

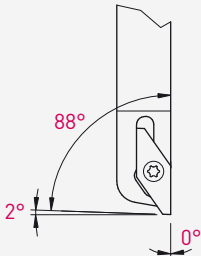
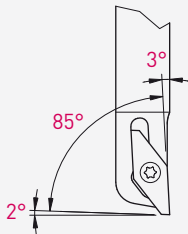
# TURN-Line



APPLITEC  
CUTTING TOOLS

Index

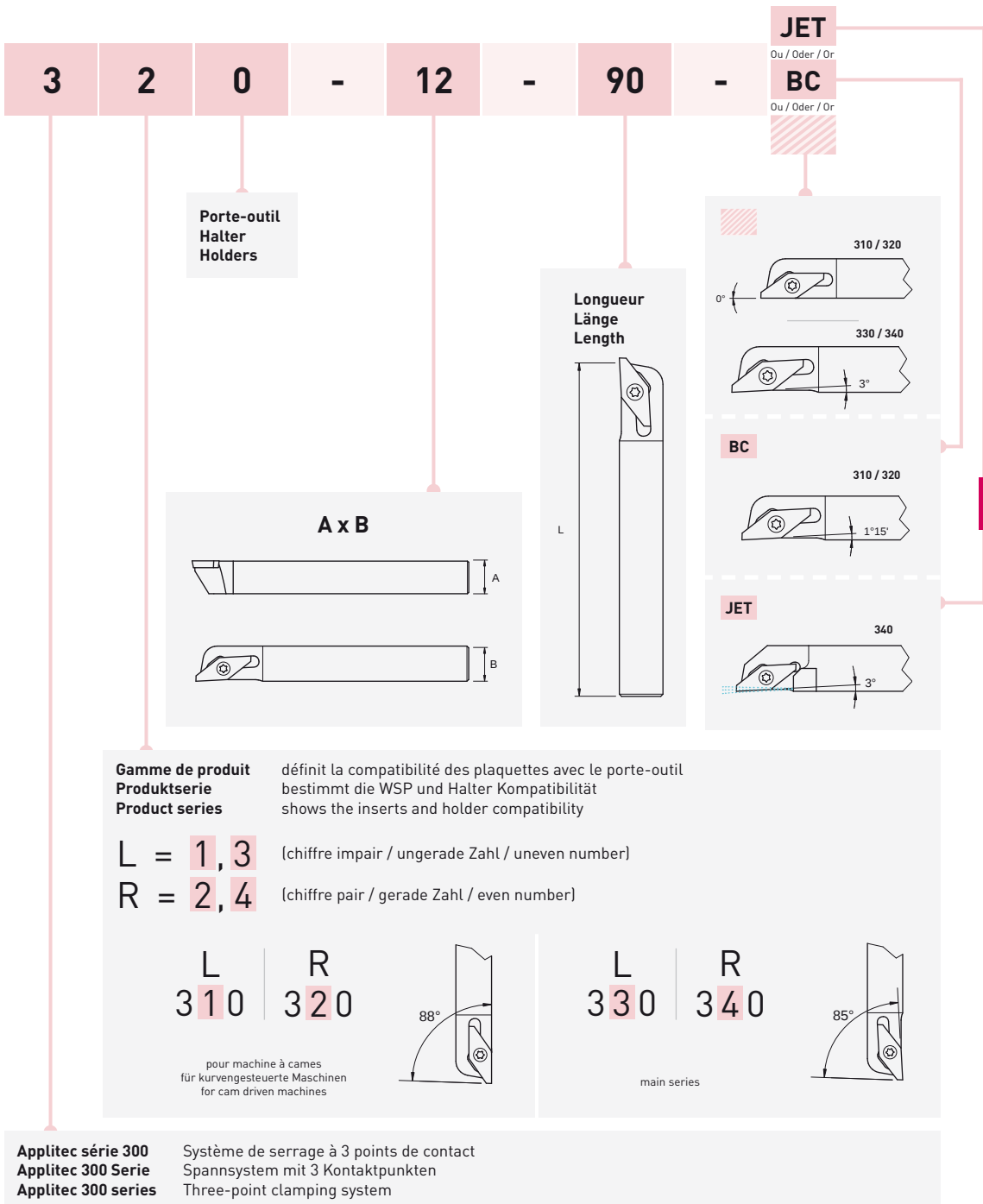
|                                                                                      |        |
|--------------------------------------------------------------------------------------|--------|
| Codification<br>Kodifizierung<br>Coding guide                                        | > 8.03 |
| Infos et avantages<br>Infos und Vorteile<br>Infos and advantages                     | > 8.05 |
| Conseils d'utilisation<br>Anwendungsempfehlungen<br>Application recommendations      | > 8.06 |
| Nuances<br>Sorten<br>Grades                                                          | > 8.07 |
| Paramètres de coupe indicatifs<br>Empfohlene Schnittwerte<br>Standard machining data | > 8.11 |

|     |                                                                                     |  |                 |  |                                                                                            |
|-----|-------------------------------------------------------------------------------------|--|-----------------|--|--------------------------------------------------------------------------------------------|
| 88° | 310 / 320                                                                           |  | 310-BC / 320-BC |  |  > 8.12 |
|     |   |  |                 |  |                                                                                            |
| 85° | 330 / 340                                                                           |  | 340-JET         |  |  > 8.16 |
|     |  |  |                 |  |                                                                                            |

## Codification des porte-outils

Kodifizierung für Halter

Coding guide for holders

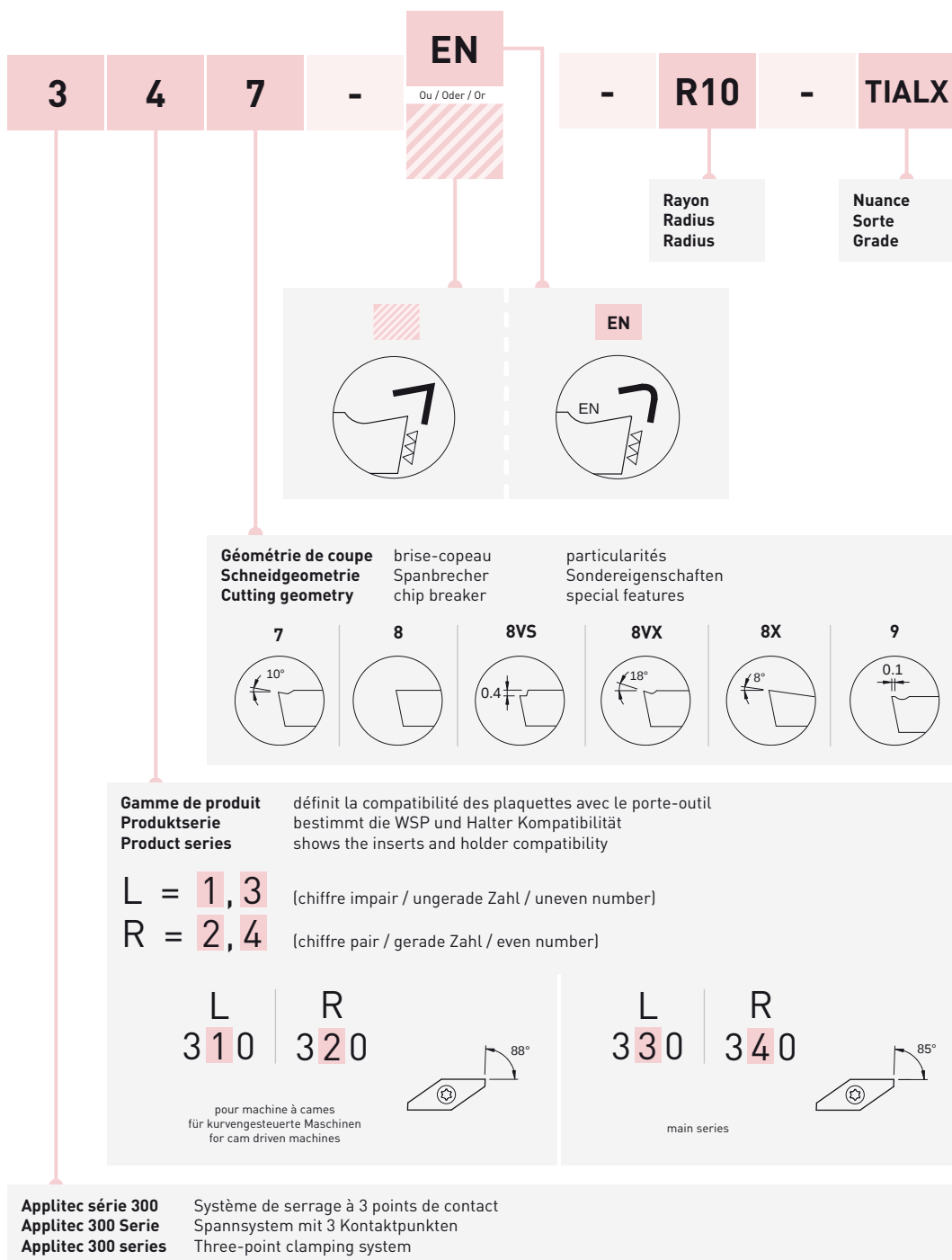


# TURN-Line

## Codification des plaquettes

Kodifizierung für WSP

Coding guide for inserts

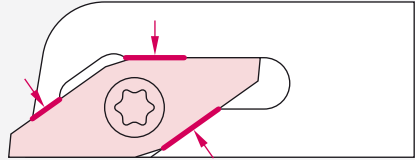


## 3 contact points

Pour de meilleures performances

Für bessere Leistung

For better performance

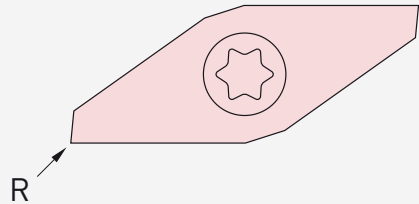


## R min = 0

Disponible avec et sans rayon

Verfügbar mit und ohne Radius

Available with and without radius

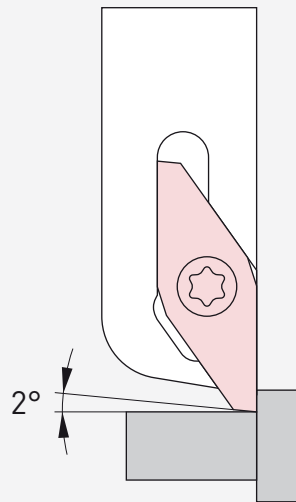


## Wiper effect

Pour un meilleur état de surface

Für eine bessere Oberflächengüte

For a better surface finish



## Conseils d'utilisation

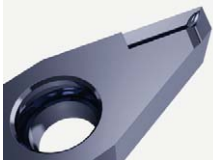
Anwendungsempfehlungen

Application recommendations

| Géométries de coupe<br>Spanformgeometrien<br>Cutting geometry                      |        | (P)<br>Acier de décolletage<br>Automatenstahl<br>Free-cutting steel | (P)<br>Acier<br>Stahl<br>Steel | (M)<br>Acier inoxydable<br>Rostfreistahl<br>Stainless steel | (N)<br>Aluminium | (N)<br>Laiton, bronze<br>Messing, Bronze<br>Brass, bronze | (N)<br>Cuivre<br>Kupfer<br>Copper | (S)<br>Titane<br>Titane<br>Titanium | ★<br>1 <sup>er</sup> choix<br>1. Wahl<br>1 <sup>st</sup> choice                                                                                                                 | ☆<br>Recommandé<br>Empfohlen<br>Recommended | ☑<br>Pour pièces fragiles de très petits diamètres<br>Für zerbrechliche Teile mit sehr kleinen Durchmessern<br>For fragile and very small work pieces |
|------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------|------------------|-----------------------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 3_7    | ★                                                                   | ★                              | ★                                                           | ★                |                                                           | ★                                 | ☆                                   | Géométrie universelle, très bonne maîtrise du copeau<br>Allgemeine Geometrie, sehr gute Spankontrolle<br>All-round insert with efficient chip control                           |                                             |                                                                                                                                                       |
|    | 3_7-EN | ☆                                                                   | ★                              | ☆                                                           |                  |                                                           |                                   |                                     | Arête renforcée (augmente l'effort de coupe)<br>Verstärkte Schneidkante (Schneidkraftehöhung)<br>Reinforced cutting edge (increases cutting force)<br>f min : 0.02 mm/U         |                                             |                                                                                                                                                       |
|    | 3_8    | ☑                                                                   | ☑                              | ☑                                                           |                  | ★                                                         |                                   |                                     | Géométrie plate classique<br>Standard flache Geometrie<br>Standard flat geometry                                                                                                |                                             |                                                                                                                                                       |
|    | 3_8VS  | ☆                                                                   |                                | ☆                                                           | ☑                |                                                           | ☑                                 | ☑                                   | Brise-copeau pour usinage léger en finition<br>Spanbrecher für leichte Schlichtbearbeitung<br>Chip-breaker for light finishing operation                                        |                                             |                                                                                                                                                       |
|   | 3_8VX  | ★                                                                   | ★                              | ★                                                           | ★                |                                                           | ★                                 | ★                                   | Très bonne maîtrise du copeau<br>Sehr gute Spankontrolle<br>Very efficient chip control                                                                                         |                                             |                                                                                                                                                       |
|  | 3_8X   | ★                                                                   | ★                              | ★                                                           | ☆                |                                                           | ☆                                 | ★                                   | Coupe positive traditionnelle<br>Standard positive Geometrie<br>Standard positive geometry                                                                                      |                                             |                                                                                                                                                       |
|  | 3_9    | ☆                                                                   | ☆                              | ☆                                                           |                  | ☆                                                         |                                   |                                     | Témoin plat sur la coupe pour réduire les vibrations<br>Vibrationsreduzierung durch einer Flachfase und der Schneidkante<br>Vibration reduction through flat ended cutting edge |                                             |                                                                                                                                                       |

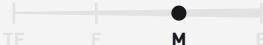
μK20

### TiAlN



 K20

**μK20 + revêtement PVD**  
μK20 + PVD Beschichtung  
μK20 + PVD coating



P

 ★★★★★

M

 ★★★★★

N

 ★★★★★

S

 ★★★★★

- excellente nuance universelle
- 1<sup>er</sup> choix pour l'usinage des aciers, aciers inoxydables et alliages de titane
- très bonne résistance à la température

- beste Universalsorte
- erste Wahl für die Bearbeitung von Stahl, rostfreien Stähle und Titanlegierungen
- sehr gute Warmfestigkeit

- best universal grade
- first choice for steel, stainless steel and titanium alloys machining
- very good heat resistance

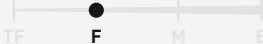
μK20

### TiAlX



 K20

**μK20 + revêtement PVD**  
μK20 + PVD Beschichtung  
μK20 + PVD coating



P

 ★★★★★

M

 ★★★★★

N

 ★★★★★

S

 ★★★★★

- nuance très résistante à l'usure et à la température, recommandée pour l'usinage des matières suivantes : inox 304, 316L, 317L, 904, Phynox
- aciers alliés contenant : chrome nickel, vanadium, molybdène, ...

- sehr verschleissfeste und temperaturbeständige Sorte, für folgende Materialien empfohlen : Inox 304, 316L, 317L, 904, Phynox
- legierter Stahl enthaltend : Chrom-Nickel, Vanadium, Molybdän, ...

- very wear and high temperature resistant grade, recommended for following material : Inox 304, 316L, 317L, 904, Phynox
- alloy steel containing : Chrome-nickel, Vanadium, Molybdenum, ...

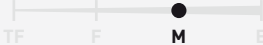
μK20

### ST



 K20

**μK20 + revêtement PVD**  
μK20 + PVD Beschichtung  
μK20 + PVD coating



P

 ★★★★★

M

 ★★★★★

N

 ★★★★★

S

 ★★★★★

- nuance résistante à la température, destinée à l'usinage des matières suivantes : Inox, titane allié, alliages à base de nickel, chrome cobalt, les matières avec une dureté supérieure à > 50 HRC

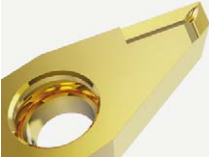
- verschleissfeste und temperaturbeständige Sorte, für folgende Materialien empfohlen : Inox, legiertes Titan, Nickellegierungen, Chrom-Kobalt, Materialien härter als > 50 HRC

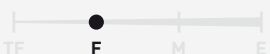
- wear and temperature-resistant grade, recommended for following materials : Inox, titanium alloys, nickel-based alloys, chrome-cobalt, and materials harder than > 50 HRC

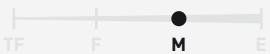
Nuances

Sorten

Grades

|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| μK20 |    | <p><b>TiN</b></p> <p>● K20</p> <p><b>μK20 + revêtement PVD</b><br/>μK20 + PVD Beschichtung<br/>μK20 + PVD coating</p> <p>TF F M E</p> | <p>P ★★★★★</p> <p>M ★★★★★</p> <p>N ★★★★★</p> <p>S ★★★★★</p> | <ul style="list-style-type: none"><li>• nuance pour l'usinage des matières peu résistantes qui créent des arêtes rapportées</li><li>• très faible coefficient de frottement</li><li>• à éviter pour l'usinage du titane</li></ul> | <ul style="list-style-type: none"><li>• Sorte für die Bearbeitung von weichen Werkstoffen mit Tendenz zur Bildung von Aufbauschneiden</li><li>• sehr geringer Reibwert</li><li>• bei der Bearbeitung von Titan zu vermeiden</li></ul> | <ul style="list-style-type: none"><li>• grade for the machining of low resistance materials which causes edge build-up</li><li>• very low friction ratio</li><li>• not suitable for titanium machining</li></ul> |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
| μK20 |    | <p><b>N</b></p> <p>● K20</p> <p><b>Non revêtu</b><br/>Unbeschichtet<br/>Uncoated</p>                                                  | <p>P ★★★★★</p> <p>M ★★★★★</p> <p>N ★★★★★</p> <p>S ★★★★★</p> | <ul style="list-style-type: none"><li>• supporte les coupes interrompues et autres conditions d'usinage défavorables</li></ul>                                                                                                    | <ul style="list-style-type: none"><li>• für unterbrochene Schnitte und andere ungünstige Bearbeitungsbedingungen geeignet</li></ul>                                                                                                   | <ul style="list-style-type: none"><li>• suitable for interrupted cut and other unfavourable machining conditions</li></ul>                                                                                       |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
| μK10 |  | <p><b>HTA</b></p> <p>● K10</p> <p><b>μK10 + revêtement PVD</b><br/>μK10 + PVD Beschichtung<br/>μK10 + PVD coating</p> <p>TF F M E</p> | <p>P ★★★★★</p> <p>M ★★★★★</p> <p>N ★★★★★</p> <p>S ★★★★★</p> | <ul style="list-style-type: none"><li>• nuance très résistante à l'usure</li><li>• pour l'usinage en finition dans des conditions favorables des aciers, aciers inoxydables et alliages de titane</li></ul>                       | <ul style="list-style-type: none"><li>• sehr verschleissfeste Sorte</li><li>• für die Feinbearbeitung von Stähle, rostfreien Stähle und Titanlegierungen bei guten Bearbeitungsbedingungen</li></ul>                                  | <ul style="list-style-type: none"><li>• very wear resistant grade</li><li>• for light machining of steel, stainless steel and titanium alloys under favourable machining conditions</li></ul>                    |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|      |                                                                                     |                                                                                                                                       |                                                             |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |

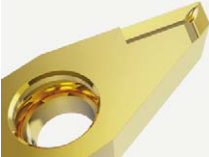
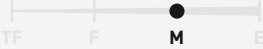
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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------|---|-------|---|-------|---|-------|
| <p><b>μK10</b></p>                                                                                                                                                                                                                                                                                                                            | <p><b>HTAX</b></p>                                                                                                                                                                                                                          | <p><b>K10</b></p> <p><b>μK10 + revêtement PVD</b><br/>μK10 + PVD Beschichtung<br/>μK10 + PVD coating</p>                                                                                                                       | <table border="1"> <tr> <td>P</td> <td>★★★★★</td> </tr> <tr> <td>M</td> <td>★★★★★</td> </tr> <tr> <td>N</td> <td>★★★★★</td> </tr> <tr> <td>S</td> <td>★★★★★</td> </tr> </table> | P | ★★★★★ | M | ★★★★★ | N | ★★★★★ | S | ★★★★★ |
|                                                                                                                                                                                                                                                                                                                                               | P                                                                                                                                                                                                                                                                                                                            | ★★★★★                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| M                                                                                                                                                                                                                                                                                                                                             | ★★★★★                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| N                                                                                                                                                                                                                                                                                                                                             | ★★★★★                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| S                                                                                                                                                                                                                                                                                                                                             | ★★★★★                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| <ul style="list-style-type: none"> <li>• nuance très résistante à l'usure et à la température, pour l'usinage en finition avec faible avance de petites pièces. Recommandée pour l'usinage des matières suivantes : inox 304, 316L, 317L, 904, Phynox</li> <li>• aciers alliés contenant : chrome nickel, vanadium, molybdène, ...</li> </ul> | <ul style="list-style-type: none"> <li>• sehr verschleissfeste und temperaturbeständige Sorte, für Feinbearbeitung von kleinen Teilen mit geringer Vorschub. Für folgende Materialien empfohlen : Inox 304, 316L, 317L, 904, Phynox</li> <li>• legierter Stahl enthaltend : Chrom-Nickel, Vanadium, Molybdän, ...</li> </ul> | <ul style="list-style-type: none"> <li>• very wear and high temperature resistant grade, for light machining of small parts with low cutting feed. Recommended for following material: Inox 304, 316L, 317L, 904, Phynox</li> <li>• alloy steel containing : Chromenickel, Vanadium, Molybdenum, ...</li> </ul> |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------|---|-------|---|-------|---|-------|
| <p><b>μK10</b></p>                                                                                                                                                                                                                                                                                                    | <p><b>HST</b></p>                                                                                                                                                                  | <p><b>K10</b></p> <p><b>μK10 + revêtement PVD</b><br/>μK10 + PVD Beschichtung<br/>μK10 + PVD coating</p>                                                                               | <table border="1"> <tr> <td>P</td> <td>★★★★★</td> </tr> <tr> <td>M</td> <td>★★★★★</td> </tr> <tr> <td>N</td> <td>★★★★★</td> </tr> <tr> <td>S</td> <td>★★★★★</td> </tr> </table> | P | ★★★★★ | M | ★★★★★ | N | ★★★★★ | S | ★★★★★ |
|                                                                                                                                                                                                                                                                                                                       | P                                                                                                                                                                                                                                                                    | ★★★★★                                                                                                                                                                                                                                                                    |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| M                                                                                                                                                                                                                                                                                                                     | ★★★★★                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| N                                                                                                                                                                                                                                                                                                                     | ★★★★★                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| S                                                                                                                                                                                                                                                                                                                     | ★★★★★                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |
| <ul style="list-style-type: none"> <li>• nuance résistante à la température et à l'usure pour des opérations de finition</li> <li>• recommandé pour l'usinage des matières suivantes : Inox, titane allié, alliages à base de nickel, chrome cobalt, les matières avec une dureté supérieure à &gt; 50 HRC</li> </ul> | <ul style="list-style-type: none"> <li>• verschleissfeste und temperaturbeständige Sorte für Feinbearbeitungen</li> <li>• für folgende Materialien empfohlen : Inox, legiertes Titan, Nickellegierungen, Chrom-Kobalt, Materialien härter als &gt; 50 HRC</li> </ul> | <ul style="list-style-type: none"> <li>• wear- and temperature-resistant grade for finishing operations</li> <li>• recommended for the following materials : Inox, titanium alloys, nickel-based alloys, chrome-cobalt, and materials harder than &gt; 50 HRC</li> </ul> |                                                                                                                                                                                 |   |       |   |       |   |       |   |       |

Nuances

Sorten

Grades

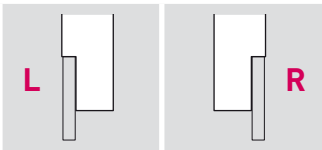
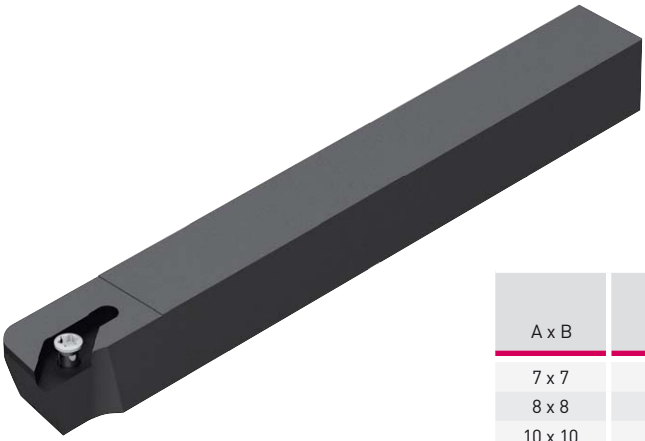
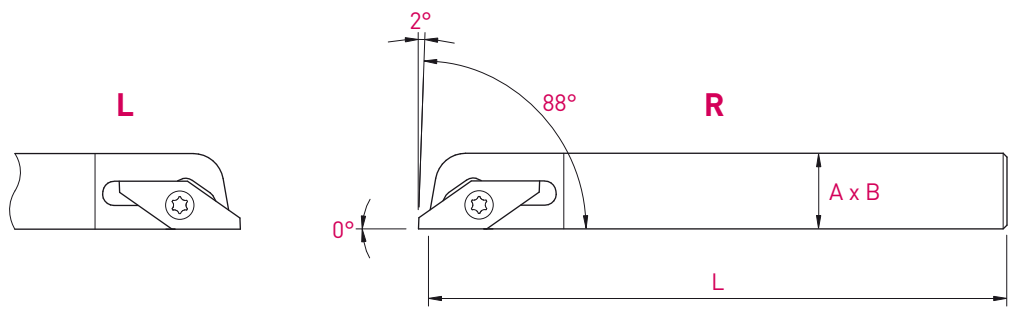
|      |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| μK10 | <div>HTiN</div>                                                                                                                                                            | <div> K10</div> <div>μK10 + revêtement PVD<br/>μK10 + PVD Beschichtung<br/>μK10 + PVD coating</div> <div></div> | <div></div> <div></div> <div></div> <div></div> |
|      | <ul style="list-style-type: none"><li>• nuance pour l'usinage en finition des matières peu résistantes qui créent des arêtes rapportées</li><li>• très faible coefficient de frottement</li><li>• à éviter pour l'usinage du titane</li></ul>               | <ul style="list-style-type: none"><li>• Sorte für die Feinbearbeitung von weichen Werkstoffen mit Tendenz zur Bildung von Aufbauschneiden</li><li>• sehr geringer Reibwert</li><li>• für die Bearbeitung von Titan nicht geeignet</li></ul>                                       | <ul style="list-style-type: none"><li>• grade for light machining of low resistance materials which causes edge build-up</li><li>• very low friction ratio</li><li>• not suitable for titanium machining</li></ul>                                                                                                                                                                      |
| μK10 | <div>HN</div>                                                                                                                                                              | <div> K10</div> <div>Non revêtu<br/>Unbeschichtet<br/>Uncoated</div>                                                                                                                             | <div></div> <div></div> <div></div> <div></div> |
|      | <ul style="list-style-type: none"><li>• nuance micro-grain très résistante à l'usure</li><li>• recommandé pour l'usinage du titane faiblement allié</li><li>• déconseillé en cas de coupe interrompue et autres conditions d'usinage défavorables</li></ul> | <ul style="list-style-type: none"><li>• verschleissfeste Feinkornsorte</li><li>• für die Bearbeitung von niedrig legiertem Titan empfehlenswert</li><li>• für unterbrochene Schnitte und andere ungünstige Bearbeitungsbedingungen nicht geeignet</li></ul>                       | <ul style="list-style-type: none"><li>• wear resistant micro-grain grade</li><li>• suitable for the machining of low alloyed titanium</li><li>• not suitable for interrupted cut and other unfavourable machining conditions</li></ul>                                                                                                                                                  |

## Paramètres de coupe indicatifs

Empfohlene Schnittwerte

Standard machining data

| Matière<br>Werkstoff<br>Material                                           |                                  | Tournage<br>Drehen<br>Turning |                                                |                            |
|----------------------------------------------------------------------------|----------------------------------|-------------------------------|------------------------------------------------|----------------------------|
|                                                                            |                                  | VC                            | Prof. de passe<br>Schnitttiefe<br>Depth of cut | Avance<br>Vorschub<br>Feed |
|                                                                            |                                  | (m/min)                       | (mm)                                           | (mm/U)                     |
| Acier de décolletage<br>Automatenstahl<br>Free-cutting steel               | <b>P</b>                         | 120 - 200                     | 0.05 - 1.0<br>1.0 - 4.0                        | 0.01 - 0.15<br>0.05 - 0.25 |
| Acier<br>Stahl<br>Steel                                                    | < 600 N/mm <sup>2</sup> <b>P</b> | 80 - 160                      | 0.05 - 1.0<br>1.0 - 4.0                        | 0.01 - 0.15<br>0.05 - 0.25 |
| Acier<br>Stahl<br>Steel                                                    | < 800 N/mm <sup>2</sup> <b>P</b> | 60 - 120                      | 0.05 - 1.0<br>1.0 - 4.0                        | 0.01 - 0.10<br>0.05 - 0.20 |
| Acier<br>Stahl<br>Steel                                                    | > 800 N/mm <sup>2</sup> <b>P</b> | 50 - 100                      | 0.05 - 1.0<br>1.0 - 3.0                        | 0.01 - 0.08<br>0.05 - 0.15 |
| Acier inoxydable<br>Rostfreistahl<br>Stainless steel                       | <b>M</b>                         | 60 - 120                      | 0.05 - 1.0<br>1.0 - 3.0                        | 0.01 - 0.08<br>0.05 - 0.15 |
| Aluminium Si <12%                                                          | <b>N</b>                         | 200 - 1000                    | 0.05 - 1.0<br>1.0 - 4.0                        | 0.01 - 0.20<br>0.05 - 0.40 |
| Aluminium Si >12%                                                          | <b>N</b>                         | 180 - 800                     | 0.05 - 1.0<br>1.0 - 4.0                        | 0.01 - 0.20<br>0.05 - 0.40 |
| Cuivre, laiton, bronze<br>Kupfer, Messing, Bronze<br>Copper, brass, bronze | <b>N</b>                         | 100 - 500                     | 0.05 - 1.0<br>1.0 - 4.0                        | 0.01 - 0.20<br>0.05 - 0.35 |
| Titane<br>Titan<br>Titanium                                                | <b>S</b>                         | 30 - 70                       | 0.05 - 1.0<br>1.0 - 4.0                        | 0.01 - 0.08<br>0.05 - 0.15 |



| A x B       | L   | Art. N°    | Art. N°    |
|-------------|-----|------------|------------|
| 7 x 7       | 115 | 310-7      | 320-7      |
| 8 x 8       | 115 | 310-8      | 320-8      |
| 10 x 10     | 115 | 310-10     | 320-10     |
| 10 x 10     | 140 | -          | 320-10-140 |
| 12 x 12     | 115 | 310-12     | 320-12     |
| 12 x 12     | 90  | 310-12-90  | 320-12-90  |
| 12 x 12     | 140 | 310-12-140 | 320-12-140 |
| 12.7 x 12.7 | 140 | 310-12.7   | 320-12.7   |
| 16 x 16     | 100 | 310-16     | 320-16     |
| 16 x 16     | 140 | 310-16-140 | 320-16-140 |
| 20 x 20     | 120 | 310-20     | 320-20     |

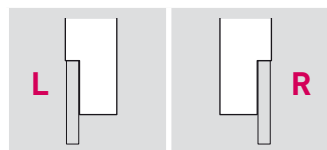
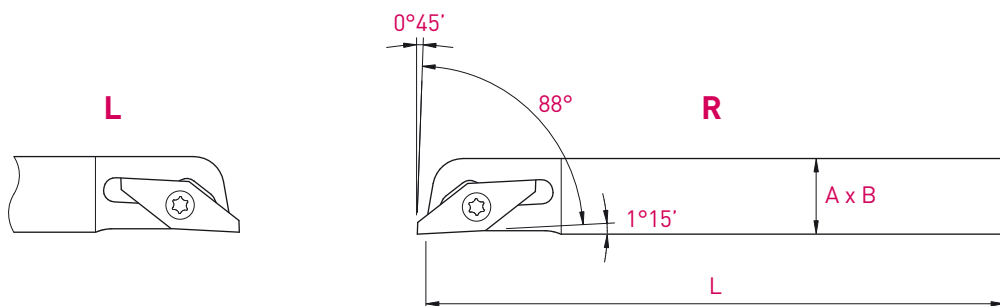
Chaque support est livré avec une ou plusieurs vis. Les clés sont à commander séparément.  
Jeder Halter wird mit einer oder mehreren Schrauben geliefert. Die Schlüssel sind separat zu bestellen.  
Each holder is supplied with one or more screws. The keys must be ordered separately.

## Porte-outils

Halter  
Holders

88°

310-BC / 320-BC



| A x B       | L   | Art. N°       | Art. N°       |
|-------------|-----|---------------|---------------|
| 7 x 7       | 115 | 310-7-BC      | 320-7-BC      |
| 8 x 8       | 115 | 310-8-BC      | 320-8-BC      |
| 10 x 10     | 115 | 310-10-BC     | 320-10-BC     |
| 10 x 10     | 140 | -             | 320-10-140-BC |
| 12 x 12     | 115 | 310-12-BC     | 320-12-BC     |
| 12 x 12     | 90  | 310-12-90-BC  | 320-12-90-BC  |
| 12 x 12     | 140 | 310-12-140-BC | 320-12-140-BC |
| 12.7 x 12.7 | 140 | 310-12.7-BC   | 320-12.7-BC   |
| 16 x 16     | 100 | 310-16-BC     | 320-16-BC     |
| 16 x 16     | 140 | 310-16-140-BC | 320-16-140-BC |
| 20 x 20     | 120 | 310-20-BC     | 320-20-BC     |

Chaque support est livré avec une ou plusieurs vis.  
Les clés sont à commander séparément.

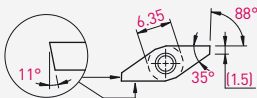
Jeder Halter wird mit einer oder mehreren Schrauben geliefert.  
Die Schlüssel sind separat zu bestellen.

Each holder is supplied with one or more screws.  
The keys must be ordered separately.

| Porte-outils<br>Halter<br>Holders | Serrage standard (A)<br>Standard Spannsystem (A)<br>Standard clamping system (A)<br> | Option<br> |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 310-7 / 320-7                     | <b>V-M2.5X6.5-T8</b>                                                                                                                                                    | <b>C-T8</b>                                                                                     |
| 310-8 - 310-20                    | <b>V-M2.5X7.8-T8</b>                                                                                                                                                    |                                                                                                 |
| 320-8 - 320-20                    |                                                                                                                                                                         |                                                                                                 |

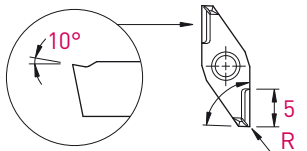
310 / 320

88°



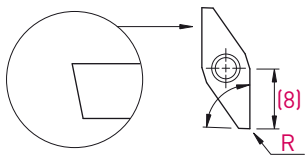
Tournage avant  
Vorwärts drehen  
Front turning

317 / 327



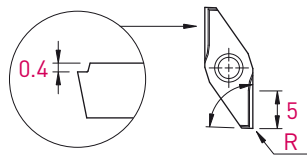
| R       | L       | P     | P   | P        | P   | P    | P         | R       | P     | P   | P        | P   | P    | P         |
|---------|---------|-------|-----|----------|-----|------|-----------|---------|-------|-----|----------|-----|------|-----------|
|         |         | M     | M   |          | M   | M    |           |         | M     | M   | N        | M   | M    |           |
|         |         | N     | N   | N        | N   | N    | N         |         | N     | N   | N        | N   | N    | N         |
|         |         | S     |     | S        | S   |      | S         |         | S     |     | S        | S   | N    | S         |
|         |         | TiAlN | TiN | N [µk20] | HTA | HTiN | HN [µk10] |         | TiAlN | TiN | N [µk20] | HTA | HTiN | HN [µk10] |
| Art. N° |         |       |     |          |     |      |           | Art. N° |       |     |          |     |      |           |
| 0       | 317     | ●     | ●   | ●        | ●   | ●    | ●         | 327     | ●     | ●   | ●        | ●   | ●    | ●         |
| 0.03    | 317-R03 | ●     | ●   | ●        | ●   | ●    | ●         | 327-R03 | ●     | ●   | ●        | ●   | ●    | ●         |
| 0.08    | 317-R08 | ●     | ●   | ●        | ●   | ●    | ●         | 327-R08 | ●     | ●   | ●        | ●   | ●    | ●         |
| 0.10    | 317-R10 | ●     | ●   | ●        | ●   | ●    | ●         | 327-R10 | ●     | ●   | ●        | ●   | ●    | ●         |
| 0.20    | 317-R20 | ●     | ●   | ●        | ●   | ●    | ●         | 327-R20 | ●     | ●   | ●        | ●   | ●    | ●         |

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|      | L       | P   | P    | P         | R       | P   | P    | P         |
|------|---------|-----|------|-----------|---------|-----|------|-----------|
|      |         | M   | M    | N         |         | M   | M    | N         |
|      |         | N   | N    | N         |         | N   | N    | N         |
|      |         |     |      |           |         |     |      |           |
|      |         | HTA | HTiN | HN (µk10) |         | HTA | HTiN | HN (µk10) |
| R    | Art. N° |     |      |           | Art. N° |     |      |           |
| 0    | 318     | •   | •    | •         | 328     | •   | •    | •         |
| 0.05 | 318-R05 | •   | •    | •         | 328-R05 | •   | •    | •         |
| 0.10 | 318-R10 | •   | •    | •         | 328-R10 | •   | •    | •         |
| 0.20 | 318-R20 | •   | •    | •         | 328-R20 | •   | •    | •         |
| 0.40 | 318-R40 | •   | •    | •         | 328-R40 | •   | •    | •         |

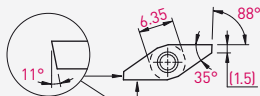
318VS / 328VS



|      | L         | P   | P    | P         | R         | P   | P    | P         |
|------|-----------|-----|------|-----------|-----------|-----|------|-----------|
|      |           | M   | M    | N         |           | M   | M    | N         |
|      |           | N   | N    | S         |           | N   | N    | S         |
|      |           | S   |      |           |           | S   |      |           |
|      |           | HTA | HTiN | HN (µk10) |           | HTA | HTiN | HN (µk10) |
| R    | Art. N°   |     |      |           | Art. N°   |     |      |           |
| 0    | 318VS     | •   | •    | •         | 328VS     | •   | •    | •         |
| 0.10 | 318VS-R10 | •   | •    | •         | 328VS-R10 | •   | •    | •         |

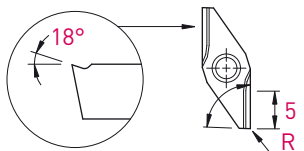
**Tournage avant**  
Vorwärts drehen  
Front turning

88°



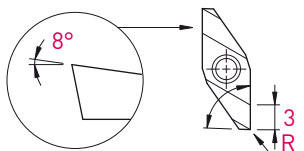
310 / 320

## 318VX / 328VX



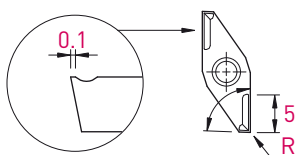
| R    | L         | <div><div>P</div><div>M</div><div>N</div><div>S</div></div> | <div><div>P</div><div>M</div><div>N</div><div></div></div> | <div><div>P</div><div></div><div>N</div><div>S</div></div> | R         | Art. N° | <div><div>P</div><div>M</div><div>N</div><div>S</div></div> | <div><div>P</div><div>M</div><div>N</div><div></div></div> | <div><div>P</div><div></div><div>N</div><div>S</div></div> |
|------|-----------|-------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|-----------|---------|-------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
|      |           | HTA                                                         | HTiN                                                       | HN (µk10)                                                  |           |         | HTA                                                         | HTiN                                                       | HN (µk10)                                                  |
|      |           |                                                             |                                                            |                                                            |           |         |                                                             |                                                            |                                                            |
|      |           |                                                             |                                                            |                                                            |           |         |                                                             |                                                            |                                                            |
| 0    | 318VX     | ●                                                           | ●                                                          | ●                                                          | 328VX     | ●       | ●                                                           | ●                                                          |                                                            |
| 0.05 | 318VX-R05 | ●                                                           | ●                                                          | ●                                                          | 328VX-R05 | ●       | ●                                                           | ●                                                          |                                                            |
| 0.10 | 318VX-R10 | ●                                                           | ●                                                          | ●                                                          | 328VX-R10 | ●       | ●                                                           | ●                                                          |                                                            |
| 0.20 | -         |                                                             |                                                            |                                                            | 328VX-R20 | ●       | ●                                                           | ●                                                          |                                                            |
| 0.40 | -         |                                                             |                                                            |                                                            | 328VX-R40 | ●       |                                                             | ●                                                          |                                                            |

## 318X / 328X

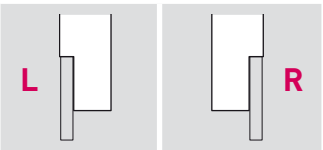
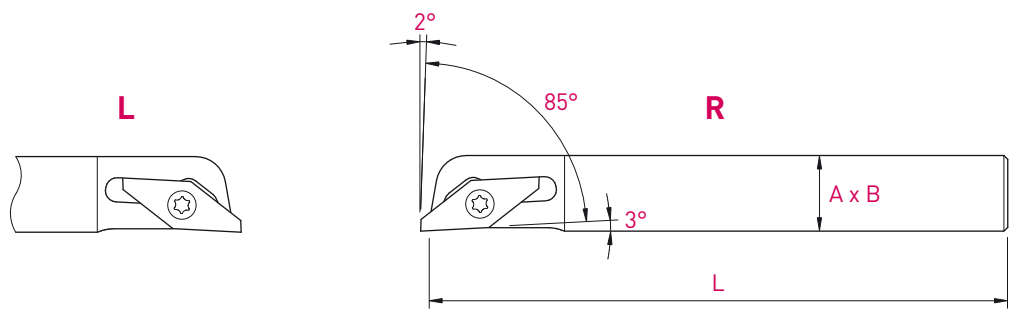


| R | L | <div><div>P</div><div>M</div><div>N</div><div>S</div></div> | <div><div>P</div><div>M</div><div>N</div><div></div></div> | <div><div>P</div><div></div><div>N</div><div>S</div></div> | R | <div><div>P</div><div>M</div><div>N</div><div>S</div></div> | <div><div>P</div><div>M</div><div>N</div><div></div></div> | <div><div>P</div><div></div><div>N</div><div>S</div></div> |   |   |   |
|---|---|-------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|---|-------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|---|---|---|
|   |   | HTA                                                         | HTiN                                                       | HN $\mu$ k10                                               |   | HTA                                                         | HTiN                                                       | HN $\mu$ k10                                               |   |   |   |
|   |   | Art. N°                                                     | Art. N°                                                    | Art. N°                                                    |   | Art. N°                                                     | Art. N°                                                    | Art. N°                                                    |   |   |   |
|   |   | 0                                                           | 318X                                                       | •                                                          |   | •                                                           | •                                                          | 328X                                                       | • | • | • |
|   |   | 0.10                                                        | 318X-R10                                                   | •                                                          |   | •                                                           | •                                                          | 328X-R10                                                   | • | • | • |

## 319 / 329



| R    | L       | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div></div><div>N</div></div> | R       | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div></div><div>N</div></div> |
|------|---------|-------------------------------------------------|-------------------------------------------------|------------------------------------------------|---------|-------------------------------------------------|-------------------------------------------------|------------------------------------------------|
|      |         | HTA                                             | HTiN                                            | HN [µk10]                                      |         | HTA                                             | HTiN                                            | HN [µk10]                                      |
|      |         | Art. N°                                         |                                                 |                                                |         | Art. N°                                         |                                                 |                                                |
|      |         |                                                 |                                                 |                                                |         |                                                 |                                                 |                                                |
| 0    | 319     | ●                                               | ●                                               | ●                                              | 329     | ●                                               | ●                                               | ●                                              |
| 0.10 | 319-R10 | ●                                               | ●                                               | ●                                              | 329-R10 | ●                                               | ●                                               | ●                                              |
| 0.20 | 319-R20 | ●                                               | ●                                               | ●                                              | 329-R20 | ●                                               | ●                                               | ●                                              |



| A x B       | L   | Art. N°    | Art. N°    |
|-------------|-----|------------|------------|
| 8 x 8       | 90  | -          | 340-8-90   |
| 8 x 8       | 115 | 330-8      | 340-8      |
| 10 x 10     | 115 | 330-10     | 340-10     |
| 10 x 10     | 140 | -          | 340-10-140 |
| 12 x 12     | 115 | 330-12     | 340-12     |
| 12 x 12     | 90  | 330-12-90  | 340-12-90  |
| 12 x 12     | 140 | 330-12-140 | 340-12-140 |
| 12.7 x 12.7 | 140 | 330-12.7   | 340-12.7   |
| 16 x 16     | 100 | 330-16     | 340-16     |
| 16 x 16     | 140 | 330-16-140 | 340-16-140 |
| 20 x 20     | 120 | 330-20     | 340-20     |

Chaque support est livré avec une ou plusieurs vis.  
Les clés sont à commander séparément.  
Jeder Halter wird mit einer oder mehreren Schrauben geliefert.  
Die Schlüssel sind separat zu bestellen.  
Each holder is supplied with one or more screws.  
The keys must be ordered separately.

| Porte-outils<br>Halter<br>Holders | Serrage standard (A)<br>Standard Spannsystem (A)<br>Standard clamping system (A)<br> | Option<br> |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 330<br>340                        | V-M2.5X7.8-T8                                                                                                                                                           | C-T8                                                                                            |

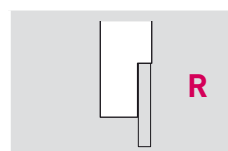
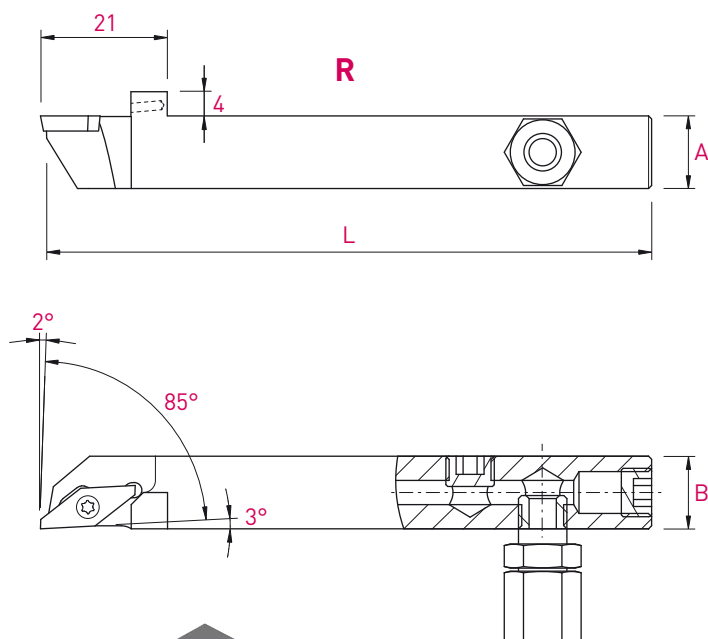
## Porte-outils avec arrosage intégré

Halter mit integrierter Kühlmittelzufuhr

Holders with integrated coolant supply

85°

340-JET



| Pièces de rechange<br>Ersatzteile<br>Spare parts | Art. N°   | Option   | Art. N° |
|--------------------------------------------------|-----------|----------|---------|
| 340-0810-JET                                     | J-M5-D5   | JC-M5-D5 | JB-M5   |
| 340-JET                                          | J-M8X1-D6 | -        | JB-M8X1 |

| A x B       | L   | Art. N°      |
|-------------|-----|--------------|
| 8 x 10      | 100 | 340-0810-JET |
| 10 x 12     | 100 | 340-1012-JET |
| 12 x 12     | 100 | 340-12-JET   |
| 12.7 x 12.7 | 100 | 340-12.7-JET |
| 16 x 16     | 100 | 340-16-JET   |
| 20 x 20     | 100 | 340-20-JET   |

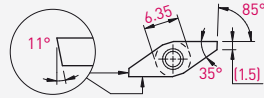
Chaque support est livré avec une ou plusieurs vis.  
Les clés sont à commander séparément.

Jeder Halter wird mit einer oder mehreren Schrauben geliefert.  
Die Schlüssel sind separat zu bestellen.

Each holder is supplied with one or more screws.  
The keys must be ordered separately.

330 / 340

85°

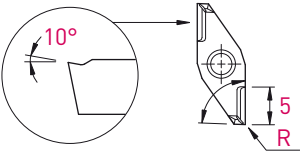


Tournage avant

Vorwärts drehen

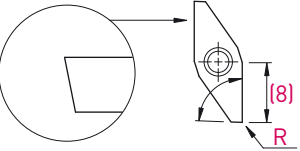
Front turning

337 / 347



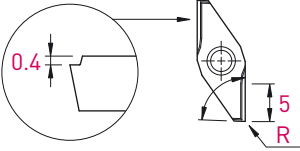
| R    | Art. N°    | L     |       |     |          |     |      | Art. N° | R         |            |       |       |     |          |
|------|------------|-------|-------|-----|----------|-----|------|---------|-----------|------------|-------|-------|-----|----------|
|      |            | TiAlN | TiAlX | TiN | N (µk20) | HTA | HTAX | HTiN    | HN (µk10) | ST         | TiAlN | TiAlX | TiN | N (µk20) |
| 0    | 337        | •     | •     | •   | •        | •   | •    | •       | •         | •          | •     | •     | •   | •        |
| 0.03 | 337-R03    | •     | •     | •   | •        | •   | •    | •       | •         | •          | •     | •     | •   | •        |
| 0.08 | 337-R08    | •     | •     | •   | •        | •   | •    | •       | •         | •          | •     | •     | •   | •        |
| 0.10 | 337-R10    | •     | •     | •   | •        | •   | •    | •       | •         | •          | •     | •     | •   | •        |
| 0.20 | 337-R20    | •     | •     | •   | •        | •   | •    | •       | •         | •          | •     | •     | •   | •        |
| 0.35 | -          |       |       |     |          |     |      |         |           | 347-R35    | •     | •     | •   | •        |
| 0    | 337-EN     | •     | •     | •   | •        | •   | •    | •       | •         | 347-EN     | •     | •     | •   | •        |
| 0.03 | 337-EN-R03 | •     | •     | •   | •        | •   | •    | •       | •         | 347-EN-R03 | •     | •     | •   | •        |
| 0.08 | 337-EN-R08 | •     | •     | •   | •        | •   | •    | •       | •         | 347-EN-R08 | •     | •     | •   | •        |
| 0.10 | 337-EN-R10 | •     | •     | •   | •        | •   | •    | •       | •         | 347-EN-R10 | •     | •     | •   | •        |
| 0.20 | 337-EN-R20 | •     | •     | •   | •        | •   | •    | •       | •         | 347-EN-R20 | •     | •     | •   | •        |
| 0.35 | -          |       |       |     |          |     |      |         |           | 347-EN-R35 | •     | •     | •   | •        |

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| R    | Art. N° | L   |      |           | Art. N° | R   |      |           |
|------|---------|-----|------|-----------|---------|-----|------|-----------|
|      |         | HTA | HTiN | HN (µk10) |         | HTA | HTiN | HN (µk10) |
| 0    | 338     | •   | •    | •         | 348     | •   | •    | •         |
| 0.05 | 338-R05 | •   | •    | •         | 348-R05 | •   | •    | •         |
| 0.10 | 338-R10 | •   | •    | •         | 348-R10 | •   | •    | •         |
| 0.20 | 338-R20 | •   | •    | •         | 348-R20 | •   | •    | •         |
| 0.40 | 338-R40 | •   | •    | •         | 348-R40 | •   | •    | •         |

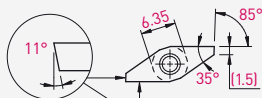
338VS / 348VS



| R    | Art. N°   | L   |      |           | Art. N°   | R   |      |           |
|------|-----------|-----|------|-----------|-----------|-----|------|-----------|
|      |           | HTA | HTiN | HN (µk10) |           | HTA | HTiN | HN (µk10) |
| 0    | 338VS     | •   | •    | •         | 348VS     | •   | •    | •         |
| 0.10 | 338VS-R10 | •   | •    | •         | 348VS-R10 | •   | •    | •         |

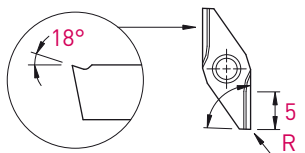
**Tournage avant**  
Vorwärts drehen  
Front turning

85°



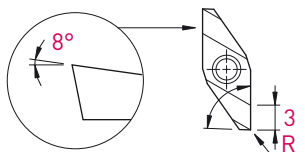
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## 338VX / 348VX



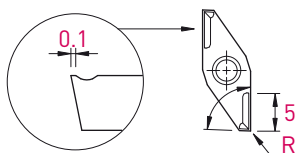
|      | L         | <div><div>P</div><div>M</div><div>N</div><div>S</div></div> | <div><div>P</div><div>M</div><div>N</div><div></div></div> | <div><div>P</div><div></div><div>N</div><div>S</div></div> | R         | Art. N° | HTA | HTiN | HN (μk10) | Art. N°   | HTA | HTiN | HN (μk10) |
|------|-----------|-------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|-----------|---------|-----|------|-----------|-----------|-----|------|-----------|
|      |           |                                                             |                                                            |                                                            |           |         |     |      |           |           |     |      |           |
| 0    | 338VX     | ●                                                           | ●                                                          | ●                                                          | 348VX     | ●       | ●   | ●    |           | 348VX     | ●   | ●    | ●         |
| 0.05 | 338VX-R05 | ●                                                           | ●                                                          | ●                                                          | 348VX-R05 | ●       | ●   | ●    |           | 348VX-R05 | ●   | ●    | ●         |
| 0.10 | 338VX-R10 | ●                                                           | ●                                                          | ●                                                          | 348VX-R10 | ●       | ●   | ●    |           | 348VX-R10 | ●   | ●    | ●         |

## 338X / 348X



| R    | L        | <div><div>P</div><div>M</div><div>N</div><div>S</div></div> | <div><div>P</div><div>M</div><div>N</div><div></div></div> | <div><div>P</div><div></div><div>N</div><div>S</div></div> | R        | <div><div>P</div><div>M</div><div>N</div><div>S</div></div> | <div><div>P</div><div>M</div><div>N</div><div></div></div> | <div><div>P</div><div></div><div>N</div><div>S</div></div> |
|------|----------|-------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|----------|-------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
|      |          | HTA                                                         | HTiN                                                       | HN $\mu$ k10                                               |          | HTA                                                         | HTiN                                                       | HN $\mu$ k10                                               |
|      |          | Art. N°                                                     | Art. N°                                                    | Art. N°                                                    |          | Art. N°                                                     | Art. N°                                                    | Art. N°                                                    |
|      |          |                                                             |                                                            |                                                            |          |                                                             |                                                            |                                                            |
| 0    | 338X     | ●                                                           | ●                                                          | ●                                                          | 348X     | ●                                                           | ●                                                          | ●                                                          |
| 0.10 | 338X-R10 | ●                                                           | ●                                                          | ●                                                          | 348X-R10 | ●                                                           | ●                                                          | ●                                                          |

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| R    | L       | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div></div><div>N</div></div> | R       | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div>M</div><div>N</div></div> | <div><div>P</div><div></div><div>N</div></div> |
|------|---------|-------------------------------------------------|-------------------------------------------------|------------------------------------------------|---------|-------------------------------------------------|-------------------------------------------------|------------------------------------------------|
|      |         | HTA                                             | HTiN                                            | HN (μk10)                                      |         | HTA                                             | HTiN                                            | HN (μk10)                                      |
|      |         | Art. N°                                         |                                                 |                                                |         |                                                 | Art. N°                                         |                                                |
| 0    | 339     | ●                                               | ●                                               | ●                                              | 349     | ●                                               | ●                                               | ●                                              |
| 0.10 | 339-R10 | ●                                               | ●                                               | ●                                              | 349-R10 | ●                                               | ●                                               | ●                                              |
| 0.20 | 339-R20 | ●                                               | ●                                               | ●                                              | 349-R20 | ●                                               | ●                                               | ●                                              |

SYMBOL

Légende des symboles

Symbollegende

Symbol Legend

| E   | L | Art. N°   | TiAlN | TiN | N (µK20) | HTA | HTiN | HN (µK10) |
|-----|---|-----------|-------|-----|----------|-----|------|-----------|
| 1.0 | 5 | 731RU-1.0 | •     | •   |          |     |      |           |
| 1.2 | 5 | 731RU-1.2 | •     | •   |          |     |      |           |
| 1.5 | 7 | 731RU-1.5 | •     | •   | •        | •   | •    | •         |
| 2.0 | 7 | 731RU-2.0 | •     | •   |          |     |      |           |

• Article standart  
Standardartikel  
Standard item

P

Acier  
Stahl  
Steel

M

Inox  
Rostfreistahl  
Stainless steel

N

Alliages d'aluminium et non ferreux  
Aluminium- und Nichtisenlegierungen  
Aluminium and non-ferrous alloys

S

Titane et superalliages  
Titan und Superlegierungen  
Titanium and superalloys

H

Acier trempé  
Gehärteter Stahl  
Hardened steel

K

Fonte  
Gusseisen  
Cast iron

O

Matière exotique  
Exotisches material  
Exotic material



Carbure  
Hartmetall  
Carbide



TiAlN

K20

µK20 + revêtement PVD  
µK20 + PVD Beschichtung  
µK20 + PVD coating

P ★★★★★  
M ★★★★★  
N ★★★★★  
S ★★★★★

TF F M E

Épaisseur du revêtement  
Dicken der Beschichtung  
Thickness of the coating

TF

Très fin  
Sehr dünn  
Very thin

F

Fin  
Dünn  
Thin

M

Moyen  
Mittel  
Medium

E

Épais  
Dick  
Thick