



# TURNING

## Turning





# Turning

|                                 |             |
|---------------------------------|-------------|
| <b>INTRODUCTION</b>             | C1 - C3     |
| FIRST CHOICE GUIDE              | C4 - C11    |
| GEOMETRY USER GUIDE             | C12         |
| DEFINITIONS OF GEOMETRIES       | C13 - C23   |
| GRADES SELECTION                | C24         |
| GRADE DESCRIPTIONS              | C25 - C29   |
| GRADE GEOMETRY                  | C30 - C31   |
| CUTTING SPEED                   | C32 - C33   |
| ISO GRADE CLASSIFICATION        | C34         |
| <b>TURNING INSERTS</b>          |             |
| INSERT DESIGNATIONS             | C36 - C37   |
| TOOLHOLDER DESIGNATIONS         | C38 - C41   |
| INSERT STYLES                   |             |
| C STYLE                         | C42 - C65   |
| D STYLE                         | C66 - C87   |
| E STYLE                         | C88 - C103  |
| R STYLE                         | C104 - C111 |
| S STYLE                         | C112 - C128 |
| T STYLE                         | C129 - C141 |
| V STYLE                         | C142 - C161 |
| W STYLE                         | C162 - C172 |
| SPARES                          | C173 - C189 |
| TECHNICAL INFORMATION           | C191 - C203 |
| <b>THREADING</b>                |             |
| THREADING INSERTS & TOOLHOLDERS | C205 - C246 |
| THREADING TECHNICAL             | C247 - C263 |
| <b>GROOVING</b>                 | C265 - C276 |
| MINI CUT                        | C277 - C280 |
| <b>PART-OFF</b>                 | C281 - C285 |



The following Material Guide pages enable you to select the appropriate geometry and grade along with a suggested start point for speeds and feeds. Simply select the material to be machined and type of machining operation.

## 1st Choice

- 1 Select your material.
- 2 Select your machining operation from finishing to roughing.
- 3 Recommended geometry for the operation.
- 4 Maximum and minimum depth of cut for this geometry.
- 5 Maximum and minimum feed for this geometry.
- 6 Choose the machining condition as below:

Interrupted cut



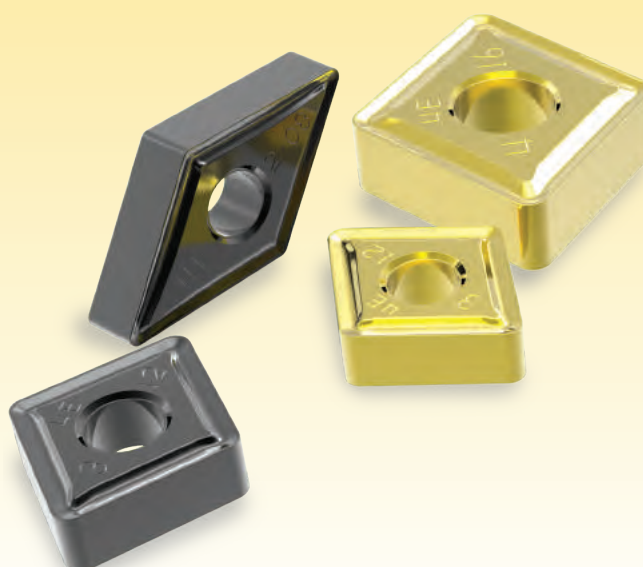
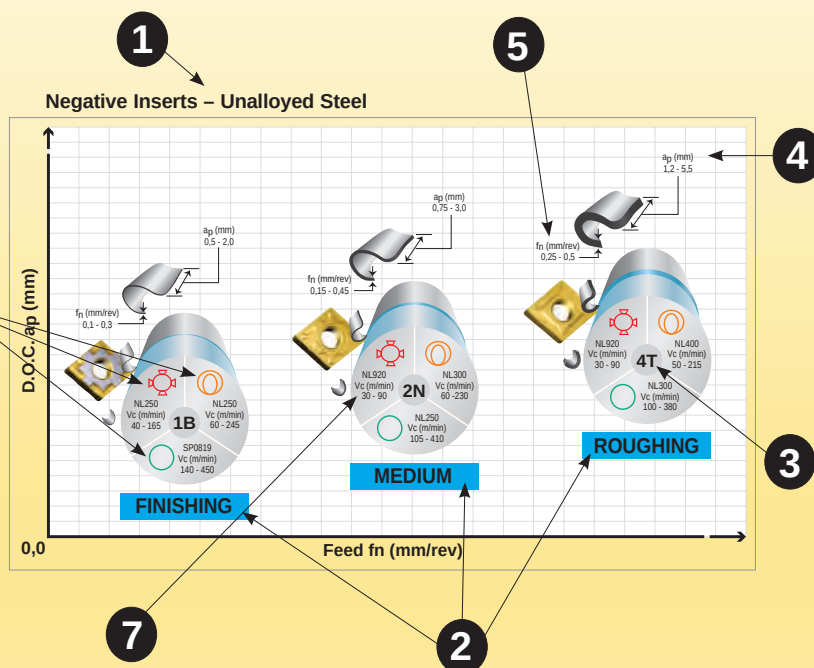
Varying depth of cut

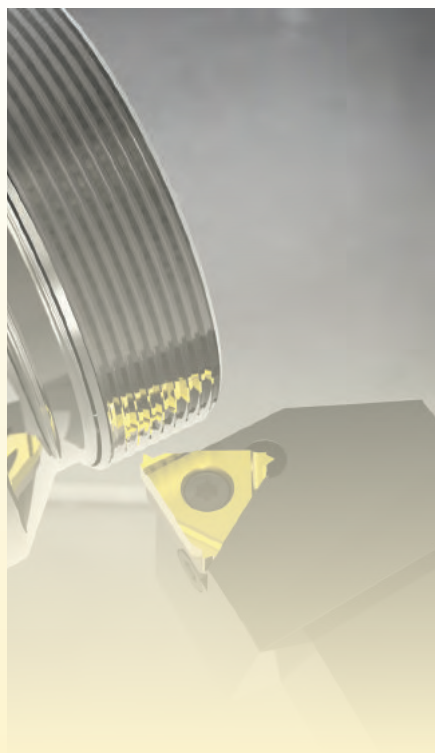


Good condition



- 7 Recommended grade and cutting speeds for this condition.





Unalloyed Steels



Alloyed Steels



Stainless Steels



PH Stainless



**M**

Cast Irons



**K**

Aluminum & Alloys



**N**

High Temperature Alloys



**S**

Hard Materials (52-56 HRC)



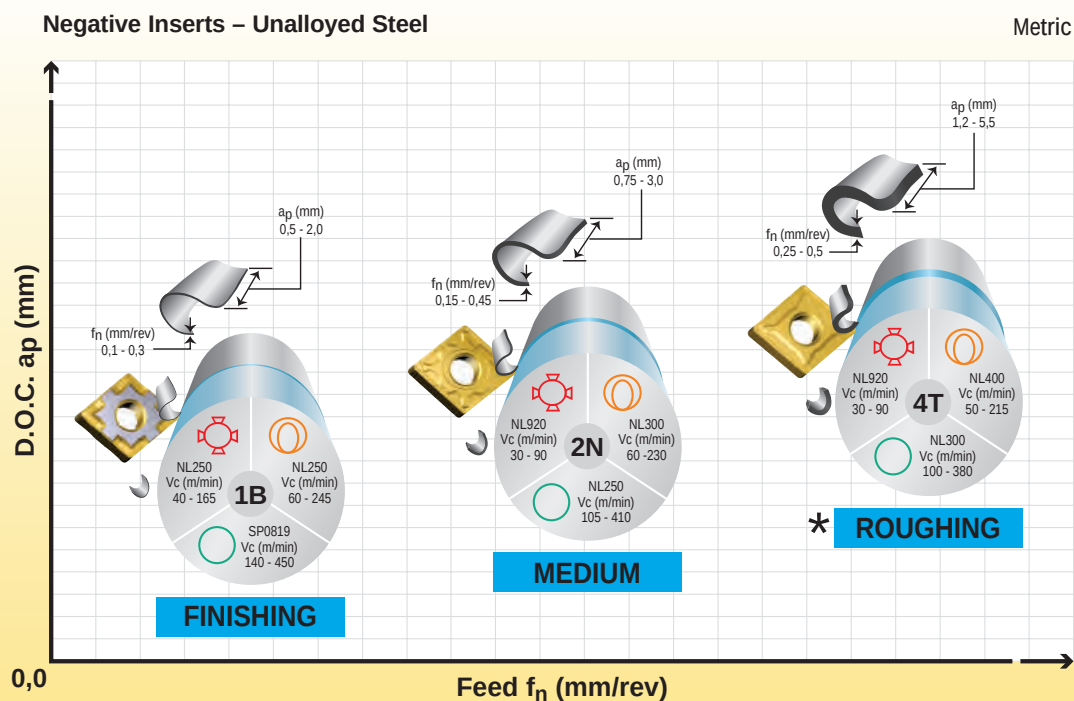
**H**

## Material Guide – Key to Recommended Inserts

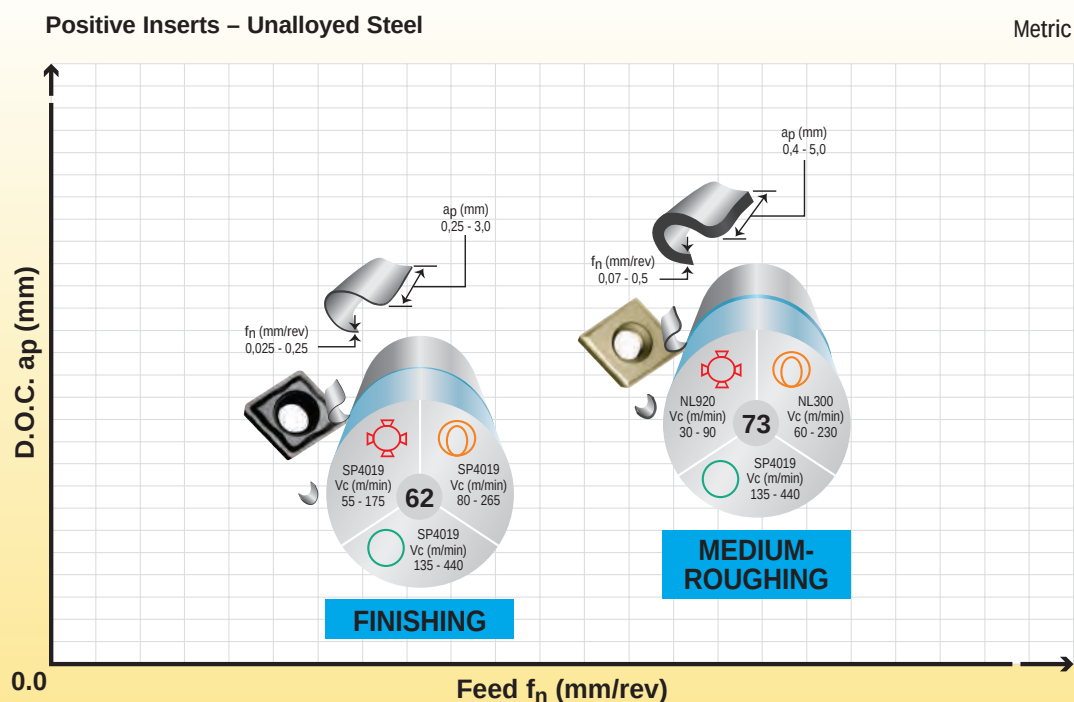
### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



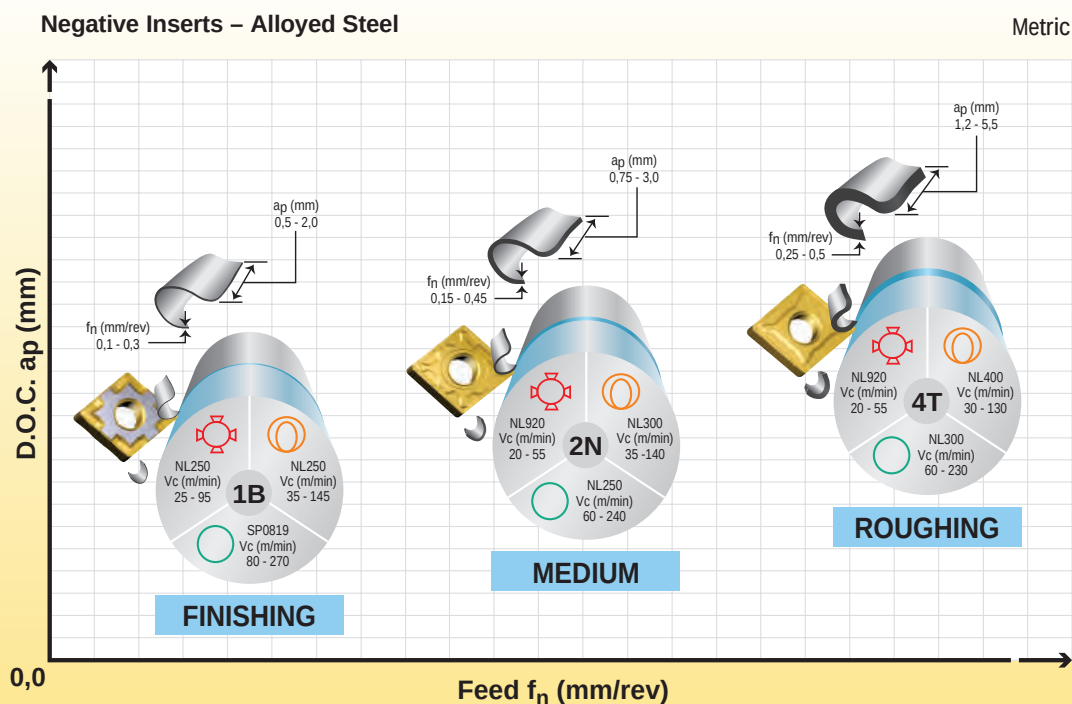


\*Note: For Heavy Roughing applications see 5R geometry, page C17.

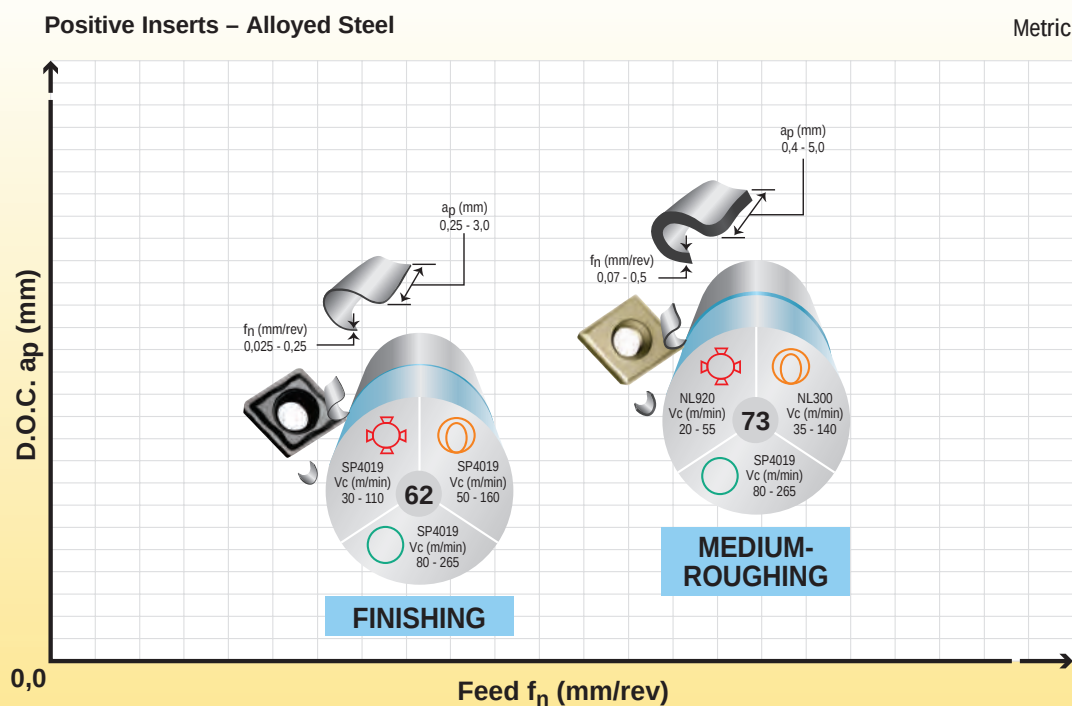


Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

| Key |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|-----|--|-----------------|--|----------------------|--|----------------|
|-----|--|-----------------|--|----------------------|--|----------------|

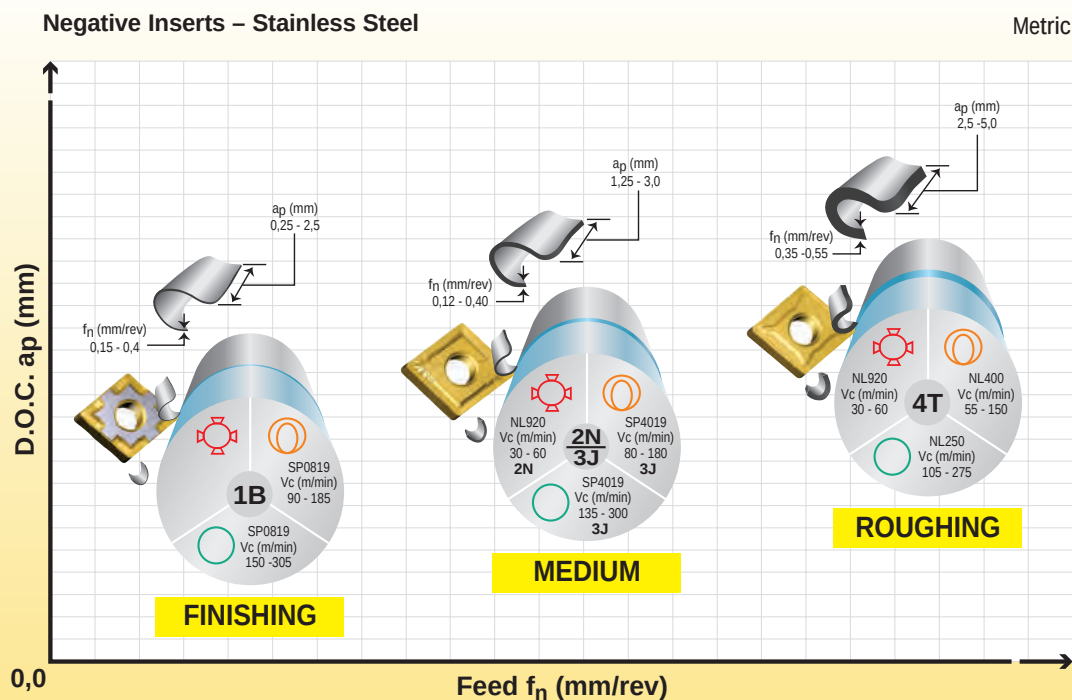


\*Note: For Heavy Roughing applications see 5R geometry, page C17.

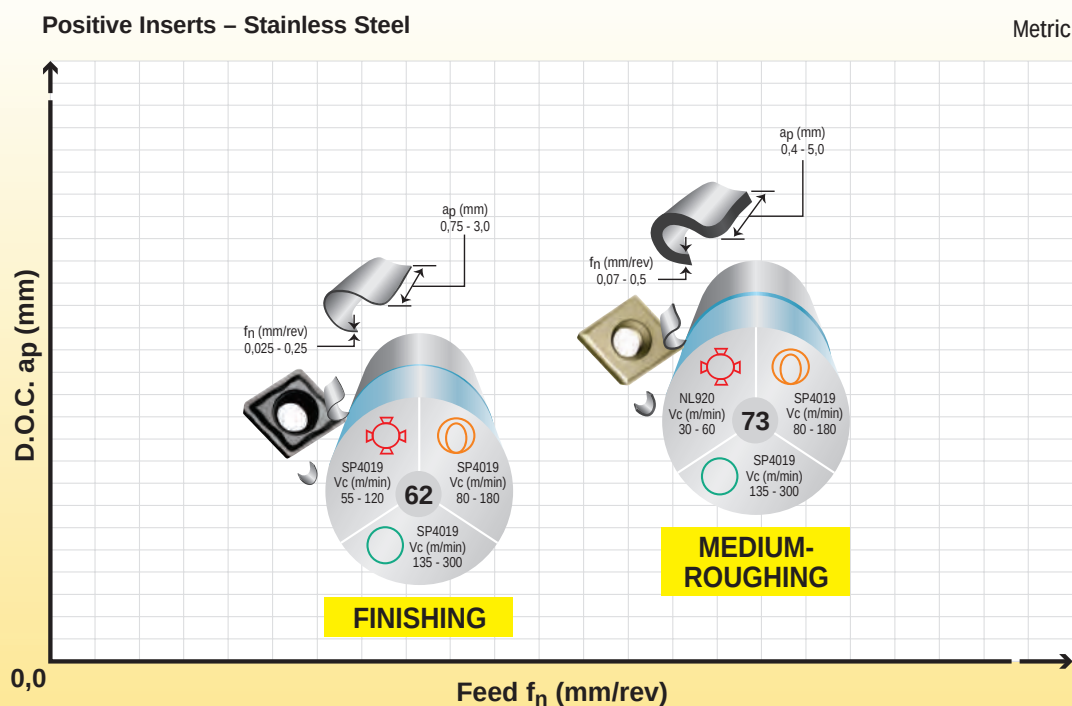


Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

|            |  |                 |  |                      |  |                |
|------------|--|-----------------|--|----------------------|--|----------------|
| <b>Key</b> |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|------------|--|-----------------|--|----------------------|--|----------------|

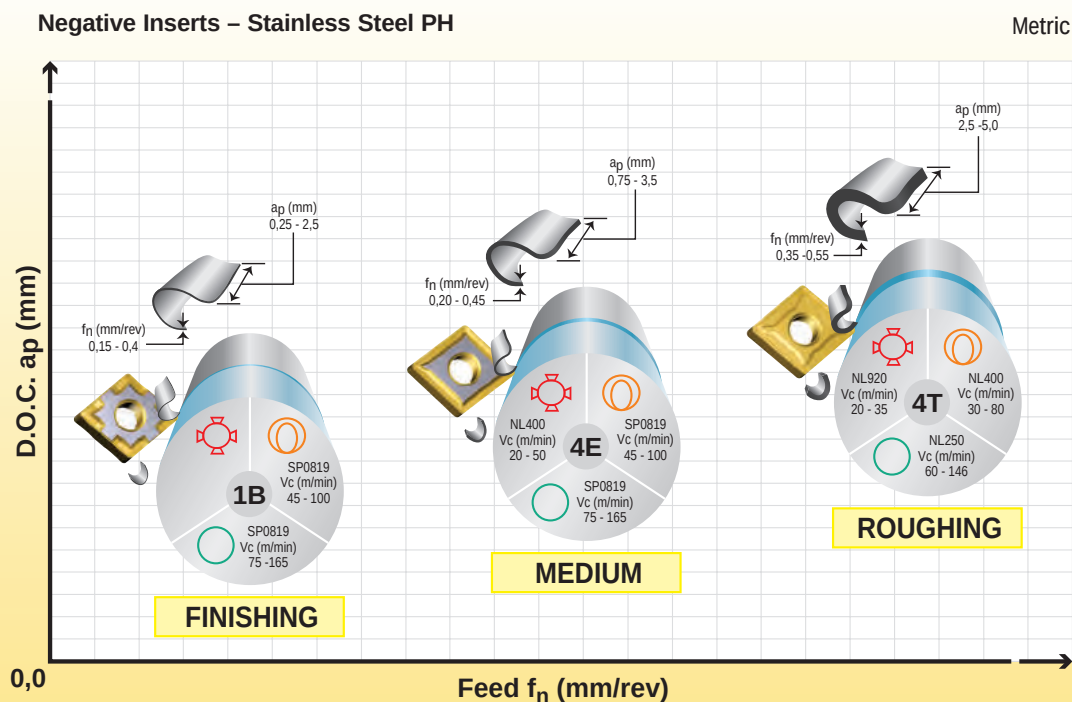


\*Note: For Heavy Roughing applications see 5R geometry, page C17.

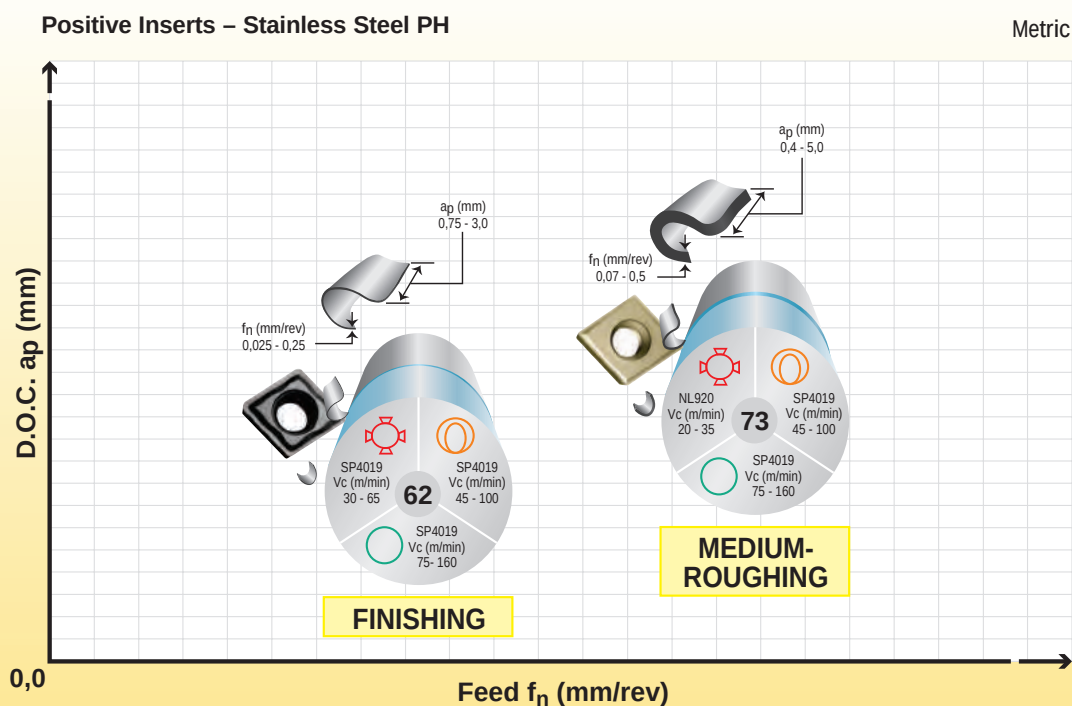


Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

|            |  |                 |  |                      |  |                |
|------------|--|-----------------|--|----------------------|--|----------------|
| <b>Key</b> |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|------------|--|-----------------|--|----------------------|--|----------------|

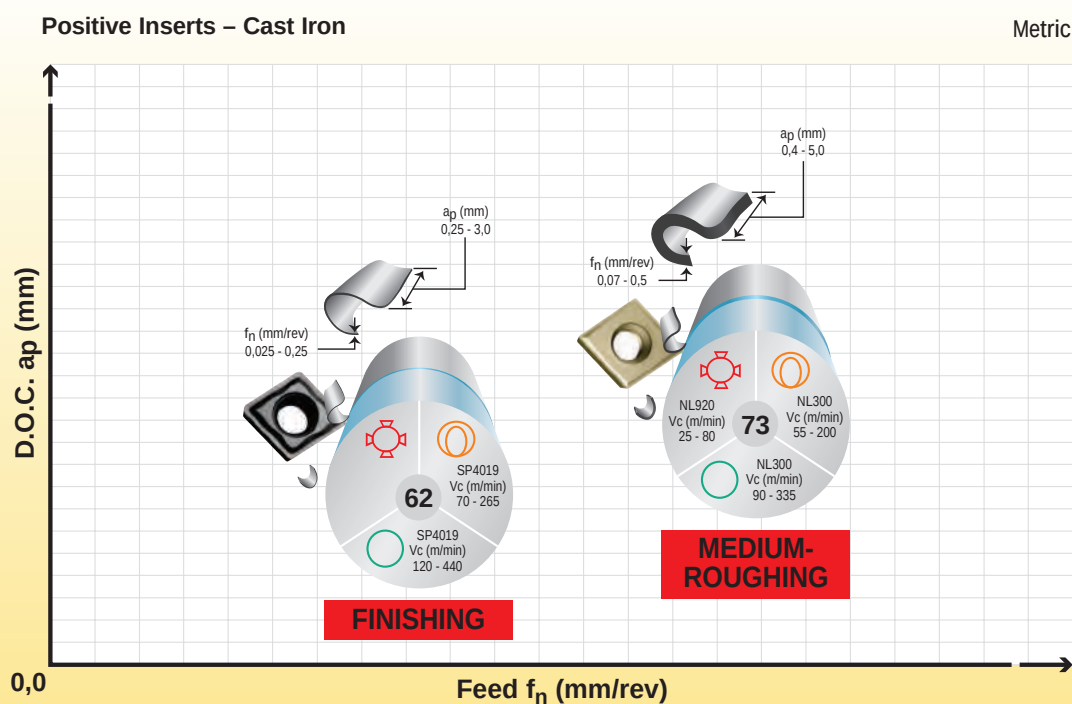
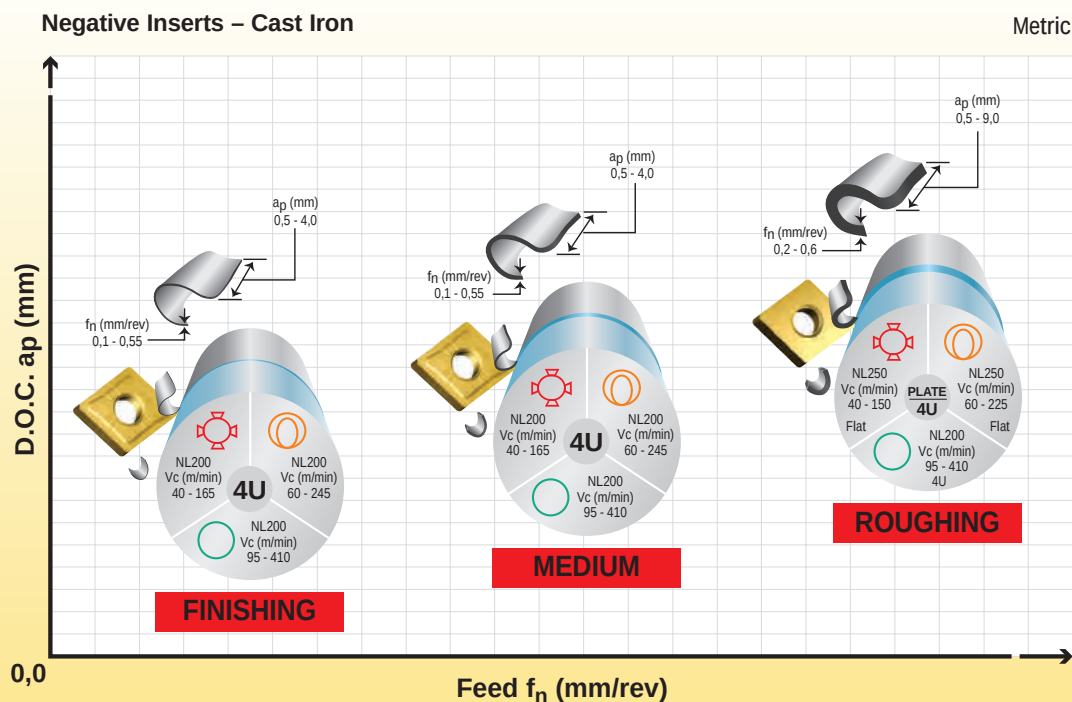


\*Note: For Heavy Roughing applications see 5R geometry, page C17.



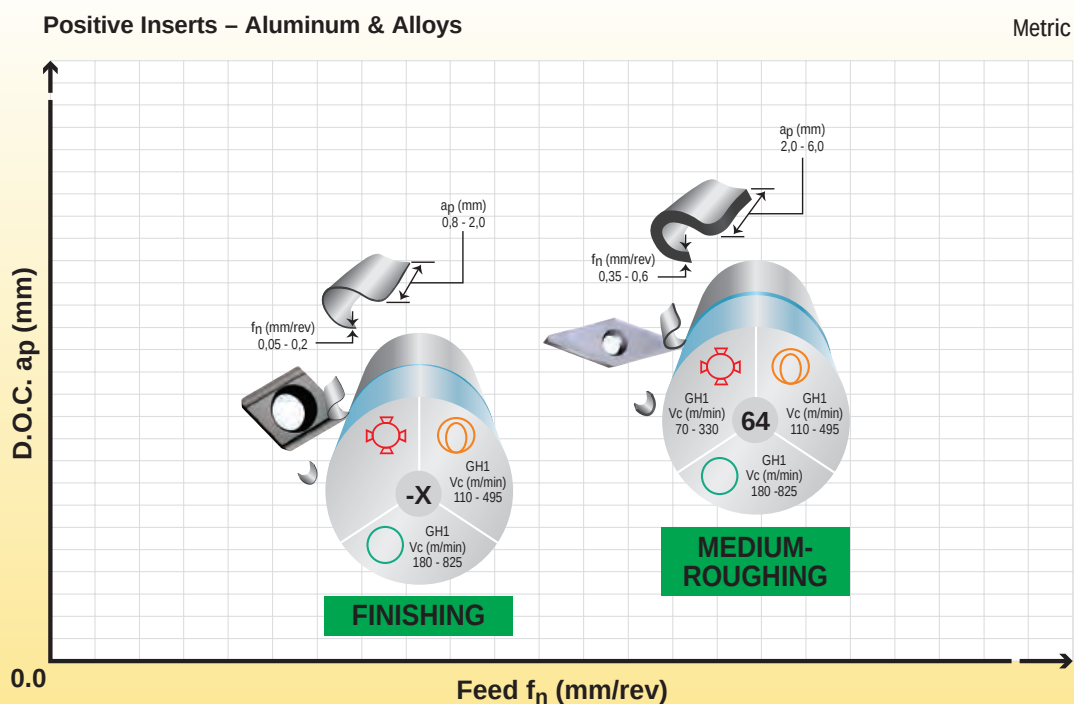
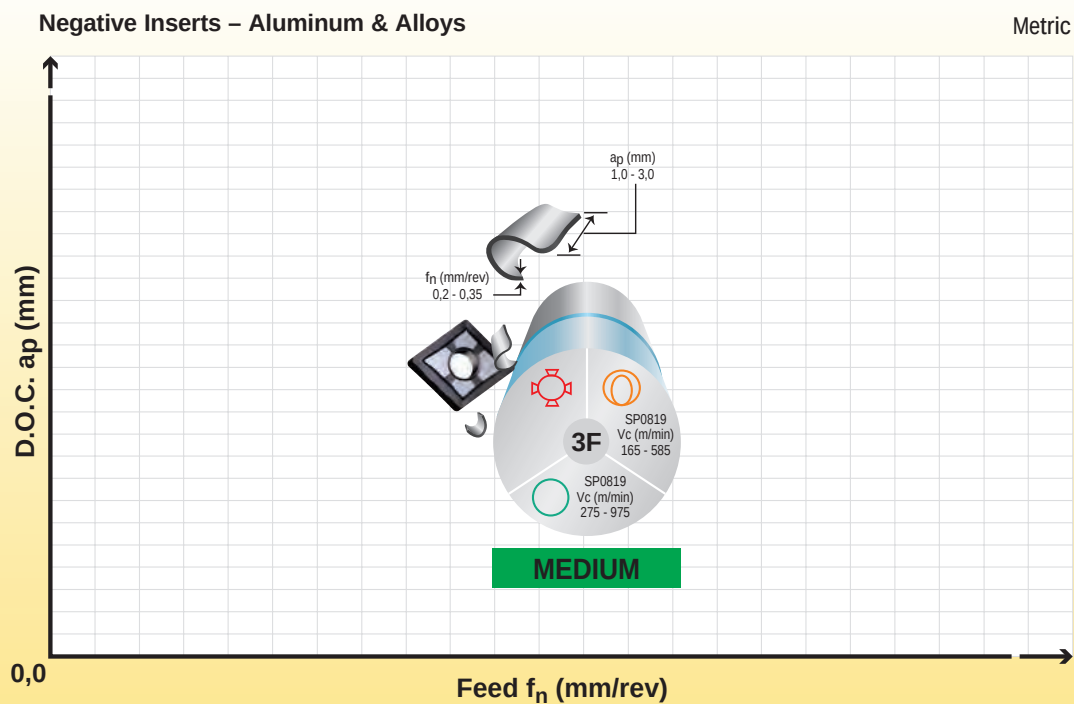
Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

|            |  |                 |  |                      |  |                |
|------------|--|-----------------|--|----------------------|--|----------------|
| <b>Key</b> |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|------------|--|-----------------|--|----------------------|--|----------------|



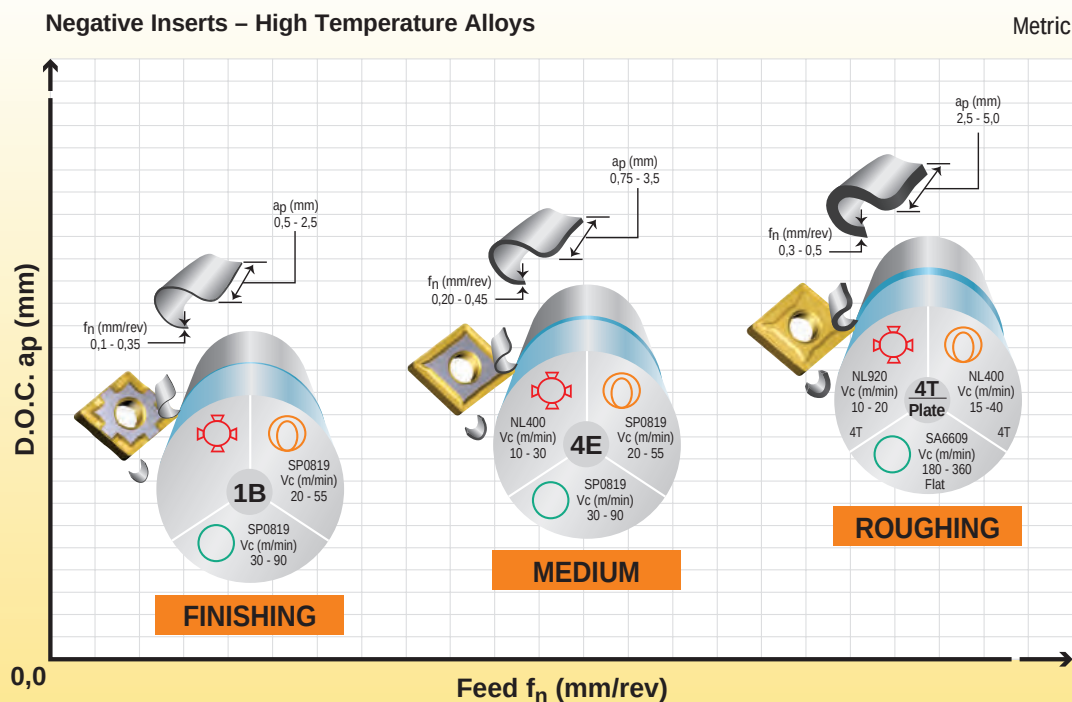
Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

| Key |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|-----|--|-----------------|--|----------------------|--|----------------|
|-----|--|-----------------|--|----------------------|--|----------------|

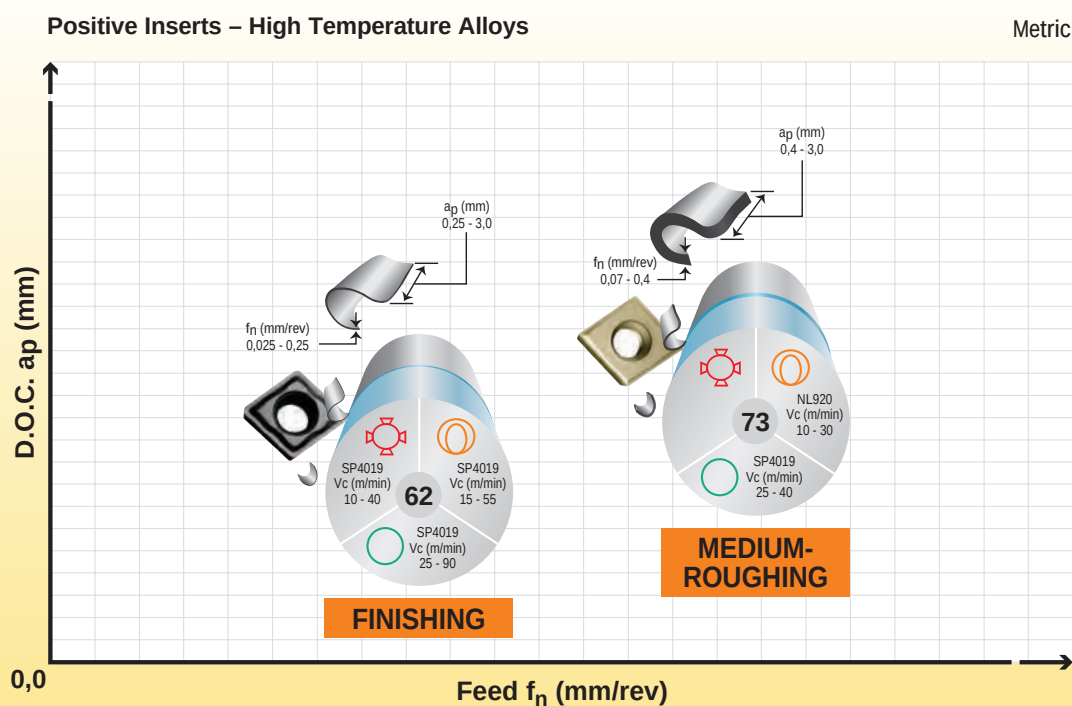


Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

|            |  |                 |  |                      |  |                |
|------------|--|-----------------|--|----------------------|--|----------------|
| <b>Key</b> |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|------------|--|-----------------|--|----------------------|--|----------------|



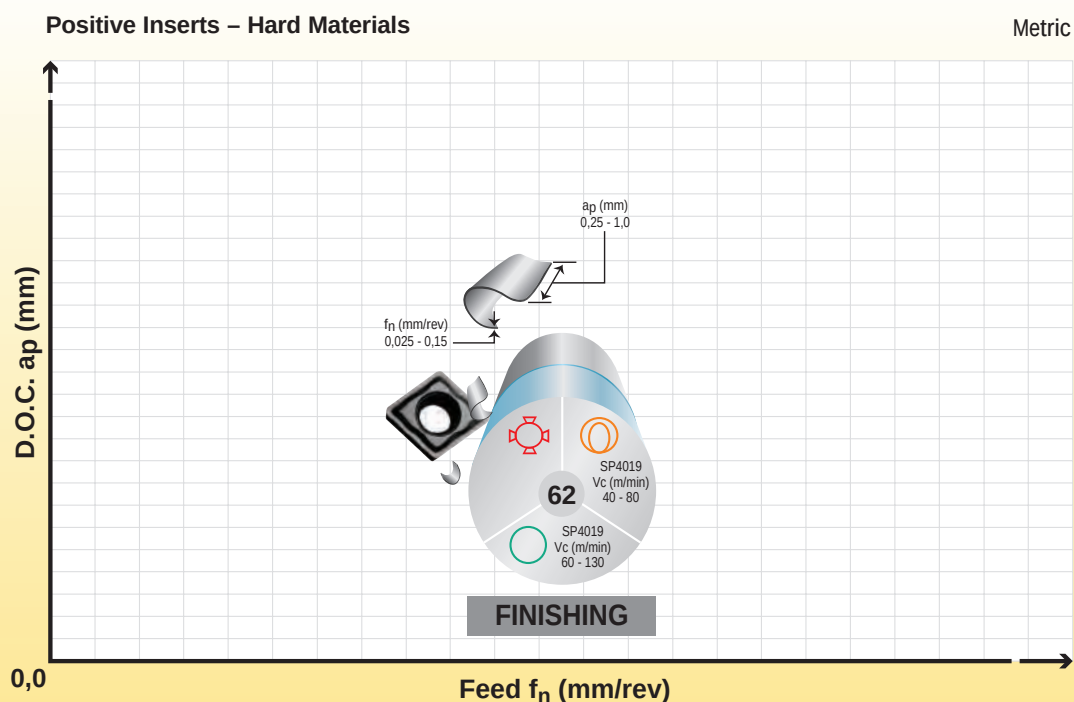
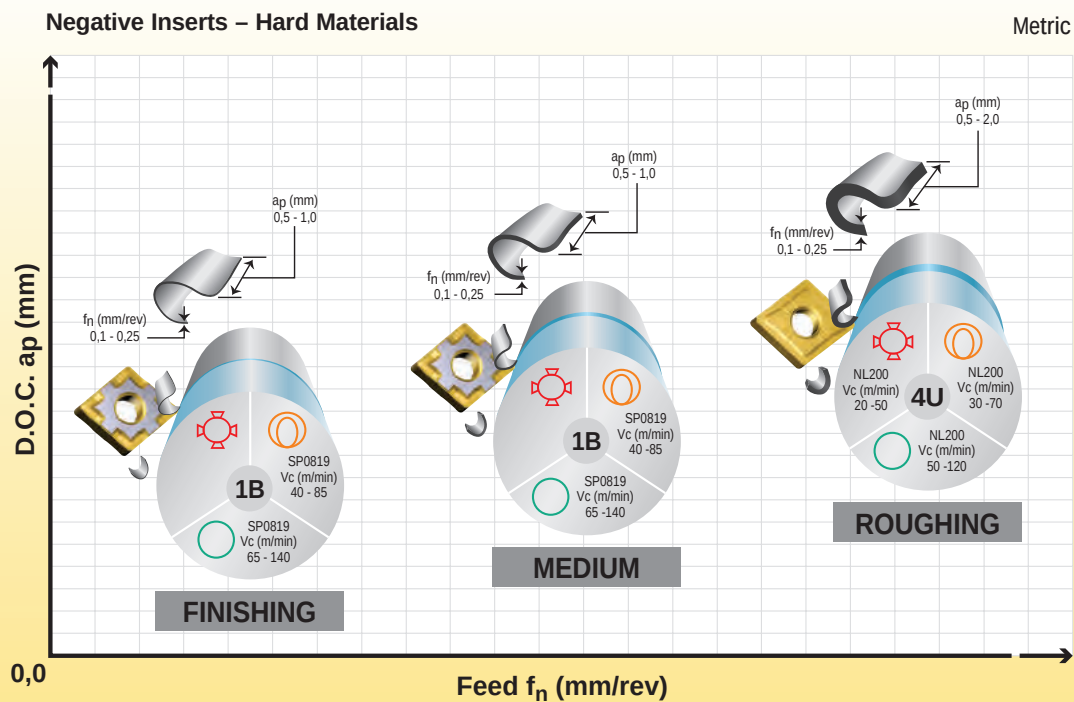
\*Note: For Heavy Roughing applications see 5R geometry, page C17.



Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

| Key |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|-----|--|-----------------|--|----------------------|--|----------------|
|-----|--|-----------------|--|----------------------|--|----------------|





Please note the above recommended cutting speeds, geometries and grades are for guidance only.  
For more detailed information, see pages C12 - C23 (geometry technical information & grade technical information).

|            |  |                 |  |                      |  |                |
|------------|--|-----------------|--|----------------------|--|----------------|
| <b>Key</b> |  | Interrupted cut |  | Varying depth of cut |  | Good condition |
|------------|--|-----------------|--|----------------------|--|----------------|

## 1st Choice

Diamond will indicate the recommended insert for each material. Stellram's Material Guide enables you to find the right insert for your machining requirements.

- 1 Application information
- 2 Material Guide information – diamond indicates the recommended materials related to the geometry.
- 3 Detailed outline of geometry profile.
- 4 Identifies depth of cut (D.O.C) and feed rate range applicable to the geometry.
- 5 Cutting condition applicable to geometry.

2N Inserts

### 2N Geometry Technical Information

#### Light to Medium Roughing:

The 2N Geometry's positive rake angle, provides a positive cutting action with reduced cutting pressure, making it an excellent first choice for a wide range of applications and materials.

Available in Grades: NL250, NL300 & NL920

#### Materials Application

| NL250 |   |   |   |   |   |  |
|-------|---|---|---|---|---|--|
| P     | M | K | N | S | H |  |
| ◆     | ◆ |   |   |   |   |  |

| NL300 |   |   |   |   |   |  |
|-------|---|---|---|---|---|--|
| P     | M | K | N | S | H |  |
| ◆     | ◆ |   |   |   |   |  |

| NL920 |   |   |   |   |   |  |
|-------|---|---|---|---|---|--|
| P     | M | K | N | S | H |  |
| ◆     | ◆ |   |   |   |   |  |

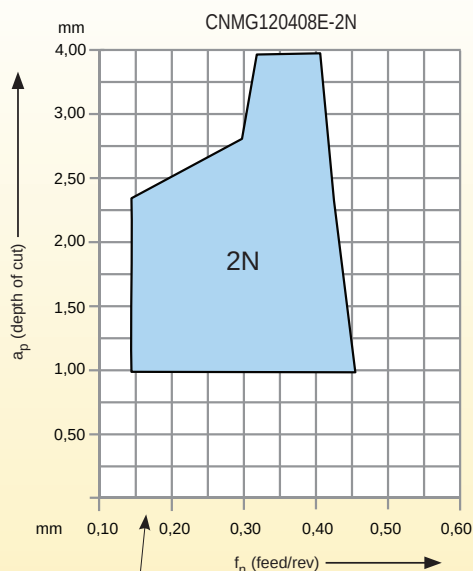
#### Cutting Condition



#### Profile



Alloyed Steel: 900 - 1200 N/mm<sup>2</sup> HBN 260 - 340



2

3

4

## 1B Geometry Technical Information

### Finishing:

The 1B Geometry is ideal for the finish machining of Steels, Stainless Steels, and High Temperature Alloys. The precisely controlled cutting edge and nose profile removes material cleanly and efficiently, leaving a superior surface finish. **Available in Grades: SP0819 & NL250**

#### Materials Application

| SP0819 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
|        |   |   |   |   |   |

| NL400 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       |   |   |   |   |   |

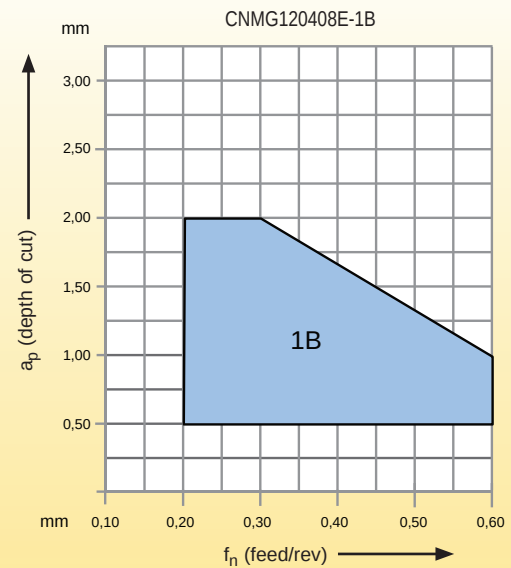
#### Cutting Condition



#### Profile



### Alloyed Steel: 4140 (41CrMo4)



## 2N Inserts

## 2N Geometry Technical Information

### Light to Medium Roughing:

The 2N Geometry's positive rake angle, provides a positive cutting action with reduced cutting pressure, making it an excellent first choice for a wide range of applications and materials.

**Available in Grades: NL250, NL300 & NL920**

#### Materials Application

| NL250 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       |   |   |   |   |   |

| NL300 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       |   |   |   |   |   |

| NL920 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       |   |   |   |   |   |

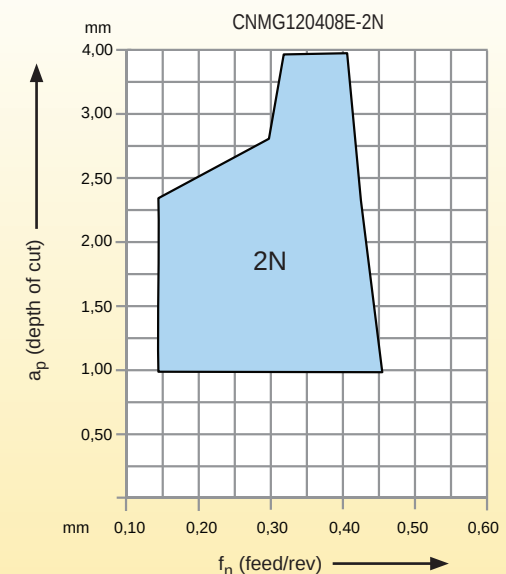
#### Cutting Condition



#### Profile



### Alloyed Steel: 900 - 1200 N/mm<sup>2</sup> HBN 260 - 340



## Material Guide – Key to Recommended Inserts

### Material Designation

|                  |                |                  |              |            |                   |                   |                |
|------------------|----------------|------------------|--------------|------------|-------------------|-------------------|----------------|
| Unalloyed Steels | Alloyed Steels | Stainless Steels | PH Stainless | Cast Irons | Aluminum & Alloys | High Temp. Alloys | Hard Materials |
|------------------|----------------|------------------|--------------|------------|-------------------|-------------------|----------------|

## 3F Geometry Technical Information

### Finishing to Light Roughing:

The 3F Geometry has a precision ground periphery to ensure a precise cutting edge profile, with accurate indexability. The micro edge conditioning reduces the cutting pressure, built-up edge and improves the surface finish in difficult to machine materials. **Available in Grade: SP0819**

#### Materials Application

| SP0819 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
|        | ♦ |   | ♦ | ♦ |   |

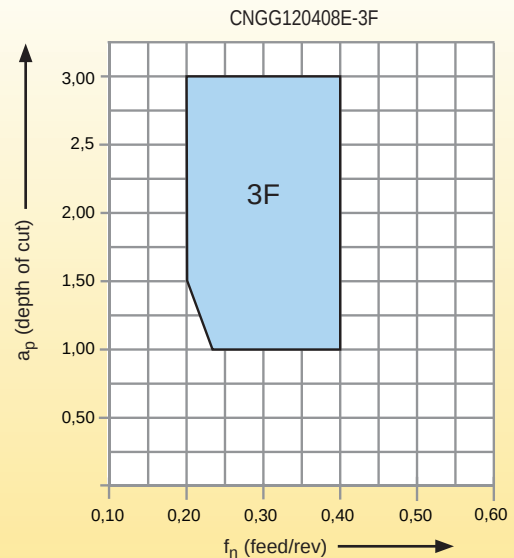
#### Cutting Condition



#### Profile



### Stainless Steel: ATI 316™



## 3J Inserts

## 3J Geometry Technical Information

### Medium to Light Roughing:

The 3J Geometry has a smooth cutting action which reduces cutting forces, improves surface finishes and increases the tool life, making it ideal for the machining of Stainless Steels. **Available in Grade: SP4019**

#### Materials Application

| SP4019 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
|        | ♦ |   |   | ♦ |   |

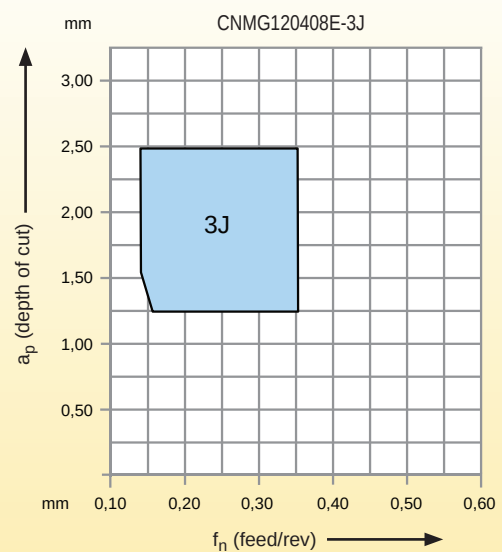
#### Cutting Condition



#### Profile



### Stainless Steel: ATI 316™



## Material Guide – Key to Recommended Inserts

### Material Designation

|                           |                         |                           |                       |                     |                            |                            |                         |
|---------------------------|-------------------------|---------------------------|-----------------------|---------------------|----------------------------|----------------------------|-------------------------|
| <b>P</b> Unalloyed Steels | <b>P</b> Alloyed Steels | <b>M</b> Stainless Steels | <b>M</b> PH Stainless | <b>K</b> Cast Irons | <b>N</b> Aluminum & Alloys | <b>S</b> High Temp. Alloys | <b>H</b> Hard Materials |
|---------------------------|-------------------------|---------------------------|-----------------------|---------------------|----------------------------|----------------------------|-------------------------|

## 4E Geometry Technical Information

### Semi-Finishing to Light Roughing:

The 4E Geometry was designed specifically for the machining of High Nickel, High Cobalt, and Titanium based alloys. It's reinforced chip-breaker and precision edge condition enhances the performance of this geometry. **Available in Grades: SP0819 & NL400**

#### Materials Application

| SP0819 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
|        | ♦ |   |   | ♦ |   |

| NL400 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       | ♦ |   |   | ♦ |   |

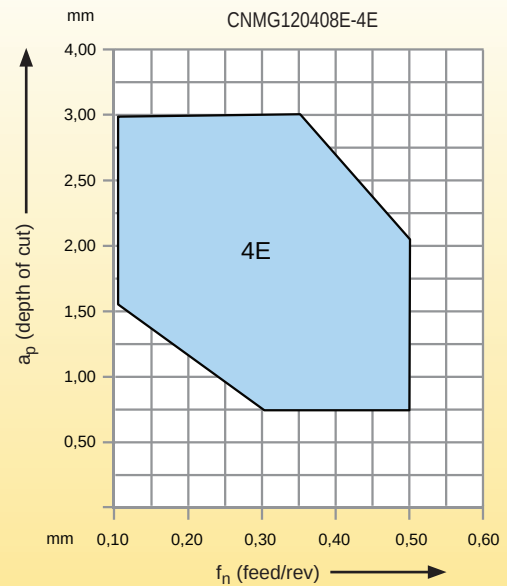
#### Cutting Condition



#### Profile



### Titanium Alloy: ATI 6-4™



## 4T Inserts

## 4T Geometry Technical Information

### General Purpose Roughing:

The 4T Geometry is the first choice for general purpose machining of all Steels, Stainless Steels and Cast Irons.

**Available in Grades: NL250, NL300, NL400 & NL920**

#### Materials Application

| NL250 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ♦     | ♦ | ♦ |   |   |   |

| NL300 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ♦     | ♦ | ♦ |   |   |   |

| NL400 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ♦     | ♦ |   |   |   |   |

| NL920 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ♦     | ♦ | ♦ |   |   |   |

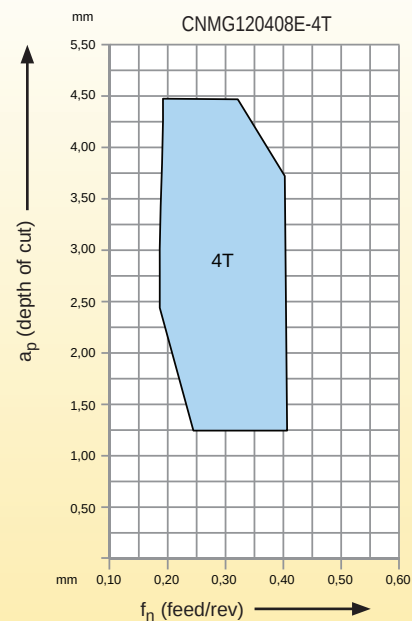
#### Cutting Condition



#### Profile



### Alloyed Steel: 800 - 1200 N/mm<sup>2</sup> HBN 230 - 340



## Material Guide – Key to Recommended Inserts

### Material Designation

|     |                  |     |                |     |                  |     |              |     |            |     |                   |     |                   |     |                |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|
| ♦ P | Unalloyed Steels | ♦ P | Alloyed Steels | ♦ M | Stainless Steels | ♦ M | PH Stainless | ♦ K | Cast Irons | ♦ N | Aluminum & Alloys | ♦ S | High Temp. Alloys | ♦ H | Hard Materials |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|

## 4U Geometry Technical Information

### Medium to Roughing:

The 4U Geometry was designed specifically for roughing applications in Grey, Ductile and Malleable Irons. The geometry design produces low cutting pressure with excellent chip control, enhancing the tool life.

**Available in Grade: NL200**

#### Materials Application

| NL200 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ◆     |   | ◆ |   |   | ◆ |

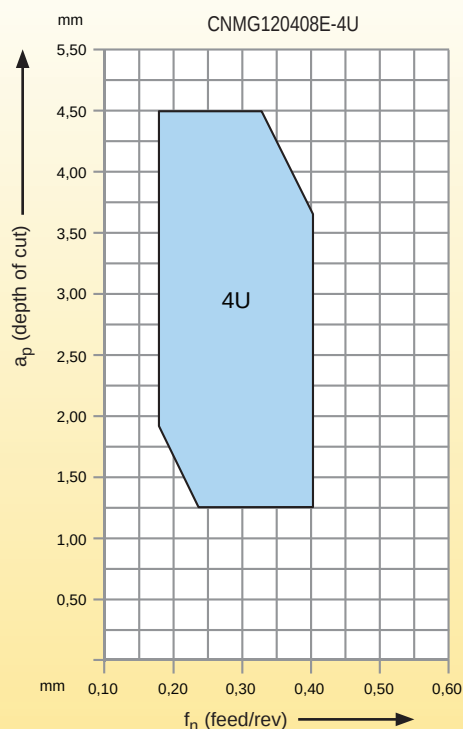
#### Cutting Condition



#### Profile



### Ductile Iron: HBN 170



## Material Guide – Key to Recommended Inserts

### Material Designation

|     |                  |     |                |     |                  |     |              |     |            |     |                   |     |                   |     |                |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|
| ◆ P | Unalloyed Steels | ◆ P | Alloyed Steels | ◆ M | Stainless Steels | ◆ M | PH Stainless | ◆ K | Cast Irons | ◆ N | Aluminum & Alloys | ◆ S | High Temp. Alloys | ◆ H | Hard Materials |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|

## 5R Geometry Technical Information

### Single Sided Heavy Roughing:

The 5R Geometry was designed specifically for the heavy, rough machining of Steels, Stainless Steels, High Nickel, High Cobalt and Titanium based alloys. It is the first choice when stability, high feed rates and strong edge conditions are required.

**Available in Grades: NL300, NL400 & NL920**

#### Materials Application

| NL300 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       |   |   |   |   |   |

| NL400 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       |   |   |   |   |   |

| NL920 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
|       |   |   |   |   |   |

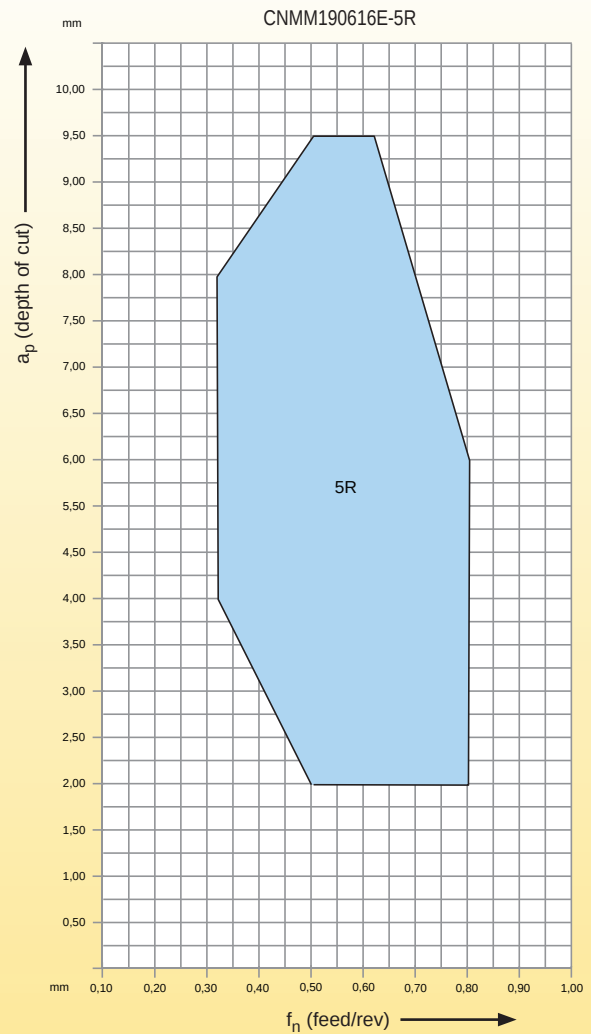
#### Cutting Condition



#### Profile



### Stainless Steel: ATI 316™



## Material Guide – Key to Recommended Inserts

### Material Designation

|                  |                |                  |              |            |                   |                   |                |
|------------------|----------------|------------------|--------------|------------|-------------------|-------------------|----------------|
| Unalloyed Steels | Alloyed Steels | Stainless Steels | PH Stainless | Cast Irons | Aluminum & Alloys | High Temp. Alloys | Hard Materials |
|------------------|----------------|------------------|--------------|------------|-------------------|-------------------|----------------|

## -15 Geometry Technical Information

### Medium to Finishing:

The -15 Geometry is ideally suited to applications which require light depths of cut and feeds, and where vibration could be an issue. This geometry is ground and has a sharp edge condition.

Available in Grades: SP4019 & GH1

#### Materials Application

| SP4019 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
| ◆      | ◆ |   |   | ◆ |   |

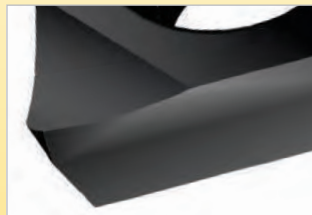
  

| GH1 |   |   |   |   |   |
|-----|---|---|---|---|---|
| P   | M | K | N | S | H |
|     |   |   | ◆ |   |   |

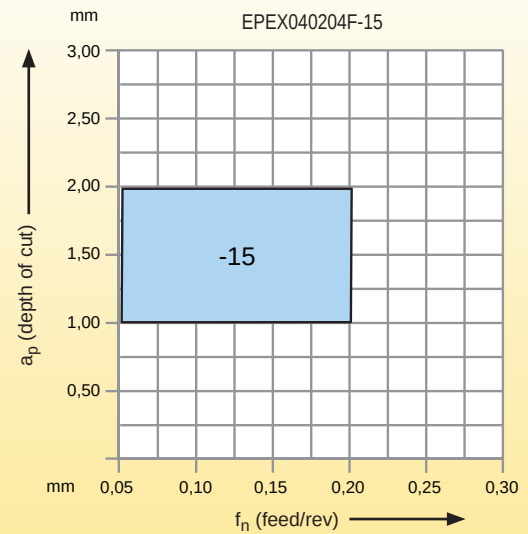
#### Cutting Condition



#### Profile



### Aluminium: <16% Si HBN 116



## -61 Inserts

## -61 Geometry Technical Information

### Finishing:

The -61 Geometry has 6 cutting edges and is one of the most economical inserts for small part machining. The chip-breaker provides good chip control and surface finish.

Available in Grade: SP4019

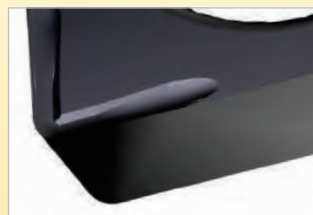
#### Materials Application

| SP4019 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
| ◆      | ◆ | ◆ |   |   |   |

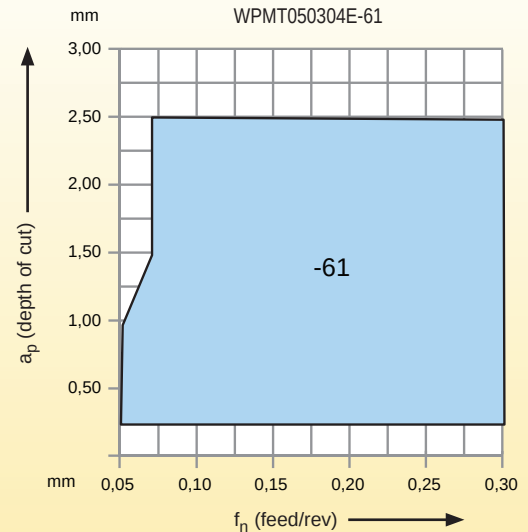
#### Cutting Condition



#### Profile



### Unalloyed Steel: 750 - 950 N/mm<sup>2</sup> HBN 220 - 270



## Material Guide – Key to Recommended Inserts

### Material Designation

|     |                  |     |                |     |                  |     |              |     |            |     |                   |     |                   |     |                |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|
| ◆ P | Unalloyed Steels | ◆ P | Alloyed Steels | ◆ M | Stainless Steels | ◆ M | PH Stainless | ◆ K | Cast Irons | ◆ N | Aluminum & Alloys | ◆ S | High Temp. Alloys | ◆ H | Hard Materials |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|



## -62 Geometry Technical Information

### Finishing:

The -62 Geometry is one of the most versatile geometries for the machining of Steels, Stainless Steels, High Nickel, High Cobalt and Titanium based alloys. This positive geometry was designed for a wide variety of finishing applications.

Available in Grade: **SP4019**

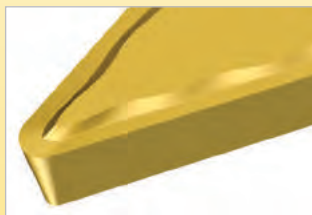
#### Materials Application

| SP0819 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
|        |   |   |   |   |   |

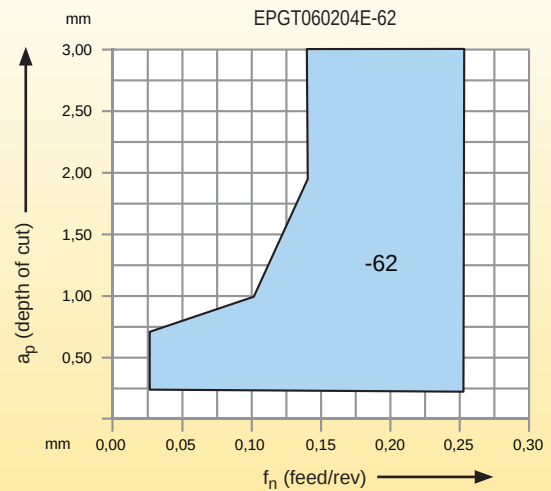
#### Cutting Condition



#### Profile



Unalloyed Steel: 750 - 950 N/mm<sup>2</sup> HBN 220 - 270



-64 Inserts

## -64 Geometry Technical Information

### Medium to Roughing:

The -64 Geometry is a very positive geometry, with polished top rake and ground periphery. Specifically designed for the machining of Aluminum, Plastics and Soft Alloys.

Available in Grade: **GH1**

#### Materials Application

| GH1 |   |   |   |   |   |
|-----|---|---|---|---|---|
| P   | M | K | N | S | H |
|     |   |   |   |   |   |

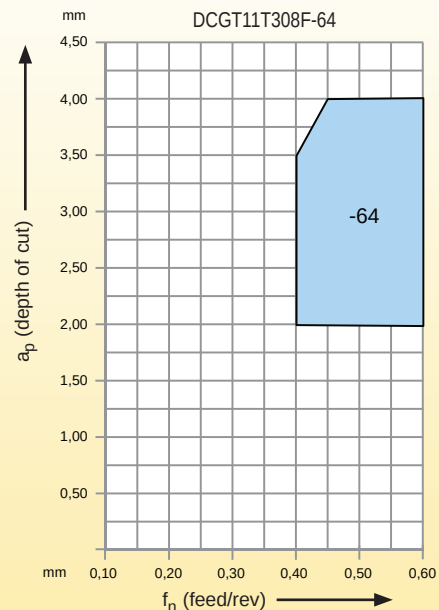
#### Cutting Condition



#### Profile



Aluminium: <16% Si HBN 116



## Material Guide – Key to Recommended Inserts

### Material Designation

|                  |                |                  |              |            |                   |                   |                |
|------------------|----------------|------------------|--------------|------------|-------------------|-------------------|----------------|
| Unalloyed Steels | Alloyed Steels | Stainless Steels | PH Stainless | Cast Irons | Aluminum & Alloys | High Temp. Alloys | Hard Materials |
|------------------|----------------|------------------|--------------|------------|-------------------|-------------------|----------------|

## -66 Geometry Technical Information

### Medium to Finishing:

The -66 Geometry has a precision ground periphery and pressed in chip-breaker, with a sharp edge condition, ideally suited for fine chip control when machining medical and small precision components.

Available in Grade: GH1

Materials Application

| GH1 |   |   |   |   |   |
|-----|---|---|---|---|---|
| P   | M | K | N | S | H |
| ♦   | ♦ |   | ♦ |   |   |

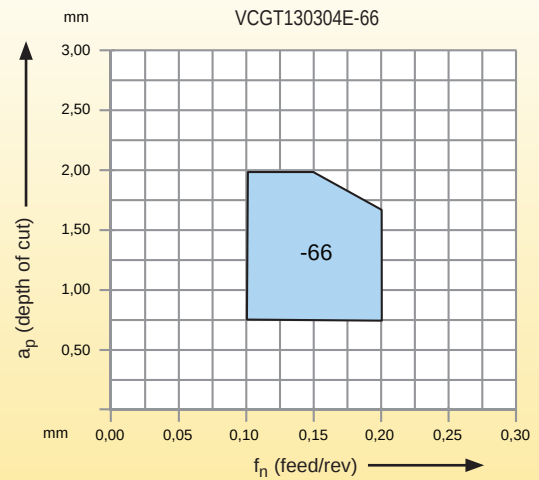
### Cutting Condition



### Profile



Stainless Steel: 450 - 700 N/mm<sup>2</sup> HBN 120 - 180



## -73 Inserts

## -73 Geometry Technical Information

### Medium to Roughing:

The -73 Geometry is an as pressed geometry, covering a wide range of applications and materials, making it the ideal first choice for most medium to roughing, machining applications.

Available in Grades: SP4019, NL300 & NL920

Materials Application

| SP4019 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
| ♦      | ♦ |   |   | ♦ |   |

| NL300 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ♦     | ♦ |   |   |   |   |

| NL920 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ♦     | ♦ |   |   | ♦ |   |

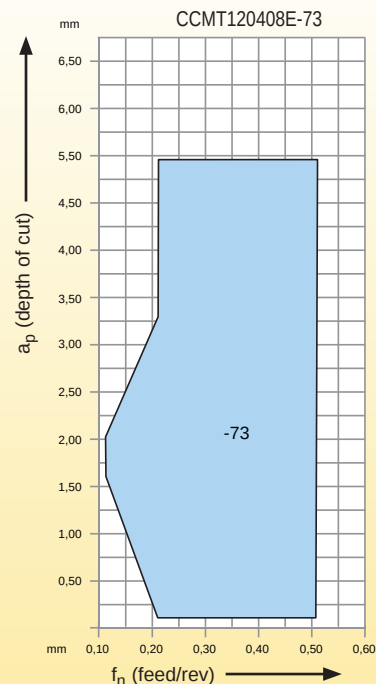
### Cutting Condition



### Profile



Alloyed Steel: 900 - 1200 N/mm<sup>2</sup> HBN 260 - 340



## Material Guide – Key to Recommended Inserts

### Material Designation

|   |                  |   |                |   |                  |   |              |   |            |   |                   |   |                   |   |                |
|---|------------------|---|----------------|---|------------------|---|--------------|---|------------|---|-------------------|---|-------------------|---|----------------|
| P | Unalloyed Steels | P | Alloyed Steels | M | Stainless Steels | M | PH Stainless | K | Cast Irons | N | Aluminum & Alloys | S | High Temp. Alloys | H | Hard Materials |
|---|------------------|---|----------------|---|------------------|---|--------------|---|------------|---|-------------------|---|-------------------|---|----------------|

## -M Geometry Technical Information

### Medium to Finishing:

The -M Geometry has a small, well defined chip-breaker for a soft cutting action, resulting in very little stress being produced, when machining small diameter components.

Available in Grades: **SP4019 & GH1**

#### Materials Application

| SP4019 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
|        |   |   |   |   |   |

| GH1 |   |   |   |   |   |
|-----|---|---|---|---|---|
| P   | M | K | N | S | H |
|     |   |   |   |   |   |

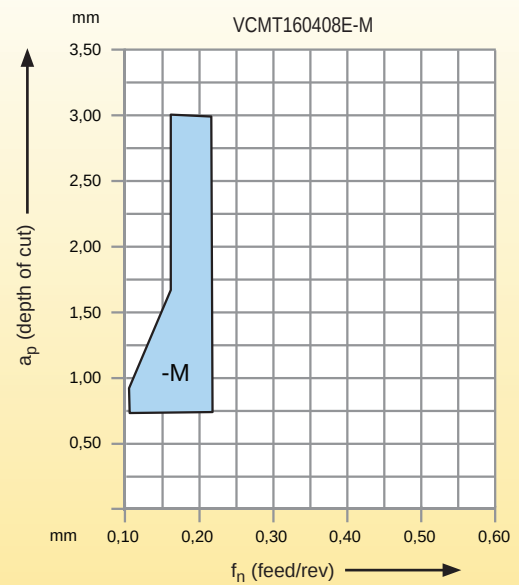
#### Cutting Condition



#### Profile



**Unalloyed Steel: 750 - 950 N/mm<sup>2</sup> HBN 220 - 270**



## Material Guide – Key to Recommended Inserts

### Material Designation

|   |                  |   |                |   |                  |   |              |   |            |   |                   |   |                   |   |                |
|---|------------------|---|----------------|---|------------------|---|--------------|---|------------|---|-------------------|---|-------------------|---|----------------|
| P | Unalloyed Steels | P | Alloyed Steels | M | Stainless Steels | M | PH Stainless | K | Cast Irons | N | Aluminum & Alloys | S | High Temp. Alloys | H | Hard Materials |
|---|------------------|---|----------------|---|------------------|---|--------------|---|------------|---|-------------------|---|-------------------|---|----------------|

## -T Geometry Technical Information

### Medium to Roughing:

The -T Geometry is a utility geometry giving a stable cutting action in a wide variety of demanding applications.

Available in Grades: SP4019, NL250, NL300, NL400 & NL920

#### Materials Application

| SP4019 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
| ◆      | ◆ |   |   | ◆ |   |

| NL250 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ◆     | ◆ |   |   |   |   |

| NL300 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ◆     | ◆ |   |   |   |   |

| NL400 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ◆     | ◆ |   |   | ◆ |   |

| NL920 |   |   |   |   |   |
|-------|---|---|---|---|---|
| P     | M | K | N | S | H |
| ◆     | ◆ |   |   | ◆ |   |

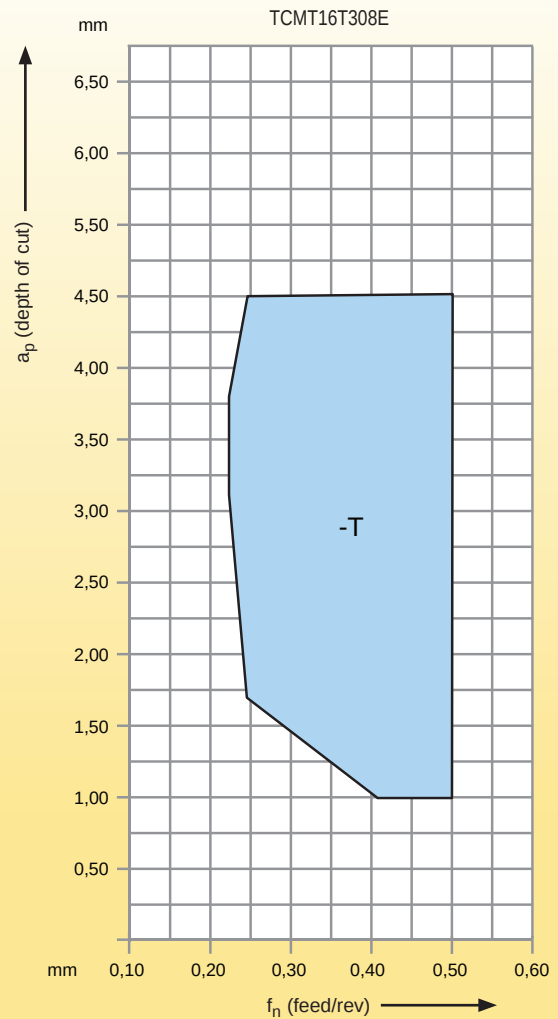
#### Cutting Condition



#### Profile



Unalloyed Steel: 750 - 950 N/mm<sup>2</sup> HBN 220 - 270



## Material Guide – Key to Recommended Inserts

### Material Designation

|     |                  |     |                |     |                  |     |              |     |            |     |                   |     |                   |     |                |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|
| ◆ P | Unalloyed Steels | ◆ P | Alloyed Steels | ◆ M | Stainless Steels | ◆ M | PH Stainless | ◆ K | Cast Irons | ◆ N | Aluminum & Alloys | ◆ S | High Temp. Alloys | ◆ H | Hard Materials |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|

## -X Geometry Technical Information

### Medium to Roughing:

The -X Geometry has a precision ground parallel chip groove, available with a fully ground periphery or as pressed, both with a sharp edge condition. Ideal for the machining of components which have vibration sensitive applications.

Available in Grades: **SP4019** & **GH1**

#### Materials Application

| SP4019 |   |   |   |   |   |
|--------|---|---|---|---|---|
| P      | M | K | N | S | H |
| ◆      |   |   |   | ◆ |   |

| GH1 |   |   |   |   |   |
|-----|---|---|---|---|---|
| P   | M | K | N | S | H |
|     |   |   | ◆ |   |   |

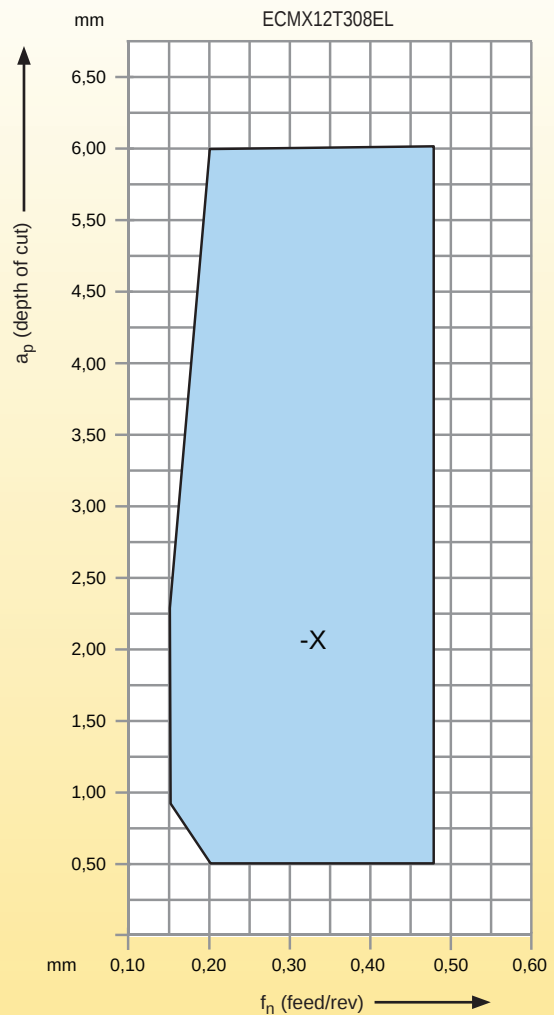
#### Cutting Condition



#### Profile



### Aluminium: <16% Si HBN 116



## Material Guide – Key to Recommended Inserts

### Material Designation

|     |                  |     |                |     |                  |     |              |     |            |     |                   |     |                   |     |                |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|
| ◆ P | Unalloyed Steels | ◆ P | Alloyed Steels | ◆ M | Stainless Steels | ◆ M | PH Stainless | ◆ K | Cast Irons | ◆ N | Aluminum & Alloys | ◆ S | High Temp. Alloys | ◆ H | Hard Materials |
|-----|------------------|-----|----------------|-----|------------------|-----|--------------|-----|------------|-----|-------------------|-----|-------------------|-----|----------------|



## Stellram's range of carbide and ceramic grades offer solutions to suit all material groups.

### Cutting Material Groups

#### Uncoated Grade

WEAR RESISTANCE

TOUGHNESS

GH1

Stellram's uncoated GH1 grade is a micro-gain carbide offering excellent wear resistance at high cutting speeds, in various materials and applications.

#### NL = CVD Coated Grades

WEAR RESISTANCE

TOUGHNESS

NL200

NL250

NL300

NL400

NL920

The **NL** range of CVD coated grades with enhanced surface layering have been specifically developed and engineered to machine at elevated cutting conditions, in a broad range of materials.

#### SP = PVD Coated Grades

WEAR RESISTANCE

TOUGHNESS

SP0819

SP4019

These PVD coated grades can be applied to varying applications and materials, but primarily designed to machine stainless steels, and high temperature alloys.

#### SA = Ceramic Grade

WEAR RESISTANCE

TOUGHNESS

SA6609

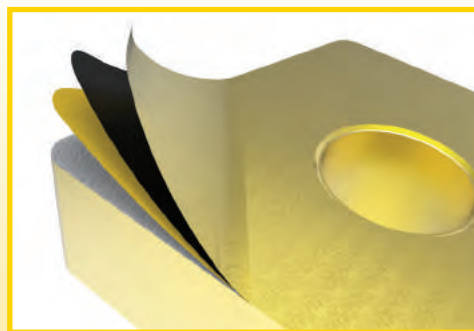
SA6609 is an advanced silicon-carbide whisker reinforced ceramic grade, which makes it very resistant to edge fracture and notch wear, especially when machining high nickel, and high cobalt based alloys.

## NL200

Coating Type: CVD

First choice to machine Cast Iron, this grade has a very good resistance to wear and deformation, suitable for medium and finishing applications on gray and malleable cast irons.

Available in the following geometries:  
Medium – Roughing: 4U



| NL200 | Application Range |    |    |    |    |    |    |    |    |    |    | MAX | DRY | Cutting speed |        |
|-------|-------------------|----|----|----|----|----|----|----|----|----|----|-----|-----|---------------|--------|
|       | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |     |     | m/min         |        |
|       |                   |    |    |    |    |    |    |    |    |    |    |     |     | Vc min        | Vc max |
| ◆◆ P  |                   |    |    |    |    |    |    |    |    |    |    | ●   | ●   | 60            | 415    |
| ◆◆ M  |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |
| ◆ K   |                   |    |    |    |    |    |    |    |    |    |    | ●   | ●   | 95            | 410    |
| ◆ N   |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |
| ◆ S   |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |
| ◆ H   |                   |    |    |    |    |    |    |    |    |    |    | ●   |     | 45            | 125    |

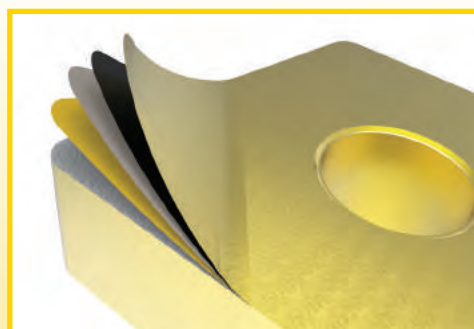
Recommended ● Acceptable ◎

## NL250

Coating Type: CVD

Wear resistant grade for semi-finishing and finishing applications. Suitable for stable conditions with limited interrupted machining.

Available in the following geometries:  
Finishing: 1B  
Light-Medium Roughing: 2N  
Roughing: 4T  
Flat Top: Roughing



| NL250 | Application Range |    |    |    |    |    |    |    |    |    |    | MAX | DRY | Cutting speed |        |
|-------|-------------------|----|----|----|----|----|----|----|----|----|----|-----|-----|---------------|--------|
|       | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |     |     | m/min         |        |
|       |                   |    |    |    |    |    |    |    |    |    |    |     |     | Vc min        | Vc max |
| ◆◆ P  |                   |    |    |    |    |    |    |    |    |    |    | ●   | ●   | 60            | 405    |
| ◆◆ M  |                   |    |    |    |    |    |    |    |    |    |    | ●   |     | 60            | 275    |
| ◆ K   |                   |    |    |    |    |    |    |    |    |    |    | ●   | ●   | 95            | 375    |
| ◆ N   |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |
| ◆ S   |                   |    |    |    |    |    |    |    |    |    |    | ●   |     | 20            | 80     |
| ◆ H   |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |

Recommended ● Acceptable ◎

## NL300

Coating Type: CVD

A tough but wear resistant grade for medium and rough machining with light scale but, no interruption. General purpose for Steels and Cast Iron materials.

Available in the following geometries:

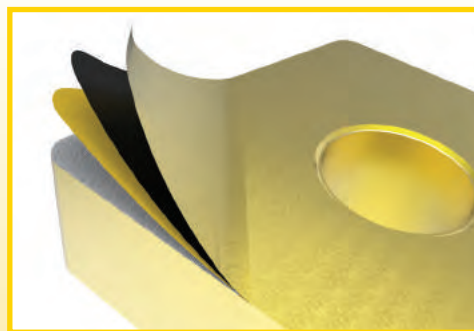
Medium roughing: -73

Light-Medium Roughing: 2N

Roughing: 4T

Single Sided Heavy Roughing: 5R

Medium – Roughing:-T



| NL300                                                                                                                                                                     | Application Range |    |    |    |    |    |    |    |    |    |    |        | <br>MAX | <br>DRY | Cutting speed |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|--------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------|-----|
|                                                                                                                                                                           | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | m/min  |                                                                                          |                                                                                          |               |     |
|                                                                                                                                                                           |                   |    |    |    |    |    |    |    |    |    |    | Vc min |                                                                                          |                                                                                          | Vc max        |     |
|   P     |                   |    |    |    |    |    |    |    |    |    |    |        |         |         | 60            | 380 |
|   M     |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                          | 60            | 255 |
|   K     |                   |    |    |    |    |    |    |    |    |    |    |        |         |         | 90            | 335 |
|   N     |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                          |                                                                                          |               |     |
|   S     |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                          |                                                                                          |               |     |
|   H |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                          |                                                                                          |               |     |

Recommended ● Acceptable ◎

## NL400

Coating Type: CVD

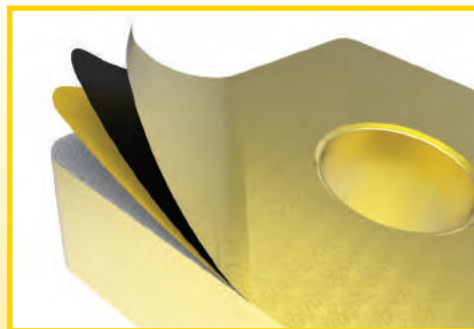
A very tough grade for medium and rough machining, primarily on Stainless Steel and Exotic Alloys. Good resistance to thermal diffusion, and accepts light interruption.

Available in the following geometries:

Light Roughing – Semi-Finishing: 4E

Roughing: 4T

Single Sided Heavy Roughing: 5R



| NL400                                                                                                                                                                     | Application Range |    |    |    |    |    |    |    |    |    |    |        | <br>MAX | <br>DRY | Cutting speed |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|--------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------|-----|
|                                                                                                                                                                           | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | m/min  |                                                                                            |                                                                                            |               |     |
|                                                                                                                                                                           |                   |    |    |    |    |    |    |    |    |    |    | Vc min |                                                                                            |                                                                                            | Vc max        |     |
|   P |                   |    |    |    |    |    |    |    |    |    |    |        |         |         | 50            | 360 |
|   M |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                            | 50            | 245 |
|   K |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                            |                                                                                            |               |     |
|   N |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                            |                                                                                            |               |     |
|   S |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                            | 15            | 70  |
|   H |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                            |                                                                                            |               |     |

Recommended ● Acceptable ◎



## NL920

Coating Type: CVD

A fine grain but tough grade, with a high degree of edge security on Steels and Stainless Steels. Performs well on rough and heavy machining applications, including interrupted applications.

Available in the following geometries:

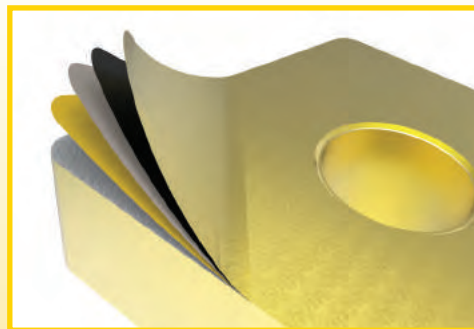
Light-Medium: 2N

Roughing: 4T

Sing Sided Heavy Roughing: 5R

Medium –Roughing: -73

Medium –Roughing: -T



| NL920                                                                                                                                                                 | Application Range |    |    |    |    |    |    |    |    |    |    |        | <br>MAX | <br>DRY | Cutting speed |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|--------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------|-----|
|                                                                                                                                                                       | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | m/min  |                                                                                          |                                                                                          |               |     |
|                                                                                                                                                                       |                   |    |    |    |    |    |    |    |    |    |    | Vc min |                                                                                          |                                                                                          | Vc max        |     |
|   P |                   |    |    |    |    |    |    |    |    |    |    |        |         |         | 45            | 225 |
|   M |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                          | 40            | 155 |
|  K                                                                                   |                   |    |    |    |    |    |    |    |    |    |    |        |         |         | 70            | 225 |
|  N                                                                                   |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                          |                                                                                          |               |     |
|  S                                                                                   |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                          | 15            | 45  |
|  H                                                                                   |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                          |                                                                                          |               |     |

Recommended ● Acceptable ◎

## SP0819

Coating Type: PVD

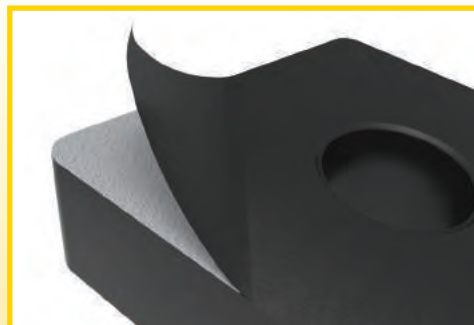
A very wear resistant micro grain substrate with a new generation of TiAlN coating. First choice to machine difficult to machine materials, including PH Stainless Steel. Requires higher cutting speeds in finishing and medium operations, with stable conditions and clean material.

Available in the following geometries:

Finishing: 1B

Finishing-Light Roughing: 3F

Semi Finishing – Light Roughing: 4E



| SP0819                                                                                                                                                                    | Application Range |    |    |    |    |    |    |    |    |    |    |        | <br>MAX | <br>DRY | Cutting speed |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|--------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------|-----|
|                                                                                                                                                                           | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | m/min  |                                                                                            |                                                                                            |               |     |
|                                                                                                                                                                           |                   |    |    |    |    |    |    |    |    |    |    | Vc min |                                                                                            |                                                                                            | Vc max        |     |
|   P |                   |    |    |    |    |    |    |    |    |    |    |        |         |         | 80            | 450 |
|   M |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                            | 75            | 315 |
|   K |                   |    |    |    |    |    |    |    |    |    |    |        |                                                                                            |                                                                                            |               |     |
|   N |                   |    |    |    |    |    |    |    |    |    |    |        |         |         | 275           | 975 |
|   S |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                            | 25            | 90  |
|   H |                   |    |    |    |    |    |    |    |    |    |    |        |         |                                                                                            | 65            | 140 |

Recommended ● Acceptable ◎

## SP4019

Coating Type: PVD

A tough micro-grain substrate with new generation TiAlN coating, renders this PVD grade extremely hard for unmatched performance in all materials.

Available in the following geometries:

Finishing: -62 (positive)

Finishing – Light Roughing: 3J

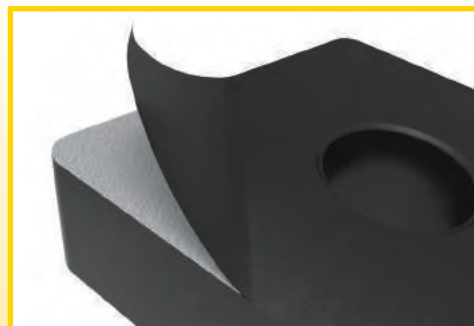
Medium -Roughing: -73 (positive)

Medium – Finishing: -15

Medium – Roughing: -X

Finishing: -61

Medium- Roughing: -T



| SP4019 | Application Range |    |    |    |    |    |    |    |    |    |    | MAX | DRY | Cutting speed |        |
|--------|-------------------|----|----|----|----|----|----|----|----|----|----|-----|-----|---------------|--------|
|        | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |     |     | m/min         |        |
|        |                   |    |    |    |    |    |    |    |    |    |    |     |     | Vc min        | Vc max |
| ◆◆ P   |                   |    | ●  | ●  | ●  | ●  | ●  |    |    |    |    | ●   | ●   | 80            | 440    |
| ◆◆ M   |                   | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    | ●   |     | 75            | 300    |
| ◆ K    |                   |    |    | ●  | ●  | ●  | ●  |    |    |    |    | ●   | ●   | 120           | 440    |
| ◆ N    |                   |    | ●  | ●  | ●  | ●  |    |    |    |    |    | ●   | ●   | 365           | 975    |
| ◆ S    |                   | ●  | ●  |    |    |    |    |    |    |    |    | ●   |     | 25            | 90     |
| ◆ H    |                   |    | ●  | ●  | ●  | ●  |    |    |    |    |    | ●   |     | 60            | 130    |

Recommended ● Acceptable ◎

## GH1

Coating Type: Uncoated

A very wear resistant uncoated micrograin for Cast Irons, Hardened Steel to 58 HRC and non ferrous alloys. Produces a low cutting pressure at high speed due to sharp cutting edge definition.

Available in the following positive geometries:

Medium – Roughing: X

Medium – Finishing: -64

Medium – Finishing: -66

Medium – Finishing: M



| GH1  | Application Range |    |    |    |    |    |    |    |    |    |    | MAX | DRY | Cutting speed |        |
|------|-------------------|----|----|----|----|----|----|----|----|----|----|-----|-----|---------------|--------|
|      | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |     |     | m/min         |        |
|      |                   |    |    |    |    |    |    |    |    |    |    |     |     | Vc min        | Vc max |
| ◆◆ P |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |
| ◆◆ M |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |
| ◆ K  |                   | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    | ●   | ●   | 70            | 225    |
| ◆ N  | ●                 | ●  | ●  | ●  |    |    |    |    |    |    |    | ●   | ●   | 185           | 825    |
| ◆ S  |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |
| ◆ H  |                   |    |    |    |    |    |    |    |    |    |    |     |     |               |        |

Recommended ● Acceptable ◎

## SA6609

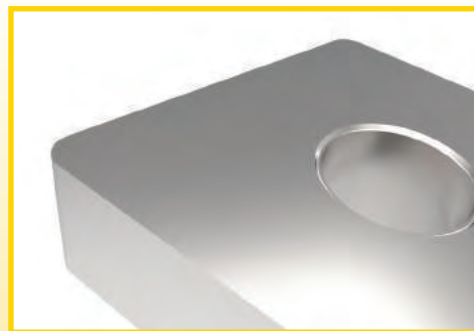
Coating Type: Uncoated

A whisker ceramic grade for roughing and medium machining applications, on High Temperature Alloys. Excellent wear resistance with elevated cutting surface speeds.

Available in two edge preparation:

Finishing to medium: E010

Medium to roughing: E030

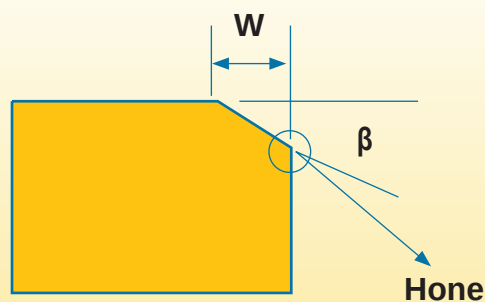


Introduction

| SA6609                                                                                                                                                                | Application Range |    |    |    |    |    |    |    |    |    |    | <br>MAX | <br>DRY | Cutting speed |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------|--------|
|                                                                                                                                                                       |                   |    |    |    |    |    |    |    |    |    |    |                                                                                          |                                                                                          | m/min         |        |
|                                                                                                                                                                       | 01                | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |                                                                                          |                                                                                          | Vc min        | Vc max |
|   P |                   |    |    |    |    |    |    |    |    |    |    |                                                                                          |                                                                                          |               |        |
|   M |                   |    |    |    |    |    |    |    |    |    |    |                                                                                          |                                                                                          |               |        |
|   K |                   |    |    |    |    |    |    |    |    |    |    |                                                                                          |                                                                                          |               |        |
|   N |                   |    |    |    |    |    |    |    |    |    |    |                                                                                          |                                                                                          |               |        |
|   S |                   |    |    |    |    |    |    |    |    |    |    | 180                                                                                      | 450                                                                                      |               |        |
|   H |                   |    |    |    |    |    |    |    |    |    |    |                                                                                          |                                                                                          |               |        |

Recommended ● Acceptable ◎

| Edge Condition | W    | $\beta$ | Hone |
|----------------|------|---------|------|
|                | mm   | mm      | mm   |
| E010           | 0.05 | 20°     | 0    |
| E030           | 0.15 | 20°     | 0    |





### Negative Turning: Geometry, Grade and Material Selection

| Geometry | Grade  |   |   |   |   |   |        |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
|----------|--------|---|---|---|---|---|--------|---|---|---|---|---|-------|---|---|---|---|---|-------|---|---|---|---|---|
|          | SP0819 |   |   |   |   |   | SP4019 |   |   |   |   |   | NL200 |   |   |   |   |   | NL250 |   |   |   |   |   |
|          | P      | M | K | N | S | H | P      | M | K | N | S | H | P     | M | K | N | S | H | P     | M | K | N | S | H |
| 1B       | ◆      | ◆ |   |   | ◆ | ◆ |        |   |   |   |   |   |       |   |   |   |   |   | ◆     | ◆ |   |   | ◆ |   |
| 2N       |        |   |   |   |   |   |        |   |   |   |   |   |       |   |   |   |   |   | ◆     | ◆ |   |   |   |   |
| 3F       |        | ◆ |   | ◆ | ◆ |   |        |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 3J       |        |   |   |   |   |   |        | ◆ |   |   | ◆ |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 4E       |        | ◆ |   |   | ◆ |   |        |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 4T       |        |   |   |   |   |   |        |   |   |   |   |   |       |   |   |   |   |   | ◆     | ◆ | ◆ |   |   |   |
| 4U       |        |   |   |   |   |   |        |   |   |   |   |   | ◆     |   | ◆ |   |   | ◆ |       |   |   |   |   |   |
| Flat-Top |        |   |   |   |   |   |        |   |   |   |   |   |       |   |   |   |   |   |       |   | ◆ |   |   |   |
| 5R       |        |   |   |   |   |   |        |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |

### Negative Turning: Geometry, Grade and Material Selection

| Geometry | Grade |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
|----------|-------|---|---|---|---|---|-------|---|---|---|---|---|-------|---|---|---|---|---|
|          | NL300 |   |   |   |   |   | NL400 |   |   |   |   |   | NL920 |   |   |   |   |   |
|          | P     | M | K | N | S | H | P     | M | K | N | S | H | P     | M | K | N | S | H |
| 1B       |       |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 2N       | ◆     | ◆ |   |   |   |   |       |   |   |   |   |   | ◆     | ◆ |   |   |   |   |
| 3F       |       |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 3J       |       |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 4E       |       |   |   |   |   |   |       | ◆ |   |   | ◆ |   |       |   |   |   |   |   |
| 4T       | ◆     | ◆ | ◆ | ◆ |   |   | ◆     | ◆ |   |   |   |   | ◆     | ◆ | ◆ |   |   |   |
| 4U       |       |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| Flat-Top |       |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 5R       | ◆     | ◆ |   |   |   |   | ◆     | ◆ |   |   | ◆ |   | ◆     | ◆ |   |   | ◆ |   |

### Material Guide – Key to Recommended Inserts

#### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



**Positive Turning: Geometry, Grade and Material Selection**

| Geometry | Grade  |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
|----------|--------|---|---|---|---|---|-------|---|---|---|---|---|-------|---|---|---|---|---|
|          | SP4019 |   |   |   |   |   | NL250 |   |   |   |   |   | NL300 |   |   |   |   |   |
|          | P      | M | K | N | S | H | P     | M | K | N | S | H | P     | M | K | N | S | H |
| 15       | ◆      | ◆ |   |   | ◆ |   |       |   |   |   |   |   |       |   |   |   |   |   |
| X        | ◆      | ◆ |   |   | ◆ |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 61       | ◆      | ◆ | ◆ |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 62       | ◆      | ◆ | ◆ |   | ◆ | ◆ |       |   |   |   |   |   |       |   |   |   |   |   |
| 64       |        |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 66       |        |   |   |   |   |   |       |   |   |   |   |   |       |   |   |   |   |   |
| 73       | ◆      | ◆ |   |   | ◆ |   |       |   |   |   |   |   | ◆     | ◆ |   |   |   |   |
| M        | ◆      | ◆ |   |   | ◆ |   |       |   |   |   |   |   |       |   |   |   |   |   |
| T        | ◆      | ◆ |   |   | ◆ |   | ◆     | ◆ |   |   |   |   | ◆     | ◆ |   |   |   |   |

**Positive Turning: Geometry, Grade and Material Selection**

| Geometry | Grade |   |   |   |   |   |       |   |   |   |   |   |     |   |   |   |   |   |
|----------|-------|---|---|---|---|---|-------|---|---|---|---|---|-----|---|---|---|---|---|
|          | NL400 |   |   |   |   |   | NL920 |   |   |   |   |   | GH1 |   |   |   |   |   |
|          | P     | M | K | N | S | H | P     | M | K | N | S | H | P   | M | K | N | S | H |
| 15       |       |   |   |   |   |   |       |   |   |   |   |   |     |   |   | ◆ |   |   |
| X        |       |   |   |   |   |   |       |   |   |   |   |   |     |   |   | ◆ |   |   |
| 61       |       |   |   |   |   |   |       |   |   |   |   |   |     |   |   |   |   |   |
| 62       |       |   |   |   |   |   |       |   |   |   |   |   |     |   |   |   |   |   |
| 64       |       |   |   |   |   |   |       |   |   |   |   |   |     |   |   | ◆ |   |   |
| 66       |       |   |   |   |   |   |       |   |   |   |   |   |     | ◆ |   | ◆ |   |   |
| 73       |       |   |   |   |   |   | ◆     | ◆ |   |   | ◆ |   |     |   |   |   |   |   |
| M        |       |   |   |   |   |   |       |   |   |   |   |   |     | ◆ |   |   | ◆ |   |
| T        | ◆     | ◆ |   |   | ◆ |   | ◆     | ◆ |   |   | ◆ |   |     |   |   |   |   |   |

**Material Guide – Key to Recommended Inserts**

Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



| Cutting Speed (v <sub>c</sub> ) m/min |                         |                                                          |             |             |             |             |             |
|---------------------------------------|-------------------------|----------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| ISO                                   | Materials               | Rm and Hardness                                          | CVD Coated  |             |             |             |             |
|                                       |                         |                                                          | NL200       | NL250       | NL300       | NL400       | NL920       |
|                                       |                         |                                                          | min. - max. | min. - max. | min. - max. | min. - max. | min. - max. |
| <b>P</b>                              | Unalloyed Steel         | <600 N/mm <sup>2</sup><br><180 HBN                       | 167 - 415   | 162 - 406   | 158 - 381   | 135 - 361   | 117 - 226   |
|                                       |                         | <950 N/mm <sup>2</sup><br><280 HBN                       | 108 - 269   | 105 - 263   | 102 - 244   | 88 - 234    | 76 - 146    |
|                                       | Alloyed Steel           | 700-950 N/mm <sup>2</sup><br>200-280 HBN                 | 99 - 247    | 97 - 241    | 94 - 229    | 80 - 215    | 70 - 134    |
|                                       |                         | 950-1200 N/mm <sup>2</sup><br>280-355 HBN                | 90 - 224    | 88 - 220    | 85 - 201    | 73 - 195    | 63 - 122    |
|                                       |                         | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN               | 62 - 153    | 60 - 150    | 58 - 134    | 50 - 133    | 43 - 83     |
| <b>M</b>                              | Stainless Steel         | Austenitic + Ferritic<br>300 series                      |             | 110 - 274   | 110 - 255   | 91 - 244    | 79 - 152    |
|                                       |                         | Martensitic<br>400 series                                |             | 105 - 263   | 105 - 245   | 88 - 234    | 76 - 146    |
|                                       | PH Stainless            | Refractory<br>P.H.                                       |             | 59 - 146    | 60 - 135    | 49 - 130    | 42 - 81     |
| <b>K</b>                              | Cast Iron               | Grey<br>GG-Ft                                            | 165 - 411   | 161 - 373   | 157 - 335   |             | 116 - 224   |
|                                       |                         | Spheroidal-Ductile<br>GGG-FGS                            | 143 - 355   | 139 - 322   | 135 - 290   |             | 100 - 193   |
|                                       |                         | Malleable<br>GTS - MN/MP                                 | 96 - 239    | 94 - 217    | 91 - 195    |             | 68 - 130    |
| <b>N</b>                              | Aluminium & Alloys      | Aluminium & Alloys<br>< 16% 116 HB                       |             |             |             |             |             |
|                                       |                         | Aluminium + Silicon<br>> 16% 92 HB                       |             |             |             |             |             |
| <b>S</b>                              | High Temperature Alloys | Iron Based                                               |             | 23 - 59     |             | 20 - 52     | 17 - 33     |
|                                       |                         | Cobalt Based                                             |             | 19 - 48     |             | 16 - 42     | 14 - 26     |
|                                       |                         | Nickel Based                                             |             | 20 - 51     |             | 17 - 46     | 15 - 28     |
|                                       |                         | Titanium Based                                           |             | 32 - 80     |             | 27 - 72     | 23 - 45     |
| <b>H</b>                              | Hard Materials          | Hard Steel<br>>1400 N/mm <sup>2</sup><br>>415 HBN        | 45 - 125    |             |             |             |             |
|                                       |                         | Chilled Cast Iron<br>>1400 N/mm <sup>2</sup><br>>400 HBN | 50 - 120    |             |             |             |             |

## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



| Cutting Speed (v <sub>c</sub> ) m/min |                         |                                                          |           |           |                      |                       |                   |           |
|---------------------------------------|-------------------------|----------------------------------------------------------|-----------|-----------|----------------------|-----------------------|-------------------|-----------|
| ISO                                   | Materials               | Rm and Hardness                                          | PVD       |           |                      |                       | Uncoated          | Ceramic   |
|                                       |                         |                                                          | SP0819    | SP4019    | SP4030<br>(Grooving) | SP4066<br>(Threading) | GH1<br>Micrograin | SA6609    |
| <b>P</b>                              | Unalloyed Steel         | <600 N/mm <sup>2</sup><br><180 HBN                       | 212 - 451 | 208 - 442 | 135 - 271            | 230 - 485             |                   |           |
|                                       |                         | <950 N/mm <sup>2</sup><br><280 HBN                       | 138 - 293 | 135 - 287 | 88 - 176             | 150 - 315             |                   |           |
|                                       | Alloyed Steel           | 700-950 N/mm <sup>2</sup><br>200-280 HBN                 | 126 - 268 | 123 - 263 | 80 - 161             | 135 - 290             |                   |           |
|                                       |                         | 950-1200 N/mm <sup>2</sup><br>280-355 HBN                | 115 - 244 | 112 - 239 | 73 - 146             | 125 - 265             |                   |           |
|                                       |                         | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN               | 78 - 167  | 77 - 163  | 50 - 100             | 85 - 180              |                   |           |
| <b>M</b>                              | Stainless Steel         | Austenitic + Ferritic<br>300 series                      | 143 - 305 | 140 - 299 | 107 - 229            | 154 - 329             | 80 - 150          |           |
|                                       |                         | Martensitic<br>400 series                                | 149 - 317 | 135 - 287 | 102 - 220            | 160 - 342             | 80 - 160          |           |
|                                       | PH Stainless            | Refractory<br>P.H.                                       | 76 - 163  | 75 - 159  | 57 - 122             | 82 - 175              | 40 - 80           |           |
| <b>K</b>                              | Cast Iron               | Grey<br>GG-Ft                                            |           | 206 - 438 | 134 - 268            | 226 - 482             | 116 - 224         |           |
|                                       |                         | Spheroidal-Ductile<br>GGG-FGS                            |           | 178 - 378 | 116 - 232            | 195 - 416             | 100 - 193         |           |
|                                       |                         | Malleable<br>GTS - MN/MP                                 |           | 120 - 255 | 78 - 156             | 132 - 280             | 60 - 130          |           |
| <b>N</b>                              | Aluminium & Alloys      | Aluminium & Alloys<br>< 16% 116 HB                       | 396 - 976 | 365 - 975 | 366 - 915            |                       | 335 - 823         |           |
|                                       |                         | Aluminium + Silicon<br>> 16% 92 HB                       | 274 - 671 |           | 244 - 610            |                       | 183 - 549         |           |
| <b>S</b>                              | High Temperature Alloys | Iron Based                                               | 31 - 65   | 30 - 64   | 20 - 39              | 33 - 70               | 15 - 35           | 180 - 450 |
|                                       |                         | Cobalt Based                                             | 25 - 53   | 24 - 52   | 16 - 32              | 27 - 57               | 15 - 25           | 180 - 400 |
|                                       |                         | Nickel Based                                             | 27 - 57   | 26 - 56   | 17 - 34              | 29 - 61               | 15 - 30           | 180 - 360 |
|                                       |                         | Titanium Based                                           | 42 - 89   | 41 - 88   | 27 - 54              | 45 - 96               | 25 - 45           |           |
| <b>H</b>                              | Hard Materials          | Hard Steel<br>>1400 N/mm <sup>2</sup><br>>415 HBN        | 70 - 140  | 62 - 131  |                      |                       |                   |           |
|                                       |                         | Chilled Cast Iron<br>>1400 N/mm <sup>2</sup><br>>400 HBN | 65 - 135  | 60 - 127  |                      |                       |                   |           |

## Material Guide – Key to Recommended Inserts

### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



Optimum Grade Performance

| ISO Grade Classification |                              |      |             |             |             |             |             |             |             |                |                 |
|--------------------------|------------------------------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|-----------------|
| Groups                   | Materials                    | Code | CVD Grades  |             |             |             |             | PVD Grades  |             | Uncoated Grade | Whisker Ceramic |
|                          |                              |      | NL200       | NL250       | NL300       | NL400       | NL920       | SP0819      | SP4019      |                |                 |
| <div>P</div>             | Unalloyed and Alloyed Steels | P01  |             |             |             |             |             | <div></div> |             |                |                 |
|                          |                              | P05  |             |             |             |             |             |             |             |                |                 |
|                          |                              | P10  | <div></div> | <div></div> | <div></div> |             |             |             | <div></div> |                |                 |
|                          |                              | P15  | <div></div> | <div></div> | <div></div> |             |             |             | <div></div> |                |                 |
|                          |                              | P20  | <div></div> | <div></div> | <div></div> | <div></div> |             |             | <div></div> |                |                 |
|                          |                              | P25  |             |             |             | <div></div> |             |             | <div></div> |                |                 |
|                          |                              | P30  |             |             | <div></div> | <div></div> | <div></div> |             |             |                |                 |
|                          |                              | P35  |             |             |             | <div></div> | <div></div> |             |             |                |                 |
|                          |                              | P40  |             |             |             |             | <div></div> |             |             |                |                 |
|                          |                              | P45  |             |             |             |             | <div></div> |             |             |                |                 |
|                          |                              | P50  |             |             |             |             |             |             |             |                |                 |
| <div>M</div>             | Stainless Steels             | M01  |             |             |             |             |             | <div></div> |             |                |                 |
|                          |                              | M05  |             | <div></div> |             |             |             | <div></div> | <div></div> |                |                 |
|                          |                              | M10  |             | <div></div> |             | <div></div> |             |             | <div></div> |                |                 |
|                          |                              | M15  |             | <div></div> | <div></div> | <div></div> |             |             | <div></div> |                |                 |
|                          |                              | M20  |             | <div></div> | <div></div> | <div></div> |             |             | <div></div> |                |                 |
|                          |                              | M25  |             |             | <div></div> | <div></div> |             |             |             |                |                 |
|                          |                              | M30  |             |             | <div></div> | <div></div> | <div></div> |             |             |                |                 |
|                          |                              | M35  |             |             |             |             | <div></div> |             |             |                |                 |
|                          |                              | M40  |             |             |             |             | <div></div> |             |             |                |                 |
|                          |                              |      |             |             |             |             |             |             |             |                |                 |
| <div>K</div>             | Cast Irons                   | K01  |             |             |             |             |             |             |             | <div></div>    |                 |
|                          |                              | K05  | <div></div> | <div></div> |             |             |             |             |             | <div></div>    |                 |
|                          |                              | K10  | <div></div> | <div></div> | <div></div> |             |             |             |             | <div></div>    |                 |
|                          |                              | K15  | <div></div> | <div></div> | <div></div> |             |             |             | <div></div> | <div></div>    |                 |
|                          |                              | K20  |             | <div></div> | <div></div> |             |             |             | <div></div> | <div></div>    |                 |
|                          |                              | K25  |             |             | <div></div> |             |             |             | <div></div> |                |                 |
|                          |                              | K30  |             |             |             |             | <div></div> |             |             |                |                 |
|                          |                              | K35  |             |             |             |             | <div></div> |             |             |                |                 |
|                          |                              | K40  |             |             |             |             | <div></div> |             |             |                |                 |
|                          |                              |      |             |             |             |             |             |             |             |                |                 |
| <div>N</div>             | Aluminum & Alloys            | N01  |             |             |             |             |             | <div></div> |             | <div></div>    |                 |
|                          |                              | N05  |             |             |             |             |             | <div></div> |             | <div></div>    |                 |
|                          |                              | N10  |             |             |             |             |             |             | <div></div> | <div></div>    |                 |
|                          |                              | N15  |             |             |             |             |             |             | <div></div> |                |                 |
|                          |                              | N20  |             |             |             |             |             |             | <div></div> |                |                 |
|                          |                              | N25  |             |             |             |             |             |             |             |                |                 |
|                          |                              | N30  |             |             |             |             |             |             |             |                |                 |
| <div>S</div>             | High Temperature Alloys      | S01  |             |             |             |             |             | <div></div> |             |                |                 |
|                          |                              | S05  |             | <div></div> |             |             |             | <div></div> | <div></div> |                |                 |
|                          |                              | S10  |             | <div></div> |             | <div></div> |             |             | <div></div> |                | <div></div>     |
|                          |                              | S15  |             | <div></div> |             | <div></div> |             |             |             |                |                 |
|                          |                              | S20  |             |             |             | <div></div> | <div></div> |             |             |                |                 |
|                          |                              | S25  |             |             |             | <div></div> | <div></div> |             |             |                |                 |
|                          |                              | S30  |             |             |             | <div></div> | <div></div> |             |             |                |                 |
| <div>H</div>             | Hard Materials               | H01  |             |             |             |             |             | <div></div> |             |                |                 |
|                          |                              | H05  | <div></div> |             |             |             |             | <div></div> |             |                |                 |
|                          |                              | H10  | <div></div> |             |             |             |             |             |             |                |                 |
|                          |                              | H15  |             |             |             |             |             |             |             |                |                 |
|                          |                              | H20  |             |             |             |             |             |             | <div></div> |                |                 |
|                          |                              | H25  |             |             |             |             |             |             | <div></div> |                |                 |
|                          |                              | H30  |             |             |             |             |             |             |             |                |                 |

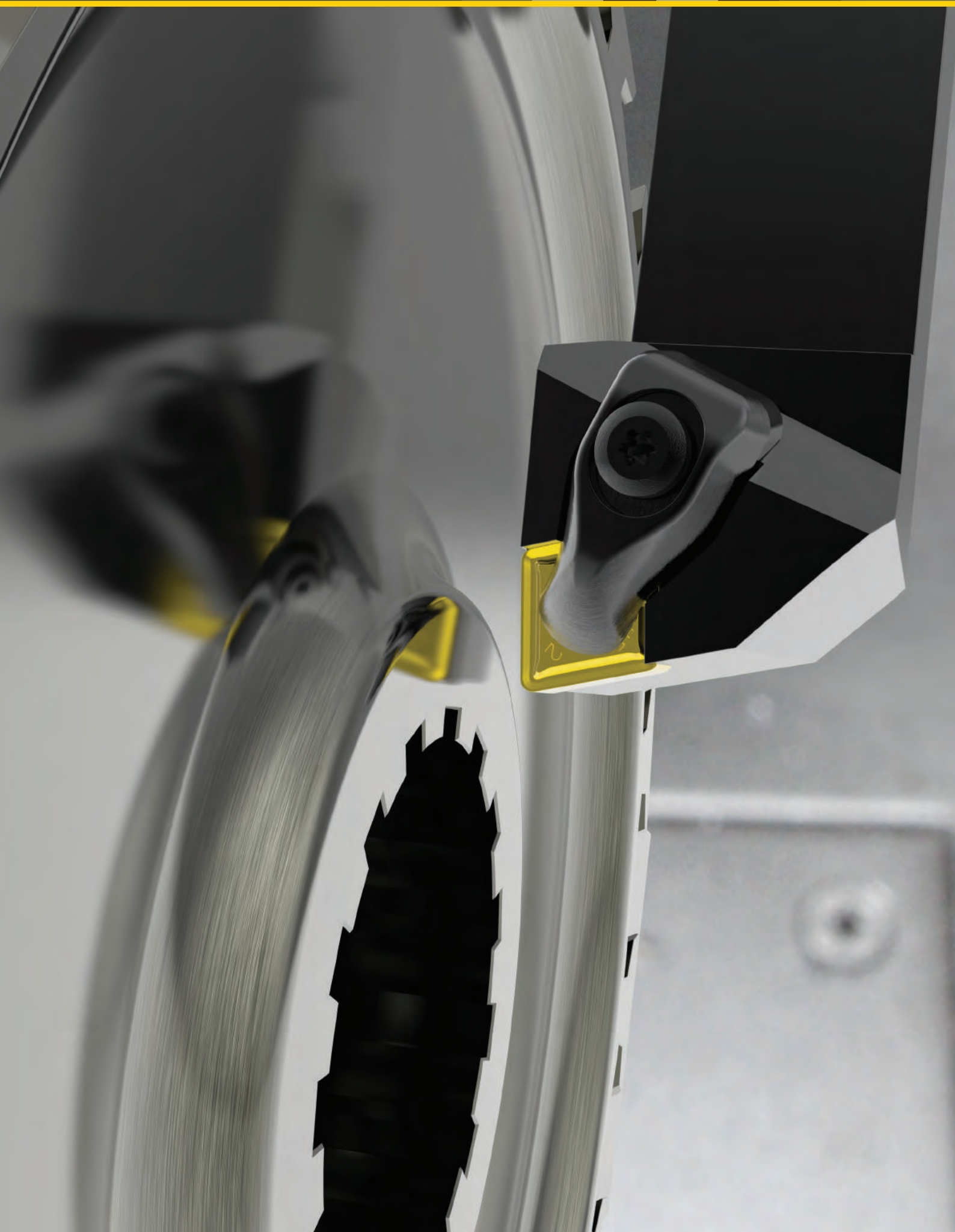
Increasing - wear resistance - Increasing cutting speed  
Increasing - shock resistance - Increasing - feed

## Material Guide – Key to Recommended Inserts

### Material Designation

**P** Unalloyed Steels **P** Alloyed Steels **M** Stainless Steels **M** PH Stainless **K** Cast Irons **N** Aluminum & Alloys **S** High Temp. Alloys **H** Hard Materials





**S**

1

**N**

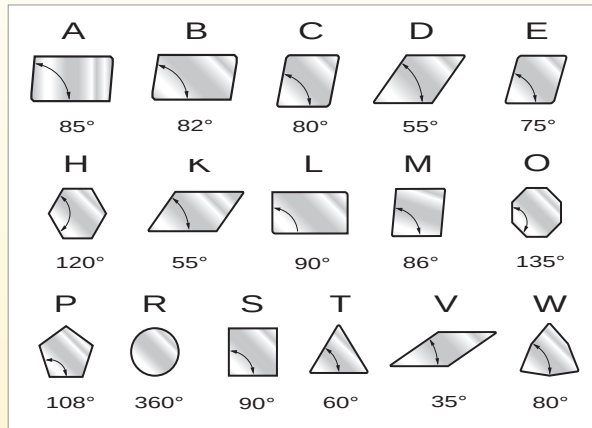
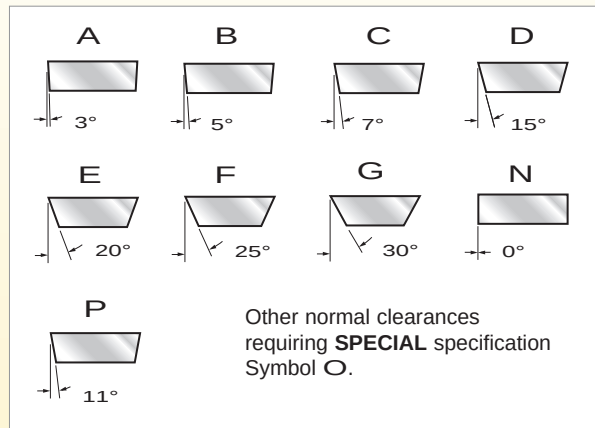
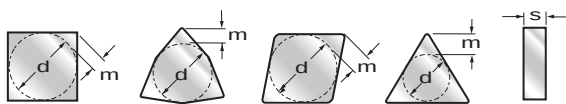
2

**M**

3

**G**

4

**1 Shape****2 Clearance****3 Tolerance**

| Class |    | d      | m      | s      |
|-------|----|--------|--------|--------|
| A     | mm | ±0,025 | ±0,005 | ±0,025 |
| C     | mm | ±0,025 | ±0,013 | ±0,025 |
| E     | mm | ±0,025 | ±0,025 | ±0,025 |
| F     | mm | ±0,013 | ±0,005 | ±0,025 |
| G     | mm | ±0,025 | ±0,025 | ±0,13  |
| H     | mm | ±0,013 | ±0,013 | ±0,025 |
| J     | mm | *      | ±0,005 | ±0,025 |
| K     | mm | *      | ±0,013 | ±0,025 |
| L     | mm | *      | ±0,025 | ±0,025 |
| M     | mm | *      | *      | ±0,127 |
| U     | mm | *      | *      | ±0,127 |
| N     | mm | *      | *      | ±0,025 |

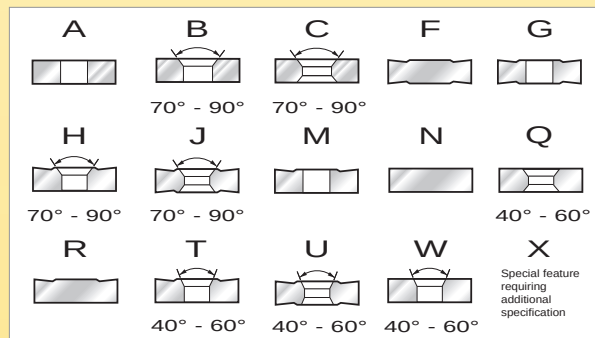
\* See tables below.

**Valid for shape D only (M & N Tolerance)**

| IC     | d     | m     |
|--------|-------|-------|
| 5,56   | ±0,05 | ±0,11 |
| 6,35   | ±0,05 | ±0,11 |
| 7,94   | ±0,05 | ±0,11 |
| 9,525  | ±0,05 | ±0,11 |
| 12,7   | ±0,08 | ±0,15 |
| 15,875 | ±0,10 | ±0,18 |
| 19,05  | ±0,10 | ±0,18 |

**Valid for shapes:  
C, E, H, M, O, P, S, T, R, W**

| IC     | d             |       | m     |       |
|--------|---------------|-------|-------|-------|
|        | J, K, L, M, N | U     | M, N  | U     |
| 4,76   | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 5,56   | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 6      | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 6,35   | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 7,94   | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 8      | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 9,525  | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 10     | ±0,05         | ±0,08 | ±0,08 | ±0,13 |
| 12     | ±0,08         | ±0,13 | ±0,13 | ±0,2  |
| 12,7   | ±0,08         | ±0,13 | ±0,13 | ±0,2  |
| 15,875 | ±0,1          | ±0,18 | ±0,15 | ±0,27 |
| 16     | ±0,1          | ±0,18 | ±0,15 | ±0,27 |
| 19,05  | ±0,1          | ±0,18 | ±0,15 | ±0,27 |
| 20     | ±0,1          | ±0,18 | ±0,15 | ±0,27 |
| 25     | ±0,13         | ±0,25 | ±0,18 | ±0,38 |
| 25,4   | ±0,13         | ±0,25 | ±0,18 | ±0,38 |
| 31,75  | ±0,15         | ±0,25 | ±0,2  | ±0,38 |
| 32     | ±0,15         | ±0,25 | ±0,2  | ±0,38 |

**4 Type**

**12**  
5

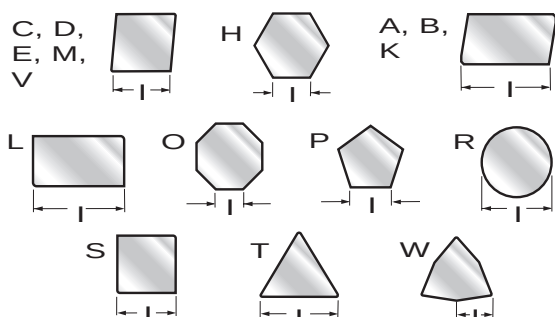
**04**  
6

**08**  
7

**E**  
8

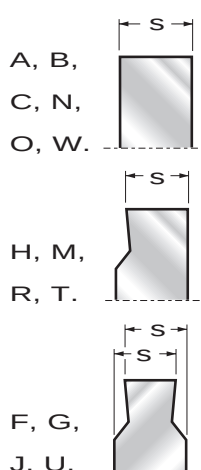
## 5 Size

Integers to be preceded by a 0 (zero).  
Disregard any decimals. e.g. 9.525 = 09



## 6 Thickness

Integers to be preceded by a 0 (zero) or the letter T. Disregard any decimals.



### Examples:

|           |          |
|-----------|----------|
| <b>01</b> | = 1,588  |
| <b>T1</b> | = 1,984  |
| <b>02</b> | = 2,381  |
| <b>03</b> | = 3,175  |
| <b>T3</b> | = 3,969  |
| <b>04</b> | = 4,763  |
| <b>05</b> | = 5,556  |
| <b>06</b> | = 6,350  |
| <b>07</b> | = 7,938  |
| <b>09</b> | = 9,525  |
| <b>11</b> | = 11,113 |
| <b>12</b> | = 12,700 |
| <b>14</b> | = 14,288 |
| <b>15</b> | = 15,875 |

## 7 Corner

### Inserts with wiper edges

Cutting edge Angle ( $K_r$ )  
1st letter:

|          |             |
|----------|-------------|
| <b>A</b> | = 45°       |
| <b>D</b> | = 60°       |
| <b>E</b> | = 75°       |
| <b>F</b> | = 85°       |
| <b>G</b> | = 87°       |
| <b>P</b> | = 90°       |
| <b>Z</b> | = ANY OTHER |

Wiper edge normal  
Clearance 2nd letter: ( $\alpha_n$ )

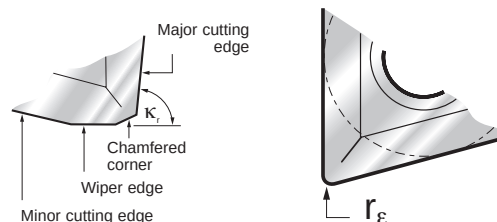
|          |             |
|----------|-------------|
| <b>A</b> | = 3°        |
| <b>B</b> | = 5°        |
| <b>C</b> | = 7°        |
| <b>D</b> | = 15°       |
| <b>E</b> | = 20°       |
| <b>F</b> | = 25°       |
| <b>G</b> | = 30°       |
| <b>N</b> | = 0°        |
| <b>P</b> | = 11°       |
| <b>Z</b> | = ANY OTHER |

## 7 Corner *continued*

**Inserts with rounded corners.** The corner radius is indicated in 0.1mm. Integers to be preceded by a 0 (zero). If the corner is not rounded, use the symbol of designation 00 (zero zero).

### Examples:

|           |                |           |             |
|-----------|----------------|-----------|-------------|
| <b>00</b> | = SHARP CORNER | <b>24</b> | = 2,4       |
| <b>01</b> | = 0,1          | <b>28</b> | = 2,8       |
| <b>02</b> | = 0,2          | <b>32</b> | = 3,2       |
| <b>04</b> | = 0,4          | <b>40</b> | = 4,0       |
| <b>08</b> | = 0,8          | <b>48</b> | = 4,8       |
| <b>12</b> | = 1,2          | <b>56</b> | = 5,6       |
| <b>16</b> | = 1,6          | <b>64</b> | = 6,4       |
| <b>20</b> | = 2,0          | <b>X</b>  | = ANY OTHER |



## 8 Edge Condition

|                           |  | Symbol   |
|---------------------------|--|----------|
| Sharp                     |  | <b>F</b> |
| Honed (Rounded)           |  | <b>E</b> |
| Chamfered (Negative Land) |  | <b>T</b> |
| Chamfered + Honed         |  | <b>S</b> |

**P**

1

**D**

2

**J**

3

**N**

4

**R**

5

### 1 Assembly

**M**  
Clamp  
Lock



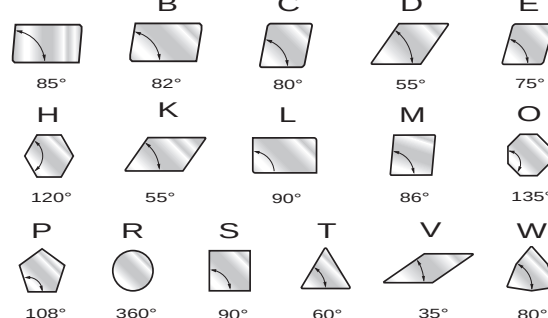
**P**  
Lever  
Lock



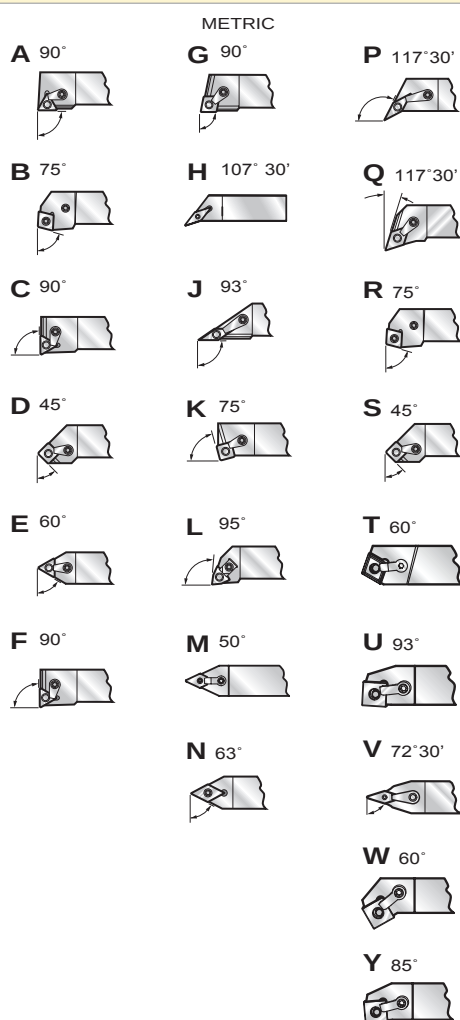
**S**  
Posicut®



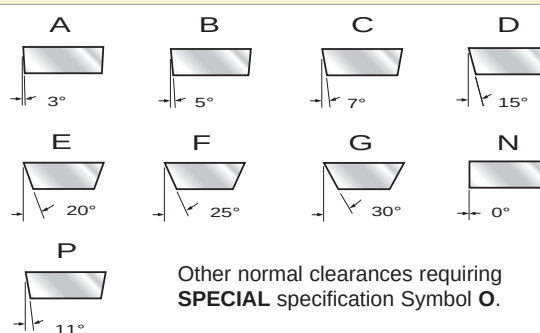
### 2 Insert Shape



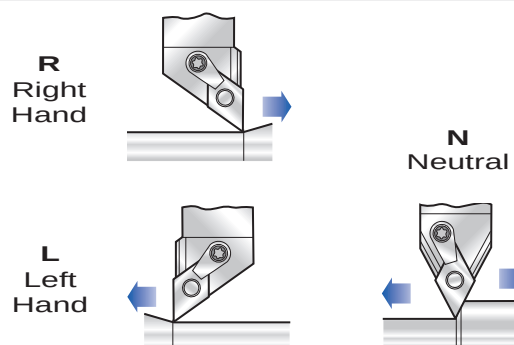
### 3 Tool Style



### 4 Clearance



### 5 Hand



**20**  
6

**20**  
7

**K**  
8

**12**  
9

**-**  
10

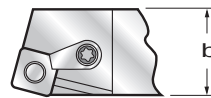
**-**  
11

## 6 Tool Height



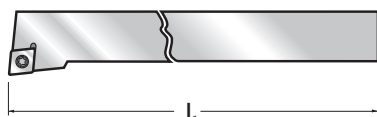
**06** = 6  
**08** = 8  
**10** = 10  
**12** = 12  
**14** = 14  
**16** = 16  
**20** = 20  
**25** = 25  
**32** = 32  
**40** = 40  
**50** = 50

## 7 Tool Width



**06** = 6  
**08** = 8  
**10** = 10  
**12** = 12  
**14** = 14  
**16** = 16  
**20** = 20  
**25** = 25  
**32** = 32  
**40** = 40  
**50** = 50

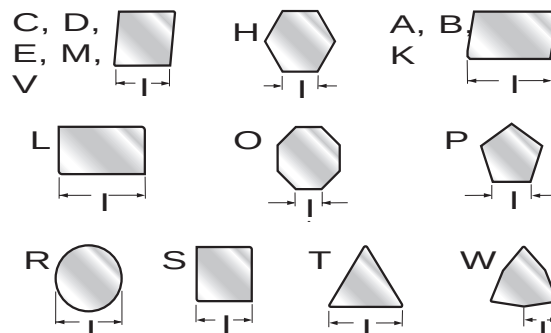
## 8 Tool Length



**A** = 32  
**B** = 40  
**C** = 50  
**D** = 60  
**E** = 70  
**F** = 80  
**G** = 90  
**H** = 100  
**J** = 110  
**K** = 125  
**L** = 140  
**M** = 150  
**N** = 160  
**P** = 170  
**Q** = 180  
**R** = 200  
**S** = 250  
**T** = 300  
**U** = 350  
**V** = 400  
**W** = 450  
**Y** = 500  
**X** = SPECIAL

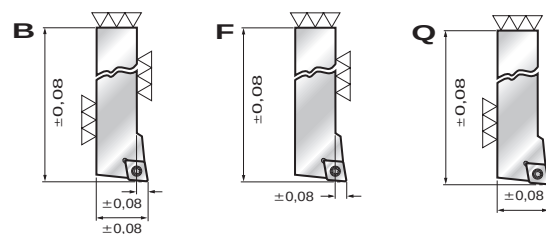
## 9 Insert Size

Integers to be preceded by a 0 (zero).  
Disregard any decimals. e.g. 9,525 = **09**



## 10 Optional

Qualified tools.



## 11 Optional

Supplementary optional symbol (numbers or letters) added by the manufacturer.

Must be separated from the standardised designation by a dash (-).

**A**  
1

**25**  
2

**R**  
3

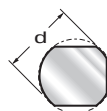
**- P**  
4

**C**  
5

### 1 Bar Type

- |                                                                   |                                                                                          |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>A</b> Steel shank and coolant hole.                            | <b>F</b> Cemented carbide shank with steel head and anti-vibration device.               |
| <b>B</b> Steel shank and anti-vibration device.                   |                                                                                          |
| <b>C</b> Cemented carbide shank with steel head.                  | <b>G</b> Cemented carbide shank with steel head, coolant hole and anti-vibration device. |
| <b>D</b> Steel shank, anti-vibration device and coolant hole.     | <b>H</b> Heavy metal shank.                                                              |
| <b>E</b> Cemented carbide shank with steel head and coolant hole. | <b>J</b> Heavy metal shank and coolant hole.                                             |
|                                                                   | <b>S</b> Steel shank.                                                                    |

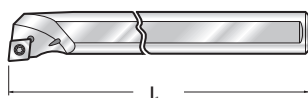
### 2 Bar Ø



#### METRIC

|           |      |
|-----------|------|
| <b>06</b> | = 6  |
| <b>08</b> | = 8  |
| <b>10</b> | = 10 |
| <b>12</b> | = 12 |
| <b>16</b> | = 16 |
| <b>20</b> | = 20 |
| <b>25</b> | = 25 |
| <b>32</b> | = 32 |
| <b>40</b> | = 40 |
| <b>50</b> | = 50 |

### 3 Bar Length



#### METRIC

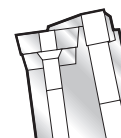
|          |           |
|----------|-----------|
| <b>F</b> | = 80      |
| <b>H</b> | = 100     |
| <b>K</b> | = 125     |
| <b>M</b> | = 150     |
| <b>P</b> | = 170     |
| <b>Q</b> | = 180     |
| <b>R</b> | = 200     |
| <b>S</b> | = 250     |
| <b>T</b> | = 300     |
| <b>U</b> | = 350     |
| <b>V</b> | = 400     |
| <b>W</b> | = 450     |
| <b>Y</b> | = 500     |
| <b>X</b> | = SPECIAL |

### 4 Assembly

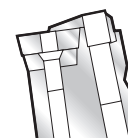
**M**  
Clamp  
Lock



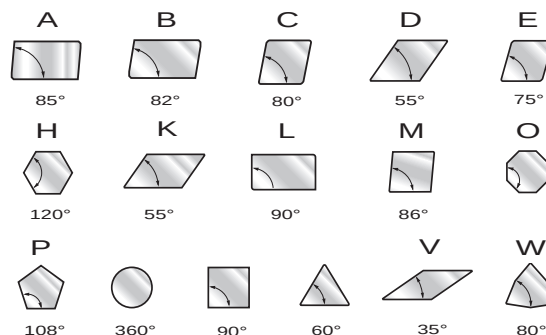
**P**  
Lever  
Lock



**S**  
Posicut®



### 5 Insert Shape



**L**

**N**

**R**

**12**

**-**

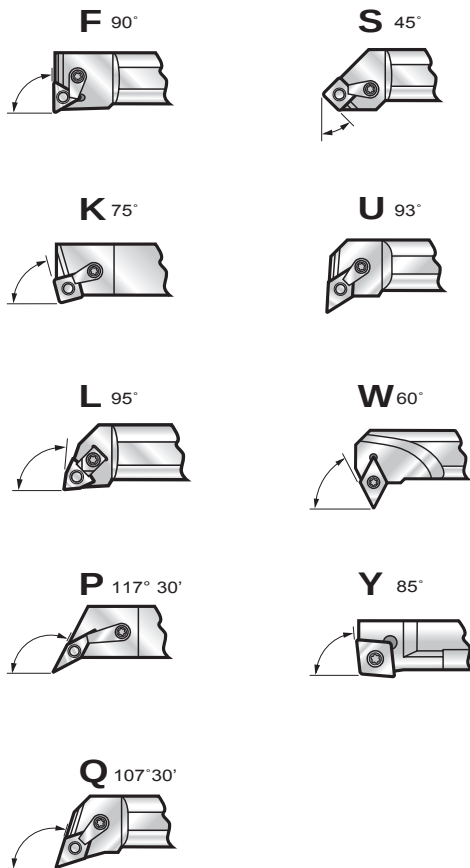
7

8

9

10

## 6 Tool Style



## 8 Hand

**R**  
Right  
Hand

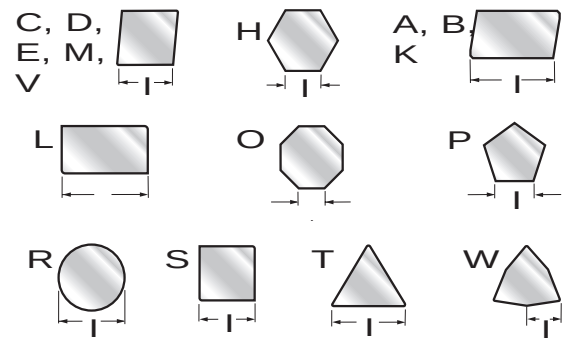


**L**  
Left  
Hand



## 9 Insert Size

Integers to be preceded by a **0** (zero).  
Disregard any decimals. e.g. 9,525 = **09**

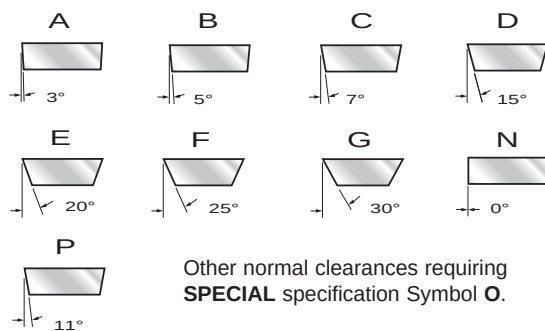


## 10 Optional

Supplementary optional symbol (numbers or letters) added by the manufacturer.

Must be separated from the standardised designation by a dash (-).

## 7 Clearance

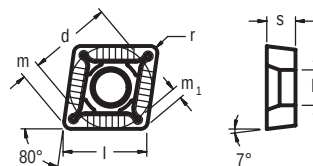


Other normal clearances requiring  
**SPECIAL** specification Symbol **O**.





## CCGT -62 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |       |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|-------|------|----------|-------------|
|        |                 |        | d               | l    | s    | $r_e$ | h    |          |             |
| 031243 | CCGT060200E-62  | SP4019 | 6,35            | 6,45 | 2,38 | 0,00  | 2,80 |          | Finishing   |
| 030568 | CCGT060201E-62  | SP4019 | 6,35            | 6,45 | 2,38 | 0,10  | 2,80 |          | Finishing   |
| 030569 | CCGT060202E-62  | SP4019 | 6,35            | 6,45 | 2,38 | 0,20  | 2,80 |          | Finishing   |
| 030570 | CCGT060204E-62  | SP4019 | 6,35            | 6,45 | 2,38 | 0,40  | 2,80 |          | Finishing   |
| 030571 | CCGT09T300E-62  | SP4019 | 9,52            | 9,57 | 3,97 | 0,00  | 4,40 |          | Finishing   |
| 030572 | CCGT09T301E-62  | SP4019 | 9,52            | 9,57 | 3,97 | 0,10  | 4,40 |          | Finishing   |
| 030573 | CCGT09T302E-62  | SP4019 | 9,52            | 9,57 | 3,97 | 0,20  | 4,40 |          | Finishing   |
| 030574 | CCGT09T304E-62  | SP4019 | 9,52            | 9,57 | 3,97 | 0,40  | 4,40 |          | Finishing   |
| 030575 | CCGT09T308E-62  | SP4019 | 9,52            | 9,57 | 3,97 | 0,80  | 4,40 |          | Finishing   |

For Toolholders External: see page C44 | Internal: see page C45

## Material Guide – Key to Recommended Inserts

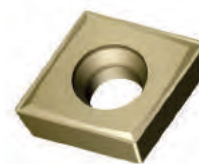
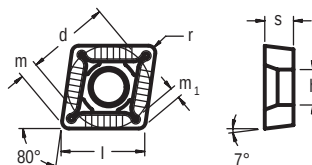
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





## CCMT -73 Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material                                                                              | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|---------------------------------------------------------------------------------------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |                                                                                       |             |
| 032365 | CCMT060202E-73  | SP4019 | 6,35            | 6,45  | 2,38 | 0,20           | 2,80 |    | Medium      |
| 032366 | CCMT060204E-73  | SP4019 | 6,35            | 6,45  | 2,38 | 0,40           | 2,80 |    | Medium      |
| 032367 | CCMT060204E-73  | NL300  | 6,35            | 6,45  | 2,38 | 0,40           | 2,80 |    | Medium      |
| 032368 | CCMT060208E-73  | SP4019 | 6,35            | 6,45  | 2,38 | 0,80           | 2,80 |    | Medium      |
| 032369 | CCMT060208E-73  | NL300  | 6,35            | 6,45  | 2,38 | 0,80           | 2,80 |    | Medium      |
| 032370 | CCMT09T304E-73  | SP4019 | 9,52            | 9,57  | 3,97 | 0,40           | 4,40 |    | Medium      |
| 032371 | CCMT09T304E-73  | NL300  | 9,52            | 9,57  | 3,97 | 0,40           | 4,40 |    | Medium      |
| 032372 | CCMT09T304E-73  | NL920  | 9,52            | 9,57  | 3,97 | 0,40           | 4,40 |   | Medium      |
| 032373 | CCMT09T308E-73  | SP4019 | 9,52            | 9,57  | 3,97 | 0,80           | 4,40 |  | Medium      |
| 032374 | CCMT09T308E-73  | NL300  | 9,52            | 9,57  | 3,97 | 0,80           | 4,40 |  | Medium      |
| 032375 | CCMT09T308E-73  | NL920  | 9,52            | 9,57  | 3,97 | 0,80           | 4,40 |  | Medium      |
| 032376 | CCMT120404E-73  | SP4019 | 12,70           | 12,90 | 2,38 | 0,40           | 5,16 |  | Medium      |
| 032377 | CCMT120404E-73  | NL300  | 12,70           | 12,90 | 2,38 | 0,40           | 5,16 |  | Medium      |
| 032378 | CCMT120404E-73  | NL920  | 12,70           | 12,90 | 2,38 | 0,40           | 5,16 |  | Medium      |
| 032379 | CCMT120408E-73  | SP4019 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |  | Medium      |
| 032380 | CCMT120408E-73  | NL300  | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |  | Medium      |
| 032381 | CCMT120408E-73  | NL920  | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |  | Medium      |
| 032382 | CCMT120412E-73  | SP4019 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |  | Medium      |
| 032383 | CCMT120412E-73  | NL300  | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |  | Medium      |
| 032384 | CCMT120412E-73  | NL920  | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |  | Medium      |

For Toolholders External: see page C44 | Internal: see page C45

## Material Guide – Key to Recommended Inserts

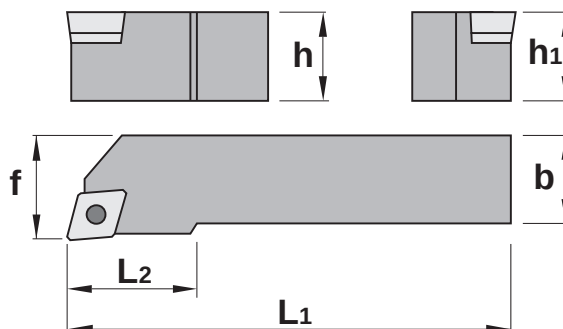
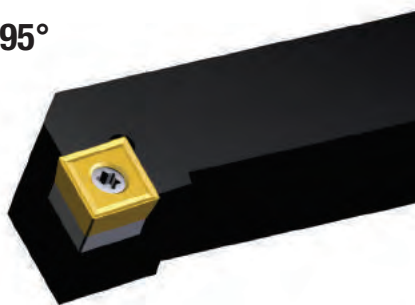
### Material Designation

 Unalloyed Steels 
  Alloyed Steels 
  Stainless Steels 
  PH Stainless 
  Cast Irons 
  Aluminum & Alloys 
  High Temp. Alloys 
  Hard Materials



Turning Inserts

**SCLC 95°**



SCLC LH & RH External Square Shank Toolholders

| EDP    | ISO Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |
|--------|-----------------|------|--------------|-----------------|----|----|-----|----|
|        |                 |      |              | h = h1          | b  | f  | L1  | L2 |
| 028507 | SCLCL 1010 E06  | LH   | CC_0602      | 10              | 10 | 12 | 70  | 10 |
| 028513 | SCLCR 1010 E06  | RH   | CC_0602      | 10              | 10 | 12 | 70  | 10 |
| 028508 | SCLCL 1212 F09  | LH   | CC_09T3      | 12              | 12 | 16 | 80  | 16 |
| 028509 | SCLCL 1616 H09  | LH   | CC_09T3      | 16              | 16 | 20 | 100 | 18 |
| 028510 | SCLCL 2020 K09  | LH   | CC_09T3      | 20              | 20 | 25 | 125 | 22 |
| 028514 | SCLCR 1212 F09  | RH   | CC_09T3      | 12              | 12 | 16 | 80  | 16 |
| 028515 | SCLCR 1616 H09  | RH   | CC_09T3      | 16              | 16 | 20 | 100 | 18 |
| 028516 | SCLCR 2020 K09  | RH   | CC_09T3      | 20              | 20 | 25 | 125 | 22 |
| 028512 | SCLCL 2525 M12  | LH   | CC_1204      | 25              | 25 | 32 | 150 | 25 |
| 028518 | SCLCR 2525 M12  | RH   | CC_1204      | 25              | 25 | 32 | 150 | 25 |



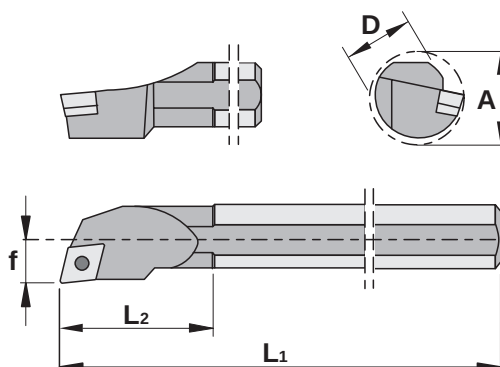
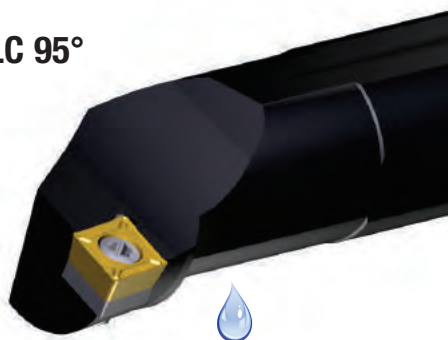
S Style External Toolholder  
for Positive Inserts:  
CC\_06, CC\_09, and CC\_12  
Application: Face and Turn O/D  
Approach 95°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

SCLCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SCLCL/R 1010 E06 | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SCLCL/R 1212 F09 | 015262              | D4010T                                                                              | 015240            | T15                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |
| SCLCL/R 1616 H09 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SCLCL/R 2020 K09 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SCLCL/R 2525 M12 | 034500              | 1540                                                                                | 034577            | K5517                                                                               | 028571       | SA3614                                                                                | 028739             | SAS1760                                                                               |



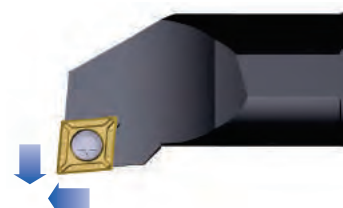
## A.. SCLC 95°



Turning Inserts

A.. SCLC LH & RH Internal Boring Bars

| EDP    | ISO Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |                                                                                       |
|--------|-----------------|------|--------------|-----------------|----|----|-----|----|---------------------------------------------------------------------------------------|
|        |                 |      |              | Min Bore<br>Ø A | ØD | f  | L1  | L2 | Through<br>Coolant                                                                    |
| 033481 | A08F SCLCL 06   | LH   | CC_0602      | 11              | 8  | 5  | 80  | 20 |    |
| 033903 | A10H SCLCL 06   | LH   | CC_0602      | 13              | 10 | 7  | 100 | 21 |    |
| 018349 | A12K SCLCL 06   | LH   | CC_0602      | 16              | 12 | 9  | 125 | 23 |    |
| 033482 | A08F SCLCR 06   | RH   | CC_0602      | 11              | 8  | 5  | 80  | 20 |    |
| 033483 | A10H SCLCR 06   | RH   | CC_0602      | 13              | 10 | 7  | 100 | 21 |   |
| 018350 | A12K SCLCR 06   | RH   | CC_0602      | 16              | 12 | 9  | 125 | 23 |  |
| 018351 | A16M SCLCL 09   | LH   | CC_09T3      | 20              | 16 | 11 | 150 | 31 |  |
| 018353 | A20Q SCLCL 09   | LH   | CC_09T3      | 24              | 20 | 13 | 180 | 36 |  |
| 018355 | A25R SCLCL 09   | LH   | CC_09T3      | 31              | 25 | 17 | 200 | 42 |  |
| 018352 | A16M SCLCR 09   | RH   | CC_09T3      | 20              | 16 | 11 | 150 | 31 |  |
| 018354 | A20Q SCLCR 09   | RH   | CC_09T3      | 24              | 20 | 13 | 180 | 36 |  |
| 018356 | A25R SCLCR 09   | RH   | CC_09T3      | 31              | 25 | 17 | 200 | 42 |  |
| 033904 | A32S SCLCL 12   | LH   | CC_1204      | 39              | 32 | 22 | 250 | 45 |  |
| 033905 | A32S SCLCR 12   | RH   | CC_1204      | 39              | 32 | 22 | 250 | 45 |  |



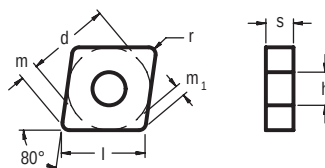
S Style Internal Boring Bar  
for Positive Inserts:  
CC\_06, CC\_09, and CC\_1204  
Application: I/D Boring  
Approach 95°  
Axial 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Bar shown

A.. SCLCL/R Spare Parts

| Item Description | Insert Screw EDP |      | Insert Key EDP |       | Anvil EDP |        | Anvil Screw EDP |         |
|------------------|------------------|------|----------------|-------|-----------|--------|-----------------|---------|
| A08F SCLCL/R 06  | 034498           | 1425 | 018488         | T7    | -         | -      | -               | -       |
| A10H SCLCL/R 06  |                  |      |                |       |           |        |                 |         |
| A12K SCLCL/R 06  |                  |      |                |       |           |        |                 |         |
| A16M SCLCL/R 09  | 034499           | 1440 | 015240         | T15   | -         | -      | -               | -       |
| A20Q SCLCL/R 09  |                  |      |                |       |           |        |                 |         |
| A25R SCLCL/R 09  |                  |      |                |       |           |        |                 |         |
| A32S SCLCL/R 12  | 034500           | 1540 | 034577         | K5517 | 028571    | SA3614 | 028739          | SAS1760 |



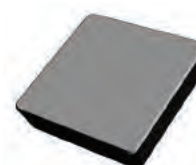
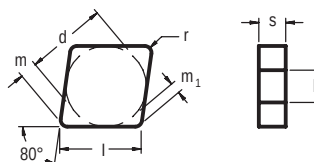
**CNGG**  
3F Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 031580 | CNGG120401F-3F  | SP0819 | 12,70           | 12,90 | 4,76 | 0,10           | 5,16 |          | Medium      |
| 031543 | CNGG120402F-3F  | SP0819 | 12,70           | 12,90 | 4,76 | 0,20           | 5,16 |          | Medium      |
| 031544 | CNGG120404F-3F  | SP0819 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 031545 | CNGG120408F-3F  | SP0819 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 031546 | CNGG120412F-3F  | SP0819 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Medium      |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

**CNGN**  
Ceramics



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032314 | CNGN120404 E010 | SA6609 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032315 | CNGN120408 E010 | SA6609 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032316 | CNGN120408 E030 | SA6609 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032317 | CNGN120412 E010 | SA6609 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032318 | CNGN120412 E030 | SA6609 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032319 | CNGN120416 E030 | SA6609 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032320 | CNGN120708 E010 | SA6609 | 12,70           | 12,90 | 7,94 | 0,80           | 5,16 |          | Roughing    |
| 032321 | CNGN120712 E010 | SA6609 | 12,70           | 12,90 | 7,94 | 1,20           | 5,16 |          | Roughing    |
| 032322 | CNGN120716 E030 | SA6609 | 12,70           | 12,90 | 7,94 | 1,60           | 5,16 |          | Roughing    |
| 032323 | CNGN160612 E010 | SA6609 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Roughing    |

Note: For edge condition refer to Grade page C29

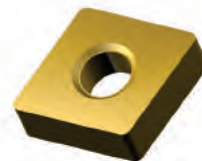
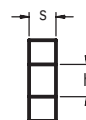
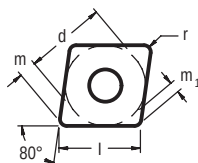
**Material Guide – Key to Recommended Inserts**

**Material Designation**

Unalloyed Steels Alloyed Steels Stainless Steels PH Stainless Cast Irons Aluminum & Alloys High Temp. Alloys Hard Materials



**CNMA**  
Flat Top



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application    |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|----------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |                |
| 032385 | CNMA120404E     | NL250 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 | ◆        | Heavy Roughing |
| 032386 | CNMA120408E     | NL250 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 | ◆        | Heavy Roughing |
| 032387 | CNMA120412E     | NL250 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 | ◆        | Heavy Roughing |
| 032388 | CNMA120416E     | NL250 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 | ◆        | Heavy Roughing |
| 032389 | CNMA160612E     | NL250 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 | ◆        | Heavy Roughing |
| 032390 | CNMA160616E     | NL250 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 | ◆        | Heavy Roughing |
| 032391 | CNMA160632E     | NL250 | 15,88           | 16,10 | 6,35 | 3,20           | 6,35 | ◆        | Heavy Roughing |
| 032392 | CNMA190612E     | NL250 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 | ◆        | Heavy Roughing |
| 032393 | CNMA190616E     | NL250 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 | ◆        | Heavy Roughing |
| 032394 | CNMA190632E     | NL250 | 19,05           | 19,40 | 6,35 | 3,20           | 7,92 | ◆        | Heavy Roughing |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

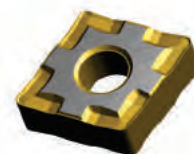
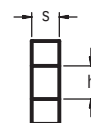
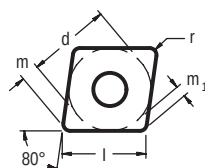
## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels 
 ◆ P Alloyed Steels 
 ◆ M Stainless Steels 
 ◆ M PH Stainless 
 ◆ K Cast Irons 
 ◆ N Aluminum & Alloys 
 ◆ S High Temp. Alloys 
 ◆ H Hard Materials



**CNMG**  
1B Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032395 | CNMG120404E-1B  | NL250  | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Finishing   |
| 030864 | CNMG120404E-1B  | SP0819 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Finishing   |
| 030865 | CNMG120408E-1B  | SP0819 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Finishing   |
| 032396 | CNMG120408E-1B  | NL250  | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Finishing   |
| 032397 | CNMG120412E-1B  | NL250  | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Finishing   |
| 030866 | CNMG120412E-1B  | SP0819 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Finishing   |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

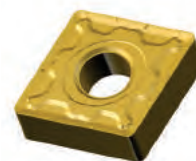
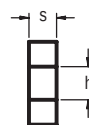
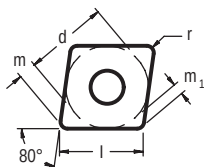
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels
 Alloyed Steels
 Stainless Steels
 PH Stainless
 Cast Irons
 Aluminum & Alloys
 High Temp. Alloys
 Hard Materials



**CNMG**  
2N Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material                                                                              | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|---------------------------------------------------------------------------------------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |                                                                                       |             |
| 032398 | CNMG120404E-2N  | NL250 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |    | Medium      |
| 032399 | CNMG120404E-2N  | NL300 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |    | Medium      |
| 032400 | CNMG120404E-2N  | NL920 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |    | Medium      |
| 032401 | CNMG120408E-2N  | NL250 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |    | Medium      |
| 032402 | CNMG120408E-2N  | NL300 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |    | Medium      |
| 032403 | CNMG120408E-2N  | NL920 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |    | Medium      |
| 032404 | CNMG120412E-2N  | NL250 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |    | Medium      |
| 032405 | CNMG120412E-2N  | NL300 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |   | Medium      |
| 032406 | CNMG120412E-2N  | NL920 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |  | Medium      |
| 032407 | CNMG120416E-2N  | NL250 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |  | Medium      |
| 032408 | CNMG120416E-2N  | NL300 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |  | Medium      |
| 032409 | CNMG120416E-2N  | NL920 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |  | Medium      |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

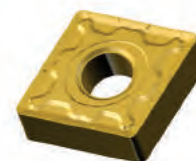
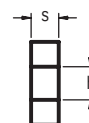
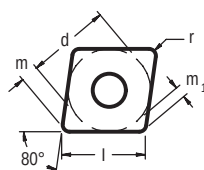
## Material Guide – Key to Recommended Inserts

### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



**CNMG**  
2N Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032410 | CNMG160608E-2N  | NL250 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Medium      |
| 032411 | CNMG160608E-2N  | NL300 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Medium      |
| 032412 | CNMG160608E-2N  | NL920 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Medium      |
| 032413 | CNMG160612E-2N  | NL250 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Medium      |
| 032414 | CNMG160612E-2N  | NL300 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Medium      |
| 032415 | CNMG160612E-2N  | NL920 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Medium      |
| 032416 | CNMG160616E-2N  | NL250 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Medium      |
| 032417 | CNMG160616E-2N  | NL300 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Medium      |
| 032418 | CNMG160616E-2N  | NL920 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Medium      |
| 032419 | CNMG190612E-2N  | NL300 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Medium      |
| 032420 | CNMG190612E-2N  | NL920 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Medium      |
| 032421 | CNMG190616E-2N  | NL300 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Medium      |
| 032422 | CNMG190616E-2N  | NL920 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Medium      |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

## Material Guide – Key to Recommended Inserts

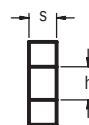
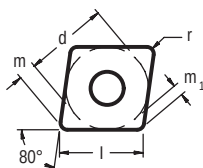
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





**CNMG**  
3J Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material                                                                             | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|--------------------------------------------------------------------------------------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |                                                                                      |             |
| 032423 | CNMG120404E-3J  | SP4019 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |   | Medium      |
| 032424 | CNMG120408E-3J  | SP4019 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |   | Medium      |
| 032425 | CNMG120412E-3J  | SP4019 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |   | Medium      |
| 032426 | CNMG120416E-3J  | SP4019 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |   | Medium      |
| 032427 | CNMG160612E-3J  | SP4019 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |   | Medium      |
| 032428 | CNMG160616E-3J  | SP4019 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |   | Medium      |
| 032429 | CNMG190612E-3J  | SP4019 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |   | Medium      |
| 032430 | CNMG190616E-3J  | SP4019 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |  | Medium      |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

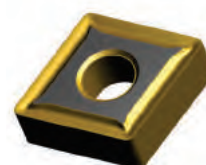
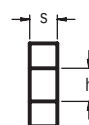
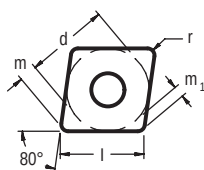
## Material Guide – Key to Recommended Inserts

### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



**CNMG**  
4E Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application     |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-----------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |                 |
| 030506 | CNMG120404E-4E  | SP0819 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Medium-Roughing |
| 032431 | CNMG120404E-4E  | NL400  | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Medium-Roughing |
| 030507 | CNMG120408E-4E  | SP0819 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Medium-Roughing |
| 032432 | CNMG120408E-4E  | NL400  | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Medium-Roughing |
| 030507 | CNMG120408E-4E  | SP0819 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Medium-Roughing |
| 032433 | CNMG120412E-4E  | NL400  | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Medium-Roughing |
| 030508 | CNMG120412E-4E  | SP0819 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Medium-Roughing |
| 032434 | CNMG160608E-4E  | NL400  | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Medium-Roughing |
| 030509 | CNMG160608E-4E  | SP0819 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Medium-Roughing |
| 030510 | CNMG160612E-4E  | SP0819 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Medium-Roughing |
| 032435 | CNMG160612E-4E  | NL400  | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Medium-Roughing |
| 032436 | CNMG160616E-4E  | NL400  | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Medium-Roughing |
| 030511 | CNMG160616E-4E  | SP0819 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Medium-Roughing |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

CNMG1906 See page C53

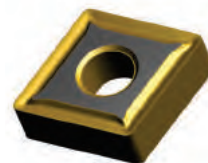
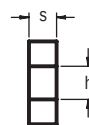
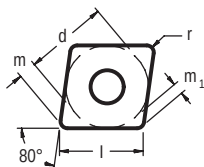
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels
 Alloyed Steels
 Stainless Steels
 PH Stainless
 Cast Irons
 Aluminum & Alloys
 High Temp. Alloys
 Hard Materials



**CNMG**  
4E Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application     |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-----------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |                 |
| 032437 | CNMG190608E-4E  | NL400  | 19,05           | 19,40 | 6,35 | 0,80           | 7,92 |          | Medium-Roughing |
| 030512 | CNMG190608E-4E  | SP0819 | 19,05           | 19,40 | 6,35 | 0,80           | 7,92 |          | Medium-Roughing |
| 030513 | CNMG190612E-4E  | SP0819 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Medium-Roughing |
| 032438 | CNMG190612E-4E  | NL400  | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Medium-Roughing |
| 032439 | CNMG190616E-4E  | NL400  | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Medium-Roughing |
| 030514 | CNMG190616E-4E  | SP0819 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Medium-Roughing |
| 032440 | CNMG190624E-4E  | NL400  | 19,05           | 19,40 | 6,35 | 2,40           | 7,92 |          | Medium-Roughing |
| 030515 | CNMG190624E-4E  | SP0819 | 19,05           | 19,40 | 6,35 | 2,40           | 7,92 |          | Medium-Roughing |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

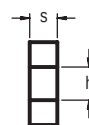
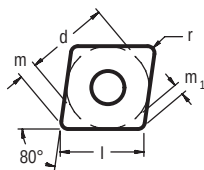
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**CNMG**  
4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032442 | CNMG120404E-4T  | NL250 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032443 | CNMG120404E-4T  | NL300 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032444 | CNMG120404E-4T  | NL400 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032445 | CNMG120404E-4T  | NL920 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032446 | CNMG120408E-4T  | NL250 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032447 | CNMG120408E-4T  | NL300 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032448 | CNMG120408E-4T  | NL400 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032449 | CNMG120408E-4T  | NL920 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032450 | CNMG120412E-4T  | NL250 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032451 | CNMG120412E-4T  | NL300 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032452 | CNMG120412E-4T  | NL400 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032453 | CNMG120412E-4T  | NL920 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032454 | CNMG120416E-4T  | NL250 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032455 | CNMG120416E-4T  | NL300 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032456 | CNMG120416E-4T  | NL400 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032457 | CNMG120416E-4T  | NL920 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |          | Roughing    |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

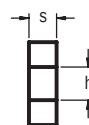
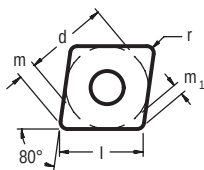
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**CNMG**  
4T Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032458 | CNMG160608E-4T  | NL250 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032459 | CNMG160608E-4T  | NL300 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032460 | CNMG160608E-4T  | NL400 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032461 | CNMG160608E-4T  | NL920 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032462 | CNMG160612E-4T  | NL250 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032463 | CNMG160612E-4T  | NL300 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032464 | CNMG160612E-4T  | NL400 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032465 | CNMG160612E-4T  | NL920 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032466 | CNMG160616E-4T  | NL250 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Roughing    |
| 032467 | CNMG160616E-4T  | NL300 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Roughing    |
| 032468 | CNMG160616E-4T  | NL400 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Roughing    |
| 032469 | CNMG160616E-4T  | NL920 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Roughing    |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

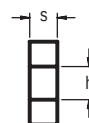
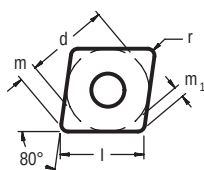
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## CNMG 4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032470 | CNMG190608E-4T  | NL250 | 19,05           | 19,40 | 6,35 | 0,80           | 7,92 |          | Roughing    |
| 032471 | CNMG190608E-4T  | NL300 | 19,05           | 19,40 | 6,35 | 0,80           | 7,92 |          | Roughing    |
| 032472 | CNMG190608E-4T  | NL400 | 19,05           | 19,40 | 6,35 | 0,80           | 7,92 |          | Roughing    |
| 032473 | CNMG190608E-4T  | NL920 | 19,05           | 19,40 | 6,35 | 0,80           | 7,92 |          | Roughing    |
| 032474 | CNMG190612E-4T  | NL250 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Roughing    |
| 032475 | CNMG190612E-4T  | NL300 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Roughing    |
| 032476 | CNMG190612E-4T  | NL400 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Roughing    |
| 032477 | CNMG190612E-4T  | NL920 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Roughing    |
| 032478 | CNMG190616E-4T  | NL250 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Roughing    |
| 032479 | CNMG190616E-4T  | NL300 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Roughing    |
| 032480 | CNMG190616E-4T  | NL400 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Roughing    |
| 032481 | CNMG190616E-4T  | NL920 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Roughing    |
| 032482 | CNMG250924E-4T  | NL300 | 25,40           | 25,79 | 9,53 | 2,40           | 9,12 |          | Roughing    |
| 032483 | CNMG250924E-4T  | NL400 | 25,40           | 25,79 | 9,53 | 2,40           | 9,12 |          | Roughing    |
| 032484 | CNMG250924E-4T  | NL920 | 25,40           | 25,79 | 9,53 | 2,40           | 9,12 |          | Roughing    |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

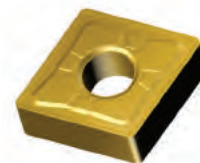
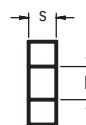
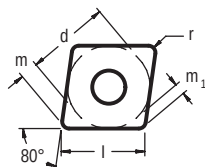
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**CNMG**  
4U Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material                                                                              | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|---------------------------------------------------------------------------------------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |                                                                                       |             |
| 032485 | CNMG120404E-4U  | NL200 | 12,70           | 12,90 | 4,76 | 0,40           | 5,16 |    | Roughing    |
| 032486 | CNMG120408E-4U  | NL200 | 12,70           | 12,90 | 4,76 | 0,80           | 5,16 |    | Roughing    |
| 032487 | CNMG120412E-4U  | NL200 | 12,70           | 12,90 | 4,76 | 1,20           | 5,16 |    | Roughing    |
| 032488 | CNMG120416E-4U  | NL200 | 12,70           | 12,90 | 4,76 | 1,60           | 5,16 |    | Roughing    |
| 032489 | CNMG160608E-4U  | NL200 | 15,88           | 16,10 | 6,35 | 0,80           | 6,35 |    | Roughing    |
| 032490 | CNMG160612E-4U  | NL200 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |    | Roughing    |
| 032491 | CNMG160616E-4U  | NL200 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |    | Roughing    |
| 032492 | CNMG190612E-4U  | NL200 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |   | Roughing    |
| 032493 | CNMG190616E-4U  | NL200 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |  | Roughing    |
| 032494 | CNMG190624E-4U  | NL200 | 19,05           | 19,40 | 6,35 | 2,40           | 7,92 |  | Roughing    |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

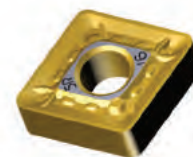
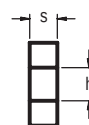
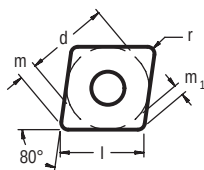
## Material Guide – Key to Recommended Inserts

### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



## CNMM 5R Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application    |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|----------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |                |
| 031684 | CNMM160612E-5R  | NL300 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Heavy Roughing |
| 031668 | CNMM160612E-5R  | NL400 | 15,88           | 16,10 | 6,35 | 1,20           | 6,35 |          | Heavy Roughing |
| 031685 | CNMM160616E-5R  | NL300 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Heavy Roughing |
| 031669 | CNMM160616E-5R  | NL400 | 15,88           | 16,10 | 6,35 | 1,60           | 6,35 |          | Heavy Roughing |
| 031686 | CNMM160624E-5R  | NL300 | 15,88           | 16,10 | 6,35 | 2,40           | 6,35 |          | Heavy Roughing |
| 031670 | CNMM160624E-5R  | NL400 | 15,88           | 16,10 | 6,35 | 2,40           | 6,35 |          | Heavy Roughing |
| 031687 | CNMM190612E-5R  | NL300 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Heavy Roughing |
| 031671 | CNMM190612E-5R  | NL400 | 19,05           | 19,40 | 6,35 | 1,20           | 7,92 |          | Heavy Roughing |
| 031688 | CNMM190616E-5R  | NL300 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Heavy Roughing |
| 031672 | CNMM190616E-5R  | NL400 | 19,05           | 19,40 | 6,35 | 1,60           | 7,92 |          | Heavy Roughing |
| 031689 | CNMM190624E-5R  | NL300 | 19,05           | 19,40 | 6,35 | 2,40           | 7,92 |          | Heavy Roughing |
| 031673 | CNMM190624E-5R  | NL400 | 19,05           | 19,40 | 6,35 | 2,40           | 7,92 |          | Heavy Roughing |
| 031683 | CNMM250924E-5R  | NL300 | 25,40           | 25,78 | 9,53 | 2,40           | 9,12 |          | Heavy Roughing |
| 031682 | CNMM250924E-5R  | NL920 | 25,40           | 25,78 | 9,53 | 2,40           | 9,12 |          | Heavy Roughing |

For Toolholders External: see pages C59 - C63 | Internal: see page C64

## Material Guide – Key to Recommended Inserts

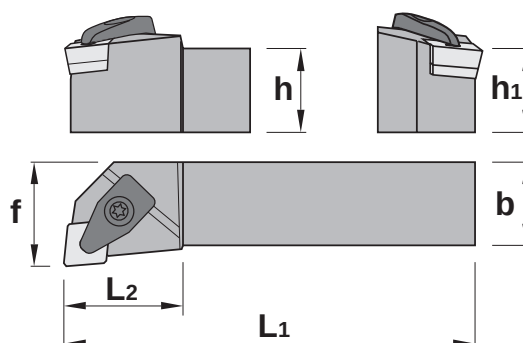
### Material Designation

Unalloyed Steels
 Alloyed Steels
 Stainless Steels
 PH Stainless
 Cast Irons
 Aluminum & Alloys
 High Temp. Alloys
 Hard Materials





## DCLN 95°



Turning Inserts

DCLN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 033245 | DCLNL 2020 K12   | LH   | CN_1204      | 20                 | 20 | 25 | 125            | 34             |
| 033246 | DCLNL 2525 M12   | LH   | CN_1204      | 25                 | 25 | 32 | 150            | 34             |
| 033247 | DCLNL 3232 P12   | LH   | CN_1204      | 32                 | 32 | 40 | 170            | 34             |
| 033248 | DCLNR 2020 K12   | RH   | CN_1204      | 20                 | 20 | 25 | 125            | 34             |
| 033249 | DCLNR 2525 M12   | RH   | CN_1204      | 25                 | 25 | 32 | 150            | 34             |
| 033250 | DCLNR 3232 P12   | RH   | CN_1204      | 32                 | 32 | 40 | 170            | 34             |
| 033251 | DCLNL 2525 M16   | LH   | CN_1606      | 25                 | 25 | 32 | 150            | 36             |
| 033252 | DCLNL 3232 P16   | LH   | CN_1606      | 32                 | 32 | 40 | 170            | 40             |
| 033253 | DCLNR 2525 M16   | RH   | CN_1606      | 25                 | 25 | 32 | 150            | 36             |
| 033254 | DCLNR 3232 P16   | RH   | CN_1606      | 32                 | 32 | 40 | 170            | 40             |
| 033255 | DCLNL 3232 P19   | LH   | CN_1906      | 32                 | 32 | 40 | 170            | 42             |
| 033256 | DCLNL 4040 S19   | LH   | CN_1906      | 40                 | 40 | 50 | 250            | 42             |
| 033257 | DCLNR 3232 P19   | RH   | CN_1906      | 32                 | 32 | 40 | 170            | 42             |
| 033258 | DCLNR 4040 S19   | RH   | CN_1906      | 40                 | 40 | 50 | 250            | 42             |



D style External Toolholder  
for Negative Inserts:  
CN\_1204, CN\_1606 & CN\_1906  
Application: Face and Turn O/D  
Approach 95°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

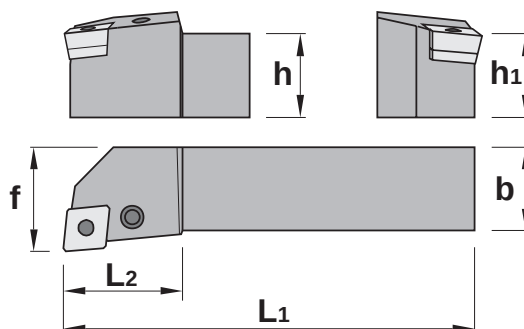
DCLNL/R Spare Parts

| Item Description | Clamp Screw<br>EDP | Clamp<br>EDP | Clamp<br>Spring EDP | Anvil<br>EDP | Anvil Screw<br>EDP | Clamp & Anvil<br>Screw Key |
|------------------|--------------------|--------------|---------------------|--------------|--------------------|----------------------------|
| DCLNL/R 2020 K12 | 033710             | 1696         | 033707              | DC2712       | 033719             | 4295                       |
| DCLNL/R 2525 M12 |                    |              | 033712              | ICSN442      |                    |                            |
| DCLNL/R 3232 P12 |                    |              | 001685              | ICSN533      |                    |                            |
| DCLNL/R 2525 M16 |                    |              | 001686              | ICSN633      |                    |                            |
| DCLNL/R 3232 P16 |                    |              | 033716              | 1766         |                    |                            |
| DCLNL/R 3232 P19 |                    |              | 034495              | DC2716       |                    |                            |
| DCLNL/R 4040 S19 |                    |              | 033708              | DC2719       |                    |                            |
| DCLNL/R 2020 K12 | 033710             | 1696         | 033712              | ICSN442      | 033719             | 4295                       |
| DCLNL/R 2525 M12 |                    |              | 001685              | ICSN533      |                    |                            |
| DCLNL/R 3232 P12 |                    |              | 001686              | ICSN633      |                    |                            |
| DCLNL/R 2525 M16 |                    |              | 033716              | 1766         |                    |                            |
| DCLNL/R 3232 P16 |                    |              | 034495              | DC2716       |                    |                            |
| DCLNL/R 3232 P19 |                    |              | 033708              | DC2719       |                    |                            |
| DCLNL/R 4040 S19 |                    |              | 033712              | ICSN442      |                    |                            |
| DCLNL/R 2525 M12 | 033710             | 1696         | 001685              | ICSN533      | 033719             | 4295                       |
| DCLNL/R 3232 P12 |                    |              | 001686              | ICSN633      |                    |                            |
| DCLNL/R 2525 M16 |                    |              | 033716              | 1766         |                    |                            |
| DCLNL/R 3232 P16 |                    |              | 034495              | DC2716       |                    |                            |
| DCLNL/R 3232 P19 |                    |              | 033708              | DC2719       |                    |                            |
| DCLNL/R 4040 S19 |                    |              | 033712              | ICSN442      |                    |                            |



Turning Inserts

**PCLN 95°**



PCLN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |     |     |       |       |
|--------|------------------|------|--------------|-----------------|-----|-----|-------|-------|
|        |                  |      |              | $h = h_1$       | $b$ | $f$ | $L_1$ | $L_2$ |
| 033273 | *PCLNL 4040 S25  | LH   | CN_2509      | 40              | 40  | 50  | 250   | 45    |
| 033274 | *PCLNL 5050 T25  | LH   | CN_2509      | 50              | 50  | 60  | 300   | 50    |
| 033275 | *PCLNR 4040 S25  | RH   | CN_2509      | 40              | 40  | 50  | 250   | 45    |
| 033276 | *PCLNR 5050 T25  | RH   | CN_2509      | 50              | 50  | 60  | 300   | 50    |

\* Non Stock Items, subject to extended delivery time



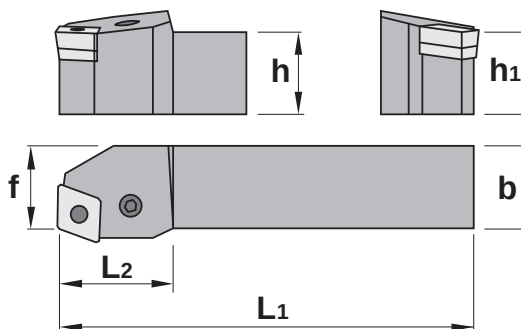
P Style External Toolholder  
for Negative Inserts: CN\_2509  
Application: Face and Turn O/D  
Approach 95°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

PCLNL/R Spare Parts

| PCLNL/R Spare Parts |                                                                                                          |        |                                                                                                                |         |                                                                                                          |        |                                                                                                               |        |                                                                                                                |         |                                                                                                          |        |
|---------------------|----------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------|--------|
| Item Description    | <div>Lever EDP</div>  |        | <div>Lever Screw EDP</div>  |         | <div>Anvil EDP</div>  |        | <div>Anvil Clip EDP</div>  |        | <div>Clip Punch EDP</div>  |         | <div>Key EDP</div>  |        |
| PCLNL/R 4040 S25    | 028408                                                                                                   | PL8025 | 028409                                                                                                         | PLS1612 | 034483                                                                                                   | PA3625 | 028418                                                                                                        | PC4125 | 034506                                                                                                         | PCP0025 | 018285                                                                                                   | KH5005 |
| PCLNL/R 5050 T25    |                                                                                                          |        |                                                                                                                |         |                                                                                                          |        |                                                                                                               |        |                                                                                                                |         |                                                                                                          |        |



PCBN 75°



Turning Inserts

PCBN LH & RH External Square Shank Toolholders

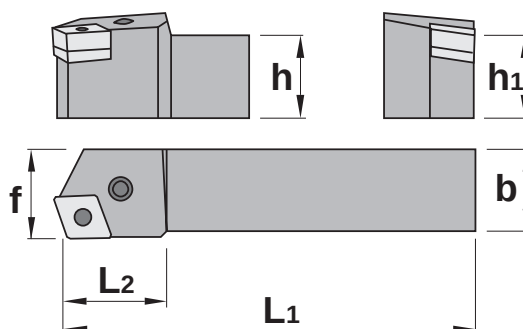
| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 017118 | PCBNL 2020 K12   | LH   | CN_1204      | 20                 | 20 | 17 | 125            | 28             |
| 017120 | PCBNL 2525 M12   | LH   | CN_1204      | 25                 | 25 | 22 | 150            | 28             |
| 017119 | PCBNR 2020 K12   | RH   | CN_1204      | 20                 | 20 | 17 | 125            | 28             |
| 017121 | PCBNR 2525 M12   | RH   | CN_1204      | 25                 | 25 | 22 | 150            | 28             |
| 028373 | PCBNL 3232 P16   | LH   | CN_1606      | 32                 | 32 | 27 | 170            | 34             |
| 017127 | PCBNR 3232 P16   | RH   | CN_1606      | 32                 | 32 | 27 | 170            | 34             |



P Style External Toolholder  
for Negative Inserts:  
CN\_1204 & CN\_1606  
Application: Turn O/D  
Approach 75°  
Axial -7,25°  
Radial -4,25°  
RH Holder Shown

PCBNL/R Spare Parts

| Item Description | Lever EDP  | Lever Screw EDP  | Anvil EDP  | Anvil Clip EDP  | Clip Punch EDP  | Key EDP  |        |        |        |         |        |        |
|------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------|--------|--------|---------|--------|--------|
| PCBNL/R 2020 K12 | 017443                                                                                        | PL8012                                                                                              | 017448                                                                                        | PLS1608                                                                                             | 017456                                                                                               | PA3612                                                                                        | 017453 | PC4112 | 028054 | PCP0012 | 018286 | KH5003 |
| PCBNL/R 2525 M12 |                                                                                               |                                                                                                     |                                                                                               |                                                                                                     |                                                                                                      |                                                                                               |        |        |        |         |        |        |
| PCBNL/R 3232 P16 | 017445                                                                                        | PL8016                                                                                              | 017450                                                                                        | PLS1618                                                                                             | 017457                                                                                               | PA3616                                                                                        | 028051 | PC4115 | 034505 | PCP0015 |        |        |



| PCKN LH & RH External Square Shank Toolholders |                  |      |              |                    |    |    |                |                |
|------------------------------------------------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
| EDP                                            | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|                                                |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 017130                                         | PCKNL 2020 K 12  | LH   | CN_1204      | 20                 | 20 | 25 | 125            | 28             |
| 017132                                         | PCKNL 2525 M 12  | LH   | CN_1204      | 25                 | 25 | 32 | 150            | 28             |
| 033280                                         | PCKNL 3225 P 12  | LH   | CN_1204      | 32                 | 25 | 32 | 170            | 28             |
| 017131                                         | PCKNR 2020 K 12  | RH   | CN_1204      | 20                 | 20 | 25 | 125            | 28             |
| 017133                                         | PCKNR 2525 M 12  | RH   | CN_1204      | 25                 | 25 | 32 | 150            | 28             |
| 033281                                         | PCKNR 3225 P 12  | RH   | CN_1204      | 32                 | 25 | 32 | 170            | 28             |

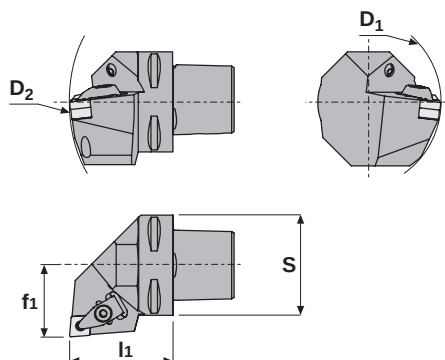


## PCKNL/R Spare Parts

| Item Description | Lever EDP  | Lever Screw EDP  | Anvil EDP  | Anvil Clip EDP  | Clip Punch EDP  | Key EDP  |        |        |        |         |        |        |
|------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------|--------|--------|---------|--------|--------|
| PCKNL/R 2020 K12 | 017443                                                                                        | PL8012                                                                                              | 017448                                                                                        | PLS1608                                                                                              | 017456                                                                                               | PA3612                                                                                        | 017453 | PC4112 | 028054 | PCP0012 | 018286 | KH5003 |
| PCKNL/R 2525 M12 |                                                                                               |                                                                                                     |                                                                                               |                                                                                                      |                                                                                                      |                                                                                               |        |        |        |         |        |        |
| PCKNL/R 3225 P12 |                                                                                               |                                                                                                     |                                                                                               |                                                                                                      |                                                                                                      |                                                                                               |        |        |        |         |        |        |



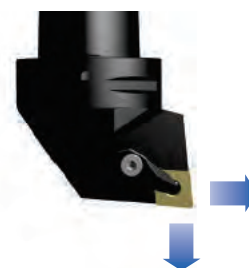
## DCLN 95°



Turning Inserts

DCLN LH & RH External PSC Toolholders

| EDP    | Item Description    | Hand | Insert Sizes | Dimensions (mm) |     |     |    |    |
|--------|---------------------|------|--------------|-----------------|-----|-----|----|----|
|        |                     |      |              | S               | D1  | D2  | f1 | l1 |
| 033691 | C5-50-DCLNL35060-12 | LH   | CN_1204      | 50              | 110 | 165 | 35 | 60 |
| 033692 | C5-50-DCLNR35060-12 | RH   | CN_1204      | 50              | 110 | 165 | 35 | 60 |
| 033693 | C6-63-DCLNL45065-12 | LH   | CN_1204      | 63              | 110 | 190 | 45 | 65 |
| 033694 | C6-63-DCLNR45065-12 | RH   | CN_1204      | 63              | 110 | 190 | 45 | 65 |
| 033695 | C8-80-DCLNL55080-19 | LH   | CN_1906      | 80              | 125 | 250 | 55 | 80 |
| 033696 | C8-80-DCLNR55080-19 | RH   | CN_1906      | 80              | 125 | 250 | 55 | 80 |



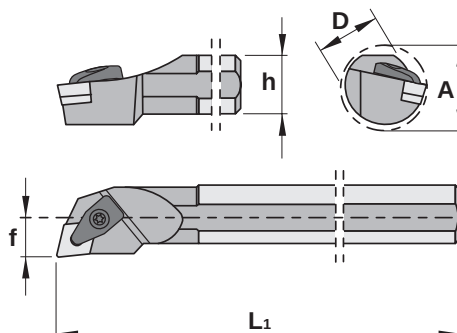
D Style External Toolholder  
for Negative Inserts:  
CN\_1204 & CN\_1906  
Application: External Face, Turn O/D  
Approch 95°  
Axial -5°  
Radial -6°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

DCLNL/R Spare Parts

| Item Description       | Clamp<br>EDP | Clamp Screw<br>EDP | Anvil<br>EDP | Anvil Screw<br>EDP | Clamp<br>Spring EDP | Screw Key<br>EDP |
|------------------------|--------------|--------------------|--------------|--------------------|---------------------|------------------|
| C5-50-DCLNL/R 35060-12 | 033707       | 2712               | 033710       | 1696               | 033712              | ICSN442          |
| C6-63-DCLNL/R 45065-12 |              |                    |              |                    |                     |                  |
| C8-80-DCLNL/R 55080-19 | 033708       | 2719               | 033710       | 1696               | 001686              | ICSN633          |
|                        |              |                    |              |                    | 033716              | 1766             |
|                        |              |                    |              |                    | 033717              | 1770             |
|                        |              |                    |              |                    | 033719              | 4295             |
|                        |              |                    |              |                    | 018287              | KH5004           |



**CLN 95°**



| S..DCLN LH & RH Internal Boring Bars |                  |      |              |                 |    |    |                |    |                                                                                       |
|--------------------------------------|------------------|------|--------------|-----------------|----|----|----------------|----|---------------------------------------------------------------------------------------|
| EDP                                  | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |    |                                                                                       |
|                                      |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | h  | Through Coolant                                                                       |
| 033286                               | S25T DCLNL 12    | LH   | CN_1204      | 31              | 25 | 17 | 300            | 23 |    |
| 033287                               | S32U DCLNL 12    | LH   | CN_1204      | 39              | 32 | 22 | 350            | 30 |    |
| 033288                               | S40V DCLNL 12    | LH   | CN_1204      | 48              | 40 | 27 | 400            | 37 |    |
| 033289                               | S25T DCLNR 12    | RH   | CN_1204      | 31              | 25 | 17 | 300            | 23 |    |
| 033290                               | S32U DCLNR 12    | RH   | CN_1204      | 39              | 32 | 22 | 350            | 30 |    |
| 033291                               | S40V DCLNR 12    | RH   | CN_1204      | 48              | 40 | 27 | 400            | 37 |    |
| 033292                               | *S40V DCLNL 16   | LH   | CN_1606      | 48              | 40 | 27 | 400            | 37 |    |
| 033293                               | *S50W DCLNL 16   | LH   | CN_1606      | 61              | 50 | 35 | 450            | 47 |    |
| 033294                               | *S40V DCLNR 16   | RH   | CN_1606      | 48              | 40 | 27 | 400            | 37 |  |
| 033295                               | *S50W DCLNR 16   | RH   | CN_1606      | 61              | 50 | 35 | 450            | 47 |  |



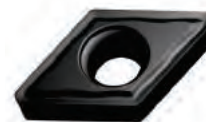
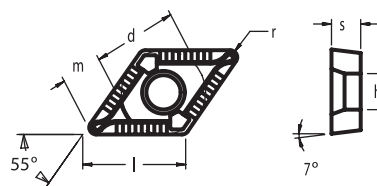
D Style Internal Boring Bar  
for Negative Inserts:  
CN\_1204 & CN\_1606  
Application:- I/D Face and Bore  
Axial Approach 95°  
Axial -5°  
Radial -13,5°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Bar Shown

| S..DCLNL/R Spare Parts |                                                                                                        |      |                                                                                                  |                                                                                                         |                                                                                                   |                                                                                                          |                                                                                                                  |          |        |      |        |        |
|------------------------|--------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------|--------|------|--------|--------|
| Item Description       | Clamp Screw<br>EDP  |      | Clamp<br>EDP  | Clamp<br>Spring EDP  | Anvil<br>EDP  | Anvil Screw<br>EDP  | Clamp & Anvil<br>Screw Key  |          |        |      |        |        |
| S25T DCLNL/R 12        | 033710                                                                                                 | 1696 | 033707                                                                                           | DC2712                                                                                                  | 033719                                                                                            | 4295                                                                                                     | 017456                                                                                                           | 3612     | 029095 | 1765 | 018287 | KH5004 |
| S32U DCLNL/R 12        |                                                                                                        |      |                                                                                                  |                                                                                                         |                                                                                                   |                                                                                                          | 029079                                                                                                           | ICC432   | 034508 | 1161 |        |        |
| S40V DCLNL/R 12        |                                                                                                        |      |                                                                                                  |                                                                                                         |                                                                                                   |                                                                                                          | 034507                                                                                                           | 1160     |        |      |        |        |
| *S40V DCLNL/R 16       |                                                                                                        |      |                                                                                                  |                                                                                                         |                                                                                                   |                                                                                                          |                                                                                                                  |          |        |      |        |        |
| *S50W DCLNL/R 16       |                                                                                                        |      |                                                                                                  |                                                                                                         |                                                                                                   |                                                                                                          |                                                                                                                  |          |        |      |        |        |
|                        |                                                                                                        |      | 034495                                                                                           | DC2716                                                                                                  |                                                                                                   |                                                                                                          | 001685                                                                                                           | ICSN-533 | 034509 | 1768 |        |        |





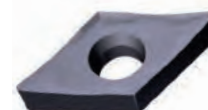
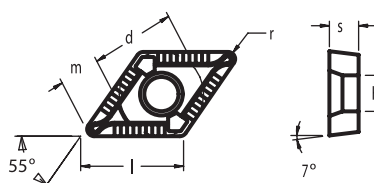
## DCGT & DCGX -62 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 031401 | DCGX0702005E-62 | SP4019 | 6,35            | 7,70  | 2,38 | 0,05           | 2,79 |          | Finishing   |
| 030577 | DCGT070201E-62  | SP4019 | 6,35            | 7,70  | 2,38 | 0,10           | 2,79 |          | Finishing   |
| 030578 | DCGT070202E-62  | SP4019 | 6,35            | 7,70  | 2,38 | 0,20           | 2,79 |          | Finishing   |
| 030579 | DCGT070204E-62  | SP4019 | 6,35            | 7,70  | 2,38 | 0,40           | 2,79 |          | Finishing   |
| 031402 | DCGX11T3005E-62 | SP4019 | 9,52            | 11,60 | 3,97 | 0,05           | 4,39 |          | Finishing   |
| 030581 | DCGT11T301E-62  | SP4019 | 9,52            | 11,60 | 3,97 | 0,10           | 4,39 |          | Finishing   |
| 030582 | DCGT11T302E-62  | SP4019 | 9,52            | 11,60 | 3,97 | 0,20           | 4,39 |          | Finishing   |
| 030583 | DCGT11T304E-62  | SP4019 | 9,52            | 11,60 | 3,97 | 0,40           | 4,39 |          | Finishing   |
| 030584 | DCGT11T308E-62  | SP4019 | 9,52            | 11,60 | 3,97 | 0,80           | 4,39 |          | Finishing   |

For Toolholders External: see pages C68 - C70 | Internal: see pages C71 - C73

## DCGT -64 Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 034465 | DCGT11T302F-64  | GH1   | 9,52            | 11,60 | 3,97 | 0,20           | 4,39 |          | Finishing   |
| 014068 | DCGT11T304F-64  | GH1   | 9,52            | 11,60 | 3,97 | 0,40           | 4,39 |          | Finishing   |
| 014069 | DCGT11T308F-64  | GH1   | 9,52            | 11,60 | 3,97 | 0,80           | 4,39 |          | Finishing   |

For Toolholders External: see pages C68 - C70 | Internal: see pages C71 - C73

## Material Guide – Key to Recommended Inserts

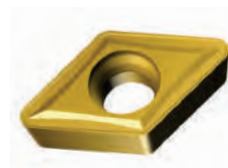
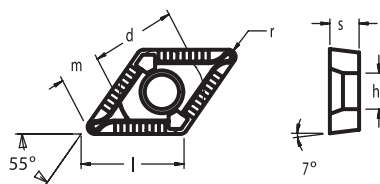
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





## DCMT -73 Geometry

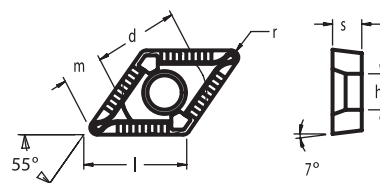


Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032501 | DCMT070202E-73  | SP4019 | 6,35            | 7,70  | 2,38 | 0,20           | 2,79 |          | Medium      |
| 032502 | DCMT070202E-73  | NL300  | 6,35            | 7,70  | 2,38 | 0,20           | 2,79 |          | Medium      |
| 032503 | DCMT070204E-73  | SP4019 | 6,35            | 7,70  | 2,38 | 0,40           | 2,79 |          | Medium      |
| 032504 | DCMT070204E-73  | NL300  | 6,35            | 7,70  | 2,38 | 0,40           | 2,79 |          | Medium      |
| 032285 | DCMT11T304E-73  | SP4019 | 9,52            | 11,60 | 3,97 | 0,40           | 4,39 |          | Medium      |
| 032505 | DCMT11T304E-73  | NL300  | 9,52            | 11,60 | 3,97 | 0,40           | 4,39 |          | Medium      |
| 032506 | DCMT11T304E-73  | NL920  | 9,52            | 11,60 | 3,97 | 0,40           | 4,39 |          | Medium      |
| 032297 | DCMT11T308E-73  | SP4019 | 9,52            | 11,60 | 3,97 | 0,80           | 4,39 |          | Medium      |
| 032507 | DCMT11T308E-73  | NL300  | 9,52            | 11,60 | 3,97 | 0,80           | 4,39 |          | Medium      |
| 032508 | DCMT11T308E-73  | NL920  | 9,52            | 11,60 | 3,97 | 0,80           | 4,39 |          | Medium      |

For Toolholders External: see pages C68 - C70 | Internal: see pages C71 - C73

## DCMT M Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032509 | DCMT150404E-M   | SP4019 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 032510 | DCMT150404E-M   | NL300  | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 032511 | DCMT150408E-M   | SP4019 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032512 | DCMT150408E-M   | NL300  | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032513 | DCMT150408E-M   | NL920  | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |

For Toolholders External: see pages C68 - C70 | Internal: see pages C71 - C73

## Material Guide – Key to Recommended Inserts

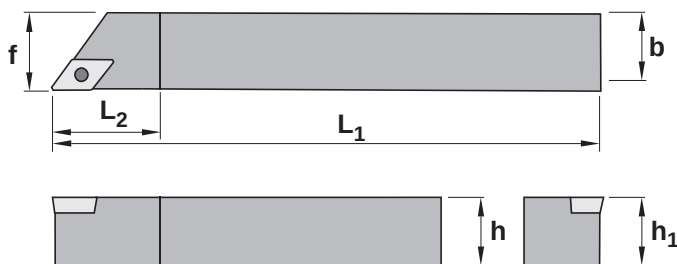
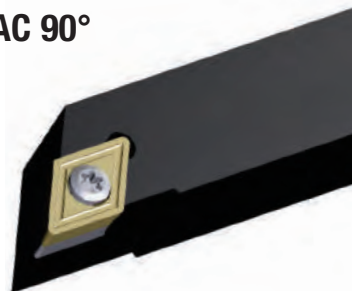
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



Turning Inserts

**SDAC 90°**



**SDAC LH & RH External Square Shank Toolholders**

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 025072 | SDACL 1010 M07   | LH   | DC_0702      | 10                 | 10 | 10 | 150            | 15             |
| 033486 | SDACL 1212 M07   | LH   | DC_0702      | 12                 | 12 | 12 | 150            | 15             |
| 025071 | SDACR 1010 M07   | RH   | DC_0702      | 10                 | 10 | 10 | 150            | 15             |
| 033487 | SDACR 1212 M07   | RH   | DC_0702      | 12                 | 12 | 12 | 150            | 15             |
| 025074 | SDACL 1212 M11   | LH   | DC_11T3      | 12                 | 12 | 12 | 150            | 19             |
| 025076 | SDACL 1616 M11   | LH   | DC_11T3      | 16                 | 16 | 16 | 150            | 19             |
| 025078 | SDACL 2020 K11   | LH   | DC_11T3      | 20                 | 20 | 20 | 125            | 20             |
| 025073 | SDACR 1212 M11   | RH   | DC_11T3      | 12                 | 12 | 12 | 150            | 19             |
| 025075 | SDACR 1616 M11   | RH   | DC_11T3      | 16                 | 16 | 16 | 150            | 19             |
| 025077 | SDACR 2020 K11   | RH   | DC_11T3      | 20                 | 20 | 20 | 125            | 20             |



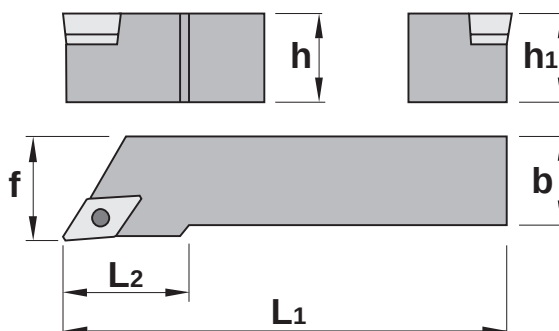
S Style External Toolholder  
for Positive Inserts:  
DC\_0702 and DC\_11T3  
Application: O/D Profiling  
Approach 90°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 32^\circ$   
RH Holder Shown

**SDACL/R Spare Parts**

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SDACL/R 1010 M07 | 015061              | F25007T                                                                             | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SDACL/R 1212 M07 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SDACL/R 1212 M11 | 015262              | D4010T                                                                              | 015240            | T15                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |
| SDACL/R 1616 M11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SDACL/R 2020 K11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



**SDJC 93°**



Turning Inserts

SDJC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 028462 | SDJCL 1010 E07   | LH   | DC_0702      | 10                 | 10 | 12 | 70             | 14             |
| 018001 | SDJCL 1212 F07   | LH   | DC_0702      | 12                 | 12 | 16 | 80             | 16             |
| 028469 | SDJCR 1010 E07   | RH   | DC_0702      | 10                 | 10 | 12 | 70             | 14             |
| 018010 | SDJCR 1212 F07   | RH   | DC_0702      | 12                 | 12 | 16 | 80             | 16             |
| 018002 | SDJCL 1212 F11   | LH   | DC_11T3      | 12                 | 12 | 16 | 80             | 20             |
| 028464 | SDJCL 1616 H11   | LH   | DC_11T3      | 16                 | 16 | 20 | 100            | 18             |
| 028465 | SDJCL 2020 K11   | LH   | DC_11T3      | 20                 | 20 | 25 | 125            | 22             |
| 028466 | SDJCL 2525 M11   | LH   | DC_11T3      | 25                 | 25 | 32 | 150            | 28             |
| 018011 | SDJCR 1212 F11   | RH   | DC_11T3      | 12                 | 12 | 16 | 80             | 20             |
| 028470 | SDJCR 1616 H11   | RH   | DC_11T3      | 16                 | 16 | 20 | 100            | 18             |
| 028471 | SDJCR 2020 K11   | RH   | DC_11T3      | 20                 | 20 | 25 | 125            | 22             |
| 028472 | SDJCR 2525 M11   | RH   | DC_11T3      | 25                 | 25 | 32 | 150            | 28             |



S Style External Toolholder  
for Positive Inserts:  
DC\_0702 and DC\_11T3  
Application: Facing and O/D Profiling  
Approach 93°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 29^\circ$   
RH Holder Shown

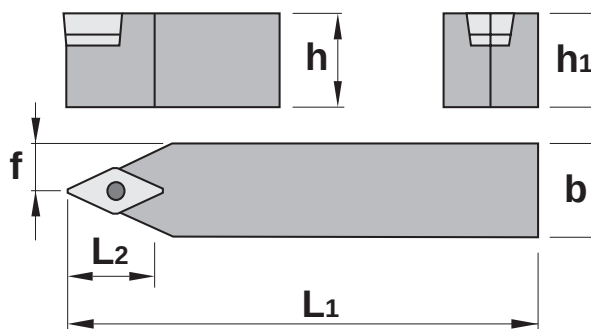
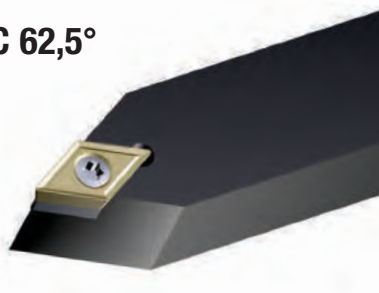
SDJCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SDJCL/R 1010 E07 | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SDJCL/R 1212 F07 |                     |                                                                                     | 015240            | T15                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |
| SDJCL/R 1212 F11 |                     |                                                                                     | 028475            | K5516                                                                               | 028477       | SA3714                                                                                | 028478             | SAS1750                                                                               |
| SDJCL/R 1616 H11 | 034497              | 1335                                                                                |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SDJCL/R 2020 K11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SDJCL/R 2525 M11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



Turning Inserts

**SDNC 62,5°**



SDNC Neutral External Square Shank Toolholders

| EDP    | Item Description | Hand    | Insert Sizes | Dimensions (mm) |    |      |     |    |
|--------|------------------|---------|--------------|-----------------|----|------|-----|----|
|        |                  |         |              | $h = h_1$       | b  | f    | L1  | L2 |
| 028519 | SDNC N 1010 E07  | Neutral | DC_0702      | 10              | 10 | 5    | 70  | 16 |
| 028520 | SDNC N 1212 F07  | Neutral | DC_0702      | 12              | 12 | 6    | 80  | 16 |
| 028522 | SDNC N 1616 H11  | Neutral | DC_11T3      | 16              | 16 | 8    | 100 | 22 |
| 028523 | SDNC N 2020 K11  | Neutral | DC_11T3      | 20              | 20 | 10   | 125 | 22 |
| 028524 | SDNC N 2525 M11  | Neutral | DC_11T3      | 25              | 25 | 12,5 | 150 | 22 |



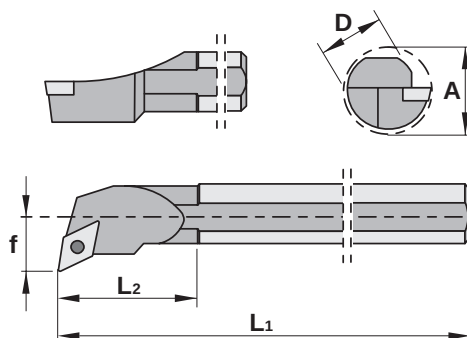
S Style External Toolholder  
for Positive Inserts:  
DC\_0702, and DC\_11T3  
Application: Plunge and O/D Profiling  
Approach 62,5°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 59,5^\circ$   
Neutral Holder Shown

SDNC Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SDNC N 1010 E07  | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SDNC N 1212 F07  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SDNC N 1010 E07  | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028477       | SA3714                                                                                | 028739             | SAS1750                                                                               |
| SDNC N 1212 F07  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SDJCL/R 2525 M11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



## A.. SDUC 93°



Turning Inserts

A.. SDUC LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |                                                                                       |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|---------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | L2 | Through Coolant                                                                       |
| 018357 | A12K SDUCL 07    | LH   | DC_0702      | 16              | 12 | 9  | 125 | 23 |    |
| 018359 | A16M SDUCL 07    | LH   | DC_0702      | 20              | 16 | 11 | 150 | 31 |    |
| 018358 | A12K SDUCR 07    | RH   | DC_0702      | 16              | 12 | 9  | 125 | 23 |    |
| 018360 | A16M SDUCR 07    | RH   | DC_0702      | 20              | 16 | 11 | 150 | 31 |    |
| 018361 | A20Q SDUCL 11    | LH   | DC_11T3      | 24              | 20 | 13 | 180 | 36 |   |
| 017990 | A25R SDUCL 11    | LH   | DC_11T3      | 31              | 25 | 17 | 200 | 42 |  |
| 018363 | A32S SDUCL 11    | LH   | DC_11T3      | 39              | 32 | 22 | 250 | 45 |  |
| 018362 | A20Q SDUCR 11    | RH   | DC_11T3      | 24              | 20 | 13 | 180 | 36 |  |
| 017991 | A25R SDUCR 11    | RH   | DC_11T3      | 31              | 25 | 17 | 200 | 42 |  |
| 018364 | A32S SDUCR 11    | RH   | DC_11T3      | 39              | 32 | 22 | 250 | 45 |  |



S Style Boring Bar  
for Positive Inserts:  
DC\_0702, and DC\_11T3  
Application: I/D Profiling  
Approach 93°  
Axial 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 29^\circ$   
RH Bar Shown

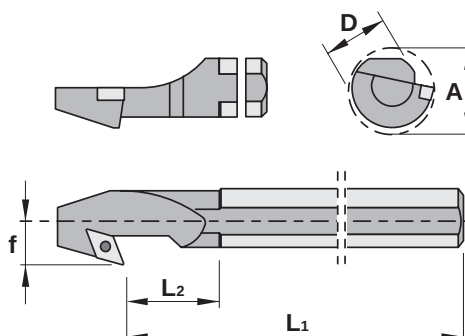
A.. SDUCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| A12K SDUCL/R 07  | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| A16M SDUCL/R 07  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A20Q SDUCL/R 11  | 015262              | D4010T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| A25R SDUCL/R 11  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A32S SDUCL/R 11  | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028477       | SA3714                                                                                | 028478             | SAS1750                                                                               |



Turning Inserts

## A.. SDUC 93°-EX



A.. SDUC -EX LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |                 |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|-----------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | L2 | Through Coolant |
| 034596 | A12K SDUCL 07-EX | LH   | DC_0702      | 16              | 12 | 9  | 125 | 32 | 💧               |
| 034597 | A16M SDUCL 07-EX | LH   | DC_0702      | 20              | 16 | 11 | 150 | 40 | 💧               |
| 034598 | A12K SDUCR 07-EX | RH   | DC_0702      | 16              | 12 | 9  | 125 | 32 | 💧               |
| 034599 | A16M SDUCR 07-EX | RH   | DC_0702      | 20              | 16 | 11 | 150 | 40 | 💧               |
| 034600 | A20Q SDUCL 11-EX | LH   | DC_11T3      | 24              | 20 | 13 | 180 | 45 | 💧               |
| 034601 | A25R SDUCL 11-EX | LH   | DC_11T3      | 31              | 25 | 17 | 200 | 50 | 💧               |
| 034602 | A20Q SDUCR 11-EX | RH   | DC_11T3      | 24              | 20 | 13 | 180 | 45 | 💧               |
| 034603 | A25R SDUCR 11-EX | RH   | DC_11T3      | 31              | 25 | 17 | 200 | 50 | 💧               |



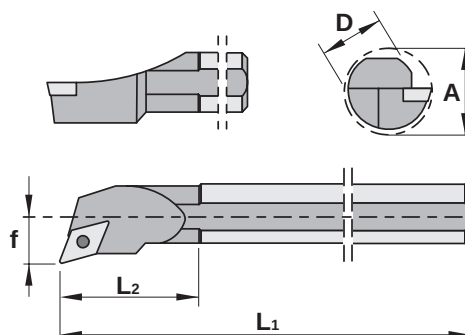
S Style Boring Bar  
for Positive Inserts:  
DC\_0702, and DC\_11T3  
Application: Back Boring and Profiling  
Approach 93°  
Axial 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 29^\circ$   
RH Bar Shown

A.. SDUCL/R -EX Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| A12K SDUCL/R 07  | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| A16M SDUCL/R 07  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A20Q SDUCL/R 11  | 034499              | 1440                                                                                | 015240            | T15                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |
| A25R SDUCL/R 11  | 015262              | D4010T                                                                              |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



## A.. SDQC 107,5°



Turning Inserts

A.. SDQC LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |                |                                                                                       |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----------------|---------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | L <sub>2</sub> | Through Coolant                                                                       |
| 033507 | A12K SDQCL 07    | LH   | DC_0702      | 16              | 12 | 9  | 125            | 23             |    |
| 033508 | A16M SDQCL 07    | LH   | DC_0702      | 20              | 16 | 11 | 150            | 31             |    |
| 033509 | A12K SDQCR 07    | RH   | DC_0702      | 16              | 12 | 9  | 125            | 23             |    |
| 033510 | A16M SDQCR 07    | RH   | DC_0702      | 20              | 16 | 11 | 150            | 31             |    |
| 033511 | A20Q SDQCL 11    | LH   | DC_11T3      | 24              | 20 | 13 | 180            | 36             |    |
| 033512 | A25R SDQCL 11    | LH   | DC_11T3      | 31              | 25 | 17 | 200            | 42             |  |
| 033513 | A20Q SDQCR 11    | RH   | DC_11T3      | 24              | 20 | 13 | 180            | 36             |  |
| 033514 | A25R SDQCR 11    | RH   | DC_11T3      | 31              | 25 | 17 | 200            | 42             |  |



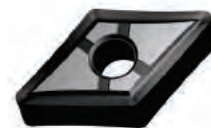
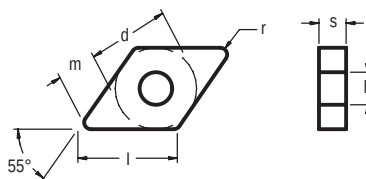
S Style Boring Bar  
for Positive Inserts:  
DC\_0702, and DC\_11T3  
Application: Face and I/D Profiling  
Approach 107,5°  
Axial: 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 14,5^\circ$   
RH Bar Shown

A.. SDQCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| A12K SDQCL/R 07  | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| A16M SDQCL/R 07  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A20Q SDQCL/R 11  | 015262              | D4010T                                                                              | 015240            | T15                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |
| A25R SDQCL/R 11  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



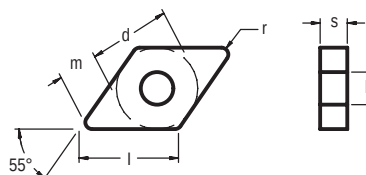
**DNGG**  
3F Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 031561 | DNGG150402F-3F  | SP0819 | 12,70           | 15,50 | 4,76 | 0,20           | 5,16 |          | Medium      |
| 031562 | DNGG150404F-3F  | SP0819 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 031563 | DNGG150408F-3F  | SP0819 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 031564 | DNGG150412F-3F  | SP0819 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 031547 | DNGG150602F-3F  | SP0819 | 12,70           | 15,50 | 6,35 | 0,20           | 5,16 |          | Medium      |
| 031548 | DNGG150604F-3F  | SP0819 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Medium      |
| 031565 | DNGG150608F-3F  | SP0819 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Medium      |
| 031566 | DNGG150612F-3F  | SP0819 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Medium      |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

**DNMA**  
Flat Top



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application    |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|----------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |                |
| 032514 | DNMA150408E     | NL250 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Heavy-Roughing |
| 034471 | DNMA150412E     | NL250 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Heavy-Roughing |
| 032515 | DNMA150608E     | NL250 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Heavy-Roughing |
| 032516 | DNMA150612E     | NL250 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Heavy-Roughing |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

**Material Guide – Key to Recommended Inserts**

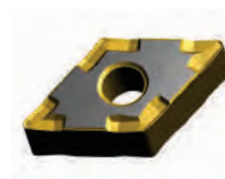
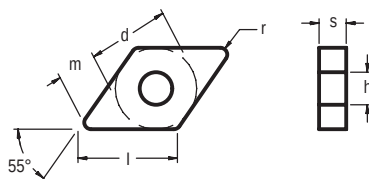
**Material Designation**

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





## DNMG 1B Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032517 | DNMG110404E-1B  | NL250  | 9,52            | 11,00 | 4,76 | 0,40           | 4,39 |          | Finishing   |
| 030869 | DNMG110404E-1B  | SP0819 | 9,52            | 11,00 | 4,76 | 0,40           | 4,39 |          | Finishing   |
| 032518 | DNMG110408E-1B  | NL250  | 9,52            | 11,00 | 4,76 | 0,80           | 4,39 |          | Finishing   |
| 030870 | DNMG110408E-1B  | SP0819 | 9,52            | 11,00 | 4,76 | 0,80           | 4,39 |          | Finishing   |
| 032519 | DNMG150404E-1B  | NL250  | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Finishing   |
| 030872 | DNMG150404E-1B  | SP0819 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Finishing   |
| 032520 | DNMG150408E-1B  | NL250  | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Finishing   |
| 030873 | DNMG150408E-1B  | SP0819 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Finishing   |
| 030874 | DNMG150412E-1B  | SP0819 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Finishing   |
| 032521 | DNMG150412E-1B  | NL250  | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Finishing   |
| 030875 | DNMG150604E-1B  | SP0819 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Finishing   |
| 032522 | DNMG150604E-1B  | NL250  | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Finishing   |
| 032523 | DNMG150608E-1B  | NL250  | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Finishing   |
| 030876 | DNMG150608E-1B  | SP0819 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Finishing   |
| 030877 | DNMG150612E-1B  | SP0819 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Finishing   |
| 032524 | DNMG150612E-1B  | NL250  | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Finishing   |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

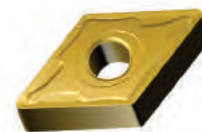
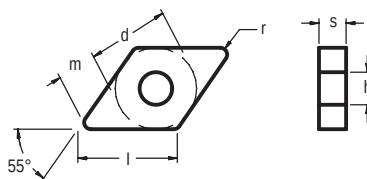
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**DNMG**  
2N Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |       |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|-------|------|----------|-------------|
|        |                 |       | d               | l     | s    | $r_e$ | h    |          |             |
| 032525 | DNMG110404E-2N  | NL250 | 9,52            | 11,00 | 4,76 | 0,40  | 4,39 |          | Medium      |
| 032526 | DNMG110404E-2N  | NL300 | 9,52            | 11,00 | 4,76 | 0,40  | 4,39 |          | Medium      |
| 032527 | DNMG110404E-2N  | NL920 | 9,52            | 11,00 | 4,76 | 0,40  | 4,39 |          | Medium      |
| 032528 | DNMG110408E-2N  | NL250 | 9,52            | 11,00 | 4,76 | 0,80  | 4,39 |          | Medium      |
| 032529 | DNMG110408E-2N  | NL300 | 9,52            | 11,00 | 4,76 | 0,80  | 4,39 |          | Medium      |
| 032530 | DNMG110408E-2N  | NL920 | 9,52            | 11,00 | 4,76 | 0,80  | 4,39 |          | Medium      |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

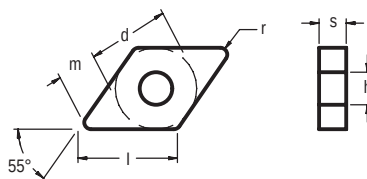
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## DNMG 2N Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032531 | DNMG150404E-2N  | NL250 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 032532 | DNMG150404E-2N  | NL300 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 032533 | DNMG150404E-2N  | NL920 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 032534 | DNMG150408E-2N  | NL250 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032535 | DNMG150408E-2N  | NL300 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032536 | DNMG150408E-2N  | NL920 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032537 | DNMG150412E-2N  | NL250 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 034472 | DNMG150412E-2N  | NL300 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 032539 | DNMG150604E-2N  | NL250 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Medium      |
| 032540 | DNMG150604E-2N  | NL300 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Medium      |
| 032541 | DNMG150604E-2N  | NL920 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Medium      |
| 032542 | DNMG150608E-2N  | NL250 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Medium      |
| 032543 | DNMG150608E-2N  | NL300 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Medium      |
| 032544 | DNMG150608E-2N  | NL920 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Medium      |
| 032545 | DNMG150612E-2N  | NL250 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Medium      |
| 032546 | DNMG150612E-2N  | NL300 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Medium      |
| 032547 | DNMG150612E-2N  | NL920 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Medium      |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

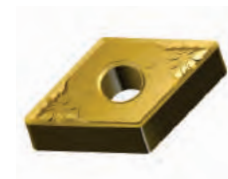
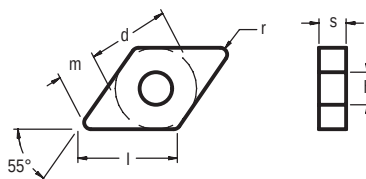
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**DNMG**  
3J Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032548 | DNMG110404E-3J  | SP4019 | 9,52            | 11,00 | 4,76 | 0,40           | 4,39 |          | Medium      |
| 032549 | DNMG110408E-3J  | SP4019 | 9,52            | 11,00 | 4,76 | 0,80           | 4,39 |          | Medium      |
| 032550 | DNMG150404E-3J  | SP4019 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 032551 | DNMG150408E-3J  | SP4019 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032552 | DNMG150412E-3J  | SP4019 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 032553 | DNMG150604E-3J  | SP4019 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Medium      |
| 032554 | DNMG150608E-3J  | SP4019 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Medium      |
| 032555 | DNMG150612E-3J  | SP4019 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Medium      |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

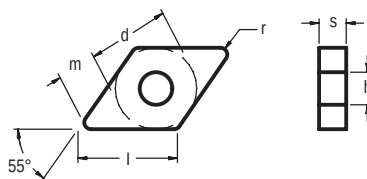
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## DNMG 4E Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material                                                                              | Application     |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|---------------------------------------------------------------------------------------|-----------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |                                                                                       |                 |
| 030516 | DNMG150404E-4E  | SP0819 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |    | Medium-Roughing |
| 030517 | DNMG150408E-4E  | SP0819 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |    | Medium-Roughing |
| 032556 | DNMG150408E-4E  | NL400  | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |    | Medium-Roughing |
| 030518 | DNMG150412E-4E  | SP0819 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |    | Medium-Roughing |
| 032557 | DNMG150412E-4E  | NL400  | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |    | Medium-Roughing |
| 030524 | DNMG150604E-4E  | SP0819 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |    | Medium-Roughing |
| 030525 | DNMG150608E-4E  | SP0819 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |    | Medium-Roughing |
| 032558 | DNMG150608E-4E  | NL400  | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |   | Medium-Roughing |
| 030526 | DNMG150612E-4E  | SP0819 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |  | Medium-Roughing |
| 032559 | DNMG150612E-4E  | NL400  | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |  | Medium-Roughing |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

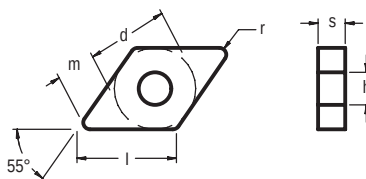
## Material Guide – Key to Recommended Inserts

### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



**DNMG**  
4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032560 | DNMG150404E-4T  | NL250 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032561 | DNMG150404E-4T  | NL300 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032562 | DNMG150404E-4T  | NL400 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032563 | DNMG150404E-4T  | NL920 | 12,70           | 15,50 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032564 | DNMG150408E-4T  | NL250 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032565 | DNMG150408E-4T  | NL300 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032566 | DNMG150408E-4T  | NL400 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032567 | DNMG150408E-4T  | NL920 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032568 | DNMG150412E-4T  | NL250 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032569 | DNMG150412E-4T  | NL300 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032570 | DNMG150412E-4T  | NL400 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032571 | DNMG150412E-4T  | NL920 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032572 | DNMG150604E-4T  | NL250 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Roughing    |
| 032573 | DNMG150604E-4T  | NL300 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Roughing    |
| 032574 | DNMG150604E-4T  | NL400 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Roughing    |
| 032575 | DNMG150604E-4T  | NL920 | 12,70           | 15,50 | 6,35 | 0,40           | 5,16 |          | Roughing    |
| 032576 | DNMG150608E-4T  | NL250 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Roughing    |
| 032577 | DNMG150608E-4T  | NL300 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Roughing    |
| 032578 | DNMG150608E-4T  | NL400 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Roughing    |
| 032579 | DNMG150608E-4T  | NL920 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Roughing    |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

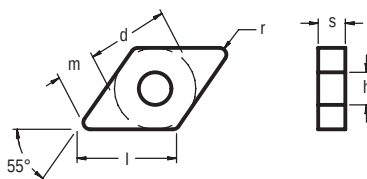
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**DNMG**  
4T Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032580 | DNMG150612E-4T  | NL250 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Roughing    |
| 032581 | DNMG150612E-4T  | NL300 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Roughing    |
| 032582 | DNMG150612E-4T  | NL400 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Roughing    |
| 032583 | DNMG150612E-4T  | NL920 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Roughing    |
| 032584 | DNMG190608E-4T  | NL250 | 15,88           | 19,40 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032585 | DNMG190608E-4T  | NL300 | 15,88           | 19,40 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032586 | DNMG190608E-4T  | NL400 | 15,88           | 19,40 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032587 | DNMG190608E-4T  | NL920 | 15,88           | 19,40 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032588 | DNMG190612E-4T  | NL250 | 15,88           | 19,40 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032589 | DNMG190612E-4T  | NL300 | 15,88           | 19,40 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032590 | DNMG190612E-4T  | NL400 | 15,88           | 19,40 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032591 | DNMG190612E-4T  | NL920 | 15,88           | 19,40 | 6,35 | 1,20           | 6,35 |          | Roughing    |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

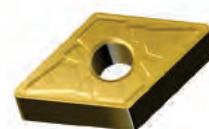
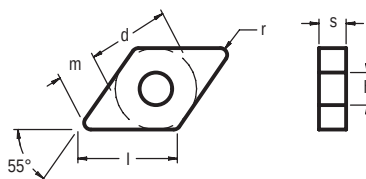
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**DNMG**  
4U Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032592 | DNMG150408E-4U  | NL200 | 12,70           | 15,50 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032593 | DNMG150412E-4U  | NL200 | 12,70           | 15,50 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032594 | DNMG150608E-4U  | NL200 | 12,70           | 15,50 | 6,35 | 0,80           | 5,16 |          | Roughing    |
| 032595 | DNMG150612E-4U  | NL200 | 12,70           | 15,50 | 6,35 | 1,20           | 5,16 |          | Roughing    |

For Toolholders External: see pages C83 - C85 | Internal: see pages C86 - C87

## Material Guide – Key to Recommended Inserts

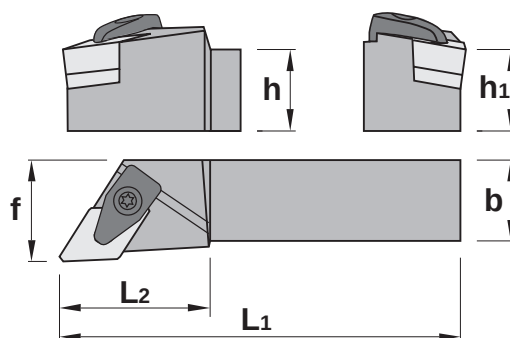
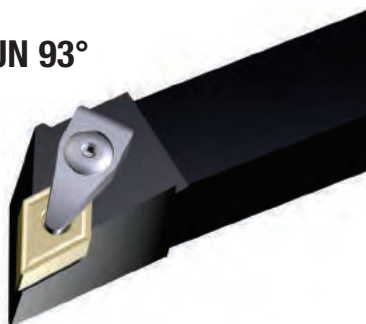
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





**DDJN 93°**



Turning Inserts

DDJN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |     |     |       |       |
|--------|------------------|------|--------------|-----------------|-----|-----|-------|-------|
|        |                  |      |              | $h = h_1$       | $b$ | $f$ | $L_1$ | $L_2$ |
| 033306 | DDJNL 2020 K 11  | LH   | DN_1104      | 20              | 20  | 25  | 125   | 34    |
| 033307 | DDJNL 2525 M11   | LH   | DN_1104      | 25              | 25  | 32  | 150   | 34    |
| 033308 | DDJNR 2020 K11   | RH   | DN_1104      | 20              | 20  | 25  | 125   | 34    |
| 033309 | DDJNR 2525 M11   | RH   | DN_1104      | 25              | 25  | 32  | 150   | 34    |
| 033310 | DDJNL 2020 K 15  | LH   | DN_1506      | 20              | 20  | 25  | 125   | 38    |
| 033311 | DDJNL 2525 M15   | LH   | DN_1506      | 25              | 25  | 32  | 150   | 38    |
| 033312 | DDJNL 3232 P15   | LH   | DN_1506      | 32              | 32  | 40  | 170   | 38    |
| 033313 | DDJNR 2020 K15   | RH   | DN_1506      | 20              | 20  | 25  | 125   | 38    |
| 033314 | DDJNR 2525 M15   | RH   | DN_1506      | 25              | 25  | 32  | 150   | 38    |
| 033315 | DDJNR 3232 P15   | RH   | DN_1506      | 32              | 32  | 40  | 170   | 38    |



D Style External Toolholder  
for Negative Inserts:  
DN\_1104 & DN\_1506  
Application: Turn and Profile  
Axial Approach 93°  
Axial -6,25  
Radial -6,75  
Profiling Clearance Angle  $\beta = 29^\circ$   
RH Holder Shown

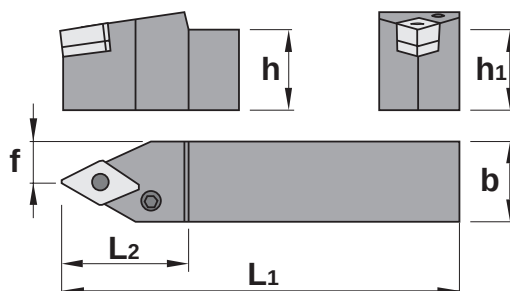
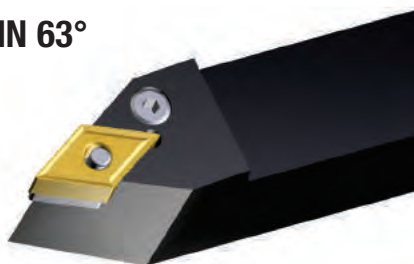
DDJNL/R Spare Parts

| Item Description | Clamp Screw<br>EDP  |      | Clamp<br>EDP  |        | Clamp<br>Spring EDP  |      | Anvil<br>EDP  |         | Anvil Screw<br>EDP  |      | Clamp & Anvil<br>Screw Key  |        |
|------------------|--------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------|--------|
| DDJNL/R 2020 K11 | 033711                                                                                                 | 1695 | 033709                                                                                           | DC2708 | 033720                                                                                                  | 4294 | 034496                                                                                             | IDSN322 | 033718                                                                                                   | 1764 | 018286                                                                                                           | KH5003 |
| DDJNL/R 2525 M11 |                                                                                                        |      |                                                                                                  |        |                                                                                                         |      |                                                                                                    |         |                                                                                                          |      |                                                                                                                  |        |
| DDJNL/R 2020 K15 | 033710                                                                                                 | 1696 | 033707                                                                                           | DC2712 | 033719                                                                                                  | 4295 | 001689                                                                                             | IDSN433 | 033716                                                                                                   | 1766 | 018287                                                                                                           | KH5004 |
| DDJNL/R 2525 M15 |                                                                                                        |      |                                                                                                  |        |                                                                                                         |      |                                                                                                    |         |                                                                                                          |      |                                                                                                                  |        |
| DDJNL/R 3232 P15 |                                                                                                        |      |                                                                                                  |        |                                                                                                         |      |                                                                                                    |         |                                                                                                          |      |                                                                                                                  |        |



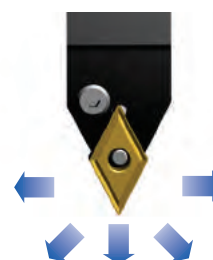
Turning Inserts

**PDNN 63°**



PDNN External Square Shank Toolholders

| EDP    | Item Description | Hand    | Insert Sizes | Dimensions (mm) |    |      |                |                |
|--------|------------------|---------|--------------|-----------------|----|------|----------------|----------------|
|        |                  |         |              | $h = h_1$       | b  | f    | L <sub>1</sub> | L <sub>2</sub> |
| 017140 | PDNN N 2020 K15  | Neutral | DN_1506      | 20              | 20 | 10   | 125            | 34             |
| 017142 | PDNN N 2525 M15  | Neutral | DN_1506      | 25              | 25 | 12,5 | 150            | 34             |
| 017144 | PDNN N 3232 P15  | Neutral | DN_1506      | 32              | 32 | 16   | 170            | 34             |



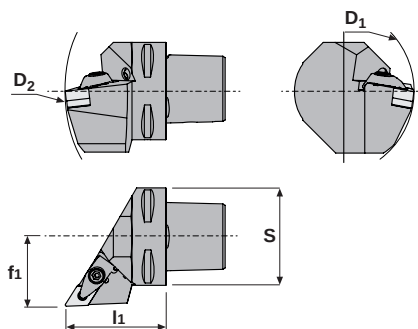
P Style External Toolholder  
for Negative Inserts: DN\_1506  
Application: External Plunge, Turn & Profile  
Axial Approach 63°  
Axial -8°  
Radial -2,5°  
Profiling Clearance Angle  $\beta = 59.5^\circ$   
Neutral Holder Shown

PDNN Spare Parts

| Item Description | Lever<br>EDP |  | Lever<br>Screw<br>EDP |  | Anvil<br>EDP |  | Anvil<br>Clip<br>EDP |  | Clip Punch<br>EDP |  | Key<br>EDP |  |
|------------------|--------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------|
| PDNN N 2020 K15  | 017444       | PL8415                                                                              | 017499                | PLS1638                                                                             | 017459       | PA3715                                                                              | 017453               | PC4112                                                                                | 028054            | PCP0012                                                                               | 018286     | KH5003                                                                                |
| PDNN N 2525 M15  |              |                                                                                     |                       |                                                                                     |              |                                                                                     |                      |                                                                                       |                   |                                                                                       |            |                                                                                       |
| PDNN N 3232 P15  |              |                                                                                     |                       |                                                                                     |              |                                                                                     |                      |                                                                                       |                   |                                                                                       |            |                                                                                       |



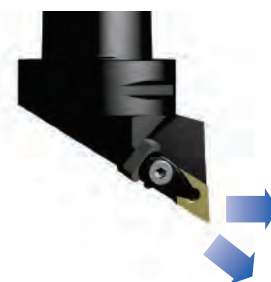
**DDJN 93°**



Turning Inserts

DDJN LH & RH External PSC Toolholders

| EDP    | Item Description    | Hand | Insert Sizes | Dimensions (mm) |     |     |    |    |
|--------|---------------------|------|--------------|-----------------|-----|-----|----|----|
|        |                     |      |              | S               | D1  | D2  | f1 | l1 |
| 033697 | C5-50-DDJNL35060-15 | LH   | DN_1506      | 50              | 110 | 165 | 35 | 60 |
| 033698 | C5-50-DDJNR35060-15 | RH   | DN_1506      | 50              | 110 | 165 | 35 | 60 |
| 033699 | C6-63-DDJNL45065-15 | LH   | DN_1506      | 63              | 110 | 190 | 45 | 65 |
| 033700 | C6-63-DDJNR45065-15 | RH   | DN_1506      | 63              | 110 | 190 | 45 | 65 |



D Style External Toolholder  
for Negative Inserts:  
DN\_1506  
Application: External Profile Turn O/D  
Approach 93  
Axial -6°  
Radial -7°  
Profiling Clearance Angle  $\beta = 27^\circ$   
RH Holder Shown

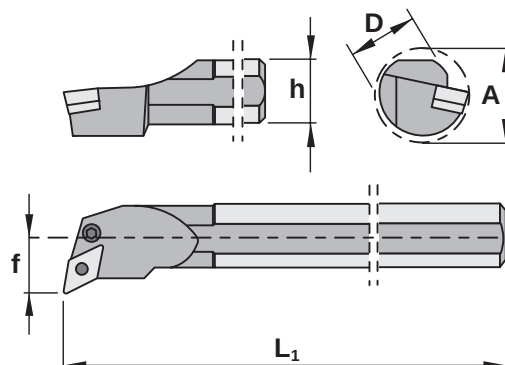
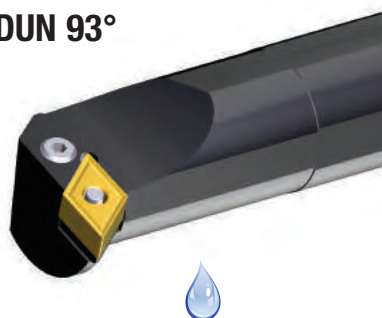
DDJNL/R Spare Parts

| Item Description       | Clamp EDP  |      | Clamp Screw EDP  |      | Anvil EDP  |         | Anvil Screw EDP  |      | Clamp Spring EDP  |      | Screw Key EDP  |        |
|------------------------|-----------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------|--------|
| C5-50-DDJNL/R 35060-15 | 033707                                                                                        | 2712 | 033710                                                                                              | 1696 | 033713                                                                                        | IDSN432 | 033716                                                                                              | 1766 | 033719                                                                                                 | 4295 | 018287                                                                                              | KH5004 |
| C6-63-DDJNL/R 45065-15 |                                                                                               |      |                                                                                                     |      |                                                                                               |         |                                                                                                     |      |                                                                                                        |      |                                                                                                     |        |



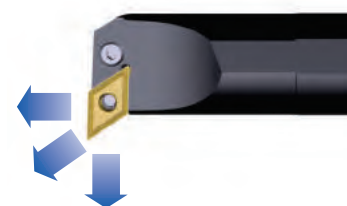
Turning Inserts

## A..PDUN 93°



A..PDUN LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |    |                                                                                     |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----|-------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | h  | Through Coolant                                                                     |
| 033334 | A25R PDUNL 11    | LH   | DN_1104      | 31              | 25 | 17 | 200            | 23 |  |
| 033335 | A25R PDUNR 11    | RH   | DN_1104      | 31              | 25 | 17 | 200            | 23 |  |
| 033336 | A32S PDUNL 15    | LH   | DN_1506      | 39              | 32 | 22 | 250            | 30 |  |
| 033337 | A40T PDUNL 15    | LH   | DN_1506      | 48              | 40 | 27 | 300            | 37 |  |
| 033338 | A32S PDUNR 15    | RH   | DN_1506      | 39              | 32 | 22 | 250            | 30 |  |
| 033339 | A40T PDUNR 15    | RH   | DN_1506      | 48              | 40 | 27 | 300            | 37 |  |



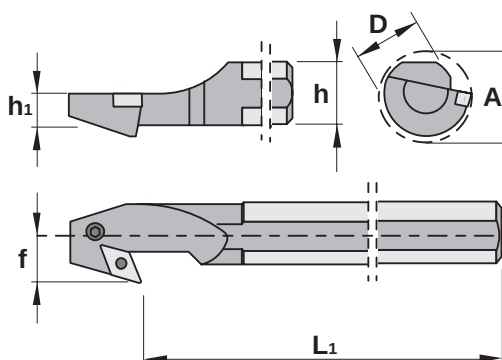
P Style Boring Bar  
for Negative Inserts:  
DN\_1104 & DN\_1506  
Application: Bore and profile  
Axial Approach 93°  
Axial -6°  
Radial -14°  
Profiling Clearance Angle  $\beta = 29^\circ$   
RH Bar Shown

A..PDUNL/R Spare Parts

| Item Description | Lever EDP  | Lever Screw EDP  | Anvil EDP  | Anvil Clip EDP  | Clip Punch EDP  | Key EDP  |        |        |        |         |        |        |
|------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------|--------|--------|---------|--------|--------|
| A25R PDUNL/R 11  | 017442                                                                                        | PL8009                                                                                              | 017447                                                                                         | PLS1606                                                                                              | 028375                                                                                               | PA3711                                                                                        | 000000 | PC4109 | 028053 | PCP0009 | 018285 | KH5025 |
| A32S PDUNL/R 15  | 017444                                                                                        | PL8415                                                                                              | 022625                                                                                         | PLS1648                                                                                              | 017459                                                                                               | PA3715                                                                                        | 017453 | PC4112 | 028054 | PCP0012 | 018286 | KH5003 |
| A40T PDUNL/R 15  |                                                                                               |                                                                                                     |                                                                                                |                                                                                                      |                                                                                                      |                                                                                               |        |        |        |         |        |        |



## S..PDUN 93°-EX



Turning Inserts

S..PDUN LH & RH Internal Boring Bars

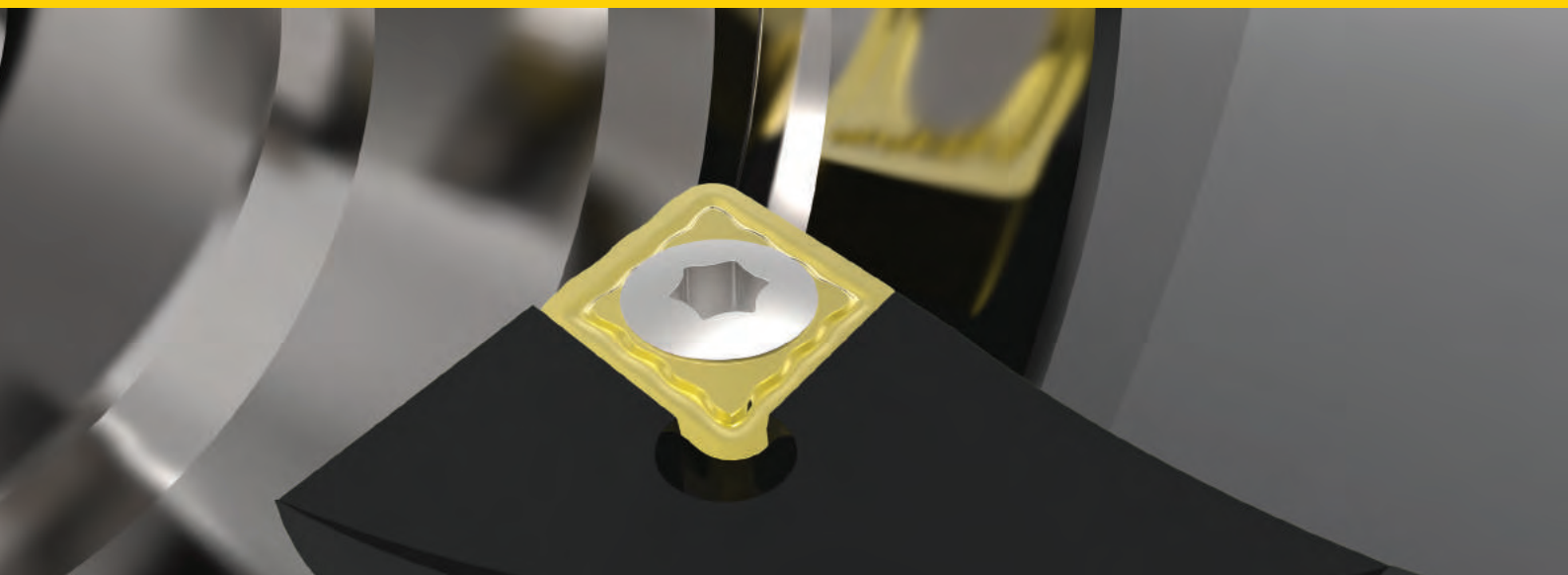
| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |      |  | Through Coolant |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|------|--|-----------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | h  | h1   |  |                 |
| 033346 | S32U PDUNL 15-EX | LH   | DN_1506      | 39              | 32 | 22 | 350 | 30 | 15   |  |                 |
| 033347 | S40V PDUNL 15-EX | LH   | DN_1506      | 48              | 40 | 27 | 400 | 37 | 18,5 |  |                 |
| 033348 | S32U PDUNR 15-EX | RH   | DN_1506      | 39              | 32 | 22 | 350 | 30 | 15   |  |                 |
| 033349 | S40V PDUNR 15-EX | RH   | DN_1506      | 48              | 40 | 27 | 400 | 37 | 18,5 |  |                 |



P Style Internal Boring Bar  
Negative Inserts: DN\_1506  
Application: Internal Back Boring & Profiling  
Axial Approach 93°  
Profiling Clearance Angle  $\beta = 29^\circ$   
RH Bar Shown

S..PDUNL/R -EX Spare Parts

| Item Description   | Lever EDP  |        | Lever Screw EDP  |         | Anvil EDP  | Anvil Clip EDP  |        | Clip Punch EDP  |        | Key EDP  |        |
|--------------------|-----------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------|--------|
| S32U PDUNL/R 15-EX | 017444                                                                                        | PL8415 | 022625                                                                                              | PLS1648 | -                                                                                              | -                                                                                                    | -      | -                                                                                                    | -      | 018286                                                                                        | KH5003 |
| S40V PDUNL/R 15-EX |                                                                                               |        | 017499                                                                                              | PLS1638 | 017459                                                                                         | PA3715                                                                                               | 017453 | PC4112                                                                                               | 028054 |                                                                                               |        |

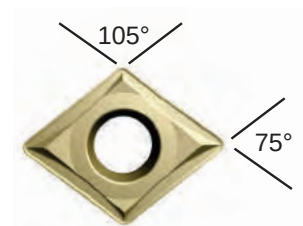


The Posicut® range of positive inserts and holders, along with the Posimatic® range for small part machining for medical and watchmaker components.

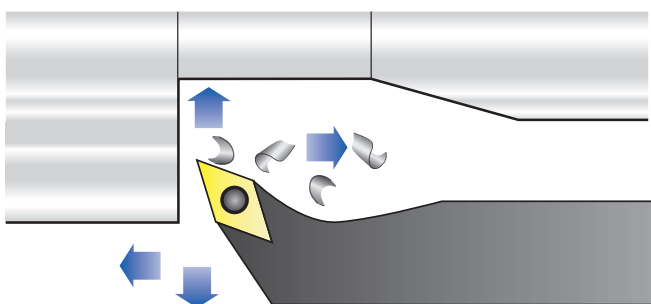
**The “E” Style Program, developed exclusively by Kennametal:**

With the 75° inclusive cutting angle this gives the “E” inserts an advantage over the “C” style inserts, allowing for greater radial clearance between the work piece and insert for profiling and chip evacuation. Also improves insert location with a more secure pocket design whilst not compromising insert edge strength.

E” Style Inserts in combination with the Stellram Boring Bar’s give greater radial clearance, and with the improved design of Insert and Boring Bar, allows for greater profiling capability and chip evacuation.

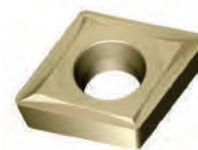
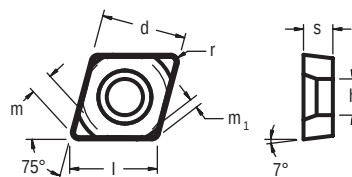


**Posicut:**  
*The world's first, for screw-on inserts*





## ECMT -73 Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 034429 | ECMT09T304E-73  | NL300  | 9,52            | 9,85  | 3,97 | 0,40           | 4,40 |          | Medium      |
| 034456 | ECMT09T308E-73  | NL300  | 9,52            | 9,85  | 3,97 | 0,80           | 4,40 |          | Medium      |
| 032295 | ECMT12T304E-73  | SP4019 | 12,00           | 12,40 | 3,97 | 0,40           | 5,40 |          | Medium      |
| 032598 | ECMT12T304E-73  | NL300  | 12,00           | 12,40 | 3,97 | 0,40           | 5,40 |          | Medium      |
| 032599 | ECMT12T304E-73  | NL920  | 12,00           | 12,40 | 3,97 | 0,40           | 5,40 |          | Medium      |
| 032296 | ECMT12T308E-73  | SP4019 | 12,00           | 12,40 | 3,97 | 0,80           | 5,40 |          | Medium      |
| 032600 | ECMT12T308E-73  | NL300  | 12,00           | 12,40 | 3,97 | 0,80           | 5,40 |          | Medium      |
| 032601 | ECMT12T308E-73  | NL920  | 12,00           | 12,40 | 3,97 | 0,80           | 5,40 |          | Medium      |
| 032602 | ECMT12T312E-73  | NL300  | 12,00           | 12,40 | 3,97 | 1,20           | 5,40 |          | Medium      |
| 032603 | ECMT12T312E-73  | NL920  | 12,00           | 12,40 | 3,97 | 1,20           | 5,40 |          | Medium      |
| 032604 | ECMT16M608E-73  | NL300  | 15,88           | 16,40 | 6,00 | 0,80           | 6,40 |          | Medium      |
| 032605 | ECMT16M608E-73  | NL920  | 15,88           | 16,40 | 6,00 | 0,80           | 6,40 |          | Medium      |
| 032606 | ECMT16M612E-73  | NL300  | 15,88           | 16,40 | 6,00 | 1,20           | 6,40 |          | Medium      |
| 032607 | ECMT16M612E-73  | NL920  | 15,88           | 16,40 | 6,00 | 1,20           | 6,40 |          | Medium      |

For Toolholders External: see pages C95 - C100 | Internal: see pages C101 - C103

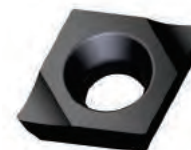
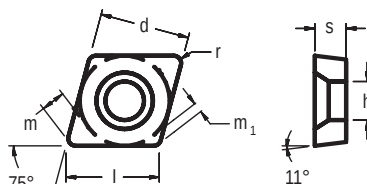
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



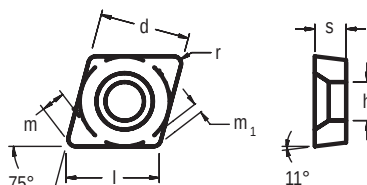
## EPEX -15 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>E</sub> | h    |          |             |
| 022212 | EPEX040202F-15  | GH1    | 4,76            | 4,93 | 2,38 | 0,20           | 2,30 |          | Finishing   |
| 032608 | EPEX040202F-15  | SP4019 | 4,76            | 4,93 | 2,38 | 0,20           | 2,30 |          | Finishing   |
| 032609 | EPEX060202F-15  | GH1    | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Finishing   |
| 032610 | EPEX060202F-15  | SP4019 | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Finishing   |

For Toolholders External: see pages C95 - C100 | Internal: see pages C101 - C103

## EPEX



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>E</sub> | h    |          |             |
| 032611 | EPEX060202FL    | SP4019 | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 032612 | EPEX060202FR    | SP4019 | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 017378 | EPEX060202FL    | GH1    | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 018118 | EPEX060202FR    | GH1    | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 032613 | EPEX060204FL    | SP4019 | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 034460 | EPEX060204FR    | SP4019 | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 017280 | EPEX060204FL    | GH1    | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 017387 | EPEX060204FR    | GH1    | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |

For Toolholders External: see pages C95 - C100 | Internal: see pages C101 - C103

## Material Guide – Key to Recommended Inserts

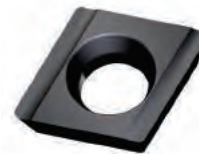
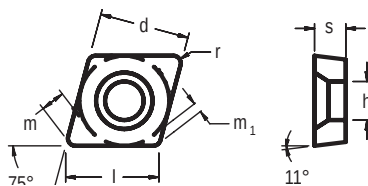
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





**EPEX**  
Flat Top



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>ε</sub> | h    |          |             |
| 034592 | EPEX08M3005FL   | SP4019 | 8.00            | 8.20 | 3.00 | 0.05           | 4.20 |          | Medium      |
| 034593 | EPEX08M3005FR   | SP4019 | 8.00            | 8.20 | 3.00 | 0.05           | 4.20 |          | Medium      |
| 034594 | EPEX08M3005FL   | GH1    | 8.00            | 8.20 | 3.00 | 0.05           | 4.20 |          | Medium      |
| 034595 | EPEX08M3005FR   | GH1    | 8.00            | 8.20 | 3.00 | 0.05           | 4.20 |          | Medium      |
| 032310 | EPEX08M301FL    | SP4019 | 8.00            | 8.20 | 3.00 | 0.10           | 4.20 |          | Medium      |
| 032618 | EPEX08M301FR    | SP4019 | 8.00            | 8.20 | 3.00 | 0.10           | 4.20 |          | Medium      |
| 032619 | EPEX08M301FL    | GH1    | 8.00            | 8.20 | 3.00 | 0.10           | 4.20 |          | Medium      |
| 032620 | EPEX08M301FR    | GH1    | 8.00            | 8.20 | 3.00 | 0.10           | 4.20 |          | Medium      |
| 032306 | EPEX08M302FL    | SP4019 | 8.00            | 8.20 | 3.00 | 0.20           | 4.20 |          | Medium      |
| 032304 | EPEX08M302FR    | SP4019 | 8.00            | 8.20 | 3.00 | 0.20           | 4.20 |          | Medium      |
| 017853 | EPEX08M302FL    | GH1    | 8.00            | 8.20 | 3.00 | 0.20           | 4.20 |          | Medium      |
| 017854 | EPEX08M302FR    | GH1    | 8.00            | 8.20 | 3.00 | 0.20           | 4.20 |          | Medium      |
| 032312 | EPEX08M304FL    | SP4019 | 8.00            | 8.20 | 3.00 | 0.40           | 4.20 |          | Medium      |
| 032311 | EPEX08M304FR    | SP4019 | 8.00            | 8.20 | 3.00 | 0.40           | 4.20 |          | Medium      |

For Toolholders External: see pages C95 - C100 | Internal: see pages C101 - C103

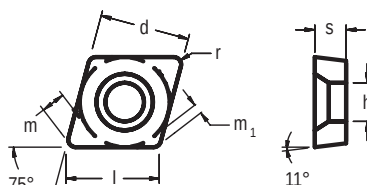
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## EPGT -62 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>e</sub> | h    |          |             |
| 031612 | EPGT040201E-62  | SP4019 | 4,76            | 4,93 | 2,38 | 0,10           | 2,30 |          | Finishing   |
| 030585 | EPGT040202E-62  | SP4019 | 4,76            | 4,93 | 2,38 | 0,20           | 2,30 |          | Finishing   |
| 030586 | EPGT040204E-62  | SP4019 | 4,76            | 4,93 | 2,38 | 0,40           | 2,30 |          | Finishing   |
| 030587 | EPGT060202E-62  | SP4019 | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Finishing   |
| 030588 | EPGT060204E-62  | SP4019 | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Finishing   |
| 030590 | EPGT08M301E-62  | SP4019 | 8,00            | 8,20 | 3,00 | 0,10           | 4,20 |          | Finishing   |
| 030591 | EPGT08M302E-62  | SP4019 | 8,00            | 8,20 | 3,00 | 0,20           | 4,20 |          | Finishing   |
| 030592 | EPGT08M304E-62  | SP4019 | 8,00            | 8,20 | 3,00 | 0,40           | 4,20 |          | Finishing   |
| 030593 | EPGT08M308E-62  | SP4019 | 8,00            | 8,20 | 3,00 | 0,80           | 4,20 |          | Finishing   |
| 031403 | EPGX08M3005E-62 | SP4019 | 8,00            | 8,20 | 3,00 | 0,05           | 4,20 |          | Finishing   |

For Toolholders External: see pages C95 - C100 | Internal: see pages C101 - C103

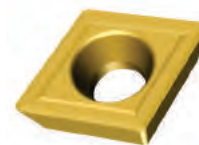
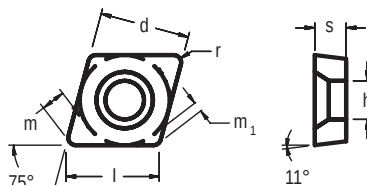
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## EPMT



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>ε</sub> | h    |          |             |
| 032299 | EPMT060202E     | SP4019 | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 032622 | EPMT060202E     | NL300  | 6,35            | 6,54 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 018135 | EPMT060204E     | GH1    | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 032274 | EPMT060204E     | SP4019 | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 032623 | EPMT060204E     | NL300  | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 034464 | EPMT060204E     | NL920  | 6,35            | 6,54 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 018142 | EPMT08M302E     | GH1    | 8,00            | 8,20 | 3,00 | 0,20           | 4,20 |          | Medium      |
| 032286 | EPMT08M302E     | SP4019 | 8,00            | 8,20 | 3,00 | 0,20           | 4,20 |          | Medium      |
| 032624 | EPMT08M302E     | NL300  | 8,00            | 8,20 | 3,00 | 0,20           | 4,20 |          | Medium      |
| 017335 | EPMT08M304E     | GH1    | 8,00            | 8,20 | 3,00 | 0,40           | 4,20 |          | Medium      |
| 032275 | EPMT08M304E     | SP4019 | 8,00            | 8,20 | 3,00 | 0,40           | 4,20 |          | Medium      |
| 032625 | EPMT08M304E     | NL300  | 8,00            | 8,20 | 3,00 | 0,40           | 4,20 |          | Medium      |
| 034589 | EPMT08M304E     | NL920  | 8,00            | 8,20 | 3,00 | 0,40           | 4,20 |          | Medium      |
| 018156 | EPMT08M308E     | GH1    | 8,00            | 8,20 | 3,00 | 0,80           | 4,20 |          | Medium      |
| 032290 | EPMT08M308E     | SP4019 | 8,00            | 8,20 | 3,00 | 0,80           | 4,20 |          | Medium      |
| 032626 | EPMT08M308E     | NL300  | 8,00            | 8,20 | 3,00 | 0,80           | 4,20 |          | Medium      |
| 034590 | EPMT08M308E     | NL920  | 8,00            | 8,20 | 3,00 | 0,80           | 4,20 |          | Medium      |

For Toolholders External: see pages C95 - C100 | Internal: see pages C101 - C103

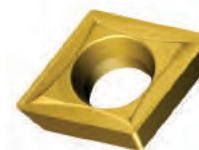
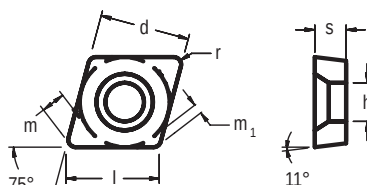
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**EPMT**  
-73 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |       |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|-------|------|----------|-------------|
|        |                 |        | d               | l    | s    | $r_e$ | h    |          |             |
| 032279 | EPMT08M302E-73  | SP4019 | 8,00            | 8,20 | 3,00 | 0,20  | 4,20 |          | Medium      |
| 032627 | EPMT08M302E-73  | NL300  | 8,00            | 8,20 | 3,00 | 0,20  | 4,20 |          | Medium      |
| 031245 | EPMT08M304E-73  | SP4019 | 8,00            | 8,20 | 3,00 | 0,40  | 4,20 |          | Medium      |
| 032628 | EPMT08M304E-73  | NL300  | 8,00            | 8,20 | 3,00 | 0,40  | 4,20 |          | Medium      |
| 032629 | EPMT08M304E-73  | NL920  | 8,00            | 8,20 | 3,00 | 0,40  | 4,20 |          | Medium      |
| 032287 | EPMT08M308E-73  | SP4019 | 8,00            | 8,20 | 3,00 | 0,80  | 4,20 |          | Medium      |
| 032630 | EPMT08M308E-73  | NL300  | 8,00            | 8,20 | 3,00 | 0,80  | 4,20 |          | Medium      |
| 032631 | EPMT08M308E-73  | NL920  | 8,00            | 8,20 | 3,00 | 0,80  | 4,20 |          | Medium      |

For Toolholders External: see pages C95 - C100 | Internal: see pages C101 - C103

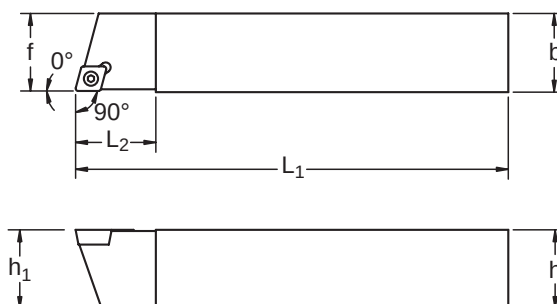
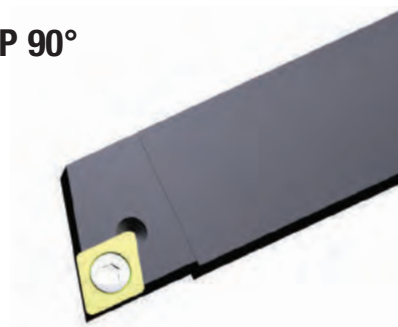
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**SEAP 90°**



Turning Inserts

Inserts - EPGT08M3 & EPMT08M3

SEAP LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 018024 | SEAPL 1010 M08   | LH   | EP_08M3      | 10                 | 10 | 10 | 150            | 16             |
| 018025 | SEAPL 1212 M08   | LH   | EP_08M3      | 12                 | 12 | 12 | 150            | 16             |
| 025044 | SEAPL 1616 M08   | LH   | EP_08M3      | 16                 | 16 | 16 | 150            | 16             |
| 025046 | SEAPL 2020 K08   | LH   | EP_08M3      | 20                 | 20 | 20 | 125            | 16             |
| 018027 | SEAPR 1010 M08   | RH   | EP_08M3      | 10                 | 10 | 10 | 150            | 16             |
| 018028 | SEAPR 1212 M08   | RH   | EP_08M3      | 12                 | 12 | 12 | 150            | 16             |
| 025043 | SEAPR 1616 M08   | RH   | EP_08M3      | 16                 | 16 | 16 | 150            | 16             |
| 025045 | SEAPR 2020 K08   | RH   | EP_08M3      | 20                 | 20 | 20 | 125            | 16             |



S Style External Toolholder  
for Positive Inserts: EP\_08M3  
Application: Face, Turning and Profile  
Approach 90°  
Axial: 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 12^\circ$   
RH Holder Shown

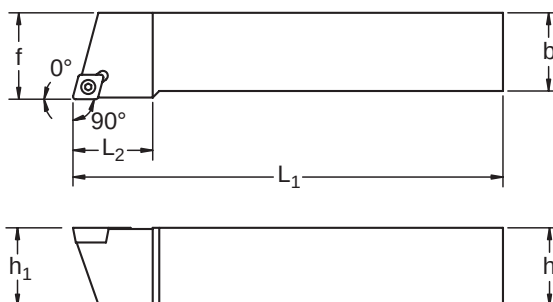
SEAPL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SEAPL/R 1010 E06 | 017032              | A3006T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SEAPL/R 1212 F09 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SEAPL/R 1616 H09 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SEAPL/R 2020 K09 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



Turning Inserts

**SEGP 90°**



Inserts - EPGT08M3 & EPMT08M3

SEGP LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 018087 | SEGPR 0808 F08   | LH   | EP_08M3      | 8                  | 8  | 11 | 80             | 14             |
| 017987 | SEGPR 1010 F08   | LH   | EP_08M3      | 10                 | 10 | 12 | 80             | 14             |
| 018077 | SEGPR 1212 F08   | LH   | EP_08M3      | 12                 | 12 | 16 | 80             | 16             |
| 018078 | SEGPR 0808 F08   | RH   | EP_08M3      | 8                  | 8  | 11 | 80             | 14             |
| 018079 | SEGPR 1010 F08   | RH   | EP_08M3      | 10                 | 10 | 12 | 80             | 14             |
| 018080 | SEGPR 1212 F08   | RH   | EP_08M3      | 12                 | 12 | 16 | 80             | 16             |



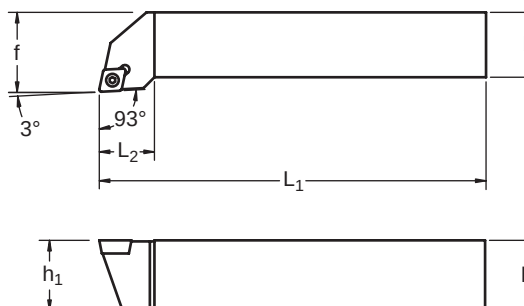
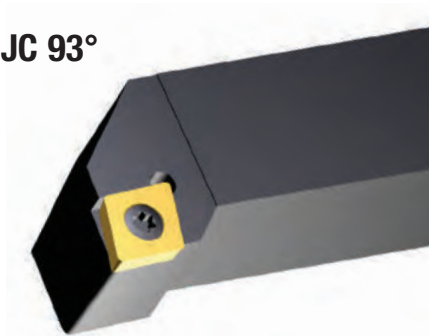
S Style External Toolholder  
for Positive Inserts: EP\_08M3  
Application: Face, Turning and Profile  
Approach 90°  
Axial: 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 12^\circ$   
RH Holder Shown

SEGPR/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SEGPR/R 0808 F08 | 017032              | A3006T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SEGPR/R 1010 F08 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SEGPR/R 1212 F08 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



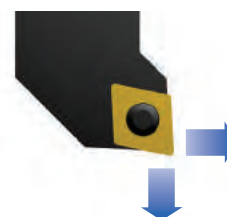
**SEJC 93°**



Inserts - EPMT16M6

SEJC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 028581 | SEJCL 2525 M16   | LH   | EC_16M6      | 25                 | 25 | 32 | 150            | 28             |
| 028582 | SEJCR 2525 M16   | RH   | EC_16M6      | 25                 | 25 | 32 | 150            | 28             |



S Style External Toolholder  
for Positive Inserts: EC\_16M6  
Application: Face, Turning and Profile  
Approach 93°  
Axial: 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 9^\circ$   
RH Holder Shown

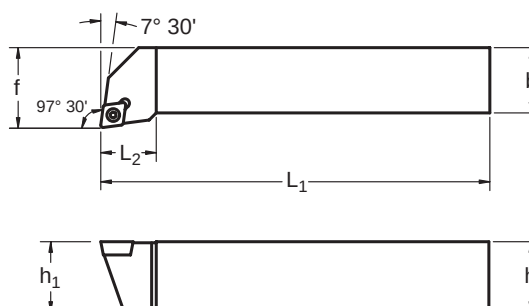
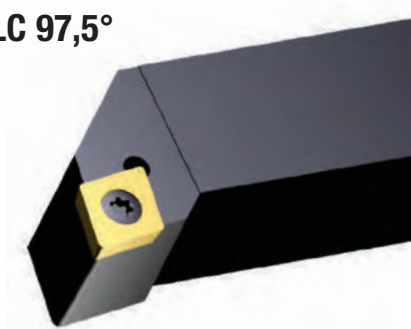
SEJCL/R Spare Parts (mm)

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SEJCL/R 2525 M16 | 023081              | A5025T                                                                              | 015241            | T20                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |



Turning Inserts

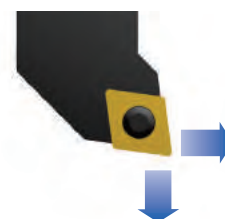
**SELCL 97,5°**



Inserts - ECMT12T3

SELCL LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 018082 | SELCL 2020 K12   | LH   | EC_12T3      | 20                 | 20 | 25 | 125            | 22             |
| 018083 | SELCL 2525 M12   | LH   | EC_12T3      | 25                 | 25 | 32 | 150            | 28             |
| 018085 | SELCL 2020 K12   | RH   | EC_12T3      | 20                 | 20 | 25 | 125            | 22             |
| 018086 | SELCL 2525 M12   | RH   | EC_12T3      | 25                 | 25 | 32 | 150            | 28             |



S Style External Toolholder  
for Positive Inserts: EC\_12T3  
Application: Face, Turning and Profile  
Approach 97,5°  
Axial: 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 4,5^\circ$   
RH Holder Shown

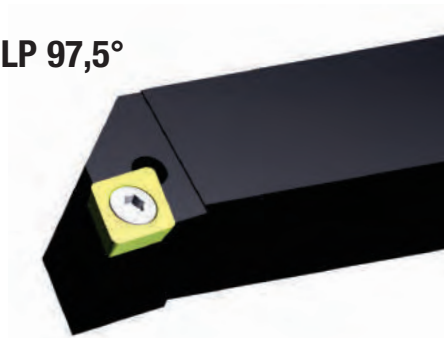
SELCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SELCL/R 2020 K12 | 034500              | 1540                                                                                | 034577            | K5517                                                                               | 029091       | SA3712                                                                                | 029095             | 1765                                                                                  |
| SELCL/R 2525 M12 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |

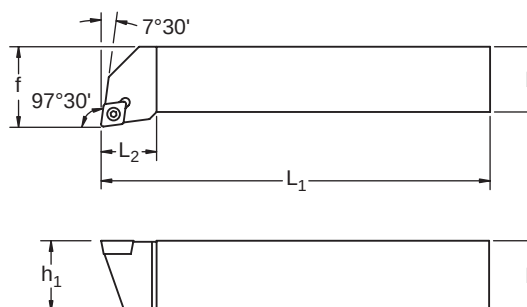




**SELP 97,5°**



Inserts - EPGT08M3 & EPMT08M3



Turning Inserts

SELP LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 018089 | SELPL 1010 F08   | LH   | EP_08M3      | 10                 | 10 | 12 | 80             | 14             |
| 018090 | SELPL 1212 F08   | LH   | EP_08M3      | 12                 | 12 | 16 | 80             | 16             |
| 018091 | SELPL 1616 H08   | LH   | EP_08M3      | 16                 | 16 | 20 | 100            | 18             |
| 018092 | SELPL 2020 K08   | LH   | EP_08M3      | 20                 | 20 | 25 | 125            | 22             |
| 018093 | SELPL 2525 M08   | LH   | EP_08M3      | 25                 | 25 | 32 | 150            | 28             |
| 018094 | SELPR 1010 F08   | RH   | EP_08M3      | 10                 | 10 | 12 | 80             | 14             |
| 018095 | SELPR 1212 F08   | RH   | EP_08M3      | 12                 | 12 | 16 | 80             | 16             |
| 018096 | SELPR 1616 H08   | RH   | EP_08M3      | 16                 | 16 | 20 | 100            | 18             |
| 018097 | SELPR 2020 K08   | RH   | EP_08M3      | 20                 | 20 | 25 | 125            | 22             |
| 018098 | SELPR 2525 M08   | RH   | EP_08M3      | 25                 | 25 | 32 | 150            | 28             |



S Style External Toolholder  
for Positive Inserts: EP\_08M3  
Application: Face, Turning and Profile  
Approach 97,5°  
Axial: 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 4,5^\circ$   
RH Holder Shown

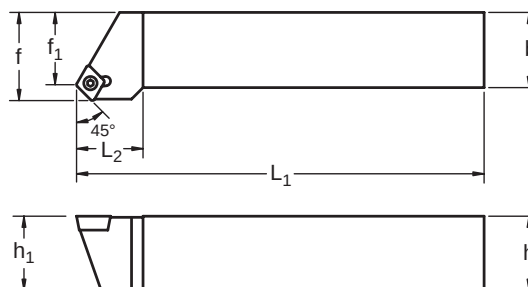
SELPL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SELPL/R 1010 F08 | 017032              | A3006T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SELPL/R 1212 F08 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SELPL/R 1616 H08 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SELPL/R 2020 K08 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SELPL/R 2525 M08 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



Turning Inserts

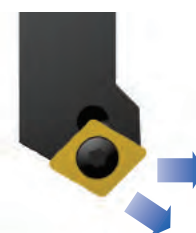
**SESP 45°**



Inserts - EPGT08M3 & EPMT8M3

SESP LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |      |                |                |
|--------|------------------|------|--------------|--------------------|----|------|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f    | L <sub>1</sub> | L <sub>2</sub> |
| 018099 | SESPL 1010 F08   | LH   | EP_08M3      | 10                 | 10 | 13,6 | 80             | 14             |
| 018100 | SESPL 1212 F08   | LH   | EP_08M3      | 12                 | 12 | 16   | 80             | 16             |
| 018101 | SESPR 1010 F08   | RH   | EP_08M3      | 10                 | 10 | 13,6 | 80             | 14             |
| 018102 | SESPR 1212 F08   | RH   | EP_08M3      | 12                 | 12 | 16   | 80             | 16             |



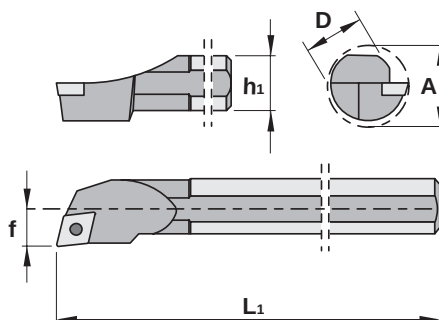
S Style External Toolholder  
Positive Inserts: EP\_08M3  
Application: Turning and Profile  
Approach 45°  
Axial: 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 34^\circ$   
RH Holder Shown

SESPL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SESPL/R 1010 F08 | 017032              | A3006T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SESPL/R 1212 F08 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



## A.. SELP 97,5°



Inserts - EPEX0402, EPGT0402, EPEX0602, EPGT0602, EPMT0602, EPEX08M3, EPGT08M3 and EPMT8M3

A.. SELP LH & RH Internal Boring Bars

| A.. SELP LH & RH Internal Boring Bars |                  |      |              |                 |    |    |                |                |                                                                                       |
|---------------------------------------|------------------|------|--------------|-----------------|----|----|----------------|----------------|---------------------------------------------------------------------------------------|
| EDP                                   | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |                |                                                                                       |
|                                       |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | h <sub>1</sub> | Through Coolant                                                                       |
| 018408                                | S06F SELPL 04    | LH   | EP_0402      | 8               | 6  | 4  | 80             | 4,2            |    |
| 018397                                | A08H SELPL 04    | LH   | EP_0402      | 11              | 8  | 6  | 100            | 4              |    |
| 018322                                | S06F SELPR 04    | RH   | EP_0402      | 8               | 6  | 4  | 80             | 4,2            |    |
| 018315                                | A08H SELPR 04    | RH   | EP_0402      | 11              | 8  | 6  | 100            | 4              |    |
| 018398                                | A08H SELPL 06    | LH   | EP_0602      | 11              | 8  | 6  | 100            | 4              |    |
| 018399                                | A10K SELPL 06    | LH   | EP_0602      | 13              | 10 | 7  | 125            | 5              |   |
| 018316                                | A08H SELPR 06    | RH   | EP_0602      | 11              | 8  | 6  | 100            | 4              |  |
| 018401                                | A10K SELPR 06    | RH   | EP_0602      | 13              | 10 | 7  | 125            | 5              |  |
| 018400                                | A10K SELPL 08    | LH   | EP_08M3      | 13              | 10 | 7  | 125            | 5              |  |
| 018318                                | A12K SELPL 08    | LH   | EP_08M3      | 16              | 12 | 9  | 125            | 6              |  |
| 018320                                | A16M SELPL 08    | LH   | EP_08M3      | 20              | 16 | 11 | 150            | 8              |  |
| 018402                                | A20Q SELPL 08    | LH   | EP_08M3      | 24              | 20 | 13 | 180            | 10             |  |
| 018404                                | A25R SELPL 08    | LH   | EP_08M3      | 31              | 25 | 17 | 200            | 12,5           |  |
| 018317                                | A10K SELPR 08    | RH   | EP_08M3      | 13              | 10 | 7  | 125            | 5              |  |
| 018319                                | A12K SELPR 08    | RH   | EP_08M3      | 16              | 12 | 9  | 125            | 6              |  |
| 018321                                | A16M SELPR 08    | RH   | EP_08M3      | 20              | 16 | 11 | 150            | 8              |  |
| 018403                                | A20Q SELPR 08    | RH   | EP_08M3      | 24              | 20 | 13 | 180            | 10             |  |
| 018405                                | A25R SELPR 08    | RH   | EP_08M3      | 31              | 25 | 17 | 200            | 12,5           |  |



S Style Boring Bar  
for Positive Inserts:  
EP\_0402, EP\_0602, and EP\_08M3  
Application: Facing and I/D part profiling  
Approach 97,5°  
Axial 5°  
Radial 3° - 5°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Bar Shown

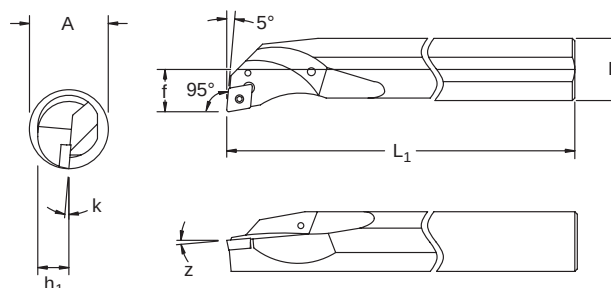
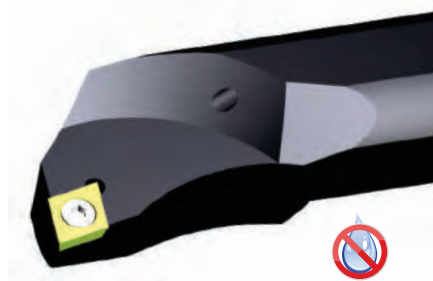
A.. SELPL/R Spare Part

| Item Description  | Insert Screw<br>EDP |        | Insert Key<br>EDP |    | Anvil<br>EDP |   | Anvil Screw<br>EDP |   |
|-------------------|---------------------|--------|-------------------|----|--------------|---|--------------------|---|
| S06F SELPL/R 04   | 015059              | F2004T | 018487            | T6 | -            | - | -                  | - |
| A08H SELPL/R 04   |                     |        |                   |    |              |   |                    |   |
| A/D08H SELPL/R 06 |                     |        |                   |    |              |   |                    |   |
| A10K SELPL/R 06   | 017032              | A3006T | 013214            | T9 | -            | - | -                  | - |
| A/D10K SELPL/R 08 |                     |        |                   |    |              |   |                    |   |
| A/D12K SELPL/R 08 |                     |        |                   |    |              |   |                    |   |
| A/D16M SELPL/R 08 | 017032              | A3006T | 013214            | T9 | -            | - | -                  | - |
| A/D20Q SELPL/R 08 |                     |        |                   |    |              |   |                    |   |
| A/D25R SELPL/R 08 |                     |        |                   |    |              |   |                    |   |



Turning Inserts

## D.. SELP 97,5° Anti-Vibration Bars



D.. SELP LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |                |                                                                                    |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----------------|------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | h <sub>1</sub> | Through Coolant                                                                    |
| 023135 | D08H SELPR 06    | RH   | EP_0602      | 11              | 8  | 6  | 100            | 4              |  |
| 023137 | D10K SELPR 08    | RH   | EP_08M3      | 13              | 10 | 7  | 125            | 5              |  |
| 023139 | D12K SELPR 08    | RH   | EP_08M3      | 16              | 12 | 9  | 125            | 6              |  |
| 023141 | D16M SELPR 08    | RH   | EP_08M3      | 20              | 16 | 11 | 150            | 8              |  |
| 023143 | D20Q SELPR 08    | RH   | EP_08M3      | 24              | 20 | 13 | 180            | 10             |  |



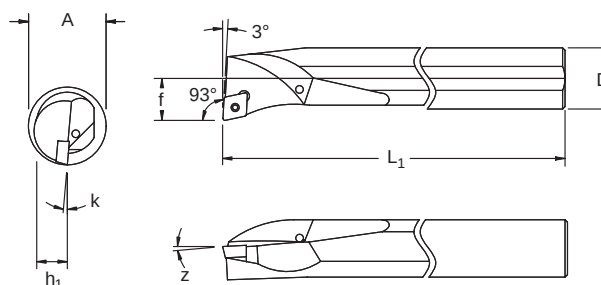
S Style Boring Bar  
for Positive Inserts:  
EP\_0402, EP\_0602, and EP\_08M3  
Application: Facing and I/D part profiling  
Approach 97,5°  
Axial 5°  
Radial 3° - 5°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Bar Shown

A.. SELPL/R Spare Parts

| Item Description  | Insert Screw<br>EDP |        | Insert Key<br>EDP |    | Anvil<br>EDP |   | Anvil Screw<br>EDP |   |
|-------------------|---------------------|--------|-------------------|----|--------------|---|--------------------|---|
| S06F SELPL/R 04   | 015059              | F2004T | 018487            | T6 | -            | - | -                  | - |
| A08H SELPL/R 04   |                     |        |                   |    |              |   |                    |   |
| A/D08H SELPL/R 06 |                     |        |                   |    |              |   |                    |   |
| A10K SELPL/R 06   | 017032              | A3006T | 013214            | T9 | -            | - | -                  | - |
| A/D10K SELPL/R 08 |                     |        |                   |    |              |   |                    |   |
| A/D12K SELPL/R 08 |                     |        |                   |    |              |   |                    |   |
| A/D16M SELPL/R 08 |                     |        |                   |    |              |   |                    |   |
| A/D20Q SELPL/R 08 |                     |        |                   |    |              |   |                    |   |
| A/D25R SELPL/R 08 |                     |        |                   |    |              |   |                    |   |



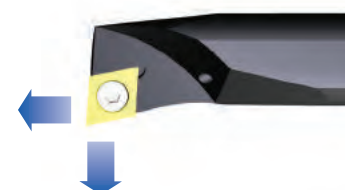
## A.. SEUP 93°



Inserts - EPEX0402, EPGT0402, EPEX0602, EPGT0602, EPMT0602, EPEX08M3, EPGT08M3 and EPMT8M3

A.. SEUP LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |   |                |                |                                                                                     |
|--------|------------------|------|--------------|-----------------|----|---|----------------|----------------|-------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f | L <sub>1</sub> | h <sub>1</sub> | Through Coolant                                                                     |
| 018324 | S06F SEUPL 04    | LH   | EP_0402      | 8               | 6  | 4 | 80             | 4,2            |  |
| 018325 | S06F SEUPR 04    | RH   | EP_0402      | 8               | 6  | 4 | 80             | 4,2            |  |
| 018409 | A08H SEUPL 06    | LH   | EP_0602      | 11              | 8  | 6 | 100            | 4              |  |
| 018410 | A08H SEUPR 06    | RH   | EP_0602      | 11              | 8  | 6 | 100            | 4              |  |
| 018412 | A10K SEUPL 08    | LH   | EP_08M3      | 13              | 10 | 7 | 125            | 5              |  |
| 018415 | A12K SEUPL 08    | LH   | EP_08M3      | 16              | 12 | 9 | 125            | 6              |  |
| 018414 | A10K SEUPR 08    | RH   | EP_08M3      | 13              | 10 | 7 | 125            | 5              |  |
| 018323 | A12K SEUPR 08    | RH   | EP_08M3      | 16              | 12 | 9 | 125            | 6              |  |



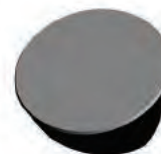
S Style Boring Bar  
for Positive Inserts:  
EP\_0402, EP\_0602, and EP\_08M3  
Application: Facing and I/D part profiling  
Approach 93°  
Axial 0° - 3°  
Radial 5° - 10°  
Profiling Clearance Angle  $\beta = 9^\circ$   
RH Bar Shown

A.. SEUPL/R Spare Parts

| Item Description | Insert Screw<br>EDP |        | Insert Key<br>EDP |    | Anvil<br>EDP |   | Anvil Screw<br>EDP |   |
|------------------|---------------------|--------|-------------------|----|--------------|---|--------------------|---|
| S06F SEUPL/R 04  | 015059              | F2004T | 018487            | T6 | -            | - | -                  | - |
| A08H SEUPL/R 06  | 015059              | F2505T | 018488            | T7 | -            | - | -                  | - |
| A10K SEUPL/R 08  | 017032              | A3006T | 013214            | T9 | -            | - | -                  | - |
| A12K SEUPL/R 08  |                     |        |                   |    |              |   |                    |   |



**RCGX**  
Ceramics



| EDP    | ISO Description | Grade  | Dimensions (mm) |   |      |                |   | Material | Application |
|--------|-----------------|--------|-----------------|---|------|----------------|---|----------|-------------|
|        |                 |        | d               | l | s    | r <sub>ε</sub> | h |          |             |
| 032338 | RCGX060400 E010 | SA6609 | 6,35            | - | 4,76 | 0,00           | - | ◆        | Roughing    |
| 032339 | RCGX090700 E010 | SA6609 | 9,52            | - | 7,94 | 0,00           | - | ◆        | Roughing    |
| 032340 | RCGX120700 E010 | SA6609 | 12,70           | - | 7,94 | 0,00           | - | ◆        | Roughing    |

Note: For edge condition refer to Grade page C29

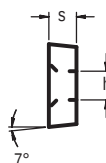
## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels  
 ◆ P Alloyed Steels  
 ◆ M Stainless Steels  
 ◆ M PH Stainless  
 ◆ K Cast Irons  
 ◆ N Aluminum & Alloys  
 ◆ S High Temp. Alloys  
 ◆ H Hard Materials



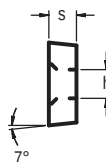
## RCMT 2N Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |   |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|---|------|----------------|------|----------|-------------|
|        |                 |       | d               | l | s    | r <sub>ε</sub> | h    |          |             |
| 032632 | RCMT190600E-2N  | NL920 | 19,05           | - | 6,35 | -              | 6,50 |          | Medium      |

For Toolholders External: see pages C107 - C108

## RCMT



| EDP    | ISO Description | Grade | Dimensions (mm) |   |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|---|------|----------------|------|----------|-------------|
|        |                 |       | d               | l | s    | r <sub>ε</sub> | h    |          |             |
| 032633 | RCMT0602M0E     | NL250 | 6,00            | - | 2,38 | -              | 2,79 |          | Medium      |
| 032634 | RCMT0602M0E     | NL920 | 6,00            | - | 2,38 | -              | 2,79 |          | Medium      |
| 032635 | RCMT10T3M0E     | NL250 | 10,00           | - | 3,97 | -              | 4,39 |          | Medium      |
| 032636 | RCMT10T3M0E     | NL400 | 10,00           | - | 3,97 | -              | 4,39 |          | Medium      |
| 032637 | RCMT10T3M0E     | NL920 | 10,00           | - | 3,97 | -              | 4,39 |          | Medium      |
| 032638 | RCMT1204M0E     | NL250 | 12,00           | - | 4,76 | -              | 5,50 |          | Medium      |
| 032639 | RCMT1204M0E     | NL400 | 12,00           | - | 4,76 | -              | 5,50 |          | Medium      |
| 032640 | RCMT1204M0E     | NL920 | 12,00           | - | 4,76 | -              | 5,50 |          | Medium      |
| 032641 | RCMT1606M0E     | NL300 | 15,88           | - | 6,35 | -              | 5,51 |          | Roughing    |
| 032642 | RCMT1606M0E     | NL400 | 15,88           | - | 6,35 | -              | 5,51 |          | Roughing    |
| 032643 | RCMT1606M0E     | NL920 | 15,88           | - | 6,35 | -              | 5,51 |          | Roughing    |

For Toolholders External: see pages C107 - C108

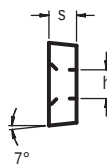
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## RCMT



| EDP    | ISO Description | Grade | Dimensions (mm) |   |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|---|------|----------------|------|----------|-------------|
|        |                 |       | d               | l | s    | r <sub>ε</sub> | h    |          |             |
| 032644 | RCMT2006M0E     | NL300 | 20,00           | - | 6,35 | -              | 6,50 |          | Roughing    |
| 032645 | RCMT2006M0E     | NL400 | 20,00           | - | 6,35 | -              | 6,50 |          | Roughing    |
| 032646 | RCMT2006M0E     | NL920 | 20,00           | - | 6,35 | -              | 6,50 |          | Roughing    |
| 032647 | RCMT2507M0S     | NL300 | 25,00           | - | 7,94 | -              | 7,11 |          | Roughing    |
| 032648 | RCMT2507M0S     | NL400 | 25,00           | - | 7,94 | -              | 7,11 |          | Roughing    |
| 032649 | RCMT2507M0S     | NL920 | 25,00           | - | 7,94 | -              | 7,11 |          | Roughing    |
| 032650 | RCMT3209M0S     | NL400 | 32,00           | - | 9,53 | -              | 9,52 |          | Roughing    |
| 032924 | RCMT3209M0S     | NL300 | 32,00           | - | 9,53 | -              | 9,52 |          | Roughing    |

For Toolholders External: see pages C107 - C108

## Material Guide – Key to Recommended Inserts

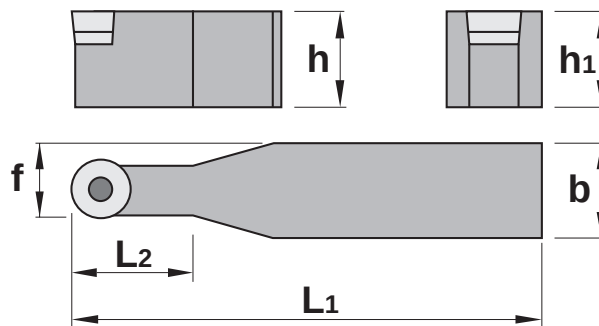
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





**SRDC**



Inserts - RCMT0602, 10T3, and 1204

SRDC Neutral External Square Shank Toolholders

| EDP    | Item Description | Hand    | Insert Sizes | Dimensions (mm) |     |      |       |       |
|--------|------------------|---------|--------------|-----------------|-----|------|-------|-------|
|        |                  |         |              | $h = h_1$       | $b$ | $f$  | $L_1$ | $L_2$ |
| 018106 | SRDC N 1616 H06  | Neutral | RCMT_0602    | 16              | 16  | 11   | 100   | 20    |
| 018107 | SRDC N 2020 K06  | Neutral | RCMT_0602    | 20              | 20  | 13   | 125   | 20    |
| 018108 | SRDC N 2020 K10  | Neutral | RCMT_10T3    | 20              | 20  | 15   | 125   | 22    |
| 028594 | SRDC N 2525 M10  | Neutral | RCMT_10T3    | 25              | 25  | 17,5 | 150   | 22    |
| 033523 | SRDC N 2020 K12  | Neutral | RCMT_1204    | 20              | 20  | 16   | 125   | 22    |
| 018088 | SRDC N 2525 M12  | Neutral | RCMT_1204    | 25              | 25  | 18,5 | 150   | 28    |



S Style External Toolholder  
for Positive Inserts:  
RCMT06, 10, and 12  
Application: Turning, Plunge and Profile  
Approach Angle 0°  
Axial 0°  
Radial 0°  
Neutral Holder Shown

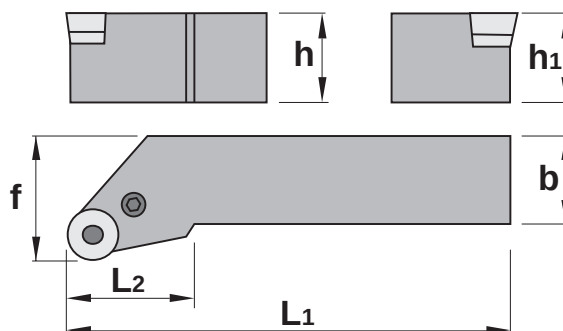
SRDC N Spare Parts

| Item Description | Insert Screw<br>EDP  |        | Insert Key<br>EDP  |       | Anvil<br>EDP  |        | Anvil Screw<br>EDP  |         |  |
|------------------|---------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------|---------|--|
| SRDC N 1616 H06  | 015061                                                                                                  | F2507T | 018488                                                                                                | T7    | -                                                                                                  | -      | -                                                                                                        | -       |  |
| SRDC N 2020 K06  |                                                                                                         |        |                                                                                                       |       |                                                                                                    |        |                                                                                                          |         |  |
| SRDC N 2020 K10  | 034497                                                                                                  | 1335   | 028475                                                                                                | K5516 | 034501                                                                                             | SA3811 | 028478                                                                                                   | SAS1750 |  |
| SRDC N 2525 M10  |                                                                                                         |        |                                                                                                       |       | 034502                                                                                             | SA3814 |                                                                                                          |         |  |
| SRDC N 2020 K12  |                                                                                                         |        |                                                                                                       |       |                                                                                                    |        |                                                                                                          |         |  |
| SRDC N 2525 M12  |                                                                                                         |        |                                                                                                       |       |                                                                                                    |        |                                                                                                          |         |  |



Turning Inserts

**PRSC**



Inserts - RCMT10T3, 1204, 1606, 2006, & 2507

PRSC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|
|        |                  |      |              | h = h1          | b  | f  | L1  | L2 |
| 033527 | PRSC 2020 K10    | LH   | RCMT_10T3    | 20              | 20 | 25 | 125 | 28 |
| 033528 | PRSC 2525 M10    | LH   | RCMT_10T3    | 25              | 25 | 32 | 150 | 28 |
| 033529 | PRSC 2020 K12    | RH   | RCMT_10T3    | 20              | 20 | 25 | 125 | 28 |
| 033530 | PRSC 2525 M10    | RH   | RCMT_10T3    | 25              | 25 | 32 | 150 | 28 |
| 033531 | PRSC 2020 K12    | LH   | RCMT_1204    | 20              | 20 | 25 | 125 | 28 |
| 033532 | PRSC 2525 M12    | LH   | RCMT_1204    | 25              | 25 | 32 | 150 | 28 |
| 033533 | PRSC 2020 K12    | RH   | RCMT_1204    | 20              | 20 | 25 | 125 | 28 |
| 033534 | PRSC 2525 M12    | RH   | RCMT_1204    | 25              | 25 | 32 | 150 | 28 |
| 033535 | PRSC 2525 M16    | LH   | RCMT_1606    | 25              | 25 | 32 | 150 | 34 |
| 033536 | PRSC 3225 P16    | LH   | RCMT_1606    | 32              | 25 | 32 | 170 | 34 |
| 033537 | PRSC 2525 M16    | RH   | RCMT_1606    | 25              | 25 | 32 | 150 | 34 |
| 033538 | PRSC 3225 P16    | RH   | RCMT_1606    | 32              | 25 | 32 | 170 | 34 |
| 033539 | PRSC 3232 P20    | LH   | RCMT_2006    | 32              | 32 | 40 | 170 | 42 |
| 033540 | PRSC 3232 P20    | RH   | RCMT_2006    | 32              | 32 | 40 | 170 | 42 |
| 033541 | *PRSC 4040 S25   | LH   | RCMT_2507    | 40              | 40 | 50 | 250 | 48 |
| 033542 | *PRSC 4040 S25   | RH   | RCMT_2507    | 40              | 40 | 50 | 250 | 48 |



P Style External Toolholder  
for Positive Inserts:  
RCMT10, 12, 16, 20 and 25  
Application: Turning, Plunge and Profile  
Approach Angle 0°  
Axial 0°  
Radial 0°  
RH Holder Shown

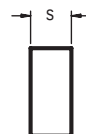
\* Non Stock Items, subject to extended delivery time

PRSC/R Spare Parts

| PRSCL/R Spare Parts |              |                                                                                     |                       |                                                                                     |              |                                                                                     |                      |                                                                                      |                   |                                                                                       |            |                                                                                       |
|---------------------|--------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------|
| Item Description    | Lever<br>EDP |  | Lever<br>Screw<br>EDP |  | Anvil<br>EDP |  | Anvil<br>Clip<br>EDP |  | Clip Punch<br>EDP |  | Key<br>EDP |  |
| PRSCL/R 2020 K10    | 034475       | PL8110                                                                              | 034480                | PLS1705                                                                             | 034484       | PA3810                                                                              | 028417               | PC4110                                                                               | 028053            | PCP0009                                                                               | 028578     | KH5002                                                                                |
| PRSCL/R 2525 M10    |              | PL8112                                                                              | 017447                | PLS1606                                                                             | 034485       | PA3812                                                                              |                      |                                                                                      |                   |                                                                                       | 018285     |                                                                                       |
| PRSCL/R 2020 K12    | 034476       | PL8112                                                                              | 017447                | PLS1606                                                                             | 034485       | PA3812                                                                              |                      |                                                                                      |                   |                                                                                       | 018285     | KH5025                                                                                |
| PRSCL/R 2525 M12    |              |                                                                                     |                       |                                                                                     |              |                                                                                     |                      |                                                                                      |                   |                                                                                       |            |                                                                                       |
| PRSCL/R 2525 M16    | 034477       | PL8116                                                                              | 034481                | PLS1706                                                                             | 034486       | PA3816                                                                              | 034504               | PC4116                                                                               | 028054            | PCP0012                                                                               |            |                                                                                       |
| PRSCL/R 3232 P16    |              |                                                                                     |                       |                                                                                     |              |                                                                                     |                      |                                                                                      |                   |                                                                                       |            |                                                                                       |
| PRSCL/R 3232 P20    | 034478       | PL8120                                                                              | 028458                | PLS1708                                                                             | 034487       | PA3820                                                                              | 028051               | PC4115                                                                               | 034505            | PCP0015                                                                               | 018286     | KH5003                                                                                |
| *PRSCL/R 4040 S25   | 034479       | PL8125                                                                              | 034482                | PLS1710                                                                             | 034488       | PA3825                                                                              | 017455               | PC4119                                                                               | 028056            | PCP0019                                                                               | 018287     | KH5004                                                                                |



**RNGN**  
Ceramics

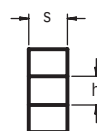


Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |   |      |                |   | Material | Application |
|--------|-----------------|--------|-----------------|---|------|----------------|---|----------|-------------|
|        |                 |        | d               | l | s    | r <sub>ε</sub> | h |          |             |
| 032324 | RNGN090300 E010 | SA6609 | 9,52            | - | 3,18 | -              | - | ◆        | Roughing    |
| 032325 | RNGN090400 E010 | SA6609 | 9,52            | - | 4,76 | -              | - | ◆        | Roughing    |
| 032326 | RNGN120400 E010 | SA6609 | 12,70           | - | 4,76 | -              | - | ◆        | Roughing    |
| 032327 | RNGN120700 E010 | SA6609 | 12,70           | - | 7,94 | -              | - | ◆        | Roughing    |
| 032328 | RNGN120700 E030 | SA6609 | 12,70           | - | 7,94 | -              | - | ◆        | Roughing    |
| 032329 | RNGN150700 E010 | SA6609 | 15,88           | - | 7,94 | -              | - | ◆        | Roughing    |
| 032330 | RNGN190700 E010 | SA6609 | 19,05           | - | 7,94 | -              | - | ◆        | Roughing    |

Note: For edge condition refer to Grade page C29

**RNGN**  
4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |   |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|---|------|----------------|------|----------|-------------|
|        |                 |       | d               | l | s    | r <sub>ε</sub> | h    |          |             |
| 032651 | RNMG250900E-4T  | NL300 | 25,00           | - | 9,53 | 0,80           | 5,16 | ◆◆◆◆     | Roughing    |
| 032652 | RNMG250900E-4T  | NL920 | 25,00           | - | 9,53 | 0,80           | 5,16 | ◆◆◆◆     | Roughing    |

For Toolholders External: see page C111

## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels  
 ◆ P Alloyed Steels  
 ◆ M Stainless Steels  
 ◆ M PH Stainless  
 ◆ K Cast Irons  
 ◆ N Aluminum & Alloys  
 ◆ S High Temp. Alloys  
 ◆ H Hard Materials



**RPGN**  
Ceramics



| EDP    | ISO Description | Grade  | Dimensions (mm) |   |      |                |   | Material | Application |
|--------|-----------------|--------|-----------------|---|------|----------------|---|----------|-------------|
|        |                 |        | d               | l | s    | r <sub>ε</sub> | h |          |             |
| 032336 | RPGN090300 E010 | SA6609 | 9,52            | - | 3,18 | -              | - | ◆        | Roughing    |
| 032337 | RPGN120400 E010 | SA6609 | 12,70           | - | 4,76 | -              | - | ◆        | Roughing    |

Note: For edge condition refer to Grade page C29

**RPGX**  
Ceramics



| EDP    | ISO Description | Grade  | Dimensions (mm) |   |      |                |   | Material | Application |
|--------|-----------------|--------|-----------------|---|------|----------------|---|----------|-------------|
|        |                 |        | d               | l | s    | r <sub>ε</sub> | h |          |             |
| 032341 | RPGX060400 E010 | SA6609 | 6,35            | - | 4,76 | -              | - | ◆        | Roughing    |
| 032342 | RPGX090700 E010 | SA6609 | 9,52            | - | 7,94 | -              | - | ◆        | Roughing    |
| 032343 | RPGX120700 E010 | SA6609 | 12,70           | - | 7,94 | -              | - | ◆        | Roughing    |

Note: For edge condition refer to Grade page C29

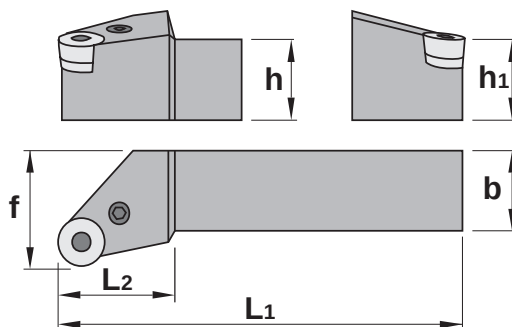
**Material Guide – Key to Recommended Inserts**

Material Designation

◆ P Unalloyed Steels  
 ◆ P Alloyed Steels  
 ◆ M Stainless Steels  
 ◆ M PH Stainless  
 ◆ K Cast Irons  
 ◆ N Aluminum & Alloys  
 ◆ S High Temp. Alloys  
 ◆ H Hard Materials



**PRSN**



Turning Inserts

PRSN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |                |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----------------|
|        |                  |      |              | $h = h_1$       | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 028392 | PRSNL 4040 S25   | LH   | RN_2509      | 40              | 40 | 50 | 250            | 45             |
| 028396 | PRSNR 4040 S25   | RH   | RN_2509      | 40              | 40 | 50 | 250            | 45             |



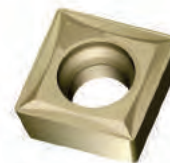
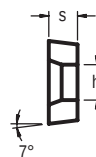
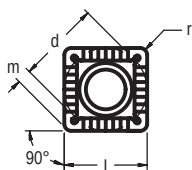
P Style External Toolholder  
for Negative Inserts: RN\_2509  
Application: Turn, Face Plunge and Profile  
Axial Approach 0°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 42^\circ$   
RH Holder Shown

PRSNL/R Spare Parts

| Item Description | Lever EDP |  | Lever Screw EDP |  | Anvil EDP |  | Anvil Clip EDP |  | Clip Punch EDP |  | Key EDP |  |
|------------------|-----------|-------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------|
| PRSNL/R 4040 S25 | 028408    | PL8025                                                                              | 028409          | PLS1612                                                                             | 034489    | PA3925                                                                              | 028418         | PC4125                                                                                | 034506         | PCP0025                                                                               | 018288  | KH5005                                                                                |



## SCMT -73 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032653 | SCMT09T304E-73  | SP4019 | 9,53            | 9,53  | 3,97 | 0,40           | 4,40 |          | Medium      |
| 032654 | SCMT09T304E-73  | NL300  | 9,53            | 9,53  | 3,97 | 0,40           | 4,40 |          | Medium      |
| 032655 | SCMT09T304E-73  | NL920  | 9,53            | 9,53  | 3,97 | 0,40           | 4,40 |          | Medium      |
| 030484 | SCMT09T308E-73  | SP4019 | 9,53            | 9,53  | 3,97 | 0,80           | 4,40 |          | Medium      |
| 032656 | SCMT09T308E-73  | NL300  | 9,53            | 9,53  | 3,97 | 0,80           | 4,40 |          | Medium      |
| 032657 | SCMT09T308E-73  | NL920  | 9,53            | 9,53  | 3,97 | 0,80           | 4,40 |          | Medium      |
| 032658 | SCMT12M504E-73  | SP4019 | 12,70           | 12,70 | 5,00 | 0,40           | 5,50 |          | Medium      |
| 032659 | SCMT12M504E-73  | NL300  | 12,70           | 12,70 | 5,00 | 0,40           | 5,50 |          | Medium      |
| 032660 | SCMT12M504E-73  | NL920  | 12,70           | 12,70 | 5,00 | 0,40           | 5,50 |          | Medium      |
| 032661 | SCMT12M508E-73  | SP4019 | 12,70           | 12,70 | 5,00 | 0,80           | 5,50 |          | Medium      |
| 032662 | SCMT12M508E-73  | NL300  | 12,70           | 12,70 | 5,00 | 0,80           | 5,50 |          | Medium      |
| 032663 | SCMT12M508E-73  | NL920  | 12,70           | 12,70 | 5,00 | 0,80           | 5,50 |          | Medium      |

For Toolholders External: see page C113 | Internal: see page C114

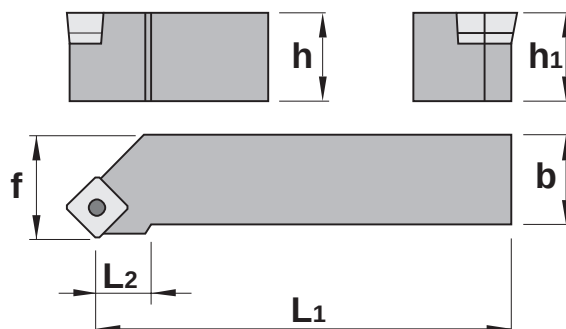
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**SSSC 45°**



Inserts - SCMT09T3 & 12M5

SSSC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 028605 | SSSCL 1212 F09   | LH   | SCMT09T3     | 12                 | 12 | 16 | 80             | 20             |
| 028606 | SSSCL 1616 H09   | LH   | SCMT09T3     | 16                 | 16 | 20 | 100            | 22             |
| 028609 | SSSCR 1212 F09   | RH   | SCMT09T3     | 12                 | 12 | 16 | 80             | 20             |
| 028610 | SSSCR 1616 H09   | RH   | SCMT09T3     | 16                 | 16 | 20 | 100            | 22             |
| 028607 | SSSCL 2020 K12   | LH   | SCMT12M5     | 20                 | 20 | 25 | 125            | 25             |
| 028608 | SSSCL 2525 M12   | LH   | SCMT12M5     | 25                 | 25 | 32 | 150            | 28             |
| 028611 | SSSCR 2020 K12   | RH   | SCMT12M5     | 20                 | 20 | 25 | 125            | 25             |
| 028612 | SSSCR 2525 M12   | RH   | SCMT12M5     | 25                 | 25 | 32 | 150            | 28             |



S Style External Toolholder  
for Positive Inserts  
SCMT09T3 & SCMT12M5  
Application: Turning, Plunge and Profile  
Approach Angle 45°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 42^\circ$   
RH Holder Shown

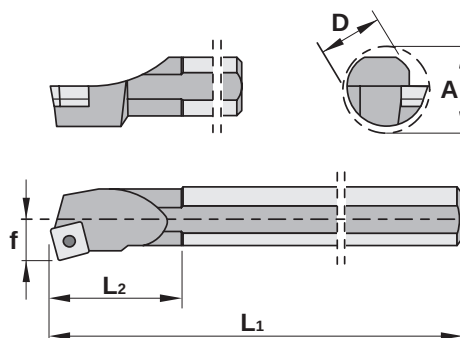
SSSCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SSSCL/R 1212 F09 | 015262              | D4010T                                                                              | 015240            | T15                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |
| SSSCL/R 1616 H09 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SSSCL/R 2020 K12 | 034500              | 1540                                                                                | 034577            | K5517                                                                               | 028738       | SA3514                                                                                | 028739             | SAS1760                                                                               |
| SSSCL/R 2525 M12 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



Turning Inserts

**SSKC 75°**



S.. SSKC LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |                                                                                      |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|--------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | L2 | Through Coolant                                                                      |
| 033549 | S16R SSKCL 09    | LH   | SC_09T3      | 20              | 16 | 11 | 200 | 31 |    |
| 033550 | S20S SSKCL 09    | LH   | SC_09T3      | 24              | 20 | 13 | 250 | 36 |    |
| 033551 | S25T SSKCL 09    | LH   | SC_09T3      | 31              | 25 | 17 | 300 | 42 |    |
| 033552 | S16R SSKCR 09    | RH   | SC_09T3      | 20              | 16 | 11 | 200 | 31 |    |
| 033553 | S20S SSKCR 09    | RH   | SC_09T3      | 24              | 20 | 13 | 250 | 36 |    |
| 033554 | S25T SSKCR 09    | RH   | SC_09T3      | 31              | 25 | 17 | 300 | 42 |    |
| 033555 | S32U SSKCL 12    | LH   | SC_12M5      | 39              | 32 | 22 | 350 | 45 |    |
| 033556 | *S40V SSKCL 12   | LH   | SC_12M5      | 48              | 40 | 27 | 400 | 50 |    |
| 033557 | *S50W SSKCL 12   | LH   | SC_12M5      | 61              | 50 | 35 | 450 | 50 |  |
| 033558 | S32U SSKCR 12    | RH   | SC_12M5      | 39              | 32 | 22 | 350 | 45 |  |
| 033559 | *S40V SSKCR 12   | RH   | SC_12M5      | 48              | 40 | 27 | 400 | 50 |  |
| 033560 | *S50W SSKCR 12   | RH   | SC_12M5      | 61              | 50 | 35 | 450 | 50 |  |

\* Note these items are on an extended delivery time



S Style Internal Boring Bar  
for Positive Inserts:  
SCMT09T3 & SCMT12M5  
Application: I/D Boring  
Axial Approach: 75°  
Axial 0°  
Radial -8°  
Profiling Clearance Angle  $\beta = 12^\circ$   
RH Bar Shown

S.. SSKCL/R Spare Parts

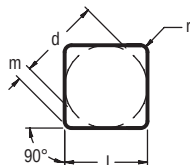
| Item Description | Insert Screw<br>EDP  |        | Insert Key<br>EDP  |       | Anvil<br>EDP  |        | Anvil Screw<br>EDP  |         |
|------------------|---------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------|---------|
| S16R SSKCL/R 09  | 034499                                                                                                  | 1440   | 015240                                                                                                | T15   | -                                                                                                  | -      | -                                                                                                        | -       |
| S20S SSKCL/R 09  | 015262                                                                                                  | D4010T |                                                                                                       |       |                                                                                                    |        |                                                                                                          |         |
| S25T SSKCL/R 09  |                                                                                                         |        |                                                                                                       |       |                                                                                                    |        |                                                                                                          |         |
| S32U SSKCL/R 12  | 034500                                                                                                  | 1540   | 034577                                                                                                | K5517 | 028738                                                                                             | SA3514 | 028739                                                                                                   | SAS1760 |
| *S40V SSKCL/R 12 |                                                                                                         |        |                                                                                                       |       |                                                                                                    |        |                                                                                                          |         |
| *S50W SSKCL/R 12 |                                                                                                         |        |                                                                                                       |       |                                                                                                    |        |                                                                                                          |         |

\* Note these items are on an extended delivery time





**SNGN**  
Ceramics



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |   | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|---|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h |          |             |
| 032331 | SNGN120408 E010 | SA6609 | 12,70           | 12,70 | 4,76 | 0,80           | - | ◆        | Roughing    |
| 032332 | SNGN120412 E010 | SA6609 | 12,70           | 12,70 | 4,76 | 1,20           | - | ◆        | Roughing    |
| 032333 | SNGN120708 E010 | SA6609 | 12,70           | 12,70 | 7,94 | 0,80           | - | ◆        | Roughing    |
| 032334 | SNGN120712 E010 | SA6609 | 12,70           | 12,70 | 7,94 | 1,20           | - | ◆        | Roughing    |
| 032335 | SNGN190616 E010 | SA6609 | 19,05           | 19,05 | 6,35 | 1,60           | - | ◆        | Roughing    |

Note: For edge condition refer to Grade page C29

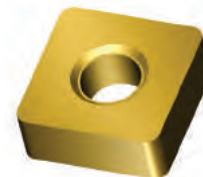
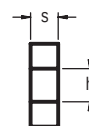
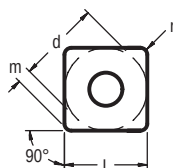
## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels  
 ◆ P Alloyed Steels  
 ◆ M Stainless Steels  
 ◆ M PH Stainless  
 ◆ K Cast Irons  
 ◆ N Aluminum & Alloys  
 ◆ S High Temp. Alloys  
 ◆ H Hard Materials



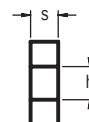
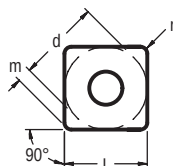
## SNMA Flat Top



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application    |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|----------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |                |
| 032664 | SNMA120408E     | NL250 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 | ◆        | Heavy Roughing |
| 032665 | SNMA120412E     | NL250 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 | ◆        | Heavy Roughing |
| 032666 | SNMA120416E     | NL250 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 | ◆        | Heavy Roughing |
| 032667 | SNMA150612E     | NL250 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 | ◆        | Heavy Roughing |
| 032668 | SNMA190616E     | NL250 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 | ◆        | Heavy Roughing |
| 032669 | SNMA190632E     | NL250 | 19,05           | 19,05 | 6,35 | 3,20           | 7,94 | ◆        | Heavy Roughing |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

## SNMG 1B Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 030878 | SNMG120408E-1B  | SP0819 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 | ◆◆◆◆◆    | Finishing   |
| 032670 | SNMG120408E-1B  | NL250  | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 | ◆◆◆◆◆    | Finishing   |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

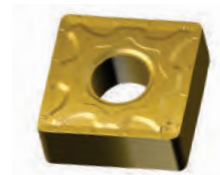
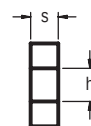
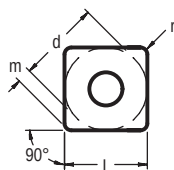
## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels 
 ◆ P Alloyed Steels 
 ◆ M Stainless Steels 
 ◆ M PH Stainless 
 ◆ K Cast Irons 
 ◆ N Aluminum & Alloys 
 ◆ S High Temp. Alloys 
 ◆ H Hard Materials



**SNMG**  
2N Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032671 | SNMG120408E-2N  | NL250 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032672 | SNMG120408E-2N  | NL300 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032673 | SNMG120408E-2N  | NL920 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032674 | SNMG120412E-2N  | NL250 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 032675 | SNMG120412E-2N  | NL300 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 032676 | SNMG120412E-2N  | NL920 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 032677 | SNMG120416E-2N  | NL250 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 |          | Medium      |
| 032678 | SNMG120416E-2N  | NL300 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 |          | Medium      |
| 032679 | SNMG120416E-2N  | NL920 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 |          | Medium      |
| 032680 | SNMG150608E-2N  | NL250 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |          | Medium      |
| 032681 | SNMG150608E-2N  | NL300 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |          | Medium      |
| 032682 | SNMG150608E-2N  | NL920 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |          | Medium      |
| 032683 | SNMG150612E-2N  | NL250 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |          | Medium      |
| 032684 | SNMG150612E-2N  | NL300 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |          | Medium      |
| 032685 | SNMG150612E-2N  | NL920 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |          | Medium      |
| 032686 | SNMG150616E-2N  | NL250 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |          | Medium      |
| 032687 | SNMG150616E-2N  | NL300 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |          | Medium      |
| 032688 | SNMG190612E-2N  | NL920 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Medium      |
| 032689 | SNMG190616E-2N  | NL300 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Medium      |
| 032690 | SNMG190616E-2N  | NL920 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Medium      |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

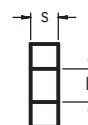
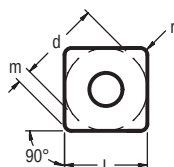
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



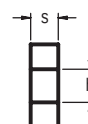
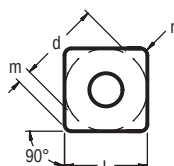
## SNMG 3J Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032691 | SNMG120408E-3J  | SP4019 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032692 | SNMG120412E-3J  | SP4019 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 032693 | SNMG120416E-3J  | SP4019 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 |          | Medium      |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

## SNMG 4E Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 031578 | SNMG120408E-4E  | SP0819 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032694 | SNMG120408E-4E  | NL400  | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 031658 | SNMG120412E-4E  | SP0819 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032695 | SNMG120412E-4E  | NL400  | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 031696 | SNMG120416E-4E  | SP0819 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032696 | SNMG120416E-4E  | NL400  | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 |          | Roughing    |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

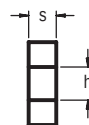
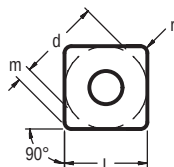
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## SNMG 4E Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application     |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-----------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |                 |
| 030527 | SNMG150608E-4E  | SP0819 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |          | Medium-Roughing |
| 032697 | SNMG150608E-4E  | NL400  | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |          | Medium-Roughing |
| 030528 | SNMG150612E-4E  | SP0819 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |          | Medium-Roughing |
| 032698 | SNMG150612E-4E  | NL400  | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |          | Medium-Roughing |
| 030529 | SNMG150616E-4E  | SP0819 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |          | Medium-Roughing |
| 032699 | SNMG150616E-4E  | NL400  | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |          | Medium-Roughing |
| 030530 | SNMG190608E-4E  | SP0819 | 19,05           | 19,05 | 6,35 | 0,80           | 7,94 |          | Medium-Roughing |
| 032700 | SNMG190608E-4E  | NL400  | 19,05           | 19,05 | 6,35 | 0,80           | 7,94 |          | Medium-Roughing |
| 030531 | SNMG190612E-4E  | SP0819 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Medium-Roughing |
| 032701 | SNMG190612E-4E  | NL400  | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Medium-Roughing |
| 032362 | SNMG190616E-4E  | NL400  | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Medium-Roughing |
| 030532 | SNMG190616E-4E  | SP0819 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Medium-Roughing |
| 030533 | SNMG190624E-4E  | SP0819 | 19,05           | 19,05 | 6,35 | 2,40           | 7,94 |          | Medium-Roughing |
| 032703 | SNMG190624E-4E  | NL400  | 19,05           | 19,05 | 6,35 | 2,40           | 7,94 |          | Medium-Roughing |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

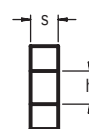
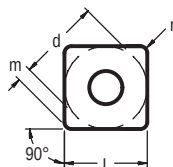
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## SNMG 4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032704 | SNMG120404E-4T  | NL250 | 12,70           | 12,70 | 4,76 | 0,40           | 5,16 | ◆◆◆◆     | Roughing    |
| 032705 | SNMG120404E-4T  | NL300 | 12,70           | 12,70 | 4,76 | 0,40           | 5,16 | ◆◆◆◆     | Roughing    |
| 032706 | SNMG120404E-4T  | NL400 | 12,70           | 12,70 | 4,76 | 0,40           | 5,16 | ◆◆◆◆     | Roughing    |
| 032707 | SNMG120404E-4T  | NL920 | 12,70           | 12,70 | 4,76 | 0,40           | 5,16 | ◆◆◆◆     | Roughing    |
| 032708 | SNMG120408E-4T  | NL250 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 | ◆◆◆◆     | Roughing    |
| 032709 | SNMG120408E-4T  | NL300 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 | ◆◆◆◆     | Roughing    |
| 032710 | SNMG120408E-4T  | NL400 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 | ◆◆◆◆     | Roughing    |
| 032711 | SNMG120408E-4T  | NL920 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 | ◆◆◆◆     | Roughing    |
| 032712 | SNMG120412E-4T  | NL250 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 | ◆◆◆◆     | Roughing    |
| 032713 | SNMG120412E-4T  | NL300 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 | ◆◆◆◆     | Roughing    |
| 032714 | SNMG120412E-4T  | NL400 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 | ◆◆◆◆     | Roughing    |
| 032715 | SNMG120412E-4T  | NL920 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 | ◆◆◆◆     | Roughing    |
| 032716 | SNMG120416E-4T  | NL250 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 | ◆◆◆◆     | Roughing    |
| 032717 | SNMG120416E-4T  | NL300 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 | ◆◆◆◆     | Roughing    |
| 032718 | SNMG120416E-4T  | NL400 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 | ◆◆◆◆     | Roughing    |
| 032719 | SNMG120416E-4T  | NL920 | 12,70           | 12,70 | 4,76 | 1,60           | 5,16 | ◆◆◆◆     | Roughing    |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

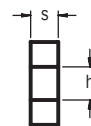
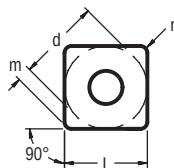
## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels 
 ◆ P Alloyed Steels 
 ◆ M Stainless Steels 
 ◆ M PH Stainless 
 ◆ K Cast Irons 
 ◆ N Aluminum & Alloys 
 ◆ S High Temp. Alloys 
 ◆ H Hard Materials



**SNMG**  
4T Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material                                                                              | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|---------------------------------------------------------------------------------------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |                                                                                       |             |
| 032720 | SNMG150608E-4T  | NL250 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |    | Roughing    |
| 032721 | SNMG150608E-4T  | NL300 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |    | Roughing    |
| 032722 | SNMG150608E-4T  | NL400 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |    | Roughing    |
| 032723 | SNMG150608E-4T  | NL920 | 15,88           | 15,88 | 6,35 | 0,80           | 6,35 |    | Roughing    |
| 032724 | SNMG150612E-4T  | NL250 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |    | Roughing    |
| 032725 | SNMG150612E-4T  | NL300 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |    | Roughing    |
| 032726 | SNMG150612E-4T  | NL400 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |    | Roughing    |
| 032727 | SNMG150612E-4T  | NL920 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |   | Roughing    |
| 032728 | SNMG150616E-4T  | NL250 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |  | Roughing    |
| 032729 | SNMG150616E-4T  | NL300 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |  | Roughing    |
| 032730 | SNMG150616E-4T  | NL400 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |  | Roughing    |
| 032731 | SNMG150616E-4T  | NL920 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |  | Roughing    |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

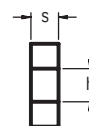
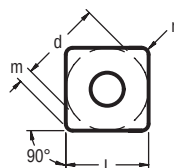
## Material Guide – Key to Recommended Inserts

### Material Designation

 Unalloyed Steels 
  Alloyed Steels 
  Stainless Steels 
  PH Stainless 
  Cast Irons 
  Aluminum & Alloys 
  High Temp. Alloys 
  Hard Materials



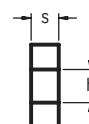
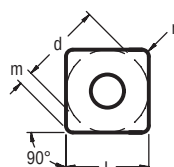
## SNMG 4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032732 | SNMG190612E-4T  | NL250 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Roughing    |
| 032733 | SNMG190612E-4T  | NL300 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Roughing    |
| 032734 | SNMG190612E-4T  | NL400 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Roughing    |
| 032735 | SNMG190612E-4T  | NL920 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Roughing    |
| 032736 | SNMG190616E-4T  | NL250 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Roughing    |
| 032737 | SNMG190616E-4T  | NL300 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Roughing    |
| 032738 | SNMG190616E-4T  | NL400 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Roughing    |
| 032739 | SNMG190616E-4T  | NL920 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Roughing    |
| 032740 | SNMG250924E-4T  | NL300 | 25,40           | 25,40 | 9,53 | 2,40           | 9,12 |          | Roughing    |
| 032741 | SNMG250924E-4T  | NL400 | 25,40           | 25,40 | 9,53 | 2,40           | 9,12 |          | Roughing    |
| 032742 | SNMG250924E-4T  | NL920 | 25,40           | 25,40 | 9,53 | 2,40           | 9,12 |          | Roughing    |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

## SNMG 4U Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032743 | SNMG120408E-4U  | NL200 | 12,70           | 12,70 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032744 | SNMG120412E-4U  | NL200 | 12,70           | 12,70 | 4,76 | 1,20           | 5,16 |          | Roughing    |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

## Material Guide – Key to Recommended Inserts

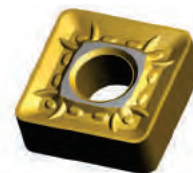
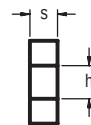
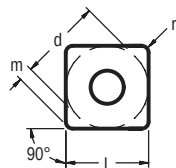
### Material Designation

P Unalloyed Steels 
 P Alloyed Steels 
 M Stainless Steels 
 M PH Stainless 
 K Cast Irons 
 N Aluminum & Alloys 
 S High Temp. Alloys 
 H Hard Materials





**SNMM**  
5R Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application    |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|----------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |                |
| 031690 | SNMM150612E-5R  | NL300 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |          | Heavy Roughing |
| 031674 | SNMM150612E-5R  | NL400 | 15,88           | 15,88 | 6,35 | 1,20           | 6,35 |          | Heavy Roughing |
| 031691 | SNMM150616E-5R  | NL300 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |          | Heavy Roughing |
| 031675 | SNMM150616E-5R  | NL400 | 15,88           | 15,88 | 6,35 | 1,60           | 6,35 |          | Heavy Roughing |
| 031692 | SNMM150624E-5R  | NL300 | 15,88           | 15,88 | 6,35 | 2,40           | 6,35 |          | Heavy Roughing |
| 031676 | SNMM150624E-5R  | NL400 | 15,88           | 15,88 | 6,35 | 2,40           | 6,35 |          | Heavy Roughing |
| 031693 | SNMM190612E-5R  | NL300 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Heavy Roughing |
| 031677 | SNMM190612E-5R  | NL400 | 19,05           | 19,05 | 6,35 | 1,20           | 7,94 |          | Heavy Roughing |
| 031694 | SNMM190616E-5R  | NL300 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Heavy Roughing |
| 031678 | SNMM190616E-5R  | NL400 | 19,05           | 19,05 | 6,35 | 1,60           | 7,94 |          | Heavy Roughing |
| 031695 | SNMM190624E-5R  | NL300 | 19,05           | 19,05 | 6,35 | 2,40           | 7,94 |          | Heavy Roughing |
| 031679 | SNMM190624E-5R  | NL400 | 19,05           | 19,05 | 6,35 | 2,40           | 7,94 |          | Heavy Roughing |
| 031681 | SNMM250924E-5R  | NL300 | 25,40           | 25,40 | 9,53 | 2,40           | 9,12 |          | Heavy Roughing |
| 032750 | SNMM250924E-5R  | NL400 | 25,40           | 25,40 | 9,53 | 2,40           | 9,12 |          | Heavy Roughing |
| 031680 | SNMM250924E-5R  | NL920 | 25,40           | 25,40 | 9,53 | 2,40           | 9,12 |          | Heavy Roughing |

For Toolholders External: see pages C124 - C127 | Internal: see page C128

## Material Guide – Key to Recommended Inserts

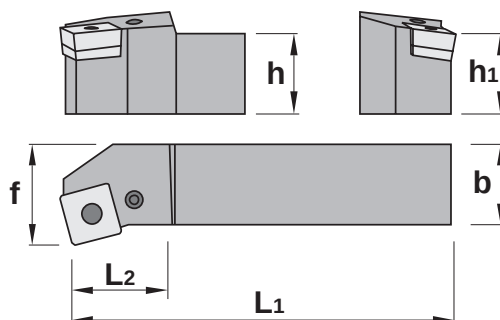
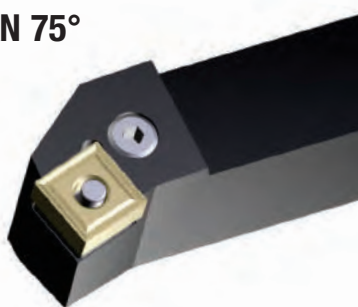
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



Turning Inserts

**PSKN 75°**



PSKN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 017165 | PSKNL 2020 K 12  | LH   | SN_1204      | 20                 | 20 | 25 | 125            | 28             |
| 017167 | PSKNL 2525 M12   | LH   | SN_1204      | 25                 | 25 | 32 | 150            | 28             |
| 017169 | PSKNL 3225 P12   | LH   | SN_1204      | 32                 | 25 | 32 | 170            | 34             |
| 017166 | PSKNR 2020 K 12  | RH   | SN_1204      | 20                 | 20 | 25 | 125            | 28             |
| 017168 | PSKNR 2525 M12   | RH   | SN_1204      | 25                 | 25 | 32 | 150            | 28             |
| 017170 | PSKNR 3225 P12   | RH   | SN_1204      | 32                 | 25 | 32 | 170            | 34             |
| 024735 | PSKNL 2525 M15   | LH   | SN_1506      | 25                 | 25 | 32 | 150            | 34             |
| 028429 | PSKNL 3232 P15   | LH   | SN_1506      | 32                 | 32 | 40 | 170            | 42             |
| 024739 | PSKNR 2525 M15   | RH   | SN_1506      | 25                 | 25 | 32 | 150            | 34             |
| 023289 | PSKNR 3232 P15   | RH   | SN_1506      | 32                 | 32 | 40 | 170            | 42             |
| 024738 | *PSKNL 4040 S19  | LH   | SN_1906      | 40                 | 40 | 50 | 250            | 45             |
| 024741 | *PSKNR 4040 S19  | RH   | SN_1906      | 40                 | 40 | 50 | 250            | 45             |
| 033352 | *PSKNL 5050 T25  | LH   | SN_2509      | 50                 | 50 | 60 | 300            | 45             |
| 033353 | *PSKNR 5050 T25  | RH   | SN_2509      | 50                 | 50 | 60 | 300            | 45             |

\* Non Stock Items, subject to extended delivery time



P Style External Toolholder  
for Negative Inserts:  
SN\_1204, SN\_1506, SN\_1906 & SN\_2507  
Application: Facing  
Axial Approach 75°  
Axial -4,25°  
Radial -7,25°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

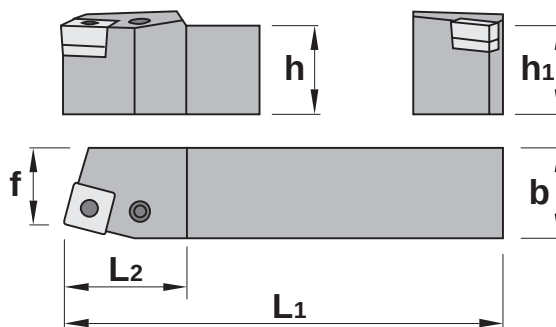
PSKNL/R Spare Parts

| Punch and Die Set |                                                                                               |                                                                                                     |                                                                                                |                                                                                                      |                                                                                                      |                                                                                               |        |        |        |         |        |        |
|-------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------|--------|--------|---------|--------|--------|
| Item Description  | Lever EDP  | Lever Screw EDP  | Anvil EDP  | Anvil Clip EDP  | Clip Punch EDP  | Key EDP  |        |        |        |         |        |        |
| PSKNL/R 2020 K 12 | 017443                                                                                        | 8012                                                                                                | 017448                                                                                         | 1608                                                                                                 | 017460                                                                                               | PA3512                                                                                        | 017453 | PC4112 | 028054 | PCP0012 | 018286 | KH5003 |
| PSKNL/R 2525 M12  |                                                                                               |                                                                                                     |                                                                                                |                                                                                                      |                                                                                                      |                                                                                               |        |        |        |         |        |        |
| PSKNL/R 3225 P12  |                                                                                               |                                                                                                     |                                                                                                |                                                                                                      |                                                                                                      |                                                                                               |        |        |        |         |        |        |
| PSKNL/R 2525 M15  | 017445                                                                                        | 8016                                                                                                | 017450                                                                                         | 1618                                                                                                 | 017461                                                                                               | PA3515                                                                                        | 028051 | PC4115 | 034505 | PCP0015 |        |        |
| PSKNL/R 3232 P15  |                                                                                               |                                                                                                     |                                                                                                |                                                                                                      |                                                                                                      |                                                                                               |        |        |        |         |        |        |
| *PSKNL/R 4040 S19 | 017446                                                                                        | 8019                                                                                                | 017451                                                                                         | 1610                                                                                                 | 017462                                                                                               | PA3519                                                                                        | 017455 | PC4119 | 028056 | PCP0019 | 018287 | KH5004 |
| *PSKNL/R 5050 T25 | 028408                                                                                        | 8025                                                                                                | 028409                                                                                         | 1612                                                                                                 | 028416                                                                                               | PA3525                                                                                        | 028418 | PC4125 | 034506 | PCP0025 | 018288 | KH5005 |

\* Non Stock Items, subject to extended delivery time



## PSBN 75°



Turning Inserts

PSBN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 017152 | PSBNL 2020 K 12  | LH   | SN_1204      | 20                 | 20 | 17 | 125            | 28             |
| 017154 | PSBNL 2525 M12   | LH   | SN_1204      | 25                 | 25 | 22 | 150            | 28             |
| 028399 | PSBNL 3225 P12   | LH   | SN_1204      | 32                 | 25 | 22 | 170            | 28             |
| 017153 | PSBNR 2020 K 12  | RH   | SN_1204      | 20                 | 20 | 17 | 125            | 28             |
| 017155 | PSBNR 2525 M12   | RH   | SN_1204      | 25                 | 25 | 22 | 150            | 28             |
| 028405 | PSBNR 3225 P12   | RH   | SN_1204      | 32                 | 25 | 22 | 170            | 28             |
| 028400 | PSBNL 2525 M15   | LH   | SN_1506      | 25                 | 25 | 22 | 150            | 34             |
| 028401 | PSBNL 3232 P15   | LH   | SN_1506      | 32                 | 32 | 27 | 170            | 34             |
| 017159 | PSBNR 2525 M15   | RH   | SN_1506      | 25                 | 25 | 22 | 150            | 34             |
| 028406 | PSBNR 3232 P15   | RH   | SN_1506      | 32                 | 32 | 27 | 170            | 34             |
| 018466 | *PSBNL 4040 S19  | LH   | SN_1906      | 40                 | 40 | 35 | 250            | 48             |
| 018467 | *PSBNR 4040 S19  | RH   | SN_1906      | 40                 | 40 | 35 | 250            | 48             |
| 033356 | *PSBNL 5050 T25  | LH   | SN_2509      | 50                 | 50 | 43 | 300            | 50             |
| 033357 | *PSBNR 5050 T25  | RH   | SN_2509      | 50                 | 50 | 43 | 300            | 50             |

\* Non Stock Items, subject to extended delivery time



P Style External Toolholder  
for Negative Inserts:  
SN\_1204, SN\_1506, SN\_1906 & SN\_2507  
Application: Turn O/D  
Axial Approach 75°  
Axial -7,25°  
Radial -4,25°  
Profiling Clearance Angle  $\beta = 12^\circ$   
RH Holder Shown

PSBNL/R Spare Parts

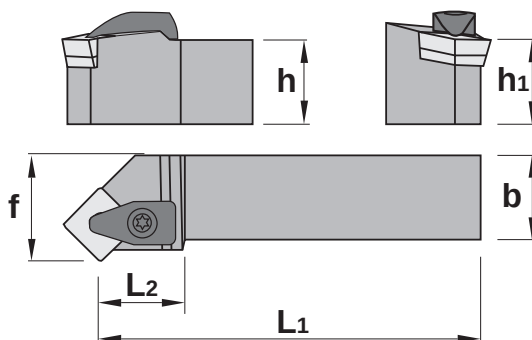
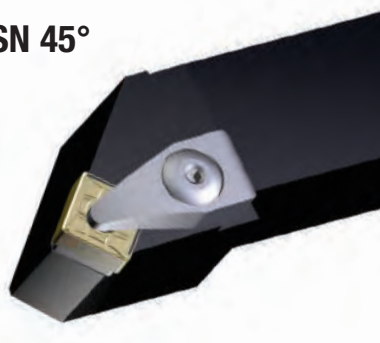
| Item Description  | Lever EDP |  | Lever Screw EDP |  | Anvil EDP |  | Anvil Clip EDP |  | Clip Punch EDP |  | Key EDP |  |
|-------------------|-----------|-------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------|
| PSBNL/R 2020 K 12 | 017443    | PL8012                                                                              | 017448          | PLS1608                                                                             | 017460    | PA3512                                                                               | 017453         | PC4112                                                                                | 028054         | PCP0012                                                                               | 018286  | KH5003                                                                                |
| PSBNL/R 2525 M12  |           |                                                                                     |                 |                                                                                     |           |                                                                                      |                |                                                                                       |                |                                                                                       |         |                                                                                       |
| PSBNL/R 3225 P12  |           |                                                                                     |                 |                                                                                     |           |                                                                                      |                |                                                                                       |                |                                                                                       |         |                                                                                       |
| PSBNL/R 2525 M15  | 017445    | PL8016                                                                              | 017450          | PLS1618                                                                             | 017461    | PA3515                                                                               | 028051         | PC4115                                                                                | 034505         | PCP0015                                                                               |         |                                                                                       |
| PSBNL/R 3232 P15  |           |                                                                                     |                 |                                                                                     |           |                                                                                      |                |                                                                                       |                |                                                                                       |         |                                                                                       |
| PSBNL/R 4040 S19  | 017446    | PL8019                                                                              | 017451          | PLS1610                                                                             | 017462    | PA3519                                                                               | 017455         | PC4119                                                                                | 028056         | PCP0019                                                                               | 018287  | KH5004                                                                                |
| *PSBNL/R 5050 T25 | 028408    | PL8025                                                                              | 028409          | PLS1612                                                                             | 028416    | PA3525                                                                               | 028418         | PC4125                                                                                | 034506         | PCP0025                                                                               | 018288  | KH5005                                                                                |

\* Non Stock Items, subject to extended delivery time



Turning Inserts

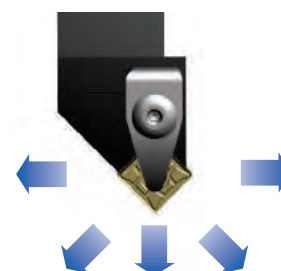
**DSSN 45°**



DSSN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 033358 | DSSNL 2020 K12   | LH   | SN_1204      | 20                 | 20 | 25 | 125            | 37             |
| 033359 | DSSNL 2525 M12   | LH   | SN_1204      | 25                 | 25 | 32 | 150            | 37             |
| 033360 | DSSNL 3225 P12   | LH   | SN_1204      | 32                 | 25 | 32 | 170            | 37             |
| 033361 | DSSNR 2020 K12   | RH   | SN_1204      | 20                 | 20 | 25 | 125            | 37             |
| 033362 | DSSNR 2525 M12   | RH   | SN_1204      | 25                 | 25 | 32 | 150            | 37             |
| 033363 | DSSNR 3225 P12   | RH   | SN_1204      | 32                 | 25 | 32 | 170            | 37             |
| 033364 | DSSNL 2525 M15   | LH   | SN_1506      | 25                 | 25 | 32 | 150            | 36             |
| 033365 | DSSNL 3232 P15   | LH   | SN_1506      | 32                 | 32 | 40 | 170            | 40             |
| 033366 | DSSNR 2525 M15   | RH   | SN_1506      | 25                 | 25 | 32 | 150            | 36             |
| 033367 | DSSNR 3232 P15   | RH   | SN_1506      | 32                 | 32 | 40 | 170            | 40             |
| 033368 | DSSNL 3232 P19   | LH   | SN_1906      | 32                 | 32 | 40 | 170            | 45             |
| 033369 | *DSSNL 4040 S19  | LH   | SN_1906      | 40                 | 40 | 50 | 250            | 45             |
| 033370 | DSSNR 3232 P19   | RH   | SN_1906      | 32                 | 32 | 40 | 170            | 45             |
| 033371 | *DSSNR 4040 S19  | RH   | SN_1906      | 40                 | 40 | 50 | 250            | 45             |

\* Non Stock Items, subject to extended delivery time



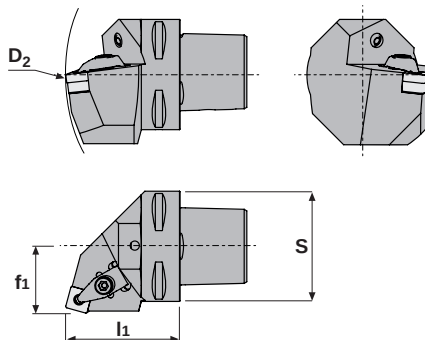
D Style External Toolholder  
for Negative Inserts:  
SN\_1204, SN\_1506 & SN\_1906  
Application: Turn O/D & Plunge Profile  
Axial Approach 45°  
Axial -5,75°  
Radial -5,75°  
Profiling Clearance Angle  $\beta = 42^\circ$   
RH Holder Shown

DSSNL/R Spare Parts

| Item Description | Clamp Screw<br>EDP  |        | Clamp<br>EDP  |         | Clamp Spring<br>EDP  |      | Anvil<br>EDP  |         | Anvil Screw<br>EDP  |      | Clamp & Anvil<br>Screw Key  |        |
|------------------|--------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------|--------|
| DSSNL/R 2020 K12 | 033710                                                                                                 | 1696   | 033707                                                                                           | DC2712  | 033719                                                                                                  | 4295 | 001704                                                                                            | ISSN433 | 033716                                                                                                   | 1766 | 018287                                                                                                           | KH5004 |
| DSSNL/R 2525 M12 |                                                                                                        |        |                                                                                                  |         |                                                                                                         |      |                                                                                                   |         |                                                                                                          |      |                                                                                                                  |        |
| DSSNL/R 3225 P12 |                                                                                                        |        |                                                                                                  |         |                                                                                                         |      |                                                                                                   |         |                                                                                                          |      |                                                                                                                  |        |
| DSSNL/R 2525 M15 |                                                                                                        |        | 034495                                                                                           | DC2716  |                                                                                                         |      | 001707                                                                                            | ISSN533 | 034509                                                                                                   | 1768 |                                                                                                                  |        |
| DSSNL/R 3232 P15 |                                                                                                        |        |                                                                                                  |         |                                                                                                         |      |                                                                                                   |         |                                                                                                          |      |                                                                                                                  |        |
| DSSNL/R 3232 P19 |                                                                                                        |        |                                                                                                  |         |                                                                                                         |      |                                                                                                   |         |                                                                                                          |      |                                                                                                                  |        |
| DSSNL/R 4040 S19 | 033708                                                                                                 | DC2719 | 001709                                                                                           | ISSN633 | 033717                                                                                                  | 1770 |                                                                                                   |         |                                                                                                          |      |                                                                                                                  |        |



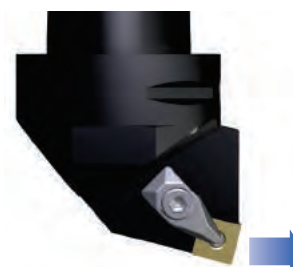
**DSRN 75°**



Turning Inserts

DSRN LH & RH External PSC Toolholders

| EDP    | Item Description    | Hand | Insert Sizes | Dimensions (mm) |    |     |    |    |
|--------|---------------------|------|--------------|-----------------|----|-----|----|----|
|        |                     |      |              | S               | D1 | D2  | f1 | l1 |
| 033705 | C6-63-DSRNL35065-12 | LH   | SN_1204      | 63              | -  | 190 | 35 | 65 |
| 033706 | C6-63-DSRNR35065-12 | RH   | SN_1204      | 63              | -  | 190 | 35 | 65 |



D Style External Toolholder  
for Negative Inserts: SN\_1204  
Application: External Face and Turn O/D  
Approach Angle 75°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 12^\circ$   
RH Holder Shown

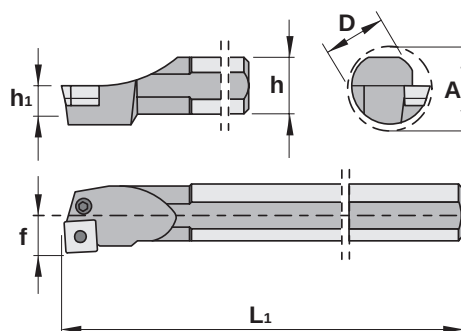
C.. DSRNL/R Spare Parts

| Item Description       | Clamp<br>EDP |  | Clamp Screw<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  | Clamp<br>Spring EDP |  | Screw Key<br>EDP |  |
|------------------------|--------------|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------|
| C6-63-DSRNL/R 35065-12 | 033707       | 2712                                                                                | 033710             | 1696                                                                                | 033715       | ISSN442                                                                             | 033716             | 1766                                                                                  | 033719              | 4295                                                                                  | 018287           | KH5004                                                                                |



Turning Inserts

## A..PSKN 75°



A..PSKN LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |    |                |                                                                                     |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----|----------------|-------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | h  | h <sub>1</sub> | Through Coolant                                                                     |
| 028724 | A25R PSKNL 12    | LH   | SN_1204      | 31              | 25 | 17 | 200            | 23 | 11,5           |  |
| 028725 | A32S PSKNL 12    | LH   | SN_1204      | 39              | 32 | 22 | 250            | 30 | 15,0           |  |
| 028726 | A40T PSKNL 12    | LH   | SN_1204      | 48              | 40 | 27 | 300            | 37 | 18,5           |  |
| 028727 | A25R PSKNR 12    | RH   | SN_1204      | 31              | 25 | 17 | 200            | 23 | 11,5           |  |
| 028728 | A32S PSKNR 12    | RH   | SN_1204      | 39              | 32 | 22 | 250            | 30 | 15,0           |  |
| 028729 | A40T PSKNR 12    | RH   | SN_1204      | 48              | 40 | 27 | 300            | 37 | 18,5           |  |



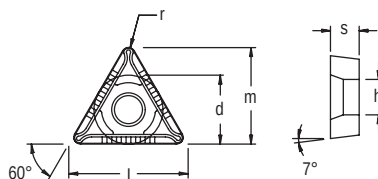
P Style Internal Boring Bar  
for Negative Inserts: SN\_1204  
Application: Boring  
Axial Approach 75°  
Axial -3°  
Radial -11°  
Profiling Clearance Angle  $\beta = 12^\circ$   
RH Bar Shown

A..PSKNL/R Spare Parts

| Item Description | Lever EDP |        | Lever Screw EDP |         | Anvil EDP |        | Anvil Clip EDP |        | Clip Punch EDP |         | Key EDP |        |
|------------------|-----------|--------|-----------------|---------|-----------|--------|----------------|--------|----------------|---------|---------|--------|
| A25R PSKNL/R 12  | 028742    | PL8212 | 028743          | PLS1626 | -         | -      | -              | -      | -              | -       | 018285  | KH5025 |
| A32S PSKNL/R 12  | 028047    | PL8312 | 022625          | PLS1648 | 017460    | PA3512 | 017453         | PC4112 | 028054         | PCP0012 | 018286  | KH5003 |
| A40T PSKNL/R 12  | 017443    | PL8012 | 017448          | PLA1608 |           |        |                |        |                |         |         |        |



## TCMT -73 Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032751 | TCMT110202E-73  | SP4019 | 6,35            | 11,00 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 032752 | TCMT110202E-73  | NL300  | 6,35            | 11,00 | 2,38 | 0,20           | 2,80 |          | Medium      |
| 032753 | TCMT110204E-73  | SP4019 | 6,35            | 11,00 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 032754 | TCMT110204E-73  | NL300  | 6,35            | 11,00 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 032755 | TCMT110204E-73  | NL920  | 6,35            | 11,00 | 2,38 | 0,40           | 2,80 |          | Medium      |
| 032302 | TCMT16T304E-73  | SP4019 | 9,53            | 16,50 | 3,97 | 0,40           | 4,40 |          | Medium      |
| 032756 | TCMT16T304E-73  | NL300  | 9,53            | 16,50 | 3,97 | 0,40           | 4,40 |          | Medium      |
| 032757 | TCMT16T304E-73  | NL920  | 9,53            | 16,50 | 3,97 | 0,40           | 4,40 |          | Medium      |
| 032294 | TCMT16T308E-73  | SP4019 | 9,53            | 16,50 | 3,97 | 0,80           | 4,40 |          | Medium      |
| 032758 | TCMT16T308E-73  | NL300  | 9,53            | 16,50 | 3,97 | 0,80           | 4,40 |          | Medium      |
| 032759 | TCMT16T308E-73  | NL920  | 9,53            | 16,50 | 3,97 | 0,80           | 4,40 |          | Medium      |
| 032760 | TCMT22M508E-73  | NL920  | 12,70           | 22,00 | 5,00 | 0,80           | 5,50 |          | Medium      |

For Toolholders External: see page C130 | Internal: see page C131

## Material Guide – Key to Recommended Inserts

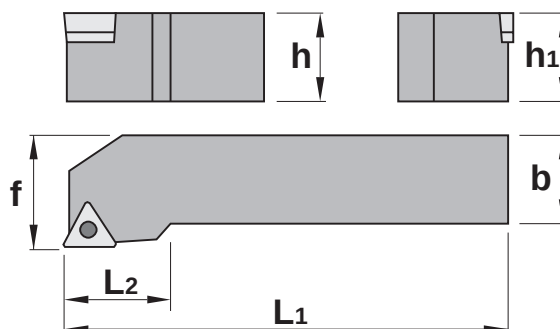
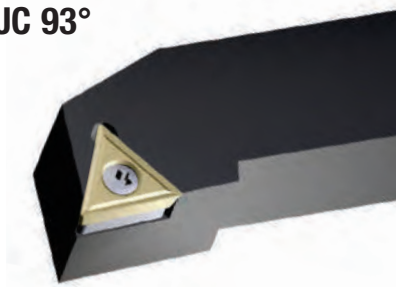
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



Turning Inserts

**STJC 93°**



STJC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 028625 | STJCL 1212 F11   | LH   | TCMT1102     | 12                 | 12 | 16 | 80             | 16             |
| 028626 | STJCL 1616 H11   | LH   | TCMT1102     | 16                 | 16 | 20 | 100            | 18             |
| 028630 | STJCR 1212 F11   | RH   | TCMT1102     | 12                 | 12 | 16 | 80             | 16             |
| 028631 | STJCR 1616 H11   | RH   | TCMT1102     | 16                 | 16 | 20 | 100            | 18             |
| 028627 | STJCL 1616 H16   | LH   | TCMT16T3     | 16                 | 16 | 20 | 100            | 18             |
| 028628 | STJCL 2020 K16   | LH   | TCMT16T3     | 20                 | 20 | 25 | 125            | 22             |
| 028629 | STJCL 2525 M16   | LH   | TCMT16T3     | 25                 | 25 | 32 | 150            | 28             |
| 028632 | STJCR 1616 H16   | RH   | TCMT16T3     | 16                 | 16 | 20 | 100            | 18             |
| 028633 | STJCR 2020 K16   | RH   | TCMT16T3     | 20                 | 20 | 25 | 125            | 22             |
| 028634 | STJCR 2525 M16   | RH   | TCMT16T3     | 25                 | 25 | 32 | 150            | 28             |



S Style External Toolholder  
for Positive Inserts:  
TCMT1102 and TCMT16T3  
Application: O/D Turning  
Approach Angle 93°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

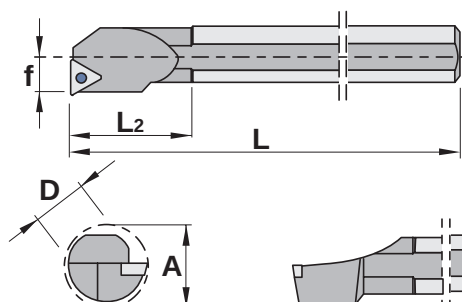
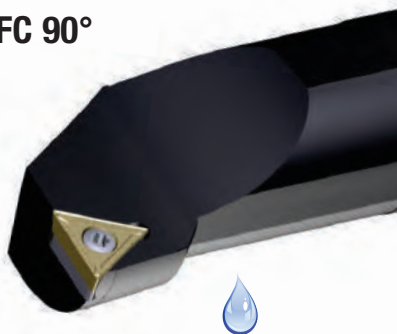
STJCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| STJCL/R 1212 F11 | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| STJCL/R 1616 H11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| STJCL/R 1616 H16 | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028580       | SA3414                                                                                | 028478             | SA1750                                                                                |
| STJCL/R 2020 K16 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| STJCL/R 2525 M16 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |





## A..STFC 90°



Turning Inserts

### A.. STFC LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |                                                                                       |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|---------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | L2 | Through Coolant                                                                       |
| 033573 | A12K STFCL 11    | LH   | TCMT1102     | 16              | 12 | 9  | 125 | 23 |    |
| 033574 | A16M STFCL 11    | LH   | TCMT1102     | 20              | 16 | 11 | 150 | 31 |    |
| 033577 | A20Q STFCL 11    | LH   | TCMT1102     | 24              | 20 | 13 | 180 | 36 |    |
| 033575 | A12K STFCL 11    | RH   | TCMT1102     | 16              | 12 | 9  | 125 | 23 |    |
| 033576 | A16M STFCL 11    | RH   | TCMT1102     | 20              | 16 | 11 | 150 | 31 |   |
| 033580 | A20Q STFCL 11    | RH   | TCMT16T3     | 24              | 20 | 13 | 180 | 36 |  |
| 033578 | A25R STFCL 16    | LH   | TCMT16T3     | 31              | 25 | 17 | 200 | 42 |  |
| 033579 | A32S STFCL 16    | LH   | TCMT16T3     | 39              | 32 | 22 | 250 | 45 |  |
| 033581 | A25R STFCL 16    | RH   | TCMT16T3     | 31              | 25 | 17 | 200 | 42 |  |
| 033582 | A32S STFCL 16    | RH   | TCMT16T3     | 39              | 32 | 22 | 250 | 45 |  |



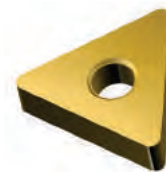
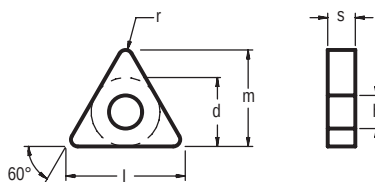
S Style Internal Boring Bar  
for Positive Inserts:  
TCMT1102 and TCMT16T3  
Application: I/D Boring  
Axial Approach: 90°  
Axial 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Bar Shown

### A.. STFCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| A12K STFCL/R 11  | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| A16M STFCL/R 11  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A20Q STFCL/R 11  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A25R STFCL/R 16  | 015262              | D4010T                                                                              | 015240            | T15                                                                                 | -            | -                                                                                     | -                  | -                                                                                     |
| A32S STFCL/R 16  | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028580       | SA3414                                                                                | 028478             | SAS1750                                                                               |



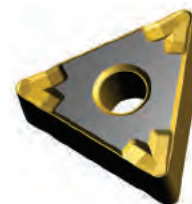
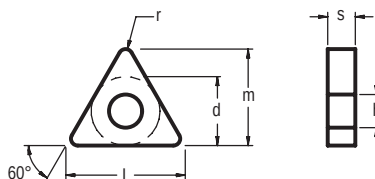
## TNMA Flat Top



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application    |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|----------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |                |
| 032761 | TNMA160408E     | NL250 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 | ◆        | Heavy Roughing |
| 032762 | TNMA160412E     | NL250 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 | ◆        | Heavy Roughing |
| 032763 | TNMA220408E     | NL250 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 | ◆        | Heavy Roughing |
| 032764 | TNMA220412E     | NL250 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 | ◆        | Heavy Roughing |
| 032765 | TNMA220416E     | NL250 | 12,70           | 22,00 | 4,76 | 1,60           | 5,16 | ◆        | Heavy Roughing |
| 032766 | TNMA270616E     | NL250 | 15,88           | 27,50 | 6,35 | 1,60           | 6,35 | ◆        | Heavy Roughing |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

## TNMG 1B Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032767 | TNMG160404E-1B  | NL250  | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 | ◆◆◆◆     | Finishing   |
| 030879 | TNMG160404E-1B  | SP0819 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 | ◆◆◆◆◆    | Finishing   |
| 032768 | TNMG160408E-1B  | NL250  | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 | ◆◆◆◆     | Finishing   |
| 030880 | TNMG160408E-1B  | SP0819 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 | ◆◆◆◆◆    | Finishing   |
| 032769 | TNMG160412E-1B  | SP0819 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 | ◆◆◆◆◆    | Finishing   |
| 032770 | TNMG160412E-1B  | NL250  | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 | ◆◆◆◆     | Finishing   |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

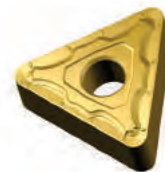
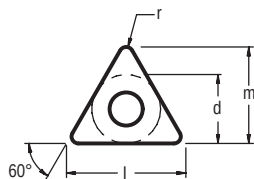
## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels 
 ◆ P Alloyed Steels 
 ◆ M Stainless Steels 
 ◆ M PH Stainless 
 ◆ K Cast Irons 
 ◆ N Aluminum & Alloys 
 ◆ S High Temp. Alloys 
 ◆ H Hard Materials



**TNMG**  
2N Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032771 | TNMG160404E-2N  | NL250 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Semi-Medium |
| 032772 | TNMG160404E-2N  | NL300 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Semi-Medium |
| 032773 | TNMG160404E-2N  | NL920 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Semi-Medium |
| 032774 | TNMG160408E-2N  | NL250 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Semi-Medium |
| 032775 | TNMG160408E-2N  | NL300 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Semi-Medium |
| 032776 | TNMG160408E-2N  | NL920 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Semi-Medium |
| 032777 | TNMG160412E-2N  | NL250 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Semi-Medium |
| 032778 | TNMG160412E-2N  | NL300 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Semi-Medium |
| 032779 | TNMG160412E-2N  | NL920 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Semi-Medium |
| 032780 | TNMG220404E-2N  | NL250 | 12,70           | 22,00 | 4,76 | 0,40           | 5,16 |          | Semi-Medium |
| 032781 | TNMG220404E-2N  | NL300 | 12,70           | 22,00 | 4,76 | 0,40           | 5,16 |          | Semi-Medium |
| 032782 | TNMG220404E-2N  | NL920 | 12,70           | 22,00 | 4,76 | 0,40           | 5,16 |          | Semi-Medium |
| 032783 | TNMG220408E-2N  | NL250 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Semi-Medium |
| 032784 | TNMG220408E-2N  | NL300 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Semi-Medium |
| 032785 | TNMG220408E-2N  | NL920 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Semi-Medium |
| 032786 | TNMG220412E-2N  | NL250 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Semi-Medium |
| 032787 | TNMG220412E-2N  | NL300 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Semi-Medium |
| 032788 | TNMG220412E-2N  | NL920 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Semi-Medium |
| 032789 | TNMG270616E-2N  | NL920 | 15,88           | 27,50 | 6,35 | 1,60           | 6,35 |          | Semi-Medium |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

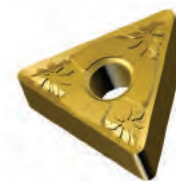
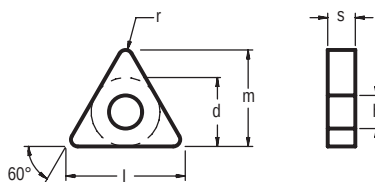
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



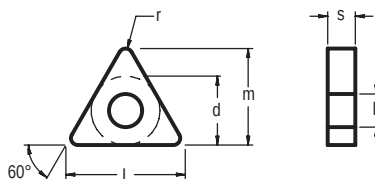
## TNMG 3J Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032790 | TNMG160404E-3J  | SP4019 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Medium      |
| 032791 | TNMG160408E-3J  | SP4019 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Medium      |
| 032792 | TNMG160412E-3J  | SP4019 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Medium      |
| 032793 | TNMG220408E-3J  | SP4019 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032794 | TNMG220412E-3J  | SP4019 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Medium      |
| 032795 | TNMG220416E-3J  | SP4019 | 12,70           | 22,00 | 4,76 | 1,60           | 5,16 |          | Medium      |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

## TNMG 4E Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application     |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-----------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |                 |
| 030534 | TNMG160404E-4E  | SP0819 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Medium-Roughing |
| 032926 | TNMG160404E-4E  | NL400  | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Medium-Roughing |
| 030535 | TNMG160408E-4E  | SP0819 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Medium-Roughing |
| 032927 | TNMG160408E-4E  | NL400  | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Medium-Roughing |
| 030536 | TNMG160412E-4E  | SP0819 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Medium-Roughing |
| 032928 | TNMG160412E-4E  | NL400  | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Medium-Roughing |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

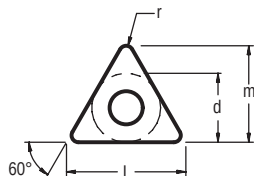
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## TNMG 4T Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032796 | TNMG160304E-4T  | NL300 | 9,53            | 16,50 | 3,18 | 0,40           | 3,81 |          | Roughing    |
| 032797 | TNMG160304E-4T  | NL400 | 9,53            | 16,50 | 3,18 | 0,40           | 3,81 |          | Roughing    |
| 032798 | TNMG160304E-4T  | NL920 | 9,53            | 16,50 | 3,18 | 0,40           | 3,81 |          | Roughing    |
| 032799 | TNMG160308E-4T  | NL300 | 9,53            | 16,50 | 3,18 | 0,80           | 3,81 |          | Roughing    |
| 032800 | TNMG160308E-4T  | NL400 | 9,53            | 16,50 | 3,18 | 0,80           | 3,81 |          | Roughing    |
| 032801 | TNMG160308E-4T  | NL920 | 9,53            | 16,50 | 3,18 | 0,80           | 3,81 |          | Roughing    |
| 032802 | TNMG160404E-4T  | NL250 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Roughing    |
| 032803 | TNMG160404E-4T  | NL300 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Roughing    |
| 032804 | TNMG160404E-4T  | NL400 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Roughing    |
| 032805 | TNMG160404E-4T  | NL920 | 9,53            | 16,50 | 4,76 | 0,40           | 3,81 |          | Roughing    |
| 032806 | TNMG160408E-4T  | NL250 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Roughing    |
| 032807 | TNMG160408E-4T  | NL300 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Roughing    |
| 032808 | TNMG160408E-4T  | NL400 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Roughing    |
| 032809 | TNMG160408E-4T  | NL920 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Roughing    |
| 032810 | TNMG160412E-4T  | NL250 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Roughing    |
| 032811 | TNMG160412E-4T  | NL300 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Roughing    |
| 032812 | TNMG160412E-4T  | NL400 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Roughing    |
| 032813 | TNMG160412E-4T  | NL920 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Roughing    |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

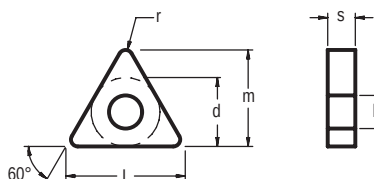
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**TNMG**  
4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032814 | TNMG220404E-4T  | NL250 | 12,70           | 22,00 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032815 | TNMG220404E-4T  | NL300 | 12,70           | 22,00 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032816 | TNMG220404E-4T  | NL400 | 12,70           | 22,00 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032817 | TNMG220404E-4T  | NL920 | 12,70           | 22,00 | 4,76 | 0,40           | 5,16 |          | Roughing    |
| 032818 | TNMG220408E-4T  | NL250 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032819 | TNMG220408E-4T  | NL300 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032820 | TNMG220408E-4T  | NL400 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032821 | TNMG220408E-4T  | NL920 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032822 | TNMG220412E-4T  | NL250 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032823 | TNMG220412E-4T  | NL300 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032824 | TNMG220412E-4T  | NL400 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032825 | TNMG220412E-4T  | NL920 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032826 | TNMG220416E-4T  | NL250 | 12,70           | 22,00 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032827 | TNMG220416E-4T  | NL300 | 12,70           | 22,00 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032828 | TNMG220416E-4T  | NL400 | 12,70           | 22,00 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032829 | TNMG220416E-4T  | NL920 | 12,70           | 22,00 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032830 | TNMG220432E-4T  | NL300 | 12,70           | 22,00 | 4,76 | 3,20           | 5,16 |          | Roughing    |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

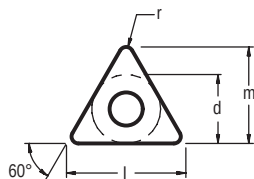
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## TNMG 4T Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032831 | TNMG270608E-4T  | NL250 | 15,88           | 27,50 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032832 | TNMG270608E-4T  | NL300 | 15,88           | 27,50 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032833 | TNMG270608E-4T  | NL400 | 15,88           | 27,50 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032834 | TNMG270608E-4T  | NL920 | 15,88           | 27,50 | 6,35 | 0,80           | 6,35 |          | Roughing    |
| 032835 | TNMG270612E-4T  | NL250 | 15,88           | 27,50 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032836 | TNMG270612E-4T  | NL300 | 15,88           | 27,50 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032837 | TNMG270612E-4T  | NL400 | 15,88           | 27,50 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032838 | TNMG270612E-4T  | NL920 | 15,88           | 27,50 | 6,35 | 1,20           | 6,35 |          | Roughing    |
| 032839 | TNMG270616E-4T  | NL250 | 15,88           | 27,50 | 6,35 | 1,60           | 6,35 |          | Roughing    |
| 032840 | TNMG270616E-4T  | NL300 | 15,88           | 27,50 | 6,35 | 1,60           | 6,35 |          | Roughing    |
| 032841 | TNMG270616E-4T  | NL400 | 15,88           | 27,50 | 6,35 | 1,60           | 6,35 |          | Roughing    |
| 032842 | TNMG270616E-4T  | NL920 | 15,88           | 27,50 | 6,35 | 1,60           | 6,35 |          | Roughing    |
| 032843 | TNMG270632E-4T  | NL300 | 15,88           | 27,50 | 6,35 | 3,20           | 6,35 |          | Roughing    |
| 032844 | TNMG330924E-4T  | NL300 | 19,05           | 33,50 | 9,53 | 2,40           | 7,92 |          | Roughing    |
| 032845 | TNMG330924E-4T  | NL400 | 19,05           | 33,50 | 9,53 | 2,40           | 7,92 |          | Roughing    |
| 032846 | TNMG330924E-4T  | NL920 | 19,05           | 33,50 | 9,53 | 2,40           | 7,92 |          | Roughing    |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

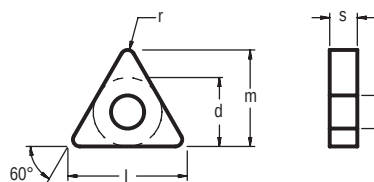
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## TNMG 4U Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>ε</sub> | h    |          |             |
| 032847 | TNMG160408E-4U  | NL200 | 9,53            | 16,50 | 4,76 | 0,80           | 3,81 |          | Roughing    |
| 032848 | TNMG160412E-4U  | NL200 | 9,53            | 16,50 | 4,76 | 1,20           | 3,81 |          | Roughing    |
| 032849 | TNMG220408E-4U  | NL200 | 12,70           | 22,00 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032850 | TNMG220412E-4U  | NL200 | 12,70           | 22,00 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032851 | TNMG220416E-4U  | NL200 | 12,70           | 22,00 | 4,76 | 1,60           | 5,16 |          | Roughing    |

For Toolholders External: see pages C139 - C140 | Internal: see page C141

## Material Guide – Key to Recommended Inserts

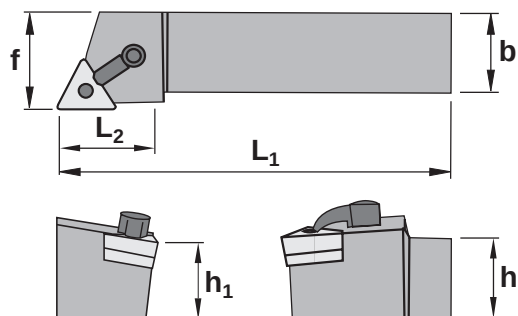
### Material Designation

Unalloyed Steels
 Alloyed Steels
 Stainless Steels
 PH Stainless
 Cast Irons
 Aluminum & Alloys
 High Temp. Alloys
 Hard Materials





**MTJN 93°**



Turning Inserts

MTJN LH & RH External Square Shank Toolholders

| EDP    | Item Description  | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|-------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                   |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 028557 | MTJNL 2020 K16-S  | LH   | TN_1604      | 20                 | 20 | 25 | 125            | 28             |
| 028558 | MTJNL 2525 M16-S  | LH   | TN_1604      | 25                 | 25 | 32 | 150            | 28             |
| 028563 | MTJNR 2020 K16-S  | RH   | TN_1604      | 20                 | 20 | 25 | 125            | 28             |
| 028564 | MTJNR 2525 M16-S  | RH   | TN_1604      | 25                 | 25 | 32 | 150            | 28             |
| 028560 | MTJNL 2525 M22 -S | LH   | TN_2204      | 25                 | 25 | 32 | 150            | 34             |
| 028562 | MTJNL 3232 P22-S  | LH   | TN_2204      | 32                 | 32 | 40 | 170            | 34             |
| 028566 | MTJNR 2525 M22-S  | RH   | TN_2204      | 25                 | 25 | 32 | 150            | 34             |
| 028568 | MTJNR 3232 P22 -S | RH   | TN_2204      | 32                 | 32 | 40 | 170            | 34             |



M Style External Toolholder  
Negative Inserts: TN\_1604, & TN\_2204  
Application:- Turn O/D  
Axial Approach 93°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 24^\circ$   
RH Holder Shown

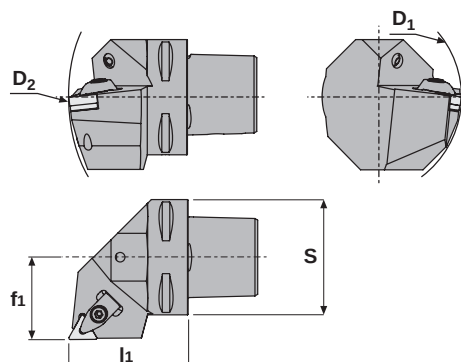
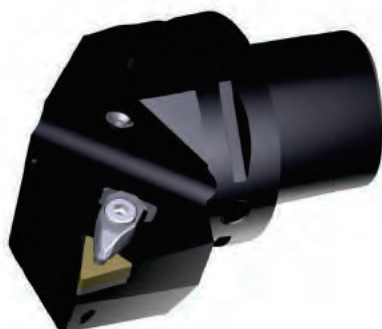
MTJNL/R Spare Parts

| Item Description   | Clamp Screw  |      | Clamp  |        | Clamp Key  |        | Lock Pin  |      | Lock Pin Key  |        | Anvil  |         |
|--------------------|-------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------|---------|
| MTJNL/R 2020 K16-S | 028575                                                                                          | 1086 | 034490                                                                                    | CL2613 | 018286                                                                                         | KH5003 | 034511                                                                                         | 1665 | 028578                                                                                             | KH5002 | 001714                                                                                      | ITSN323 |
| MTJNL/R 2525 M16-S |                                                                                                 |      |                                                                                           |        |                                                                                                |        |                                                                                                |      |                                                                                                    |        |                                                                                             |         |
| MTJNL/R 2525 M22-S |                                                                                                 |      |                                                                                           |        |                                                                                                |        |                                                                                                |      |                                                                                                    |        |                                                                                             |         |
| MTJNL/R 3232 P22-S |                                                                                                 |      |                                                                                           |        |                                                                                                |        |                                                                                                |      | 018285                                                                                             | KH5025 | 001689                                                                                      | ITSN433 |



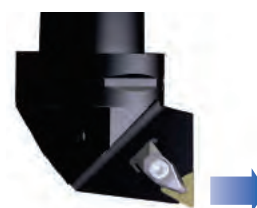
Turning Inserts

**DTGN 90°**



DTGN LH & RH External PSC Toolholders

| EDP    | Item Description    | Hand | Insert Sizes | Dimensions (mm) |     |     |    |    |
|--------|---------------------|------|--------------|-----------------|-----|-----|----|----|
|        |                     |      |              | S               | D1  | D2  | f1 | l1 |
| 033701 | C5-50-DTGNL35060-16 | LH   | TN_1604      | 50              | 110 | 165 | 35 | 60 |
| 033702 | C5-50-DTGNR35060-16 | RH   | TN_1604      | 50              | 110 | 165 | 35 | 60 |
| 033703 | C6-63-DTGNL45065-16 | LH   | TN_1604      | 63              | 110 | 190 | 45 | 65 |
| 033704 | C6-63-DTGNR45065-16 | RH   | TN_1604      | 63              | 110 | 190 | 45 | 65 |



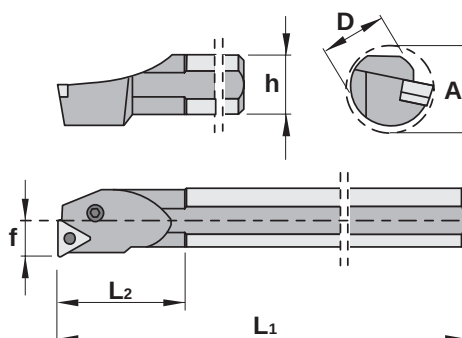
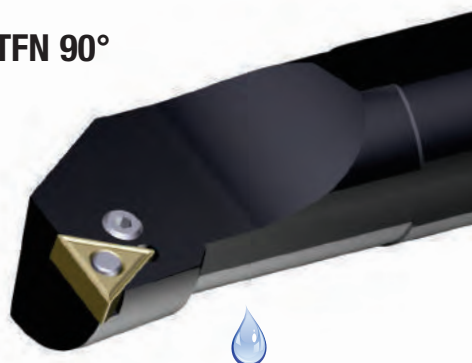
D Style External Toolholder  
for Negative Inserts:  
TN\_1604  
Application: External Turn O/D  
Approach 90°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

C, DTGNL/R Spare Parts

| C, DTGNL/R Spare Parts |                                                                                                  |      |                                                                                                        |      |                                                                                                  |         |                                                                                                        |      |                                                                                                           |      |                                                                                                        |        |
|------------------------|--------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------|--------|
| Item Description       | Clamp<br>EDP  |      | Clamp Screw<br>EDP  |      | Anvil<br>EDP  |         | Anvil Screw<br>EDP  |      | Clamp Spring<br>EDP  |      | Screw Key<br>EDP  |        |
| C5-50-DTGNL/R 35060-16 | 033709                                                                                           | 2708 | 033711                                                                                                 | 1695 | 033714                                                                                           | ITSN342 | 033718                                                                                                 | 1764 | 033720                                                                                                    | 4294 | 018286                                                                                                 | KH5003 |
| C6-63-DTGNL/R 45065-16 |                                                                                                  |      |                                                                                                        |      |                                                                                                  |         |                                                                                                        |      |                                                                                                           |      |                                                                                                        |        |



## A..PTFN 90°



Turning Inserts

A..PTFN LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |    |                                                                                     |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|----|-------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | L2 | h  | Through Coolant                                                                     |
| 028710 | A25R PTFNL 16    | LH   | TN_1604      | 31              | 25 | 17 | 200 | 42 | 23 |  |
| 028711 | A32S PTFNL 16    | LH   | TN_1604      | 39              | 32 | 22 | 250 | 45 | 30 |  |
| 028713 | A25R PTFNR 16    | RH   | TN_1604      | 31              | 25 | 17 | 200 | 42 | 23 |  |
| 028714 | A32S PTFNR 16    | RH   | TN_1604      | 39              | 32 | 22 | 250 | 45 | 30 |  |
| 028712 | A40T PTFNL 22    | LH   | TN_2204      | 48              | 40 | 27 | 300 | 50 | 37 |  |
| 028715 | A40T PTFNR 22    | RH   | TN_2204      | 48              | 40 | 27 | 300 | 50 | 37 |  |



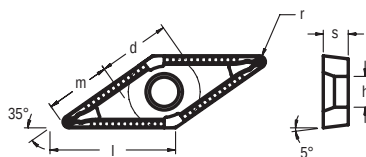
P Style Internal Boring Bar  
for Negative Inserts:  
TN\_1604 & TN\_2204  
Application: I/D Boring  
Axial Approach =90°  
Axial -6°  
Radial -11°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Bar Shown

A..PTFNL/R Spare Parts

| Item Description | Lever EDP |        | Lever Screw EDP |         | Anvil EDP |        | Anvil Clip EDP |        | Clip Punch EDP |         | Key EDP |        |
|------------------|-----------|--------|-----------------|---------|-----------|--------|----------------|--------|----------------|---------|---------|--------|
| A25R PTFNL/R 16  | 022652    | PL8216 | 028741          | PLS1605 | -         | -      | -              | -      | -              | -       | 028578  | KH5002 |
| A32S PTFNL/R 16  | 017442    | PL8009 | 017447          | PLS1606 | 017463    | PA3416 | 034503         | PC4109 | 028053         | PCP0009 | 018285  | KH5025 |
| A40T PTFNL/R 22  | 017443    | PL8012 | 017448          | PLS1608 | 017464    | PA3422 | 017453         | PC4112 | 028054         | PCP0012 | 018286  | KH5003 |



## VBGT -62 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>E</sub> | h    |          |             |
| 031665 | VBGT160402E-62  | SP4019 | 9,53            | 16,60 | 6,35 | 0,20           | 4,40 |          | Finishing   |
| 031666 | VBGT160404E-62  | SP4019 | 9,53            | 16,60 | 6,35 | 0,40           | 4,40 |          | Finishing   |
| 031667 | VBGT160408E-62  | SP4019 | 9,53            | 16,60 | 6,35 | 0,80           | 4,40 |          | Finishing   |

For Toolholders External: see pages C146 - C151 | Internal: see pages C152 - C154

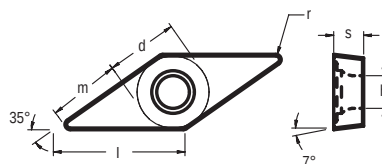
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## VCGT M Geometry

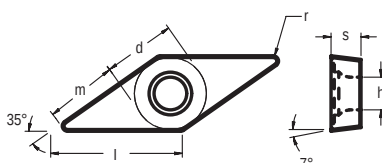


Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032852 | VCGT130301F-M   | GH1    | 7,94            | 13,80 | 3,97 | 0,10           | 3,40 |          | Medium      |
| 034463 | VCGT130301E-M   | SP4019 | 7,94            | 13,80 | 3,97 | 0,10           | 3,40 |          | Medium      |
| 032854 | VCGT130302F-M   | GH1    | 7,94            | 13,80 | 3,97 | 0,20           | 3,40 |          | Medium      |
| 034461 | VCGT130302E-M   | SP4019 | 7,94            | 13,80 | 3,97 | 0,20           | 3,40 |          | Medium      |
| 032856 | VCGT130304F-M   | GH1    | 7,94            | 13,80 | 3,97 | 0,40           | 3,40 |          | Medium      |
| 034462 | VCGT130304E-M   | SP4019 | 7,94            | 13,80 | 3,97 | 0,40           | 3,40 |          | Medium      |

For Toolholders External: see pages C146, C149 - C151 | Internal: see pages C153 - C154

## VCGT & VCGX -62 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 031608 | VCGX1103005E-62 | SP4019 | 6,35            | 10,07 | 3,18 | 0,05           | 2,80 |          | Finishing   |
| 031609 | VCGT110301E-62  | SP4019 | 6,35            | 10,07 | 3,18 | 0,10           | 2,80 |          | Finishing   |
| 031610 | VCGT110302E-62  | SP4019 | 6,35            | 10,07 | 3,18 | 0,20           | 2,80 |          | Finishing   |
| 031611 | VCGT110304E-62  | SP4019 | 6,35            | 10,07 | 3,18 | 0,40           | 2,80 |          | Finishing   |
| 030594 | VCGT130301E-62  | SP4019 | 7,94            | 13,80 | 3,18 | 0,10           | 3,40 |          | Finishing   |
| 030595 | VCGT130302E-62  | SP4019 | 7,94            | 13,80 | 3,18 | 0,20           | 3,40 |          | Finishing   |
| 030596 | VCGT130304E-62  | SP4019 | 7,94            | 13,80 | 3,18 | 0,40           | 3,40 |          | Finishing   |

For Toolholders External: see pages C146, C149 - C151 | Internal: see pages C153 - C154

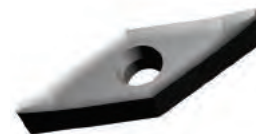
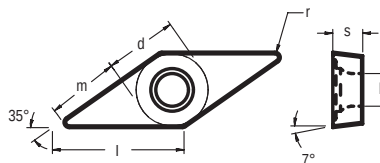
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



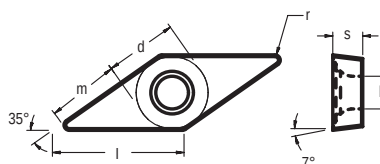
## VCGT -64 Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |       |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|-------|------|----------|-------------|
|        |                 |       | d               | l     | s    | $r_e$ | h    |          |             |
| 014071 | VC GT160408F-64 | GH1   | 9,53            | 16,60 | 4,76 | 0,80  | 4,40 |          | Finishing   |

For Toolholders External: see pages C146, C149 - C151 | Internal: see pages C153 - C154

## VCGT -66 Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |       |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|-------|------|----------|-------------|
|        |                 |       | d               | l     | s    | $r_e$ | h    |          |             |
| 027453 | VC GT130302F-66 | GH1   | 7,94            | 13,80 | 3,18 | 0,20  | 3,40 |          | Finishing   |
| 027454 | VC GT130304F-66 | GH1   | 7,94            | 13,80 | 3,18 | 0,40  | 3,40 |          | Finishing   |
| 027455 | VC GT130308F-66 | GH1   | 7,94            | 13,80 | 3,18 | 0,80  | 3,40 |          | Finishing   |

For Toolholders External: see pages C146, C149 - C151 | Internal: see pages C153 - C154

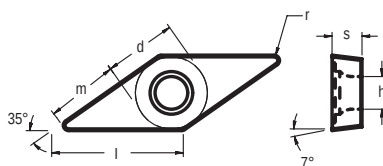
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**VCMT**  
M Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material                                                                            | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|-------------------------------------------------------------------------------------|-------------|
|        |                 |        | d               | l     | s    | r <sub>ε</sub> | h    |                                                                                     |             |
| 032858 | VCMT160404E-M   | GH1    | 9,53            | 16,60 | 4,76 | 0,40           | 4,40 |  | Medium      |
| 032276 | VCMT160404E-M   | SP4019 | 9,53            | 16,60 | 4,76 | 0,40           | 4,40 |  | Medium      |
| 032859 | VCMT160408E-M   | GH1    | 9,53            | 16,60 | 4,76 | 0,80           | 4,40 |  | Medium      |
| 032282 | VCMT160408E-M   | SP4019 | 9,53            | 16,60 | 4,76 | 0,80           | 4,40 |  | Medium      |

For Toolholders External: see pages C146, C149 - C151 | Internal: see pages C153 - C154

## Material Guide – Key to Recommended Inserts

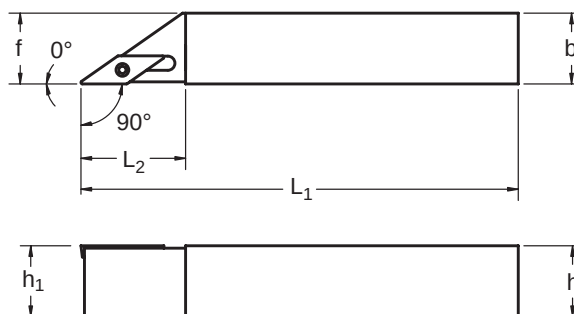
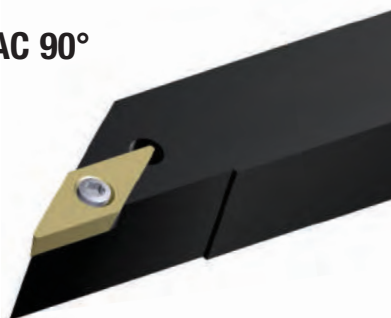
### Material Designation

 Unalloyed Steels
  Alloyed Steels
  Stainless Steels
  PH Stainless
  Cast Irons
  Aluminum & Alloys
  High Temp. Alloys
  Hard Materials



Turning Inserts

SVAC 90°



SVAC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 033593 | SVACL 1010 M11   | LH   | VC_1103      | 10                 | 10 | 10 | 150            | -              |
| 033594 | SVACL 1212 M11   | LH   | VC_1103      | 12                 | 12 | 12 | 150            | -              |
| 033595 | SVACL 1616 M11   | LH   | VC_1103      | 16                 | 16 | 16 | 150            | -              |
| 033596 | SVACR 1010 M11   | RH   | VC_1103      | 10                 | 10 | 10 | 150            | -              |
| 033597 | SVACR 1212 M11   | RH   | VC_1103      | 12                 | 12 | 12 | 150            | -              |
| 033598 | SVACR 1616 M11   | RH   | VC_1103      | 16                 | 16 | 16 | 150            | -              |
| 025092 | SVACL 1010 M13   | LH   | VC_1303      | 10                 | 10 | 10 | 150            | 30             |
| 025094 | SVACL 1212 M13   | LH   | VC_1303      | 12                 | 12 | 12 | 150            | 30             |
| 025096 | SVACL 1616 M13   | LH   | VC_1303      | 16                 | 16 | 16 | 150            | 30             |
| 025098 | SVACL 2020 K13   | LH   | VC_1303      | 20                 | 20 | 20 | 125            | 30             |
| 025091 | SVACR 1010 M13   | RH   | VC_1303      | 10                 | 10 | 10 | 150            | 30             |
| 025093 | SVACR 1212 M13   | RH   | VC_1303      | 12                 | 12 | 12 | 150            | 30             |
| 025095 | SVACR 1616 M13   | RH   | VC_1303      | 16                 | 16 | 16 | 150            | 30             |
| 025097 | SVACR 2020 K13   | RH   | VC_1303      | 20                 | 20 | 20 | 125            | 30             |



S Style External Toolholder  
Positive Inserts VC\_1103, and VC\_1303  
Application: O/D Profiling  
Approach 90°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 52^\circ$   
RH Holder Shown

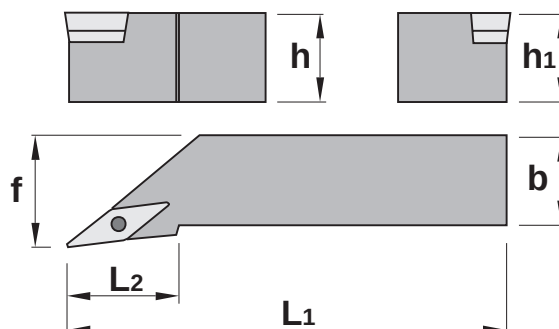
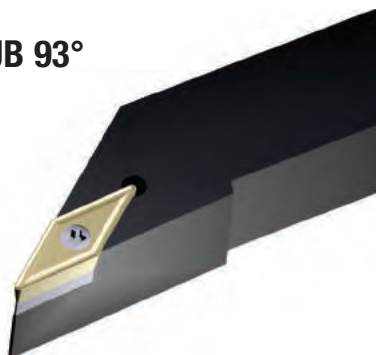
SVACL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SVACL/R 1010 M11 | 15061               | F2507T                                                                              | 18488             | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SVACL/R 1212 M11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVACL/R 1616 M11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVACL/R 1010 M13 | 15063               | F3008T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SVACL/R 1212 M13 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVACL/R 1616 M13 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVACL/R 2020 K13 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |





**SVJB 93°**



Turning Inserts

SVJB LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |     |     |       |       |
|--------|------------------|------|--------------|-----------------|-----|-----|-------|-------|
|        |                  |      |              | $h = h_1$       | $b$ | $f$ | $L_1$ | $L_2$ |
| 028641 | SVJBL 2020 K16   | LH   | VB_1604      | 20              | 20  | 25  | 125   | 34    |
| 028642 | SVJBL 2525 M16   | LH   | VB_1604      | 25              | 25  | 32  | 150   | 34    |
| 028644 | SVJBR 2020 K16   | RH   | VB_1604      | 20              | 20  | 25  | 125   | 34    |
| 028645 | SVJBR 2525 M16   | RH   | VB_1604      | 25              | 25  | 32  | 150   | 34    |



S Style External Toolholder  
for Positive Inserts: VB\_1604  
Application: O/D Profiling  
Approach 93°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 49^\circ$   
RH Holder Shown

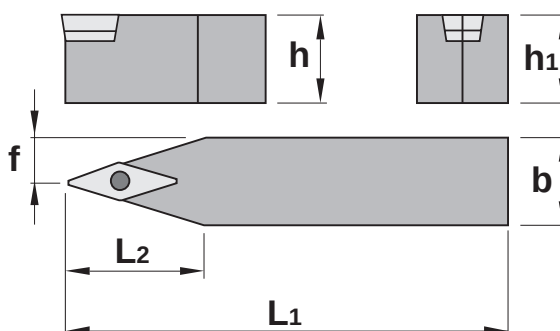
SVJBL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SVJBL/R 2020 K16 | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028740       | SA3718                                                                                | 028478             | SAS1750                                                                               |
| SVJBL/R 2525 M16 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



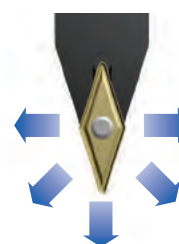
Turning Inserts

**SVVB 72,5°**



SVVB Neutral External Square Shank Toolholders

| EDP    | Item Description | Hand    | Insert Sizes | Dimensions (mm) |    |      |                |                |
|--------|------------------|---------|--------------|-----------------|----|------|----------------|----------------|
|        |                  |         |              | $h = h_1$       | b  | f    | L <sub>1</sub> | L <sub>2</sub> |
| 033599 | SVVBN 2020 K16   | Neutral | VB_1604      | 20              | 20 | 10   | 125            | -              |
| 033600 | SVVBN 2525 M16   | Neutral | VB_1604      | 25              | 25 | 12,5 | 150            | -              |



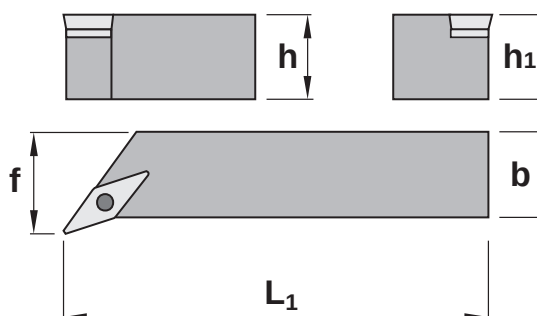
S Style External Toolholder  
for Positive Inserts: VB\_1604  
Application: O/D Profiling  
Approach 72,5°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 69,5^\circ$   
Neutral Holder Shown

SVVBL N Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SVVBN 2020 K16   | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028740       | SA3718                                                                                | 028478             | SAS1750                                                                               |
| SVVBN 2525 M16   |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



**SVHC 107,5°**



Turning Inserts

SVHC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 028635 | SVHCL 2020 K16   | LH   | VC_1604      | 20                 | 20 | 25 | 125            | -              |
| 028636 | SVHCL 2525 M16   | LH   | VC_1604      | 25                 | 25 | 32 | 150            | -              |
| 033607 | SVHCL 3225 P16   | LH   | VC_1604      | 32                 | 25 | 32 | 170            | -              |
| 028638 | SVHCR 2020 K16   | RH   | VC_1604      | 20                 | 20 | 25 | 125            | -              |
| 028639 | SVHCR 2525 M16   | RH   | VC_1604      | 25                 | 25 | 32 | 150            | -              |
| 033608 | SVHCR 3225 P16   | RH   | VC_1604      | 32                 | 25 | 32 | 170            | -              |



S Style External Toolholder  
for Positive Inserts: VC\_1604  
Application: O/D and Face Profiling  
Approach 107,5°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 44,5^\circ$   
RH Holder Shown

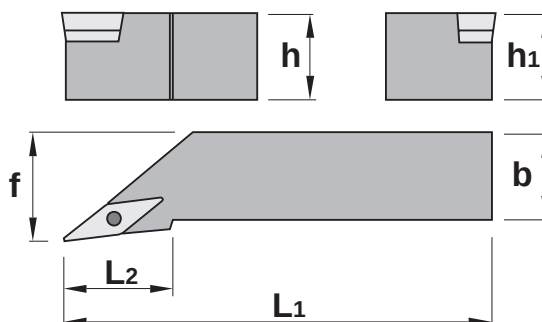
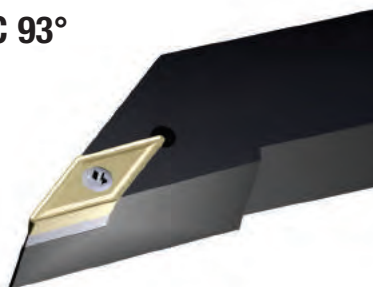
SVHCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SVHCL/R 2020 K16 | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028740       | SA3718                                                                                | 028478             | SAS1750                                                                               |
| SVHCL/R 2525 M16 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVHCL/R 3232 P16 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



Turning Inserts

SVJC 93°



SVJC LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 033615 | SVJCL 1010 M11   | LH   | VC_1103      | 10                 | 10 | 10 | 150            | -              |
| 033616 | SVJCL 1212 M11   | LH   | VC_1103      | 12                 | 12 | 12 | 150            | -              |
| 033617 | SVJCL 1616 M11   | LH   | VC_1103      | 16                 | 16 | 16 | 150            | -              |
| 033618 | SVJCL 2020 K11   | LH   | VC_1103      | 20                 | 20 | 25 | 125            | 25             |
| 033619 | SVJCR 1010 M11   | RH   | VC_1103      | 10                 | 10 | 10 | 150            | -              |
| 033620 | SVJCR 1212 M11   | RH   | VC_1103      | 12                 | 12 | 12 | 150            | -              |
| 033621 | SVJCR 1616 M11   | RH   | VC_1103      | 16                 | 16 | 16 | 150            | -              |
| 033622 | SVJCR 2020 K11   | RH   | VC_1103      | 20                 | 20 | 25 | 125            | 25             |
| 018330 | SVJCL 1212 F13   | LH   | VC_1303      | 12                 | 12 | 16 | 80             | 26             |
| 018331 | SVJCL 1616 H13   | LH   | VC_1303      | 16                 | 16 | 20 | 100            | 30             |
| 018333 | SVJCL 2020 K13   | LH   | VC_1303      | 20                 | 20 | 25 | 125            | 30             |
| 018337 | SVJCR 1212 F13   | RH   | VC_1303      | 12                 | 12 | 16 | 80             | 26             |
| 018338 | SVJCR 1616 H13   | RH   | VC_1303      | 16                 | 16 | 20 | 100            | 30             |
| 018340 | SVJCR 2020 K13   | RH   | VC_1303      | 20                 | 20 | 25 | 125            | 30             |
| 028648 | SVJCL 2020 K16   | LH   | VC_1604      | 20                 | 20 | 25 | 125            | 34             |
| 028649 | SVJCL 2525 M16   | LH   | VC_1604      | 25                 | 25 | 32 | 150            | 34             |
| 028651 | SVJCR 2020 K16   | RH   | VC_1604      | 20                 | 20 | 25 | 125            | 34             |
| 028652 | SVJCR 2525 M16   | RH   | VC_1604      | 25                 | 25 | 32 | 150            | 34             |



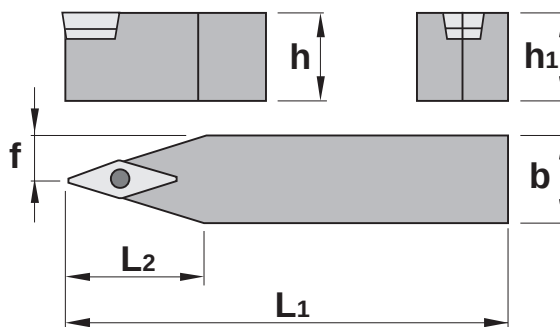
S Style External Toolholder  
for Positive Inserts:  
VC\_1103, VC\_1303, and VC\_1604  
Application: O/D Profiling  
Approach 93°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 49^\circ$   
RH Holder Shown

SVJCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SVJCL/R 1010 M11 | 015061              | F2507T                                                                              | 18488             | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SVJCL/R 1212 M11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVJCL/R 1616 M11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVJCL/R 2020 K11 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVJCL/R 1212 F13 | 015063              | F3008T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SVJCL/R 1616 H13 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVJCL/R 2020 K13 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVJCL/R 2020 K16 | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028740       | SA3718                                                                                | 028478             | SAS1750                                                                               |
| SVJCL/R 2525 M16 |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



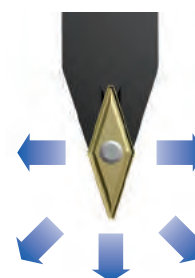
**SVVC 72,5°**



Turning Inserts

SVVC Neutral External Square Shank Toolholders

| EDP    | Item Description | Hand    | Insert Sizes | Dimensions (mm)    |    |      |                |                |
|--------|------------------|---------|--------------|--------------------|----|------|----------------|----------------|
|        |                  |         |              | h = h <sub>1</sub> | b  | f    | L <sub>1</sub> | L <sub>2</sub> |
| 033639 | SVVCN 1212 M11   | Neutral | VC_1103      | 12                 | 12 | 6    | 150            | -              |
| 033640 | SVVCN 1616 M11   | Neutral | VC_1103      | 16                 | 16 | 8    | 150            | -              |
| 033641 | SVVCN 2020 K11   | Neutral | VC_1103      | 20                 | 20 | 10   | 125            | -              |
| 018344 | SVVCN 1212 F13   | Neutral | VC_1303      | 12                 | 12 | 6    | 150            | 28             |
| 018345 | SVVCN 1616 H13   | Neutral | VC_1303      | 16                 | 16 | 8    | 150            | 28             |
| 018346 | SVVCN 2020 K13   | Neutral | VC_1303      | 20                 | 20 | 10   | 125            | 28             |
| 028653 | SVVCN 2020 K16   | Neutral | VC_1604      | 20                 | 20 | 10   | 125            | -              |
| 028654 | SVVCN 2525 M16   | Neutral | VC_1604      | 25                 | 25 | 12,5 | 150            | -              |



S Style External Toolholder  
for Positive Inserts:  
VC\_1103, VC\_1303 and VC\_1604  
Application: O/D Profiling  
Approach 72,5°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 69,5^\circ$   
Neutral Holder Shown

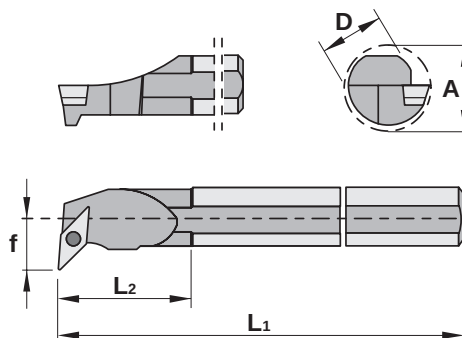
SVVC N Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SVVCN 1212 M11   | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SVVCN 1616 M11   |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVVCN 2020 K11   |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVVCN 1212 F13   | 015063              | F3008T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| SVVCN 1616 H13   |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVVCN 2020 K13   |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| SVVCN 2020 K16   | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028740       | SA3718                                                                                | 028478             | SAS1750                                                                               |
| SVVCN 2525 M16   |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |



Turning Inserts

**SVUB 93°**



S.. SVUB LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |                |                                                                                    |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----------------|------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | L <sub>2</sub> | Through Coolant                                                                    |
| 033642 | S25R SVUBL 16    | LH   | VB_1604      | 31              | 25 | 17 | 300            | 42             |  |
| 033643 | S32S SVUBL 16    | LH   | VB_1604      | 39              | 32 | 22 | 350            | 45             |  |
| 033644 | S25R SVUBR 16    | RH   | VB_1604      | 31              | 25 | 17 | 300            | 42             |  |
| 033645 | S32S SVUBR 16    | RH   | VB_1604      | 39              | 32 | 22 | 350            | 45             |  |



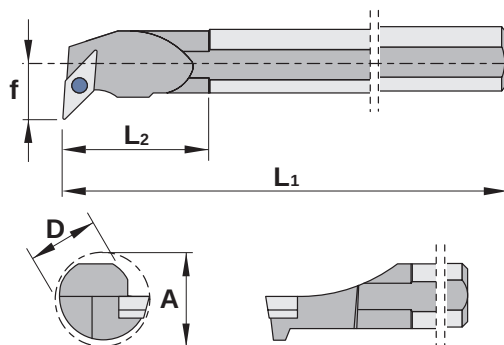
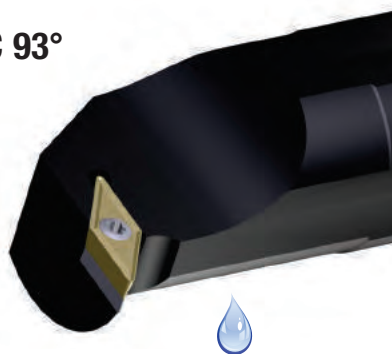
S Style Boring Bar  
for Positive Inserts: VB\_1604  
Application: I/D Profiling  
Approach 93°  
Axial 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 49^\circ$   
RH Bar Shown

S.. SVUBL/R Spare Parts

| Item Description | Insert Screw<br>EDP |        | Insert Key<br>EDP |       | Anvil<br>EDP |        | Anvil Screw<br>EDP |         |
|------------------|---------------------|--------|-------------------|-------|--------------|--------|--------------------|---------|
| S25R SVUBL/R 16  | 015262              | D4010T | 015240            | T15   | -            | -      | -                  | -       |
| S32S SVUBL/R 16  | 034497              | 1335   | 028475            | K5516 | 028740       | SA3718 | 028478             | SAS1750 |



**SVUC 93°**



Turning Inserts

A.. SVUC LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |                                                                                       |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|---------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | L2 | Through Coolant                                                                       |
| 033650 | A16M SVUCL 11    | LH   | VC_1103      | 20              | 16 | 11 | 150 | 31 |    |
| 033651 | A20Q SVUCL 11    | LH   | VC_1103      | 25              | 20 | 13 | 180 | 36 |    |
| 033652 | A16M SVUCR 11    | RH   | VC_1103      | 20              | 16 | 11 | 150 | 31 |    |
| 033653 | A20Q SVUCR 11    | RH   | VC_1103      | 25              | 20 | 13 | 180 | 36 |    |
| 018443 | A20Q SVUCL 13    | LH   | VC_1303      | 24              | 20 | 13 | 180 | -  |    |
| 018445 | A25S SVUCL 13    | LH   | VC_1303      | 31              | 25 | 17 | 259 | -  |  |
| 018444 | A20Q SVUCR 13    | RH   | VC_1303      | 24              | 20 | 13 | 180 | -  |  |
| 018446 | A25S SVUCR 13    | RH   | VC_1303      | 31              | 25 | 17 | 259 | -  |  |
| 033654 | A25R SVUCL 16    | LH   | VC_1604      | 31              | 25 | 17 | 200 | 42 |  |
| 033655 | A32S SVUCL 16    | LH   | VC_1604      | 39              | 32 | 22 | 250 | 45 |  |
| 033656 | A25R SVUCR 16    | RH   | VC_1604      | 31              | 25 | 17 | 200 | 42 |  |
| 033657 | A32S SVUCR 16    | RH   | VC_1604      | 39              | 32 | 22 | 250 | 45 |  |



S Style Boring Bar  
for Positive Inserts:  
VC\_1103, VC\_1303, and VC\_1604  
Application: I/D Profiling  
Approach 93°  
Axial 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 49^\circ$   
RH Bar Shown

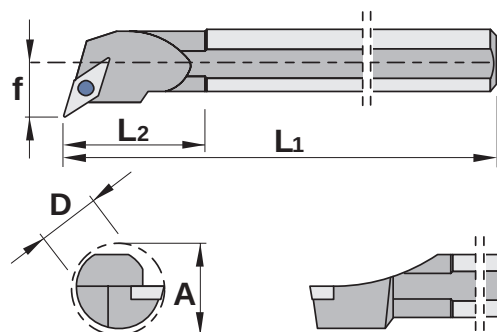
A.. SVUCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| A16M SVUCL/R 11  | 015061              | F2507T                                                                              | 018488            | T7                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| A20Q SVUCL/R 11  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A20Q SVUCL/R 13  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A25S SVUCL/R 13  | 015063              | F3008T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |
| A25R SVUCL/R 16  |                     |                                                                                     |                   |                                                                                     |              |                                                                                       |                    |                                                                                       |
| A32S SVUCL/R 16  | 034497              | 1335                                                                                | 028475            | K5516                                                                               | 028740       | SA3718                                                                                | 028478             | SAS1750                                                                               |



Turning Inserts

**SVQC 107,5°**



S.. SVQC LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |                |                                                                                      |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----------------|--------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | L <sub>2</sub> | Through Coolant                                                                      |
| 033668 | S16R SVQCL 11    | LH   | VC_1103      | 20              | 16 | 11 | 200            | 31             |    |
| 033669 | S20S SVQCL 11    | LH   | VC_1103      | 24              | 20 | 13 | 250            | 36             |    |
| 033670 | S16R SVQCR 11    | RH   | VC_1103      | 20              | 16 | 11 | 200            | 31             |    |
| 033671 | S20S SVQCR 11    | RH   | VC_1103      | 24              | 20 | 13 | 250            | 36             |    |
| 033672 | S16R SVQCL 13    | LH   | VC_1303      | 20              | 16 | 11 | 200            | 31             |    |
| 033673 | S20S SVQCL 13    | LH   | VC_1303      | 24              | 20 | 13 | 250            | 36             |    |
| 033674 | S16R SVQCR 13    | RH   | VC_1303      | 20              | 16 | 11 | 200            | 31             |    |
| 033675 | S20S SVQCR 13    | RH   | VC_1303      | 24              | 20 | 13 | 250            | 36             |   |
| 033676 | S25T SVQCL 16    | LH   | VC_1604      | 31              | 25 | 17 | 300            | 42             |  |
| 033677 | S25T SVQCR 16    | RH   | VC_1604      | 31              | 25 | 17 | 300            | 42             |  |



S Style Boring Bar  
for Positive Inserts:  
VC\_1103, VC\_1303 and VC\_1604  
Application: I/D Profiling  
Approach 107,5°  
Axial 0°  
Radial -6°  
Profiling Clearance Angle  $\beta = 34,5^\circ$   
RH Bar Shown

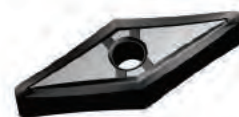
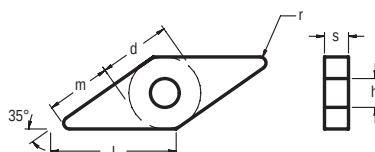
S.. SVQCL/R Spare Parts

| Item Description | Insert Screw<br>EDP |        | Insert Key<br>EDP |       | Anvil<br>EDP |        | Anvil Screw<br>EDP |         |
|------------------|---------------------|--------|-------------------|-------|--------------|--------|--------------------|---------|
| S16R SVQCL/R 11  | 015061              | F2507T | 018488            | T7    | -            | -      | -                  | -       |
| S20S SVQCL/R 11  |                     |        |                   |       |              |        |                    |         |
| S16R SVQCL/R 13  | 015063              | F3008T | 013214            | T9    | -            | -      | -                  | -       |
| S20S SVQCL/R 13  |                     |        |                   |       |              |        |                    |         |
| S25T SVQCL/R 16  | 034497              | 1335   | 028475            | K5516 | 028740       | SA3718 | 028478             | SAS1750 |





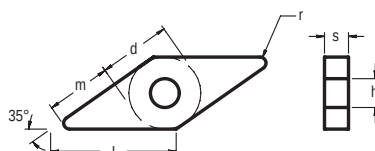
## VNGG 3F Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |       |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|-------|------|----------|-------------|
|        |                 |        | d               | l     | s    | $r_e$ | h    |          |             |
| 031549 | VNGG160402F-3F  | SP0819 | 9,53            | 16,60 | 4,76 | 0,20  | 3,81 |          | Medium      |
| 031550 | VNGG160404F-3F  | SP0819 | 9,53            | 16,60 | 4,76 | 0,40  | 3,81 |          | Medium      |
| 031551 | VNGG160408F-3F  | SP0819 | 9,53            | 16,60 | 4,76 | 0,80  | 3,81 |          | Medium      |

For Toolholders External: see pages C158 - C160 | Internal: see page C161

## VNMG 1B Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |       |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|-------|------|----------|-------------|
|        |                 |        | d               | l     | s    | $r_e$ | h    |          |             |
| 030882 | VNMG160404E-1B  | SP0819 | 9,53            | 16,60 | 4,76 | 0,40  | 3,81 |          | Finishing   |
| 032860 | VNMG160404E-1B  | NL250  | 9,53            | 16,60 | 4,76 | 0,40  | 3,81 |          | Finishing   |
| 032861 | VNMG160408E-1B  | NL250  | 9,53            | 16,60 | 4,76 | 0,80  | 3,81 |          | Finishing   |
| 030883 | VNMG160408E-1B  | SP0819 | 9,53            | 16,60 | 4,76 | 0,80  | 3,81 |          | Finishing   |

For Toolholders External: see pages C158 - C160 | Internal: see page C161

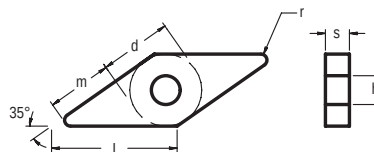
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



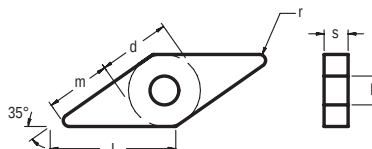
## VNMG 2N Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032864 | VNMG160404E-2N  | NL250 | 9,53            | 16,60 | 4,76 | 0,40           | 3,81 |          | Medium      |
| 032865 | VNMG160404E-2N  | NL300 | 9,53            | 16,60 | 4,76 | 0,40           | 3,81 |          | Medium      |
| 032866 | VNMG160404E-2N  | NL920 | 9,53            | 16,60 | 4,76 | 0,40           | 3,81 |          | Medium      |
| 032867 | VNMG160408E-2N  | NL250 | 9,53            | 16,60 | 4,76 | 0,80           | 3,81 |          | Medium      |
| 032868 | VNMG160408E-2N  | NL300 | 9,53            | 16,60 | 4,76 | 0,80           | 3,81 |          | Medium      |
| 032869 | VNMG160408E-2N  | NL920 | 9,53            | 16,60 | 4,76 | 0,80           | 3,81 |          | Medium      |

For Toolholders External: see pages C158 - C160 | Internal: see page C161

## VNMG 3J Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032873 | VNMG160404E-3J  | SP4019 | 9,53            | 16,60 | 4,76 | 0,40           | 3,81 |          | Medium      |
| 032874 | VNMG160408E-3J  | SP4019 | 9,53            | 16,60 | 4,76 | 0,80           | 3,81 |          | Medium      |

For Toolholders External: see pages C158 - C160 | Internal: see page C161

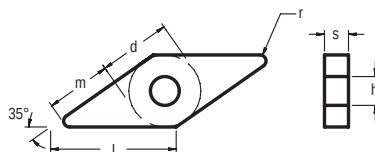
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



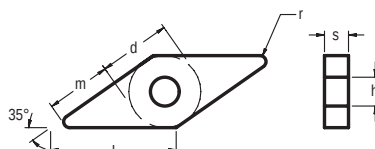
### VNGG 4E Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |       |      |                |      | Material | Application     |
|--------|-----------------|--------|-----------------|-------|------|----------------|------|----------|-----------------|
|        |                 |        | d               | l     | s    | r <sub>e</sub> | h    |          |                 |
| 030537 | VNMG160404E-4E  | SP0819 | 9,53            | 16,60 | 4,76 | 0,40           | 3,81 |          | Medium-Roughing |
| 030538 | VNMG160408E-4E  | SP0819 | 9,53            | 16,60 | 4,76 | 0,80           | 3,81 |          | Medium-Roughing |

For Toolholders External: see pages C158 - C160 | Internal: see page C161

### VNMG 4U Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |       |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|-------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l     | s    | r <sub>e</sub> | h    |          |             |
| 032875 | VNMG160404E-4U  | NL200 | 9,53            | 16,60 | 4,76 | 0,40           | 3,81 |          | Roughing    |
| 032876 | VNMG160408E-4U  | NL200 | 9,53            | 16,60 | 4,76 | 0,80           | 3,81 |          | Roughing    |

For Toolholders External: see pages C158 - C160 | Internal: see page C161

## Material Guide – Key to Recommended Inserts

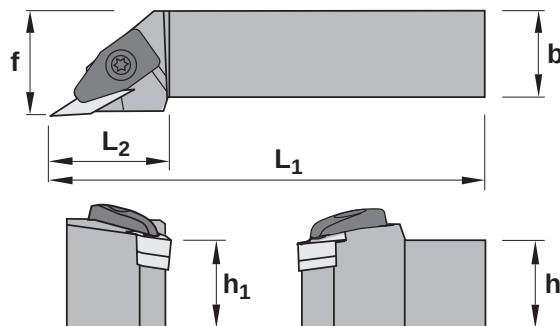
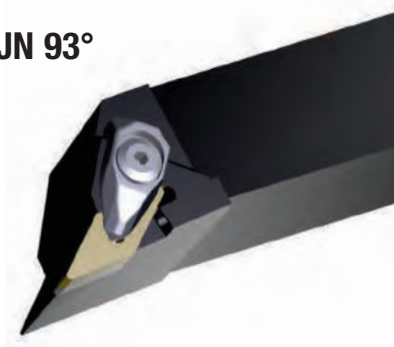
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



Turning Inserts

DVJN 93°



DVJN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 033401 | DVJNL 2020 K16   | LH   | VN_1604      | 20                 | 20 | 25 | 125            | 38             |
| 033402 | DVJNL 2525 M16   | LH   | VN_1604      | 25                 | 25 | 32 | 150            | 38             |
| 033403 | *DVJNL 3225 P16  | LH   | VN_1604      | 32                 | 25 | 32 | 170            | 38             |
| 033404 | DVJNR 2020 K16   | RH   | VN_1604      | 20                 | 20 | 25 | 125            | 38             |
| 033405 | DVJNR 2525 M16   | RH   | VN_1604      | 25                 | 25 | 32 | 150            | 38             |
| 033406 | *DVJNR 3225 P16  | RH   | VN_1604      | 32                 | 25 | 32 | 170            | 38             |

\* Non Stock Items, subject to extended delivery time



D Style External Toolholder  
for Negative Inserts: VN\_1604  
Application: O/D Turn and Profile  
Axial Approach 93°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 49^\circ$   
RH Holder Shown

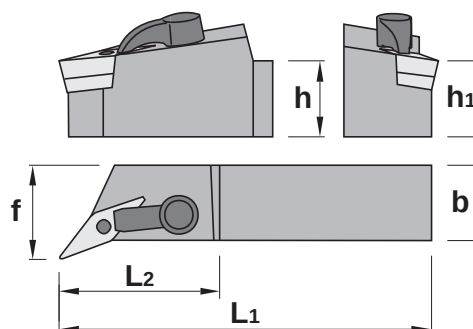
DVJNL/R Spare Parts

| Item Description  | Clamp Screw<br>EDP | Clamp<br>EDP | Clamp<br>Spring EDP | Anvil<br>EDP | Anvil Screw<br>EDP | Clamp & Anvil<br>Screw Key |
|-------------------|--------------------|--------------|---------------------|--------------|--------------------|----------------------------|
| DVJNL/R 2020 K16  | 033711             | 1695         | 033709              | DC2708       | 033720/            | 4294                       |
| DVJNL/R 2525 M16  |                    |              |                     |              |                    |                            |
| *DVJNL/R 3225 P16 |                    |              |                     |              |                    |                            |
|                   |                    |              |                     | 001695       | IVSN322            | 033718                     |
|                   |                    |              |                     | 1764         | 018286             | KH5003                     |

\* Non Stock Items, subject to extended delivery time



**MVQN 117,5°**



MVQN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 033413 | MVQNL 2020 K16   | LH   | VN_1604      | 20                 | 20 | 25 | 125            | 42             |
| 033414 | MVQNL 2525 M16   | LH   | VN_1604      | 25                 | 25 | 32 | 150            | 42             |
| 033415 | *MVQNL 3225 P16  | LH   | VN_1604      | 32                 | 25 | 32 | 170            | 42             |
| 033416 | MVQNR 2020 K16   | RH   | VN_1604      | 20                 | 20 | 25 | 125            | 42             |
| 033417 | MVQNR 2525 M16   | RH   | VN_1604      | 25                 | 25 | 32 | 150            | 42             |
| 033418 | *MVQNR 3225 P16  | RH   | VN_1604      | 32                 | 25 | 32 | 170            | 42             |

\* Non Stock Items, subject to extended delivery time



M Style External Toolholder  
for Negative Inserts: VN\_1604  
Application: Face and Profile Turn  
Axial Approach 117,5°  
Axial -8°  
Radial -10°  
Profiling Clearance Angle  $\beta = 36,5^\circ$   
RH Holder Shown

MVQNL/R Spare Parts

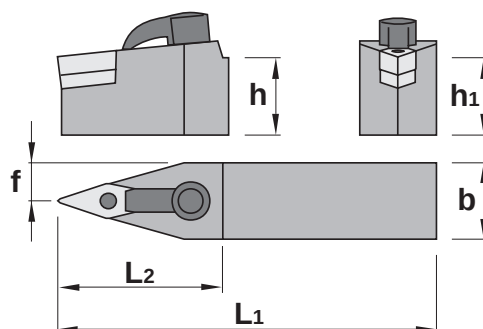
| Item Description  | Clamp Screw<br>EDP  |      | Clamp<br>EDP  |        | Clamp Key<br>EDP  |        | Lock Pin<br>EDP  |      | Lock Pin<br>Key<br>EDP  |        | Anvil<br>EDP  |         |
|-------------------|--------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------|---------|
| MVQNL/R 2020 K16  | 028575                                                                                                 | 1086 | 034492                                                                                           | CL2616 | 018286                                                                                                | KH5003 | 034511                                                                                                | 1665 | 028578                                                                                                       | KH5002 | 001695                                                                                             | IVSN322 |
| MVQNL/R 2525 M16  |                                                                                                        |      |                                                                                                  |        |                                                                                                       |        |                                                                                                       |      |                                                                                                              |        |                                                                                                    |         |
| *MVQNL/R 3225 Q16 |                                                                                                        |      |                                                                                                  |        |                                                                                                       |        |                                                                                                       |      |                                                                                                              |        |                                                                                                    |         |

\* Non Stock Items, subject to extended delivery time



Turning Inserts

**MVVNN 72,5°**



MVVNN Neutral External Square Shank Toolholders

| EDP    | Item Description | Hand    | Insert Sizes | Dimensions (mm) |    |      |     |    |
|--------|------------------|---------|--------------|-----------------|----|------|-----|----|
|        |                  |         |              | $h = h_1$       | b  | f    | L1  | L2 |
| 028549 | MVVNN 2020 K16   | Neutral | VN_1604      | 20              | 20 | 10   | 125 | 42 |
| 028550 | MVVNN 2525 M16   | Neutral | VN_1604      | 25              | 25 | 12,5 | 150 | 42 |



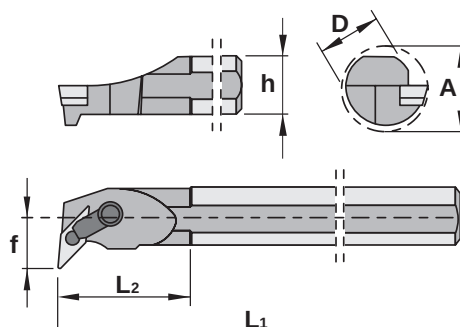
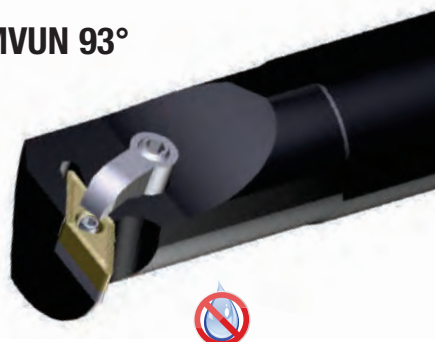
M Style External Toolholder  
for Negative Inserts: VN\_1604  
Application: O/D Plunge and Profile  
Axial Approach 72,5°  
Axial -6°  
Radial 0°  
Profiling Clearance Angle  $\beta = 69,5^\circ$   
Neutral Holder Shown

MVVNNL/R Spare Parts

| Item Description | Clamp Screw<br>EDP | Clamp<br>EDP | Clamp Key<br>EDP | Lock Pin<br>EDP | Lock Pin<br>Key<br>EDP | Anvil<br>EDP |
|------------------|--------------------|--------------|------------------|-----------------|------------------------|--------------|
| MVVNN 2020 K16   | 028575             | 1086         | 034492           | CL2616          | 018286                 | KH5003       |
| MVVNN 2525 M16   |                    |              |                  |                 |                        |              |
|                  |                    |              |                  |                 |                        |              |



## S..MVUN 93°



Turning Inserts

S..MVUN LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |     |    |    |                                                                                       |
|--------|------------------|------|--------------|-----------------|----|----|-----|----|----|---------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L1  | L2 | h  | Through Coolant                                                                       |
| 033471 | S25T MVUNL 16    | LH   | VN_1604      | 31              | 25 | 17 | 300 | 42 | 23 |    |
| 033472 | S32U MVUNL 16    | LH   | VN_1604      | 39              | 32 | 22 | 350 | 45 | 30 |    |
| 033473 | S40V MVUNL 16    | LH   | VN_1604      | 48              | 40 | 27 | 400 | 50 | 37 |    |
| 033474 | S25T MVUNR 16    | RH   | VN_1604      | 31              | 25 | 17 | 300 | 42 | 23 |    |
| 033475 | S32U MVUNR 16    | RH   | VN_1604      | 39              | 32 | 22 | 350 | 45 | 30 |   |
| 033476 | S40V MVUNR 16    | RH   | VN_1604      | 48              | 40 | 27 | 400 | 50 | 37 |  |



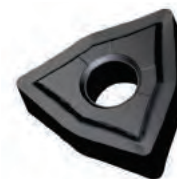
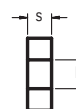
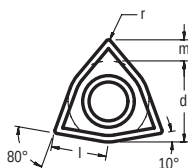
M Style External Toolholder  
for Negative Inserts: VN\_1604  
Application: Internal I/D Boring and Profile  
Axial Approach 93°  
Axial -5°  
Radial -15°  
Profiling Clearance Angle  $\beta = 51^\circ$   
RH Bar Shown

S.. MVUNL/R Spare Parts

| Item Description | Clamp Screw<br>EDP |  | Clamp<br>EDP |  | Clamp Key<br>EDP |  | Lock Pin<br>EDP |  | Lock Pin<br>Key<br>EDP |  | Anvil<br>EDP |  |  |  |  |  |  |  |  |  |  |  |
|------------------|--------------------|-------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| S25T MVUNL/R 16  | 034493             | 1186                                                                                | 034491       | CL2614                                                                              | 018286           | KH5003                                                                              | 034511          | 1665                                                                                  | 028578                 | KH5002                                                                                | 001695       | IVSN322                                                                               |  |  |  |  |  |  |  |  |  |  |
| S32U MVUNL/R 16  | 028575             | 1086                                                                                |              |                                                                                     |                  |                                                                                     |                 |                                                                                       |                        |                                                                                       |              |                                                                                       |  |  |  |  |  |  |  |  |  |  |
| S40V MVUNL/R 16  |                    |                                                                                     |              |                                                                                     |                  |                                                                                     |                 |                                                                                       |                        |                                                                                       |              |                                                                                       |  |  |  |  |  |  |  |  |  |  |



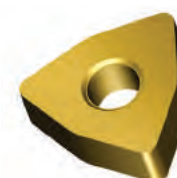
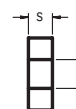
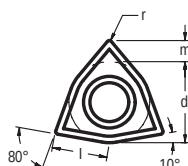
## WNGG 3F Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>ε</sub> | h    |          |             |
| 031552 | WNGG080402F-3F  | SP0819 | 12,70           | 8,69 | 4,76 | 0,20           | 5,16 |          | Medium      |
| 031553 | WNGG080404F-3F  | SP0819 | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 031554 | WNGG080408F-3F  | SP0819 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Medium      |

For Toolholders External: see page C168 | Internal: see page C169

## WNGG Flat Top



| EDP    | ISO Description | Grade | Dimensions (mm) |      |      |                |      | Material | Application    |
|--------|-----------------|-------|-----------------|------|------|----------------|------|----------|----------------|
|        |                 |       | d               | l    | s    | r <sub>ε</sub> | h    |          |                |
| 032877 | WNMA080408E     | NL250 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Heavy Roughing |
| 032878 | WNMA080412E     | NL250 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Heavy Roughing |

For Toolholders External: see page C168 | Internal: see page C169

## Material Guide – Key to Recommended Inserts

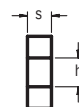
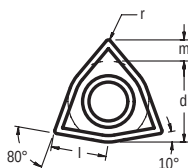
### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials





**WNMG**  
1B Geometry



Turning Inserts

| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>ε</sub> | h    |          |             |
| 030884 | WNMG060404E-1B  | SP0819 | 9,53            | 6,52 | 4,76 | 0,40           | 3,81 |          | Finishing   |
| 032879 | WNMG060408E-1B  | NL250  | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 |          | Finishing   |
| 030885 | WNMG060408E-1B  | SP0819 | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 |          | Finishing   |
| 032880 | WNMG080404E-1B  | NL250  | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 |          | Finishing   |
| 030886 | WNMG080404E-1B  | SP0819 | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 |          | Finishing   |
| 032881 | WNMG080408E-1B  | NL250  | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Finishing   |
| 030887 | WNMG080408E-1B  | SP0819 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Finishing   |
| 032882 | WNMG080412E-1B  | NL250  | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Finishing   |
| 030888 | WNMG080412E-1B  | SP0819 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Finishing   |

For Toolholders External: see page C168 | Internal: see page C169

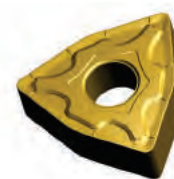
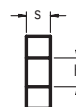
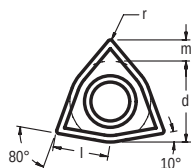
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**WNMG**  
2N Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l    | s    | r <sub>ε</sub> | h    |          |             |
| 032884 | WNMG060404E-2N  | NL250 | 9,53            | 6,52 | 4,76 | 0,40           | 3,81 | ◆◆◆◆     | Medium      |
| 032885 | WNMG060408E-2N  | NL300 | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 | ◆◆◆◆     | Medium      |
| 032886 | WNMG060408E-2N  | NL920 | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 | ◆◆◆◆     | Medium      |
| 032887 | WNMG080404E-2N  | NL250 | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 | ◆◆◆◆     | Medium      |
| 032888 | WNMG080404E-2N  | NL300 | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 | ◆◆◆◆     | Medium      |
| 032889 | WNMG080404E-2N  | NL920 | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 | ◆◆◆◆     | Medium      |
| 032890 | WNMG080408E-2N  | NL250 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 | ◆◆◆◆     | Medium      |
| 032891 | WNMG080408E-2N  | NL300 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 | ◆◆◆◆     | Medium      |
| 032892 | WNMG080408E-2N  | NL920 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 | ◆◆◆◆     | Medium      |
| 032893 | WNMG080412E-2N  | NL250 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 | ◆◆◆◆     | Medium      |
| 032894 | WNMG080412E-2N  | NL300 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 | ◆◆◆◆     | Medium      |
| 032895 | WNMG080412E-2N  | NL920 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 | ◆◆◆◆     | Medium      |
| 032896 | WNMG080416E-2N  | NL250 | 12,70           | 8,69 | 4,76 | 1,60           | 5,16 | ◆◆◆◆     | Medium      |
| 032897 | WNMG080416E-2N  | NL300 | 12,70           | 8,69 | 4,76 | 1,60           | 5,16 | ◆◆◆◆     | Medium      |
| 032898 | WNMG080416E-2N  | NL920 | 12,70           | 8,69 | 4,76 | 1,60           | 5,16 | ◆◆◆◆     | Medium      |

For Toolholders External: see page C168 | Internal: see page C169

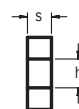
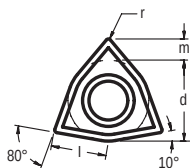
## Material Guide – Key to Recommended Inserts

### Material Designation

◆ P Unalloyed Steels 
 ◆ P Alloyed Steels 
 ◆ M Stainless Steels 
 ◆ M PH Stainless 
 ◆ K Cast Irons 
 ◆ N Aluminum & Alloys 
 ◆ S High Temp. Alloys 
 ◆ H Hard Materials



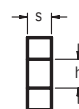
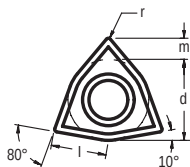
## WNMG 3J Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>e</sub> | h    |          |             |
| 032899 | WNMG060404E-3J  | SP4019 | 9,53            | 6,52 | 4,76 | 0,40           | 3,81 |          | Medium      |
| 032900 | WNMG060408E-3J  | SP4019 | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 |          | Medium      |
| 032901 | WNMG080404E-3J  | SP4019 | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 |          | Medium      |
| 032902 | WNMG080408E-3J  | SP4019 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Medium      |
| 032903 | WNMG080412E-3J  | SP4019 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Medium      |

For Toolholders External: see page C168 | Internal: see page C169

## WNMG 4E Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application     |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-----------------|
|        |                 |        | d               | l    | s    | r <sub>e</sub> | h    |          |                 |
| 030519 | WNMG060404E-4E  | SP0819 | 9,53            | 6,52 | 4,76 | 0,40           | 3,81 |          | Medium-Roughing |
| 030520 | WNMG060408E-4E  | SP0819 | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 |          | Medium-Roughing |
| 031183 | WNMG060412E-4E  | SP0819 | 9,53            | 6,52 | 4,76 | 1,20           | 3,81 |          | Medium-Roughing |
| 030521 | WNMG080404E-4E  | SP0819 | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 |          | Medium-Roughing |
| 032904 | WNMG080404E-4E  | NL400  | 12,70           | 8,69 | 4,76 | 0,40           | 5,16 |          | Medium-Roughing |
| 030522 | WNMG080408E-4E  | SP0819 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Medium-Roughing |
| 032905 | WNMG080408E-4E  | NL400  | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Medium-Roughing |
| 032906 | WNMG080412E-4E  | NL400  | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Medium-Roughing |
| 030523 | WNMG080412E-4E  | SP0819 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Medium-Roughing |

For Toolholders External: see page C168 | Internal: see page C169

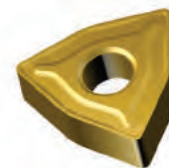
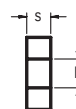
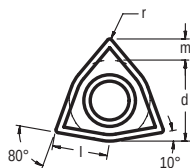
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



## WNMG 4T Geometry



| EDP    | ISO Description | Grade | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|-------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |       | d               | l    | s    | r <sub>ε</sub> | h    |          |             |
| 034458 | WNMG060408E-4T  | NL300 | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 |          | Roughing    |
| 034459 | WNMG060408E-4T  | NL920 | 9,53            | 6,52 | 4,76 | 0,80           | 3,81 |          | Roughing    |
| 032909 | WNMG060412E-4T  | NL300 | 9,53            | 6,52 | 4,76 | 1,20           | 3,81 |          | Roughing    |
| 032910 | WNMG060412E-4T  | NL920 | 9,53            | 6,52 | 4,76 | 1,20           | 3,81 |          | Roughing    |
| 032911 | WNMG080408E-4T  | NL250 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032912 | WNMG080408E-4T  | NL300 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032913 | WNMG080408E-4T  | NL400 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032914 | WNMG080408E-4T  | NL920 | 12,70           | 8,69 | 4,76 | 0,80           | 5,16 |          | Roughing    |
| 032915 | WNMG080412E-4T  | NL250 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032916 | WNMG080412E-4T  | NL300 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032917 | WNMG080412E-4T  | NL400 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032918 | WNMG080412E-4T  | NL920 | 12,70           | 8,69 | 4,76 | 1,20           | 5,16 |          | Roughing    |
| 032919 | WNMG080416E-4T  | NL300 | 12,70           | 8,69 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032920 | WNMG080416E-4T  | NL400 | 12,70           | 8,69 | 4,76 | 1,60           | 5,16 |          | Roughing    |
| 032921 | WNMG080416E-4T  | NL920 | 12,70           | 8,69 | 4,76 | 1,60           | 5,16 |          | Roughing    |

For Toolholders External: see page C168 | Internal: see page C169

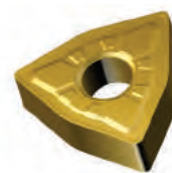
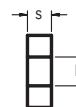
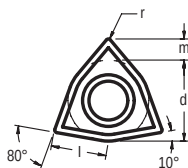
## Material Guide – Key to Recommended Inserts

### Material Designation

Unalloyed Steels 
 Alloyed Steels 
 Stainless Steels 
 PH Stainless 
 Cast Irons 
 Aluminum & Alloys 
 High Temp. Alloys 
 Hard Materials



**WNMG**  
4U Geometry



Turning Inserts

| EDP    | ISO Description | Grade | Dimensions (mm) |      |      |       |      | Material                                                                            | Application |
|--------|-----------------|-------|-----------------|------|------|-------|------|-------------------------------------------------------------------------------------|-------------|
|        |                 |       | d               | l    | s    | $r_e$ | h    |                                                                                     |             |
| 032922 | WNMG080408E-4U  | NL200 | 12,70           | 8,69 | 4,76 | 0,80  | 5,16 |  | Roughing    |
| 032923 | WNMG080412E-4U  | NL200 | 12,70           | 8,69 | 4,76 | 1,20  | 5,16 |  | Roughing    |

For Toolholders      External: see page C168    |    Internal: see page C169

## Material Guide – Key to Recommended Inserts

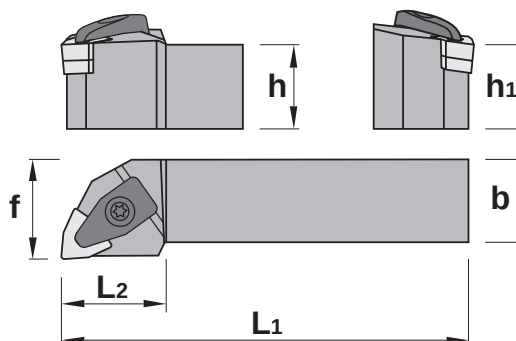
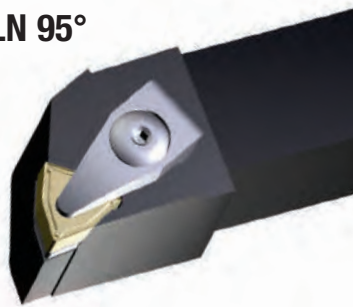
### Material Designation

 Unalloyed Steels  
  Alloyed Steels  
  Stainless Steels  
  PH Stainless  
  Cast Irons  
  Aluminum & Alloys  
  High Temp. Alloys  
  Hard Materials



Turning Inserts

**DWLN 95°**



DWLN LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |    |                |                |
|--------|------------------|------|--------------|--------------------|----|----|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f  | L <sub>1</sub> | L <sub>2</sub> |
| 033430 | DWLN 2020 K06    | LH   | WN_0604      | 20                 | 20 | 25 | 125            | 25             |
| 033431 | DWLN 2525 M06    | LH   | WN_0604      | 25                 | 25 | 32 | 150            | 25             |
| 033432 | DWLN 2020 K08    | RH   | WN_0604      | 20                 | 20 | 25 | 125            | 25             |
| 033433 | DWLN 2525 M08    | RH   | WN_0604      | 25                 | 25 | 32 | 150            | 25             |
| 033434 | DWLN 2020 K08    | LH   | WN_0804      | 20                 | 20 | 25 | 125            | 34             |
| 033435 | DWLN 2525 M08    | LH   | WN_0804      | 25                 | 25 | 32 | 150            | 34             |
| 033436 | DWLN 3232 P08    | LH   | WN_0804      | 32                 | 32 | 40 | 170            | 34             |
| 033437 | DWLN 2020 K08    | RH   | WN_0804      | 20                 | 20 | 25 | 125            | 34             |
| 033438 | DWLN 2525 M08    | RH   | WN_0804      | 25                 | 25 | 32 | 150            | 34             |
| 033439 | DWLN 3232 P08    | RH   | WN_0804      | 32                 | 32 | 40 | 170            | 34             |



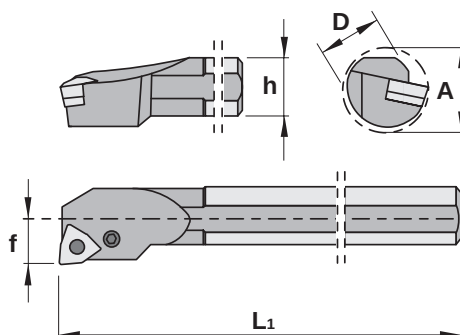
D Style External Toolholder  
for Negative Inserts:  
WN\_0604, & WN\_0804  
Application: O/D Face and Turn  
Axial Approach 95°  
Axial -6°  
Radial -6°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Holder Shown

DWLN/R Spare Parts

| Item Description | Clamp Screw<br>EDP  |      | Clamp<br>EDP  |        | Clamp<br>Spring EDP  |      | Anvil<br>EDP  |         | Anvil Screw<br>EDP  |      | Clamp & Anvil<br>Screw Key  |        |
|------------------|--------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------|--------|
| DWLN/R 2020 K06  | 033711                                                                                                 | 1695 | 033709                                                                                           | DC2708 | 033720                                                                                                  | 4294 | 030973                                                                                             | IWSN323 | 033718                                                                                                   | 1764 | 018286                                                                                                           | KH5003 |
| DWLN/R 2525 M06  |                                                                                                        |      |                                                                                                  |        |                                                                                                         |      |                                                                                                    |         |                                                                                                          |      |                                                                                                                  |        |
| DWLN/R 2020 K08  | 033710                                                                                                 | 1696 | 033707                                                                                           | DC2712 | 033719                                                                                                  | 4295 | 009251                                                                                             | IWSN433 | 033716                                                                                                   | 1766 | 018287                                                                                                           | KH5004 |
| DWLN/R 2525 M08  |                                                                                                        |      |                                                                                                  |        |                                                                                                         |      |                                                                                                    |         |                                                                                                          |      |                                                                                                                  |        |
| DWLN/R 3232 P08  |                                                                                                        |      |                                                                                                  |        |                                                                                                         |      |                                                                                                    |         |                                                                                                          |      |                                                                                                                  |        |



**S..PWLN 95°**



Turning Inserts

S.. PWLN LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |    |    |                |    |                                                                                      |
|--------|------------------|------|--------------|-----------------|----|----|----------------|----|--------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD | f  | L <sub>1</sub> | h  | Through Coolant                                                                      |
| 033450 | S16R PWLNL 06    | LH   | WN_06        | 20              | 16 | 11 | 200            | 15 |    |
| 033451 | S20S PWLNL 06    | LH   | WN_06        | 27              | 20 | 13 | 250            | 18 |    |
| 033452 | S25T PWLNL 06    | LH   | WN_06        | 31              | 25 | 17 | 300            | 23 |    |
| 033453 | S16R PWLNR 06    | RH   | WN_06        | 20              | 16 | 11 | 200            | 15 |    |
| 033454 | S20S PWLNR 06    | RH   | WN_06        | 27              | 20 | 13 | 250            | 18 |    |
| 033455 | S25T PWLNR 06    | RH   | WN_06        | 31              | 25 | 17 | 300            | 23 |    |
| 033456 | S25T PWLNL 08    | LH   | WN_08        | 31              | 25 | 17 | 300            | 23 |    |
| 033457 | S32U PWLNL 08    | LH   | WN_08        | 39              | 32 | 22 | 350            | 30 |    |
| 034457 | *S40V PWLNL 08   | LH   | WN_08        | 48              | 40 | 27 | 400            | 37 |  |
| 033458 | S25T PWLNR 08    | RH   | WN_08        | 31              | 25 | 17 | 300            | 23 |  |
| 033459 | S32U PWLNR 08    | RH   | WN_08        | 39              | 32 | 22 | 350            | 30 |  |
| 033460 | *S40V PWLNR 08   | RH   | WN_08        | 48              | 40 | 27 | 400            | 37 |  |

\* Non Stock Items, subject to extended delivery time



P Style External Toolholder  
for Negative Inserts:  
WN\_0604 & WN\_0804  
Application:- O/D Face and Turn  
Axial Approach 95°  
Axial -6°  
Raial -13,5°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Bar Shown

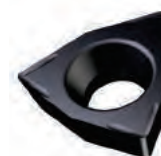
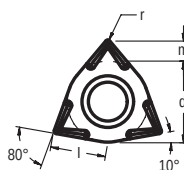
S.. PWLNL/R Spare Parts

| Item Description | Lever EDP | Lever Screw EDP | Anvil EDP | Anvil Clip EDP | Clip Punch EDP | Key EDP |
|------------------|-----------|-----------------|-----------|----------------|----------------|---------|
| S16R PWLNL/R 06  | 022652    | PL8216          | 028741    | PLS1605        | -              | 028578  |
| S20S PWLNL/R 06  | 017442    | PL8009          | 017447    | PLS1606        | 028460         | 018285  |
| S25T PWLNL/R 06  | 028047    | PL8312          | 022625    | PLS1648        | -              | 018286  |
| S25T PWLNL/R 08  | 017443    | PL8012          | 017448    | PLS1608        | 028461         | -       |
| S32U PWLNL/R 08  |           |                 |           |                |                |         |
| *S40V PWLNL/R 08 |           |                 |           |                |                |         |

\* Non Stock Items, subject to extended delivery time



## WPMT 61 Geometry



| EDP    | ISO Description | Grade  | Dimensions (mm) |      |      |                |      | Material | Application |
|--------|-----------------|--------|-----------------|------|------|----------------|------|----------|-------------|
|        |                 |        | d               | l    | s    | r <sub>ε</sub> | h    |          |             |
| 032293 | WPMT020102E-61  | SP4019 | 3,97            | 2,92 | 1,59 | 0,20           | 1,95 |          | Finishing   |
| 032291 | WPMT050304E-61  | SP4019 | 7,94            | 5,43 | 3,18 | 0,40           | 3,40 |          | Finishing   |

For Toolholders      External: see page C171    |    Internal: see page C172

## Material Guide – Key to Recommended Inserts

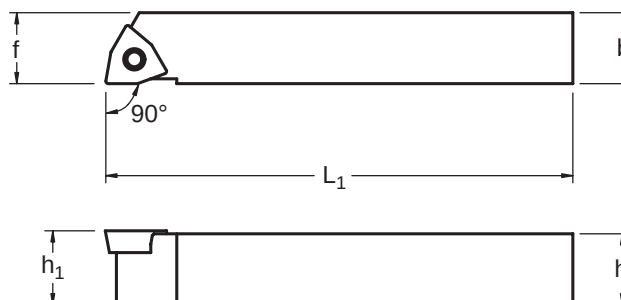
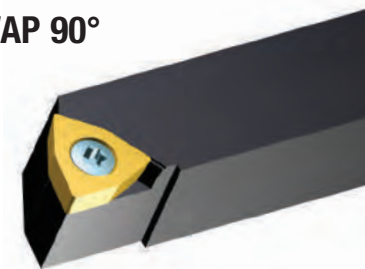
### Material Designation

Unalloyed Steels  
 Alloyed Steels  
 Stainless Steels  
 PH Stainless  
 Cast Irons  
 Aluminum & Alloys  
 High Temp. Alloys  
 Hard Materials





**SWAP 90°**



Turning Inserts

SWAP LH & RH External Square Shank Toolholders

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm)    |    |      |                |                |
|--------|------------------|------|--------------|--------------------|----|------|----------------|----------------|
|        |                  |      |              | h = h <sub>1</sub> | b  | f    | L <sub>1</sub> | L <sub>2</sub> |
| 025257 | SWAPL 1212 F05   | LH   | WP_05        | 12                 | 12 | 12,5 | 80             | -              |
| 025256 | SWAPR 1212 F05   | RH   | WP_05        | 12                 | 12 | 12,5 | 80             | -              |



S Style External Toolholder  
for Positive Inserts: WPMT\_0503  
Application: Face & Turn O/D  
Approach Angle 90°  
Axial 0°  
Radial 0°  
Profiling Clearance Angle  $\beta = 7^\circ$   
RH Holder Shown

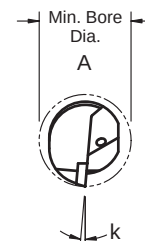
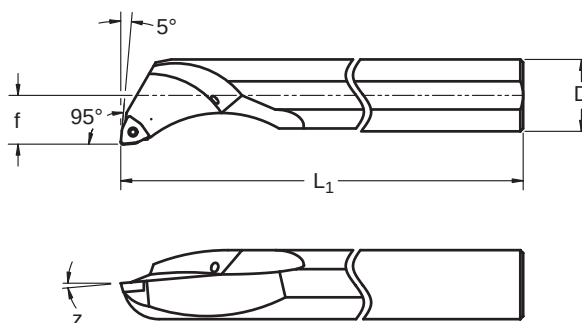
SWAPL/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| SWAPL/R 1212 F09 | 017032              | A3006T                                                                              | 013214            | T9                                                                                  | -            | -                                                                                     | -                  | -                                                                                     |



Turning Inserts

**SWLP 95°**



A.. SWLP LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes | Dimensions (mm) |       |      |                |                |                                                                                     |
|--------|------------------|------|--------------|-----------------|-------|------|----------------|----------------|-------------------------------------------------------------------------------------|
|        |                  |      |              | Min Bore Ø A    | ØD    | f    | L <sub>1</sub> | L <sub>2</sub> | Through Coolant                                                                     |
| 033688 | S06F SWLPL 02    | LH   | WP_0201      | 7,50            | 6,00  | 3,20 | 80,00          | -              |  |
| 018450 | A08H SWLPL 02    | LH   | WP_0201      | 11,00           | 8,00  | 6,00 | 100,00         | -              |  |
| 018451 | A10H SWLPL 02    | LH   | WP_0201      | 13,00           | 10,00 | 7,00 | 100,00         | -              |  |
| 033689 | S06F SWLPR 02    | RH   | WP_0201      | 7,50            | 6,00  | 3,20 | 80,00          | -              |  |
| 018327 | A08H SWLPR 02    | RH   | WP_0201      | 11,00           | 8,00  | 6,00 | 100,00         | -              |  |
| 018328 | A10H SWLPR 02    | RH   | WP_0201      | 13,00           | 10,00 | 7,00 | 100,00         | -              |  |
| 018453 | A12K SWLPL 05    | LH   | WP_0503      | 16,00           | 12,00 | 9,00 | 125,00         | -              |  |
| 033690 | A12K SWLPR 05    | RH   | WP_0503      | 16,00           | 12,00 | 9,00 | 125,00         | -              |  |



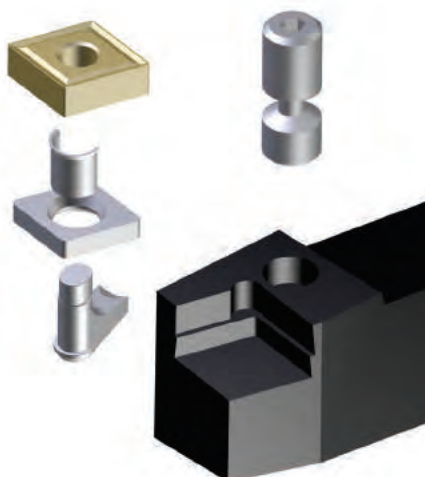
S Style Boring Bar  
for Positive Inserts:  
WP0503 & WP0201  
Application: Facing and Profiling  
Approach Angle 95°  
Axial 0°  
Radial 5°  
Profiling Clearance Angle  $\beta = 0^\circ$   
RH Boring Bar Shown

SWLPL/R Spare Parts

| Item Description | Insert Screw<br>EDP |          | Insert Key<br>EDP |    | Anvil<br>EDP |   | Anvil Screw<br>EDP |   |
|------------------|---------------------|----------|-------------------|----|--------------|---|--------------------|---|
| S06F SWLPL/R 02  | 018489              | 55F1803T | 018487            | T6 | -            | - | -                  | - |
| A08H SWLPL/R 02  |                     |          |                   |    |              |   |                    |   |
| A10H SWLPL/R 02  |                     |          |                   |    |              |   |                    |   |
| A12K SWLPL/R 05  | 017032              | A3006T   | 013214            | T9 | -            | - | -                  | - |



## P - Lever Lock (Negative Inserts)



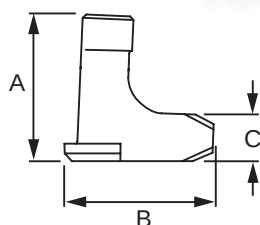
This system has a pivoted lever which tilts when the clamping screw is adjusted pulling the insert back against the pocket walls, for a strong location for the insert, with no obstruction to the chip flow. Also only one key is needed to facilitate the installation and removal of the insert.



Turning Inserts

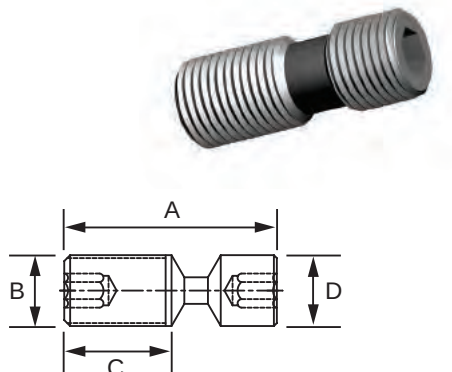
**Lever Lock**

| EDP    | Item Description | Dimensions (mm) |      |     |
|--------|------------------|-----------------|------|-----|
|        |                  | A               | B    | C   |
| 017442 | PL8009           | 12              | 10,2 | 3,4 |
| 017443 | PL8012           | 13,1            | 13,5 | 4,2 |
| 017445 | PL8016           | 17,1            | 16,5 | 5,4 |
| 017446 | PL8019           | 20,8            | 20,4 | 7,3 |
| 028408 | PL8025           | 25,2            | 25,7 | 8,2 |
| 034475 | PL8110           | 11,7            | 11   | 4   |
| 034476 | PL8112           | 13,3            | 13   | 4,4 |
| 034477 | PL8116           | 18              | 18,6 | 6,7 |
| 034478 | PL8120           | 18,7            | 20,4 | 6,7 |
| 034479 | PL8125           | 23              | 24   | 7,5 |
| 028742 | PL8212           | 12,1            | 13,4 | 4,7 |
| 022652 | PL8216           | 9,5             | 10,1 | 3,4 |
| 028047 | PL8312           | 13,2            | 13,5 | 4,2 |
| 017444 | PL8415           | 14,7            | 16,2 | 5,1 |

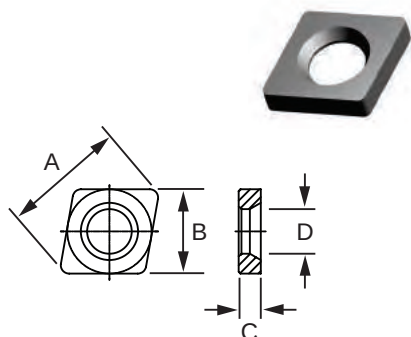




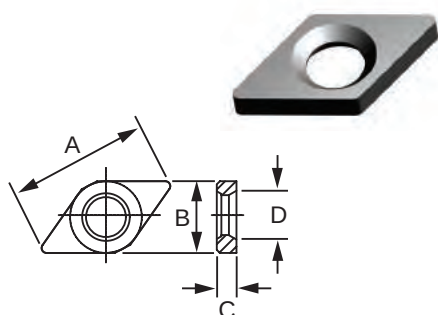
Turning Inserts



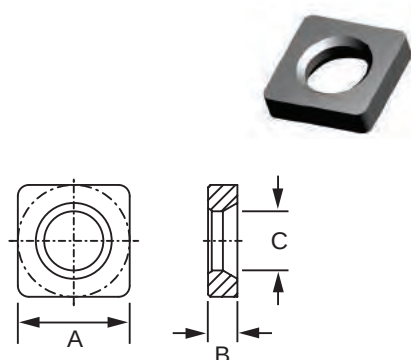
| Lever Screws |                  |                 |        |       |        |
|--------------|------------------|-----------------|--------|-------|--------|
| EDP          | Item Description | Dimensions (mm) |        |       |        |
|              |                  | A               | B      | C     | D      |
| 028741       | PLS1605          | 12              | M5x0,8 | 6,10  | M5x0,8 |
| 017447       | PLS1606          | 16,7            | M6x1   | 8,65  | M6x1   |
| 017448       | PLS1608          | 20,7            | M8x1   | 8,75  | M8x1   |
| 028409       | PLS1612          | 36              | M12x1  | 17,30 | M12x1  |
| 017450       | PLS1618          | 22,5            | M8X1   | 11,25 | M8X1   |
| 017449       | PLS1638          | 21,1            | M8X1   | 10,35 | M8X1   |
| 022625       | PLS1648          | 17              | M8X1   | 9,1   | M8X1   |
| 017451       | PLS1610          | 27,2            | M10x1  | 13,35 | M10x1  |
| 028743       | PLS1626          | 13,4            | M6x1   | 8     | M6x1   |
| 034480       | PLS1705          | 14              | M5x0,8 | 8,1   | M5x0,8 |
| 034481       | PLS1706          | 20,7            | M6x1   | 12,65 | M6x1   |
| 028458       | PLS1708          | 23,5            | M8X1   | 11,25 | M8X1   |
| 034482       | PLS1710          | 30,4            | M10x1  | 16,35 | M10x1  |



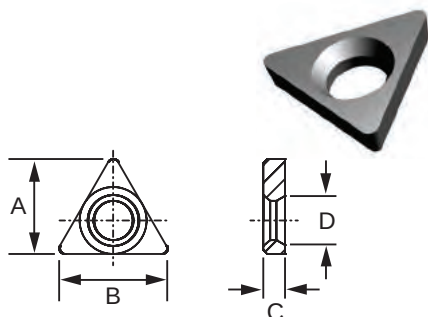
| Anvils C-Style |                  |                 |       |      |      |
|----------------|------------------|-----------------|-------|------|------|
| EDP            | Item Description | Dimensions (mm) |       |      |      |
|                |                  | A               | B     | C    | D    |
| 017456         | PA3612           | 17,16           | 11,68 | 3,18 | 6,8  |
| 017457         | PA3616           | 20,9            | 10,94 | 4,76 | 9,5  |
| 034483         | PA3625           | 36              | 24,9  | 6,6  | 12,8 |



| Anvils D-Style |                  |                 |      |      |     |
|----------------|------------------|-----------------|------|------|-----|
| EDP            | Item Description | Dimensions (mm) |      |      |     |
|                |                  | A               | B    | C    | D   |
| 028376         | PA3711           | 17              | 8,5  | 2,7  | 4,9 |
| 017459         | PA3715           | 23,4            | 11,6 | 3,18 | 6,4 |

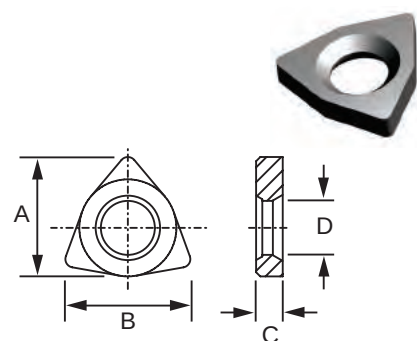


| Anvils S-Style |                  |                 |      |      |
|----------------|------------------|-----------------|------|------|
| EDP            | Item Description | Dimensions (mm) |      |      |
|                |                  | A               | B    | C    |
| 017460         | PA3512           | 11,66           | 3,18 | 6,35 |
| 017461         | PA3515           | 14,5            | 4,76 | 7,9  |
| 017462         | PA3519           | 18,1            | 4,76 | 7,9  |
| 028416         | PA3525           | 24,6            | 4,76 | 13   |



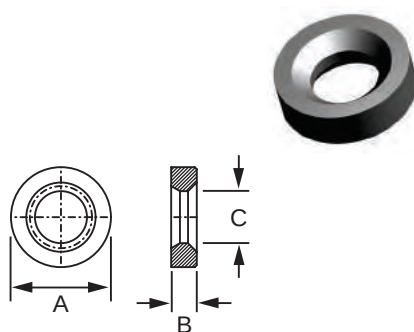
Anvils T-Style

| EDP    | Item Description | Dimensions (mm) |       |      |     |
|--------|------------------|-----------------|-------|------|-----|
|        |                  | A               | B     | C    | D   |
| 017463 | PA3416           | 11,98           | 13,52 | 2,76 | 4,9 |
| 017464 | PA3422           | 16,6            | 18,92 | 3,18 | 6,4 |



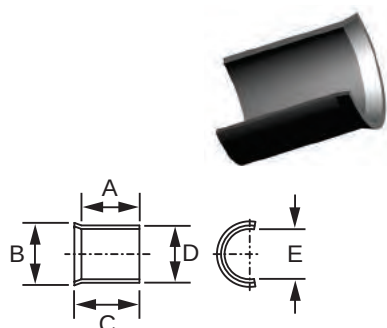
Anvils W-Style

| EDP    | Item Description | Dimensions (mm) |       |      |     |
|--------|------------------|-----------------|-------|------|-----|
|        |                  | A               | B     | C    | D   |
| 028460 | PA3007           | 10,85           | 11,3  | 3,18 | 6,4 |
| 028461 | PA3008           | 15,2            | 15,88 | 3,18 | 6,4 |

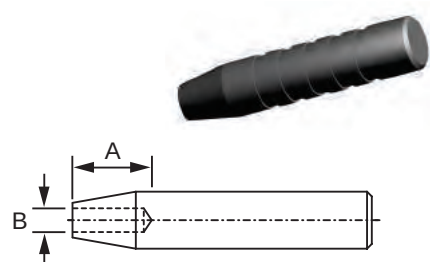


Anvils R-Style

| EDP    | Item Description | Dimensions (mm) |      |      |
|--------|------------------|-----------------|------|------|
|        |                  | A               | B    | C    |
| 034484 | PA3810           | 8,34            | 3,18 | 4,9  |
| 034485 | PA3812           | 9,9             | 3,18 | 4,9  |
| 034486 | PA3816           | 13,55           | 4,76 | 6,4  |
| 034487 | PA3820           | 17,25           | 4,76 | 8,05 |
| 034488 | PA3825           | 21,9            | 6,35 | 9,6  |
| 034489 | PA3925           | 24,8            | 6,35 | 12,9 |
| 001670 | IRS84            | 25,15           | 6,35 | 14,5 |



| Clips  |                  |                 |       |      |      |      |
|--------|------------------|-----------------|-------|------|------|------|
| EDP    | Item Description | Dimensions (mm) |       |      |      |      |
|        |                  | A               | B     | C    | D    | E    |
| 034503 | PC4109           | 4,6             | 5,76  | 5,2  | 4,9  | 4,4  |
| 028417 | PC4110           | 6,1             | 5,6   | 6,8  | 4,9  | 3,8  |
| 017453 | PC4112           | 5,2             | 7     | 5,8  | 6,6  | 5,5  |
| 028051 | PC4115           | 7,7             | 9     | 8,7  | 8,2  | 7    |
| 034504 | PC4116           | 8,5             | 6,82  | 9,1  | 6,5  | 5,4  |
| 017455 | PC4119           | 9,8             | 10,57 | 11   | 9,7  | 8,5  |
| 028418 | PC4125           | 9,7             | 14,7  | 11,8 | 13,2 | 10,5 |



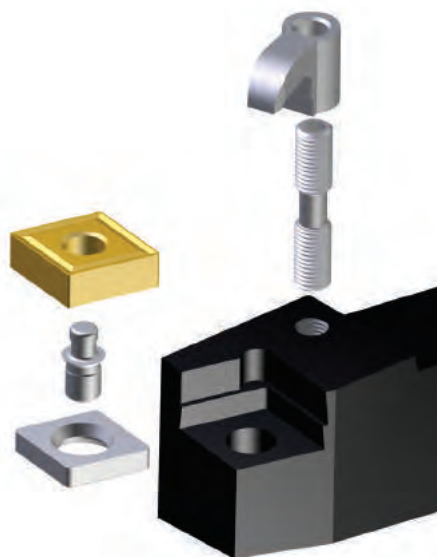
| Clip Fixing Pin |                  |                 |       |
|-----------------|------------------|-----------------|-------|
| EDP             | Item Description | Dimensions (mm) |       |
|                 |                  | A               | B     |
| 028053          | PCP009           | 9               | 4     |
| 028054          | PCP0012          | 9               | 4,750 |
| 034505          | PCP0015          | 12              | 6,5   |
| 028056          | PCP0019          | 12              | 8     |
| 034506          | PCP0025          | 20              | 12,5  |



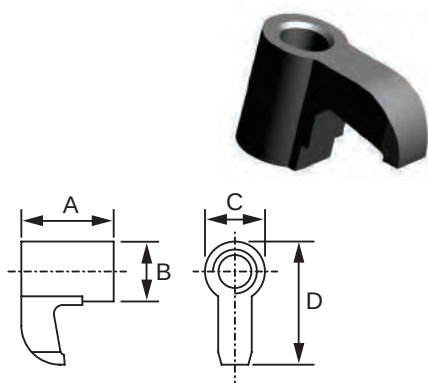
| Keys   |                  |     |
|--------|------------------|-----|
| EDP    | Item Description | mm  |
| 028578 | KH5002           | 2   |
| 018286 | KH5003           | 3   |
| 018287 | KH5004           | 4   |
| 018288 | KH5005           | 5   |
| 018285 | KH5025           | 2,5 |



## M - Clamp Lock (Negative Inserts)



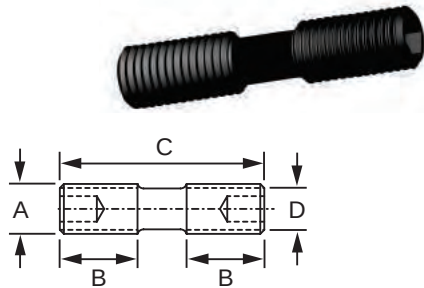
The combination of lock pin and top clamp makes this one of the most secure clamping systems available. The lock pin locates the insert against the pocket wall while the top clamp secures the insert down.



M Style Clamps

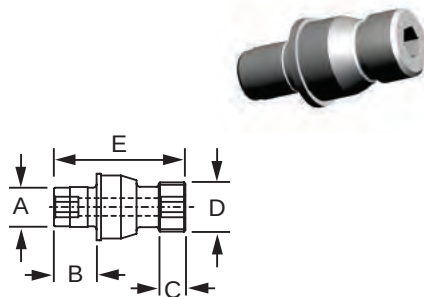
| EDP    | Item Description | Dimensions (mm) |      |       |       |
|--------|------------------|-----------------|------|-------|-------|
|        |                  | A               | B    | C     | D     |
| 030974 | CL6              | 10,90           | 3,99 | 7,62  | 14,73 |
| 029071 | CL12             | 16,6            | 5,99 | 10,77 | 22,50 |
| 028996 | CL20             | 13              | 5,31 | 9,35  | 18,34 |
| 029072 | CL22             | 13,36           | 5,99 | 9,35  | 21,74 |
| 029073 | CL30             | 16,84           | 5,84 | 10,74 | 24,64 |
| 034490 | CL2613           | 13,5            | -    | 9,5   | 18,5  |
| 034491 | CL2614           | 13,5            | -    | 9,5   | 21,7  |
| 034492 | CL2616           | 13,5            | -    | 9,5   | 24    |





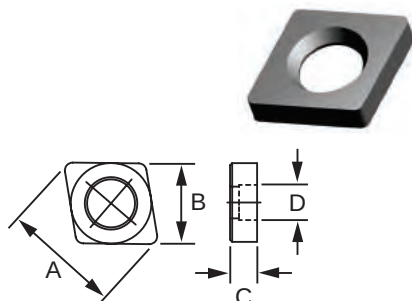
#### Clamp Screws

| EDP    | Item Description | Dimensions (mm) |      |       |           |
|--------|------------------|-----------------|------|-------|-----------|
|        |                  | A               | B    | C     | D         |
| 029074 | XNS36            | -               | 6,99 | 19,17 | -         |
| 029075 | XNS47            | -               | 6,78 | 20,5  | -         |
| 028997 | XNS48            | -               | 4,6  | 25,4  | -         |
| 029076 | XNS510           | -               | 5,31 | 31,7  | -         |
| 028575 | 1086             | M6x1 (LH)       | 11,4 | 29,4  | M6x1 (RH) |
| 034493 | 1186             | M6x1 (LH)       | 7,11 | 20,50 | M6x1 (LH) |



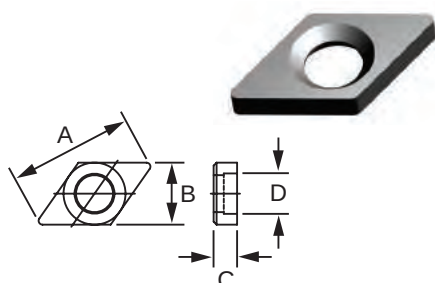
#### NL Pins

| EDP    | Item Description | A    | B     | C    | D    | E           |
|--------|------------------|------|-------|------|------|-------------|
|        |                  | mm   | mm    | mm   | mm   | Thread Form |
| 004703 | NL33L            | 5,00 | 14,71 | 5,21 | 6,71 | 8-32 UNC    |
| 004705 | NL34L            | 3,66 | 13,13 | 5    | 2,69 | 10-32L      |
| 004707 | NL44             | 5    | 13,2  | 5,4  | 3,2  | 1/4-28 UNC  |
| 004708 | NL46             | 5    | 13,2  | 5,4  | 3,2  | 1/4-28 UNC  |
| 004710 | NL58             | 6,25 | 22    | 6,9  | 5,3  | 5/16-24 UNC |
| 004713 | NL68             | 6,25 | 22    | 6,9  | 4,8  | 3/8-24      |
| 004716 | NL810            | 9    | 29,69 | 9,8  | 5,58 | 7/16-20     |
| 034511 | 1665             | 3,68 | 13    | 5    | 2,3  | M5X0,8      |



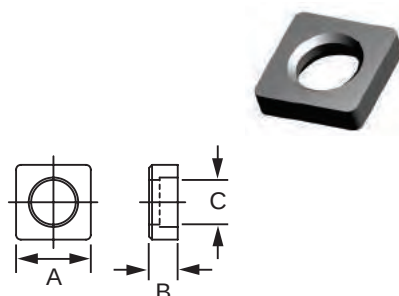
Anvils C-Style

| EDP    | Item Description | Dimensions (mm) |       |      |      |
|--------|------------------|-----------------|-------|------|------|
|        |                  | A               | B     | C    | D    |
| 029079 | ICSN432          | 18,39           | 12,45 | 4,75 | 7,44 |
| 001685 | ICSN533          | 22,94           | 15,62 | 4,75 | 9,78 |



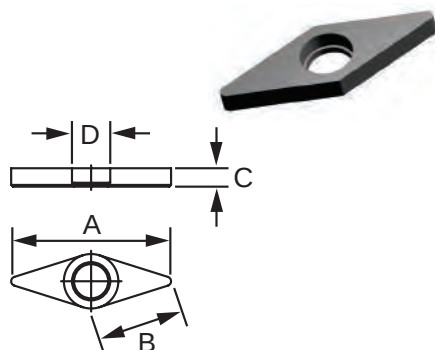
Anvils D-Style

| EDP    | Item Description | Dimensions (mm) |       |      |      |
|--------|------------------|-----------------|-------|------|------|
|        |                  | A               | B     | C    | D    |
| 001689 | IDSN433          | 25,07           | 12,57 | 4,76 | 7,47 |



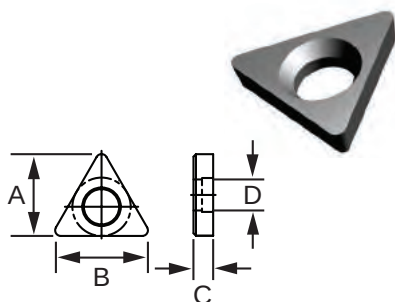
Anvils S-Style

| EDP    | Item Description | Dimensions (mm) |      |       |
|--------|------------------|-----------------|------|-------|
|        |                  | A               | B    | C     |
| 001704 | ISSN433          | 12,45           | 4,75 | 7,49  |
| 001707 | ISSN533          | 15,65           | 4,75 | 9,83  |
| 001709 | ISSN633          | 18,72           | 4,75 | 11,38 |

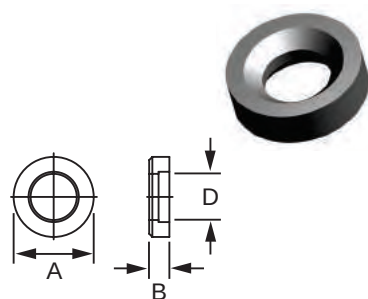


Anvils V-Style

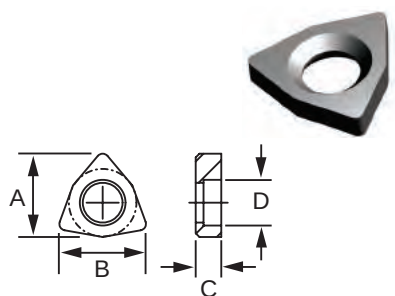
| EDP    | Item Description | Dimensions (mm) |      |      |      |
|--------|------------------|-----------------|------|------|------|
|        |                  | A               | B    | C    | D    |
| 001695 | IVSN322          | 28,70           | 9,19 | 3,18 | 5,99 |



| Anvils T-Style |                  |                 |      |      |     |
|----------------|------------------|-----------------|------|------|-----|
| EDP            | Item Description | Dimensions (mm) |      |      |     |
|                |                  | A               | B    | C    | D   |
| 001714         | ITSN323          | 12,9            | 14,6 | 3,18 | 5,9 |
| 001718         | ITSN433          | 17,3            | 19,7 | 4,76 | 7,4 |



| Anvils R-Style |                  |                 |      |      |
|----------------|------------------|-----------------|------|------|
| EDP            | Item Description | Dimensions (mm) |      |      |
|                |                  | A               | B    | C    |
| 001670         | IRSN84           | 25,15           | 6,35 | 14,5 |



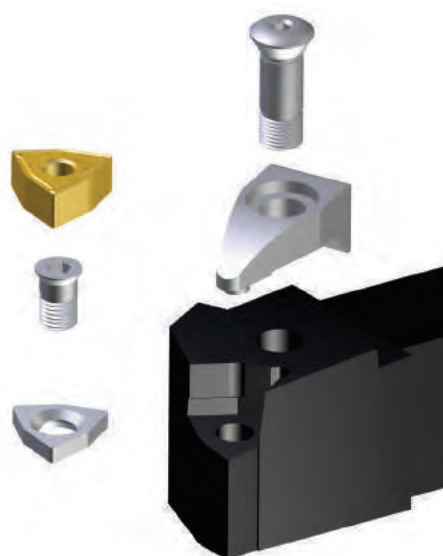
| Anvils W-Style |                  |                 |       |      |       |
|----------------|------------------|-----------------|-------|------|-------|
| EDP            | Item Description | Dimensions (mm) |       |      |       |
|                |                  | A               | B     | C    | D     |
| 009251         | IWSN433          | 15,34           | 16,00 | 4,76 | 7,416 |



| Keys   |                  |     |
|--------|------------------|-----|
| EDP    | Item Description | mm  |
| 028578 | KH5002           | 2   |
| 018286 | KH5003           | 3   |
| 018285 | KH5025           | 2,5 |

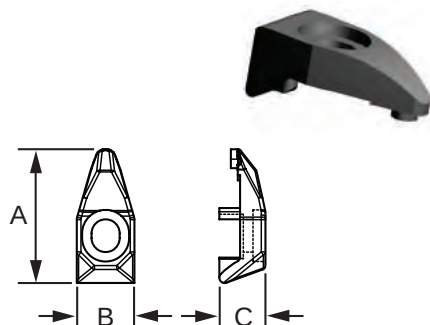
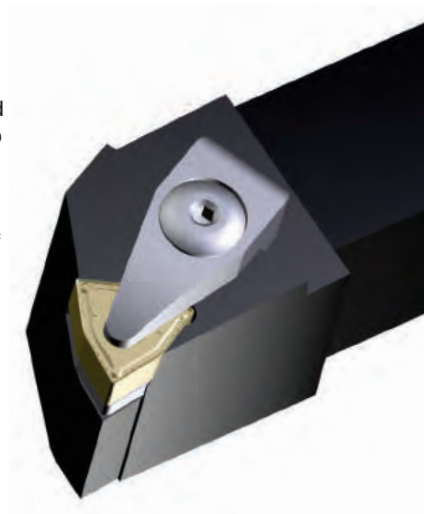


## D - Dimple Lock (Negative Inserts)



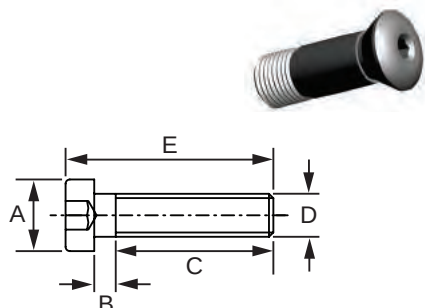
This system combines a pull back pin and top clamp in one, using a wedge action to locate the insert into the pocket, with the clamp screw pulling down on the insert. This clamping method provides a strong and rigid set-up, with the added benefit of only one key for replacement of inserts.

The "D" clamping system ensures zero insert movement during high feed or heavy interrupted machining, due to its accurate positioning that holds the insert securely clamped.



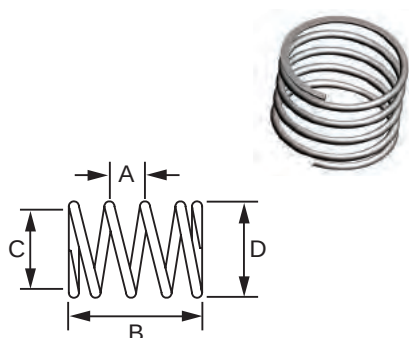
### D Style Clamps

| EDP    | Item Description | Dimensions (mm) |       |       |
|--------|------------------|-----------------|-------|-------|
|        |                  | A               | B     | C     |
| 034494 | DC 2312          | 28,90           | 14,00 | 12,00 |
| 033709 | DC 2708          | 24,90           | 10,90 | 9,20  |
| 033707 | DC 2712          | 29,00           | 12,50 | 10,00 |
| 034495 | DC 2716          | 33,80           | 13,00 | 10,50 |
| 033708 | DC 2719          | 35,20           | 13,50 | 10,50 |



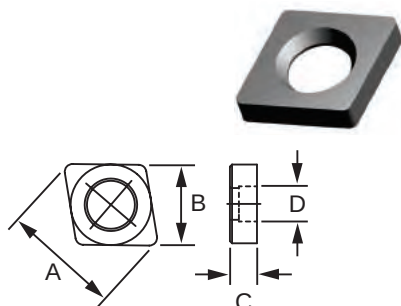
#### Clamp Screws

| EDP    | Item Description | Dimensions (mm) |      |    |         |      |
|--------|------------------|-----------------|------|----|---------|------|
|        |                  | A               | B    | C  | D       | E    |
| 033711 | 1695             | 8,4             | -    | 20 | M5x0,8  | 23,5 |
| 033710 | 1696             | 9,8             | -    | 25 | M6x1    | 29   |
| 034512 | 1907             | 10,7            | 10,6 | 14 | M7X0,75 | 27,5 |



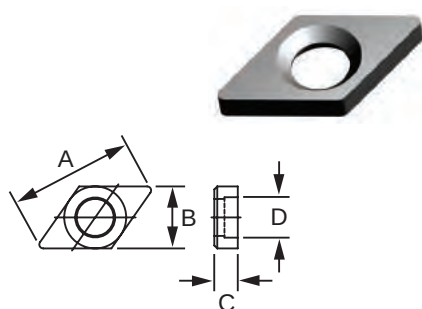
#### Clamp Spring

| EDP    | Item Description | Dimensions (mm) |       |   |      |
|--------|------------------|-----------------|-------|---|------|
|        |                  | A               | B     | C | D    |
| 033720 | 4294             | 3               | 11,20 | 5 | 6,50 |
| 033719 | 4295             | 3,50            | 13    | 7 | 9,50 |



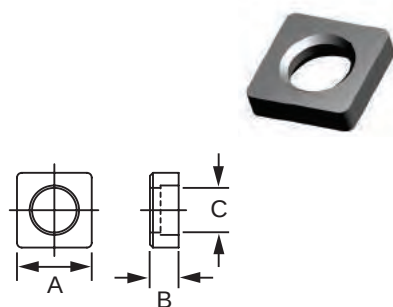
#### Anvils C-Style

| EDP    | Item Description | Dimensions (mm) |       |      |      |
|--------|------------------|-----------------|-------|------|------|
|        |                  | A               | B     | C    | D    |
| 017456 | PA3612           | 17,17           | 11,68 | 3,18 | 6,81 |
| 029079 | ICSN432          | 18,39           | 12,45 | 4,75 | 7,44 |
| 033712 | ICSN442          | 18,39           | 12,45 | 6,35 | 7,44 |
| 001685 | ICSN533          | 22,94           | 15,62 | 4,75 | 9,78 |
| 001686 | ICSN633          | 25,527          | 18,8  | 4,76 | 11,3 |



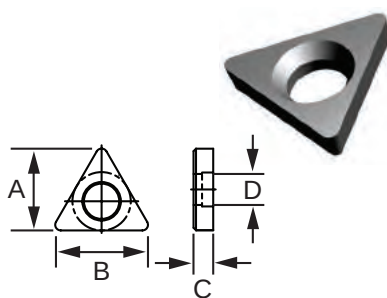
#### Anvils D-Style

| EDP    | Item Description | Dimensions (mm) |       |      |      |
|--------|------------------|-----------------|-------|------|------|
|        |                  | A               | B     | C    | D    |
| 034496 | IDSN-322         | 18,72           | 9,40  | 3,18 | 6,48 |
| 001689 | IDSN-433         | 25,66           | 12,57 | 4,76 | 7,40 |



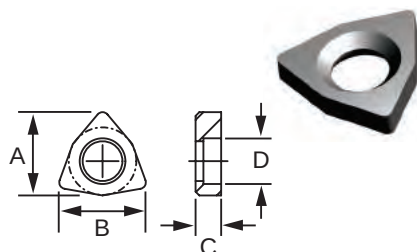
#### Anvils S-Style

| EDP    | Item Description | Dimensions (mm) |      |       |
|--------|------------------|-----------------|------|-------|
|        |                  | A               | B    | C     |
| 001704 | ISSN433          | 12,45           | 4,75 | 7,49  |
| 033715 | ISSN442          | 12,45           | 6,35 | 7,49  |
| 001707 | ISSN533          | 15,65           | 4,76 | 9,83  |
| 001709 | ISSN633          | 18,72           | 4,76 | 11,38 |



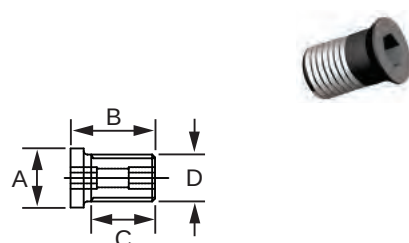
#### Anvils T-Style

| EDP    | Item Description | Dimensions (mm) |       |      |      |
|--------|------------------|-----------------|-------|------|------|
|        |                  | A               | B     | C    | D    |
| 033714 | ITSN342          | 12,93           | 14,63 | 3,18 | 5,99 |



#### Anvils W-Style

| EDP    | Item Description | Dimensions (mm) |       |      |      |
|--------|------------------|-----------------|-------|------|------|
|        |                  | A               | B     | C    | D    |
| 030973 | IWSN323          | 11,32           | 11,82 | 3,18 | 5,89 |
| 009251 | IWSN433          | 15,35           | 15,95 | 4,76 | 7,4  |



#### Anvil Screw

| EDP    | Item Description | Dimensions (mm) |       |       |         |
|--------|------------------|-----------------|-------|-------|---------|
|        |                  | A               | B     | C     | D       |
| 034507 | 1160             | 8               | 13,5  | 9,5   | M6x1    |
| 034508 | 1161             | 8               | 10,5  | 6,5   | M6x1    |
| 033718 | 1764             | 6,20            | 9,00  | 7,60  | M5x0,8  |
| 029095 | 1765             | 7,5             | 10    | 6     | M6x0,75 |
| 033716 | 1766             | 7,8             | 13,0  | 10,6  | 1/4 -26 |
| 034509 | 1768             | 10,5            | 15,5  | 13,3  | M8x1    |
| 033717 | 1770             | 11,90           | 15,00 | 12,80 | 3/8 -24 |



#### Keys

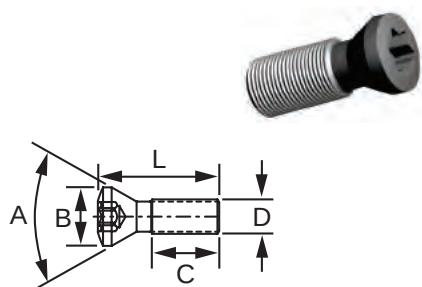
| EDP    | Item Description | mm  |
|--------|------------------|-----|
| 018287 | KH5004           | 4   |
| 018285 | KH5025           | 2,5 |
| 018286 | KH5003           | 3   |



## S - Screw Lock (Positive Inserts)



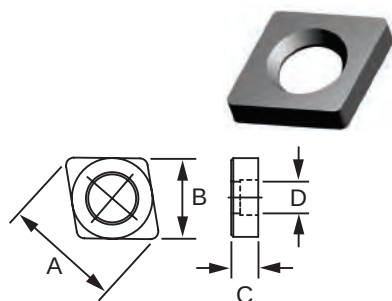
This innovated system was first introduced into the marketplace by Stellram as Posicut® S - Style. Its benefits are secure clamping, repeatability, minimal number of spare parts and no obstruction of the chip flow. Which make this ideal for internal boring bars and places where accessibility is limited.



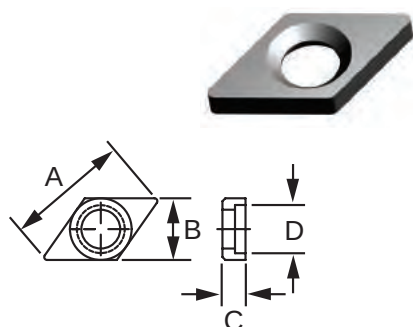
Insert Screws

| EDP    | Item Description | Dimensions (mm) |      |       |       |           |
|--------|------------------|-----------------|------|-------|-------|-----------|
|        |                  | A               | B    | C     | L     | D         |
| 017032 | A3006T           | 48°             | 4,4  | 4     | 6     | M3x0,5    |
| 023081 | A5025T           | 43°             | 6,6  | 6,9   | 25    | M5x0,8    |
| 015059 | F2004T           | 43°             | 3    | 2,50  | 4,50  | M2x0,4    |
| 015060 | F2505T           | 43°             | 3,8  | 3,5   | 5     | M2,5x0,45 |
| 015061 | F2507T           | 43°             | 3,8  | 4     | 7     | M2,5x0,45 |
| 015262 | D4010T           | 43°             | 5,1  | 5,1   | 10    | M4x0,7    |
| 034497 | 1335             | 55°             | 5,30 | 10,20 | 15    | M3,5x0,6  |
| 034498 | 1425             | 55°             | 3,30 | 3     | 5,50  | M2,5x0,45 |
| 034499 | 1440             | 55°             | 5,30 | 4     | 7     | M4x0,7    |
| 034500 | 1540             | 60°             | 6,80 | 7,90  | 14,10 | M4x0,7    |
| 015063 | F3008T           | 48°             | 4,4  | 5     | 8     | M3x0,5    |
| 018489 | 55F1803T         | 55°             | 2,75 | 1,60  | 3,30  | M1,8x0,2  |

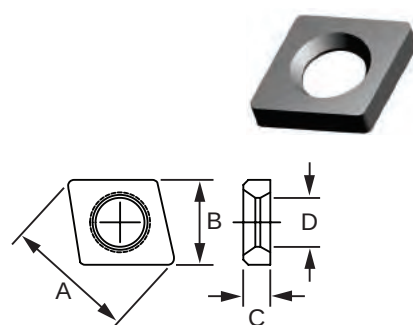




| Anvils C-Style |                  |                 |       |       |      |
|----------------|------------------|-----------------|-------|-------|------|
| EDP            | Item Description | Dimensions (mm) |       |       |      |
|                |                  | A               | B     | C     | D    |
| 028571         | SA3614           | 17,40           | 11,40 | 39,50 | 6,50 |



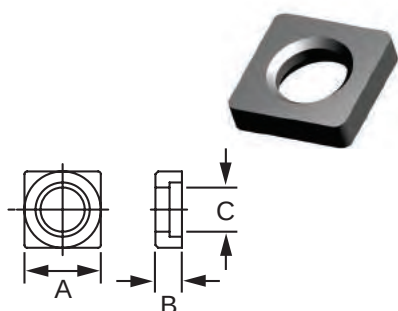
| Anvils D-Style |                  |                 |      |      |      |
|----------------|------------------|-----------------|------|------|------|
| EDP            | Item Description | Dimensions (mm) |      |      |      |
|                |                  | A               | B    | C    | D    |
| 028477         | SA3714           | 17,48           | 8,50 | 3,18 | 6,60 |



| Anvils E-Style |                  |                 |      |      |     |
|----------------|------------------|-----------------|------|------|-----|
| EDP            | Item Description | Dimensions (mm) |      |      |     |
|                |                  | A               | B    | C    | D   |
| 029091         | SA3712           | 16,9            | 11,0 | 3,18 | 6,5 |

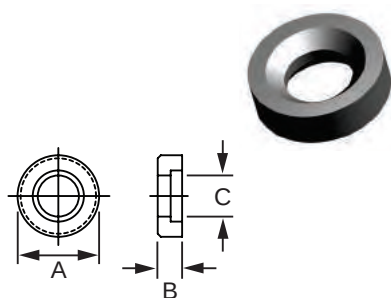


Turning Inserts



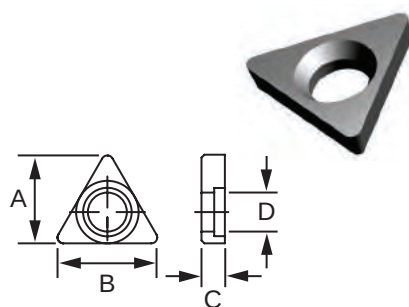
Anvils S-Style

| EDP    | Item Description | Dimensions (mm) |      |      |
|--------|------------------|-----------------|------|------|
|        |                  | A               | B    | C    |
| 028738 | SA3514           | 11,40           | 3,96 | 8,10 |



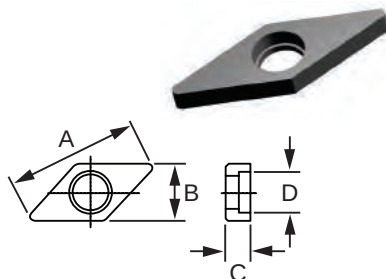
Anvils R-Style

| EDP    | Item Description | Dimensions (mm) |      |      |
|--------|------------------|-----------------|------|------|
|        |                  | A               | B    | C    |
| 034501 | SA3811           | 8,80            | 3,18 | 6,60 |
| 034502 | SA3814           | 10,60           | 3,18 | 6,60 |

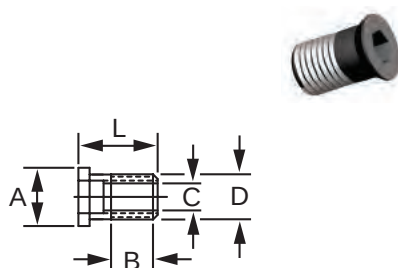


Anvils T-Style

| EDP    | Item Description | Dimensions (mm) |       |      |      |
|--------|------------------|-----------------|-------|------|------|
|        |                  | A               | B     | C    | D    |
| 028580 | SA3414           | 11,95           | 13,55 | 3,18 | 6,60 |



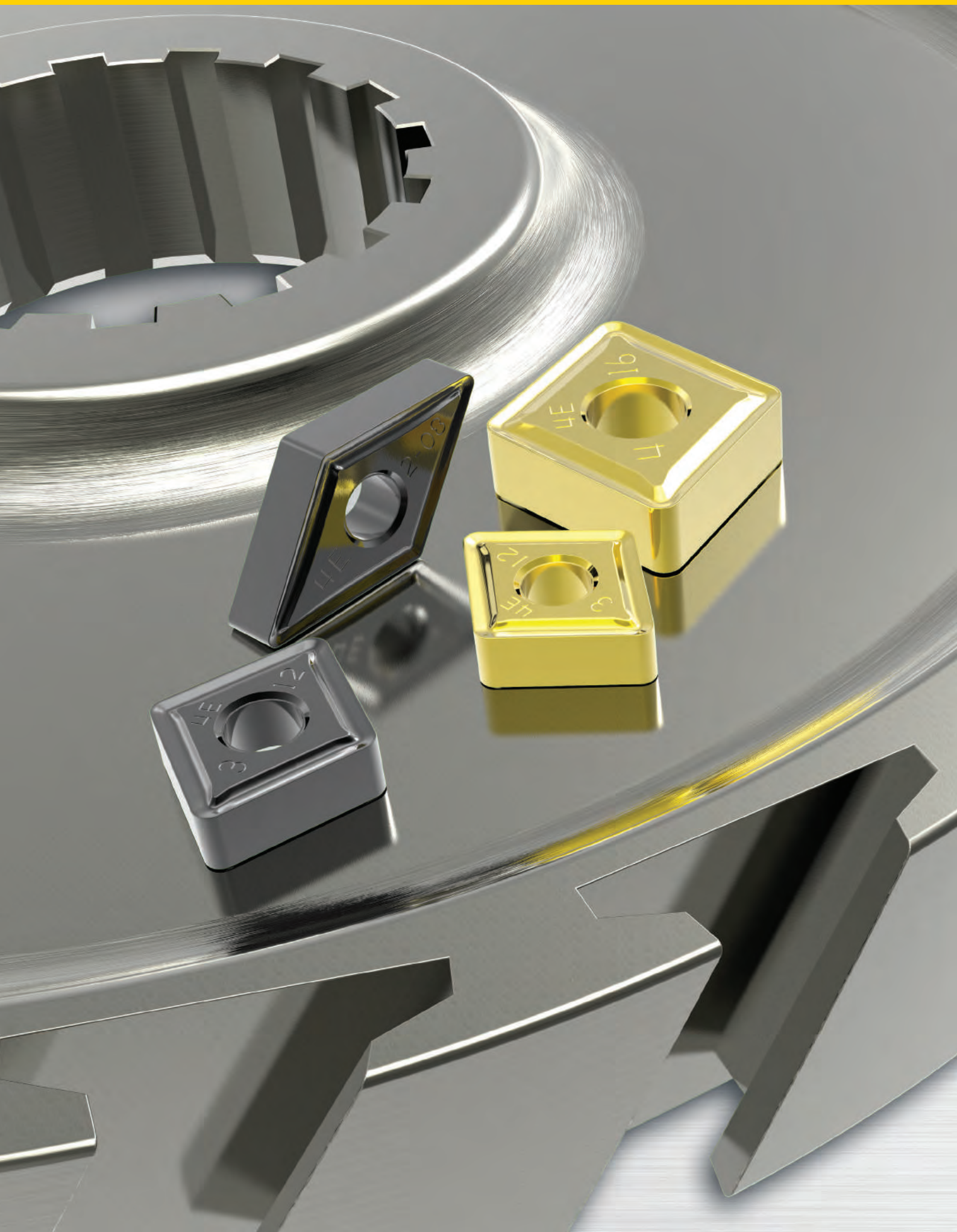
| Anvils V-Style |                  |                 |     |      |     |
|----------------|------------------|-----------------|-----|------|-----|
| EDP            | Item Description | Dimensions (mm) |     |      |     |
|                |                  | A               | B   | C    | D   |
| 028740         | SA3718           | 26,4            | 8,4 | 3,18 | 5,5 |



| Anvil Screw |                  |                 |     |     |          |         |
|-------------|------------------|-----------------|-----|-----|----------|---------|
| EDP         | Item Description | Dimensions (mm) |     |     |          |         |
|             |                  | A               | B   | L   | C        | D       |
| 028478      | SAS1750          | 6,25            | 5   | 8,5 | M3,5x0,6 | M5x0,5  |
| 028739      | SAS1760          | 7,60            | 5,5 | 10  | M4x0,5   | M6x0,75 |
| 029095      | 1765             | 7,5             | 6   | 10  | M4x0,5   | M6x0,75 |



| Torx Driver |                  |             |
|-------------|------------------|-------------|
| EDP         | Item Description | Torx Number |
| 018487      | T6               | T6          |
| 018488      | T7               | T7          |
| 013214      | T9               | T9          |
| 015240      | T15              | T15         |
| 028475      | K5516            | T16         |
| 034577      | K5517            | T17         |
| 015241      | T20              | T20         |





All Kennametal's products are supported by a confident technical sales team backed by an extensive customer care policy.

Please contact us for additional information on any of the products illustrated in this catalog or any other part of Kennametal's comprehensive tooling program.

#### **CUSTOMER SERVICE & TECHNICAL HELPLINE**

**UNITED KINGDOM**  
TEL: 0800 731 6660  
FAX: 0800 731 6662

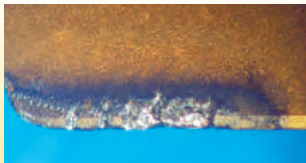
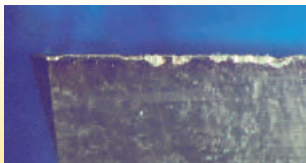
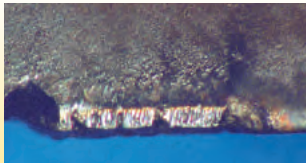
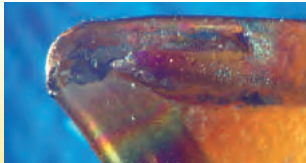
**SUISSE ROMANDE**  
TEL: 0800 807 778  
FAX: 0800 807 701

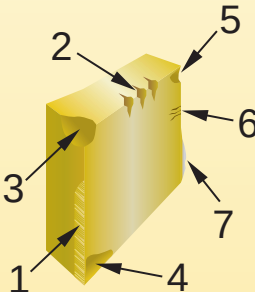
**DEUTSCHE SCHWEIZ**  
TEL: 0800 807 721  
FAX: 0800 807 701

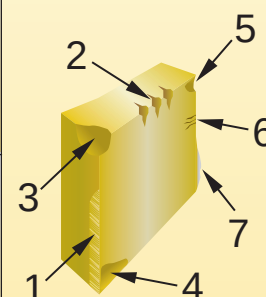
**SVIZZERA ITALIANA**  
TEL: 0800 807 722  
FAX: 0800 807 701





| Cause                                                                                          | Correction                                                                                                                                                                                               | Failure                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------|--|---|------------|----------|---|----------|---|------------------|---|-------------|----------|---|-------------|---|---------------|---|---------------|
| Intermittent heating of the cutting edge. High $V_C$ and high volume metal removal.            | A Use a heat resistant grade increased TaC.<br>B Use positive rake tools.<br>C Increase nose radius.<br>D Reduce in the following order: surface speed, feed or depth of cut.<br>E Avoid use of coolant. | <br>Thermal Cracking      | <table><tr><th>N°</th><th>Failure type</th><th></th></tr><tr><td>1</td><td>Flank wear</td><td rowspan="3">Physical</td></tr><tr><td>2</td><td>Chipping</td></tr><tr><td>3</td><td>Partial fracture</td></tr><tr><td>4</td><td>Crater wear</td><td rowspan="4">Chemical</td></tr><tr><td>5</td><td>Deformation</td></tr><tr><td>6</td><td>Thermal Crack</td></tr><tr><td>7</td><td>Built up edge</td></tr></table> | N° | Failure type |  | 1 | Flank wear | Physical | 2 | Chipping | 3 | Partial fracture | 4 | Crater wear | Chemical | 5 | Deformation | 6 | Thermal Crack | 7 | Built up edge |
| N°                                                                                             | Failure type                                                                                                                                                                                             |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| 1                                                                                              | Flank wear                                                                                                                                                                                               | Physical                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| 2                                                                                              | Chipping                                                                                                                                                                                                 |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| 3                                                                                              | Partial fracture                                                                                                                                                                                         |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| 4                                                                                              | Crater wear                                                                                                                                                                                              | Chemical                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| 5                                                                                              | Deformation                                                                                                                                                                                              |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| 6                                                                                              | Thermal Crack                                                                                                                                                                                            |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| 7                                                                                              | Built up edge                                                                                                                                                                                            |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| Cutting tool excessively brittle. Tool too hard for application conditions.                    | A Use a tougher grade.<br>B Use negative rake angle inserts.<br>C Increase nose radius.<br>D Use increased edge land.<br>E Increase cutting speed.                                                       | <br>Chipping              |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| Grade not hard enough for application. High surface speed.                                     | A Use a harder, more wear resistant grade.<br>B Decrease surface speed.<br>C Increase feed.<br>D Use coolant.                                                                                            | <br>Excessive Flank Wear |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| Notching occurs at depth of cut line. Usually due to work hardened surface, scale or abrasion. | A Increase approach angle to maximum.<br>B Increase nose radius for shallow cuts.<br>C Reduce $V_C$ surface speed and feed.<br>D Vary the depth of cut.                                                  | <br>Notching            |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| Surface speed too low for material being machined.                                             | A Increase surface speed.<br>B Use inserts that reduce friction. i.e. TiAlN PVD Coated<br>C Use high lubricity coolant.                                                                                  | <br>Built-Up-Edge       |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| Heavy feed or high surface speed.                                                              | A Reduce surface speed.<br>B Reduce feed.<br>C Use a harder grade.<br>D Use a more heat resistant grade.                                                                                                 | <br>Deformation         |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |
| Excessive heat and pressure causing chip to weld to rake angle.                                | A Use a harder grade.<br>B Reduce surface speed.<br>C Reduce feed.<br>D Increase the rake angle.                                                                                                         | <br>Crater Wear         |                                                                                                                                                                                                                                                                                                                                                                                                                   |    |              |  |   |            |          |   |          |   |                  |   |             |          |   |             |   |               |   |               |







## Formula

$$V_c = \frac{D_m \times \pi \times n}{1000} \quad \text{Cutting speed (m/min)}$$

$$n = \frac{V_c \times 1000}{D_m \times \pi} \quad \text{Spindle speed (rev/min)}$$

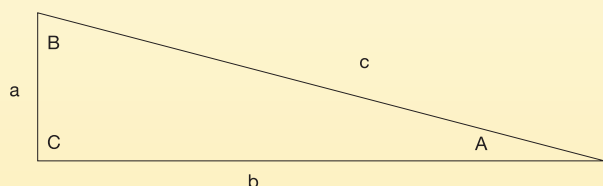
$$P_c = \frac{V_c \times a_p \times f_n \times k_c}{60 \times 1000 \times \eta} \quad \text{Power demand (kW)}$$

$$Q_z = V_c \times f_n \times a_p \quad \text{Metal removal (cm}^3\text{/min)}$$

$$T_c = \frac{l_m}{f_n \times n} \quad \text{Period of engagement (min)}$$

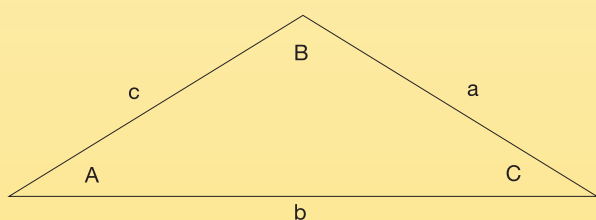
## Terminology

|              |   |                        |                      |
|--------------|---|------------------------|----------------------|
| $D_m$        | = | Machined diameter      | mm                   |
| $V_c$        | = | Cutting speed          | m/min                |
| $n$          | = | Spindle speed          | rev/min              |
| $T_c$        | = | Period of engagement   | min                  |
| $Q_z$        | = | Metal removal          | cm <sup>3</sup> /min |
| $l_m$        | = | Machined length        | mm                   |
| $P_c$        | = | Power demand           | kW                   |
| $K_c$        | = | Specific cutting force | N/mm <sup>2</sup>    |
| $f_n$        | = | Feed per revolution    | mm/rev               |
| $k_r$        | = | Cutting edge angle     | degree               |
| $R_{max}$    | = | Profile depth          | μm                   |
| $r_\epsilon$ | = | Insert nose radius     | mm                   |
| $a_p$        | = | Depth of cut           | mm                   |
| $\eta$       | = | Efficiency             |                      |



## Trigonometrical Equivalents

| Dimension Given | Part to be Found    |                     |                        |                        |                        |
|-----------------|---------------------|---------------------|------------------------|------------------------|------------------------|
|                 | A                   | B                   | a                      | b                      | c                      |
| a & c           | $\sin A = a \div c$ | $\cos B = a \div c$ |                        | $b = \sqrt{c^2 - a^2}$ |                        |
| a & b           | $\tan A = a \div b$ | $\cos B = a \div b$ |                        |                        | $c = \sqrt{a^2 + b^2}$ |
| c & b           | $\cos A = b \div c$ | $\sin B = b \div c$ | $a = \sqrt{c^2 - b^2}$ |                        |                        |
| A & a           |                     | $B = 90^\circ - A$  |                        | $b = a \times \cot A$  | $c = a \div \sin A$    |
| A & b           |                     | $B = 90^\circ - A$  | $a = b \times \tan A$  |                        | $c = b \div \cos A$    |
| A & c           |                     | $B = 90^\circ - A$  | $a = c \times \sin A$  | $b = c \times \cos A$  |                        |



## Trigonometrical Equivalents

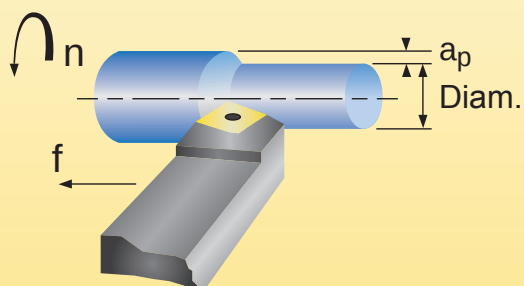
| Dimension Given | Parts to be Found | Formula                                                                                     |
|-----------------|-------------------|---------------------------------------------------------------------------------------------|
| a b c           | A                 | $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$                                                      |
| a b A           | B                 | $\sin B = \frac{b \times \sin A}{a}$                                                        |
| a b A           | C                 | $C = 180 - (A + B)$                                                                         |
| a A B           | b                 | $b = \frac{a \times \sin B}{\sin A}$                                                        |
| a A B           | c                 | $c = \frac{(a \times \sin C \div \sin A) \times (a \times \sin (180 - A - B) \div \sin A)}$ |
| a b C           | B                 | $B = 180 - (A + C)$                                                                         |



## Cutting Data

In the turning operation we can distinguish three important elements:

- Work piece's rotation at a determined speed of the spindle, "n"
- linear movement of the tool at a determined feed, "f"
- Cut depth,  $a_p$



## Terminology

**$V_c$**  - Indicated in meters/min. It refers to the speed at the insert edge removing the material at the periphery of the work piece. The cutting speed is related to the diameter of the work piece.

**F** - Defined in mm/rev and it is the distance covered by the tool during every rotation of the work piece. "F"- refers to the distance covered by the tool in a one minute, that is the feed  $v_f$  (mm/min)

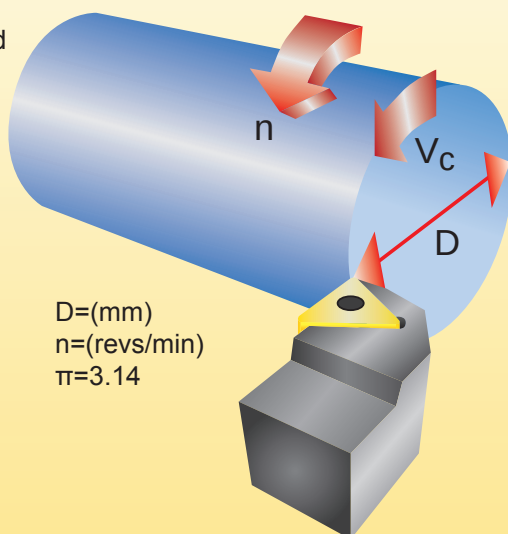
**$-a_p$**  - Depth of Cut

## Cutting Parameters

The spindle speed  $n$  is the number of rotations the work piece rotates in one minute and it is indicated in revolutions/minute.

The Surface Speed can be calculated with the following formula:

$D$ =Diameter  
 $n$ =Spindle speed  
 $\pi$ =Constant



## Formula

Volume " $Q_z$ ": Metal Removal Rate  
This value takes into consideration  $V_c$ ,  $A_p$  and feed to calculate the amount of material removed.

$$Q_z = V_c \times f \times a_p \text{ (cm}^3/\text{min)}$$

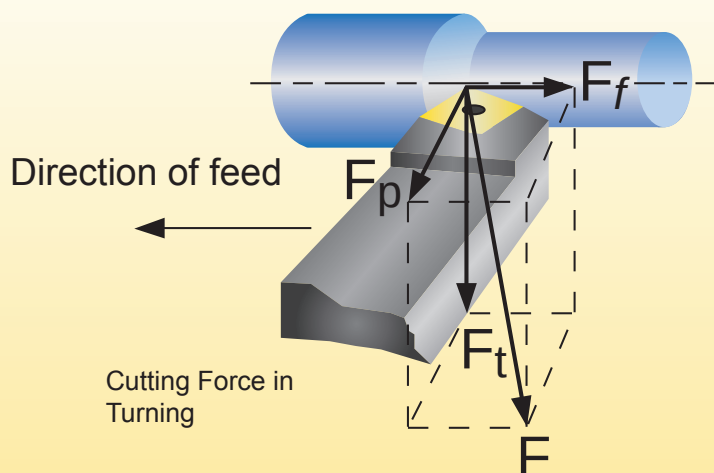
**Metric**

$$V_c = \frac{D \times \pi \times n}{1000} \text{ (m/min)}$$





## Calculations of Cutting Forces



\* The specific cutting force ( $K_c$ ) is constant for each material. It is unique for each material and it refers to the material machinability. See catalog page C196.

## Calculations of Power

The availability for the power calculation for the material removal is particularly important for roughing, so it is necessary to verify if the machine's power is enough for the application.

The parameters for the power calculation are  $v_c$  and  $F_c$ .

The machine efficiency  $\eta$ , is also a factor to be considered referring to the energy loss because of the drive and the motor efficiency. This value is between 0,7-0,9 depending on the machine.

## Terminology

The main force  $F$  can be split into 3 different forces:

$F_t(N)$ = Tangential force, downward and usually the largest

$F_f(N)$ = Axial force or feed force, toward the longitudinal axis of the workpiece

$F_p(N)$ = Radial force on the perpendicular of the centre line of the workpiece

## Formula

Values  $F_f$  and  $F_p$  are affected by the approach angle, the cutting depth and the nose radius of the tool. The following formula can be used for the tangential cutting force:

$$F_c = K_c \times a_r \times f$$

in which:

$K_c$  = Specific cutting force(N/mm<sup>2</sup>)\*

$a_r$  = Cutting depth (mm)

$f$  = Feed (mm/rev)

## Formula

The formula for the net cutting power calculation is:

$$P = \frac{v_c \times F_c}{\eta \times 60 \times 1000} \quad (KW)$$

$$\text{Where } F_c = a_p \times f \times K_c$$

$$\text{then } P = \frac{v_c \times a_p \times f \times K_c}{\eta \times 60 \times 1000} \quad (KW)$$

KW to HP conversion: 1 KW = 1.34102209 hp

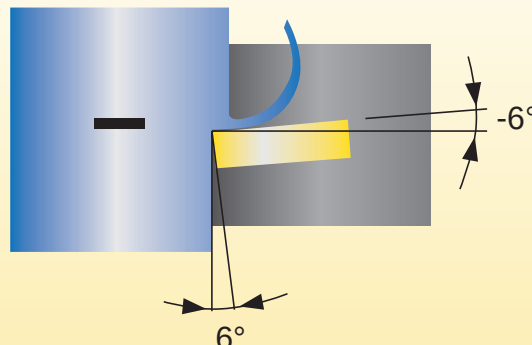
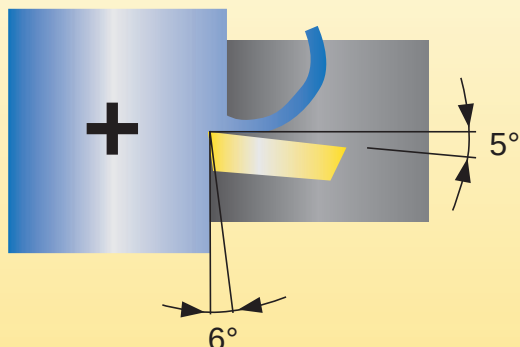


| Speed vc (feet/min) |                         |                                            |                      |
|---------------------|-------------------------|--------------------------------------------|----------------------|
| ISO                 | Materials               | Rm                                         | Kc:N/mm <sup>2</sup> |
| P                   | Unalloyed Steel         | 400-600 N/mm <sup>2</sup><br>120-180 HBN   | 2050                 |
|                     |                         | 600-950 N/mm <sup>2</sup><br>180-200 HBN   | 2300                 |
|                     | Alloyed Steel           | 700-950 N/mm <sup>2</sup><br>200-280 HBN   | 2599                 |
|                     |                         | 950-1200 N/mm <sup>2</sup><br>280-355 HBN  | 2851                 |
|                     |                         | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN | 3172                 |
|                     | Tool Steel              | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN | 3895                 |
| M                   | Stainless Steel         | Austenitic + Ferritic<br>300 series        | 1847                 |
|                     |                         | Martensitic<br>400 series                  | 2599                 |
|                     | PH Stainless            | Refractory<br>P.H.                         | 3199                 |
| K                   | Cast Iron               | Grey<br>GG-Ft                              | 1200                 |
|                     |                         | Spheroidal-Ductile<br>GGG-FGS              | 1500                 |
|                     |                         | Nodular<br>GGG-Ni - L- N                   | 1600                 |
|                     |                         | Malleable<br>GTS - MN/MP                   | 1050                 |
| N                   | Aluminium & Alloys      | Aluminium & Alloys<br>< 16% 116 HBN        | 827                  |
|                     |                         | Aluminium + Silicon<br>> 16% 92 HBN        | 965                  |
| S                   | High Temperature Alloys | Iron Based                                 | 2999                 |
|                     |                         | Cobalt Based                               | 3799                 |
|                     |                         | Nickel Based                               | 3500                 |
|                     |                         | Titanium Based<br>425-456 HBN              | 1500                 |



## Top Rake

**Positive:** Produces low shearing stress and may eliminate vibration during finish machining, machining of long workpieces, or poor workholding.

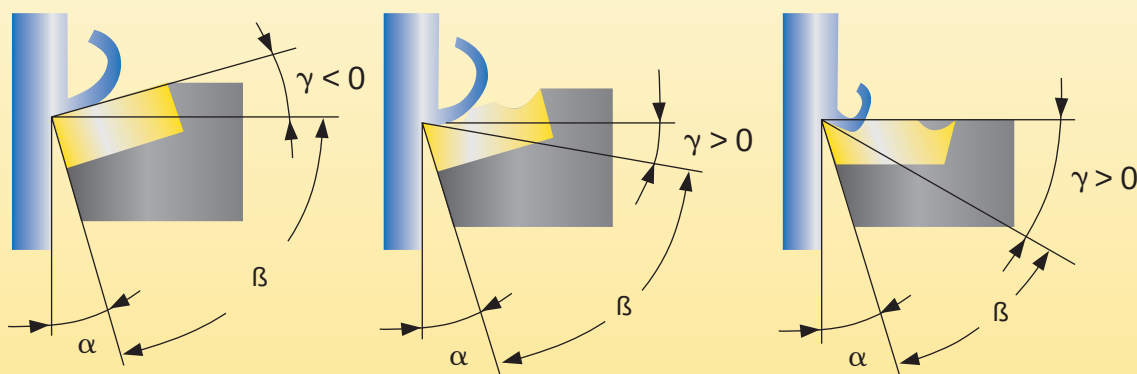


**Negative:** Produces larger shearing stress which causes a high chip strain. It is much stronger in comparison to the positive rake and requires good workpiece and tool stability.

## Effective Cutting Angle

The position of the insert seat determines the cutting rake:

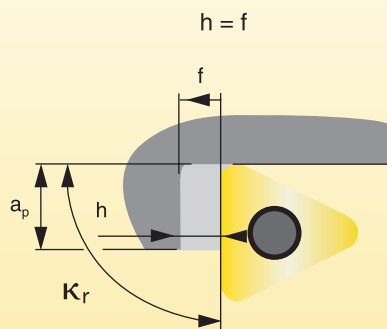
- This can be negative or 0°.
- The effective cutting angle is also determined by the insert geometry located on the seat, as this could be flat face or a chip breaker and it could change the effective cutting angle.
- The effective cutting angle is the sum of the angle in the insert seat and the geometry of the seated inserts.



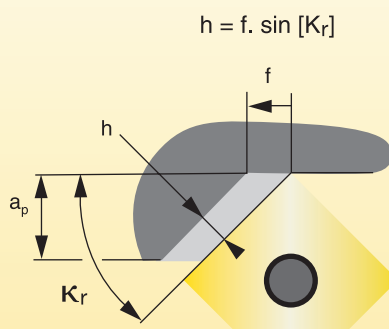


The approach angle or attack angle is very important because it influences the tool life.

In the first picture we can see how it affects the chip thickness.

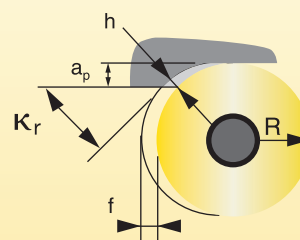


$$K_r = 90^\circ$$



$$K_r > 90^\circ$$

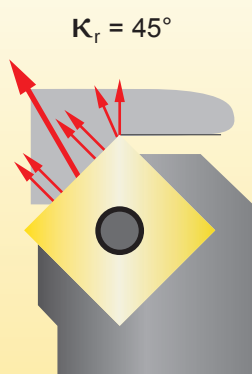
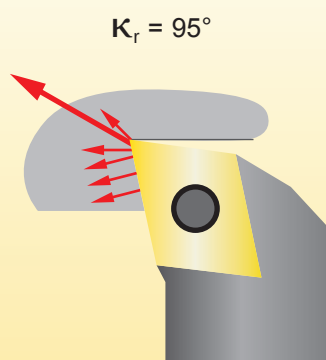
$$h = 2f \cdot \sqrt{\left(\frac{a_p}{2R}\right) \cdot \left(1 - \frac{a_p}{2R}\right)}$$



$$K_r = \cos^{-1} \left[ 1 - \frac{a_p}{R} \right]$$

- h is the same as the feed f when the entering angle is 90° or equal to the sin of the approach angle \* f
- A 45° approach angle will produce a lower chip thickness with a higher feed

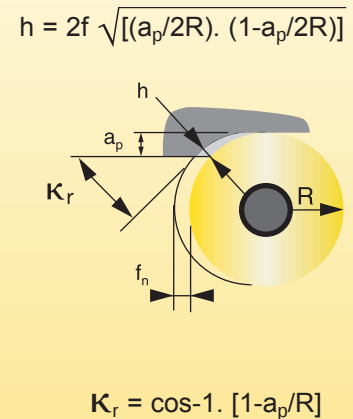
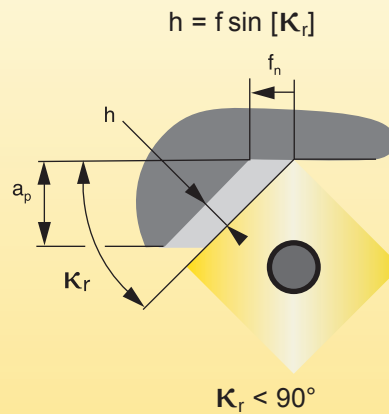
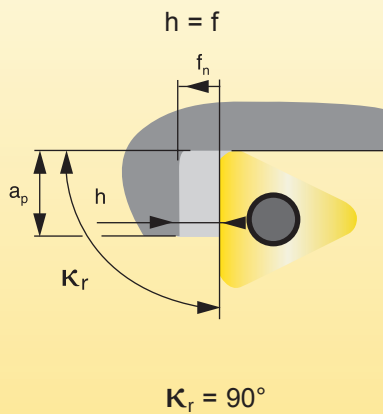
In the second picture we can see the effect on cutting the force distribution.



- In the first case the first contact is between the workpiece and the insert point, and it is focused on the radius making the situation difficult
- On the second case, the approach angle on the workpiece is softer and the cutting forces, are distributed in a more uniform way, and not directly on the insert point.



When deciding on the maximum depth of cut ( $a_p$ ) for a given insert, the angle of the principal edge plays a significant role in the type of the chip formed. For an angle close to  $90^\circ$ , the thickness of the chip will be equal to the feed. In the other cases, it will be necessary to calculate it.



The type of insert used plays a significant role in the rigidity of the cutting edge. A cutting edge angle of  $75^\circ$  or  $45^\circ$  allows for difficult machining operations, i.e. interrupted and heavy roughing, but reduces the capacity to machine profiles. The most robust insert shape is round and the most fragile standard insert is the  $35^\circ$  diamond (V).

The size and type of insert determines the maximum depth of cut. In general, it is advisable to select a cutting edge length in relation to the maximum depth of cut to be machined.

Cutting Edge Length for a given depth of cut ( $a_p$ ) and  $K_r$  angle

A low depth of cut can still generate a large edge engagement

| $K_r/a_p$ | 1,00 | 2,00 | 3,00 | 4,00 | 5,00  | 6,00  | 7,00  | 8,00  | 9,00  | 10,00 |
|-----------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 90        | 1,00 | 2,00 | 3,00 | 4,00 | 5,00  | 6,00  | 7,00  | 8,00  | 9,00  | 10,00 |
| 75        | 1,04 | 2,06 | 3,10 | 4,14 | 5,18  | 6,20  | 7,24  | 8,28  | 9,32  | 10,34 |
| 60        | 1,14 | 2,31 | 3,45 | 4,62 | 5,77  | 6,93  | 8,08  | 9,25  | 10,39 | 11,56 |
| 45        | 1,42 | 2,82 | 4,24 | 5,66 | 7,06  | 8,48  | 9,91  | 11,30 | 12,73 | 14,15 |
| 30        | 2,00 | 4,00 | 6,00 | 8,00 | 10,00 | 12,00 | 14,00 | 16,00 | 18,00 | 20,00 |



## Radius Value / Surface Finish

The radius of the insert has a significant role to play in the quality of the surface finish, which is directly in relation to the feed rate ( $f_n$ ). With a larger radius, better surface finishes can be maintained at higher feeds. The use of a larger radius gives a larger surface contact area and causes an increase in power and cutting force.

For roughing operations, it is preferable to choose a large radius to ensure corner strength of the insert. However, for some materials it is preferable to use a smaller radius to maintain a softer cut. The insert is more fragile but can qualify for operations that are sensitive to vibration.

Generally an insert is used with a maximum feed equal to half its radius. The minimum feed is related to edge preparation or to the start of its chip control. An increase in cutting speed can also contribute to surface quality.

### Formula

The formula to calculate the feed rate:

$$f = \sqrt{\frac{R_a \times r_\epsilon}{50}}$$

$$R_{\max} = \frac{f^2}{8 \times r_\epsilon}$$

The mean value  $R_a$ , can be calculated with following formula:

$$R_a = \frac{f^2 \times 50}{r_\epsilon}$$

### Average value of feed for each radius

| Radius (mm) | 0,4       | 0,8      | 1,2      | 1,6   | 2,4     |
|-------------|-----------|----------|----------|-------|---------|
| f (mm/turn) | 0,12-0,25 | 0,25-0,5 | 0,36-0,7 | 0,5-1 | 0,7-1,6 |

$R_{\max}$  = profile depth

$r_\epsilon$  = nose radius

$f_n$  = feed

In finishing operations the insert radius and the feed effect the superficial roughness and the dimensional accuracy.

| Surface finishing |         | Radius of insert |      |      |      |      |
|-------------------|---------|------------------|------|------|------|------|
| $R_a$             | $R_t$   | 0,4              | 0,8  | 1,2  | 1,6  | 2,4  |
| $\mu m$           | $\mu m$ | f mm/r           |      |      |      |      |
| 0,60              | 2       | 0,07             | 0,10 | 0,12 | 0,14 | 0,17 |
| 1,60              | 4       | 0,11             | 0,15 | 0,19 | 0,22 | 0,26 |
| 3,20              | 10      | 0,17             | 0,24 | 0,29 | 0,34 | 0,42 |
| 6,30              | 16      | 0,22             | 0,30 | 0,37 | 0,43 | 0,53 |
| 8,00              | 25      | 0,27             | 0,38 | 0,47 | 0,54 | 0,66 |

| Surface finishing |         | Diameter of round inserts |      |      |      |      |
|-------------------|---------|---------------------------|------|------|------|------|
| $R_a$             | $R_t$   | 10                        | 12   | 16   | 20   | 25   |
| $\mu m$           | $\mu m$ | f mm/r                    |      |      |      |      |
| 0,60              | 2       | 0,25                      | 0,28 | 0,32 | 0,36 | 0,40 |
| 1,60              | 4       | 0,40                      | 0,44 | 0,51 | 0,57 | 0,63 |
| 3,20              | 10      | 0,63                      | 0,69 | 0,80 | 0,89 | 1,00 |
| 6,30              | 16      | 0,80                      | 0,83 | 1,01 | 1,13 | 1,26 |
| 8,00              | 25      | 1,00                      | 1,10 | 1,26 | 1,42 | 1,51 |

Summary: Value of  $R_a$  &  $R_t$  based on the radius value and feed.



### Conversion Value Chart for Surface Finishing

| R <sub>max</sub> | R <sub>a</sub> = CLA = AA |       | RMS   |       | Operation |
|------------------|---------------------------|-------|-------|-------|-----------|
| μm               | μm                        | μinch | μm    | μinch |           |
| 1,6              | 0,30                      | 11.8  | 0,33  | 13.1  |           |
| 1,8              | 0,35                      | 13.8  | 0,39  | 15.3  |           |
| 2,0              | 0,40                      | 15.7  | 0,44  | 17.4  |           |
| 2,2              | 0,44                      | 17.5  | 0,49  | 19.4  |           |
| 2,4              | 0,49                      | 19.2  | 0,54  | 21.3  |           |
| 2,6              | 0,53                      | 20.8  | 0,59  | 23.1  |           |
| 2,8              | 0,58                      | 22.7  | 0,64  | 25.2  |           |
| 3,0              | 0,63                      | 24.6  | 0,70  | 27.3  |           |
| 3,5              | 0,71                      | 27.8  | 0,79  | 30.9  |           |
| 4,0              | 0,80                      | 31.4  | 0,89  | 34.8  |           |
| 4,5              | 0,90                      | 35.2  | 1,00  | 39.1  |           |
| 5,0              | 0,99                      | 38.8  | 1,10  | 43.1  |           |
| 6,0              | 1,20                      | 47.2  | 1,30  | 52.4  |           |
| 7,0              | 1,40                      | 55.1  | 1,50  | 61.2  |           |
| 8,0              | 1,60                      | 63.0  | 1,80  | 70.0  |           |
| 9,0              | 1,80                      | 71.0  | 2,00  | 78.8  |           |
| 10,0             | 2,00                      | 79.0  | 2,20  | 87.7  |           |
| 15,0             | 3,20                      | 126.0 | 3,10  | 140.0 |           |
| 20,0             | 4,40                      | 173.0 | 4,90  | 192.0 |           |
| 25,0             | 5,80                      | 238.0 | 6,40  | 264.0 |           |
| 27,0             | 6,30                      | 247.0 | 7,00  | 274.0 |           |
| 30,0             | 7,40                      | 292.0 | 8,20  | 324.0 |           |
| 35,0             | 8,80                      | 346.0 | 9,80  | 384.0 |           |
| 40,0             | 10,70                     | 422.0 | 11,00 | 468.0 |           |
| 45,0             | 12,50                     | 485.0 | 13,90 | 538.0 |           |
| 50,0             | 14,00                     | 552.0 | 15,50 | 613.0 |           |

ROUGHING

MEDIUM

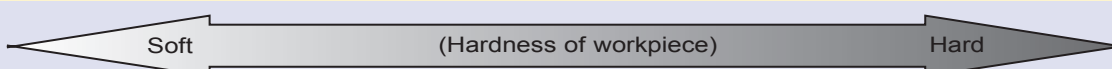
FINE FINISHING

Turning Inserts

#### Difference of hardness (HBN):

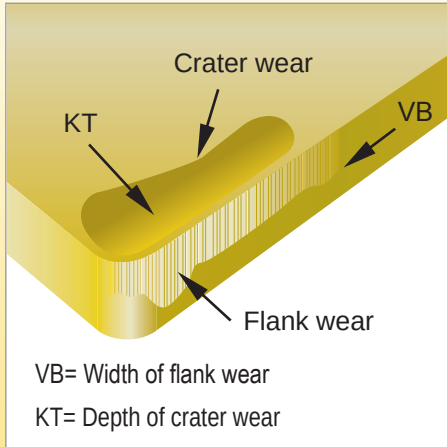
When the hardness of a workpiece is different from the value shown in the grade speed charts, multiply the cutting speed you have obtained by the factor below to calculate a new cutting speed.

#### Workpiece Hardness and Cutting Speeds

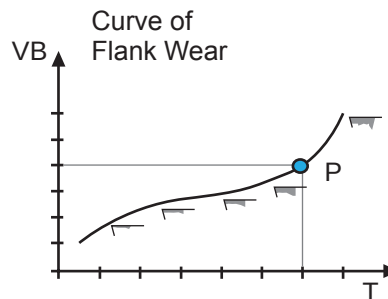
| <div>  </div> |        |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ISO/ANSI                                                                                          | 120HBN | 140HBN | 160HBN | 180HBN | 200HBN | 220HBN | 240HBN | 260HBN | 280HBN | 300HBN | 320HBN | 340HBN |
| P                                                                                                 | 1,42   | 1,25   | 1,13   | 1,0    | 0,93   | 0,86   | 0,75   | 0,71   | 0,66   | -      | -      | -      |
| M                                                                                                 | 1,40   | 1,22   | 1,10   | 1,0    | 0,93   | 0,86   | 0,80   | 0,70   | 0,69   | -      | -      | -      |
| K                                                                                                 | 1,40   | 1,34   | 1,30   | 1,25   | 1,20   | 1,10   | 1,05   | 1,0    | 0,94   | 0,90   | 0,85   | 0,82   |



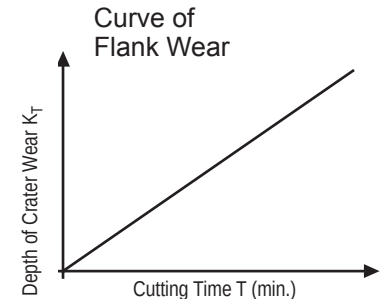
## Types of Wear



## Trend of Crater and Flank Wear Based on Cutting Time



P= Point where sudden wear starts and the limit of normal and safe use



Crater wear is more progressive and does not have a sudden breakdown

## Factors that could Influence the Tool Life

Tool life depends on many factors, including the type of clamp, type of coolant, (percentage of mix) and type of machine tool. Following, you will see how the surface speed and other data can influence tool life.

Chart "A" below, shows how a different surface speed ( $V_c$ ) can influence the tool life of the insert. The higher the  $V_c$ , the lower the acceptable time life is where  $V_1 > V_2 > V_3 > V_4$  you can see respectively that  $T_4 > T_3 > T_2 > T_1$ .

Chart "B" shows how the wear is influenced by the higher machining data.

## Tool Life Criteria

*We change the insert when*

- It does not create the requested finish or tolerances.
- When the wear under the cutting edge line is too high, causing premature failure
- When the crater depth on the insert face is excessive, causing premature failure
- When the power consumption increases suddenly during the cut

Chart A

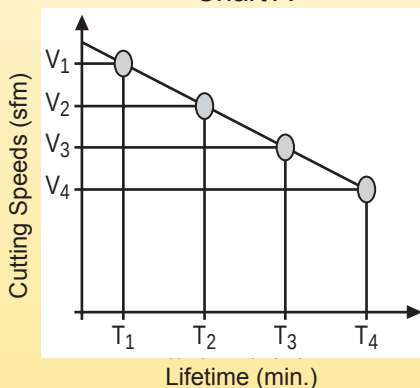
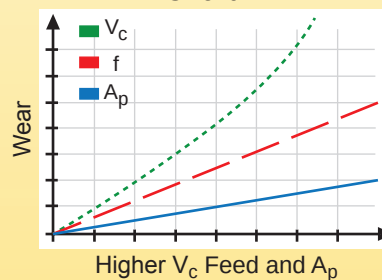


Chart B





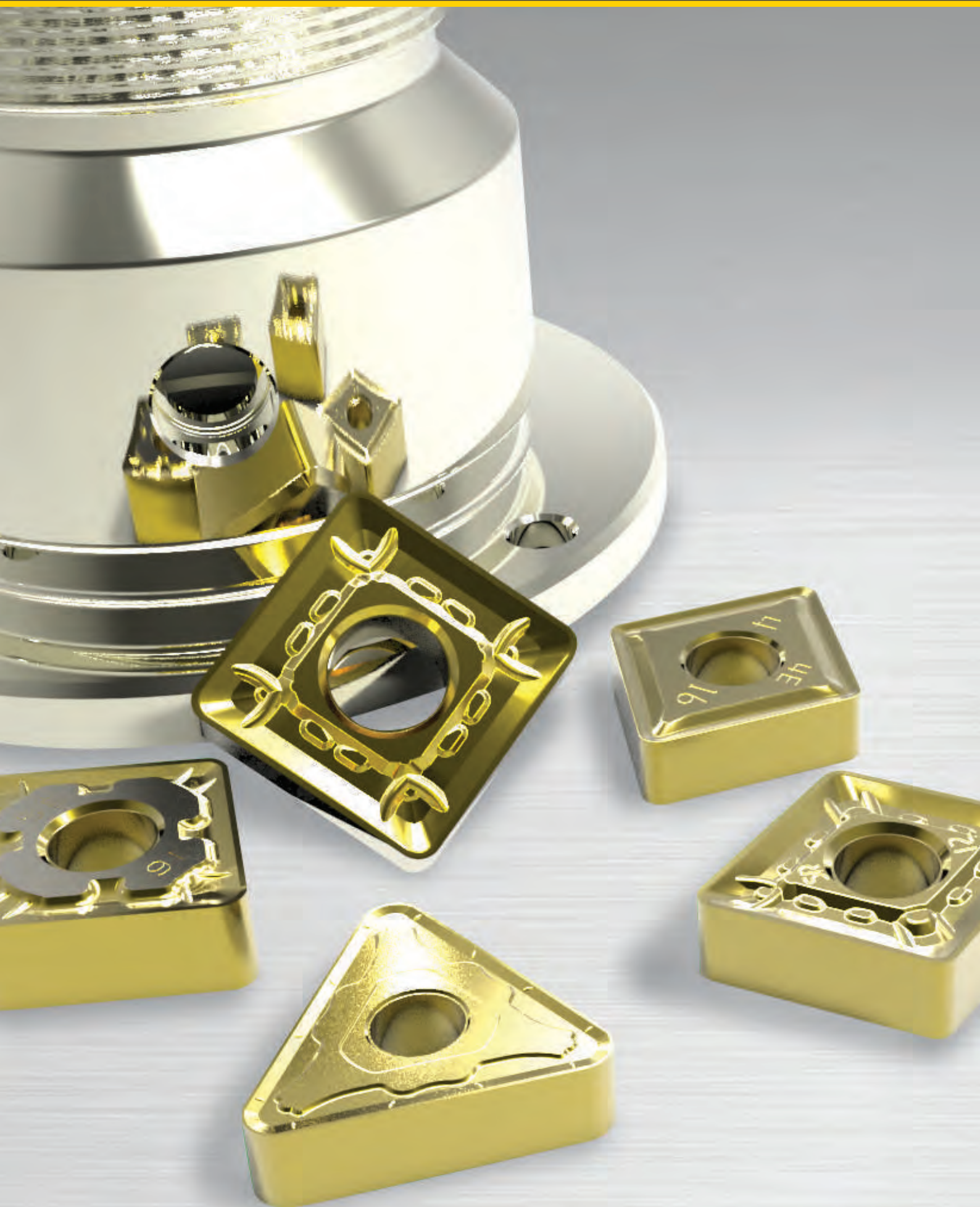


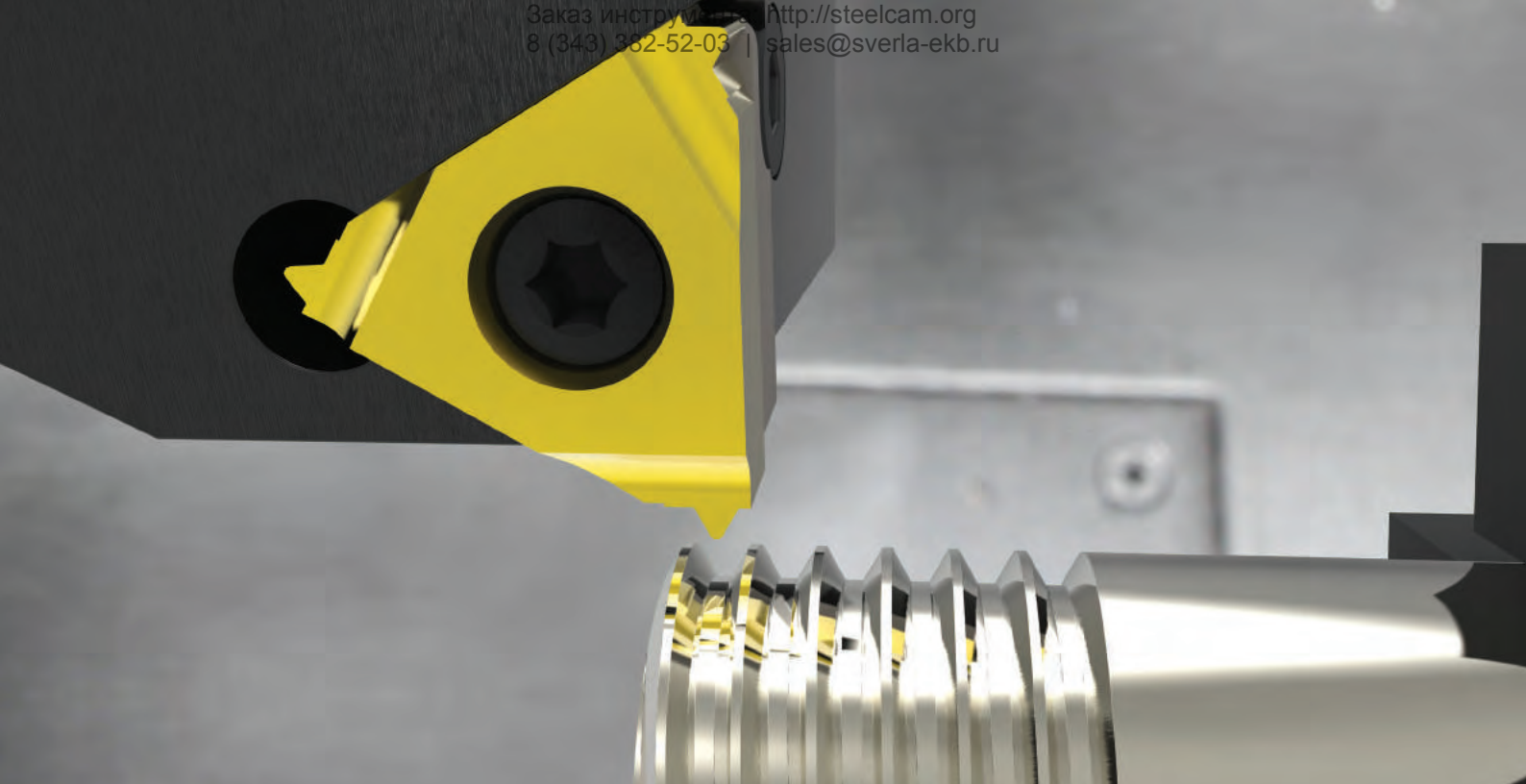
| Tensile strength  | Vickers | Brinell | Rockwell |       |
|-------------------|---------|---------|----------|-------|
| N/mm <sup>2</sup> | HV      | HBN     | HRC      | HRB   |
| 255               | 80      | 76,0    | -        | -     |
| 270               | 85      | 80,7    | -        | 41,0  |
| 285               | 90      | 85,5    | -        | 48,0  |
| 305               | 95      | 90,2    | -        | 52,0  |
| 320               | 100     | 95,0    | -        | 56,2  |
| 350               | 110     | 105     | -        | 62,3  |
| 385               | 120     | 114     | -        | 66,7  |
| 415               | 130     | 124     | -        | 71,2  |
| 450               | 140     | 133     | -        | 75,0  |
| 480               | 150     | 143     | -        | 78,7  |
| 510               | 160     | 152     | -        | 81,7  |
| 545               | 170     | 162     | -        | 85,0  |
| 575               | 180     | 171     | -        | 87,5  |
| 610               | 190     | 181     | -        | 89,5  |
| 640               | 200     | 190     | -        | 91,5  |
| 660               | 205     | 195     | -        | 92,5  |
| 675               | 210     | 199     | -        | 93,5  |
| 690               | 215     | 204     | -        | 94,0  |
| 705               | 220     | 209     | -        | 95,0  |
| 720               | 225     | 214     | -        | 96,0  |
| 740               | 230     | 219     | -        | 96,7  |
| 770               | 240     | 228     | 20,3     | 98,1  |
| 800               | 250     | 238     | 22,2     | 99,5  |
| 820               | 255     | 242     | 23,1     | -     |
| 835               | 260     | 247     | 24,0     | (101) |
| 850               | 265     | 252     | 24,8     | -     |
| 865               | 270     | 257     | 25,6     | (102) |
| 900               | 280     | 266     | 27,1     | -     |
| 930               | 290     | 276     | 28,5     | (105) |
| 950               | 295     | 280     | 29,2     | -     |
| 965               | 300     | 285     | 29,8     | -     |
| 995               | 310     | 295     | 31,0     | -     |

| Tensile strength  | Vickers | Brinell | Rockwell |
|-------------------|---------|---------|----------|
| N/mm <sup>2</sup> | HV      | HBN     | HRC      |
| 1030              | 320     | 304     | 32,2     |
| 1060              | 330     | 314     | 33,3     |
| 1095              | 340     | 323     | 34,4     |
| 1125              | 350     | 333     | 35,5     |
| 1155              | 360     | 342     | 36,6     |
| 1190              | 370     | 352     | 37,7     |
| 1220              | 380     | 361     | 38,8     |
| 1255              | 390     | 371     | 39,8     |
| 1290              | 400     | 380     | 40,8     |
| 1320              | 410     | 390     | 41,8     |
| 1350              | 420     | 399     | 42,7     |
| 1385              | 430     | 409     | 43,6     |
| 1420              | 440     | 418     | 44,5     |
| 1485              | 460     | 437     | 46,1     |
| 1555              | 480     | 450     | 47,7     |
| 1595              | 490     | 457     | 48,4     |
| 1630              | 500     | 465     | 49,1     |
| 1665              | 510     | 474     | 49,8     |
| 1700              | 520     | 482     | 50,5     |
| 1740              | 530     | 489     | 51,1     |
| 1775              | 540     | 496     | 51,7     |
| 1810              | 550     | 503     | 52,3     |
| 1845              | 560     | 511     | 53,0     |
| 1880              | 570     | 520     | 53,6     |
| 1920              | 580     | 527     | 54,1     |
| 1955              | 590     | 533     | 54,7     |
| 1995              | 600     | 538     | 55,2     |
| 2030              | 610     | 543     | 55,7     |
| 2070              | 620     | 549     | 56,3     |
| 2105              | 630     | 555     | 56,8     |
| 2145              | 640     | 561     | 57,3     |
| 2180              | 650     | 568     | 57,8     |

HV = Vickers hardness  
HBN = Brinell hardness

HRC = Rockwell hardness, C scale  
HRB = Rockwell hardness, B scale





# THREADING

## Threading





Kennametal's comprehensive threading program is available in a wide range of thread forms. Partial and full profile inserts are offered for thread turning.

Kennametal offers high performance grades suitable for all machining applications, in a wide range of materials, for maximum productivity.

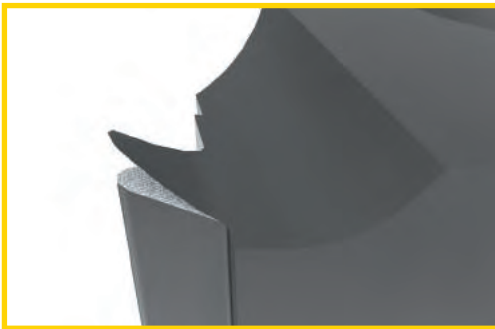
Kennametal offers both external toolholders and internal bars with through coolant. Internal holders to a minimum bore of 6,0mm. Anti vibration holders are also available for difficult applications.





## Threading Grade Descriptions

SP4066 has the perfect balance between wear resistance and toughness enabling multiple applications to be covered by one insert. This new grade also allows for longer tool life and is ideal for machining a variety of materials at elevated cutting speeds.



| Cutting Speed $v_c$ |                         |                                            |             |
|---------------------|-------------------------|--------------------------------------------|-------------|
| ISO                 | Materials               | Rm and Hardness                            | PVD         |
|                     |                         |                                            | SP4066      |
|                     |                         |                                            | m/min       |
|                     |                         |                                            | min. - max. |
| P                   | Unalloyed Steel         | <600 N/mm <sup>2</sup><br><180 HBN         | 230 - 485   |
|                     |                         | <950 N/mm <sup>2</sup><br><280 HBN         | 150 - 315   |
|                     | Alloyed Steel           | 700-950 N/mm <sup>2</sup><br>200-280 HBN   | 135 - 290   |
|                     |                         | 950-1200 N/mm <sup>2</sup><br>280-355 HBN  | 115 -240    |
|                     |                         | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN | 75 - 165    |
| M                   | Stainless Steel         | Austenitic + Ferritic<br>300 series        | 155 - 330   |
|                     |                         | Martensitic<br>400 series                  | 160 - 340   |
|                     | PH Stainless            | Refractory<br>P.H.                         | 80 - 175    |
| K                   | Cast Iron               | Grey<br>GG-Ft                              | 225 - 480   |
|                     |                         | Spheroidal-Ductile<br>GGG-FGS              | 195 - 415   |
|                     |                         | Malleable<br>GTS - MN/MP                   | 130 - 280   |
| S                   | High Temperature Alloys | Iron Based                                 | 35 - 70     |
|                     |                         | Cobalt Based                               | 30 - 60     |
|                     |                         | Nickel Based                               | 30 - 60     |
|                     |                         | Titanium Based                             | 45 - 95     |

## Optimum Grade Performance

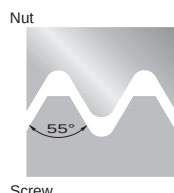
| Grade Classifications                                                               |                              |      |            |
|-------------------------------------------------------------------------------------|------------------------------|------|------------|
|                                                                                     | Materials                    | Code | PVD Coated |
|                                                                                     |                              |      | SP4066     |
|    | Unalloyed and Alloyed Steels | P01  |            |
|                                                                                     |                              | P05  |            |
|                                                                                     |                              | P10  |            |
|                                                                                     |                              | P15  |            |
|                                                                                     |                              | P20  |            |
|                                                                                     |                              | P25  |            |
|                                                                                     |                              | P30  |            |
|                                                                                     |                              | P35  |            |
|                                                                                     |                              | P40  |            |
|                                                                                     |                              | P45  |            |
|   | Stainless Steels             | P50  |            |
|                                                                                     |                              | M01  |            |
|                                                                                     |                              | M05  |            |
|                                                                                     |                              | M10  |            |
|                                                                                     |                              | M15  |            |
|                                                                                     |                              | M20  |            |
|                                                                                     |                              | M25  |            |
|                                                                                     |                              | M30  |            |
|                                                                                     |                              | M35  |            |
|                                                                                     |                              | M40  |            |
|  | Cast Irons                   | K01  |            |
|                                                                                     |                              | K05  |            |
|                                                                                     |                              | K10  |            |
|                                                                                     |                              | K15  |            |
|                                                                                     |                              | K20  |            |
|                                                                                     |                              | K25  |            |
|                                                                                     |                              | K30  |            |
|                                                                                     |                              | K35  |            |
|                                                                                     |                              | K40  |            |
|  | Aluminum & Alloys            | N01  |            |
|                                                                                     |                              | N05  |            |
|                                                                                     |                              | N10  |            |
|                                                                                     |                              | N15  |            |
|                                                                                     |                              | N20  |            |
|                                                                                     |                              | N25  |            |
|                                                                                     |                              | N30  |            |
|  | High Temperature Alloys      | S01  |            |
|                                                                                     |                              | S05  |            |
|                                                                                     |                              | S10  |            |
|                                                                                     |                              | S15  |            |
|                                                                                     |                              | S20  |            |
|                                                                                     |                              | S25  |            |
|                                                                                     |                              | S30  |            |
|  | Hard Materials               | H01  |            |
|                                                                                     |                              | H05  |            |
|                                                                                     |                              | H10  |            |
|                                                                                     |                              | H15  |            |
|                                                                                     |                              | H20  |            |
|                                                                                     |                              | H25  |            |
|                                                                                     |                              | H30  |            |

Increasing - wear resistance - Increasing cutting speed  
Increasing - shock resistance - Increasing - feed



Threading

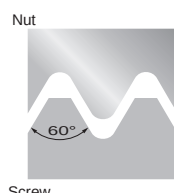
## Partial Profile 55°



W, BSPT

PAGES C210

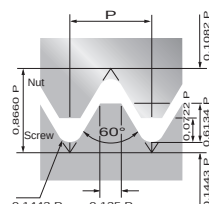
## Partial Profile 60°



ISO, UN

PAGES C211 - C212

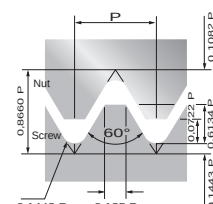
## ISO Metric



ISO

PAGES C213 - C217

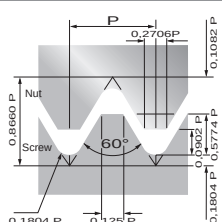
## American Unified



UN

PAGES C218 - C220

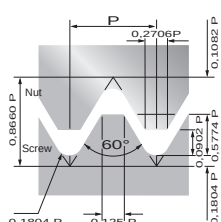
## Unified J Form



UNJ

PAGE C221

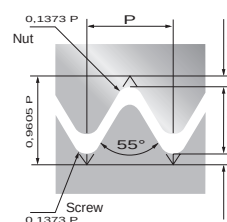
## Metric J Form



MJ

PAGE C222

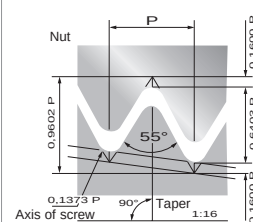
## British Standard Whitworth



W

PAGES C223 - C224

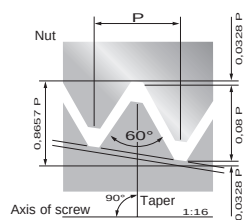
## British Standard Pipe Taper Thread



BSPT

PAGE C225

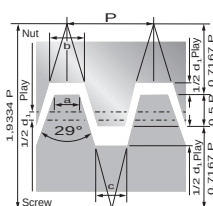
## National Taper Pipe Thread



NPT

PAGE C226

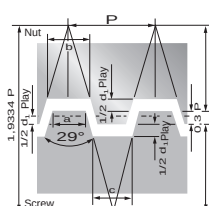
## ACME



ACME

PAGE C227

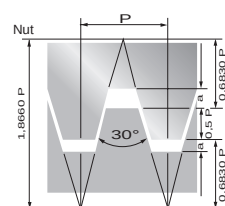
## STUB ACME



STUBACME

PAGE C228

## Trapezoidal (DIN 103)

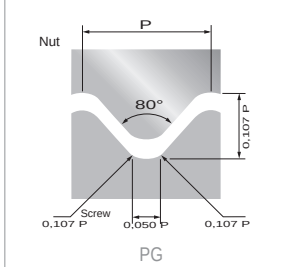


TR

PAGE C229

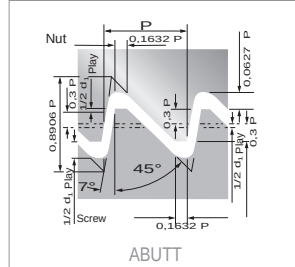


### Panzer Gewinde (DIN 40431)



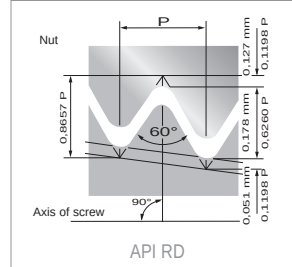
PAGE C230

### American Buttress 45/7°



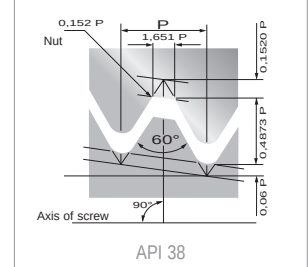
PAGES C231 - C232

### API Casing & Tubing Round



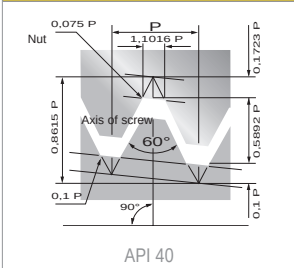
PAGE C233

### API V0.038



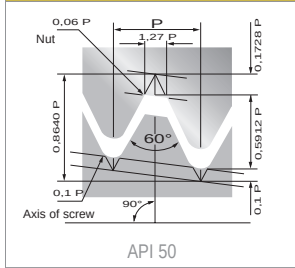
PAGES C234 - C235

### API V0.040



PAGES C234 - C235

### API V0.050



PAGES C234 - C235

NOTE: Other thread forms available by quotation.



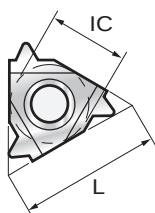
**16**  
1

**E**  
2

**R**  
3

**20**  
4

## 1 Size



| L<br>mm | IC<br>Inch |
|---------|------------|
| 06      | 5/32       |
| 08      | 3/16       |
| 11      | 1/4        |
| 16      | 3/8        |
| 22      | 1/2        |
| 22U     | 1/2U       |
| 27      | 5/8        |
| 27U     | 5/8U       |

## 2 Utilisation

**E**



External

**I**



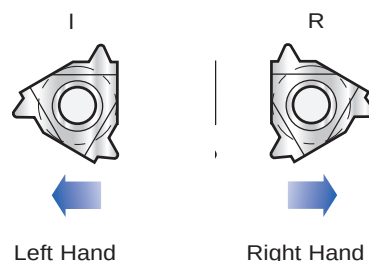
Internal

**U**

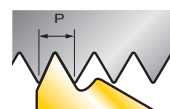


Neutral

## 3 Design

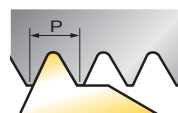


## 4 Thread Pitch or TPI



Partial Profile 60° or 55°

|               | mm   |   | Thread Pitch |       | TPI |       |
|---------------|------|---|--------------|-------|-----|-------|
| <b>A</b>      | 0,5  | - | 1,5          | 48    | -   | 16    |
| <b>G</b>      | 1,75 | - | 3            | 14    | -   | 8     |
| <b>AG</b>     | 0,5  | - | 3            | 48    | -   | 8     |
| <b>N</b>      | 3,5  | - | 5            | 7     | -   | 5     |
| <b>Q</b>      | 5,5  | - | 6            | 4 1/2 | -   | 4     |
| <b>U (22)</b> | 5,5  | - | 8            | 4 1/2 | -   | 3 1/4 |
| <b>U (27)</b> | 6,5  | - | 9            | 2 3/4 | -   | 4     |



Full Profile  
0,35 to 8,0 mm (72-3 TPI)  
Pitch sizes stated on all  
thread form part numbers





**UN**  
5

**-**  
6

**GRADE**  
7

### 5 Thread Form

#### Partial Profile



60° 60



55° 55

#### Full Profile



45°/7° ABUTT



29° ACME



60° API RD



60° API



47,5° BA



45°/7° BBUTT



55° BSPT



3°/10° BUTT



12° ELC



60° ISO

#### Full Profile



60° MJ



60° NPT



60° NPTF



60° PAC



80° PG



30° RD



3°/30° SAGE



29° STACME



30° TR



60° UN



60° UNJ



3°/10° VAM



55° W

### 6 Other

SC



Swarf control  
style

M



T



Z



Multi-tooth style and  
number of teeth

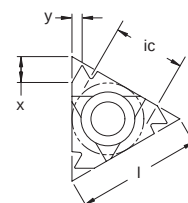
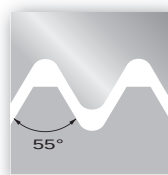
### 7 Type of Grade

For grade descriptions, refer to page: **C205**



## External Partial Profile 55° Form

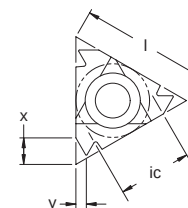
For British Standard Whitworth & British Standard Parallel Pipe



| External Right Hand |        | Partial Profile 55° |        | Pitch Range | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|---------------------|--------|-------------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description         | Grade  | mm          |           | mm          | mm   | mm   |
| 033826              | 16     | 16ERA55             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,07        | 0,80 | 0,90 |
| 033828              | 16     | 16ERAG55            | SP4066 | 0,5 - 3,0   | 48 - 8    | 0,07        | 1,20 | 1,70 |
| 033830              | 16     | 16ERG55             | SP4066 | 1,75 - 3,0  | 14 - 8    | 0,25        | 1,20 | 1,70 |

## Internal Partial Profile 55° Form

For British Standard Whitworth & British Standard Parallel Pipe

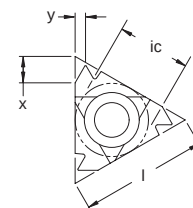
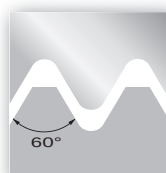


| Internal Right Hand |        | Partial Profile 55° |        | Pitch Range | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|---------------------|--------|-------------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description         | Grade  | mm          |           | mm          | mm   | mm   |
| 033763              | 8      | 08IRA55             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,07        | 0,60 | 0,70 |
| 032048              | 11     | 11IRA55             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,07        | 0,80 | 0,90 |
| 033865              | 16     | 16IRAG55            | SP4066 | 0,5 - 3,0   | 48 - 8    | 0,07        | 1,20 | 1,70 |
| 033867              | 16     | 16IRG55             | SP4066 | 1,75 - 3,0  | 14 - 8    | 0,13        | 1,20 | 1,70 |



## External Partial Profile 60° Form

For Unified & ISO metric thread forms



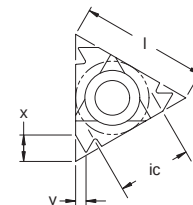
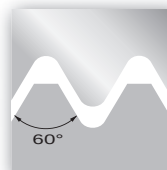
| External Right Hand |        | Partial Profile 60° |        | Pitch Range | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|---------------------|--------|-------------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description         | Grade  | mm          |           | mm          | mm   | mm   |
| 033827              | 16     | 16ERA60             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,09        | 1,20 | 1,70 |
| 033829              | 16     | 16ERAG60            | SP4066 | 0,5 - 3,0   | 48 - 8    | 0,10        | 1,20 | 1,70 |
| 033831              | 16     | 16ERG60             | SP4066 | 1,75 - 3,0  | 14 - 8    | 0,15        | 1,20 | 1,70 |
| 033884              | 22     | 22ERN60             | SP4066 | 3,5 - 5,0   | 7 - 5     | 0,48        | 1,70 | 2,50 |

| External Left Hand |        | Partial Profile 60° |        | Pitch Range | TPI Range | Nose Radius | X    | Y    |
|--------------------|--------|---------------------|--------|-------------|-----------|-------------|------|------|
| EDP                | L (mm) | Description         | Grade  | mm          |           | mm          | mm   | mm   |
| 033772             | 16     | 16ELAG60            | SP4066 | 0,5 - 3,0   | 48 - 8    | 0,10        | 1,20 | 1,70 |



## Internal Partial Profile 60° Form

For Unified & ISO metric thread forms



| Internal Right Hand |        | Partial Profile 60° |        | Pitch Range | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|---------------------|--------|-------------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description         | Grade  | mm          |           | mm          | mm   | mm   |
| 033739              | 6      | 06IRA60             | SP4066 | 0,5 - 1,25  | 48 - 20   | 0,70        | 0,60 | 0,80 |
| 033764              | 8      | 08IRA60             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,09        | 0,60 | 0,70 |
| 032045              | 11     | 11IRA60             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,15        | 0,80 | 0,90 |
| 033864              | 16     | 16IRA60             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,10        | 1,20 | 1,70 |
| 033866              | 16     | 16IRAG60            | SP4066 | 0,5 - 3,0   | 48 - 8    | 0,10        | 1,20 | 1,70 |
| 033868              | 16     | 16IRG60             | SP4066 | 1,75 - 3,0  | 14 - 8    | 0,15        | 1,20 | 1,70 |
| 033899              | 22     | 22IRN60             | SP4066 | 3,5 - 5,0   | 7 - 5     | 0,32        | 1,70 | 2,50 |

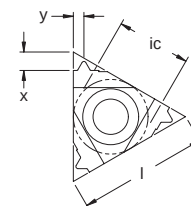
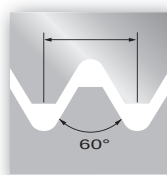
| Internal Left Hand |        | Partial Profile 60° |        | Pitch Range | TPI Range | Nose Radius | X    | Y    |
|--------------------|--------|---------------------|--------|-------------|-----------|-------------|------|------|
| EDP                | L (mm) | Description         | Grade  | mm          |           | mm          | mm   | mm   |
| 033766             | 11     | 11ILA60             | SP4066 | 0,5 - 1,5   | 48 - 16   | 0,15        | 0,80 | 0,90 |



## External ISO Metric

Standard reference: ISO 262 (DIN 13)

Tolerance class: 6g / 6H



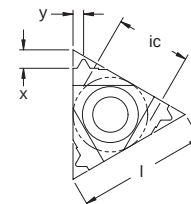
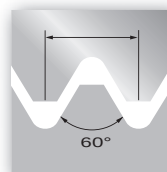
| External Right Hand |        | ISO Metric  |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|-------------|--------|-------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description | Grade  | mm    |           | mm          | mm   | mm   |
| 033773              | 16     | 16ER0.35ISO | SP4066 | 0,35  | -         | 0,06        | 0,80 | 0,40 |
| 033775              | 16     | 16ER0.4ISO  | SP4066 | 0,40  | -         | 0,07        | 0,70 | 0,40 |
| 033774              | 16     | 16ER0.45ISO | SP4066 | 0,45  | -         | 0,08        | 0,70 | 0,40 |
| 033776              | 16     | 16ER0.5ISO  | SP4066 | 0,50  | -         | 0,08        | 0,60 | 0,60 |
| 033777              | 16     | 16ER0.6ISO  | SP4066 | 0,60  | -         | 0,09        | 0,60 | 0,60 |
| 033779              | 16     | 16ER0.7ISO  | SP4066 | 0,70  | -         | 0,10        | 0,60 | 0,60 |
| 033778              | 16     | 16ER0.75ISO | SP4066 | 0,75  | -         | 0,10        | 0,60 | 0,60 |
| 033780              | 16     | 16ER0.8ISO  | SP4066 | 0,80  | -         | 0,13        | 0,60 | 0,60 |
| 031999              | 16     | 16ER1.0ISO  | SP4066 | 1,00  | -         | 0,14        | 0,70 | 0,70 |
| 032000              | 16     | 16ER1.25ISO | SP4066 | 1,25  | -         | 0,18        | 0,80 | 0,90 |
| 032001              | 16     | 16ER1.5ISO  | SP4066 | 1,50  | -         | 0,22        | 0,80 | 1,00 |
| 032002              | 16     | 16ER1.75ISO | SP4066 | 1,75  | -         | 0,25        | 0,90 | 1,20 |
| 032003              | 16     | 16ER2.0ISO  | SP4066 | 2,00  | -         | 0,29        | 1,00 | 1,30 |
| 033799              | 16     | 16ER2.5ISO  | SP4066 | 2,50  | -         | 0,36        | 1,10 | 1,50 |
| 033813              | 16     | 16ER3.0ISO  | SP4066 | 3,00  | -         | 0,46        | 1,20 | 1,60 |
| 033814              | 16     | 16ER3.5ISO  | SP4066 | 3,50  | -         | 0,53        | 1,60 | 2,30 |



## External ISO Metric

Standard reference: ISO 262 (DIN 13)

Tolerance class: 6g / 6H



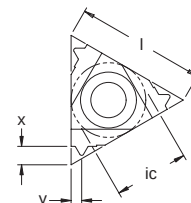
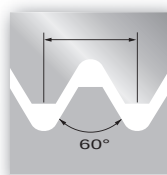
| External Right Hand |        | ISO Metric  |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|-------------|--------|-------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description | Grade  | mm    |           | mm          | mm   | mm   |
| 033870              | 22     | 22ER3.5ISO  | SP4066 | 3,50  | -         | 0,53        | 1,60 | 2,30 |
| 033871              | 22     | 22ER4.0ISO  | SP4066 | 4,00  | -         | 0,61        | 1,60 | 2,30 |
| 033872              | 22     | 22ER4.5ISO  | SP4066 | 4,50  | -         | 0,68        | 1,70 | 2,40 |
| 033877              | 22     | 22ER5.0ISO  | SP4066 | 5,00  | -         | 0,76        | 1,70 | 2,50 |
| 033880              | 22     | 22ER6.0ISO  | SP4066 | 6,00  | -         | 0,89        | 1,80 | 2,70 |

| External Left Hand |        | ISO Metric  |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|--------------------|--------|-------------|--------|-------|-----------|-------------|------|------|
| EDP                | L (mm) | Description | Grade  | mm    |           | mm          | mm   | mm   |
| 033767             | 16     | 16EL1.0ISO  | SP4066 | 1,00  | -         | 0,14        | 0,70 | 0,70 |
| 033768             | 16     | 16EL1.5ISO  | SP4066 | 1,50  | -         | 0,22        | 0,80 | 1,00 |
| 033770             | 16     | 16EL2.5ISO  | SP4066 | 2,50  | -         | 0,36        | 1,10 | 1,50 |

**Internal ISO Metric**

Standard reference: ISO 262 (DIN 13)

Tolerance class: 6g / 6H



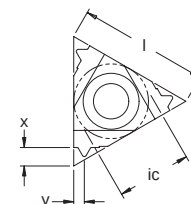
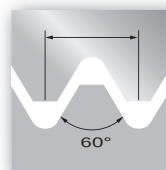
| Internal Right Hand |        | ISO Metric  |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|-------------|--------|-------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description | Grade  | mm    |           | mm          | mm   | mm   |
| 033735              | 6      | 06IR0.5ISO  | SP4066 | 0,50  | -         | 0,04        | 0,60 | 0,50 |
| 033736              | 6      | 06IR0.75ISO | SP4066 | 0,75  | -         | 0,06        | 0,60 | 0,50 |
| 033737              | 6      | 06IR1.0ISO  | SP4066 | 1,00  | -         | 0,80        | 0,60 | 0,60 |
| 033738              | 6      | 06IR1.25ISO | SP4066 | 1,25  | -         | 0,10        | 0,60 | 0,70 |
| 033741              | 8      | 08IR0.5ISO  | SP4066 | 0,50  | -         | 0,04        | 0,60 | 0,50 |
| 033742              | 8      | 08IR0.75ISO | SP4066 | 0,75  | -         | 0,06        | 0,60 | 0,50 |
| 033743              | 8      | 08IR1.0ISO  | SP4066 | 1,00  | -         | 0,11        | 0,60 | 0,60 |
| 033744              | 8      | 08IR1.25ISO | SP4066 | 1,25  | -         | 0,10        | 0,60 | 0,70 |
| 033745              | 8      | 08IR1.5ISO  | SP4066 | 1,50  | -         | 0,11        | 0,60 | 1,00 |
| 033746              | 8      | 08IR1.75ISO | SP4066 | 1,75  | -         | 0,13        | 0,60 | 1,00 |
| 032067              | 11     | 11IR0.4ISO  | SP4066 | 0,40  | -         | 0,04        | 0,80 | 0,40 |
| 032064              | 11     | 11IR0.5ISO  | SP4066 | 0,50  | -         | 0,04        | 0,60 | 0,60 |
| 032057              | 11     | 11IR0.75ISO | SP4066 | 0,75  | -         | 0,06        | 0,60 | 0,60 |
| 032042              | 11     | 11IR1.0ISO  | SP4066 | 1,00  | -         | 0,08        | 0,60 | 0,70 |
| 032043              | 11     | 11IR1.5ISO  | SP4066 | 1,50  | -         | 0,11        | 0,80 | 1,00 |
| 032062              | 11     | 11IR1.75ISO | SP4066 | 1,75  | -         | 0,13        | 0,80 | 1,00 |
| 032051              | 11     | 11IR2.0ISO  | SP4066 | 2,00  | -         | 0,14        | 0,80 | 1,10 |
| 032059              | 11     | 11IR2.5ISO  | SP4066 | 2,50  | -         | 0,18        | 0,80 | 1,30 |



## Internal ISO Metric

Standard reference: ISO 262 (DIN 13)

Tolerance class: 6g / 6H



| Internal Right Hand |        | ISO Metric  |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|-------------|--------|-------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description | Grade  | mm    |           | mm          | mm   | mm   |
| 033833              | 16     | 16IR0.5ISO  | SP4066 | 0,50  | -         | 0,04        | 0,60 | 0,60 |
| 033834              | 16     | 16IR0.6ISO  | SP4066 | 0,60  | -         | 0,05        | 0,60 | 0,60 |
| 033836              | 16     | 16IR0.7ISO  | SP4066 | 0,70  | -         | 0,06        | 0,60 | 0,60 |
| 033835              | 16     | 16IR0.75ISO | SP4066 | 0,75  | -         | 0,06        | 0,60 | 0,60 |
| 033837              | 16     | 16IR0.8ISO  | SP4066 | 0,80  | -         | 0,06        | 0,60 | 0,60 |
| 032004              | 16     | 16IR1.0ISO  | SP4066 | 1,00  | -         | 0,08        | 0,60 | 0,70 |
| 032005              | 16     | 16IR1.25ISO | SP4066 | 1,25  | -         | 0,10        | 0,80 | 0,90 |
| 032006              | 16     | 16IR1.5ISO  | SP4066 | 1,50  | -         | 0,11        | 0,80 | 1,00 |
| 032007              | 16     | 16IR1.75ISO | SP4066 | 1,75  | -         | 0,13        | 0,90 | 1,20 |
| 032008              | 16     | 16IR2.0ISO  | SP4066 | 2,00  | -         | 0,14        | 1,00 | 1,30 |
| 033849              | 16     | 16IR2.5ISO  | SP4066 | 2,50  | -         | 0,18        | 1,10 | 1,50 |
| 033856              | 16     | 16IR3.0ISO  | SP4066 | 3,00  | -         | 0,23        | 1,10 | 1,50 |
| 033857              | 16     | 16IR3.5ISO  | SP4066 | 3,50  | -         | 0,25        | 1,20 | 1,80 |

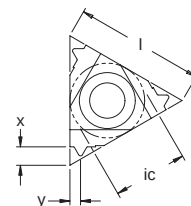
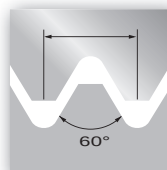




## Internal ISO Metric

Standard reference: ISO 262 (DIN 13)

Tolerance class: 6g / 6H



| Internal Right Hand |        | ISO Metric  |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|-------------|--------|-------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description | Grade  | mm    |           | mm          | mm   | mm   |
| 033885              | 22     | 22IR3.5ISO  | SP4066 | 3,50  | -         | 0,25        | 1,60 | 2,30 |
| 033886              | 22     | 22IR4.0ISO  | SP4066 | 4,00  | -         | 0,33        | 1,60 | 2,30 |
| 033887              | 22     | 22IR4.5ISO  | SP4066 | 4,50  | -         | 0,36        | 1,60 | 2,40 |
| 033892              | 22     | 22IR5.0ISO  | SP4066 | 5,00  | -         | 0,39        | 1,60 | 2,60 |

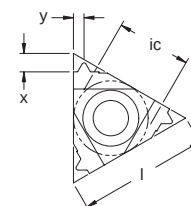
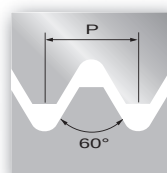
| Internal Left Hand |        | ISO Metric  |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|--------------------|--------|-------------|--------|-------|-----------|-------------|------|------|
| EDP                | L (mm) | Description | Grade  | mm    |           | mm          | mm   | mm   |
| 033740             | 8      | 08IL1.0ISO  | SP4066 | 1,00  | -         | 0,11        | 0,60 | 0,60 |
| 033832             | 16     | 16IL1.5ISO  | SP4066 | 1,50  | -         | 0,11        | 0,80 | 1,00 |



## External American Unified (UN)

Standard reference: ANSI B1.1:74

Tolerance class: 2A / 2B

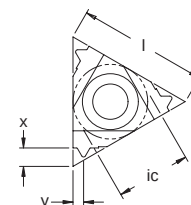
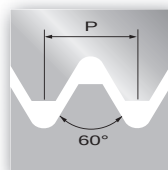


| External Right Hand |        | American Unified (UN) |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|-----------------------|--------|-------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description           | Grade  | mm    |           | mm          | mm   | mm   |
| 031995              | 16     | 16ER8UN               | SP4066 | 3,18  | 8         | 0,48        | 1,20 | 1,60 |
| 033824              | 16     | 16ER9UN               | SP4066 | 2,82  | 9         | 0,38        | 1,20 | 1,70 |
| 033782              | 16     | 16ER10UN              | SP4066 | 2,54  | 10        | 0,38        | 1,10 | 1,50 |
| 033784              | 16     | 16ER11UN              | SP4066 | 2,31  | 11        | 0,33        | 1,10 | 1,50 |
| 031996              | 16     | 16ER12UN              | SP4066 | 2,12  | 12        | 0,29        | 1,10 | 1,40 |
| 033787              | 16     | 16ER13UN              | SP4066 | 1,95  | 13        | 0,28        | 1,00 | 1,30 |
| 033788              | 16     | 16ER14UN              | SP4066 | 1,81  | 14        | 0,25        | 1,00 | 1,20 |
| 033793              | 16     | 16ER16UN              | SP4066 | 1,59  | 16        | 0,22        | 0,90 | 1,10 |
| 033796              | 16     | 16ER18UN              | SP4066 | 1,41  | 18        | 0,20        | 0,80 | 1,00 |
| 033802              | 16     | 16ER20UN              | SP4066 | 1,27  | 20        | 0,18        | 0,80 | 0,90 |
| 033805              | 16     | 16ER24UN              | SP4066 | 1,06  | 24        | 0,17        | 0,70 | 0,80 |
| 033809              | 16     | 16ER27UN              | SP4066 | 0,94  | 27        | 0,15        | 0,70 | 0,80 |
| 033810              | 16     | 16ER28UN              | SP4066 | 0,91  | 28        | 0,14        | 0,60 | 0,70 |
| 033815              | 16     | 16ER32UN              | SP4066 | 0,79  | 32        | 0,13        | 0,60 | 0,60 |
| 034611              | 16     | 16ER36UN              | SP4066 | 0,71  | 36        | 0,11        | 0,60 | 0,60 |
| 033819              | 16     | 16ER40UN              | SP4066 | 0,64  | 40        | 0,09        | 0,60 | 0,60 |
| 033879              | 22     | 22ER5UN               | SP4066 | 5,08  | 5         | 0,76        | 1,70 | 2,50 |
| 033882              | 22     | 22ER6UN               | SP4066 | 4,23  | 6         | 0,64        | 1,60 | 2,30 |
| 033883              | 22     | 22ER7UN               | SP4066 | 3,63  | 7         | 0,53        | 1,60 | 2,30 |

**Internal American Unified (UN)**

Standard reference: ANSI B1.1:74

Tolerance class: 2A / 2B



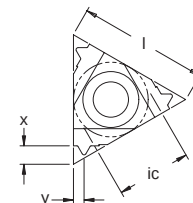
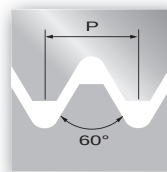
| Internal Right Hand |        | American Unified (UN) |        | Pitch | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|-----------------------|--------|-------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description           | Grade  | mm    |           | mm          | mm   | mm   |
| 033747              | 08     | 08IR14UN              | SP4066 | 1,81  | 14        | 0,15        | 0,60 | 0,80 |
| 033748              | 08     | 08IR16UN              | SP4066 | 1,59  | 16        | 0,11        | 0,60 | 0,70 |
| 033751              | 08     | 08IR18UN              | SP4066 | 1,41  | 18        | 0,11        | 0,60 | 0,70 |
| 033754              | 08     | 08IR20UN              | SP4066 | 1,27  | 20        | 0,11        | 0,60 | 0,70 |
| 033756              | 08     | 08IR24UN              | SP4066 | 1,06  | 24        | 0,09        | 0,60 | 0,60 |
| 033761              | 08     | 08IR28UN              | SP4066 | 0,91  | 28        | 0,09        | 0,60 | 0,60 |
| 032056              | 11     | 11IR32UN              | SP4066 | 0,79  | 32        | 0,09        | 0,60 | 0,60 |
| 032068              | 11     | 11IR28UN              | SP4066 | 0,91  | 28        | 0,09        | 0,60 | 0,70 |
| 032055              | 11     | 11IR27UN              | SP4066 | 0,94  | 27        | 0,09        | 0,70 | 0,80 |
| 032060              | 11     | 11IR24UN              | SP4066 | 1,06  | 24        | 0,09        | 0,70 | 0,80 |
| 032044              | 11     | 11IR20UN              | SP4066 | 1,27  | 20        | 0,10        | 0,80 | 0,90 |
| 032049              | 11     | 11IR18UN              | SP4066 | 1,41  | 18        | 0,11        | 0,80 | 1,00 |
| 032053              | 11     | 11IR16UN              | SP4066 | 1,59  | 16        | 0,11        | 0,09 | 1,10 |
| 032058              | 11     | 11IR12UN              | SP4066 | 2,12  | 12        | 0,18        | 0,90 | 1,10 |



## Internal American Unified (UN)

Standard reference: ANSI B1.1:74

Tolerance class: 2A / 2B



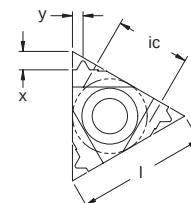
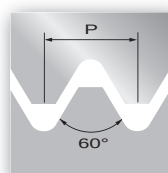
| External Right Hand |        | Partial Profile 55° |        | Pitch Range | TPI Range | Nose Radius | X    | Y    |
|---------------------|--------|---------------------|--------|-------------|-----------|-------------|------|------|
| EDP                 | L (mm) | Description         | Grade  | mm          |           | mm          | mm   | mm   |
| 031997              | 16     | 16IR8UN             | SP4066 | 3,18        | 8         | 0,24        | 1,10 | 1,50 |
| 033863              | 16     | 16IR9UN             | SP4066 | 2,82        | 9         | 0,20        | 1,20 | 1,70 |
| 033839              | 16     | 16IR10UN            | SP4066 | 2,54        | 10        | 0,20        | 1,10 | 1,50 |
| 033840              | 16     | 16IR11UN            | SP4066 | 2,31        | 11        | 0,18        | 1,10 | 1,50 |
| 031998              | 16     | 16IR12UN            | SP4066 | 2,12        | 12        | 0,18        | 1,10 | 1,40 |
| 033842              | 16     | 16IR13UN            | SP4066 | 1,95        | 13        | 0,17        | 1,00 | 1,30 |
| 033843              | 16     | 16IR14UN            | SP4066 | 1,81        | 14        | 0,15        | 0,90 | 1,10 |
| 033846              | 16     | 16IR16UN            | SP4066 | 1,59        | 16        | 0,11        | 0,90 | 1,10 |
| 033848              | 16     | 16IR18UN            | SP4066 | 1,41        | 18        | 0,11        | 0,80 | 1,00 |
| 033852              | 16     | 16IR20UN            | SP4066 | 1,27        | 20        | 0,10        | 0,80 | 0,90 |
| 033853              | 16     | 16IR24UN            | SP4066 | 1,06        | 24        | 0,09        | 0,70 | 0,80 |
| 033855              | 16     | 16IR28UN            | SP4066 | 0,91        | 28        | 0,09        | 0,60 | 0,60 |
| 033858              | 16     | 16IR32UN            | SP4066 | 0,79        | 32        | 0,06        | 0,60 | 0,60 |
| 033859              | 16     | 16IR36UN            | SP4066 | 0,71        | 36        | 0,05        | 0,60 | 0,60 |
| 033860              | 16     | 16IR40UN            | SP4066 | 0,64        | 40        | 0,05        | 0,60 | 0,60 |
| 033895              | 22     | 22IR5UN             | SP4066 | 5,08        | 5         | 0,37        | 1,60 | 2,30 |
| 033897              | 22     | 22IR6UN             | SP4066 | 4,23        | 6         | 0,33        | 1,60 | 2,30 |
| 033898              | 22     | 22IR7UN             | SP4066 | 3,63        | 7         | 0,29        | 1,60 | 2,30 |



## External Unified J Form (UNJ)

Standard reference: MIL-S8879C

Tolerance class: 3A / 3B



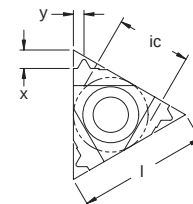
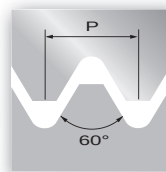
| External Right Hand |        | Unified J Form (UNJ) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|----------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description          | Grade  | mm    |     | mm   | mm   |
| 032345              | 16     | 16ER32UNJ            | SP4066 | 0,79  | 32  | 0,60 | 0,60 |
| 032346              | 16     | 16ER28UNJ            | SP4066 | 0,91  | 28  | 0,60 | 0,60 |
| 032347              | 16     | 16ER24UNJ            | SP4066 | 1,06  | 24  | 0,70 | 0,80 |
| 032348              | 16     | 16ER20UNJ            | SP4066 | 1,27  | 20  | 0,80 | 0,90 |
| 032349              | 16     | 16ER18UNJ            | SP4066 | 1,41  | 18  | 0,80 | 1,00 |
| 032350              | 16     | 16ER16UNJ            | SP4066 | 1,59  | 16  | 0,80 | 1,00 |
| 032351              | 16     | 16ER14UNJ            | SP4066 | 1,81  | 14  | 1,00 | 1,20 |
| 032352              | 16     | 16ER12UNJ            | SP4066 | 2,12  | 12  | 1,10 | 1,40 |



## External Unified J Form (UNJ)

Standard reference: ISO 5855

Tolerance class: 4h/6h - 4H/5H



| External Right Hand |        | Metric J Form (MJ) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|--------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description        | Grade  | mm    |     | mm   | mm   |
| 032353              | 16     | 16ER0.8MJ          | SP4066 | 0,80  | -   | 0,60 | 0,70 |
| 032354              | 16     | 16ER1.0MJ          | SP4066 | 1,00  | -   | 0,60 | 0,70 |
| 032355              | 16     | 16ER1.25MJ         | SP4066 | 1,25  | -   | 0,70 | 0,90 |
| 032356              | 16     | 16ER1.5MJ          | SP4066 | 1,50  | -   | 0,80 | 1,00 |
| 032357              | 16     | 16ER2.0MJ          | SP4066 | 2,00  | -   | 1,00 | 1,30 |
| 032358              | 16     | 16ER2.5MJ          | SP4066 | 2,50  | -   | 1,10 | 1,50 |
| 032359              | 16     | 16ER3.0MJ          | SP4066 | 3,00  | -   | 1,20 | 1,60 |

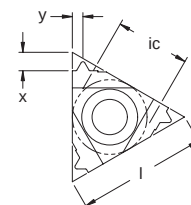
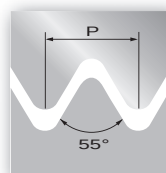


## External British Standard Whitworth (W)

Standard reference: ISO 228/1: 1982,

B.S. 84:1956, DIN 259

Tolerance class: Medium Class A



| External Right Hand |        | British Standard Whitworth (W) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|--------------------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description                    | Grade  | mm    |     | mm   | mm   |
| 033823              | 16     | 16ER8W                         | SP4066 | 3,18  | 8   | 1,20 | 1,50 |
| 033825              | 16     | 16ER9W                         | SP4066 | 2,82  | 9   | 1,20 | 1,70 |
| 033783              | 16     | 16ER10W                        | SP4066 | 2,54  | 10  | 1,10 | 1,50 |
| 031982              | 16     | 16ER11W                        | SP4066 | 2,31  | 11  | 1,10 | 1,50 |
| 033786              | 16     | 16ER12W                        | SP4066 | 2,12  | 12  | 1,10 | 1,40 |
| 031981              | 16     | 16ER14W                        | SP4066 | 1,81  | 14  | 1,00 | 1,20 |
| 033794              | 16     | 16ER16W                        | SP4066 | 1,59  | 16  | 0,90 | 1,10 |
| 033797              | 16     | 16ER18W                        | SP4066 | 1,41  | 18  | 0,80 | 1,00 |
| 031980              | 16     | 16ER19W                        | SP4066 | 1,34  | 19  | 0,80 | 1,00 |
| 033803              | 16     | 16ER20W                        | SP4066 | 1,27  | 20  | 0,80 | 0,90 |
| 033804              | 16     | 16ER22W                        | SP4066 | 1,15  | 22  | 0,80 | 0,90 |
| 033806              | 16     | 16ER24W                        | SP4066 | 1,06  | 24  | 0,70 | 0,80 |
| 033807              | 16     | 16ER26W                        | SP4066 | 0,98  | 26  | 0,70 | 0,80 |
| 031979              | 16     | 16ER28W                        | SP4066 | 0,91  | 28  | 0,60 | 0,70 |
| 033816              | 16     | 16ER32W                        | SP4066 | 0,79  | 32  | 0,60 | 0,60 |
| 033818              | 16     | 16ER36W                        | SP4066 | 0,71  | 36  | 0,60 | 0,60 |
| 033820              | 16     | 16ER40W                        | SP4066 | 0,64  | 40  | 0,60 | 0,60 |

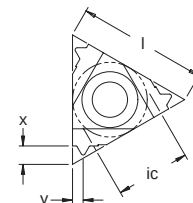
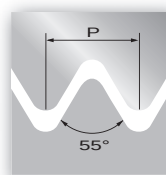


## Internal British Standard Whitworth (W)

Standard reference: ISO 228/1: 1982,

B.S. 84:1956, DIN 259

Tolerance class: Medium Class A



| Internal Right Hand |        | British Standard Whitworth (W) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|--------------------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description                    | Grade  | mm    |     | mm   | mm   |
| 033749              | 08     | 08IR16W                        | SP4066 | 1,59  | 16  | 0,60 | 0,70 |
| 033752              | 08     | 08IR18W                        | SP4066 | 1,41  | 18  | 0,60 | 0,70 |
| 033753              | 08     | 08IR19W                        | SP4066 | 1,34  | 19  | 0,60 | 0,70 |
| 033755              | 08     | 08IR20W                        | SP4066 | 1,27  | 20  | 0,60 | 0,70 |
| 033757              | 08     | 08IR24W                        | SP4066 | 1,06  | 24  | 0,60 | 0,70 |
| 033759              | 08     | 08IR26W                        | SP4066 | 0,98  | 26  | 0,60 | 0,60 |
| 033762              | 08     | 08IR28W                        | SP4066 | 0,91  | 28  | 0,60 | 0,60 |
| 032069              | 11     | 11IR28W                        | SP4066 | 0,91  | 28  | 0,60 | 0,70 |
| 032063              | 11     | 11IR26W                        | SP4066 | 0,98  | 26  | 0,70 | 0,80 |
| 032046              | 11     | 11IR19W                        | SP4066 | 1,34  | 19  | 0,80 | 1,00 |
| 032047              | 11     | 11IR14W                        | SP4066 | 1,81  | 14  | 0,90 | 1,10 |
| 032066              | 11     | 11IR11W                        | SP4066 | 2,31  | 11  | 0,90 | 1,20 |
| 031983              | 16     | 16IR28W                        | SP4066 | 0,91  | 28  | 0,60 | 0,70 |
| 031984              | 16     | 16IR19W                        | SP4066 | 1,34  | 19  | 0,80 | 1,00 |
| 031985              | 16     | 16IR14W                        | SP4066 | 1,81  | 14  | 1,00 | 1,20 |
| 031986              | 16     | 16IR11W                        | SP4066 | 2,31  | 11  | 1,10 | 1,50 |

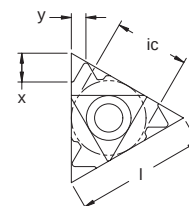
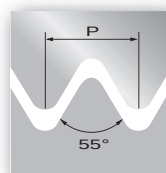




## External British Standard Pipe Taper Thread (BSPT)

Standard reference: B.S 21: 1985

Tolerance class: Standard BSPT

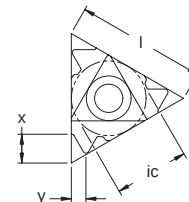


| External Right Hand |        | British Standard Pipe Taper Thread (BSPT) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------------------------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description                               | Grade  | mm    |     | mm   | mm   |
| 031987              | 16     | 16ER28BSPT                                | SP4066 | 0,91  | 28  | 0,70 | 0,80 |
| 031988              | 16     | 16ER19BSPT                                | SP4066 | 1,34  | 19  | 0,80 | 1,00 |
| 031989              | 16     | 16ER14BSPT                                | SP4066 | 1,81  | 14  | 0,90 | 1,20 |
| 031990              | 16     | 16ER11BSPT                                | SP4066 | 2,31  | 11  | 1,10 | 1,50 |

## Internal British Standard Pipe Taper Thread (BSPT)

Standard reference: B.S 21: 1985

Tolerance class: Standard BSPT



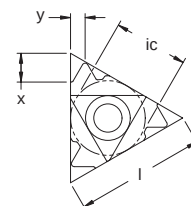
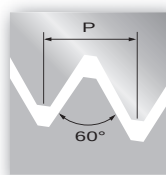
| Internal Right Hand |        | British Standard Pipe Taper Thread (BSPT) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------------------------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description                               | Grade  | mm    |     | mm   | mm   |
| 032050              | 11     | 11IR19BSPT                                | SP4066 | 1,34  | 19  | 0,80 | 1,00 |
| 032061              | 11     | 11IR14BSPT                                | SP4066 | 1,81  | 14  | 0,80 | 1,00 |
| 031991              | 16     | 16IR28BSPT                                | SP4066 | 0,91  | 28  | 0,70 | 0,80 |
| 031992              | 16     | 16IR19BSPT                                | SP4066 | 1,34  | 19  | 0,80 | 1,00 |
| 031993              | 16     | 16IR14BSPT                                | SP4066 | 1,81  | 14  | 0,90 | 1,20 |
| 031994              | 16     | 16IR11BSPT                                | SP4066 | 2,31  | 11  | 1,10 | 1,50 |



## External National Taper Thread (NPT)

Standard reference: USAS B2:1: 1968

Tolerance class: Standard NPT

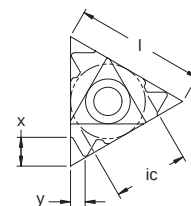


| External Right Hand |        | National Taper Thread (NPT) |        | Pitch | TPI  | X    | Y    |
|---------------------|--------|-----------------------------|--------|-------|------|------|------|
| EDP                 | L (mm) | Description                 | Grade  | mm    |      | mm   | mm   |
| 031971              | 16     | 16ER18NPT                   | SP4066 | 1,41  | 18   | 0,80 | 1,00 |
| 031972              | 16     | 16ER14NPT                   | SP4066 | 1,81  | 14   | 0,90 | 1,20 |
| 031973              | 16     | 16ER11.5NPT                 | SP4066 | 2,21  | 11,5 | 1,10 | 1,50 |
| 031974              | 16     | 16ER8NPT                    | SP4066 | 3,18  | 8    | 1,30 | 1,80 |

## Internal National Taper Thread (NPT)

Standard reference: USAS B2:1: 1968

Tolerance class: Standard NPT



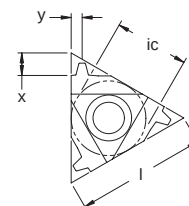
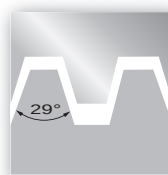
| Internal Right Hand |        | National Taper Thread (NPT) |        | Pitch | TPI  | X    | Y    |
|---------------------|--------|-----------------------------|--------|-------|------|------|------|
| EDP                 | L (mm) | Description                 | Grade  | mm    |      | mm   | mm   |
| 033760              | 08     | 08IR27NPT                   | SP4066 | 0,94  | 27   | 0,60 | 0,60 |
| 033750              | 08     | 08IR18NPT                   | SP4066 | 1,41  | 18   | 0,60 | 0,60 |
| 032054              | 11     | 11IR18NPT                   | SP4066 | 1,41  | 18   | 0,80 | 1,00 |
| 032052              | 11     | 11IR14NPT                   | SP4066 | 1,81  | 14   | 0,80 | 1,00 |
| 031975              | 16     | 16IR18NPT                   | SP4066 | 1,41  | 18   | 0,80 | 1,00 |
| 031976              | 16     | 16IR14NPT                   | SP4066 | 1,81  | 14   | 0,90 | 1,20 |
| 031977              | 16     | 16IR11.5NPT                 | SP4066 | 2,21  | 11,5 | 1,10 | 1,50 |
| 031978              | 16     | 16IR8NPT                    | SP4066 | 3,18  | 8    | 1,30 | 1,80 |



## External ACME

Standard reference: ANSI B 1.5: 1988

Tolerance class: 3G

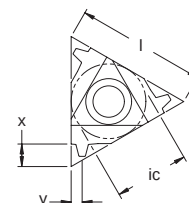


| External Right Hand |        | ACME        |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description | Grade  | mm    |     | mm   | mm   |
| 032011              | 16     | 16ER12ACME  | SP4066 | 2,12  | 12  | 1,10 | 1,20 |
| 032010              | 16     | 16ER10ACME  | SP4066 | 2,54  | 10  | 1,30 | 1,30 |
| 032009              | 16     | 16ER8ACME   | SP4066 | 3,18  | 8   | 1,50 | 1,50 |
| 032022              | 22     | 22ER6ACME   | SP4066 | 4,23  | 6   | 1,80 | 2,10 |
| 032021              | 22     | 22ER5ACME   | SP4066 | 5,08  | 5   | 2,00 | 2,30 |
| 032029              | 27     | 27ER4ACME   | SP4066 | 6,35  | 4   | 2,30 | 2,70 |

## Internal ACME

Standard reference: ANSI B 1.5: 1988

Tolerance class: 3G



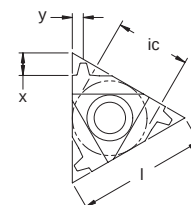
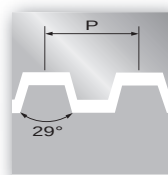
| Internal Right Hand |        | ACME        |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description | Grade  | mm    |     | mm   | mm   |
| 032014              | 16     | 16IR12ACME  | SP4066 | 2,12  | 12  | 1,10 | 1,20 |
| 032013              | 16     | 16IR10ACME  | SP4066 | 2,54  | 10  | 1,30 | 1,30 |
| 032012              | 16     | 16IR8ACME   | SP4066 | 3,18  | 8   | 1,50 | 1,50 |
| 032024              | 22     | 22IR6ACME   | SP4066 | 4,23  | 6   | 1,80 | 2,10 |
| 032023              | 22     | 22IR5ACME   | SP4066 | 5,08  | 5   | 2,00 | 2,30 |
| 032031              | 27     | 27IR4ACME   | SP4066 | 6,35  | 4   | 2,30 | 2,70 |



## External Stub ACME (STACME)

Standard reference: ANSI B1.8:1988

Tolerance class: 2G

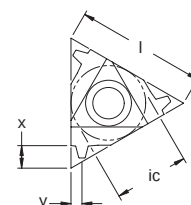


| External Right Hand |        | Stub ACME (STACME) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|--------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description        | Grade  | mm    |     | mm   | mm   |
| 032017              | 16     | 16ER12STACME       | SP4066 | 2,12  | 12  | 1,20 | 1,20 |
| 032016              | 16     | 16ER10STACME       | SP4066 | 2,54  | 10  | 1,30 | 1,30 |
| 032015              | 16     | 16ER8STACME        | SP4066 | 3,18  | 8   | 1,50 | 1,50 |
| 033821              | 16     | 16ER6STACME        | SP4066 | 4,23  | 6   | 1,50 | 1,80 |
| 032026              | 22     | 22ER6STACME        | SP4066 | 4,23  | 6   | 1,80 | 1,80 |
| 032025              | 22     | 22ER5STACME        | SP4066 | 5,08  | 5   | 2,00 | 2,30 |
| 032030              | 27     | 27ER4STACME        | SP4066 | 6,35  | 4   | 2,30 | 2,40 |

## Internal Stub ACME (STACME)

Standard reference: ANSI B1.8:1988

Tolerance class: 2G



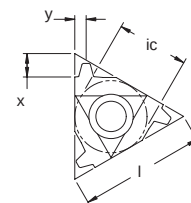
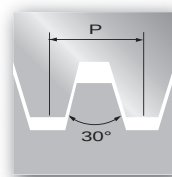
| Internal Right Hand |        | ACME         |        | Pitch | TPI | X    | Y    |
|---------------------|--------|--------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description  | Grade  | mm    |     | mm   | mm   |
| 032020              | 16     | 16IR12STACME | SP4066 | 2,12  | 12  | 1,20 | 1,20 |
| 032019              | 16     | 16IR10STACME | SP4066 | 2,54  | 10  | 1,30 | 1,30 |
| 032018              | 16     | 16IR8STACME  | SP4066 | 3,18  | 8   | 1,50 | 1,50 |
| 033861              | 16     | 16IR6STACME  | SP4066 | 4,23  | 6   | 1,50 | 1,80 |
| 032028              | 22     | 22IR6STACME  | SP4066 | 4,23  | 6   | 1,80 | 1,80 |
| 032027              | 22     | 22IR5STACME  | SP4066 | 5,08  | 5   | 2,00 | 2,30 |
| 032032              | 27     | 27IR4STACME  | SP4066 | 6,35  | 4   | 2,30 | 2,40 |



### External Trapezoidal (TR)

Standard reference: DIN 103

Tolerance class: 7e/7H

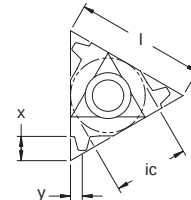


| External Right Hand |        | Trapezoidal (TR) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description      | Grade  | mm    |     | mm   | mm   |
| 033876              | 22     | 22ER4.0TR        | SP4066 | 4,00  | -   | 1,80 | 1,90 |
| 033878              | 22     | 22ER5.0TR        | SP4066 | 5,00  | -   | 2,00 | 2,40 |
| 033881              | 22     | 22ER6.0TR        | SP4066 | 6,00  | -   | 2,10 | 2,70 |

### Internal Trapezoidal (TR)

Standard reference: DIN 103

Tolerance class: 7e/7H



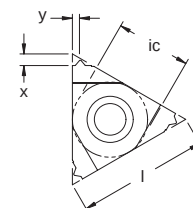
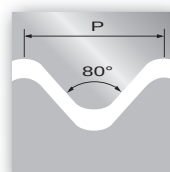
| Internal Right Hand |        | Trapezoidal (TR) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description      | Grade  | mm    |     | mm   | mm   |
| 033891              | 22     | 22IR4.0TR        | SP4066 | 4,00  | -   | 1,80 | 1,90 |
| 033894              | 22     | 22IR5.0TR        | SP4066 | 5,00  | -   | 2,00 | 2,40 |
| 033896              | 22     | 22IR6.0TR        | SP4066 | 6,00  | -   | 2,10 | 2,70 |



## External Panzer Gerwinde (PG)

Standard reference: DIN 40430

Tolerance class: Standard



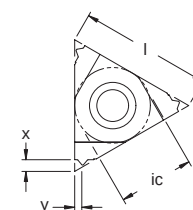
| External Right Hand |        | Panzer Gerwinde (PG) DIN40431 |        | Pitch | TPI | Nose Radius       | X    | Y    |
|---------------------|--------|-------------------------------|--------|-------|-----|-------------------|------|------|
| EDP                 | L (mm) | Description                   | Grade  | mm    |     | mm                | mm   | mm   |
| 033792              | 16     | 16ER16PG                      | SP4066 | 1,59  | 16  | Pg 21-29-36-42-48 | 0,80 | 1,00 |
| 033795              | 16     | 16ER18PG                      | SP4066 | 1,41  | 18  | Pg 9-11-13.5-16   | 0,80 | 0,90 |
| 033801              | 16     | 16ER20PG                      | SP4066 | 1,27  | 20  | Pg 7              | 0,70 | 0,80 |

| External Left Hand |        | Panzer Gerwinde (PG) DIN40431 |        | Pitch | TPI | Nose Radius       | X    | Y    |
|--------------------|--------|-------------------------------|--------|-------|-----|-------------------|------|------|
| EDP                | L (mm) | Description                   | Grade  | mm    |     | mm                | mm   | mm   |
| 033769             | 16     | 16EL16PG                      | SP4066 | 1,59  | 16  | Pg 21-29-36-42-48 | 0,80 | 1,00 |

## Internal Panzer Gerwinde (PG)

Standard reference: DIN 40430

Tolerance class: Standard



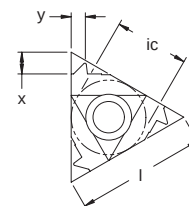
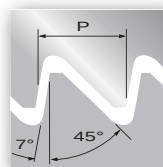
| Internal Right Hand |        | Panzer Gerwinde (PG) DIN40431 |        | Pitch | TPI | Nose Radius       | X    | Y    |
|---------------------|--------|-------------------------------|--------|-------|-----|-------------------|------|------|
| EDP                 | L (mm) | Description                   | Grade  | mm    |     | mm                | mm   | mm   |
| 032065              | 11     | 11IR18PG                      | SP4066 | 1,41  | 18  | Pg 9-11-13.5-16   | 0,80 | 0,90 |
| 033845              | 16     | 16IR16PG                      | SP4066 | 1,59  | 16  | Pg 21-29-36-42-48 | 0,80 | 1,00 |
| 033847              | 16     | 16IR18PG                      | SP4066 | 1,41  | 18  | Pg 9-11-13.5-16   | 0,80 | 0,90 |
| 033851              | 16     | 16IR20PG                      | SP4066 | 1,27  | 20  | Pg 7              | 0,70 | 0,80 |



## External American Buttress

Standard reference: ANSI B1.9 :1973

Tolerance class: Class 2



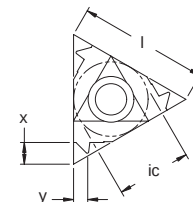
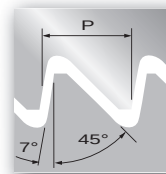
| External Right Hand |        | American Buttress |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description       | Grade  | mm    |     | mm   | mm   |
| 034604              | 16     | 16ER10ABUTT       | SP4066 | 2,54  | 10  | 1,50 | 2,30 |
| 033785              | 16     | 16ER12ABUTT       | SP4066 | 2,12  | 12  | 1,40 | 2,00 |
| 033791              | 16     | 16ER16ABUTT       | SP4066 | 1,59  | 16  | 1,00 | 1,50 |
| 033800              | 16     | 16ER20ABUTT       | SP4066 | 1,27  | 20  | 1,00 | 1,30 |
| 034605              | 22     | 22ER8ABUTT        | SP4066 | 3,18  | 8   | 2,10 | 3,30 |
| 034606              | 22     | 22ER12ABUTT       | SP4066 | 2,12  | 12  | 1,60 | 2,10 |



## Internal American Buttress

Standard reference: ANSI B1.9 :1973

Tolerance class: Class 2



| Internal Right Hand |        | American Buttress |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description       | Grade  | mm    |     | mm   | mm   |
| 034608              | 16     | 16IR10ABUTT       | SP4066 | 2,54  | 10  | 1,50 | 2,30 |
| 033841              | 16     | 16IR12ABUTT       | SP4066 | 2,12  | 12  | 1,40 | 2,00 |
| 033844              | 16     | 16IR16ABUTT       | SP4066 | 1,59  | 16  | 1,00 | 1,30 |
| 033850              | 16     | 16IR20ABUTT       | SP4066 | 1,27  | 20  | 1,00 | 1,30 |
| 034609              | 22     | 22IR8ABUTT        | SP4066 | 3,18  | 8   | 2,10 | 3,30 |
| 034610              | 22     | 22IR12ABUTT       | SP4066 | 2,12  | 12  | 1,60 | 2,10 |

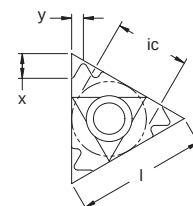
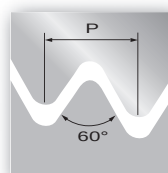




### External API Round (APIRD)

Standard reference: API Standard 5B :1979

Tolerance class: Standard API Round

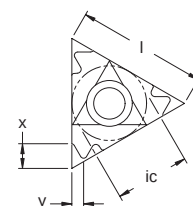


| External Right Hand |        | API Round (APIRD) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description       | Grade  | mm    |     | mm   | mm   |
| 033822              | 16     | 16ER8APIRD        | SP4066 | 3,18  | 8   | 1,30 | 1,50 |
| 033781              | 16     | 16ER10APIRD       | SP4066 | 2,54  | 10  | 1,20 | 1,40 |
| 032035              | 22     | 22ER8APIRD        | SP4066 | 3,18  | 8   | 1,60 | 2,10 |

### Internal API Round (APIRD)

Standard reference: API Standard 5B :1979

Tolerance class: Standard API Round



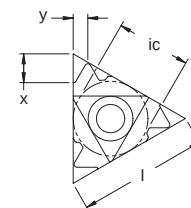
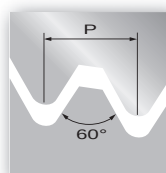
| Internal Right Hand |        | API Round (APIRD) |        | Pitch | TPI | X    | Y    |
|---------------------|--------|-------------------|--------|-------|-----|------|------|
| EDP                 | L (mm) | Description       | Grade  | mm    |     | mm   | mm   |
| 033862              | 16     | 16IR8APIRD        | SP4066 | 3,18  | 8   | 1,30 | 1,50 |
| 033838              | 16     | 16IR10APIRD       | SP4066 | 2,54  | 10  | 1,20 | 1,40 |
| 032036              | 22     | 22IR8APIRD        | SP4066 | 3,18  | 8   | 1,60 | 2,10 |



## External API (Oilfield)

Standard reference: API Specification 7: 1990

Tolerance class: Standard API



| External Right Hand |        | API (Oilfield) |        | Pitch Range | TPI | Taper |          | X    | Y    |
|---------------------|--------|----------------|--------|-------------|-----|-------|----------|------|------|
| EDP                 | L (mm) | Description    | Grade  | mm          |     | IPF   | Angle    | mm   | mm   |
| 032039              | 22     | 22ER5API403    | SP4066 | 5,08        | 5   | 3     | 7° - 1'  | 1,80 | 2,50 |
| 032034              | 22     | 22ER4API383    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,10 | 2,80 |
| 032033              | 22     | 22ER4API382    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,10 | 2,80 |
| 033874              | 22     | 22ER4API502    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,00 | 3,00 |
| 033875              | 22     | 22ER4API503    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,00 | 3,00 |
| 032037              | 27     | 27ER4API382    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,10 | 2,80 |
| 032038              | 27     | 27ER4API383    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,10 | 2,80 |
| 032040              | 27     | 27ER4API502    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,00 | 3,00 |
| 032041              | 27     | 27ER4API503    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,00 | 2,00 |

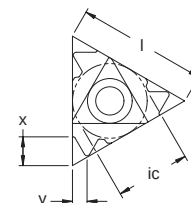
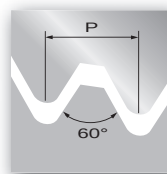




## Internal API (Oilfield)

Standard reference: API Specification 7: 1990

Tolerance class: Standard API



| Internal Right Hand |        | API (Oilfield) |        | Pitch Range | TPI | Taper |          | X    | Y    |
|---------------------|--------|----------------|--------|-------------|-----|-------|----------|------|------|
| EDP                 | L (mm) | Description    | Grade  | mm          |     | IPF   | Angle    | mm   | mm   |
| 033132              | 22     | 22IR5API403    | SP4066 | 5,08        | 5   | 3     | 7° - 1'  | 1,80 | 2,50 |
| 033133              | 22     | 22IR4API383    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,10 | 2,80 |
| 033134              | 22     | 22IR4API382    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,10 | 2,80 |
| 033888              | 22     | 22IR4API502    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,00 | 3,00 |
| 033889              | 22     | 22IR4API503    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,00 | 3,00 |
| 033135              | 27     | 27IR4API382    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,10 | 2,80 |
| 033136              | 27     | 27IR4API383    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,10 | 2,80 |
| 033137              | 27     | 27IR4API502    | SP4066 | 6,35        | 4   | 2     | 4° - 43' | 2,00 | 3,00 |
| 033138              | 27     | 27IR4API503    | SP4066 | 6,35        | 4   | 3     | 7° - 1'  | 2,00 | 2,00 |

| OILFIELD CONNECTORS      |     |           |                                                                                                          |
|--------------------------|-----|-----------|----------------------------------------------------------------------------------------------------------|
| Reference to Part Number | TPI | Taper IPF | Connector No. or size                                                                                    |
| API V 0.038R             | 4   | 2         | NC23, NC28, NC31, NC35, NC38, NC40, NC44, NC46<br>NC50, 4 FH, 2 3/8" IF, 3 1/2" IF, 4 1/2" IF, 5 1/2" IF |
| API V 0.038R             | 4   | 3         | NC56, NC61, NC70, NC77                                                                                   |
| API V 0.040              | 5   | 3         | 2 3/8" REG, 2 7/8" REG, 3 1/2" REG, 4 1/2" REG<br>3 1/2" FH, 4 1/2" FH                                   |
| API V 0.050              | 4   | 3         | 5 1/2" REG, 7 5/8" REG, 8 5/8" REG                                                                       |
| API V 0.050              | 4   | 2         | 6 5/8" REG, 5 1/2" FH, 6 5/8" FH                                                                         |
| API V 0.055              | 6   | 1.5       | NC10, NC12, NC13, NC16                                                                                   |
| API V 0.065              | 4   | 2         | Superceded by API V 0.038R                                                                               |

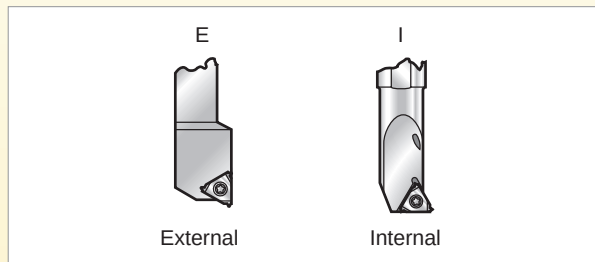


| API Rotary Connections           |     |      |                    |                      |                     |
|----------------------------------|-----|------|--------------------|----------------------|---------------------|
| API Connections                  | TPI | TPF  | API Code           | Stellram Part Number | Catalog Page Number |
| API Number                       |     |      |                    |                      |                     |
| NC10 - NC16                      | 6.0 | 1.5  | V-0.055            | 6API551.5            | -                   |
| NC23 - NC50                      | 4.0 | 2.0  | V-0.038R           | 4API382              | 238 - 239           |
| NC56 -NC77                       | 4.0 | 3.0  | V-0.038R           | 4API383              | 238 - 239           |
| API Regular                      |     |      |                    |                      |                     |
| 2 3/8 REG - 4 1/2 REG            | 5.0 | 3.0  | V-0.040            | 5API403              | 238 - 239           |
| 5 1/2 REG - 7 5/8 REG, 8 5/8 REG | 4.0 | 3.0  | V-0.050            | 4API503              | 238 - 239           |
| 6 5/8 REG                        | 4.0 | 2.0  | V-0.050            | 4API502              | 238 - 239           |
| Internal Flush                   |     |      |                    |                      |                     |
| 2 3/8 IF - 6 5/8 IF              | 4.0 | 2.0  | V-0.038R           | 4API382              | 238 - 239           |
| Full Hole                        |     |      |                    |                      |                     |
| 3 1/2 FH, 4 1/2 FH               | 5.0 | 3.0  | V-0.040            | 5API403              | 238 - 239           |
| 4FH                              | 4.0 | 2.0  | V-0.038R           | 4API382              | 238 - 239           |
| 5 1/2 FH, 6 5/8 FH               | 4.0 | 2.0  | V-0.050            | 4API502              | 238 - 239           |
| Hughes External Flush            |     |      |                    |                      |                     |
| 2 3/8, 2 7/8                     | 6.0 | 2.0  | Drawing On Request |                      | -                   |
| 3 1/2, 4 1/2                     | 4.0 | 2.0  | V-0.038R           | 4API382              | 238 - 239           |
| Hughes Xtra Hole                 |     |      |                    |                      |                     |
| 2 7/8 -5                         | 4.0 | 2.0  | V-0.038R           | 4API382              | 238 - 239           |
| Hughes Slim Hole                 |     |      |                    |                      |                     |
| 2 3/8 - 4 1/2                    | 4.0 | 2.0  | V-0.038R           | 4API382              | 238 - 239           |
| Hughes Double Streamline         |     |      |                    |                      |                     |
| 3 1/2 - 5 1/2                    | 4.0 | 2.0  | V-0.038R           | 4API382              | 238 - 239           |
| Hughes H90                       |     |      |                    |                      |                     |
| 3 1/2 - 6 5/8                    | 3.5 | 2.0  | Drawing On Request |                      | -                   |
| 7 - 8 5/8                        | 3.5 | 3    | Drawing On Request |                      | -                   |
| Hughes Slimline H90              |     |      |                    |                      |                     |
| 2 3/8 - 3 1/2                    | 3.0 | 1.25 | Drawing On Request |                      | -                   |
| PAC                              |     |      |                    |                      |                     |
| 2 3/8 PAC - 2 7/8 PAC            | 4.0 | 1.5  | -                  | 4 PAC                | -                   |

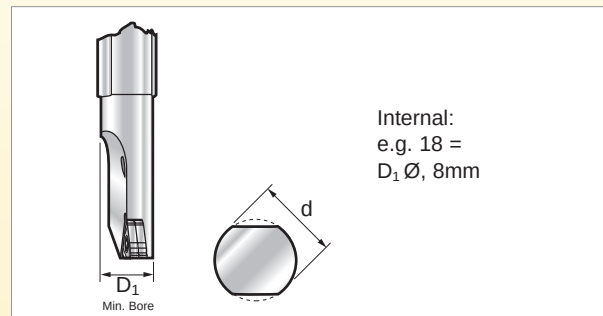


|          |          |          |          |           |           |          |           |          |
|----------|----------|----------|----------|-----------|-----------|----------|-----------|----------|
| External | <b>E</b> | <b>R</b> | <b>-</b> | <b>20</b> | <b>20</b> | <b>K</b> | <b>16</b> | <b>-</b> |
|          | 1        | 2        | 3        | 4         | 5         | 6        | 7         | 8        |
| Internal | <b>I</b> | <b>R</b> | <b>N</b> | <b>16</b> | <b>18</b> | <b>M</b> | <b>16</b> | <b>-</b> |

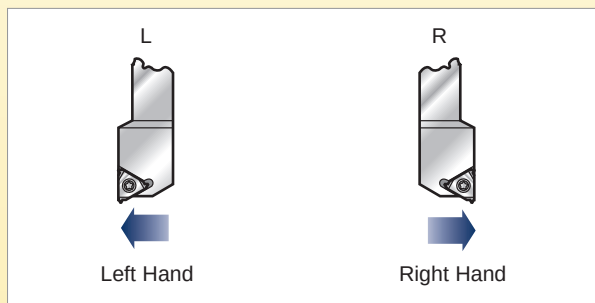
### 1 Utilisation



### 5 Minimum Bore Size (Internal)

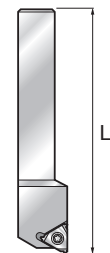


### 2 Hand



### 6 Tool Length

|         |         |
|---------|---------|
| D = 60  | Q = 180 |
| F = 80  | R = 200 |
| H = 100 | S = 250 |
| K = 125 | T = 300 |
| L = 140 | U = 350 |
| M = 150 | V = 400 |
| P = 170 |         |

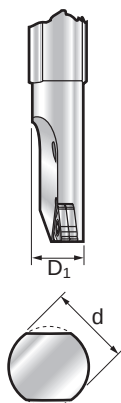


### 3 Option

N = No Anvil

### 4 Shank Size or Tool Diameter

4. Internal Shank Diameter  
e.g. 16 = d 16 mm

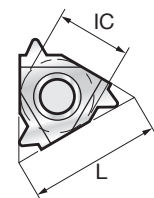


4 & 5. External Square Shank  
e.g. 2020 = 20 x 20mm

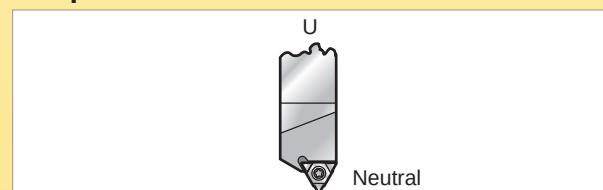


### 7 Insert Size

| L<br>mm | IC<br>Inch |
|---------|------------|
| 06      | 5/32       |
| 08      | 3/16       |
| 08U     | 3/16       |
| 11      | 1/4        |
| 16      | 3/8        |
| 22      | 1/2        |
| 22U     | 1/2U       |
| 27      | 5/8        |
| 27U     | 5/8U       |



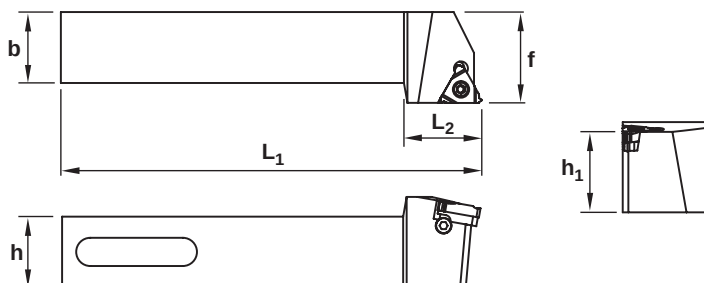
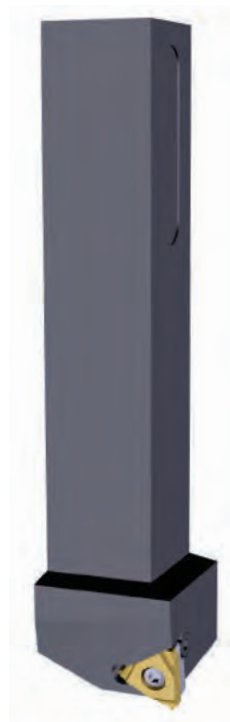
### 8 Option





## ER/EL 90°

Threading



| LH & RH External Square Shank Tool Holder |                  |      |                      |                 |    |    |     |    |            |            |
|-------------------------------------------|------------------|------|----------------------|-----------------|----|----|-----|----|------------|------------|
| EDP                                       | Item Description | Hand | Insert Sizes & Types | Dimensions (mm) |    |    |     |    | Anvil Type |            |
|                                           |                  |      |                      | h = h1          | b  | f  | L1  | L2 | Anvil      | Anvil Hand |
| 021548                                    | ERNM1010H11      | RH   | ER11                 | 10              | 10 | 14 | 100 | 13 | -          | -          |
| 025179                                    | ERN1010M16       | RH   | ER16                 | 10              | 10 | 13 | 150 | 19 | -          | -          |
| 021361                                    | EL1212F16        | LH   | EL16                 | 12              | 12 | 16 | 80  | 22 | YI3        |            |
| 021363                                    | EL1616H16        | LH   | EL16                 | 16              | 16 | 20 | 100 | 22 |            |            |
| 021365                                    | EL2020K16        | LH   | EL16                 | 20              | 20 | 25 | 125 | 27 |            |            |
| 021367                                    | EL2525M16        | LH   | EL16                 | 25              | 25 | 32 | 150 | 27 |            |            |
| 021369                                    | EL3232Q16        | LH   | EL16                 | 32              | 32 | 40 | 180 | 27 |            |            |
| 021362                                    | ER1212F16        | RH   | ER16                 | 12              | 12 | 16 | 80  | 22 | YE3        |            |
| 021364                                    | ER1616H16        | RH   | ER16                 | 16              | 16 | 20 | 100 | 22 |            |            |
| 021366                                    | ER2020K16        | RH   | ER16                 | 20              | 20 | 25 | 125 | 27 |            |            |
| 021368                                    | ER2525M16        | RH   | ER16                 | 25              | 25 | 32 | 150 | 27 |            |            |
| 021370                                    | ER3232Q16        | RH   | ER16                 | 32              | 32 | 40 | 180 | 27 |            |            |
| 021371                                    | EL2525M22        | LH   | EL22                 | 25              | 25 | 32 | 150 | 30 | YI4        |            |
| 021373                                    | EL3232Q22        | LH   | EL22                 | 32              | 32 | 40 | 180 | 30 |            |            |
| 021375                                    | EL4040R22        | LH   | EL22                 | 40              | 40 | 50 | 200 | 30 |            |            |
| 021372                                    | ER2525M22        | RH   | ER22                 | 25              | 25 | 32 | 150 | 30 | YE4        |            |
| 021374                                    | ER3232Q22        | RH   | ER22                 | 32              | 32 | 40 | 180 | 30 |            |            |
| 021376                                    | ER4040R22        | RH   | ER22                 | 40              | 40 | 50 | 200 | 30 |            |            |
| 021381                                    | EL3232Q27        | LH   | EL27                 | 32              | 32 | 40 | 180 | 35 | YI5        |            |
| 021383                                    | EL4040R27        | LH   | EL27                 | 40              | 40 | 50 | 200 | 35 |            |            |
| 021382                                    | ER3232Q27        | RH   | ER27                 | 32              | 32 | 40 | 180 | 35 | YE5        |            |
| 021384                                    | ER4040R27        | RH   | ER27                 | 40              | 40 | 50 | 200 | 35 |            |            |

Right Hand Toolholders and Inserts, Specify R = RH | Left Hand Toolholders and Inserts, Specify L = LH



Threading

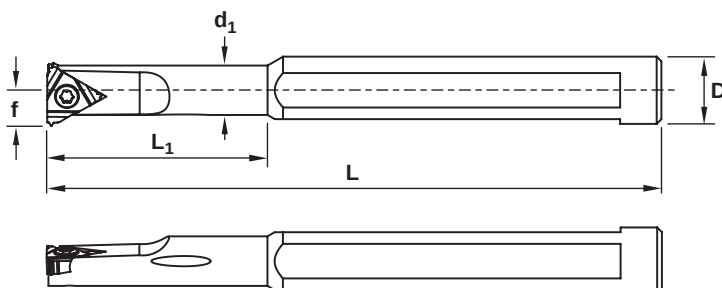
ER/EL 90° L/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-----------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|
| ERNM1010H11      | 015558              | SN2T                                                                              | 015554            | T8F                                                                               | -            | -                                                                                   | -                  | -                                                                                   |
| ERN1010M16       | 015560              | SA3T                                                                              | 023379            | T10F                                                                              | -            | -                                                                                   | -                  | -                                                                                   |
| EL 1212F16       | 015560              | SA3T                                                                              | 023379            | T10F                                                                              | 015389       | YI3                                                                                 | 015551             | SY3T                                                                                |
| EL 1616H16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| EL 2020K16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| EL 2525M16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| EL 3232Q16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER 1212F16       | 015560              | SA3T                                                                              | 023379            | T10F                                                                              | 015447       | YE3                                                                                 | 015551             | SY3T                                                                                |
| ER 1616H16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER 2020K16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER 2525M16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER 3232Q16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| EL2525M22        | 015561              | SA4T                                                                              | 015556            | T20F                                                                              | 015483       | YI4                                                                                 | 015552             | SY4T                                                                                |
| EL3232Q22        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| EL4040R22        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER2525M22        | 015561              | SA4T                                                                              | 015556            | T20F                                                                              | 015463       | YE4                                                                                 | 015552             | SY4T                                                                                |
| ER3232Q22        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER4040R22        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| EL3232Q27        | 015562              | SA5T                                                                              | 015557            | T25F                                                                              | 015523       | YI5                                                                                 | 015553             | SY5T                                                                                |
| EL4040R27        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER3232Q27        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| ER4040R27        | 015562              | SA5T                                                                              | 015557            | T25F                                                                              | 015503       | YE5                                                                                 | 015553             | SY5T                                                                                |



IR 90°

Threading



IR LH & RH Internal Boring Bars

| IR LH & RH Internal Boring Bars |                  |      |                      |                        |    |                |       |     |                |                                                                                       |
|---------------------------------|------------------|------|----------------------|------------------------|----|----------------|-------|-----|----------------|---------------------------------------------------------------------------------------|
| EDP                             | Item Description | Hand | Insert Sizes & Types | Dimensions (mm)        |    |                |       |     |                |                                                                                       |
|                                 |                  |      |                      | Min Bore Thread<br>Ø A | ØD | d <sub>1</sub> | f     | L   | L <sub>1</sub> | Through<br>Coolant                                                                    |
| 021394                          | IRN1206H06       | IR   | 06IR                 | 6                      | 12 | 5,80           | 4,20  | 100 | 13             |    |
| 021396                          | IRN1608K08       | IR   | 08IR                 | 8                      | 16 | 6,30           | 5,10  | 125 | 17             |    |
| 021400                          | IRN1610K08       | IR   | 08IR                 | 10                     | 16 | 7,80           | 6     | 125 | 17             |    |
| 021402                          | IRN1013K11       | IR   | 11IR                 | 13                     | 10 | 9,50           | 7,30  | 125 | 25             |    |
| 023231                          | IRN2013M11       | IR   | 11IR                 | 13                     | 20 | 10             | 7,30  | 150 | 25             |   |
| 021406                          | IRN1616M11       | IR   | 11IR                 | 16                     | 16 | 12,50          | 8,90  | 150 | 40             |  |
| 021408                          | IRN1618M16       | IR   | 16IR                 | 18                     | 16 | 12             | 9,40  | 150 | 40             |  |
| 021410                          | IRN2021Q16       | IR   | 16IR                 | 21                     | 20 | 15,80          | 12,40 | 180 | 40             |  |
| 021412                          | IR2024Q16        | IR   | 16IR                 | 24                     | 20 | 18,50          | 13    | 180 | 50             |  |
| 021414                          | IR2529R16        | IR   | 16IR                 | 29                     | 25 | 24             | 16    | 200 | 60             |  |
| 021416                          | IR3236S16        | IR   | 16IR                 | 36                     | 32 | 31,50          | 19,60 | 250 | 60             |  |
| 021418                          | IR4044T16        | IR   | 16IR                 | 44                     | 40 | 40             | 23,80 | 300 | -              |  |
| 021422                          | IRN2027Q22       | IR   | 22IR                 | 27                     | 20 | 20             | 15,60 | 180 | -              |  |
| 021424                          | IR2532R22        | IR   | 22IR                 | 32                     | 25 | 24,50          | 17,80 | 200 | -              |  |
| 021426                          | IR3239S22        | IR   | 22IR                 | 39                     | 32 | 32             | 21,50 | 250 | -              |  |
| 021428                          | IR4047T22        | IR   | 22IR                 | 47                     | 40 | 40             | 25,80 | 300 | -              |  |
| 021446                          | IR3240S27        | IR   | 27IR                 | 40                     | 32 | 32             | 22,40 | 250 | -              |  |
| 021448                          | IR4048T27        | IR   | 27IR                 | 48                     | 40 | 40             | 26,40 | 300 | -              |  |

IL = Left Hand Tooling is available on request





Threading

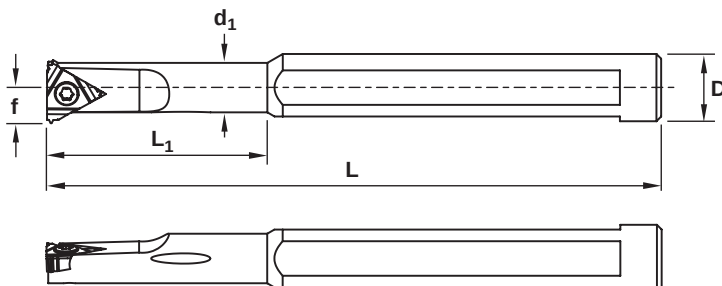
IR 90° L/R Spare Parts

| Item Description | Insert Screw<br>EDP |  | Insert Key<br>EDP |  | Anvil<br>EDP |  | Anvil Screw<br>EDP |  |
|------------------|---------------------|-----------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|
| IR1206H06        | 015563              | S6T                                                                               | 018487            | T6                                                                                | -            | -                                                                                   | -                  | -                                                                                   |
| IRN1608K08       | 015564              | S8T                                                                               | 018487            | T6                                                                                | -            | -                                                                                   | -                  | -                                                                                   |
| IRN1610K08       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IRN1013K11       | 015558              | SN2T                                                                              | 015554            | T8F                                                                               | -            | -                                                                                   | -                  | -                                                                                   |
| IRN2013M11       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IRN1616M11       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IRN1618M16       | 015560              | SA3T                                                                              | 023379            | T10F                                                                              | -            | -                                                                                   | -                  | -                                                                                   |
| IRN2021Q16       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IR2024Q16        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IR2529R16        | 015560              | SA3T                                                                              | 023379            | T10F                                                                              | 015389       | YI3                                                                                 | 015551             | SY3T                                                                                |
| IR3236S16        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IR4044T16        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IRN2027Q22       |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IR2532R22        | 015561              | SA4T                                                                              | 015556            | T20F                                                                              | 015483       | YI4                                                                                 | 015552             | SY4T                                                                                |
| IR3239S22        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IR4047T22        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IR3240S27        |                     |                                                                                   |                   |                                                                                   |              |                                                                                     |                    |                                                                                     |
| IR4048T27        | 015562              | SA5T                                                                              | 015557            | T25F                                                                              | 015523       | YI5                                                                                 | 015553             | SY5T                                                                                |



## IR 90° CF Anti Vibration

Threading



IR LH & RH Internal Boring Bars

| EDP    | Item Description | Hand | Insert Sizes & Types | Dimensions (imm)       |    |                |       |     |                |                                                                                     |
|--------|------------------|------|----------------------|------------------------|----|----------------|-------|-----|----------------|-------------------------------------------------------------------------------------|
|        |                  |      |                      | Min Bore Thread<br>Ø A | ØD | d <sub>1</sub> | f     | L   | L <sub>1</sub> | Through Coolant                                                                     |
| 021540 | IRN1206H06CF     | IR   | 06IR                 | 6                      | 12 | 5.80           | 4.20  | 100 | 18             |  |
| 021498 | IRN1608H08CF     | IR   | 08IR                 | 8                      | 16 | 6.30           | 5.10  | 100 | 23             |  |
| 021502 | IRN1610H08CF     | IR   | 08IR                 | 10                     | 16 | 8.10           | 6     | 100 | 23             |  |
| 021504 | IRN1013H11CF     | IR   | 11IR                 | 13                     | 10 | 9.50           | 7.30  | 100 | 33             |  |
| 021506 | IRN1616M11CF     | IR   | 11IR                 | 16                     | 16 | 12.50          | 8.90  | 150 | 53             |  |
| 021508 | IRN1618M16CF     | IR   | 16IR                 | 18                     | 16 | 12             | 9.40  | 150 | 53             |  |
| 021510 | IRN2021M16CF     | IR   | 16IR                 | 21                     | 20 | 15.80          | 12.40 | 150 | 53             |  |
| 021512 | IR2024R16CF      | IR   | 16IR                 | 24                     | 20 | 18.50          | 13    | 200 | 67             |  |

IL = Left Hand Tooling is available on request | CF = Chatter Free

IR 90° CF Spare Parts

| Item Description | Insert Screw EDP |      | Insert Key EDP |      | Anvil EDP |     | Anvil Screw EDP |      |
|------------------|------------------|------|----------------|------|-----------|-----|-----------------|------|
| IRN1206H06CF     | 015563           | S6T  | 018487         | T6   | -         | -   | -               | -    |
| IRN1608H08CF     | 015564           | S8T  | 018487         | T6   | -         | -   | -               | -    |
| IRN1610H08CF     |                  |      |                |      |           |     |                 |      |
| IRN1013H11CF     | 015558           | SN2T | 015554         | T8F  | -         | -   | -               | -    |
| IRN1616M11CF     |                  |      |                |      |           |     |                 |      |
| IRN1618M16CF     | 015560           | SA3T | 023379         | T10F | -         | -   | -               | -    |
| IRN2021M16CF     |                  |      |                |      |           |     |                 |      |
| IR2024R16CF      | 015560           | SA3T | 023379         | T10F | 015389    | Y13 | 015551          | SY3T |

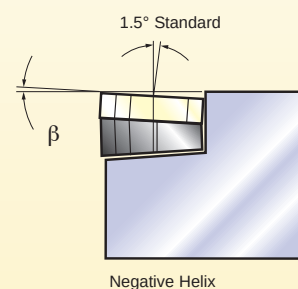
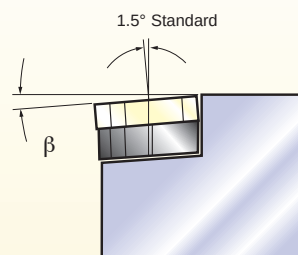


With the Stellram threading system, a wide range of thread helix angles can be obtained without changing or modifying toolholders. This is obtained by simply changing the carbide anvil.

Most toolholders are produced with 1.5° helix machined into the body. These tools are supplied with this angle as standard.

Interchangeable anvils allow helix variations between +4.5° and -1.5° with the insert cutting edge remaining constant.

Negative helix angles are used for producing right hand threads with left hand holders or left hand threads with right hand holders.



|             |      |               | β Helix Angle      |        |        |      |        |          |        |        |
|-------------|------|---------------|--------------------|--------|--------|------|--------|----------|--------|--------|
| Insert size |      | Toolholder    | 4.5°               | 3.5°   | 2.5°   | 1.5° | 0.5°   | 0°       | -0.5°  | -1.5°  |
| mm          | Inch |               | Anvil Part Numbers |        |        |      |        |          |        |        |
| 16          | 3/8" | EX RH / IN LH | YE33P              | YE32P  | YE31P  | YE3  | YE31N  | YE31.5N  | YE32N  | YE33N  |
|             |      | EX LH / IN RH | YI33P              | YI32P  | YI31P  | YI3  | YI31N  | YI31.5N  | YI32N  | YI33N  |
| 22          | 1/2" | EX RH / IN LH | YE43P              | YE42P  | YE41P  | YE4  | YE41N  | YE41.5N  | YE42N  | YE43N  |
|             |      | EX LH / IN RH | YI43P              | YI42P  | YI41P  | YI4  | YI41N  | YI41.5N  | YI42N  | YI43N  |
| 22U         | 1/2" | EX RH / IN LH | YE4U3P             | YE4U2P | YE4U1P | YE4U | YE4U1N | YE4U1.5N | YE4U2N | YE4U3N |
|             |      | EX LH / IN RH | YI4U3P             | YI4U2P | YI4U1P | YI4U | YI4U1N | YI4U1.5N | YI4U2N | YI4U3N |
| 27          | 5/8" | EX RH / IN LH | YE53P              | YE52P  | YE51P  | YE5  | YE51N  | YE51.5N  | YE52N  | YE53N  |
|             |      | EX LH / IN RH | YI53P              | YI52P  | YI51P  | YI5  | YI51N  | YI51.5N  | YI52N  | YI53N  |
| 27U         | 5/8" | EX RH / IN LH | YE5U3P             | YE5U2P | YE5U1P | YE5U | YE5U1N | YE5U1.5N | YE5U2N | YE5U3N |
|             |      | EX LH / IN RH | YI5U3P             | YI5U2P | YI5U1P | YI5U | YI5U1N | YI5U1.5N | YI5U2N | YI5U3N |

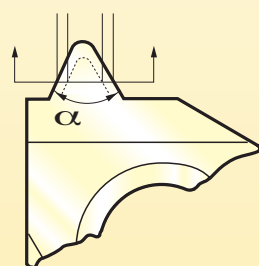
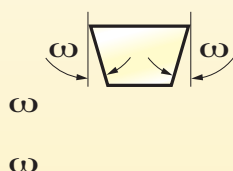
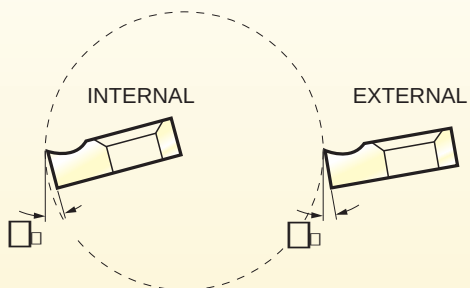
Note: Standard toolholders are supplied with 1.5° helix angle as standard.

#### Calculation of thread helix angle for a given thread

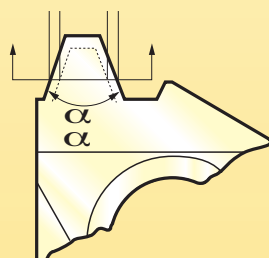
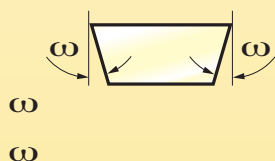
$$\text{Helix angle} - \tan^{-1} \theta = \frac{\text{Lead of the Thread}}{\text{Pitch/Effective Diameter} \times \pi}$$



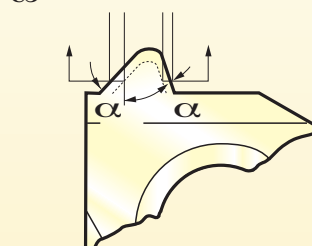
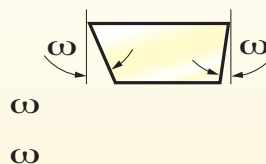
## Flank Clearance Angle Selection



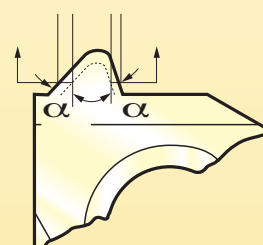
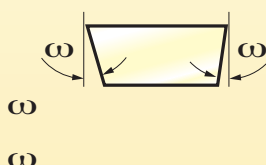
ISO  
UN  
PARTIAL 60°  
NPT



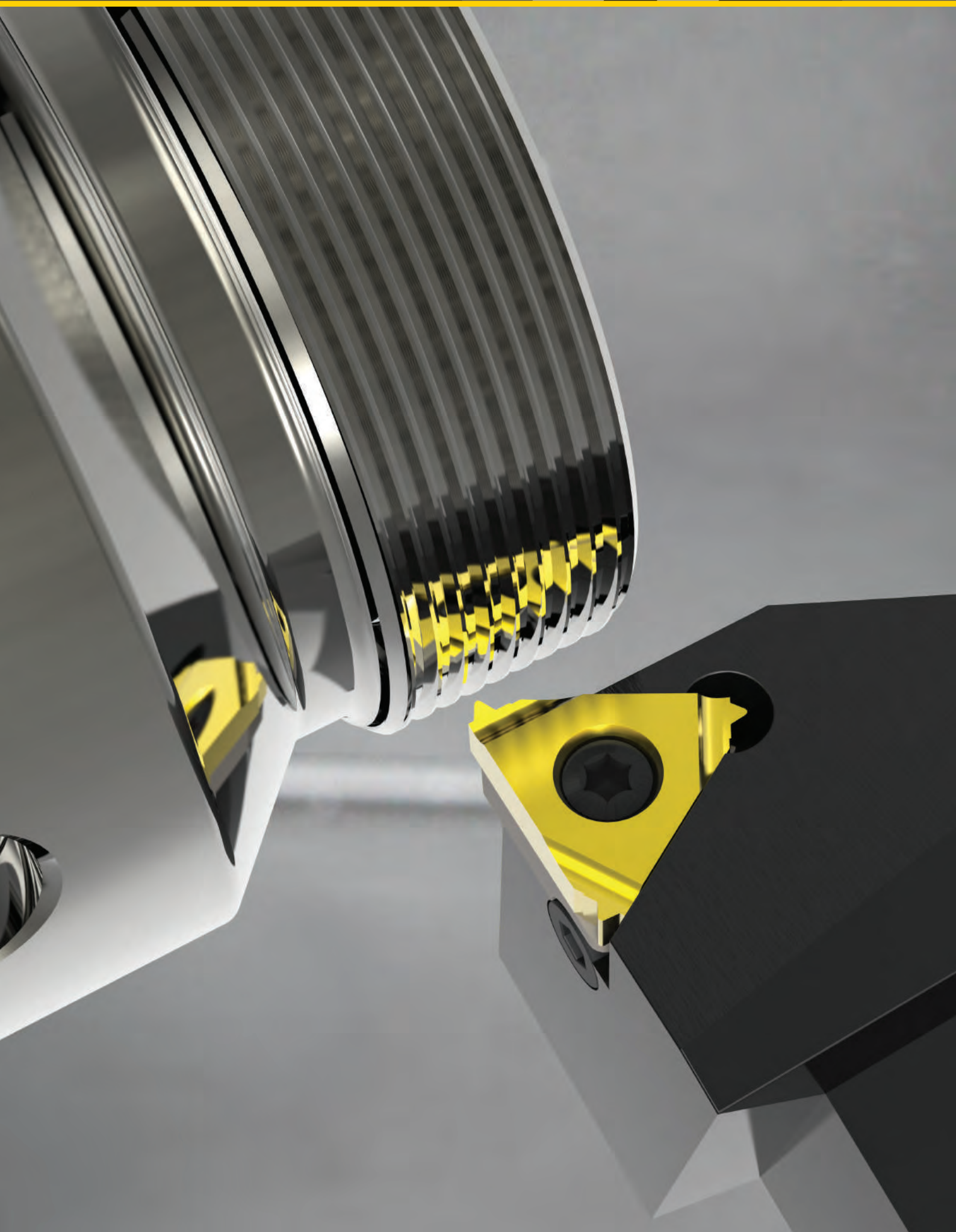
TRAPEZOIDAL  
ACME  
STUB ACME



AMERICAN BUTTRESS

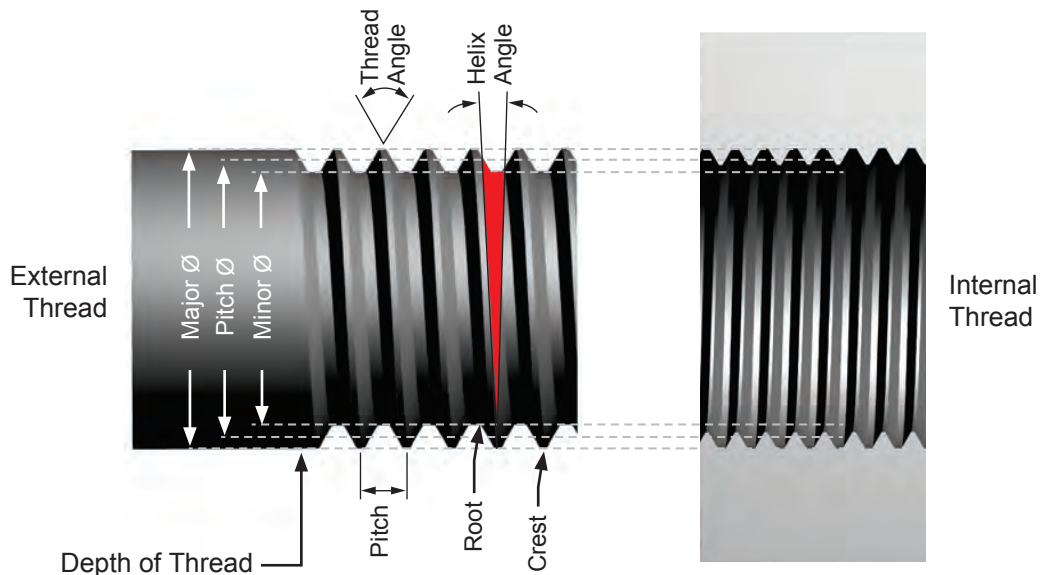


SAGE (DIN 513)





## Depth of Thread



### Depth of Thread

The distance between the Crest and Root.

### Pitch

The distance between two thread form peaks, defined as TPI (thread per inch) in millimeters or as an inch decimal.

### Pitch or Effective Diameter

Is where the theoretical cylinder diameter cuts the thread form, when the thread form width and groove depth are equal, applies to parallel/straight threads forms only.

### Helix Angle: (Parallel/Straight Thread Forms)

Where the lead of the thread and the pitch diameter cylinder form a right angle triangle. The helix angle is the angle opposite the lead.

### Major Diameter

The largest diameter of the thread form.

### Minor or Root Diameter

The smallest diameter of the thread form.

### Thread Angle

The included angle between the individual flanks.

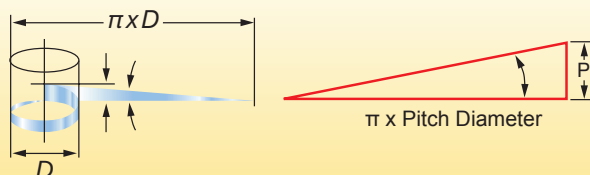
### Root

The inner most surface of the thread, connecting the flanks.

### Crest

The outer most surface of the thread, connecting the flanks.

## Helix Angle

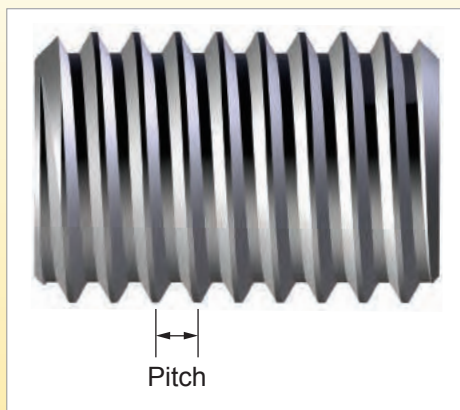


$D$  = Pitch/Effective Diameter  
 $P$  = Pitch or Lead  
 $\phi$  = Helix Angle



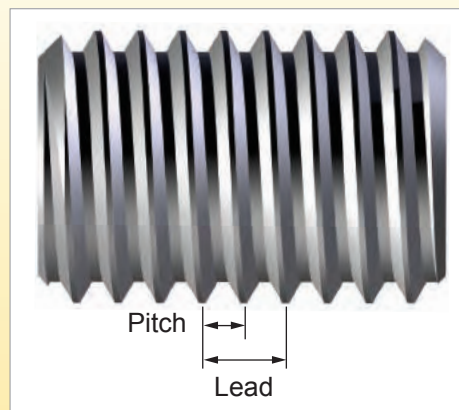


### Pitch & Lead with Multi Start Thread



#### **Pitch =**

Axial distance from one thread point to the corresponding point on the next form

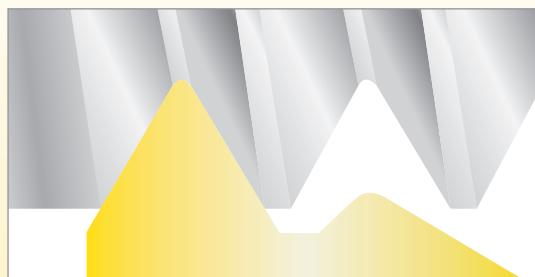


#### **Lead =**

Pitch x Number of starts  
Or the distance travelled in one rotation of the work-piece

#### **Example for two start thread**

### Threading Insert Profile Types

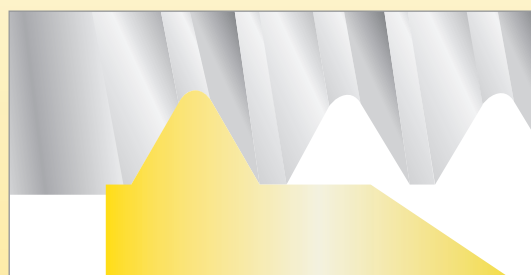


#### **Partial Profile**

The partial profile insert does not crest or top the outer diameter of the thread profile but, can be used on multi thread pitches with the same thread angle.

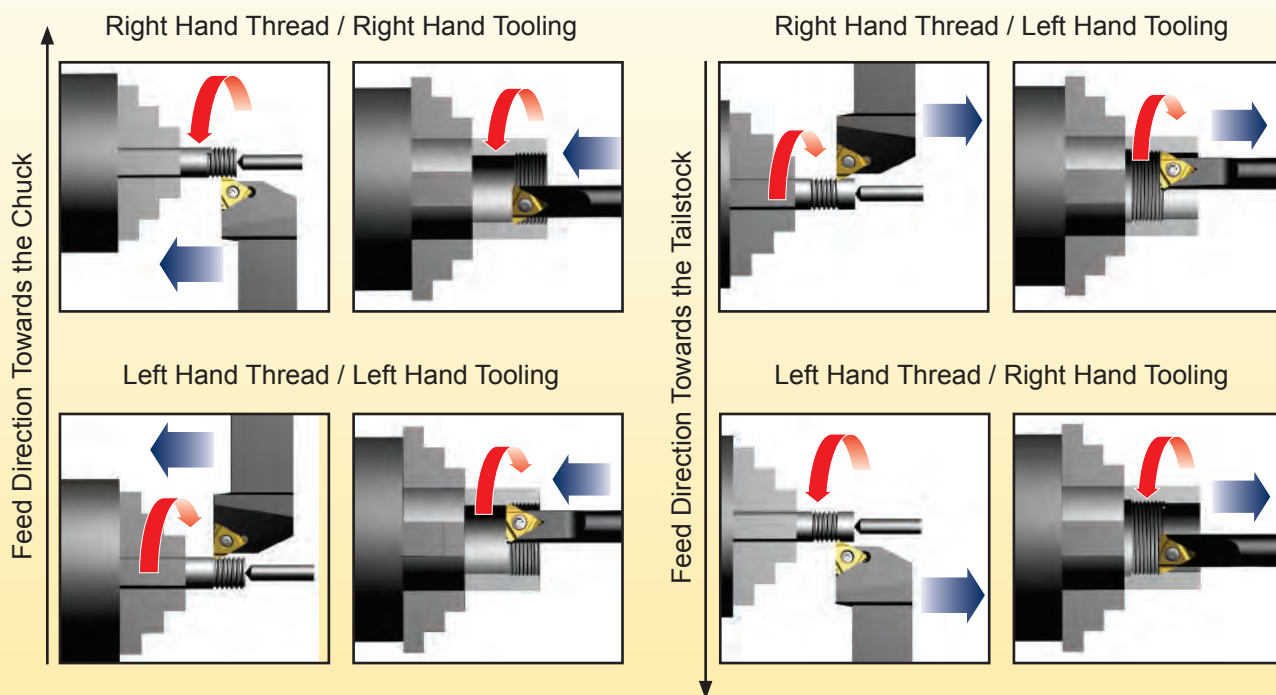
#### **Full Profile**

The full form insert controls the complete thread profile by cresting/topping the form. A different insert is required for each pitch.





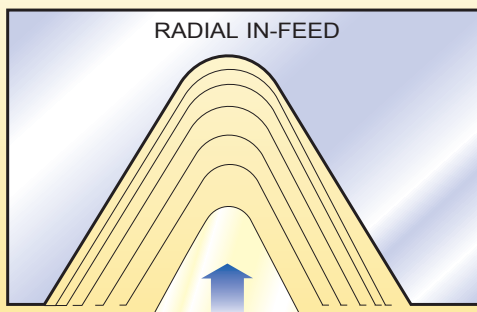
### Direction of cut using LH & RH Tooling





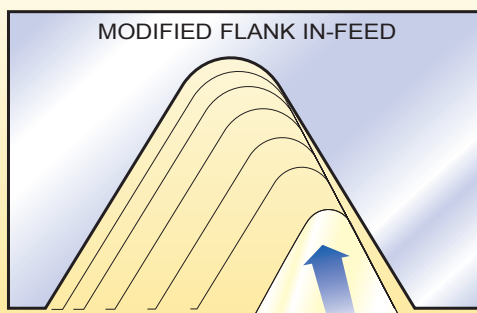


### Radial In-Feed



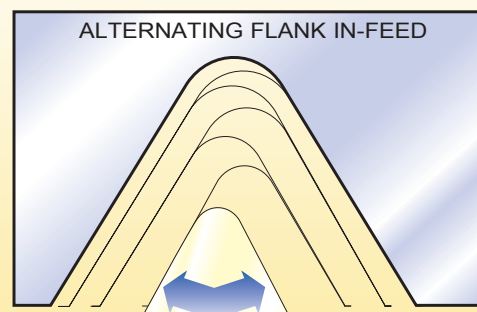
- Most commonly used method on manual lathes.
- Equal wear on leading and trailing edge.
- Good surface finish on trailing edge.
- Use on work hardening materials.
- Use on short chipping materials.
- For pitches of less than 1,5mm or 16 T.P.I.

### Modified Flank In-Feed



- For threads greater than 1,5mm or 16 T.P.I.
- Reduced cutting pressure on larger pitches.
- Reduced chatter.
- Directs chip away from the cutting edge.
- Displaced in-feed angle improves surface finish.
- First choice for internal threading.

### Alternating Flank In-Feed



- Recommended for large pitches, square ACME and trapezoidal forms.
- Recommended for long chipping materials.
- Method divides the work between both flanks.
- Results in equal wear.
- Less cutting pressure.
- Not available on all lathes.



### Helix Angle Calculation (mm)

| Outside Diameter<br>mm | Pitch                              |          |          |          |          |          |          |          |          |
|------------------------|------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
|                        | 1                                  | 1,25     | 1,5      | 1,75     | 2        | 3        | 4        | 5        | 6        |
|                        | Helix Angles (Degrees and Minutes) |          |          |          |          |          |          |          |          |
| 5                      | 3° - 38'                           | 4° - 33' | 5° - 27' | -        | -        | -        | -        | -        | -        |
| 6                      | 3° - 2'                            | 3° - 48' | 4° - 33' | 5° - 18' | 6° - 33' | -        | -        | -        | -        |
| 8                      | 2° - 17'                           | 2° - 51' | 3° - 25' | 3° - 59' | 4° - 33' | 6° - 49' | -        | -        | -        |
| 10                     | 1° - 49'                           | 2° - 16' | 2° - 44' | 3° - 11' | 3° - 39' | 5° - 27' | -        | -        | -        |
| 12                     | 1° - 31'                           | 1° - 54' | 2° - 17' | 2° - 39' | 3° - 2'  | 4° - 33' | -        | -        | -        |
| 14                     | 1° - 18'                           | 1° - 38' | 1° - 57' | 2° - 17' | 2° - 36' | 3° - 54' | -        | -        | -        |
| 16                     | 1° - 8'                            | 1° - 42' | 1° - 42' | 2° - 0'  | 2° - 17' | 3° - 25' | -        | -        | -        |
| 18                     | 1° - 1'                            | 1° - 16' | 1° - 31' | 1° - 46' | 2° - 2'  | 3° - 2'  | 4° - 3'  | -        | -        |
| 20                     | 55'                                | 1° - 8'  | 1° - 22' | 1° - 36' | 1° - 49' | 2° - 44' | 3° - 39' | -        | -        |
| 25                     | 44'                                | 55'      | 1° - 6'  | 1° - 16' | 1° - 28' | 2° - 11' | 2° - 55' | -        | -        |
| 30                     | 36'                                | 46'      | 55'      | 1° - 4'  | 1° - 13' | 1° - 49' | 2° - 26' | 3° - 2'  | 3° - 39' |
| 35                     | 31'                                | 39'      | 47'      | 55'      | 1° - 3'  | 1° - 33' | 2° - 5'  | 2° - 36' | 3° - 8'  |
| 40                     | 27'                                | 34'      | 41'      | 48'      | 55'      | -        | 1° - 49' | 2° - 17' | 2° - 44' |
| 45                     | 24'                                | 30'      | 36'      | 43'      | 48'      | 1° - 13' | 1° - 37' | 2° - 2'  | 2° - 26' |
| 50                     | -                                  | -        | -        | 38'      | 44'      | 1° - 6'  | 1° - 28' | 1° - 49' | 2° - 11' |
| 60                     | -                                  | -        | -        | -        | 36'      | 55'      | 1° - 13' | 1° - 31' | 1° - 49' |
| 70                     | -                                  | -        | 23'      | -        | 31'      | 47'      | 1° - 3'  | 1° - 18' | 1° - 34' |
| 80                     | -                                  | -        | -        | -        | -        | 41'      | 55'      | 1° - 8'  | 1° - 22' |
| 90                     | -                                  | -        | -        | 21'      | 24'      | 36'      | 48'      | 1° - 1'  | 1° - 13' |

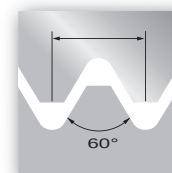
### Calculation of thread helix angle for a given Thread

$$\text{Helix angle} - \tan^{-1} \theta = \frac{\text{Lead of the Thread}}{\text{Pitch} / \text{Effective Diameter} \times \pi}$$



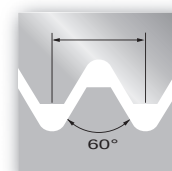
## Threading

The table below provides recommendations for depths of cut for the different passes. These recommendations are intended as starting values for machining in steel and include stock 0,020mm - 0,075mm above crest. The suitable number of passes must be determined by optimum trials.



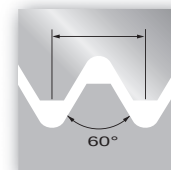
| I.S.O Metric (ISO) 60°, External (mm) |                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Number of Passes                      | Pitch (mm)                   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                       | 0,5                          | 0,75  | 0,8   | 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   |
|                                       | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1                                     | 0,102                        | 0,178 | 0,178 | 0,178 | 0,178 | 0,229 | 0,229 | 0,254 | 0,279 | 0,279 | 0,330 | 0,330 | 0,381 | 0,406 | 0,432 | 0,457 |
| 2                                     | 0,102                        | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,203 | 0,229 | 0,254 | 0,254 | 0,305 | 0,330 | 0,330 | 0,381 | 0,406 | 0,432 |
| 3                                     | 0,076                        | 0,102 | 0,127 | 0,127 | 0,152 | 0,178 | 0,152 | 0,178 | 0,203 | 0,203 | 0,254 | 0,254 | 0,279 | 0,330 | 0,330 | 0,356 |
| 4                                     | 0,076                        | 0,076 | 0,076 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,229 | 0,229 | 0,279 | 0,279 | 0,305 |
| 5                                     | 0,356                        | 0,508 | 0,533 | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,229 | 0,229 | 0,229 | 0,279 |
| 6                                     |                              |       |       | 0,660 | 0,076 | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,178 | 0,178 | 0,203 | 0,229 | 0,229 | 0,229 |
| 7                                     |                              |       |       |       | 0,813 | 0,965 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,178 | 0,203 | 0,203 | 0,229 |
| 8                                     |                              |       |       |       |       |       | 0,076 | 0,076 | 0,102 | 0,127 | 0,152 | 0,152 | 0,178 | 0,178 | 0,178 | 0,203 |
| 9                                     |                              |       |       |       |       |       | 1,143 | 1,270 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 |
| 10                                    |                              |       |       |       |       |       |       |       | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,178 | 0,178 | 0,178 |
| 11                                    |                              |       |       |       |       |       |       |       | 1,600 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 |
| 12                                    |                              |       |       |       |       |       |       |       |       | 0,076 | 0,076 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 |
| 13                                    |                              |       |       |       |       |       |       |       |       | 1,880 | 2,210 | 0,102 | 0,127 | 0,127 | 0,127 | 0,152 |
| 14                                    |                              |       |       |       |       |       |       |       |       |       |       | 0,076 | 0,102 | 0,102 | 0,127 | 0,152 |
| 15                                    |                              |       |       |       |       |       |       |       |       |       |       | 2,515 | 2,819 | 3,124 | 0,127 | 0,127 |
| 16                                    |                              |       |       |       |       |       |       |       |       |       |       |       |       |       | 0,102 | 0,102 |
|                                       |                              |       |       |       |       |       |       |       |       |       |       |       |       |       | 3,429 | 3,734 |

Last pass equals total depth of thread.



| I.S.O Metric (ISO) 60°, Internal (mm) |                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|---------------------------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Number of Passes                      | Pitch (mm)                   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|                                       | 0,5                          | 0,75  | 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   |  |
|                                       | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| 1                                     | 0,102                        | 0,178 | 0,178 | 0,203 | 0,254 | 0,229 | 0,254 | 0,279 | 0,279 | 0,305 | 0,330 | 0,356 | 0,381 | 0,381 | 0,406 |  |
| 2                                     | 0,102                        | 0,127 | 0,152 | 0,178 | 0,203 | 0,203 | 0,229 | 0,229 | 0,229 | 0,279 | 0,305 | 0,330 | 0,356 | 0,356 | 0,406 |  |
| 3                                     | 0,076                        | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,229 | 0,229 | 0,279 | 0,305 | 0,305 | 0,356 |  |
| 4                                     | 0,076                        | 0,076 | 0,102 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,203 | 0,203 | 0,229 | 0,254 | 0,254 | 0,279 |  |
| 5                                     | 0,356                        | 0,483 | 0,076 | 0,102 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,229 | 0,229 | 0,229 |  |
| 6                                     |                              |       | 0,610 | 0,076 | 0,076 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,203 | 0,203 | 0,229 |  |
| 7                                     |                              |       |       | 0,787 | 0,889 | 0,102 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 |  |
| 8                                     |                              |       |       |       |       | 0,076 | 0,076 | 0,102 | 0,102 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 |  |
| 9                                     |                              |       |       |       |       | 1,092 | 1,219 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 |  |
| 10                                    |                              |       |       |       |       |       |       | 0,076 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 |  |
| 11                                    |                              |       |       |       |       |       |       | 1,499 | 0,102 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 |  |
| 12                                    |                              |       |       |       |       |       |       |       | 0,076 | 0,076 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 |  |
| 13                                    |                              |       |       |       |       |       |       |       | 1,778 | 2,057 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 |  |
| 14                                    |                              |       |       |       |       |       |       |       |       |       | 0,076 | 0,102 | 0,102 | 0,127 | 0,152 |  |
| 15                                    |                              |       |       |       |       |       |       |       |       |       | 2,337 | 2,642 | 2,896 | 0,127 | 0,127 |  |
| 16                                    |                              |       |       |       |       |       |       |       |       |       |       |       |       | 0,102 | 0,102 |  |
|                                       |                              |       |       |       |       |       |       |       |       |       |       |       |       | 3,200 | 3,454 |  |

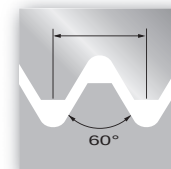
Last pass equals total depth of thread.



### UNIFIED (UN) 60°, External (mm)

| Number of<br>Passes | T.P.I.                       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     | 32                           | 28    | 24    | 20    | 18    | 16    | 14    | 13    | 12    | 11    | 10    | 9     | 8     | 7     | 6     | 5     | 4.5   | 4     |       |
|                     | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1                   | 0,178                        | 0,178 | 0,178 | 0,203 | 0,229 | 0,229 | 0,229 | 0,254 | 0,279 | 0,279 | 0,279 | 0,279 | 0,305 | 0,356 | 0,356 | 0,432 | 0,406 | 0,483 |       |
| 2                   | 0,152                        | 0,152 | 0,178 | 0,178 | 0,203 | 0,203 | 0,229 | 0,229 | 0,229 | 0,254 | 0,229 | 0,229 | 0,254 | 0,330 | 0,330 | 0,406 | 0,381 | 0,432 |       |
| 3                   | 0,127                        | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,203 | 0,203 | 0,203 | 0,229 | 0,254 | 0,254 | 0,330 | 0,330 | 0,356 |       |
| 4                   | 0,076                        | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,178 | 0,178 | 0,229 | 0,229 | 0,279 | 0,279 | 0,330 |       |
| 5                   | 0,533                        | 0,076 | 0,076 | 0,102 | 0,127 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,229 | 0,254 | 0,305 |       |
| 6                   |                              | 0,635 | 0,711 | 0,076 | 0,076 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,229 | 0,229 | 0,254 |       |
| 7                   |                              |       |       | 0,838 | 0,940 | 0,076 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,203 | 0,203 | 0,229 |       |
| 8                   |                              |       |       |       |       | 1,041 | 0,076 | 0,076 | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,203 | 0,229 |       |
| 9                   |                              |       |       |       |       |       | 1,194 | 1,270 | 1,372 | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,178 | 0,178 | 0,229 |       |
| 10                  |                              |       |       |       |       |       |       |       |       | 1,499 | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,178 | 0,178 | 0,203 |       |
| 11                  |                              |       |       |       |       |       |       |       |       |       | 1,651 | 0,076 | 0,102 | 0,102 | 0,152 | 0,178 | 0,152 | 0,178 |       |
| 12                  |                              |       |       |       |       |       |       |       |       |       |       | 1,778 | 0,076 | 0,076 | 0,127 | 0,152 | 0,152 | 0,178 |       |
| 13                  |                              |       |       |       |       |       |       |       |       |       |       |       | 2,032 | 2,286 | 0,102 | 0,127 | 0,152 | 0,152 |       |
| 14                  |                              |       |       |       |       |       |       |       |       |       |       |       |       |       | 0,102 | 0,102 | 0,152 | 0,152 |       |
| 15                  |                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 2,667 | 3,200 | 0,152 | 0,127 |
| 16                  |                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 0,127 | 0,102 |
|                     |                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 3,531 | 3,937 |

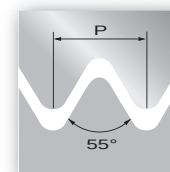
Last pass equals total depth of thread.



### UNIFIED (UN) 60°, Internal (mm)

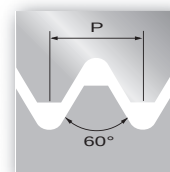
| Number of<br>Passes | T.P.I.                       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     | 32                           | 28    | 24    | 20    | 18    | 16    | 14    | 13    | 12    | 11    | 10    | 9     | 8     | 7     | 6     | 5     | 4.5   | 4     |
|                     | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1                   | 0,178                        | 0,178 | 0,178 | 0,203 | 0,229 | 0,229 | 0,229 | 0,254 | 0,279 | 0,279 | 0,279 | 0,279 | 0,305 | 0,330 | 0,356 | 0,406 | 0,406 | 0,457 |
| 2                   | 0,152                        | 0,152 | 0,152 | 0,178 | 0,178 | 0,178 | 0,203 | 0,229 | 0,229 | 0,229 | 0,229 | 0,229 | 0,279 | 0,305 | 0,330 | 0,356 | 0,406 | 0,432 |
| 3                   | 0,102                        | 0,102 | 0,152 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,152 | 0,178 | 0,203 | 0,229 | 0,229 | 0,305 | 0,330 | 0,356 |
| 4                   | 0,076                        | 0,102 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,203 | 0,203 | 0,254 | 0,254 | 0,305 |
| 5                   | 0,508                        | 0,076 | 0,076 | 0,102 | 0,102 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,229 | 0,229 | 0,254 |
| 6                   |                              | 0,610 | 0,660 | 0,076 | 0,076 | 0,102 | 0,102 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,152 | 0,203 | 0,203 | 0,229 |
| 7                   |                              |       |       | 0,787 | 0,864 | 0,076 | 0,102 | 0,102 | 0,102 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,178 | 0,178 | 0,229 |
| 8                   |                              |       |       |       |       | 0,940 | 0,076 | 0,076 | 0,076 | 0,102 | 0,102 | 0,102 | 0,102 | 0,152 | 0,152 | 0,178 | 0,178 | 0,178 |
| 9                   |                              |       |       |       |       |       | 1,118 | 1,194 | 1,245 | 0,076 | 0,102 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,178 | 0,178 |
| 10                  |                              |       |       |       |       |       |       |       |       | 1,397 | 0,076 | 0,102 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,178 |
| 11                  |                              |       |       |       |       |       |       |       |       |       | 1,499 | 0,076 | 0,102 | 0,102 | 0,127 | 0,152 | 0,152 | 0,178 |
| 12                  |                              |       |       |       |       |       |       |       |       |       |       | 1,651 | 0,076 | 0,076 | 0,102 | 0,152 | 0,152 | 0,152 |
| 13                  |                              |       |       |       |       |       |       |       |       |       |       |       | 1,880 | 2,134 | 0,102 | 0,127 | 0,152 | 0,152 |
| 14                  |                              |       |       |       |       |       |       |       |       |       |       |       |       |       | 0,102 | 0,102 | 0,127 | 0,152 |
| 15                  |                              |       |       |       |       |       |       |       |       |       |       |       |       |       | 2,464 | 2,946 | 0,127 | 0,127 |
| 16                  |                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 0,102 | 0,102 |
|                     |                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 3,277 | 3,658 |

Last pass equals total depth of thread.



| Whitworth (mm)               |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Number of Passes             | T.P.I. |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                              | 28     | 26    | 20    | 19    | 18    | 16    | 14    | 12    | 11    | 10    | 9     | 8     | 7     | 6     | 5     | 4     |
| Radial in-feed per pass (mm) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1                            | 0,203  | 0,203 | 0,203 | 0,229 | 0,229 | 0,203 | 0,254 | 0,279 | 0,279 | 0,305 | 0,279 | 0,305 | 0,356 | 0,356 | 0,381 | 0,406 |
| 2                            | 0,178  | 0,152 | 0,203 | 0,203 | 0,203 | 0,203 | 0,229 | 0,254 | 0,254 | 0,254 | 0,229 | 0,279 | 0,305 | 0,305 | 0,381 | 0,406 |
| 3                            | 0,127  | 0,152 | 0,152 | 0,152 | 0,178 | 0,152 | 0,178 | 0,203 | 0,203 | 0,203 | 0,229 | 0,229 | 0,279 | 0,279 | 0,356 | 0,356 |
| 4                            | 0,102  | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,178 | 0,203 | 0,203 | 0,229 | 0,254 | 0,305 | 0,305 |
| 5                            | 0,076  | 0,076 | 0,102 | 0,127 | 0,127 | 0,127 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,203 | 0,279 | 0,279 |
| 6                            | 0,635  | 0,686 | 0,076 | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,152 | 0,127 | 0,152 | 0,152 | 0,203 | 0,203 | 0,254 | 0,254 |
| 7                            |        |       | 0,864 | 0,914 | 0,076 | 0,102 | 0,102 | 0,127 | 0,127 | 0,127 | 0,152 | 0,152 | 0,178 | 0,203 | 0,229 | 0,229 |
| 8                            |        |       |       |       | 1,067 | 0,076 | 0,076 | 0,076 | 0,127 | 0,127 | 0,127 | 0,152 | 0,152 | 0,178 | 0,203 | 0,229 |
| 9                            |        |       |       |       |       | 1,143 | 1,245 | 1,422 | 0,076 | 0,127 | 0,127 | 0,127 | 0,152 | 0,152 | 0,203 | 0,203 |
| 10                           |        |       |       |       |       |       |       |       | 1,549 | 0,076 | 0,127 | 0,127 | 0,152 | 0,152 | 0,203 | 0,178 |
| 11                           |        |       |       |       |       |       |       |       |       | 1,676 | 0,076 | 0,127 | 0,127 | 0,152 | 0,178 | 0,178 |
| 12                           |        |       |       |       |       |       |       |       |       |       | 1,880 | 0,076 | 0,076 | 0,152 | 0,152 | 0,203 |
| 13                           |        |       |       |       |       |       |       |       |       |       |       | 2,108 | 2,413 | 0,127 | 0,127 | 0,152 |
| 14                           |        |       |       |       |       |       |       |       |       |       |       |       |       | 0,102 | 0,102 | 0,152 |
| 15                           |        |       |       |       |       |       |       |       |       |       |       |       |       |       | 2,819 | 3,353 |
| 16                           |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 0,102 |
|                              |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 3,708 |
|                              |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 4,166 |

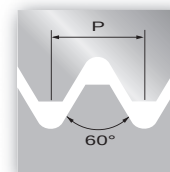
Last pass equals total depth of thread.



### UNIFIED "J" for Aircraft (UNJ), External (mm)

| Number of<br>Passes | T.P.I.                       |       |       |       |       |       |       |       |       |       |
|---------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     | 32                           | 28    | 24    | 20    | 18    | 16    | 14    | 12    | 10    | 8     |
|                     | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |       |       |
| 1                   | 0.178                        | 0.178 | 0.178 | 0.203 | 0.229 | 0.229 | 0.229 | 0.279 | 0.279 | 0.305 |
| 2                   | 0.152                        | 0.152 | 0.152 | 0.178 | 0.203 | 0.203 | 0.203 | 0.229 | 0.229 | 0.279 |
| 3                   | 0.127                        | 0.102 | 0.152 | 0.152 | 0.152 | 0.152 | 0.152 | 0.203 | 0.203 | 0.203 |
| 4                   | 0.076                        | 0.102 | 0.102 | 0.102 | 0.127 | 0.127 | 0.127 | 0.152 | 0.152 | 0.178 |
| 5                   | 0.533                        | 0.076 | 0.076 | 0.102 | 0.102 | 0.102 | 0.127 | 0.152 | 0.152 | 0.152 |
| 6                   |                              | 0.610 | 0.660 | 0.076 | 0.076 | 0.102 | 0.102 | 0.102 | 0.127 | 0.152 |
| 7                   |                              |       |       | 0.813 | 0.889 | 0.076 | 0.102 | 0.102 | 0.127 | 0.127 |
| 8                   |                              |       |       |       |       | 0.991 | 0.076 | 0.076 | 0.102 | 0.127 |
| 9                   |                              |       |       |       |       |       | 1.118 | 1.295 | 0.102 | 0.127 |
| 10                  |                              |       |       |       |       |       |       |       | 0.076 | 0.102 |
| 11                  |                              |       |       |       |       |       |       |       | 1.549 | 0.102 |
| 12                  |                              |       |       |       |       |       |       |       |       | 0.076 |
|                     |                              |       |       |       |       |       |       |       |       | 1.930 |

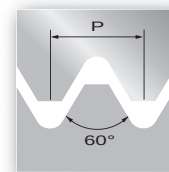
Last pass equals total depth of thread.



### Metric "J" for Aircraft (MJ), External (mm)

| Number of Passes | Pitch (mm)                   |     |        |        |
|------------------|------------------------------|-----|--------|--------|
|                  | 1,0                          | 1,5 | 1,75   | 2,0    |
|                  | Radial in-feed per pass (mm) |     |        |        |
| 1                |                              |     | 0,2286 | 0,254  |
| 2                |                              |     | 0,2032 | 0,2286 |
| 3                |                              |     | 0,1524 | 0,1778 |
| 4                |                              |     | 0,1524 | 0,1524 |
| 5                |                              |     | 0,127  | 0,127  |
| 6                |                              |     | 0,0762 | 0,127  |
| 7                |                              |     | 0,9398 | 0,1016 |
| 8                |                              |     |        | 0,0762 |
|                  |                              |     |        | 1,2446 |

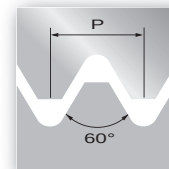
Last pass equals total depth of thread.



### National Pipe Taper Dryseal ( NPTF ) External and Internal (mm)

| Number of Passes | T.P.I.                       |       |       |       |       |
|------------------|------------------------------|-------|-------|-------|-------|
|                  | 27                           | 18    | 14    | 11.5  | 8     |
|                  | Radial in-feed per pass (mm) |       |       |       |       |
| 1                | 0,178                        | 0,229 | 0,254 | 0,254 | 0,254 |
| 2                | 0,152                        | 0,203 | 0,229 | 0,254 | 0,229 |
| 3                | 0,127                        | 0,152 | 0,152 | 0,203 | 0,229 |
| 4                | 0,102                        | 0,127 | 0,152 | 0,152 | 0,203 |
| 5                | 0,102                        | 0,102 | 0,127 | 0,152 | 0,178 |
| 6                | 0,076                        | 0,102 | 0,127 | 0,127 | 0,152 |
| 7                | 0,737                        | 0,102 | 0,102 | 0,102 | 0,152 |
| 8                |                              | 0,076 | 0,102 | 0,102 | 0,152 |
| 9                |                              | 1,092 | 0,102 | 0,102 | 0,127 |
| 10               |                              |       | 0,076 | 0,102 | 0,127 |
| 11               |                              |       | 1,422 | 0,102 | 0,127 |
| 12               |                              |       |       | 0,076 | 0,127 |
| 13               |                              |       |       | 1,727 | 0,102 |
| 14               |                              |       |       |       | 0,102 |
| 15               |                              |       |       |       | 0,102 |
| 16               |                              |       |       |       | 0,102 |
|                  |                              |       |       |       | 2,464 |

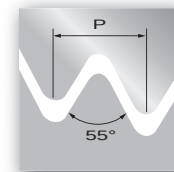
Last pass equals total depth of thread.



### National Pipe Taper ( NPT ) External & Internal (mm)

| Number of Passes | T.P.I.                       |       |       |       |       |
|------------------|------------------------------|-------|-------|-------|-------|
|                  | 27                           | 18    | 14    | 11.5  | 8     |
|                  | Radial in-feed per pass (mm) |       |       |       |       |
| 1                | 0,203                        | 0,229 | 0,229 | 0,229 | 0,254 |
| 2                | 0,152                        | 0,178 | 0,203 | 0,203 | 0,229 |
| 3                | 0,127                        | 0,152 | 0,178 | 0,178 | 0,203 |
| 4                | 0,102                        | 0,152 | 0,152 | 0,152 | 0,203 |
| 5                | 0,102                        | 0,127 | 0,152 | 0,152 | 0,178 |
| 6                | 0,076                        | 0,127 | 0,127 | 0,152 | 0,178 |
| 7                | 0,762                        | 0,102 | 0,127 | 0,152 | 0,178 |
| 8                |                              | 0,076 | 0,102 | 0,127 | 0,178 |
| 9                |                              | 1,143 | 0,102 | 0,127 | 0,152 |
| 10               |                              |       | 0,076 | 0,102 | 0,152 |
| 11               |                              |       | 1,448 | 0,102 | 0,152 |
| 12               |                              |       |       | 0,076 | 0,127 |
| 13               |                              |       |       | 1,753 | 0,127 |
| 14               |                              |       |       |       | 0,102 |
| 15               |                              |       |       |       | 0,076 |
|                  |                              |       |       |       | 2,489 |

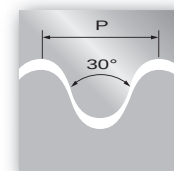
Last pass equals total depth of thread.



### British Standard Pipe Taper ( BSPT ) External & Internal (mm)

| Number of<br>Passes | T.P.I.                       |       |       |       |       |
|---------------------|------------------------------|-------|-------|-------|-------|
|                     | 27                           | 18    | 14    | 11.5  | 8     |
|                     | Radial in-feed per pass (mm) |       |       |       |       |
| 1                   | 0,178                        | 0,229 | 0,254 | 0,254 | 0,279 |
| 2                   | 0,152                        | 0,203 | 0,203 | 0,229 | 0,279 |
| 3                   | 0,127                        | 0,152 | 0,178 | 0,203 | 0,229 |
| 4                   | 0,102                        | 0,127 | 0,152 | 0,178 | 0,203 |
| 5                   | 0,076                        | 0,127 | 0,127 | 0,152 | 0,178 |
| 6                   | 0,660                        | 0,076 | 0,127 | 0,152 | 0,152 |
| 7                   |                              | 0,914 | 0,102 | 0,127 | 0,152 |
| 8                   |                              |       | 0,076 | 0,127 | 0,152 |
| 9                   |                              |       | 1,219 | 0,076 | 0,127 |
| 10                  |                              |       |       | 1,499 | 0,127 |
| 11                  |                              |       |       |       | 0,127 |
| 12                  |                              |       |       |       | 0,076 |
|                     |                              |       |       |       | 2,083 |

Last pass equals total depth of thread.

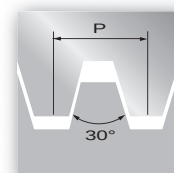


### Round DIN 405, External & Internal (mm)

| Number of<br>Passes | T.P.I.                       |       |       |       |
|---------------------|------------------------------|-------|-------|-------|
|                     | 10                           | 8     | 6     | 4     |
|                     | Radial in-feed per pass (mm) |       |       |       |
| 1                   | 0,229                        | 0,229 | 0,279 | 0,356 |
| 2                   | 0,229                        | 0,229 | 0,254 | 0,330 |
| 3                   | 0,203                        | 0,203 | 0,229 | 0,305 |
| 4                   | 0,203                        | 0,203 | 0,229 | 0,279 |
| 5                   | 0,152                        | 0,178 | 0,203 | 0,279 |
| 6                   | 0,127                        | 0,152 | 0,203 | 0,254 |
| 7                   | 0,102                        | 0,152 | 0,178 | 0,254 |
| 8                   | 0,076                        | 0,127 | 0,152 | 0,229 |
| 9                   | 1,321                        | 0,102 | 0,152 | 0,203 |
| 10                  |                              | 0,076 | 0,127 | 0,178 |
| 11                  |                              | 1,651 | 0,102 | 0,152 |
| 12                  |                              |       | 0,076 | 0,127 |
| 13                  |                              |       | 2,184 | 0,127 |
| 14                  |                              |       |       | 0,102 |
|                     |                              |       |       | 3,200 |

Last pass equals total depth of thread.





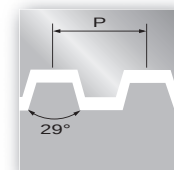
| Trapezoidal DIN 103 (mm) |                              |       |       |       |       |       |       |       |
|--------------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Number of Passes         | Pitch (mm)                   |       |       |       |       |       |       |       |
|                          | 1,5                          | 2     | 3     | 4     | 5     | 6     | 7     | 8     |
|                          | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |
| 1                        | 0,229                        | 0,254 | 0,279 | 0,279 | 0,305 | 0,356 | 0,356 | 0,381 |
| 2                        | 0,203                        | 0,229 | 0,229 | 0,229 | 0,305 | 0,330 | 0,330 | 0,330 |
| 3                        | 0,152                        | 0,178 | 0,203 | 0,229 | 0,254 | 0,305 | 0,305 | 0,330 |
| 4                        | 0,127                        | 0,152 | 0,152 | 0,203 | 0,229 | 0,279 | 0,279 | 0,330 |
| 5                        | 0,102                        | 0,127 | 0,152 | 0,178 | 0,203 | 0,254 | 0,254 | 0,279 |
| 6                        | 0,076                        | 0,127 | 0,127 | 0,178 | 0,203 | 0,254 | 0,254 | 0,279 |
| 7                        | 0,889                        | 0,102 | 0,127 | 0,152 | 0,203 | 0,203 | 0,254 | 0,254 |
| 8                        |                              | 0,076 | 0,102 | 0,152 | 0,203 | 0,203 | 0,229 | 0,254 |
| 9                        |                              | 1,245 | 0,102 | 0,152 | 0,178 | 0,203 | 0,203 | 0,229 |
| 10                       |                              |       | 0,102 | 0,152 | 0,152 | 0,203 | 0,203 | 0,229 |
| 11                       |                              |       | 0,102 | 0,127 | 0,152 | 0,178 | 0,203 | 0,229 |
| 12                       |                              |       | 0,076 | 0,127 | 0,127 | 0,152 | 0,203 | 0,203 |
| 13                       |                              |       | 1,753 | 0,102 | 0,127 | 0,152 | 0,178 | 0,203 |
| 14                       |                              |       |       | 2,261 | 0,102 | 0,152 | 0,178 | 0,178 |
| 15                       |                              |       |       |       | 2,743 | 0,152 | 0,178 | 0,178 |
| 16                       |                              |       |       |       |       | 0,127 | 0,127 | 0,178 |
| 17                       |                              |       |       |       |       | 3,505 | 3,734 | 0,152 |
| 18                       |                              |       |       |       |       |       |       | 0,152 |
| 19                       |                              |       |       |       |       |       |       | 0,127 |
|                          |                              |       |       |       |       |       |       | 4,496 |

Last pass equals total depth of thread.



| ACME (mm)        |                              |       |       |       |       |       |       |       |       |
|------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Number of Passes | T.P.I.                       |       |       |       |       |       |       |       |       |
|                  | 16                           | 14    | 12    | 10    | 8     | 6     | 5     | 4     | 3     |
|                  | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |       |
| 1                | 0,229                        | 0,229 | 0,254 | 0,254 | 0,279 | 0,330 | 0,356 | 0,356 | 0,381 |
| 2                | 0,203                        | 0,203 | 0,203 | 0,229 | 0,254 | 0,279 | 0,330 | 0,330 | 0,356 |
| 3                | 0,178                        | 0,178 | 0,178 | 0,203 | 0,203 | 0,229 | 0,254 | 0,305 | 0,330 |
| 4                | 0,152                        | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,229 | 0,279 | 0,279 |
| 5                | 0,127                        | 0,127 | 0,127 | 0,152 | 0,152 | 0,178 | 0,229 | 0,254 | 0,279 |
| 6                | 0,076                        | 0,102 | 0,127 | 0,127 | 0,127 | 0,178 | 0,203 | 0,254 | 0,279 |
| 7                | 0,965                        | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,203 | 0,203 | 0,279 |
| 8                |                              | 1,067 | 0,102 | 0,102 | 0,127 | 0,152 | 0,203 | 0,203 | 0,254 |
| 9                |                              |       | 1,245 | 0,102 | 0,127 | 0,152 | 0,178 | 0,203 | 0,229 |
| 10               |                              |       |       | 0,102 | 0,102 | 0,152 | 0,152 | 0,178 | 0,229 |
| 11               |                              |       |       | 1,575 | 0,102 | 0,152 | 0,152 | 0,178 | 0,229 |
| 12               |                              |       |       |       | 0,102 | 0,127 | 0,152 | 0,152 | 0,203 |
| 13               |                              |       |       |       | 1,880 | 0,102 | 0,127 | 0,152 | 0,203 |
| 14               |                              |       |       |       |       | 2,515 | 0,102 | 0,152 | 0,178 |
| 15               |                              |       |       |       |       |       | 2,845 | 0,152 | 0,178 |
| 16               |                              |       |       |       |       |       |       | 0,127 | 0,178 |
| 17               |                              |       |       |       |       |       |       | 3,480 | 0,178 |
| 18               |                              |       |       |       |       |       |       |       | 0,152 |
| 19               |                              |       |       |       |       |       |       |       | 0,127 |
|                  |                              |       |       |       |       |       |       |       | 4,521 |

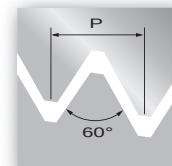
Last pass equals total depth of thread.



### STUB-ACME (mm)

| Number of<br>Passes | T.P.I.                       |       |       |       |       |       |       |       |       |
|---------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     | 16                           | 14    | 12    | 10    | 8     | 6     | 5     | 4     | 3     |
|                     | Radial in-feed per pass (mm) |       |       |       |       |       |       |       |       |
| 1                   | 0,203                        | 0,229 | 0,229 | 0,229 | 0,254 | 0,279 | 0,279 | 0,305 | 0,356 |
| 2                   | 0,152                        | 0,178 | 0,178 | 0,203 | 0,203 | 0,203 | 0,254 | 0,279 | 0,279 |
| 3                   | 0,127                        | 0,152 | 0,152 | 0,178 | 0,203 | 0,203 | 0,203 | 0,254 | 0,279 |
| 4                   | 0,102                        | 0,127 | 0,127 | 0,152 | 0,178 | 0,178 | 0,203 | 0,203 | 0,229 |
| 5                   | 0,102                        | 0,102 | 0,102 | 0,152 | 0,152 | 0,152 | 0,178 | 0,203 | 0,203 |
| 6                   | 0,686                        | 0,787 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,178 | 0,203 |
| 7                   |                              |       | 0,889 | 0,102 | 0,127 | 0,152 | 0,152 | 0,152 | 0,203 |
| 8                   |                              |       |       | 1,143 | 0,102 | 0,127 | 0,152 | 0,152 | 0,203 |
| 9                   |                              |       |       |       | 1,372 | 0,102 | 0,127 | 0,127 | 0,178 |
| 10                  |                              |       |       |       |       | 1,549 | 0,102 | 0,127 | 0,152 |
| 11                  |                              |       |       |       |       |       | 1,803 | 0,102 | 0,127 |
| 12                  |                              |       |       |       |       |       |       | 0,102 | 0,127 |
| 13                  |                              |       |       |       |       |       |       | 2,184 | 0,127 |
| 14                  |                              |       |       |       |       |       |       |       | 0,102 |
| 15                  |                              |       |       |       |       |       |       |       | 0,102 |
|                     |                              |       |       |       |       |       |       |       | 3,099 |

Last pass equals total depth of thread.



### API Thread Forms (mm)

| API Thread Forms           | No. of passes/radial in-feed per pass (mm) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|----------------------------|--------------------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                            | Total<br>In-Feed                           | Passes |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                            |                                            | 1      | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    |
| API Rd                     |                                            |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 16ER10APIRD<br>16IR10APIRD | 1,448                                      | 0,279  | 0,203 | 0,152 | 0,152 | 0,127 | 0,127 | 0,127 | 0,102 | 0,102 | 0,076 | -     | -     | -     | -     | -     |
| 16ER8APIRD<br>16IR8APIRD   | 1,854                                      | 0,279  | 0,229 | 0,203 | 0,152 | 0,152 | 0,152 | 0,127 | 0,127 | 0,127 | 0,127 | 0,102 | 0,076 | -     | -     | -     |
| API-V-0.038R               |                                            |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 22ER4API382<br>22IR4API382 | 3,175                                      | 0,457  | 0,381 | 0,381 | 0,330 | 0,305 | 0,305 | 0,254 | 0,254 | 0,203 | 0,127 | 0,102 | 0,076 | -     | -     | -     |
| 22ER4API383<br>22IR4API383 | 3,175                                      | 0,457  | 0,381 | 0,381 | 0,330 | 0,305 | 0,305 | 0,254 | 0,254 | 0,203 | 0,127 | 0,102 | 0,076 | -     | -     | -     |
| API-V-0.050                |                                            |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 27ER4API502<br>27IR4API502 | 3,861                                      | 0,457  | 0,381 | 0,356 | 0,330 | 0,305 | 0,305 | 0,279 | 0,254 | 0,254 | 0,229 | 0,203 | 0,203 | 0,127 | 0,102 | 0,076 |
| 27ER4API503<br>27IR4API503 | 3,835                                      | 0,457  | 0,381 | 0,356 | 0,330 | 0,305 | 0,279 | 0,279 | 0,254 | 0,254 | 0,229 | 0,203 | 0,203 | 0,127 | 0,102 | 0,076 |
| API-V-0.040                |                                            |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 22ER5API403<br>22IR5API403 | 3,073                                      | 0,432  | 0,381 | 0,381 | 0,330 | 0,279 | 0,279 | 0,254 | 0,254 | 0,178 | 0,127 | 0,102 | 0,076 | -     | -     | -     |



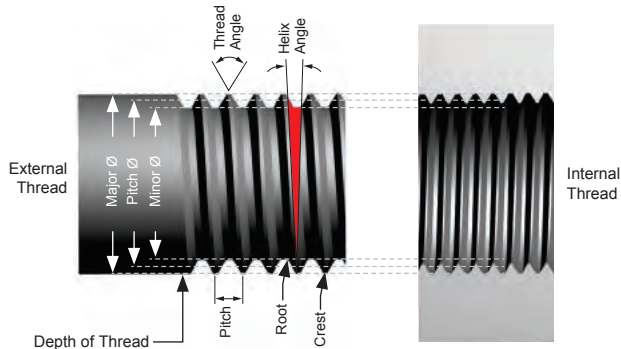
| Multi-Tooth Inserts (mm) |                               |       |       |       |       |                              |       |       |       |       |                              |       |       |
|--------------------------|-------------------------------|-------|-------|-------|-------|------------------------------|-------|-------|-------|-------|------------------------------|-------|-------|
| External                 | Metric 60° (I.S.O) Pitch (mm) |       |       |       |       | Unified 60° (UN) T.P.I       |       |       |       |       | Whitworth (W) T.P.I          |       |       |
|                          | 1,0                           | 1,5   | 2,0   | 2,5   | 3,0   | 20                           | 18    | 16    | 14    | 12    | 19                           | 14    | 11    |
| Number of Passes         | Radial in-feed per pass (mm)  |       |       |       |       | Radial in-feed per pass (mm) |       |       |       |       | Radial in-feed per pass (mm) |       |       |
| 1                        | 0,356                         | 0,356 | 0,483 | 0,457 | 0,559 | 0,432                        | 0,483 | 0,381 | 0,432 | 0,533 | 0,483                        | 0,483 | 0,457 |
| 2                        | 0,330                         | 0,330 | 0,483 | 0,432 | 0,533 | 0,381                        | 0,432 | 0,356 | 0,406 | 0,483 | 0,432                        | 0,432 | 0,432 |
| 3                        | 0,686                         | 0,279 | 0,330 | 0,406 | 0,483 | 0,813                        | 0,914 | 0,279 | 0,330 | 0,356 | 0,914                        | 0,330 | 0,381 |
| 4                        |                               | 0,965 | 1,295 | 0,279 | 0,330 |                              |       | 1,016 | 1,168 | 1,372 |                              | 1,245 | 0,279 |
|                          |                               |       |       | 1,575 | 1,905 |                              |       |       |       |       |                              | 1,549 | 1,676 |
| Internal                 | Metric 60° (I.S.O) Pitch (mm) |       |       |       |       | Unified 60° (UN) T.P.I       |       |       |       |       | Whitworth (W) T.P.I          |       |       |
|                          | 1,0                           | 1,5   | 2,0   | 2,5   | 3,0   | 20                           | 18    | 16    | 14    | 12    | 19                           | 14    | 11    |
| Number of Passes         | Radial in-feed per pass (mm)  |       |       |       |       | Radial in-feed per pass (mm) |       |       |       |       | Radial in-feed per pass (mm) |       |       |
| 1                        | 0,330                         | 0,330 | 0,457 |       |       | 0,356                        | 0,483 |       |       |       | 0,356                        | 0,483 | 0,457 |
| 2                        | 0,305                         | 0,305 | 0,432 |       |       | 0,330                        | 0,432 |       |       |       | 0,305                        | 0,432 | 0,432 |
| 3                        | 0,635                         | 0,254 | 0,330 |       |       | 0,254                        | 0,330 |       |       |       | 0,254                        | 0,330 | 0,381 |
| 4                        |                               | 0,889 | 1,219 |       |       | 0,940                        | 1,245 |       |       |       | 0,914                        | 1,245 | 0,279 |
|                          |                               |       |       |       |       |                              |       |       |       |       |                              | 1,549 | 1,676 |

Last pass equals total depth of thread.



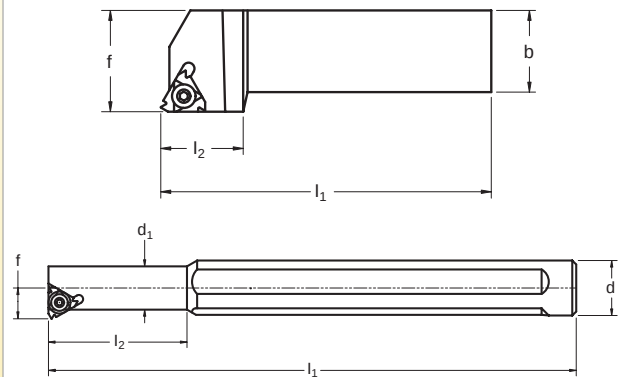
## 1 What's the Application

- A) Internal or External
- B) Type of thread form
- C) Material being machined



## 3 Select Tooling

- F) External
- G) Internal

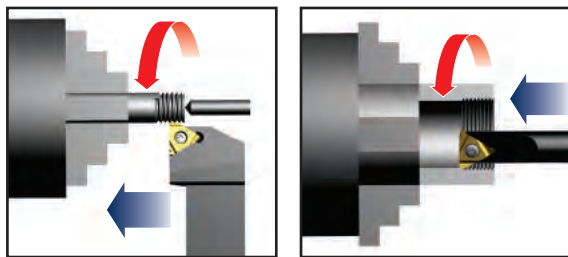


See pages C238 – C242

## 2 Machine Set-Up

- D) LH or RH thread form
- E) Machine Set-Up

Right Hand Thread / Right Hand Tooling



See page C248

## 4 Check Helix Angle

Note: The 1.5°  
Calculation of thread helix angle for a given thread

$$\text{Helix angle} - \tan^{-1} \theta = \frac{\text{Lead of the Thread}}{\text{Pitch/Effective Diameter} \times \pi}$$

### Helix Angle Calculation (mm)

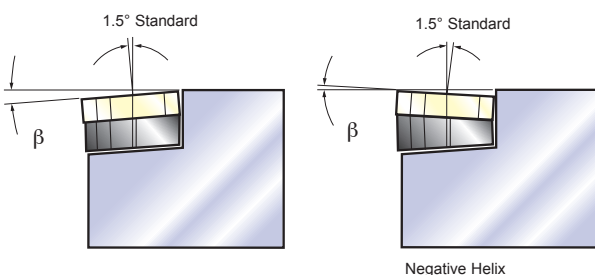
| Outside Diameter mm | 1        | 1,25     | 1,5      | 1,75     |
|---------------------|----------|----------|----------|----------|
|                     | Helix °  |          |          |          |
| 5                   | 3° - 38' | 4° - 33' | 5° - 27' | -        |
| 6                   | 3° - 2'  | 3° - 48' | 4° - 33' | 5° - 18' |
| 8                   | 2° - 17' | 2° - 51' | 3° - 25' | 3° - 59' |
| 10                  | 1° - 49' | 2° - 16' | 2° - 44' | 3° - 11' |
| 12                  | 1° - 31' | 1° - 54' | 2° - 17' | 2° - 39' |
| 14                  | 1° - 18' | 1° - 38' | 1° - 57' | 2° - 17' |
| 16                  | 1° - 8'  | 1° - 42' | 1° - 42' | 2° - 0'  |

See page C250



## 5 Select Anvil

Note: The 1.5° angle is Standard with all toolholders



| Insert size |      | Toolholder    | β Helix / |        |        |      | Anvil Part N |
|-------------|------|---------------|-----------|--------|--------|------|--------------|
|             |      |               | 4.5°      | 3.5°   | 2.5°   | 1.5° |              |
| mm          | Inch |               |           |        |        |      |              |
| 16          | 3/8" | EX RH / IN LH | YE33P     | YE32P  | YE31P  | YE3  | ✓            |
|             |      | EX LH / IN RH | YI33P     | YI32P  | YI31P  | YI3  | ✓            |
| 22          | 1/2" | EX RH / IN LH | YE43P     | YE42P  | YE41P  | YE4  | ✓            |
|             |      | EX LH / IN RH | YI43P     | YI42P  | YI41P  | YI4  | ✓            |
| 22U         | 1/2" | EX RH / IN LH | YE4U3P    | YE4U2P | YE4U1P | YE4U | ✓            |
|             |      | EX LH / IN RH | YI4U3P    | YI4U2P | YI4U1P | YI4U | ✓            |
| 27          | 5/8" | EX RH / IN LH | YE53P     | YE52P  | YE51P  | YE5  | ✓            |
|             |      | EX LH / IN RH | YI53P     | YI52P  | YI51P  | YI5  | ✓            |
| 27U         | 5/8" | EX RH / IN LH | YE5U3P    | YE5U2P | YE5U1P | YE5U | ✓            |
|             |      | EX LH / IN RH | YI5U3P    | YI5U2P | YI5U1P | YI5U | ✓            |

See page C243

## 6 Select Cutting Speed

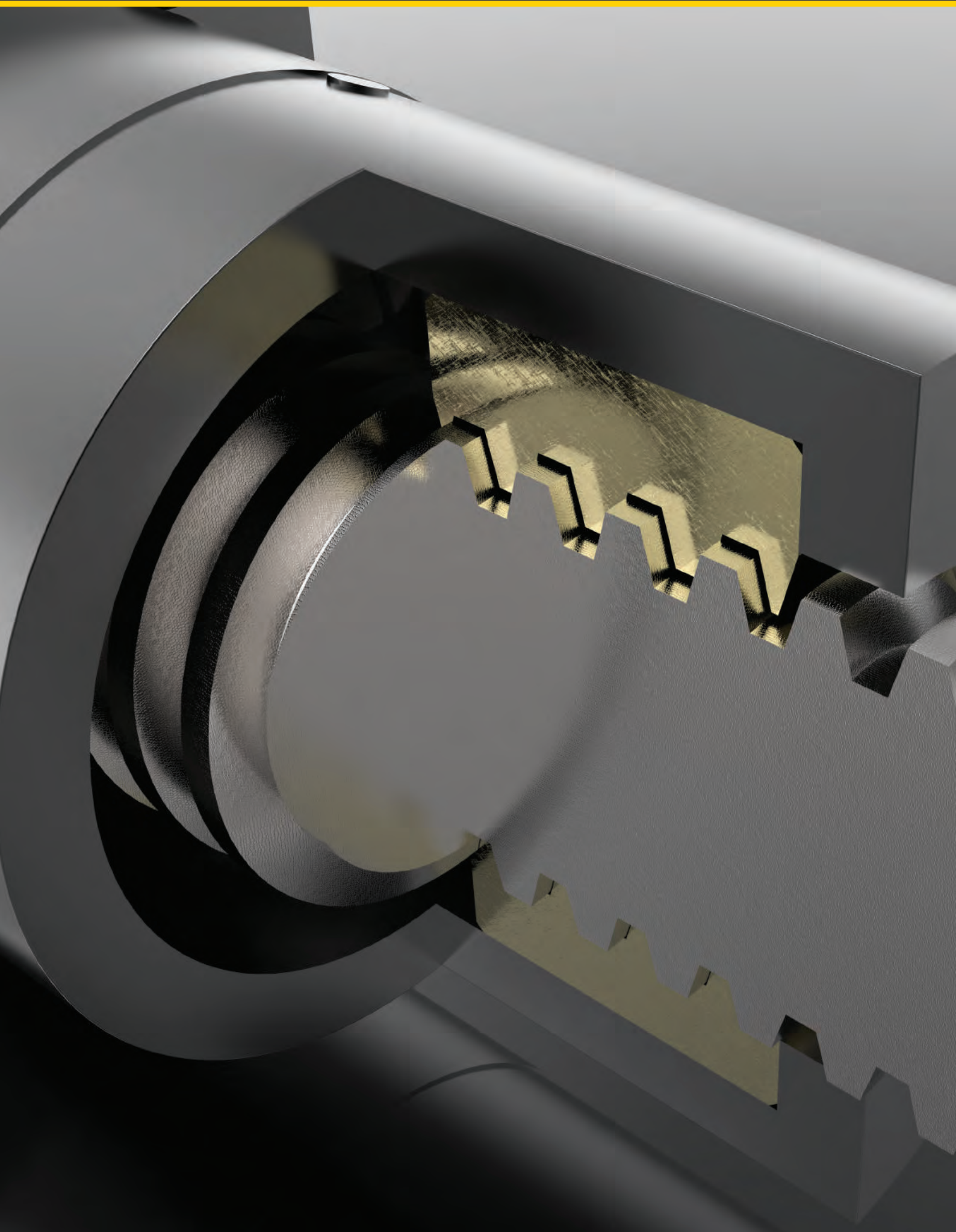
| Cutting Speed $v_c$ |                 |                                            |            |
|---------------------|-----------------|--------------------------------------------|------------|
| ISO                 | Materials       | Rm and Hardness                            | PVD        |
|                     |                 |                                            | SP4066     |
|                     |                 |                                            | m/min      |
|                     |                 |                                            | min. - max |
| P                   | Unalloyed Steel | <600 N/mm <sup>2</sup><br><180 HBN         | 230 - 485  |
|                     |                 | <950 N/mm <sup>2</sup><br><280 HBN         | 150 - 315  |
|                     | Alloyed Steel   | 700-950 N/mm <sup>2</sup><br>200-280 HBN   | 135 - 290  |
|                     |                 | 950-1200 N/mm <sup>2</sup><br>280-355 HBN  | 115 - 240  |
| M                   | Stainless Steel | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN | 75 - 165   |
|                     |                 | Austenitic + Ferritic<br>300 series        | 155 - 330  |
|                     | PH Stainless    | Martensitic<br>400 series                  | 160 - 340  |
|                     |                 | Refractory<br>P.H.                         | 80 - 175   |

See page C205

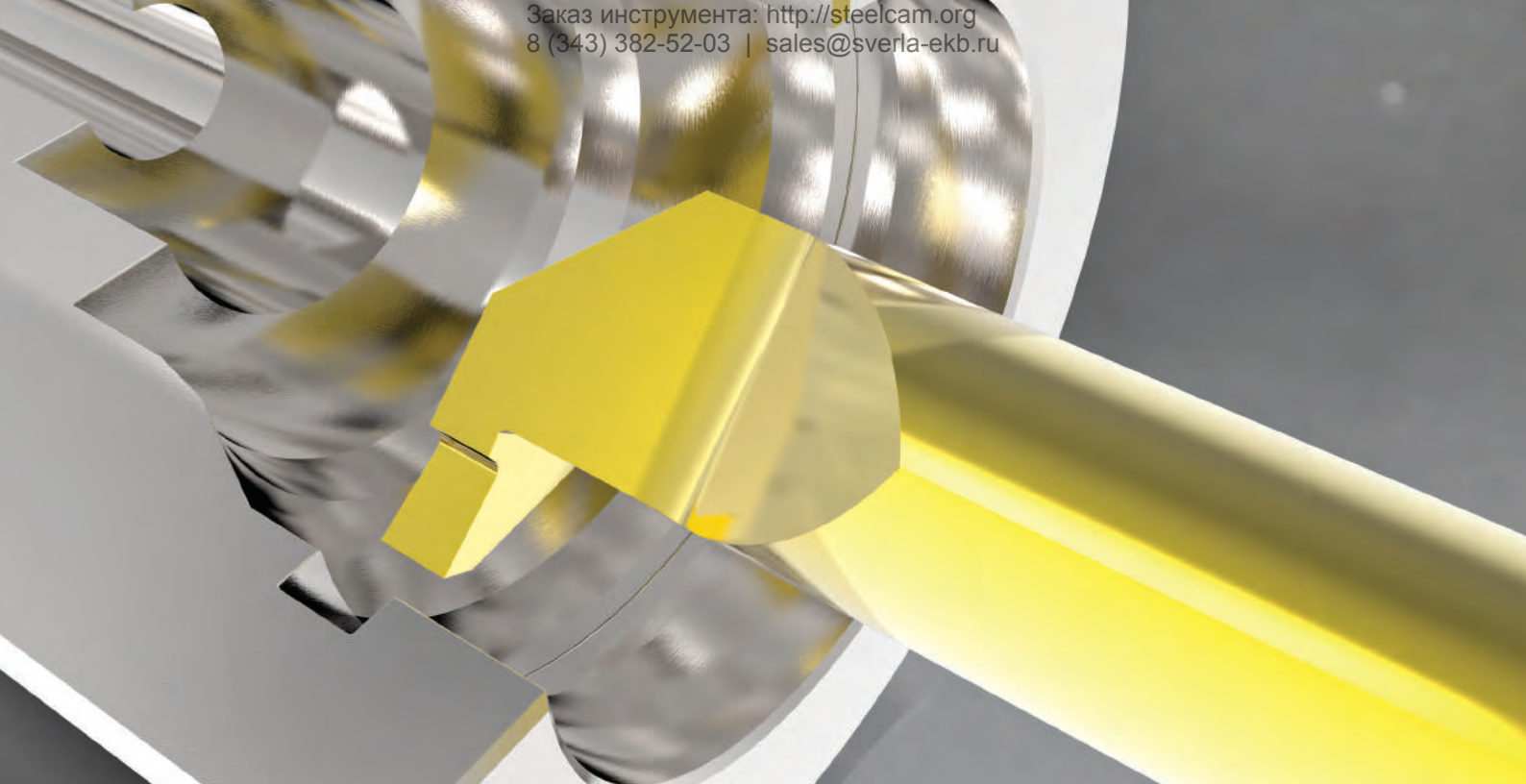
## 7 Select number and depth of passes

| I.S.O Metric (ISO) 60°, External (mm) |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Number of Passes                      | 0,5   | 0,75  | 0,8   | 1,0   | 1,25  | 1,5   | 1,75  |
|                                       | R     |       |       |       |       |       |       |
| 1                                     | 0,102 | 0,178 | 0,178 | 0,178 | 0,178 | 0,229 | 0,229 |
| 2                                     | 0,102 | 0,152 | 0,152 | 0,178 | 0,178 | 0,203 | 0,203 |
| 3                                     | 0,076 | 0,102 | 0,127 | 0,127 | 0,152 | 0,178 | 0,152 |
| 4                                     | 0,076 | 0,076 | 0,076 | 0,102 | 0,127 | 0,152 | 0,152 |
| 5                                     | 0,356 | 0,508 | 0,533 | 0,076 | 0,102 | 0,127 | 0,127 |
| 6                                     |       |       |       | 0,660 | 0,076 | 0,076 | 0,102 |
| 7                                     |       |       |       |       | 0,813 | 0,965 | 0,102 |
| 8                                     |       |       |       |       |       |       | 0,076 |
| 9                                     |       |       |       |       |       |       | 1,143 |
| 10                                    |       |       |       |       |       |       |       |
| 11                                    |       |       |       |       |       |       |       |
| 12                                    |       |       |       |       |       |       |       |
| 13                                    |       |       |       |       |       |       |       |

See pages C251 – C259







# GROOVING

## Grooving





## Grooving Grades

SP4030 and SP0436 are PVD coated grades with a micrograin substrate for machining at higher speeds with lower feed. Ideal for Stainless Steels and Ductile materials.

### Cutting Speed $v_c$

| ISO      | Materials               | Rm and Hardness                            | PVD                  |                      |
|----------|-------------------------|--------------------------------------------|----------------------|----------------------|
|          |                         |                                            | SP4030               | SP4036               |
|          |                         |                                            | m/min<br>min. - max. | m/min<br>min. - max. |
| <b>P</b> | Unalloyed Steel         | <600 N/mm <sup>2</sup><br><180 HBN         | 135 - 271            | 162 - 325            |
|          |                         | <950 N/mm <sup>2</sup><br><280 HBN         | 88 - 176             | 105 - 211            |
|          | Alloyed Steel           | 700-950 N/mm <sup>2</sup><br>200-280 HBN   | 80 - 161             | 97 - 193             |
|          |                         | 950-1200 N/mm <sup>2</sup><br>280-355 HBN  | 73 - 146             | 88 - 176             |
|          |                         | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN | 50 - 100             | 60 - 120             |
| <b>M</b> | Stainless Steel         | Austenitic + Ferritic<br>300 series        | 107 - 229            | 128 - 274            |
|          |                         | Martensitic<br>400 series                  | 102 - 220            | 123 - 263            |
|          | PH Stainless            | Refractory<br>P.H.                         | 57 - 122             | 68 - 146             |
| <b>K</b> | Cast Iron               | Grey<br>GG-Ft                              | 134 - 268            | 161 - 322            |
|          |                         | Spheroidal-Ductile<br>GGG-FGS              | 116 - 232            | 139 - 278            |
|          |                         | Malleable<br>GTS - MN/MP                   | 78 - 156             | 94 - 187             |
| <b>N</b> | Aluminium & Alloys      | Aluminium & Alloys<br>< 16% 116 HB         | 366 - 915            | 439 - 1098           |
|          |                         | Aluminium + Silicon<br>> 16% 92 HB         | 244 - 610            | 293 - 732            |
| <b>S</b> | High Temperature Alloys | Iron Based                                 | 20 - 39              | 23 - 47              |
|          |                         | Cobalt Based                               | 16 - 32              | 19 - 38              |
|          |                         | Nickel Based                               | 17 - 34              | 20 - 41              |
|          |                         | Titanium Based                             | 27 - 54              | 32 - 64              |

## Optimum Grade Performance

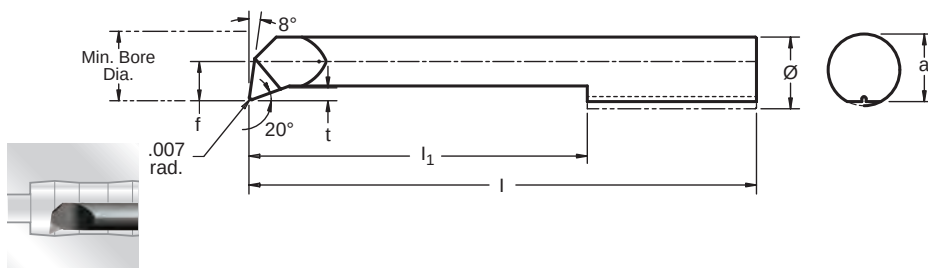
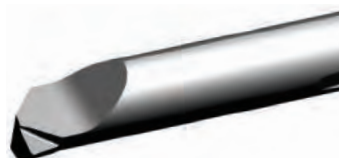
| Grade Classifications |                              |      |            |        |
|-----------------------|------------------------------|------|------------|--------|
|                       | Materials                    | Code | PVD Coated |        |
|                       |                              |      | SP4030     | SP4036 |
| <b>P</b>              | Unalloyed and Alloyed Steels | P01  |            |        |
|                       |                              | P05  |            |        |
|                       |                              | P10  |            |        |
|                       |                              | P15  |            |        |
|                       |                              | P20  |            |        |
|                       |                              | P25  |            |        |
|                       |                              | P30  |            |        |
|                       |                              | P35  |            |        |
|                       |                              | P40  |            |        |
|                       |                              | P45  |            |        |
|                       |                              | P50  |            |        |
|                       |                              | M01  |            |        |
| <b>M</b>              | Stainless Steels             | M05  |            |        |
|                       |                              | M10  |            |        |
|                       |                              | M15  |            |        |
|                       |                              | M20  |            |        |
|                       |                              | M25  |            |        |
|                       |                              | M30  |            |        |
|                       |                              | M35  |            |        |
|                       |                              | M40  |            |        |
|                       |                              | K01  |            |        |
|                       |                              | K05  |            |        |
| <b>K</b>              | Cast Irons                   | K10  |            |        |
|                       |                              | K15  |            |        |
|                       |                              | K20  |            |        |
|                       |                              | K25  |            |        |
|                       |                              | K30  |            |        |
|                       |                              | K35  |            |        |
|                       |                              | K40  |            |        |
|                       |                              | N01  |            |        |
| <b>N</b>              | Aluminum & Alloys            | N05  |            |        |
|                       |                              | N10  |            |        |
|                       |                              | N15  |            |        |
|                       |                              | N20  |            |        |
|                       |                              | N25  |            |        |
|                       |                              | N30  |            |        |
|                       |                              | S01  |            |        |
| <b>S</b>              | High Temperature Alloy       | S05  |            |        |
|                       |                              | S10  |            |        |
|                       |                              | S15  |            |        |
|                       |                              | S20  |            |        |
|                       |                              | S25  |            |        |
|                       |                              | S30  |            |        |

Increasing - wear resistance - Increasing - feed  
Increasing - shock resistance - Increasing - feed





**050...**



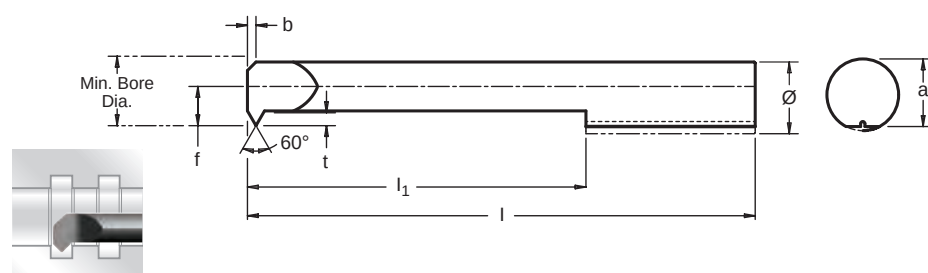
Grooving

**Type 050... Boring and Profiling Operation**

| EDP    | Description | Grade  | Dimensions (mm) |     |     |    |                |     |       |   | Toolholder |
|--------|-------------|--------|-----------------|-----|-----|----|----------------|-----|-------|---|------------|
|        |             |        | b               | f   | a   | l  | l <sub>1</sub> | t   | D min | Ø |            |
| 026360 | R050205     | SP4030 | -               | -   | 3,5 | 19 | 5              | 0,1 | 2     | 4 | 645...     |
| 026364 | R050210     |        |                 | -   | 3,5 | 24 | 10             | 0,1 | 2     | 4 |            |
| 026368 | R050215     |        |                 | -   | 3,5 | 29 | 15             | 0,1 | 2     | 4 |            |
| 026372 | R050310     |        |                 | 0,6 | 3,5 | 24 | 10             | 0,2 | 2,8   | 4 |            |
| 026376 | R050316     |        |                 | 0,6 | 3,5 | 30 | 16             | 0,2 | 2,8   | 4 |            |
| 026380 | R050320     |        |                 | 0,6 | 3,5 | 34 | 20             | 0,2 | 2,8   | 4 |            |
| 026384 | R050410     |        |                 | 1,5 | 3,5 | 24 | 10             | 0,3 | 4     | 4 |            |
| 026388 | R050416     |        |                 | 1,5 | 3,5 | 30 | 16             | 0,3 | 4     | 4 |            |
| 026392 | R050420     |        |                 | 1,5 | 3,5 | 34 | 20             | 0,3 | 4     | 4 |            |
| 026396 | R050510     |        |                 | 1,9 | 4,4 | 25 | 10             | 0,5 | 5     | 5 |            |
| 026400 | R050515     |        |                 | 1,9 | 4,4 | 30 | 15             | 0,5 | 5     | 5 |            |
| 026404 | R050520     |        |                 | 1,9 | 4,4 | 35 | 20             | 0,5 | 5     | 5 |            |
| 026407 | R050525     |        |                 | 1,9 | 4,4 | 40 | 25             | 0,5 | 5     | 5 | 676...     |
| 026411 | R050530     |        |                 | 1,9 | 4,4 | 45 | 30             | 0,5 | 5     | 5 |            |
| 026414 | R050615     |        |                 | 2,3 | 5,3 | 30 | 15             | 0,5 | 6     | 6 |            |
| 026418 | R050622     |        |                 | 2,3 | 5,3 | 37 | 22             | 0,5 | 6     | 6 |            |
| 026422 | R050625     |        |                 | 2,3 | 5,3 | 40 | 25             | 0,5 | 6     | 6 |            |
| 026426 | R050630     |        |                 | 2,3 | 5,3 | 45 | 30             | 0,5 | 6     | 6 |            |
| 026430 | R050720     |        |                 | 2,7 | 6,3 | 35 | 20             | 0,6 | 6,8   | 7 |            |
| 026434 | R050725     |        |                 | 2,7 | 6,3 | 40 | 25             | 0,6 | 6,8   | 7 |            |
| 026438 | R050730     |        |                 | 2,7 | 6,3 | 45 | 30             | 0,6 | 6,8   | 7 |            |

For Toolholders See page C269

**060...**



**Type 060... Boring, Profiling and Chamfering Operation**

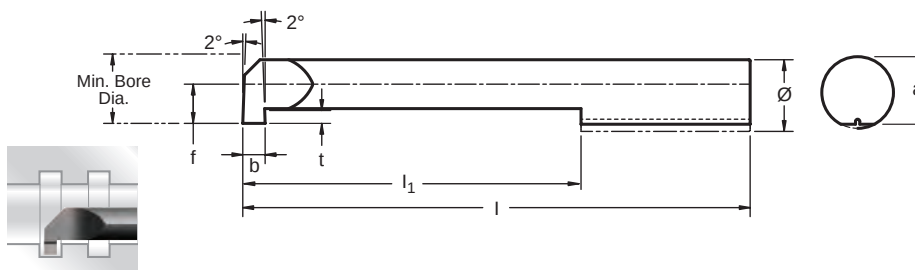
| EDP    | Description | Grade  | Dimensions (mm) |     |     |    |                |     |       |   | Toolholder |
|--------|-------------|--------|-----------------|-----|-----|----|----------------|-----|-------|---|------------|
|        |             |        | b               | f   | a   | l  | l <sub>1</sub> | t   | D min | Ø |            |
| 026446 | R060520     | SP4030 | 0,2             | 1,9 | 4,4 | 35 | 20             | 0,7 | 5     | 5 | 645...     |
| 026450 | R060720     |        |                 | 2,8 | 6,3 |    |                |     | 6,8   | 7 | 676...     |

For Toolholders See page C269



**004...**

Grooving

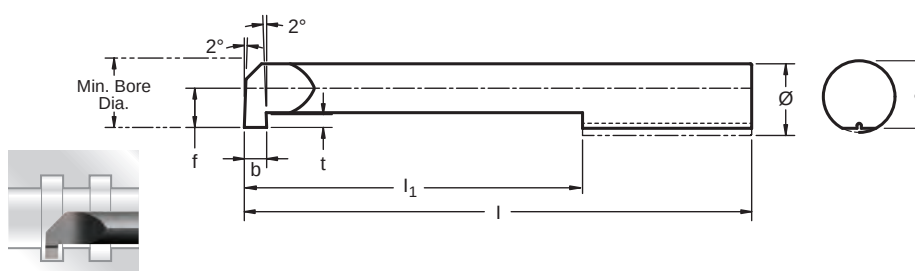


**Type 004... Grooving Internal Boring Operation**

| EDP    | Description | Grade  | Dimensions (mm) |     |     |    |                |     |       |   | Toolholder |
|--------|-------------|--------|-----------------|-----|-----|----|----------------|-----|-------|---|------------|
|        |             |        | b               | f   | a   | l  | l <sub>1</sub> | t   | D min | Ø |            |
| 026168 | R004010010  | SP4030 | 1               | 1,5 | 3,5 | 24 | 10             | 0,8 | 4     | 4 | 645...     |
| 026172 | R004010016  |        |                 |     |     | 30 | 16             |     |       |   |            |
| 026176 | R004010020  |        |                 |     |     | 34 | 20             |     |       |   |            |

For Toolholders See page C269

**005...**



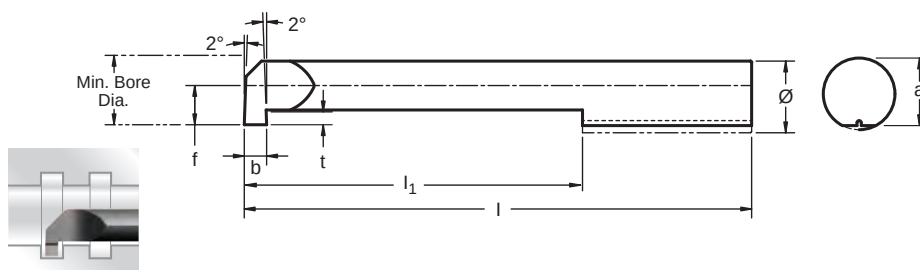
**Type 005... Grooving Internal Boring Operation**

| EDP    | Description | Grade  | Dimensions (mm) |     |     |    |                |   |       |   | Toolholder |
|--------|-------------|--------|-----------------|-----|-----|----|----------------|---|-------|---|------------|
|        |             |        | b               | f   | a   | l  | l <sub>1</sub> | t | D min | Ø |            |
| 026180 | R005010010  | SP4030 | 1               | 1,9 | 4,4 | 25 | 10             | 1 | 5     | 5 | 645...     |
| 026184 | R005010015  |        | 1               |     |     | 30 | 15             |   |       |   |            |
| 026188 | R005010020  |        | 1               |     |     | 35 | 20             |   |       |   |            |
| 026192 | R005010025  |        | 1               |     |     | 40 | 25             |   |       |   |            |
| 026204 | R005015015  |        | 1,5             |     |     | 30 | 15             |   |       |   |            |
| 026208 | R005015020  |        | 1,5             |     |     | 35 | 20             |   |       |   |            |
| 026220 | R005020010  |        | 2               |     |     | 25 | 10             |   |       |   |            |
| 026224 | R005020015  |        | 2               |     |     | 30 | 15             |   |       |   |            |
| 026228 | R005020020  |        | 2               |     |     | 35 | 20             |   |       |   |            |
| 026232 | R005020025  |        | 2               |     |     | 40 | 25             |   |       |   |            |
| 023301 | R005051015  |        | 2               |     |     | 45 | 30             |   |       |   |            |

For Toolholders See page C269



**006...**

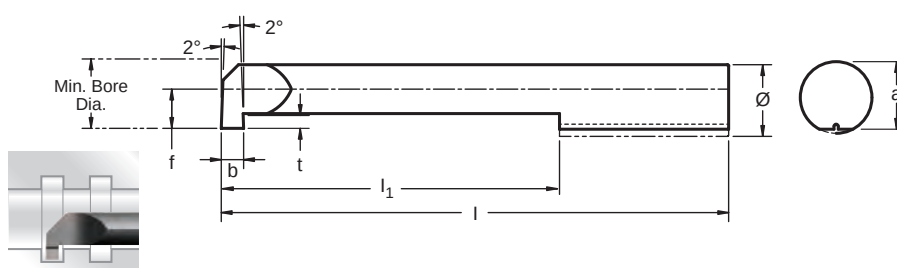


**Type 006... Grooving Internal Boring Operation**

| EDP    | Description | Grade  | Dimensions (mm) |     |     |    |                |     |       |   | Toolholder |
|--------|-------------|--------|-----------------|-----|-----|----|----------------|-----|-------|---|------------|
|        |             |        | b               | f   | a   | l  | l <sub>1</sub> | t   | D min | Ø |            |
| 026240 | R006010010  | SP4030 | 1               | 2,3 | 5,3 | 25 | 10             | 1,8 | 6     | 6 | 676...     |
| 026244 | R006010015  |        | 1               |     |     | 30 | 15             |     |       |   |            |
| 026248 | R006010022  |        | 1               |     |     | 37 | 22             |     |       |   |            |
| 026252 | R006010025  |        | 1               |     |     | 40 | 25             |     |       |   |            |
| 026260 | R006015010  |        | 1,5             |     |     | 25 | 10             |     |       |   |            |
| 026264 | R006015015  |        | 1,5             |     |     | 30 | 15             |     |       |   |            |
| 026268 | R006015022  |        | 1,5             |     |     | 37 | 22             |     |       |   |            |
| 026272 | R006015025  |        | 1,5             |     |     | 40 | 25             |     |       |   |            |
| 026280 | R006020010  |        | 2               |     |     | 25 | 10             |     |       |   |            |
| 026284 | R006020015  |        | 2               |     |     | 30 | 15             |     |       |   |            |
| 026292 | R006020025  |        | 2               |     |     | 40 | 25             |     |       |   |            |

For Toolholders See page C269

**007...**



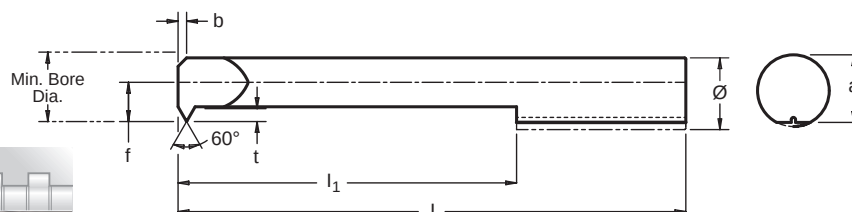
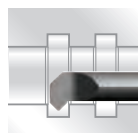
**Type 007... Grooving Internal Boring Operation**

| EDP    | Description | Grade  | Dimensions (mm) |     |     |    |                |     |       |   | Toolholder |
|--------|-------------|--------|-----------------|-----|-----|----|----------------|-----|-------|---|------------|
|        |             |        | b               | f   | a   | l  | l <sub>1</sub> | t   | D min | Ø |            |
| 026300 | R007010010  | SP4030 | 1               | 2,7 | 6,3 | 25 | 10             | 2,5 | 6,8   | 7 | 676...     |
| 026304 | R007010015  |        | 1               |     |     | 30 | 15             |     |       |   |            |
| 026312 | R007010025  |        | 1               |     |     | 40 | 25             |     |       |   |            |
| 026320 | R007015010  |        | 1,5             |     |     | 25 | 10             |     |       |   |            |
| 026324 | R007015015  |        | 1,5             |     |     | 30 | 15             |     |       |   |            |
| 026332 | R007015025  |        | 1,5             |     |     | 40 | 25             |     |       |   |            |
| 026336 | R007015030  |        | 1,5             |     |     | 45 | 30             |     |       |   |            |
| 026340 | R007020010  |        | 2               |     |     | 25 | 10             |     |       |   |            |
| 026344 | R007020015  |        | 2               |     |     | 30 | 15             |     |       |   |            |
| 026352 | R007020025  |        | 2               |     |     | 40 | 25             |     |       |   |            |
| 026356 | R007020030  |        | 2               |     |     | 45 | 30             |     |       |   |            |

For Toolholders See page C269



**004 / 5 / 6 / 7...**



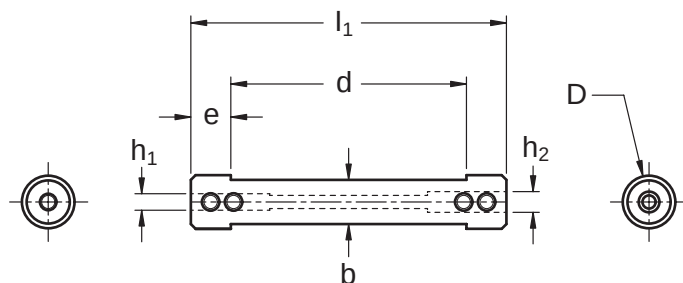
**Type 004/5/6/7... Metric ISO Thread Partial Profile 60°**

| EDP            | Description | Grade  | Dimensions (mm) |      |     |     |    |                |      |       |   |            |
|----------------|-------------|--------|-----------------|------|-----|-----|----|----------------|------|-------|---|------------|
|                |             |        | Pitch           | e    | f   | a   | l  | l <sub>1</sub> | t    | D min | Ø | Toolholder |
| Standard pitch |             |        |                 |      |     |     |    |                |      |       |   |            |
| 026467         | R006051015  | SP4030 | 1               | 0.55 | 1.9 | 4.4 | 30 | 15             | 0.55 | 4.8   | 5 | 645...     |
| 026469         | R006061215  |        | 1.25            | 0.65 | 2.3 | 5.3 |    |                | 0.68 | 6     | 6 | 676...     |
| 026471         | R006081515  |        | 1.5             | 0.75 | 2.3 | 5.3 |    |                | 0.81 | 6     | 6 |            |
| 026473         | R007081515  |        | 1.5             | 0.75 | 2.7 | 6.3 |    |                | 0.81 | 7     | 7 |            |
| Fine pitch     |             |        |                 |      |     |     |    |                |      |       |   |            |
| 026460         | R004020515  | SP4030 | 0.5             | 0.35 | 1.5 | 3.5 | 30 | 15             | 0.27 | 4     | 4 | 645...     |
| 026462         | R005020515  |        | 0.5             | 0.35 | 1.9 | 4.4 |    |                | 0.27 | 5     | 5 |            |
| 026464         | R005040715  |        | 0.75            | 0.45 | 1.9 | 4.4 |    |                | 0.4  | 5     | 5 |            |

For Toolholders See page C269



**645 - 676**



Grooving

#### Toolholder for Ultra Mini

| EDP    | Description | Dimensions (mm) |      |    |    |                |                |                |
|--------|-------------|-----------------|------|----|----|----------------|----------------|----------------|
|        |             | D               | b    | d  | e  | l <sub>1</sub> | h <sub>1</sub> | h <sub>2</sub> |
| 026475 | 6450012D    | 12              | 10,3 | 55 | 10 | 75             | 4              | 5              |
| 026476 | 6450016D    | 16              | 14   | 55 |    | 75             | 4              | 5              |
| 026477 | 6450020D    | 20              | 18   | 70 |    | 90             | 4              | 5              |
| 026478 | 6760016D    | 16              | 14   | 55 |    | 75             | 6              | 7              |
| 026479 | 6760020D    | 20              | 18   | 70 |    | 90             | 6              | 7              |

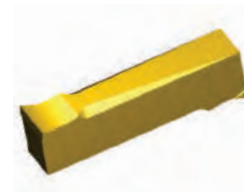
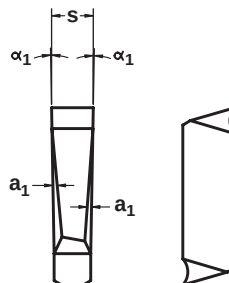
For Inserts See pages C265 - C268

#### Spare Parts

| Description          | EDP    | Screw  |
|----------------------|--------|--------|
| 6450012D to 6760020D | 024516 | 110645 |



## G217

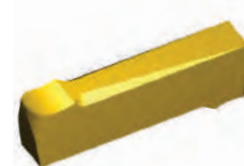
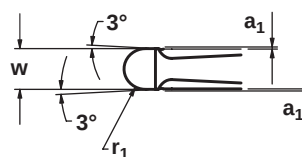
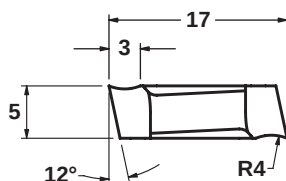
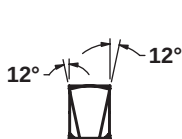


### G217 Standard Groove Widths

| EDP    | Description | Grade  | Dimensions (mm) |            |       | Grooving Width |
|--------|-------------|--------|-----------------|------------|-------|----------------|
|        |             |        | S               | $\alpha_1$ | $a_1$ |                |
| 026530 | G217005000  | SP4036 | 0,57            | 1°         | 0,06  | 1              |
| 026532 | G217006000  |        | 0,67            |            |       |                |
| 026534 | G217007000  |        | 0,77            |            |       |                |
| 026536 | G217008000  |        | 0,87            |            |       |                |
| 026538 | G217009000  |        | 0,97            |            |       |                |
| 026540 | G217010000  |        | 1,07            |            |       |                |
| 026542 | G217011000  |        | 1,24            | 3°         | 1     | 2              |
| 026544 | G217013000  |        | 1,44            |            |       |                |
| 026546 | G217016000  |        | 1,74            |            |       |                |
| 026548 | G217018500  |        | 1,99            |            |       |                |
| 026550 | G217021500  |        | 2,29            |            |       |                |
| 026552 | G217026500  |        | 2,79            |            |       |                |
| 026554 | G217031500  |        | 3,29            |            |       |                |
| 026556 | G217041500  |        | 4,29            |            |       |                |
| 026558 | G217051500  |        | 5,29            |            |       |                |
|        |             |        |                 |            |       | 3              |
|        |             |        |                 |            |       | 4              |

For Toolholders See pages C271 - C272

## G217 Full Radius



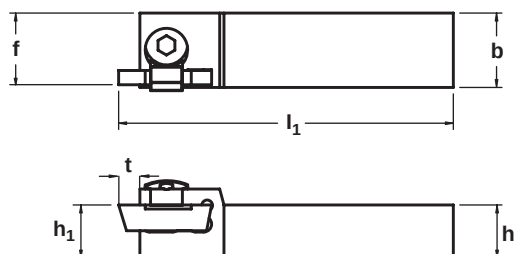
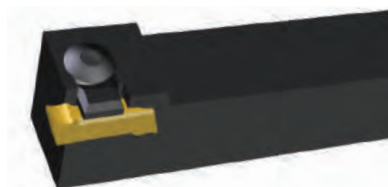
### G217 Full Radius Inserts

| EDP    | Description | Grade  | Dimensions (mm) |       |       |         | Toolholder Width |
|--------|-------------|--------|-----------------|-------|-------|---------|------------------|
|        |             |        | w               | $r_1$ | $a_1$ | t max   |                  |
| 034397 | G217001020  | SP4036 | 2               | 1,00  | 0,2   | 3 or 4* | 2                |
| 034398 | G217001530  |        | 3               | 1,50  |       |         | 3                |
| 034399 | G217002040  |        | 4               | 2,00  |       |         | 4                |

\* In combination with toolholder, 3mm for internal operation and 4mm for external operation



## GR240



Grooving

### External Toolholder GR240 for Insert Type G217

| EDP    | Version    | Description  | Dimensions (mm) |    |                |                |       |   | Grooving Width |
|--------|------------|--------------|-----------------|----|----------------|----------------|-------|---|----------------|
|        |            |              | b               | h  | h <sub>1</sub> | l <sub>1</sub> | f     | t |                |
| 025124 | Left hand  | GL2401212M01 | 12              | 12 | 12             | 150            | 11,50 | 4 | 0,50 - 1,74    |
| 025123 | Right hand | GR2401212M01 |                 |    |                |                |       |   |                |
| 025126 | Left hand  | GL2401212M02 | 12              | 12 | 12             | 150            | 11,50 | 4 | 1,74 - 2,74    |
| 025125 | Right hand | GR2401212M02 |                 |    |                |                |       |   |                |
| 025132 | Left hand  | GL2401616M01 | 16              | 16 | 16             | 150            | 14,50 | 4 | 0,50 - 1,74    |
| 025131 | Right hand | GR2401616M01 |                 |    |                |                |       |   |                |
| 025134 | Left hand  | GL2401616M02 | 16              | 16 | 16             | 150            | 14,50 | 4 | 1,74 - 2,74    |
| 025133 | Right hand | GR2401616M02 |                 |    |                |                |       |   |                |
| 025136 | Left hand  | GL2401616M03 | 16              | 16 | 16             | 150            | 14,50 | 4 | 2,74 - 3,74    |
| 025135 | Right hand | GR2401616M03 |                 |    |                |                |       |   |                |
| 025140 | Left hand  | GL2402020K01 | 20              | 20 | 20             | 125            | 18,50 | 4 | 0,50 - 1,74    |
| 025139 | Right hand | GR2402020K01 |                 |    |                |                |       |   |                |
| 025142 | Left hand  | GL2402020K02 | 20              | 20 | 20             | 125            | 18,50 | 4 | 1,74 - 2,74    |
| 025141 | Right hand | GR2402020K02 |                 |    |                |                |       |   |                |
| 025144 | Left hand  | GL2402020K03 | 20              | 20 | 20             | 125            | 18,50 | 4 | 2,74 - 3,74    |
| 025143 | Right hand | GR2402020K03 |                 |    |                |                |       |   |                |
| 025146 | Left hand  | GL2402020K04 | 20              | 20 | 20             | 125            | 18,50 | 4 | 3,74 - 5,29    |
| 025145 | Right hand | GR2402020K04 |                 |    |                |                |       |   |                |

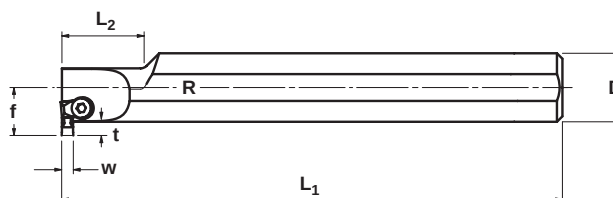
For Inserts See page C270

### Spare Parts for External GR240 Toolholder

| Description                  | EDP    | Screw | EDP    | Clamp   | Insert Type |
|------------------------------|--------|-------|--------|---------|-------------|
| G_2401212M0.. To G_2401616M0 | 025385 | SN135 | 025387 | SG24083 | G217        |
| G_2402020M0...               |        |       | 025388 | SG24084 |             |



## GR233 / GR253



**Internal Toolholder GR233/GR253 for Insert Type G217**

| EDP    | Description | Dimensions (mm) |                |                |       |       | Grooving Width W |
|--------|-------------|-----------------|----------------|----------------|-------|-------|------------------|
|        |             | D               | L <sub>2</sub> | L <sub>1</sub> | f     | t max |                  |
| 024170 | GR233002001 | 20              | 25             | 130            | 13,30 | 3,00  | 0,50 - 1,74      |
| 024171 | GR233002002 | 20              | 25             | 130            | 13,30 | 3,00  | 1,74 - 2,74      |
| 034424 | GR233002003 | 20              | 25             | 130            | 13,30 | 3,00  | 2,74 - 3,74      |
| 024172 | GR253002501 | 25              | 30             | 150            | 17,50 | 4,70  | 0,50 - 1,74      |
| 034425 | GR253002502 | 25              | 30             | 150            | 17,50 | 4,70  | 1,74 - 2,74      |
| 024173 | GR253002503 | 25              | 30             | 150            | 17,50 | 4,70  | 2,74 - 3,74      |
| 034426 | GR253002504 | 25              | 30             | 150            | 17,50 | 4,70  | 3,74 - 5,29      |
| 034427 | GR253003202 | 32              | 30             | 150            | 21,00 | 4,70  | 1,74 - 2,74      |
| 024686 | GR253003203 | 32              | 30             | 150            | 21,00 | 4,70  | 2,74 - 3,74      |
| 034428 | GR253003204 | 32              | 30             | 150            | 21,00 | 4,70  | 3,74 - 5,29      |

For Inserts See page C270

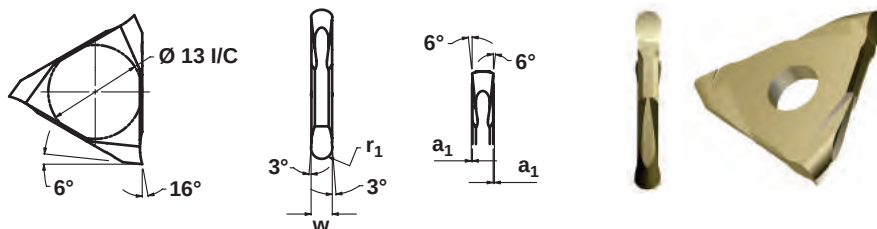
**Spare parts for Internal GR233/GR253 Toolholder**

| Description   | EDP    | Screw   | EDP    | Clamp | Insert Type |
|---------------|--------|---------|--------|-------|-------------|
| GR233.. 01-03 | 025387 | SG24083 | 025385 | SN135 | G217        |
| GR253.. 01-03 |        |         |        |       |             |
| GR253.. 04    | 025388 | SG24084 |        |       |             |





## G312

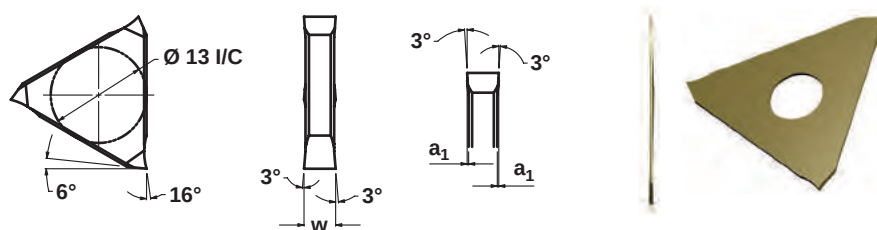


Grooving

### G312 Inserts Full Radius

| EDP    | Description | Grade  | Dimensions (mm) |                |                |        | Toolholder Type |
|--------|-------------|--------|-----------------|----------------|----------------|--------|-----------------|
|        |             |        | w               | r <sub>1</sub> | a <sub>1</sub> | t max* |                 |
| 034401 | G312001020  | SP4030 | 2               | 1,00           | 0,3            | 6*     | G360...02       |
| 024174 | G312001530  |        | 3               | 1,50           | 0,3            | 6*     | G360...03       |
| 024175 | G312002040  |        | 4               | 2,00           | 0,3            | 6*     | G360...04       |

\* In combination with toolholder See page C274



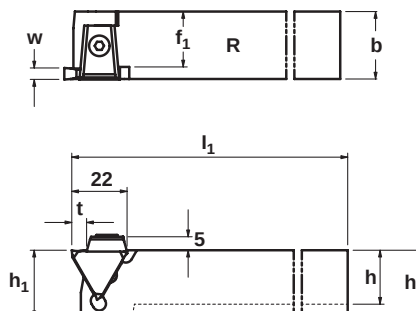
### G312 Inserts for Grooving to DIN 471/472 and DIN 983/894

| EDP    | Description | Grade  | Nominal Width of Groove | Dimensions (mm) |                |        | Toolholder Type |
|--------|-------------|--------|-------------------------|-----------------|----------------|--------|-----------------|
|        |             |        |                         | w               | a <sub>1</sub> | t max* |                 |
| 034402 | G312005000  | SP4030 | 0,50                    | 0,57            | 0,06           | 4*     | G360...01       |
| 024176 | G312006000  |        | 0,60                    | 0,67            | 0,06           | 4*     |                 |
| 024177 | G312007000  |        | 0,70                    | 0,77            | 0,08           | 4*     |                 |
| 034392 | G312008000  |        | 0,80                    | 0,87            | 0,08           | 4*     |                 |
| 034393 | G312009000  |        | 0,90                    | 0,97            | 0,08           | 4*     |                 |
| 024178 | G312010000  |        | 1,00                    | 1,07            | 0,09           | 4*     |                 |
| 024179 | G312011000  |        | 1,10                    | 1,24            | 0,20           | 4*     |                 |
| 024180 | G312013000  |        | 1,30                    | 1,44            | 0,22           | 4*     |                 |
| 024181 | G312016000  |        | 1,60                    | 1,74            | 0,22           | 4*     |                 |
| 034394 | G312018500  |        | 1,85                    | 1,99            | 0,22           | 6*     |                 |
| 034395 | G312021500  |        | 2,15                    | 2,30            | 0,22           | 6*     | G360...02       |
| 024182 | G312026500  |        | 2,65                    | 2,80            | 0,22           | 6*     |                 |
| 024183 | G312031500  |        | 3,15                    | 3,29            | 0,22           | 6*     |                 |
| 034396 | G312041500  |        | 4,15                    | 4,30            | 0,22           | 6*     | G360...04       |

\* In combination with toolholder See page C274



## GR / L360



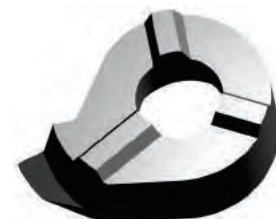
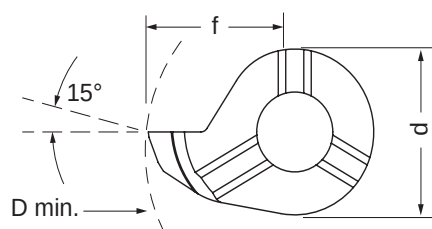
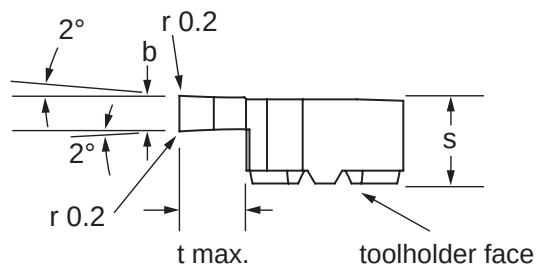
**External Toolholder GR360 for Insert Type G312**

| EDP    | Description | Dimensions (mm) |    |                |                |                |   | Grooving Width W |
|--------|-------------|-----------------|----|----------------|----------------|----------------|---|------------------|
|        |             | b               | h  | h <sub>1</sub> | l <sub>1</sub> | f <sub>1</sub> | t |                  |
| 034403 | GL360121201 | 12              | 12 | 12             | 100            | 10,50          | 4 | 0,5 - 1,74       |
| 024184 | GR360121201 |                 |    |                |                |                |   |                  |
| 034404 | GL360121202 | 12              | 12 | 12             | 100            | 9,50           | 6 | 1,74 - 2,74      |
| 034405 | GR360121202 |                 |    |                |                |                |   |                  |
| 034406 | GL360121203 | 12              | 12 | 12             | 100            | 8,50           | 6 | 2,74 - 3,74      |
| 024186 | GR360121203 |                 |    |                |                |                |   |                  |
| 034407 | GL360161601 | 16              | 16 | 16             | 125            | 14,50          | 4 | 0,5 - 1,74       |
| 034408 | GR360161601 |                 |    |                |                |                |   |                  |
| 034409 | GL360161602 | 16              | 16 | 16             | 125            | 13,50          | 6 | 1,74 - 2,74      |
| 034410 | GR360161602 |                 |    |                |                |                |   |                  |
| 034411 | GL360161603 | 16              | 16 | 16             | 125            | 12,50          | 6 | 2,74 - 3,74      |
| 034412 | GR360161603 |                 |    |                |                |                |   |                  |
| 034413 | GL360161604 | 16              | 16 | 16             | 125            | 11,50          | 6 | 3,74 - 5,29      |
| 034414 | GR360161604 |                 |    |                |                |                |   |                  |
| 034415 | GL360202001 | 20              | 20 | 20             | 125            | 18,50          | 4 | 0,5 - 1,74       |
| 024187 | GR360202001 |                 |    |                |                |                |   |                  |
| 034416 | GL360202002 | 20              | 20 | 20             | 125            | 17,50          | 6 | 1,74 - 2,74      |
| 024188 | GR360202002 |                 |    |                |                |                |   |                  |
| 034417 | GL360202003 | 20              | 20 | 20             | 125            | 16,50          | 6 | 2,74 - 3,74      |
| 024189 | GR360202003 |                 |    |                |                |                |   |                  |
| 034418 | GL360202004 | 20              | 20 | 20             | 125            | 15,50          | 6 | 3,74 - 5,29      |
| 024190 | GR360202004 |                 |    |                |                |                |   |                  |
| 024191 | GL360252501 | 25              | 25 | 25             | 150            | 23,50          | 4 | 0,5 - 1,74       |
| 024192 | GR360252501 |                 |    |                |                |                |   |                  |
| 034419 | GL360252502 | 25              | 25 | 25             | 150            | 22,50          | 6 | 1,74 - 2,74      |
| 024193 | GR360252502 |                 |    |                |                |                |   |                  |
| 034420 | GL360252503 | 25              | 25 | 25             | 150            | 21,50          | 6 | 2,74 - 3,74      |
| 034421 | GR360252503 |                 |    |                |                |                |   |                  |
| 034422 | GL360252504 | 25              | 25 | 25             | 150            | 19,80          | 6 | 3,74 - 5,29      |
| 034423 | GR360252504 |                 |    |                |                |                |   |                  |

For Inserts See page C273

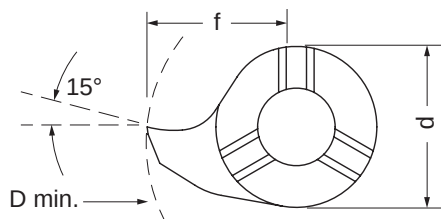
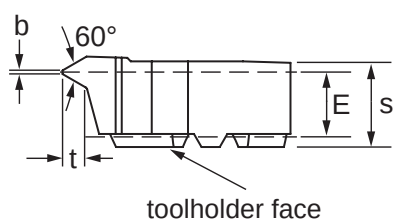
### Spare parts for External GR360 Toolholder

| Description          | EDP    | Clamp | EDP    | Screw | Insert Type |
|----------------------|--------|-------|--------|-------|-------------|
| G_360121201/02/03    | 025385 | G113  | 034391 | 6-25  | G312        |
| G_360161601/02/03    |        | G134  |        |       |             |
| G_360161604          | 034390 | G134  |        |       |             |
| G_360202001/02/03/04 | 024522 | G164  |        |       |             |
| G_360252501/02/03/04 |        | G164  |        |       |             |



**Mini-Cut Groove & Profile**

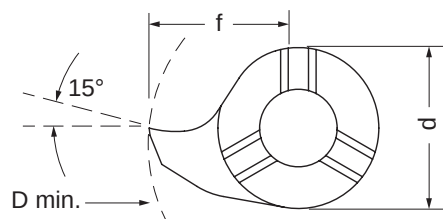
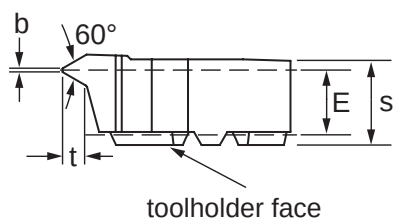
| EDP    | Description | Grade  | Dimensions |      |      |      |       |        | Type of Holder |
|--------|-------------|--------|------------|------|------|------|-------|--------|----------------|
|        |             |        | b          | f    | s    | d    | t max | D min. |                |
| 034433 | LS0815002   | SP4036 | 1,50       | 4,80 | 3,30 | 6,00 | 1,00  | 8,00   | 608            |
| 034434 | LS1115002   |        | 1,50       | 6,70 | 4,20 | 8,00 | 2,30  | 11,00  | 611            |
| 034435 | LS1420002   |        | 2,00       | 9,00 | 5,30 | 9,00 | 4,00  | 14,00  | 614            |
| 034430 | RS0815002   | SP4036 | 1,50       | 4,80 | 3,30 | 6,00 | 1,00  | 8,00   | 608            |
| 034431 | RS1115002   |        | 1,50       | 6,70 | 4,20 | 8,00 | 2,30  | 11,00  | 611            |
| 034432 | RS1420002   |        | 2,00       | 9,00 | 5,30 | 9,00 | 4,00  | 14,00  | 614            |



Mini Cut

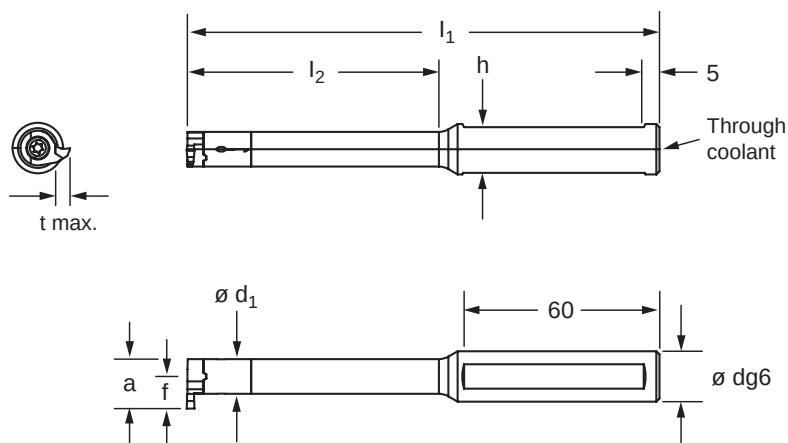
**Mini-Cut 60° Threading Partial Profile**

| EDP    | Description | Grade  | Dimensions |      |      |      |      |      |      |        | Type of Holder |
|--------|-------------|--------|------------|------|------|------|------|------|------|--------|----------------|
|        |             |        | Pitch      | t    | b    | f    | s    | d    | E    | D min. |                |
| 034446 | LS08081501  | SP4036 | 1,5 - 1,75 | 0,95 | 0,18 | 4,80 | 3,50 | 6,00 | 2,50 | 8,00   | 608            |
| 034447 | LS11102001  |        | 2          | 1,08 | 2,25 | 6,70 | 4,30 | 8,00 | 3,00 | 11,00  | 611            |
| 034448 | LS14102001  |        | 2          | 1,08 | 0,25 | 9,00 | 5,40 | 9,00 | 4,20 | 14,00  | 614            |
| 034449 | LS14132501  |        | 2,5        | 1,35 | 0,31 | 9,00 | 5,40 | 9,00 | 4,70 | 14,00  | 614            |
| 034450 | LS08020501  |        | 0,5 - 0,75 | 0,43 | 0,06 | 4,80 | 3,50 | 6,00 | 2,70 | 8,00   | 608            |
| 034451 | LS08051001  |        | 1,0 - 1,25 | 0,55 | 0,12 | 4,80 | 3,50 | 6,00 | 2,70 | 8,00   | 608            |
| 034452 | LS11051001  |        | 1,0 - 1,25 | 0,55 | 0,12 | 6,70 | 4,30 | 8,00 | 3,50 | 11,00  | 611            |
| 034453 | LS11081501  |        | 1,5 - 1,75 | 0,81 | 0,18 | 6,70 | 4,30 | 8,00 | 3,50 | 11,00  | 611            |
| 034454 | LS14051001  |        | 1,0 - 1,25 | 0,55 | 0,12 | 9,00 | 5,40 | 9,00 | 4,70 | 14,00  | 614            |
| 034455 | LS14081501  |        | 1,5 - 1,75 | 0,81 | 0,18 | 9,00 | 5,40 | 9,00 | 4,50 | 14,00  | 614            |



**Mini-Cut 60° Threading Partial Profile**

| EDP    | Description | Grade  | Dimensions |      |      |      |      |      |      |        | Type of Holder |
|--------|-------------|--------|------------|------|------|------|------|------|------|--------|----------------|
|        |             |        | Pitch      | t    | b    | f    | s    | d    | E    | D min. |                |
| 034436 | RS08081501  | SP4036 | 1,5 - 1,75 | 0,95 | 0,18 | 4,80 | 3,50 | 6,00 | 2,50 | 8,00   | 608            |
| 034437 | RS11102001  |        | 2          | 1,08 | 2,25 | 6,70 | 4,30 | 8,00 | 3,00 | 11,00  | 611            |
| 034438 | RS14102001  |        | 2          | 1,08 | 0,25 | 9,00 | 5,40 | 9,00 | 4,20 | 14,00  | 614            |
| 034439 | RS14132501  |        | 2,5        | 1,35 | 0,31 | 9,00 | 5,40 | 9,00 | 4,70 | 14,00  | 614            |
| 034440 | RS08020501  |        | 0,5 - 0,75 | 0,43 | 0,06 | 4,80 | 3,50 | 6,00 | 2,70 | 8,00   | 608            |
| 034441 | RS08051001  |        | 1,0 - 1,25 | 0,55 | 0,12 | 4,80 | 3,50 | 6,00 | 2,70 | 8,00   | 608            |
| 034442 | RS11051001  |        | 1,0 - 1,25 | 0,55 | 0,12 | 6,70 | 4,30 | 8,00 | 3,50 | 11,00  | 611            |
| 034443 | RS11081501  |        | 1,5 - 1,75 | 0,81 | 0,18 | 6,70 | 4,30 | 8,00 | 3,50 | 11,00  | 611            |
| 034444 | RS14051001  |        | 1,0 - 1,25 | 0,55 | 0,12 | 9,00 | 5,40 | 9,00 | 4,70 | 14,00  | 614            |
| 034445 | RS14081501  |        | 1,5 - 1,75 | 0,81 | 0,18 | 9,00 | 5,40 | 9,00 | 4,50 | 14,00  | 614            |



### Mini-Cut Carbide Toolholders

| EDP    | Description | Dimensions         |       |        |       |      |       |       |             |           |          |
|--------|-------------|--------------------|-------|--------|-------|------|-------|-------|-------------|-----------|----------|
|        |             | $\varnothing dg_6$ | $d_1$ | $l_1$  | $l_2$ | $f$  | $a$   | $h$   | Insert Type | $t_{max}$ | Min Bore |
| 034466 | GHM60800122 | 12,00              | 6,00  | 90,00  | 30,00 | 4,80 | 7,80  | 11,00 | R/L S08     | 1,00      | 8,00     |
| 034467 | GHM60800124 |                    | 6,00  | 115,00 | 50,00 | 4,80 | 7,80  | 11,00 | R/L S08     | 1,00      | 8,00     |
| 034468 | GHM61100123 |                    | 8,00  | 120,00 | 56,00 | 6,70 | 10,70 | 10,50 | R/L S11     | 2,30      | 11,00    |
| 034469 | GHM61400162 | 16,00              | 9,50  | 110,00 | 45,00 | 8,75 | 13,50 | 14,50 | R/L S14     | 4,0       | 14       |
| 034470 | GHM61400164 |                    | 9,50  | 145,00 | 75,00 | 8,75 | 13,50 | 15,00 | R/L S14     | 4,0       | 14       |

For Inserts See pages C275 - C277

\* dimension as per insert



# PART-OFF

## Part-Off

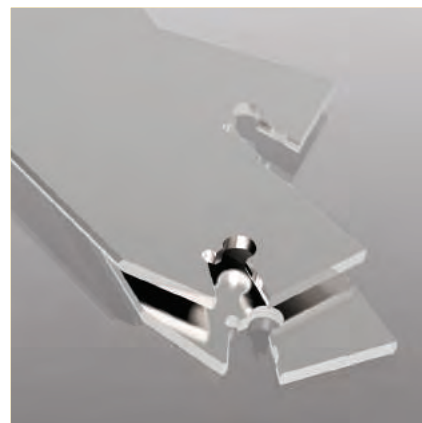




## Part-Off Grade Description

MP91M CVD Coated grade offering good wear, and shock resistance. Ideal for Steels and Cast Irons

| Cutting Speed $v_c$ |                 |                                                                     |             |
|---------------------|-----------------|---------------------------------------------------------------------|-------------|
| ISO                 | Materials       | Rm and Hardness                                                     | CVD         |
|                     |                 |                                                                     | MP91M       |
|                     |                 |                                                                     | m/min       |
|                     |                 |                                                                     | min. - max. |
| P                   | Unalloyed Steel | <600 N/mm <sup>2</sup><br><180 HBN                                  | 140- 345    |
|                     |                 | <950 N/mm <sup>2</sup><br><280 HBN                                  | 125 - 300   |
|                     | Alloyed Steel   | 700-950 N/mm <sup>2</sup><br>200-280 HBN                            | 105 - 270   |
|                     |                 | 950-1200 N/mm <sup>2</sup><br>280-355 HBN                           | 80 - 205    |
|                     |                 | 1200-1400 N/mm <sup>2</sup><br>355-415 HBN                          | 50 - 130    |
| K                   | Cast Iron       | Grey<br>GG-Ft                                                       | 145 - 365   |
|                     |                 | Spheroidal-Ductile<br>GGG-FGS                                       | 115 - 285   |
|                     |                 | Malleable<br>GTS - MN/MP                                            | 105 - 260   |
| H                   | Hard Materials  | Hard Steel<br>>1400 N/mm <sup>2</sup><br>>415 HBN                   | 50 - 80     |
|                     |                 | Chilled Cast Iron <sup>2</sup><br>1400 N/mm <sup>2</sup><br>400 HBN | 40 - 65     |



## Optimum Grade Performance

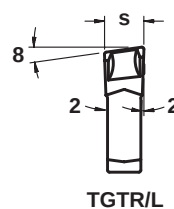
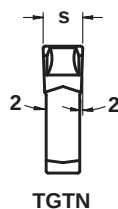
| Grade Classifications |                              |      |                  |
|-----------------------|------------------------------|------|------------------|
|                       | Materials                    | Code | CVD Coated MP91M |
| <b>P</b>              | Unalloyed and Alloyed Steels | P01  |                  |
|                       |                              | P05  |                  |
|                       |                              | P10  |                  |
|                       |                              | P15  |                  |
|                       |                              | P20  |                  |
|                       |                              | P25  |                  |
|                       |                              | P30  |                  |
|                       |                              | P35  |                  |
|                       |                              | P40  |                  |
|                       |                              | P45  |                  |
|                       |                              | P50  |                  |
| <b>K</b>              | Cast Irons                   | K01  |                  |
|                       |                              | K05  |                  |
|                       |                              | K10  |                  |
|                       |                              | K15  |                  |
|                       |                              | K20  |                  |
|                       |                              | K25  |                  |
|                       |                              | K30  |                  |
|                       |                              | K35  |                  |
|                       |                              | K40  |                  |
|                       |                              | K45  |                  |
| <b>H</b>              | Hard Materials               | H01  |                  |
|                       |                              | H05  |                  |
|                       |                              | H10  |                  |
|                       |                              | H15  |                  |
|                       |                              | H20  |                  |
|                       |                              | H25  |                  |
|                       |                              | H30  |                  |
|                       |                              | H35  |                  |

Increasing - wear resistance  
Increasing - shock resistance





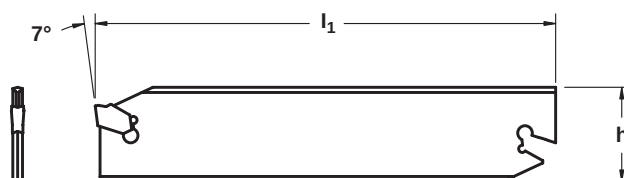
## TGT Inserts



| TGT Inserts |             |       |            |
|-------------|-------------|-------|------------|
| EDP         | Description | Grade | Dimensions |
|             |             |       | s (mm)     |
| 012958      | TGTN2       | MP91M | 2,21       |
| 012959      | TGTN2,4     | MP91M | 2,39       |
| 012960      | TGTN3       | MP91M | 3,1        |
| 012961      | TGTN4       | MP91M | 4,09       |
| 012962      | TGTN4,8     | MP91M | 4,78       |
| 012963      | TGTN5       | MP91M | 5,08       |
| 012964      | TGTN6       | MP91M | 6,35       |
| 014091      | TGTR38      | MP91M | 3,1        |
| 014092      | TGTL38      | MP91M | 3,1        |



## Hardened Steel Blades



### Blade

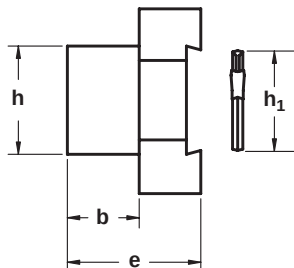
| EDP    | Description  | Dimensions (mm) |                |       |           |
|--------|--------------|-----------------|----------------|-------|-----------|
|        |              | h               | l <sub>1</sub> | Ø Max | Inserts   |
| 015199 | SGIH26.2PSHD | 26              | 110            | 75    | TGT 2/2,4 |
| 015200 | SGIH26.3PSHD | 26              | 110            | 75    | TGT 3     |
| 015201 | SGIH26.4PSHD | 26              | 110            | 75    | TGT 4     |
| 017232 | SGIH26.5PSHD | 26              | 110            | 75    | TGT 4,8/5 |
| 015202 | SGIH32.3PSHD | 32              | 150            | 100   | TGT 3     |
| 015203 | SGIH32.4PSHD | 32              | 150            | 100   | TGT 4     |
| 017234 | SGIH32.5PSHD | 32              | 150            | 125   | TGT 4,8/5 |
| 017235 | SGIH32.6PSHD | 32              | 150            | 125   | TGT 6     |

### Spare Part

| Extracting Key              | Description | EDP    |
|-----------------------------|-------------|--------|
| SGIH26.2PSHD - SGIH32.6PSHD | E219EXTKEY  | 017031 |



## Tool Blocks



| Block  |             |                 |    |    |             |       |        |
|--------|-------------|-----------------|----|----|-------------|-------|--------|
| EDP    | Description | Dimensions (mm) |    |    | Spare Parts |       |        |
|        |             | h1              | b  | h  | EDP         | Screw | Key    |
| 030659 | SGTB2620    | 26              | 20 | 20 | 034612      | 1076  | 018288 |
| 030660 | SGTB2625    | 26              | 25 | 25 |             |       |        |
| 030661 | SGTB3220    | 32              | 20 | 20 |             |       |        |
| 030662 | SGTB3225    | 32              | 25 | 25 |             |       |        |
| 030663 | SGTB3232    | 32              | 32 | 32 |             |       |        |