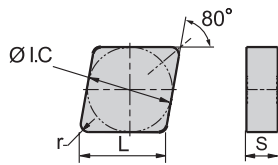


☀ Unfavorable Machining Condition  
Ungünstige Bearbeitungsbedingungen

☀ Ideal Machining Condition  
Gute Bearbeitungsbedingungen

☀ Normal Machining Condition  
Normale Bearbeitungsbedingungen



|                                  |                         |   |   |   |
|----------------------------------|-------------------------|---|---|---|
| Workpiece Material<br>Werkstoffe | P Steel / Stahl         | ● |   |   |
|                                  | K Cast iron / Gusseisen | ● | ● | ☀ |

| Insert Shape<br>Schneid-<br>plattenform | Type · Typ       | Dimension (mm)<br>Abmessung |        |      |   |     | Grade · Sorte |        |        |
|-----------------------------------------|------------------|-----------------------------|--------|------|---|-----|---------------|--------|--------|
|                                         |                  | L                           | I.C    | S    | d | r   | CA1000        | CN1000 | CN2000 |
|                                         | CNGN120404T02020 | 12.9                        | 12.7   | 4.76 | - | 0.4 | ○             | ○      | ○      |
|                                         | CNGN120408T02020 | 12.9                        | 12.7   | 4.76 | - | 0.8 | ●             | ●      | ●      |
|                                         | CNGN120412T02020 | 12.9                        | 12.7   | 4.76 | - | 1.2 | ●             | ○      | ○      |
|                                         | CNGN120708T02020 | 12.9                        | 12.7   | 7.94 | - | 0.8 | ○             | ○      | ●      |
|                                         | CNGN120712T02020 | 12.9                        | 12.7   | 7.94 | - | 1.2 | ●             | ○      | ○      |
|                                         | CNGN120716T02020 | 12.9                        | 12.7   | 7.94 | - | 1.6 | ○             | ○      | ○      |
|                                         | CNGN160408T02020 | 16.1                        | 15.875 | 4.76 | - | 0.8 | ○             |        |        |
|                                         | CNGN160412T02020 | 16.1                        | 15.875 | 4.76 | - | 1.2 | ○             | ○      | ○      |
|                                         | CNGN160416T02020 | 16.1                        | 15.875 | 4.76 | - | 1.6 | ○             | ○      | ○      |
|                                         | CNGN160612T02020 | 16.1                        | 15.875 | 6.35 | - | 1.2 | ○             | ○      |        |
|                                         | CNGN160616T02020 | 16.1                        | 15.875 | 6.35 | - | 1.6 | ○             | ○      | ○      |

Tool Holder · Klemmhalter



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# Turning · Drehen

Recommended Grade Overview (Inserts) · Empfohlene Sorten Übersicht (WSP)

| ISOGeneral Turning · Allgemeine Drehbearbeitung         |                       |        |        |        |                         |                       |                    |                                   |        | Threading<br>Gewinde | Parting and Grooving<br>Ab- und Einstechen |                         |        |                                   |
|---------------------------------------------------------|-----------------------|--------|--------|--------|-------------------------|-----------------------|--------------------|-----------------------------------|--------|----------------------|--------------------------------------------|-------------------------|--------|-----------------------------------|
| Code                                                    | Coating · beschichtet |        |        |        | Cermet<br>unbeschichtet | Cermet<br>beschichtet | Ceramic<br>Keramik | cemented<br>carbide<br>Hartmetall | PCBN   | PCD                  | Coated<br>beschichtet                      | Coated ·<br>beschichtet |        | cemented<br>carbide<br>Hartmetall |
|                                                         | CVD                   |        | PVD    |        |                         |                       |                    |                                   |        |                      | PVD                                        | CVD                     | PVD    |                                   |
| <b>P</b><br>Steel · Stahl                               | 01                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 10                    | YBC151 | YBC152 |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 20                    |        | YBC251 | YBC252 |                         |                       | CA1000             | YC10                              |        |                      | YBG201                                     | YBG202                  |        |                                   |
|                                                         | 30                    |        |        | YBC351 |                         |                       |                    | YC40                              |        |                      |                                            | YBC251                  | YBG202 | YBG302                            |
|                                                         | 40                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
| <b>M</b><br>Stainless Steel · Rostfreier Stahl          | 01                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 10                    | YBM151 |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 20                    |        | YBM251 |        | YBG202                  | YBG205                |                    |                                   |        |                      | YBG201                                     | YBG202                  |        |                                   |
|                                                         | 30                    |        |        | YBM351 |                         | YBG302                |                    |                                   |        |                      |                                            |                         | YBG202 | YBG302                            |
|                                                         | 40                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
| <b>K</b><br>Cast Iron · Gusseisen                       | 01                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 10                    | YBD052 | YBD102 | YBD152 | YBD151                  |                       | CN1000             | CA1000                            |        |                      |                                            |                         |        |                                   |
|                                                         | 20                    |        |        |        |                         |                       |                    | YD051                             | YCB211 | YCB011               |                                            |                         |        |                                   |
|                                                         | 30                    |        | YBD252 |        |                         |                       | CN2000             | YD201                             |        |                      | YBG201                                     |                         | YBG302 | YD201                             |
|                                                         | 40                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
| <b>N</b><br>Non-ferrous materials<br>NE Metalle         | 01                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 10                    |        |        |        | YBG102                  |                       |                    |                                   |        |                      | YCD421                                     | YCD011                  |        |                                   |
|                                                         | 20                    |        |        |        |                         |                       |                    | YD101                             |        |                      |                                            |                         |        | YD201                             |
|                                                         | 30                    |        |        |        |                         |                       |                    |                                   |        |                      | YBG201                                     |                         |        |                                   |
|                                                         | 40                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
| <b>S</b><br>Heat-resistant steel<br>Superlegierungen    | 01                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 10                    |        |        |        | YBG102                  |                       | YNG151C            |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 20                    |        |        |        | YBG202                  | YBG205                |                    | YD101                             |        |                      | YBG201                                     |                         | YBG102 | YD201                             |
|                                                         | 30                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         | YBG302 |                                   |
|                                                         | 40                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
| <b>H</b><br>super Hard Material<br>Gehärtete Werkstoffe | 01                    |        |        |        |                         |                       |                    |                                   | YCB121 | YCB111               |                                            |                         |        |                                   |
|                                                         | 10                    |        |        |        |                         |                       |                    |                                   |        | YCB012               |                                            |                         |        |                                   |
|                                                         | 20                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |
|                                                         | 30                    |        |        |        |                         |                       |                    |                                   | YCB031 |                      |                                            |                         |        |                                   |
|                                                         | 40                    |        |        |        |                         |                       |                    |                                   |        |                      |                                            |                         |        |                                   |

|          |                                    |
|----------|------------------------------------|
| <b>P</b> | Steel / Stahl                      |
| <b>M</b> | Stainless Steel / Rostfreier Stahl |
| <b>K</b> | Cast iron / Gusseisen              |

|          |                                          |
|----------|------------------------------------------|
| <b>N</b> | Non Ferrous materials · Ne Metalle       |
| <b>S</b> | Heat-resistant steel · Warmfester Stahl  |
| <b>H</b> | Hardened material · Gehärtete Werkstoffe |

### Internal grooving · Innenbearbeitung

- Follow the machining sequence as shown in the picture.  
Good for chip flow, always feed along the direction of moving from the deepest in the hole to outside.
- Bearbeitungsfolge gemäß Skizze. Bei der Bearbeitung von Sackbohrungen, sollte zur besseren Spanabfuhr von innen nach außen gearbeitet werden.



### Recommended cutting parameters · Empfohlene Schnittparameter

| Inserts Size<br>Stechplatte Größe       |  | Recommended feed rate (mm/rev) · Empfohlener Vorschub (mm/U) |                        |                   |                           |
|-----------------------------------------|--|--------------------------------------------------------------|------------------------|-------------------|---------------------------|
| Inserts width(mm)<br>Stechplatte Breite |  | Parting<br>Abstechen                                         | Grooving<br>Einstechen | Turning<br>Drehen | Profiling<br>Profildrehen |
| 2.5                                     |  | 0.05—0.15                                                    | 0.05—0.15              | 0.05—0.15         | 0.05—0.15                 |
| 3                                       |  | 0.05—0.15                                                    | 0.05—0.15              | 0.07—0.15         | 0.1—0.2                   |
| 4                                       |  | 0.05—0.2                                                     | 0.05—0.2               | 0.07—0.25         | 0.1—0.2                   |
| 5                                       |  | 0.07—0.2                                                     | 0.07—0.22              | 0.1—0.25          | 0.15—0.3                  |
| 6                                       |  | 0.1—0.3                                                      | 0.07—0.25              | 0.1—0.3           | 0.15—0.3                  |

| Workpiece Material<br>Werkstück Material |                                                      | Hardness<br>Härte | YBG302  | YBG202  | YBC151  | YBC251  | YD101   | YD201  | YBG102 | YC10    | YC40    |
|------------------------------------------|------------------------------------------------------|-------------------|---------|---------|---------|---------|---------|--------|--------|---------|---------|
| P                                        | Carbon steel<br>Kohlenstoffstahl                     | 125≤HB≤170        | 120-260 | 150-280 | 140-280 | 150-280 |         |        |        | 130-280 | 110-260 |
|                                          | Low alloy steel<br>niedrig legierter Stahl           | 180≤HB≤275        | 80-175  | 110-200 | 100-240 | 110-200 |         |        |        | 90-200  | 70-175  |
|                                          | High alloy steel<br>Hoch legierter Stahl             | 180≤HB≤325        | 80-160  | 110-190 | 100-220 | 110-190 |         |        |        | 90-190  | 70-160  |
|                                          | Cast steel<br>Stahlguss                              | 180≤HB≤250        | 75-140  | 100-170 | 80-160  | 100-170 |         |        |        | 80-170  | 60-140  |
| M                                        | Ferrite<br>Martensite                                | 200≤HB≤300        | 70-170  | 100-200 |         | 100-200 |         |        |        | 80-200  | 60-170  |
|                                          | Austenite                                            | 180≤HB≤300        | 80-200  | 110-220 |         | 110-220 |         |        |        | 90-220  | 70-200  |
| K                                        | Malleable cast iron<br>Temperguss                    | 130≤HB≤230        | 100-200 | 130-220 |         |         |         | 90-160 |        |         |         |
|                                          | Grey cast iron<br>Grauguss                           | 180≤HB≤220        | 90-170  | 120-200 |         |         |         | 80-140 |        |         |         |
|                                          | Nodular cast iron                                    | 160≤HB≤250        | 80-150  | 110-180 |         |         |         | 60-140 |        |         |         |
| N                                        | Al alloy<br>Alu-Legierung                            | --                |         |         |         |         | 200-400 |        |        |         |         |
| S                                        | Heat resistant alloy<br>hitzebeständigen Legierungen | ≤400              |         |         |         |         | 20-50   |        | 30-60  |         |         |

The cutting parameters recommended are suitable for wet machining.

Die angegebenen Schnittparameter werden für die Bearbeitung mit Kühlfüssigkeit empfohlen.

Advice: internal machining and Axial machining, The cutting speed should be reduced by 30%-40%.

Hinweis: Bei Innen- und Axialstechen, sollte die Schnittgeschwindigkeit um 30%-40% reduziert werden.

### Chip breaker Overview · Spanbrecher Übersicht

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Schruppen<br>Roughing | <div> <div> <b>P M</b><br/> <math>ap \cdot d.o.c. = 5 \sim 15(\text{mm})</math><br/> <math>f = 0.5 \sim 1.2(\text{mm/r})</math> </div> <div>  </div> </div> <div> <div> <b>HDR</b><br/>  </div> <p>Chip breaker with strong cutting edge and resistant to plastic deformation for single side inserts. Suitable for rough machining with high metal cutting rate for steel and stainless steel application.</p> <p>Spanbrecher mit stabiler Schneidkantenausführung mit hoher Deformationsbeständigkeit für einseitige Wendeschneidplatten. Anwendung für die Schruppbearbeitung von Stahl und rostfreiem Stahl.</p> </div> |  |
|                       | <div> <div> <b>K</b><br/> <math>ap \cdot d.o.c. = 0.3 \sim 12(\text{mm})</math><br/> <math>f = 0.1 \sim 0.6(\text{mm/r})</math> </div> <div>  </div> </div> <div> <div> <b>Flat</b><br/>  </div> <p>Flat insert without chip breaker. Stable insert with high edge strength for roughing operation in cast iron materials.</p> <p>Glatte Platte ohne Spanbrecher. Mit einer stabilen Schneidkante für die Schruppbearbeitung von Gusswerkstoffen.</p> </div>                                                                                                                                                               |  |
| CBN & PCD             | <div> <div> <b>PCBN H</b><br/> <math>ap \cdot d.o.c. = 0.05 \sim 0.5(\text{mm})</math><br/> <math>f = 0.05 \sim 0.3(\text{mm/r})</math> </div> <div> <b>PKD N</b><br/>  </div> </div> <div> <div> <b>Flat</b><br/>  </div> <p>Special grades: for machining of hardened materials and cast iron (CBN).<br/>for machining of non-ferrous metals (e.g. Aluminium) and non-metal materials (PCD)</p> <p>Spezielle Sorten: Für die Bearbeitung von gehärteten Stählen, Gusswerkstoffen (CBN). Für die Bearbeitung von NE-Metallen (z.B. Aluminium) und nicht-metallischen Werkstoffen (PCD)</p> </div>                      |  |
|                       | <div> <div> <b>K H P</b><br/> <math>ap \cdot d.o.c. = 0.1 \sim 3(\text{mm})</math><br/> <math>f = 0.05 \sim 0.4(\text{mm/r})</math> </div> <div>  </div> </div> <div> <div> <b>Flat</b><br/>  </div> <p>Ceramic inserts for machining of hardened steel, cast iron and steel.</p> <p>Keramikwendeschneidplatten für die Bearbeitung von gehärtetem Stahl, Gusswerkstoffen und Stahl.</p> </div>                                                                                                                                                                                                                         |  |
| Ceramic Insert        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |