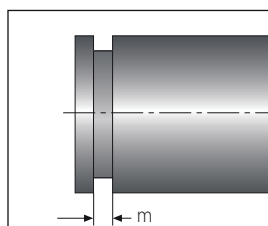
### SGM Vertical



| Taille plaquette |      | Référence                  | Standard |      |     | $\alpha$ | Porte-outils |
|------------------|------|----------------------------|----------|------|-----|----------|--------------|
| IC               | L mm |                            | *m(H13)  | W    | t1  |          |              |
| 1/2"             | 22   | 4WGM1.1C-D471/472-0.35...  | 1.10     | 1.19 | 0.3 | 45°      | SGM-D...-4   |
|                  |      | 4WGM1.1C-D471/472-0.40...  | 1.10     | 1.19 | 0.4 |          |              |
|                  |      | 4WGM1.3C-D471/472-0.50...  | 1.30     | 1.39 | 0.4 |          |              |
|                  |      | 4WGM1.3C-D471/472-0.55...  | 1.30     | 1.39 | 0.5 |          |              |
|                  |      | 4WGM1.6C-D471/472-0.70...  | 1.60     | 1.69 | 0.6 |          |              |
|                  |      | 4WGM1.6C-D471/472-0.85...  | 1.60     | 1.69 | 0.8 |          |              |
|                  |      | 4WGM1.6C-D471/472-1.00...  | 1.60     | 1.69 | 0.9 |          |              |
|                  |      | 4WGM1.85C-D471/472-1.25... | 1.85     | 1.94 | 1.1 |          |              |
|                  |      | 4WGM1.85C-D471/472-1.00... | 1.85     | 1.94 | 0.9 |          |              |
|                  |      | 4WGM2.15C-D471/472-1.50... | 2.15     | 2.24 | 1.4 |          |              |
|                  |      | 4WGM2.65C-D471/472-1.50... | 2.65     | 2.74 | 1.4 |          |              |
|                  |      | 4WGM2.65C-D471/472-1.75... | 2.65     | 2.74 | 1.6 |          |              |
|                  |      | 4WGM3.15C-D471/472-1.75... | 3.15     | 3.24 | 1.6 |          |              |

## Torique DIN 3770

Extérieur / Intérieur



SGM Vertical

### SGM Vertical



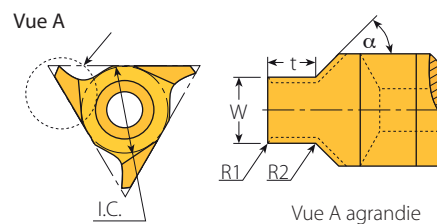
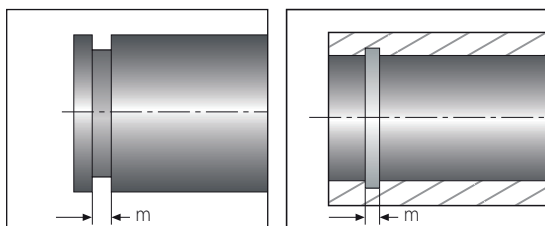
| Taille plaquette |      |       | Référence                | Standard |      |      |      | α    |              |            |
|------------------|------|-------|--------------------------|----------|------|------|------|------|--------------|------------|
| IC               | L mm | St.Dy |                          | *m(H13)  | W    | t    | R1   | R2   | Porte-outils |            |
| 1/2"             | 22   | St.   | 4WGM1.6C-D3770S-1.38...  | 1.60     | 1.97 | 1.38 | 0.25 | 0.10 | 75°          | SGM-D...-4 |
|                  |      |       | 4WGM2.0C-D3770S-1.72...  | 2.00     | 2.37 | 1.72 | 0.25 | 0.10 |              |            |
|                  |      |       | 4WGM2.5C-D3770S-2.15...  | 2.50     | 3.02 | 2.15 | 0.25 | 0.10 |              |            |
|                  |      |       | 4WGM3.15C-D3770S-2.70... | 3.15     | 3.77 | 2.70 | 0.60 | 0.20 |              |            |
|                  |      | Dy.   | 4WGM1.6C-D3770D-1.47...  | 1.60     | 1.97 | 1.47 | 0.25 | 0.10 |              |            |
|                  |      |       | 4WGM2.0C-D3770D-1.83...  | 2.00     | 2.37 | 1.83 | 0.25 | 0.10 |              |            |

St. = Statique

Dy. = Dynamique

## Torique BS 1806, DIN 3601, DIN 3771

Extérieur / Intérieur



SGM Vertical

### SGM Vertical

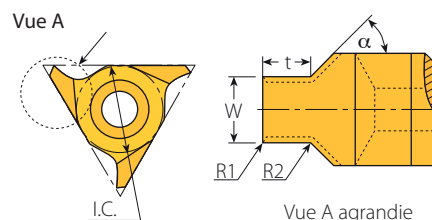
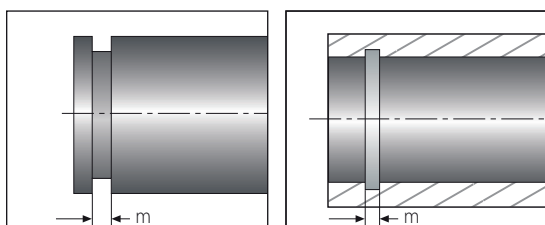


| Taille plaquette |      |       | Référence                 | Standard |      |      |     |     | $\alpha$ | Porte-outils |
|------------------|------|-------|---------------------------|----------|------|------|-----|-----|----------|--------------|
| IC               | L mm | St.Dy |                           | *m(H13)  | W    | t    | R1  | R2  |          |              |
| 1/2"             | 22   | St.   | 4WGM1.80C-BS1806S-1.3...  | 1.80     | 2.37 | 1.30 | 0.6 | 0.2 | 75°      | SGM-D.-.-4   |
|                  |      |       | 4WGM2.65C-BS1806S-2.0...  | 2.65     | 3.57 | 2.00 | 0.6 | 0.2 |          |              |
|                  |      | Dy.   | 4WGM1.80C-BS1806D-1.57... | 1.80     | 2.37 | 1.55 | 0.6 | 0.2 |          |              |
|                  |      |       | 4WGM2.65C-BS1806D-2.38... | 2.65     | 3.57 | 2.30 | 0.6 | 0.2 |          |              |

St. = Statique  
Dy. = Dynamique

## BS 4518

Extérieur / Intérieur



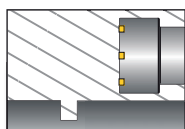
SGM Vertical

### SGM Vertical

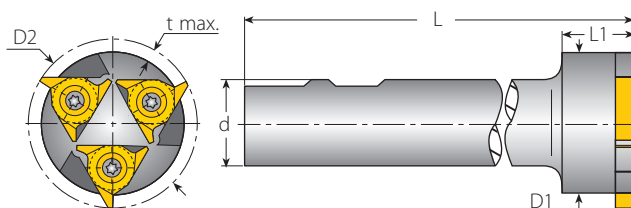


| Taille plaquette |      |       | Référence                 | Standard |      |      |     |     | $\alpha$ | Porte-outils |
|------------------|------|-------|---------------------------|----------|------|------|-----|-----|----------|--------------|
| IC               | L mm | St.Dy |                           | *m(H13)  | W    | t    | R1  | R2  |          |              |
| 1/2"             | 22   | St.   | 4WGM1.6C-BS4518S-1.25...  | 1.60     | 2.37 | 1.25 | 0.5 | 0.2 | 75°      | SGM-D.-.-4   |
|                  |      |       | 4WGM2.4C-BS4518S-1.95...  | 2.40     | 3.17 | 1.95 | 0.5 | 0.2 |          |              |
|                  |      |       | 4WGM3.0C-BS4518S-2.51...  | 3.00     | 3.77 | 2.51 | 1.0 | 0.2 |          |              |
|                  |      | DyP   | 4WGM2.4C-BS4518DP-2.20... | 2.40     | 3.27 | 2.20 | 0.5 | 0.2 |          |              |
|                  |      |       | 4WGM3.0C-BS4518DP-2.77... | 3.00     | 4.07 | 2.77 | 1.0 | 0.2 |          |              |
|                  |      | DyH   | 4WGM2.4C-BS4518DH-2.09... | 2.40     | 3.27 | 2.09 | 0.5 | 0.2 |          |              |
|                  |      |       | 4WGM3.0C-BS4518DH-2.60... | 3.00     | 4.07 | 2.60 | 1.0 | 0.2 |          |              |

St. = Statique  
DP = Dynamique pneumatique  
DyH = Dynamique hydraulique

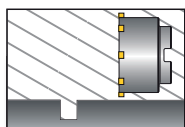


## Porte-outils

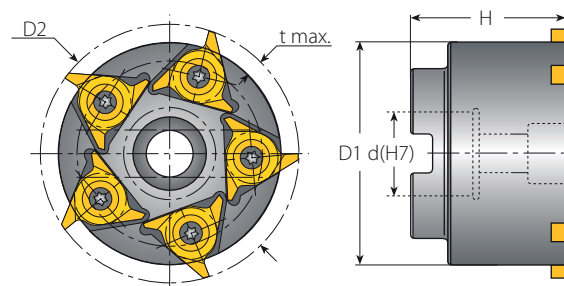


### Tourteau multi-plaquettes (3)

| Taille plaquette | Référence    | Dimensions mm |       |     |    |    |    | Pièces détachées                                                                                  |                                                                                              |
|------------------|--------------|---------------|-------|-----|----|----|----|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| IC               |              | D2            | t max | L   | L1 | d  | D1 |  Vis plaquette |  Clé torx |
| 1/2"             | SGM-D48-25-4 | 48            | 3.5   | 125 | 20 | 25 | 40 | SN4T-90                                                                                           | HK4T                                                                                         |

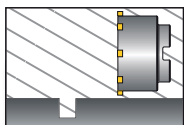


## Porte-outils

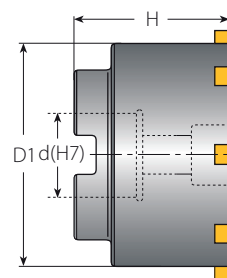
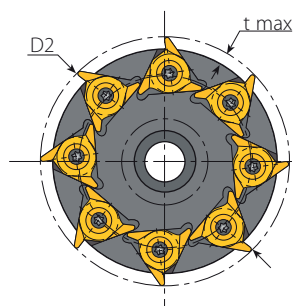
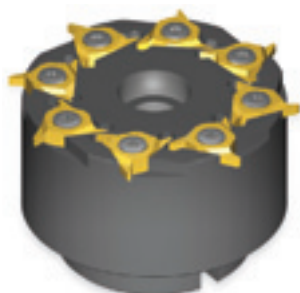


### Tourteau multi-plaquettes (5)

| Taille plaquette | Référence    | Dimensions mm |       |       |      |    |  | Pièces détachées                                                                                   |                                                                                                |                                                                                                            |
|------------------|--------------|---------------|-------|-------|------|----|--|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| IC               |              | D2            | t max | d(H7) | D1   | H  |  |  Vis plaquette |  Clé torx |  Vis fraise à fileter |
| 1/2"             | SGM-D63-22-4 | 63            | 3.5   | 22    | 54.0 | 41 |  | SN4T-90                                                                                            | HK4T                                                                                           | M10x1.5x35                                                                                                 |



## Porte-outils



### Tourteau multi-plaquettes (8)

#### Pièces détachées

| Taille<br>plaquette | Référence    | Dimensions mm |       |       |    |    |               |          |                      |
|---------------------|--------------|---------------|-------|-------|----|----|---------------|----------|----------------------|
| IC                  |              | D2            | t max | d(H7) | D1 | H  | Vis plaquette | Clé torx | Vis fraise à fileter |
| 1/2"                | SGM-D80-27-4 | 80            | 3.5   | 27    | 72 | 50 | SN4T-90       | HK4T     | M12x1.75x40          |

## Nuances, vitesses de coupe Vc [m/min], avances F [mm/dent] et rotation recommandées

| Groupe de Matière                      | Vardex No. | Accumulation                                         |                                              | Dureté Brinell HB | Vc [m/min] | Avances f [mm/dent] |
|----------------------------------------|------------|------------------------------------------------------|----------------------------------------------|-------------------|------------|---------------------|
|                                        |            |                                                      |                                              |                   | VKX        | f                   |
| <b>P</b><br>Acier                      | 1          | Acier non allié                                      | Carbone faible (C= 0.1-0.25 %)               | 125               | 100-220    | 0.05-0.1            |
|                                        | 2          |                                                      | Carbone moyen (C=0.25-0.55%)                 | 150               | 100-170    | 0.03-0.07           |
|                                        | 3          |                                                      | Carbone haut (C=0.55-0.85%)                  | 170               | 100-160    | 0.02-0.05           |
|                                        | 4          | Acier faiblement allié (constituants d'alliage ≤ 5%) | Non traité                                   | 180               | 80-150     | 0.05-0.09           |
|                                        | 5          |                                                      | Traité                                       | 275               | 70-140     | 0.03-0.07           |
|                                        | 6          |                                                      | Traité                                       | 350               | 70-130     | 0.02-0.05           |
|                                        | 7          | Acier hautement allié (constituants d'alliage > 5%)  | Revenu / Malléable                           | 200               | 70-120     | 0.03-0.07           |
|                                        | 8          |                                                      | Traité                                       | 325               | 70-100     | 0.03-0.05           |
|                                        | 9          | Acier fondu                                          | Faible alliage (constituants d'alliage ≤ 5%) | 200               | 70-110     | 0.03-0.05           |
|                                        | 10         |                                                      | Haut alliage (constituants d'alliage > 5%)   | 225               | 50-80      | 0.02-0.05           |
| <b>M</b><br>Acier inoxydable           | 11         | Acier inoxydable ferritique                          | Non traité                                   | 200               | 80-150     | 0.03-0.07           |
|                                        | 12         |                                                      | Traité                                       | 330               | 80-150     | 0.03-0.05           |
|                                        | 13         | Acier inoxydable Austénitique                        | Austénitique                                 | 180               | 60-120     | 0.03-0.07           |
|                                        | 14         |                                                      | Super austénitique                           | 200               | 60-120     | 0.03-0.05           |
|                                        | 15         | Acier inoxydable Fondu ferritique                    | Non traité                                   | 200               | 60-120     | 0.02-0.05           |
|                                        | 16         |                                                      | Traité                                       | 330               | 60-120     | 0.01-0.03           |
|                                        | 17         | Acier inoxydable fondu austénitique                  | Austénitique                                 | 200               | 50-100     | 0.03-0.05           |
|                                        | 18         |                                                      | Traité                                       | 330               | 50-100     | 0.01-0.03           |
| <b>K</b><br>Fonte                      | 28         | malléable Fonte                                      | Féritique (copeaux courts)                   | 130               | 60-110     | 0.02-0.05           |
|                                        | 29         |                                                      | Perlitique (copeaux longs)                   | 230               | 50-100     | 0.01-0.03           |
|                                        | 30         | Fonte grise                                          | Acier à faible résistance                    | 180               | 60-110     | 0.03-0.07           |
|                                        | 31         |                                                      | Acier à haute résistance                     | 260               | 50-80      | 0.03-0.05           |
|                                        | 32         | Fonte nodulaire SG                                   | Féritique                                    | 160               | 50-100     | 0.03-0.05           |
|                                        | 33         |                                                      | Perlitique                                   | 260               | 40-70      | 0.03-0.05           |
| <b>N(k)</b><br>Métaux non ferreux      | 34         | Alliages aluminium forge                             | Non Vieilli                                  | 60                | 100-200    | 0.07-0.15           |
|                                        | 35         |                                                      | Vieilli                                      | 100               | 100-150    | 0.03-0.05           |
|                                        | 36         | Alliages aluminium                                   | Coulé                                        | 75                | 100-180    | 0.07-0.15           |
|                                        | 37         |                                                      | Fondu & vieilli                              | 90                | 60-120     | 0.05-0.1            |
|                                        | 38         | Alliages aluminium                                   | Coulé Si 13-22%                              | 130               | 100-150    | 0.05-0.1            |
|                                        | 39         | Cuivre & alliages cuivre                             | Laiton                                       | 90                | 60-120     | 0.05-0.1            |
|                                        | 40         |                                                      | Bronze & cuivre sans plomb                   | 100               | 50-100     | 0.3-0.08            |
| <b>S(M)</b><br>résistance à la chaleur | 19         | Alliages haute température alloys                    | Trempé (à base du fer)                       | 200               | 20-45      | 0.01-0.03           |
|                                        | 20         |                                                      | Vieilli (à base du fer)                      | 280               | 20-30      | 0.01-0.03           |
|                                        | 21         |                                                      | Trempé (à base de Nickel ou Cobalt)          | 250               | 10-20      | 0.01-0.03           |
|                                        | 22         |                                                      | Vieill (à base de Nickel ou Cobalt)          | 350               | 10-15      | 0.01-0.03           |
|                                        | 23         | Alliages Titanium                                    | Pur 99.5 Ti                                  | 400Rm             | 60-120     | 0.02-0.05           |
|                                        | 24         |                                                      | Alliages α+β                                 | 1050Rm            | 20-50      | 0.01-0.03           |
| <b>H(k)</b><br>Matières dures          | 25         | Acier extra dur                                      | Traité & trempé                              | 45-50HRC          | 15-45      | 0.05-0.1            |
|                                        | 26         |                                                      |                                              | 51-55HRC          | 15-40      | 0.05-0.1            |

\* Avances secondaire

### Les nuances et leurs applications

| Nuance | Type d'application                                     | Exemple                                                                             |
|--------|--------------------------------------------------------|-------------------------------------------------------------------------------------|
| VKX    | Excellent pour une utilisation générale<br>Revêtu TiN. |  |

$$N = \frac{1000 \times V_c}{\pi \times D}$$

$$V_c = \frac{N \times \pi \times D}{1000}$$

N - Vitesse de rotation [tours par minute]

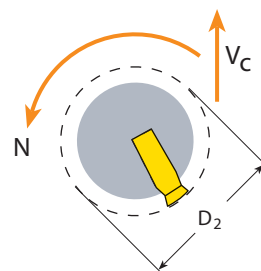
V - Vitesse de Coupe [m/min]

D2 - Diam. coupe du porte-outils [mm]

F1 - Avances totale [mm/min]

z - Nombre de niveau de coupe

f - Avances par dent et par rotation [mm/dent]





## VARDEX DANS LE MONDE



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