

**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

| CN**  | L    | I.C  | S    | d    |
|-------|------|------|------|------|
| 12 04 | 12.9 | 12.7 | 4.76 | 5.16 |

## Turning inserts

| CN** negative insert |                      |                |   |  | HC <sup>1</sup> (CVD) |         |           |        |        |        |        |        | HC <sup>1</sup> (PVD) |        |        | HT      | HC <sup>2</sup> | HW     |        |        |        |        |        |        |        |         |       |       |  |
|----------------------|----------------------|----------------|---|--|-----------------------|---------|-----------|--------|--------|--------|--------|--------|-----------------------|--------|--------|---------|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|-------|-------|--|
|                      |                      |                |   |  | P                     | ●       | ●         | ●      | ⊗      | ⊗      | ⊗      |        |                       |        |        |         |                 |        |        |        |        |        |        |        |        |         |       |       |  |
|                      |                      |                |   |  | M                     |         |           |        |        |        | ●      | ⊗      | ●                     | ●      | ⊗      | ⊗       | ●               | ●      |        |        |        |        |        |        |        |         |       |       |  |
|                      |                      |                |   |  | K                     |         |           |        |        |        |        |        |                       | ●      | ⊗      | ⊗       |                 |        |        |        |        |        |        |        |        |         |       |       |  |
|                      |                      |                |   |  | N                     |         |           |        |        |        |        |        |                       |        |        | ●       | ●               |        |        | ●      | ⊗      |        |        |        |        |         |       |       |  |
|                      |                      |                |   |  | S                     |         |           |        |        |        |        |        |                       |        |        |         |                 | ●      | ●      |        | ●      | ⊗      |        |        |        |         |       |       |  |
|                      |                      |                |   |  | H                     |         |           |        |        |        |        |        |                       |        |        |         |                 |        |        |        |        |        |        |        |        |         |       |       |  |
| ISO                  | r                    | a <sub>p</sub> | f |  | YBC103                | YB6315  | YBC152    | YBC203 | YBC252 | YBC352 | YBM153 | YBM253 | YBD102                | YB7315 | YBD152 | YBD152C | YBG101          | YBG102 | YBG105 | YBG205 | YB9320 | YPD201 | YBS103 | YNG151 | YNT251 | YNG151C | YD101 | YD201 |  |
| NF<br>               | <b>CNEG120404-NF</b> |                |   |  | 0.4                   | 0.2-2.5 | 0.05-0.30 |        |        |        |        |        |                       |        |        |         | ○               | ●      |        |        |        |        |        |        |        |         | ○     |       |  |
|                      | <b>CNEG120408-NF</b> |                |   |  | 0.8                   | 0.2-2.5 | 0.10-0.35 |        |        |        |        |        |                       |        |        |         |                 | ○      | ●      |        |        |        |        |        |        |         |       | ○     |  |
|                      | <b>CNEG120412-NF</b> |                |   |  | 1.2                   | 0.2-2.5 | 0.13-0.40 |        |        |        |        |        |                       |        |        |         |                 | ○      | ●      |        |        |        |        |        |        |         |       | ○     |  |
| Finishing            |                      |                |   |  |                       |         |           |        |        |        |        |        |                       |        |        |         |                 |        |        |        |        |        |        |        |        |         |       |       |  |
| XF<br>               | <b>CNMG120404-XF</b> |                |   |  | 0.4                   | 0.5-2.5 | 0.1-0.25  | ●      |        |        | ●      |        |                       |        |        |         |                 |        |        |        |        |        |        |        |        |         |       |       |  |
|                      | <b>CNMG120408-XF</b> |                |   |  | 0.8                   | 0.5-2.5 | 0.1-0.30  | ●      |        |        | ●      |        |                       |        |        |         |                 |        |        |        |        |        |        |        |        |         |       |       |  |
|                      | <b>CNMG120412-XF</b> |                |   |  | 1.2                   | 0.5-2.5 | 0.1-0.35  | ●      |        |        | ●      |        |                       |        |        |         |                 |        |        |        |        |        |        |        |        |         |       |       |  |
| Finishing            |                      |                |   |  |                       |         |           |        |        |        |        |        |                       |        |        |         |                 |        |        |        |        |        |        |        |        |         |       |       |  |

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

Milling

**C**

Drilling

**D**

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| Tool holder |         |         |         |         |              |
|-------------|---------|---------|---------|---------|--------------|
| DCLNR/L     | PCBNR/L | PCLNR/L | MCBNR/L | MCLNR/L | S***-PCLNR/L |
| Kr: 95°     | Kr: 75° | Kr: 95° | Kr: 75° | Kr: 95° | Kr: 95°      |
|             |         |         |         |         |              |
| A230        | A237    | A238    | A252    | A253    | A324         |

System code > A48

Grade selection > A42

Technical info > A501

Cutting data > A366

**P** Negative inserts

| Chip breaker | Application      | Application fields | Cutting edge design |
|--------------|------------------|--------------------|---------------------|
| SF           | Fine-finishing   |                    |                     |
| DF           | Finishing        |                    |                     |
| XF           | Finishing        |                    |                     |
| ADF          | Finishing        |                    |                     |
| DM           | Medium machining |                    |                     |
| PM           | Medium machining |                    |                     |
| ZM           | Medium machining |                    |                     |
| XM           | Medium machining |                    |                     |
| WG           | Medium machining |                    |                     |
| Basic        | Medium machining |                    |                     |
| DR           | Roughing         |                    |                     |

**A**

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Drilling

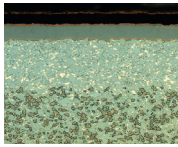
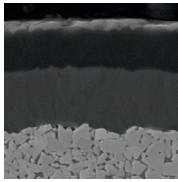
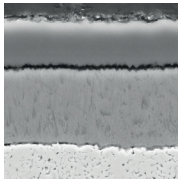
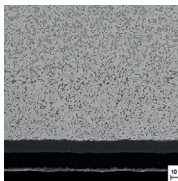
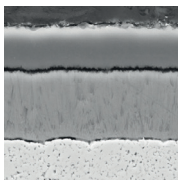
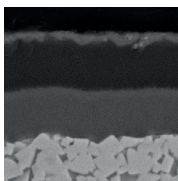
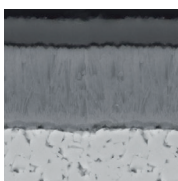
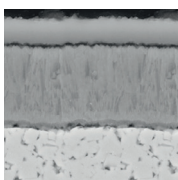
**D**

Technical Information

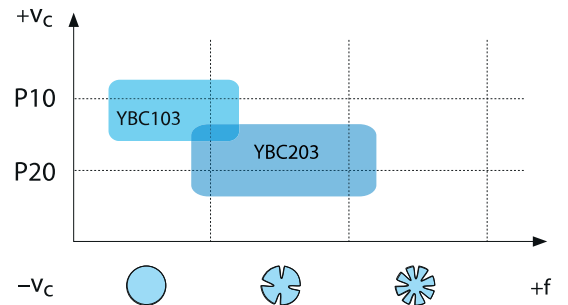
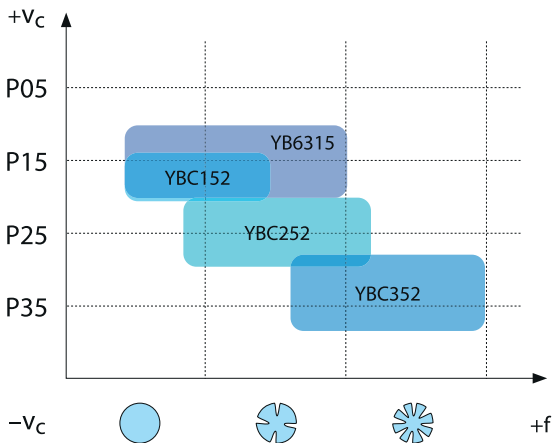
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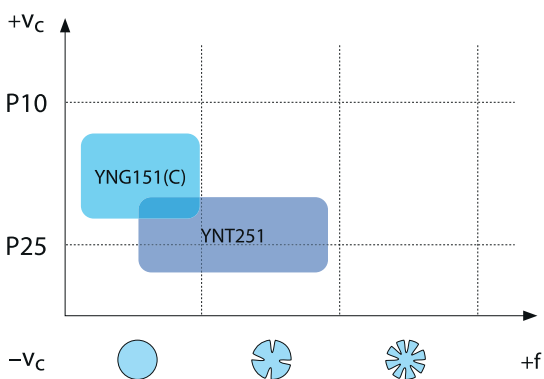
## Coated cemented carbide CVD

| Grade         | ISO       | Micro structure   | Grade description   |
|---------------|-----------|---|---|
| <b>A</b>      |           | Turning   |   |
|               |           |   |   |
| <b>YBC103</b> | P05 – P15 |    | P10 grade with excellent wear resistance at higher cutting speeds. Latest sinter processes and CVD coating technologies enable a wide range of applications in the P material range.                                      |
| <b>B</b>      |           | Milling   |   |
|               |           |   |   |
| <b>YB6315</b> | P05 – P20 |    | CVD coated P10–P20 carbide grade for finishing to medium operation of steel, casting steel and high chrome material. Outstanding performance under high cutting speed and temperature with excellent wear resistance.     |
| <b>YBC152</b> | P10 – P20 |    | CVD coated P10–P20 carbide grade for finishing to medium operation of steel and casting steel. Outstanding performance under higher cutting speed and temperature with excellent wear resistance.                         |
| <b>C</b>      |           | Drilling  |   |
|               |           |   |   |
| <b>YBC203</b> | P15 – P25 |   | P20 grade with exceptional wear resistance and toughness for reliable machining operations. Ultra-modern sintering technique and CVD coating technologies allow for a wide range of applications in the P material range. |
| <b>YBC252</b> | P20 - P35 |  | CVD coated P20–P35 carbide grade for medium operation to roughing of steel and casting steel. Optimal performance of wear resistance and toughness for a wide application field.  |
| <b>D</b>      |           | Technical Information   |   |
|               |           |   |   |
| <b>YBC352</b> | P20 - P40 |  | CVD coated P20–P40 carbide grade for roughing operation of steel and casting steel. Optimal performance of wear resistance and toughness for a wide application field.  |
| <b>YBM153</b> | M10 - M25 |  | CVD coated M10–M25 carbide grade for finishing to medium application in stainless steel. High wear resistance and capability against plastic deformation at higher cutting speed.   |
| <b>E</b>      |           | Index   |   |
|               |           |   |   |
| <b>YBM253</b> | M15 - M35 |  | CVD coated M15–M35 carbide grade for medium to roughing operation in stainless steel with wide application field. High wear resistance and capability against plastic deformation at higher cutting speed.                |

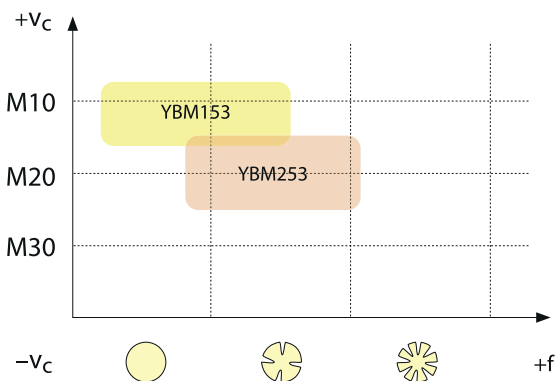
## CVD coated carbide grades for steel



## Cermet grades for steel



## CVD coated carbide grades for stainless steel



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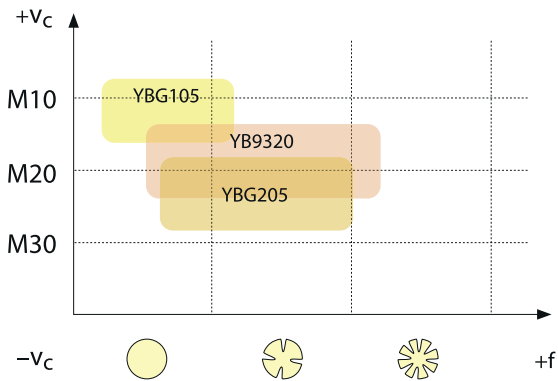
D

Technical Information

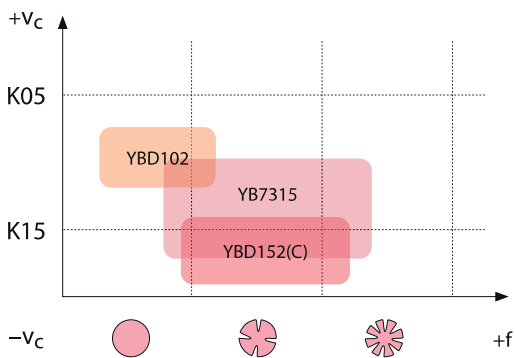
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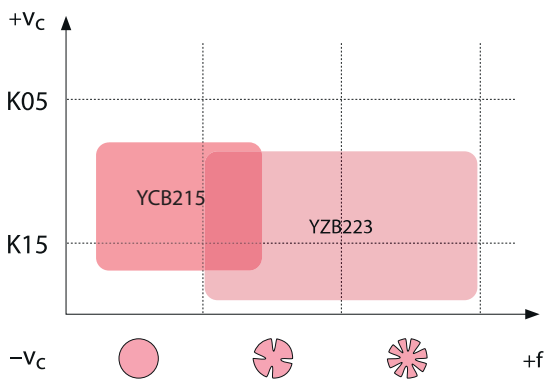
**PVD coated carbide grades for stainless steel**



**CVD coated carbide grades for cast iron**



**CBN grades for cast iron**



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Information

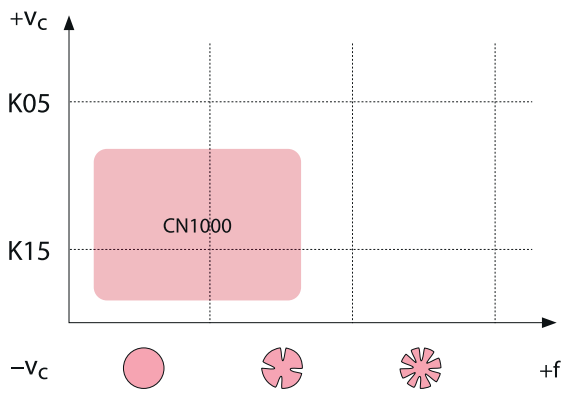
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**A**

Turning

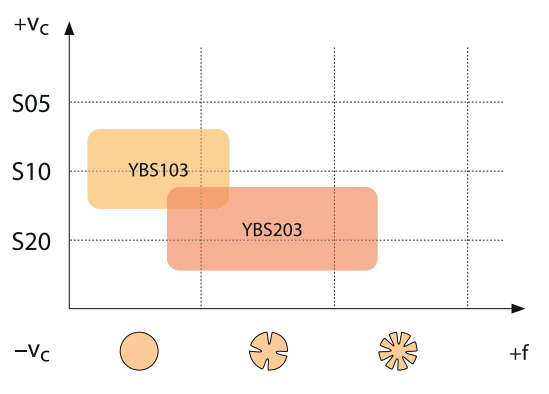
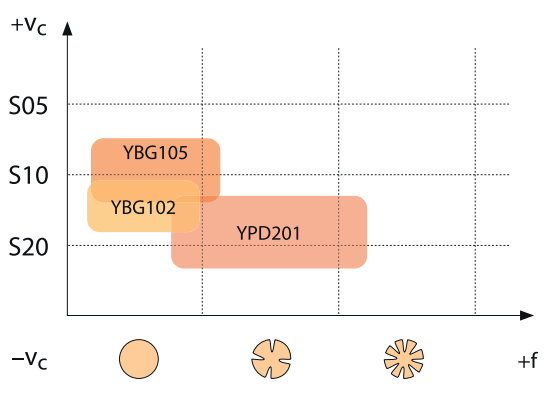
## Ceramic grades for cast iron



**B**

Milling

## PVD coated carbide grades for superalloys



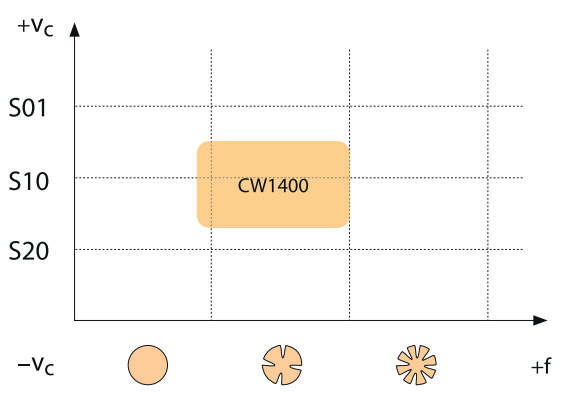
**C**

Drilling

**D**

Technical Information

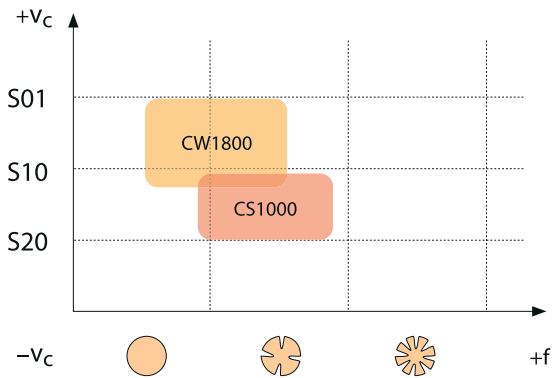
## Ceramic grades for cobalt base alloys/HSS



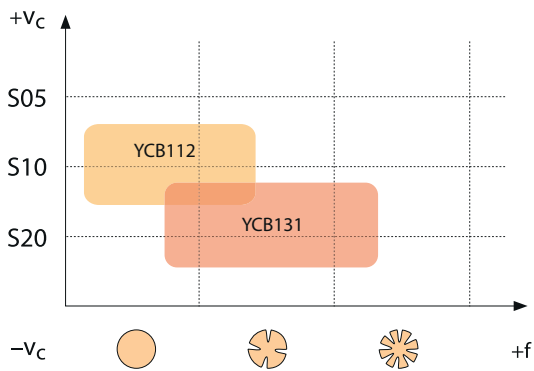
**E**

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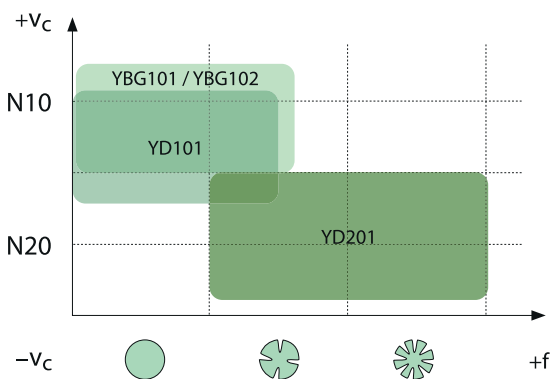
**Ceramic grades for nickel base alloys**



**CBN grades for superalloys**



**Carbide grades for non-ferrous metals**



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Technical  
Information

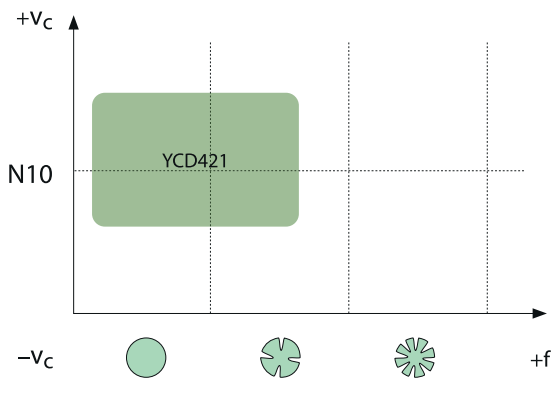
**E**

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**A**

Turning

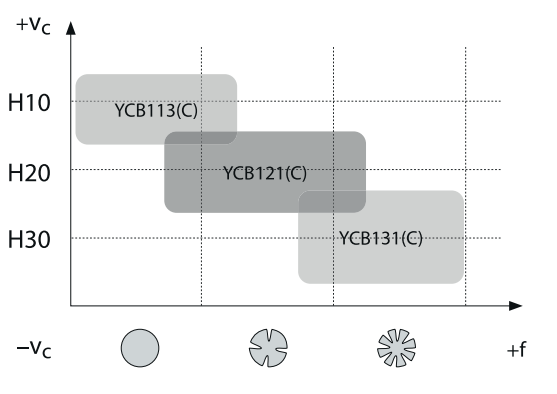
## PCD grades for non-ferrous metals



**B**

Milling

## CBN grades for hardened steel



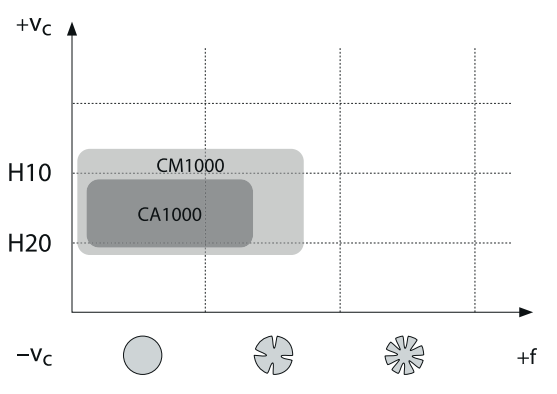
**C**

Drilling

**D**

Technical Information

## Ceramic grades for hardened steel



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Application fields of grades – general turning

|          | ISO | HC <sup>1</sup> (CVD) | HC <sup>1</sup> (PVD) | HT     | HC <sup>2</sup> | Ceramic | HW    | CBN       | PCD    |
|----------|-----|-----------------------|-----------------------|--------|-----------------|---------|-------|-----------|--------|
| <b>P</b> | P01 | YBC103                |                       |        |                 |         |       |           |        |
|          | P10 | YB6315                |                       | YNG151 | YNG151C         |         |       |           |        |
|          | P20 | YBC152                |                       | YNT251 |                 |         |       |           |        |
|          | P30 | YBC203                |                       |        |                 |         |       |           |        |
|          | P40 | YBC252                |                       |        |                 |         |       |           |        |
|          |     | YBC352                |                       |        |                 |         |       |           |        |
| <b>M</b> | M01 |                       | YBG105                | YNG151 | YNG151C         |         |       |           |        |
|          | M10 | YBM153                | YB9320                |        |                 |         |       |           |        |
|          | M20 | YBM253                | YBG205                |        |                 |         |       |           |        |
|          | M30 |                       |                       |        |                 |         |       |           |        |
|          | M40 |                       |                       |        |                 |         |       |           |        |
| <b>K</b> | K01 |                       |                       |        |                 | CN1000  |       | YCB215    | YZB223 |
|          | K10 | YBD102                |                       |        |                 |         | YD201 |           |        |
|          | K20 | YBD152                |                       |        |                 |         |       |           |        |
|          | K30 | YB7315                |                       |        |                 |         |       |           |        |
|          |     | YBD152C               |                       |        |                 |         |       |           |        |
| <b>N</b> | N01 |                       |                       |        |                 |         |       |           |        |
|          | N10 |                       | YBG101                |        |                 |         | YD101 |           | YCD421 |
|          | N20 |                       | YBG102                |        |                 |         | YD201 |           |        |
|          | N30 |                       |                       |        |                 |         |       |           |        |
| <b>S</b> | S01 |                       | YBS103                |        |                 | C51000  |       | YCB112    |        |
|          | S10 |                       | YBG102                |        |                 | CW1400  |       | YCB131    |        |
|          | S20 |                       | YBG105                |        |                 | CW1800  |       |           |        |
|          | S30 |                       | YB9320                | YPD201 |                 |         |       |           |        |
| <b>H</b> | H01 |                       |                       |        |                 |         |       |           |        |
|          | H10 |                       |                       |        |                 |         |       | YCB113(C) |        |
|          | H20 |                       |                       |        |                 |         |       | YCB121(C) |        |
|          | H30 |                       |                       |        |                 |         |       | YCB131(C) |        |

|          |                 |
|----------|-----------------|
| <b>P</b> | Steel           |
| <b>M</b> | Stainless steel |
| <b>K</b> | Cast iron       |

|          |                       |
|----------|-----------------------|
| <b>N</b> | Non-ferrous metals    |
| <b>S</b> | Heat-resistant alloys |
| <b>H</b> | Hardened materials    |

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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Turning

**B**  
Milling

**C**  
Drilling

















**D**  
Technical Information










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## ISO standard

**T N M G 22 04 08 (N) – DM**

**1 2 3 4 5 6 7 8 9**

| Insert shape   |   |   |
|--|---|---|
| A   | B  | C  |
| D   | E  | H  |
| K   | L  | M  |
| O   | P  | R  |
| S   | T  | V  |
| W  | Z Special   |   |















| Clearance angle  |   |
|--|---|
| A   | B  |
| C   | D  |
| E   | F  |
| G   | N  |
| P  | O Special   |

| Tolerance class |            |            |        |
|-----------------|------------|------------|--------|
| Code            | I.C [mm]   | m [mm]     | S [mm] |
| A               | ±0,025     | ±0,005     | ±0,025 |
| C               | ±0,025     | ±0,013     | ±0,025 |
| E               | ±0,025     | ±0,025     | ±0,025 |
| F               | ±0,013     | ±0,005     | ±0,025 |
| G               | ±0,025     | ±0,025     | ±0,130 |
| H               | ±0,013     | ±0,013     | ±0,025 |
| J               | ±0,05–0,15 | ±0,005     | ±0,025 |
| K               | ±0,05–0,15 | ±0,013     | ±0,025 |
| L               | ±0,05–0,15 | ±0,025     | ±0,025 |
| M               | ±0,05–0,15 | ±0,08–0,20 | ±0,130 |
| N               | ±0,05–0,15 | ±0,08–0,20 | ±0,025 |
| U               | ±0,08–0,25 | ±0,13–0,38 | ±0,130 |









**1**

**2**

**3**

| Fastening features (metric)   |   |
|---|---|
| Insert shape  |   |
| A  | B  |
| C  | F  |
| G  | H  |
| J  | M  |
| N  | Q  |
| R  | T  |
| U  | W  |
| X Special   |   |

**4**

| Cutting edge length l [mm] |   |   |  |   |   |   |   |   |
|----------------------------|---|---|--|---|---|---|---|---|
| I.C [mm]                   | Insert shape  |   |  |   |   |   |   |   |
|                            |  |  |  |  |  |  |  |  |
| 3,97                       | 06  |   |  |   |   |   |   |   |
| 5,0                        | 05  |   |  |   |   |   |   |   |
| 5,56                       | 09  |   |  |   |   |   |   |   |
| 6,0                        | 06  |   |  |   |   |   |   |   |
| 6,35                       | 06  | 07  | 11   |   |   | 11  |   |   |
| 8,0                        | 08  |   |  |   |   |   |   |   |
| 9,525                      | 09  | 11  | 09   | 09  | 16  | 16  | 06  | 16  |
| 10,0                       | 10  |   |  |   |   |   |   |   |
| 12,0                       | 12  |   |  |   |   |   |   |   |
| 12,7                       | 12  | 15  | 12   | 12  | 22  | 22  | 08  |   |
| 15,875                     | 16  |   | 15   | 15  | 27  |   |   |   |
| 16,0                       | 19  |   |  |   |   |   |   |   |
| 19,05                      | 19  |   | 19   | 19  | 33  |   |   |   |
| 20,0                       | 20  |   |  |   |   |   |   |   |
| 25,0                       | 25  | 25  | 25   |   |   |   |   |   |
| 25,4                       | 25  |   |  |   |   |   |   |   |
| 31,75                      | 31  |   |  |   |   |   |   |   |
| 32                         | 32  |   |  |   |   |   |   |   |

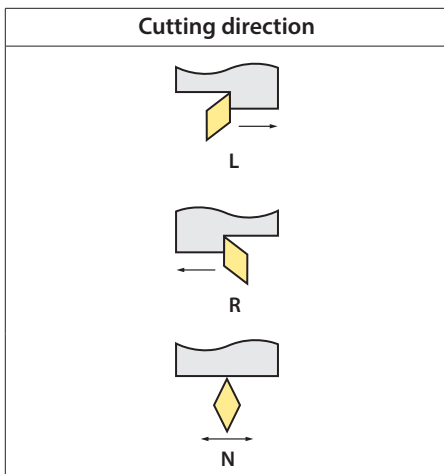
**5**

| Insert thickness S [mm] |      |      |       |
|-------------------------|------|------|-------|
|                         |      |      |       |
| Code                    | S    | Code | S     |
| 00                      | 0,79 | T5   | 5,95  |
| T0                      | 0,99 | 06   | 6,35  |
| 01                      | 1,59 | T6   | 6,75  |
| T1                      | 1,98 | 07   | 7,94  |
| 02                      | 2,38 | 09   | 9,52  |
| T2                      | 2,58 | T9   | 9,72  |
| 03                      | 3,18 | 11   | 11,11 |
| T3                      | 3,97 | 12   | 12,70 |
| 04                      | 4,76 |      |       |
| T4                      | 4,96 |      |       |
| 05                      | 5,56 |      |       |

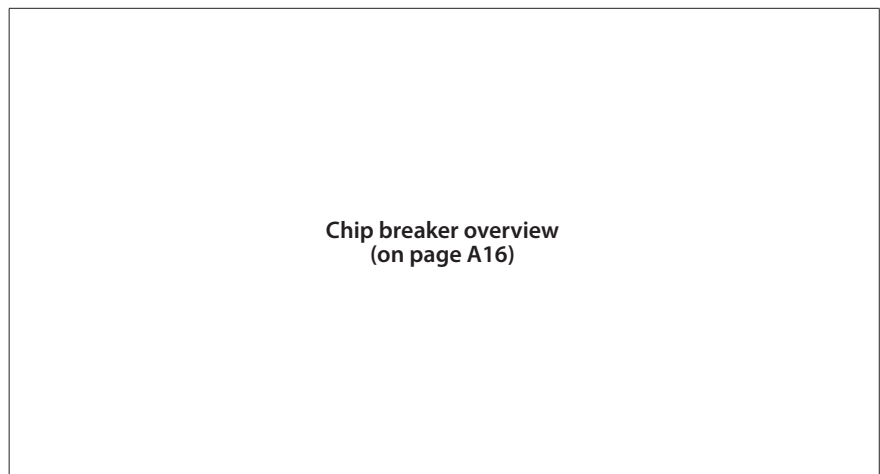
6

| Nose radius r [mm] |               |
|--------------------|---------------|
|                    |               |
| Code               | r             |
| 00                 | –             |
| 02                 | 0,2           |
| 04                 | 0,4           |
| 08                 | 0,8           |
| 12                 | 1,2           |
| 16                 | 1,6           |
| 20                 | 2,0           |
| 24                 | 2,4           |
| 32                 | 3,2           |
| X                  | Special       |
| MO                 | Round inserts |

7

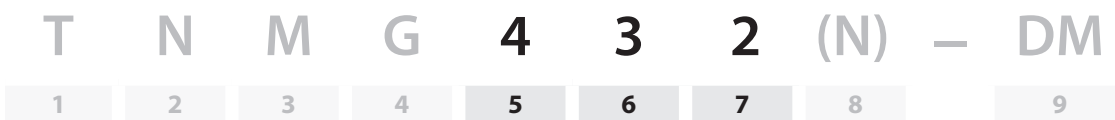


8



9

**ANSI standard**



| Inner circle |        |       |
|--------------|--------|-------|
| Code         | [mm]   | Pouce |
| 2            | 6.35   | 0.250 |
| 3            | 9.525  | 0.375 |
| 4            | 12.7   | 0.500 |
| 5            | 15.875 | 0.625 |
| 6            | 19.05  | 0.750 |
| 8            | 25.4   | 1.000 |

5

| Insert thickness |      |       |
|------------------|------|-------|
| Code             | [mm] | Pouce |
| 2                | 3.18 | 0.125 |
| 3                | 4.76 | 0.187 |
| 4                | 6.35 | 0.250 |
| 5                | 7.94 | 0.313 |
| 6                | 9.52 | 0.375 |

6

| Nose radius |      |       |
|-------------|------|-------|
| Code        | [mm] | Pouce |
| 0           | 0.2  | 0.008 |
| 1           | 0.4  | 0.016 |
| 2           | 0.8  | 0.031 |
| 3           | 1.2  | 0.047 |
| 4           | 1.6  | 0.063 |
| 5           | 2.0  | 0.079 |
| 6           | 2.4  | 0.094 |

7