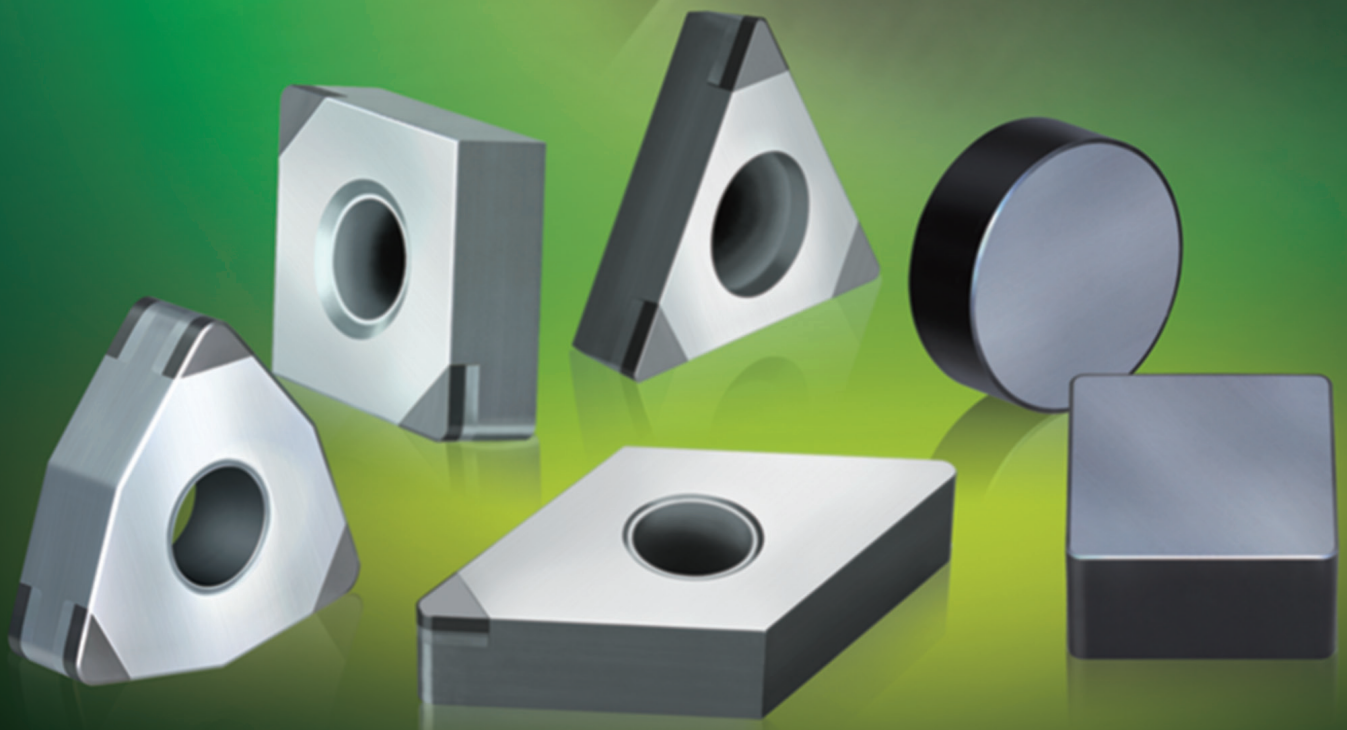
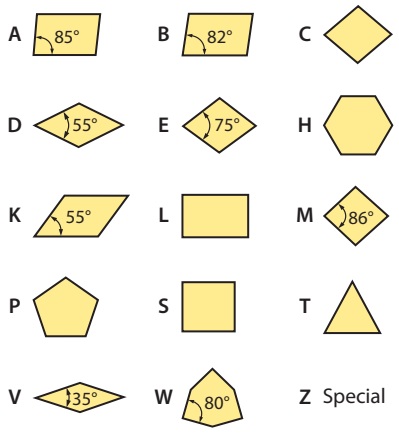


# General turning ISO code – PCBN & PCD inserts

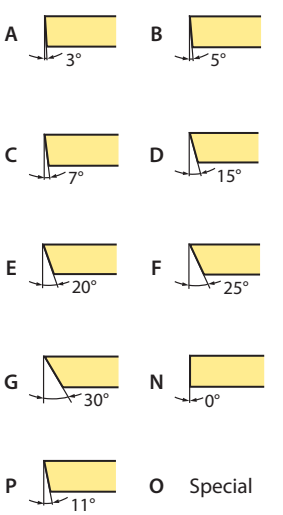
| C | N | G | A | 12 | 04 | 08 | T | 020 | 20 | – | 2 | (W) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | 12 |

## Insert shape



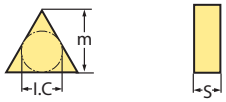

1

## Clearance angle




2

## Tolerance class

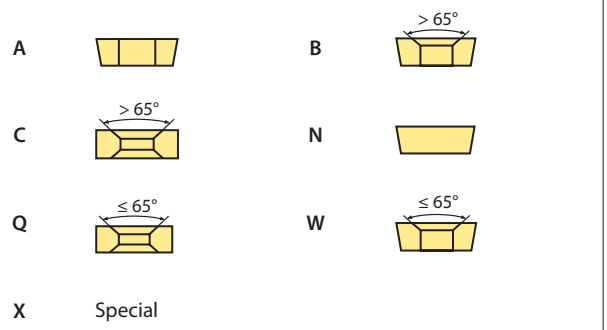



| Code | I.C [mm] | m [mm] | S [mm] |
|---|---|---|---|
| A | ±0,025 | ±0,005 | ±0,025 |
| C | ±0,025 | ±0,013 | ±0,025 |
| E | ±0,025 | ±0,025 | ±0,025 |
| F | ±0,013 | ±0,005 | ±0,025 |
| G | ±0,025 | ±0,025 | ±0,130 |
| H | ±0,013 | ±0,013 | ±0,025 |
| J | ±0,05–0,15 | ±0,005 | ±0,025 |
| K | ±0,05–0,15 | ±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 |

3

## Fastening features (metric)

Insert shape



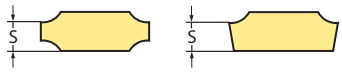

4

## Cutting edge length l [mm]

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

5

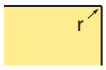
### Insert thickness S [mm]




| Code | S | Code | S |
|---|---|---|---|
| **02** | 2,38 | **06** | 6,35 |
| **T2** | 2,58 | **T6** | 6,75 |
| **03** | 3,18 | **07** | 7,94 |
| **T3** | 3,97 | **09** | 9,52 |
| **04** | 4,76 | **T9** | 9,72 |
| **T4** | 4,96 | **11** | 11,11 |
| **05** | 5,56 | **12** | 12,70 |
| **T5** | 5,95 | | |

**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 |

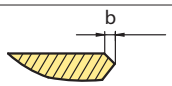
**7**

### Cutting edge profile

| Code | Cutting edge | Insert shape |
|---|---|---|
| **E** | Rounding | |
| **F** | Sharp edge | |
| **T** | Chamfer | |
| **S** | Chamfer + Rounding | |

**8**

### Chamfer width b [mm]




| Code | b |
|---|---|
| **010** | 0,10 |
| **015** | 0,15 |
| **020** | 0,20 |
| **025** | 0,25 |
| **030** | 0,30 |
| **035** | 0,35 |
| **040** | 0,40 |
| **045** | 0,45 |
| **050** | 0,50 |
| **100** | 1,00 |
| **200** | 2,00 |

**9**

### Chamfer angle α

| Code | α |
|---|---|
| **05** | 5° |
| **10** | 10° |
| **15** | 15° |
| **20** | 20° |
| **25** | 25° |
| **30** | 30° |

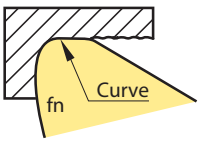
**10**

### Cutting edges

| Code | Form |
|---|---|
| **1** | |
| **2** | |
| **3** | |
| **4** | |

**11**

### Extra

| Code | Description |
|---|---|
| **W** | Wiper   |

**12**

### Standard edge preparation

| | CBN | | | | Solid CBN | | | PCD |
|---|---|---|---|---|---|---|---|---|
| | YCB111 | YCB121 | YCB131 | YCB211 | YZB121 | YZB221 | YZB231 | YCD421 |
| Rayon = 0,4 mm | S01525 | S01520 | S01525 | S01020 | S01020 | T02020 | T02025 | F |
| Rayon ≥ 0,8 mm | S01525 | S02020 | S02025 | S01020 | S01020 | T02020 | T02025 | F |

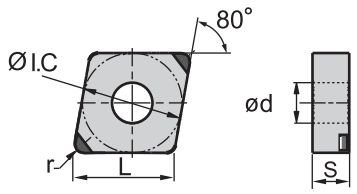
Other edge preparation on demand.

## Turning CBN inserts

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

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

CN** negative insert



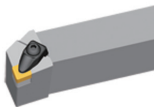
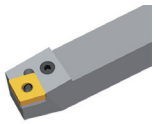
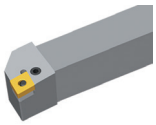
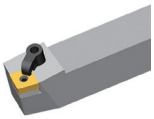
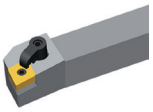
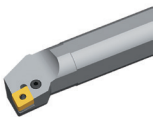

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ○ |
| N | | |
| H | ○ ⊛ ⊛ | |

| | ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|---|
| | **CNGA120404-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ● | ○ | ○ |
| | **CNGA120408-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ● | ● | ● | ● |
| | **CNGA120412-2** | 1.2 | 0.08-0.50 | 0.05-0.30 | ○ | ● | ● | ● |
| | **CNGA120408-2W** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | | |
| | **CNGA120412-2W** | 1.2 | 0.08-0.50 | 0.05-0.30 | ○ | ○ | | |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| DCLNR/L | PCBNR/L | PCLNR/L | MCBNR/L | MCLNR/L | PCLNR/L |
|---|---|---|---|---|---|
| Kr: 95° | Kr: 75° | Kr: 95° | Kr: 75° | Kr: 95° | Kr: 95° |
|  |  |  |  |  |  |
| A197 | A204 | A205 | A218 | A219 | A284 |

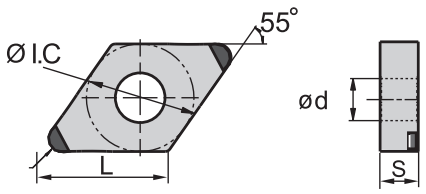
System code A40 Grade selection A146 Technical info A447 Cutting data A324

## Turning CBN inserts

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

| DNGA | L | I.C | S | d |
|---|---|---|---|---|
| **15** 06 | 15.5 | 12.7 | 6.35 | 5.16 |

DN** negative insert



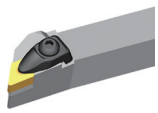
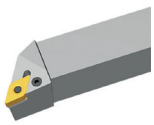
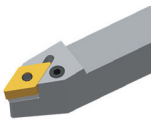
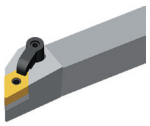
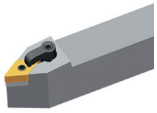
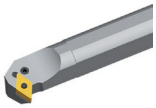
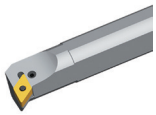

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ○ |
| N | | |
| H | ○ ⊛ ❁ | |

| ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|
| **DNGA150604-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | ○ | ○ |
| **DNGA150608-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ● | ● | ○ | ● |
| **DNGA150612-2** | 1.2 | 0.08-0.50 | 0.05-0.15 | ○ | ● | ● | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| DDJNR/L | PDJNR/L | PDNNR/L | MDJNR/L | MDPNN | PDSNR/L | PDUNR/L |
|---|---|---|---|---|---|---|
| Kr: 93° | Kr: 93° | Kr: 63° | Kr: 93° | Kr: 62°30' | Kr: 62°30' | Kr: 93° |
|  |  |  |  |  |  |  |
| A198 | A206 | A207 | A220 | A221 | A286 | A287 |

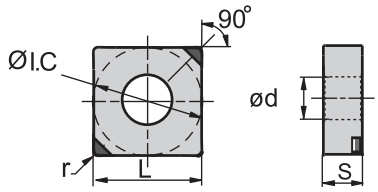
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

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

SN** negative insert



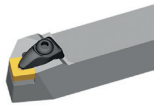
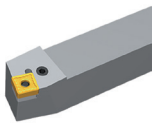
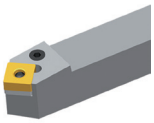
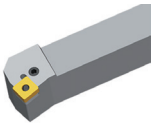
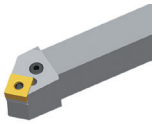
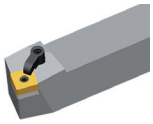
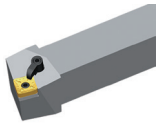

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ○ |
| N | | |
| H | ○ ⊛ ⊛ | |

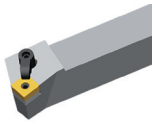
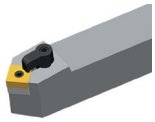
| ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|
| **SNGA120408-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | ○ | ○ |
| **SNGA120412-2** | 1.2 | 0.08-0.50 | 0.05-0.30 | ○ | ○ | ○ | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

### Tool holder

| DSBNR/L | PSBNR/L | PSDNN | PSKNR/L | PSSNR/L | MSBNR/L | MSRNR/L |
|---|---|---|---|---|---|---|
| Kr: 75° | Kr: 75° | Kr: 45° | Kr: 75° | Kr: 45° | Kr: 75° | Kr: 75° |
|  |  |  |  |  |  |  |
| A199 | A208 | A210 | A211 | A212 | A222 | A223 |

| MSKNR/L | MSDNN | PSKNR/L |
|---|---|---|
| Kr: 75° | Kr: 45° | Kr: 75° |
|  |  | |
| A224 | A225 | A289 |

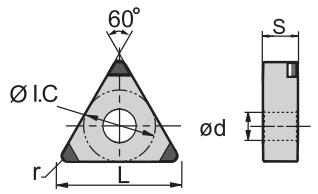
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

| TNGA | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.5 | 9.525 | 4.76 | 3.81 |

## Turning CBN inserts

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

TN** negative insert



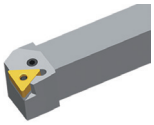
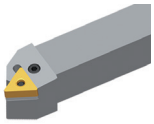
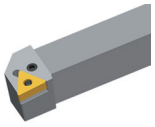
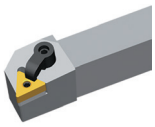
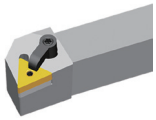
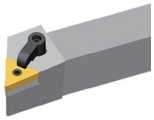

| | BL (CBN) | | | BH (CBN) |
|---|---|---|---|---|
| P | | | | |
| K | | | | ● |
| N | | | | |
| H | ○ | ⊛ | ❁ | |

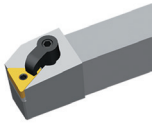
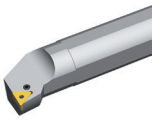
| | ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|---|
| | **TNGA160404-3** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | | |
| | **TNGA160408-3** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ● | ○ | ○ |
| | **TNGA160412-3** | 1.2 | 0.08-0.50 | 0.05-0.30 | ○ | ○ | ○ | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| DTGNR/L | PTFNR/L | PTTNR/L | PTGNR/L | MTGNR/L | MTJNR/L | MTJNR/L-Z |
|---|---|---|---|---|---|---|
| Kr: 91° | Kr: 91° | Kr: 60° | Kr: 90° | Kr: 90° | Kr: 93° | Kr: 93° |
| |  |  |  |  |  |  |
| A200 | A213 | A214 | A215 | A226 | A227 | A228 |

| MTFNR/L | PTFNR/L |
|---|---|
| Kr: 91° | Kr: 90° |
|  |  |
| A229 | A290 |

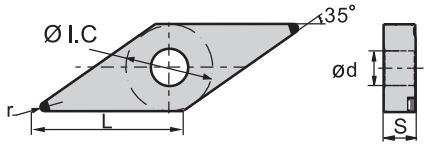
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| VNGA | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.6 | 9.525 | 4.76 | 3.81 |

VN** negative insert



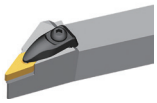
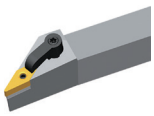

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ○ |
| N | | |
| H | ○ ⊛ ⊛ | |

| | ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|---|
| | **VNGA160404-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | | |
| | **VNGA160408-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ● | | |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| DVVNN | DVJNR/L | MVVNN | MVJNR/L |
|---|---|---|---|
| Kr: 72°30' | Kr: 93° | Kr: 72°30' | Kr: 93° |
| |  | |  |
| A201 | A202 | A230 | A231 |

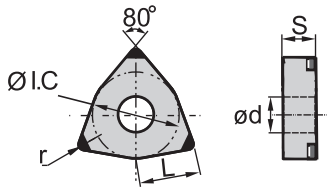
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

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

| WNGA | L | I.C | S | d |
|---|---|---|---|---|
| **08** 04 | 8.69 | 12.7 | 4.76 | 5.16 |

## Turning CBN inserts

WN** negative insert



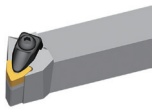
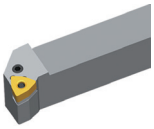
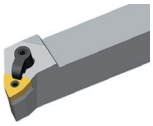

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ● |
| N | | |
| H | ○ ⊛ ❁ | |

| | ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|---|
| | **WNGA080404-3** | 0.4 | 0.08-0.50 | 0.05-0.20 | | | ○ | |
| | **WNGA080408-3** | 0.8 | 0.08-0.50 | 0.05-0.25 | | ● | ○ | |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| DWLNR/L | PWLNR/L | MWLNR/L | PWLNR/L |
|---|---|---|---|
| Kr: 95° | Kr: 95° | Kr: 95° | Kr: 95° |
|  |  |  | |
| A203 | A217 | A232 | A291 |

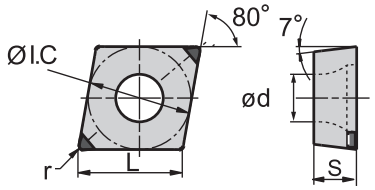
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| CCGW | L | I.C | S | d |
|---|---|---|---|---|
| **06** 02 | 6.4 | 6.35 | 2.38 | 2.8 |
| **09** T3 | 9.7 | 9.525 | 3.97 | 4.4 |
| **12** 04 | 12.9 | 12.7 | 4.76 | 5.5 |

CC** positive insert



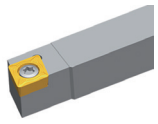
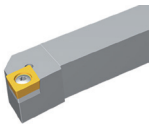
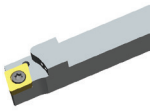
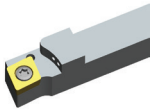
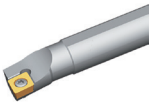
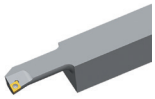
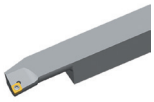

| | BL (CBN) | | | BH (CBN) |
|---|---|---|---|---|
| P | | | | |
| K | | | | ● |
| N | | | | |
| H | ○ | ⊛ | ❁ | |

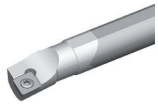
| | ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|---|
| | **CCGW060204-1** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | | |
| | **CCGW060208-1** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | | |
| | **CCGW09T304-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ● | ○ | ○ |
| | **CCGW09T308-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ● | ● | ○ | ○ |
| | **CCGW120404-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ● | ○ | ○ |
| | **CCGW120408-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ● | ○ | ● |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| SCACR/L | SCLCR/L | SCACR/L-SC | SCLCR/L-SC | SCLCR/L | SCFCR/L | SCLCR/L |
|---|---|---|---|---|---|---|
| Kr: 90° | Kr: 95° | Kr: 90° | Kr: 95° | Kr: 95° | Kr: 90° | Kr: 95° |
|  |  |  |  |  |  |  |
| A235 | A236 | A272 | A273 | A293 | A310 | A311 |

| SCLCR/L |
|---|
| Kr: 95° |
|  |
| A313 |

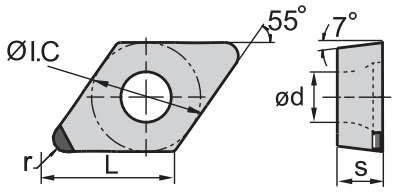
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| DCGW | L | I.C | S | d |
|---|---|---|---|---|
| **07** 02 | 7.8 | 6.35 | 2.38 | 2.8 |
| **11** T3 | 11.6 | 9.525 | 3.97 | 4.4 |

DC** positive insert



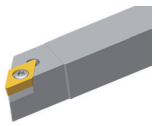
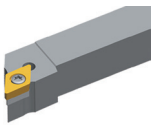
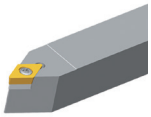
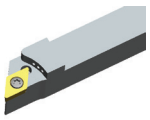
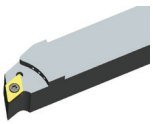
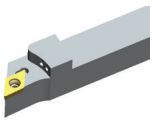
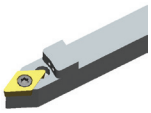

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ● |
| N | | |
| H | ○ ⊛ ❁ | |

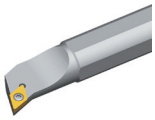
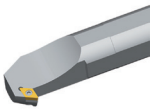
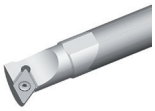
| ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|
| **DCGW070204-1** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | | |
| **DCGW070208-1** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | | |
| **DCGW11T304-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ● | ○ | ○ | ○ |
| **DCGW11T308-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ● | ● | ● | ● |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| SDACR/L | SDJCR/L | SDNCN | SDACR/L-SC | SDHCR/L-SC | SDJCR/L-SC | SDNCN-SC |
|---|---|---|---|---|---|---|
| Kr: 90° | Kr: 93° | Kr: 62°30' | Kr: 90° | Kr: 107°30' | Kr: 93° | Kr: 62°30' |
|  |  |  |  |  |  |  |
| A237 | A238 | A239 | A274 | A275 | A276 | A277 |

| SDQCR/L | SDUCR/L | SDZCR/L | SDQCR/L |
|---|---|---|---|
| Kr: 107°30' | Kr: 93° | Kr: 85° | Kr: 107°30' |
|  | |  |  |
| A295 | A296 | A297 | A315 |

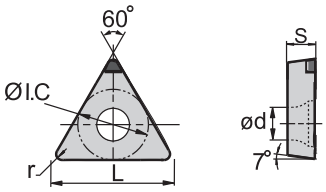
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| TCGW | L | I.C | S | d |
|---|---|---|---|---|
| **11** 02 | 11 | 6.35 | 2.38 | 2.5 |
| **16** T3 | 16.5 | 9.525 | 3.97 | 4.4 |

TC** positive insert



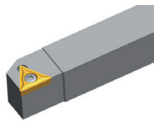
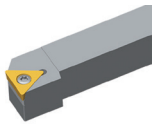
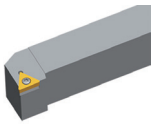
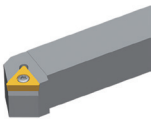
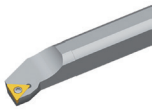

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ● |
| N | | |
| H | ○ ⊛ ⊛ | |

| | ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|---|
| | **TCGW110204-1** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | ○ | ○ |
| | **TCGW110208-1** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | ○ | |
| | **TCGW16T304-3** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | ○ | ○ |
| | **TCGW16T308-3** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | ○ | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| STACR/L | STFCR/L | STGCR/L | STTCR/L | STFCR/L | STFCR/L |
|---|---|---|---|---|---|
| Kr: 90° | Kr: 91° | Kr: 91° | Kr: 60° | Kr: 91° | Kr: 90° |
|  |  |  |  |  | |
| A249 | A250 | A251 | A252 | A300 | A319 |

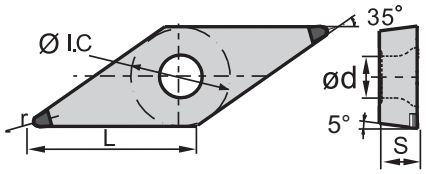
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| VBGW | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.6 | 9.525 | 4.76 | 4.4 |

VB** positive insert



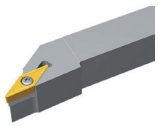
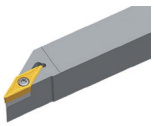
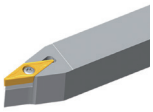
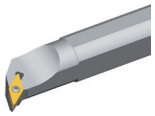

| | BL (CBN) | | | BH (CBN) |
|---|---|---|---|---|
| P | | | | |
| K | | | | ● |
| N | | | | |
| H | ○ | ⊛ | ❁ | |

| | ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|---|
| | **VBGW160404-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | | |
| | **VBGW160408-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

| SVJBR/L | SVABR/L | SVVBN | SVQBR/L | SVUBR/L |
|---|---|---|---|---|
| Kr: 93° | Kr: 90° | Kr: 72°30' | Kr: 107°30' | Kr: 93° |
|  |  |  |  | |
| A240 | A241 | A242 | A304 | A305 |

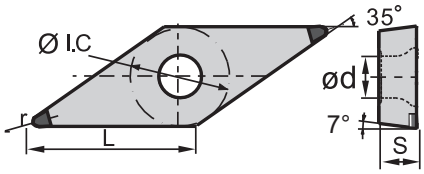
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| VCGW | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.6 | 9.525 | 4.76 | 4.4 |

VC** positive insert



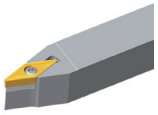
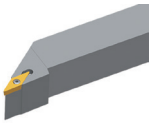
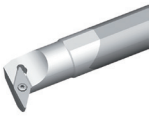

| | BL (CBN) | BH (CBN) |
|---|---|---|
| P | | |
| K | | ● |
| N | | |
| H | ○ ⊛ ⊛ | |

| ISO | r | $a_p$ | f | YCB111 | YCB121 | YCB131 | YCB211 |
|---|---|---|---|---|---|---|---|
| **VCGW160404-2** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ | ○ | | ○ |
| **VCGW160408-2** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ | ○ | | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

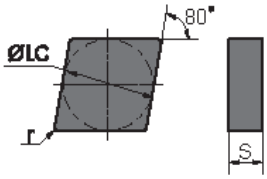
| SVVCN | SVJCR/L | SVUCR/L |
|---|---|---|
| Kr: 72°30' | Kr: 93° | Kr: 93° |
|  |  |  |
| A243 | A244 | A322 |

System code A40 Grade selection A146 Technical info A447 Cutting data A324

| CNGN | L | I.C | S |
|---|---|---|---|
| **12** 04 | 12.9 | 12.7 | 4.76 |

## Turning CBN inserts

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

| CN** negative insert | | BL (CBN) | BH (CBN) |
|---|---|---|---|
|  | P | | |
| | K | | ⊛ ⊛ |
| | N | | |
| | H | ⊛ | |

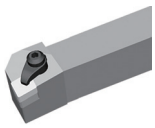


| | ISO | r | $a_p$ | f | YZB121 | YZB221 | YZB231 |
|---|---|---|---|---|---|---|---|
| Medium Cut | **CNGN120404** | 0.4 | 0.5-2.0 | 0.3-0.5 | | ○ | |
| | **CNGN120408** | 0.8 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |
| | **CNGN120412** | 1.2 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |
| | **CNGN120416** | 1.6 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

| Tool holder |
|---|
| **CCLNR/L** |
| Kr: 95° |



A258

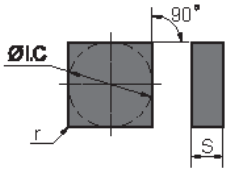
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| SNGN | L | I.C | S |
|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 |
| **15** 07 | 15.875 | 15.875 | 7.94 |

SN** negative insert



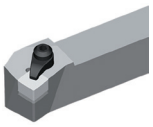
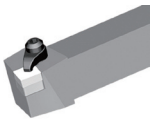
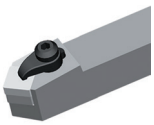

| | BL (CBN) | BH (CBN) | |
|---|---|---|---|
| P | | | |
| K | | ⊛ | ⊛ |
| N | | | |
| H | ⊛ | | |

| | ISO | r | $a_p$ | f | YZB121 | YZB221 | YZB231 |
|---|---|---|---|---|---|---|---|
| | **SNGN120404** | 0.4 | 0.5-2.0 | 0.3-0.5 | | ○ | |
| | **SNGN120408** | 0.8 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |
| | **SNGN120412** | 1.2 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |
| | **SNGN120416** | 1.6 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |
| | **SNGN150716** | 1.6 | 0.5-2.0 | 0.3-0.5 | | | ○ |
| | **SNGN150720** | 2 | 0.5-2.0 | 0.3-0.5 | | | ○ |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

Tool holder

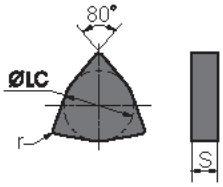
| CSKNR/L | CSRNR/L | CSDNN |
|---|---|---|
| Kr: 75° | Kr: 75° | Kr: 45° |
|  |  |  |
| A262 | A263 | A265 |

System code A40 Grade selection A146 Technical info A447 Cutting data A324

| WNGN | L | I.C | S |
|---|---|---|---|
| **08** 04 | 8.69 | 12.7 | 4.76 |

## Turning CBN inserts

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

| WN** negative insert | | BL (CBN) | BH (CBN) |
|---|---|---|---|
|  | P | | |
| | K | | ⊛ ⊛ |
| | N | | |
| | H | ⊛ | |
| | | | |
| | | | |



| | ISO | r | $a_p$ | f | YZB121 | YZB221 | YZB231 |
|---|---|---|---|---|---|---|---|
| | **WNGN080408** | 0.8 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |
| | **WNGN080412** | 1.2 | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |

● Ex stock ○ On demand

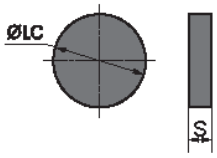
BL CBN with a low CBN content
BH CBN with a high CBN content

System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning CBN inserts

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

| RNGN | L | I.C | S |
|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 |
| **12** 07 | 12.7 | 12.7 | 7.94 |

| RN** negative insert | | | | BL (CBN) | BH (CBN) | |
|---|---|---|---|---|---|---|
|  | | | P | | | |
| | | | K | | Normal machining conditions | Unfavourable machining conditions |
| | | | N | | | |
| | | | H | Normal machining conditions | | |
| | | | | | | |
| | | | | | | |
| ISO | | $a_p$ | f | YZB121 | YZB221 | YZB231 |
| Medium Cut | **RNGN120400** | 0.5-2.0 | 0.3-0.5 | | ○ | ○ |
| | **RNGN120700** | 0.5-2.0 | 0.3-0.5 | ○ | ○ | ○ |
| | | | | | | |
| | | | | | | |
| | | | | | | |

● Ex stock ○ On demand

BL CBN with a low CBN content
BH CBN with a high CBN content

| Tool holder |
|---|
| **CRDNN** |

A264

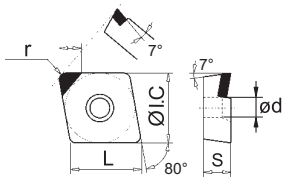
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| CCGT | L | I.C | S | d |
|---|---|---|---|---|
| **06** 02 | 6.4 | 6.35 | 2.38 | 2.8 |
| **09** T3 | 9.7 | 9.525 | 3.97 | 4.4 |
| **12** 04 | 12.9 | 12.7 | 4.76 | 5.56 |

CC** positive insert



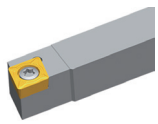
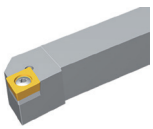
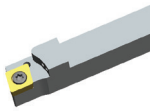
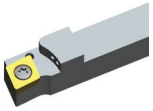

| | DP |
|---|---|
| P | |
| K | |
| N | ○ |
| H | |

| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **CCGT060202**** | 0.2 | 0.05-0.50 | 0.05-0.15 | ○ |
| | **CCGT060204**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ● |
| | **CCGT09T304**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **CCGT09T308**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |
| | **CCGT120404**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **CCGT120408**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SCACR/L | SCLCR/L | SCACR/L-SC | SCLCR/L-SC | SCLCR/L | SCFCR/L | SCLCR/L |
|---|---|---|---|---|---|---|
| Kr: 90° | Kr: 95° | Kr: 90° | Kr: 95° | Kr: 95° | Kr: 90° | Kr: 95° |
|  |  |  |  | | | |
| A235 | A236 | A272 | A273 | A293 | A310 | A311 |

| SCLCR/L |
|---|
| Kr: 95° |
| |
| A313 |

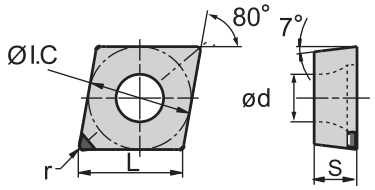
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| CCGW | L | I.C | S | d |
|---|---|---|---|---|
| **06** 02 | 6.4 | 6.35 | 2.38 | 2.8 |
| **09** T3 | 9.7 | 9.525 | 3.97 | 4.4 |
| **12** 04 | 12.9 | 12.7 | 4.76 | 5.56 |

CC** positive insert



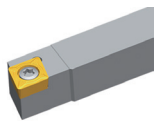
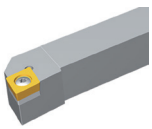
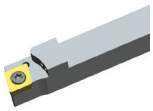
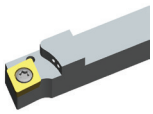
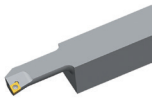

| | DP |
|---|---|
| P | |
| K | |
| N | ○ |
| H | |

| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **CCGW060202**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| | **CCGW060204**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **CCGW09T304**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **CCGW09T308**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |
| | **CCGW120404**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **CCGW120408**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SCACR/L | SCLCR/L | SCACR/L-SC | SCLCR/L-SC | SCLCR/L | SCFCR/L | SCLCR/L |
|---|---|---|---|---|---|---|
| Kr: 90° | Kr: 95° | Kr: 90° | Kr: 95° | Kr: 95° | Kr: 90° | Kr: 95° |
|  |  |  |  | |  | |
| A235 | A236 | A272 | A273 | A293 | A310 | A311 |

| SCLCR/L |
|---|
| Kr: 95° |
| |
| A313 |

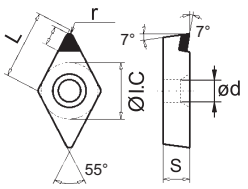
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| DCGT | L | I.C | S | d |
|---|---|---|---|---|
| **07** 02 | 7.8 | 6.35 | 2.38 | 2.8 |
| **11** T3 | 11.6 | 9.525 | 3.97 | 4.4 |

DC** positive insert



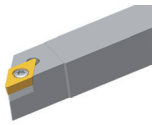
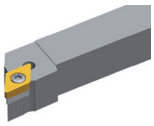
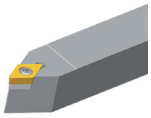
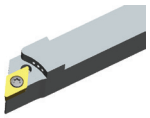
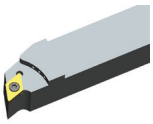
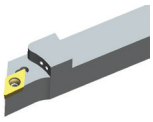
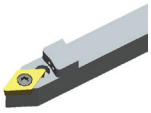

| | DP |
|---|---|
| P | |
| K | |
| N | ○ |
| H | |

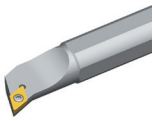
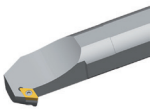
| ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|
| **DCGT070202**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| **DCGT070204**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| **DCGT11T304**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| **DCGT11T308**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ● |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SDACR/L | SDJCR/L | SDNCN | SDACR/L-SC | SDHCR/L-SC | SDJCR/L-SC | SDNCN-SC |
|---|---|---|---|---|---|---|
| Kr: 90° | Kr: 93° | Kr: 62°30' | Kr: 90° | Kr: 107°30' | Kr: 93° | Kr: 62°30' |
|  |  |  |  |  |  |  |
| A237 | A238 | A239 | A274 | A275 | A276 | A277 |

| SDQCR/L | SDUCR/L | SDZCR/L | SDQCR/L |
|---|---|---|---|
| Kr: 107°30' | Kr: 93° | Kr: 85° | Kr: 107°30' |
|  | |  | |
| A295 | A296 | A297 | A315 |

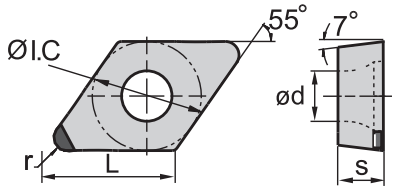
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| DCGW | L | I.C | S | d |
|---|---|---|---|---|
| **07** 02 | 7.8 | 6.35 | 2.38 | 2.8 |
| **11** T3 | 11.6 | 9.525 | 3.97 | 4.4 |

DC** positive insert



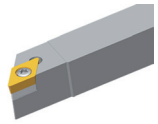
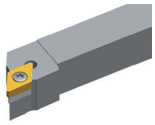
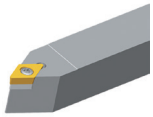
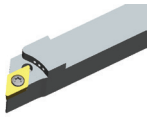
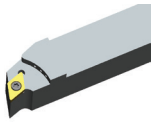
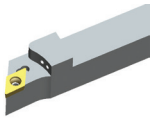
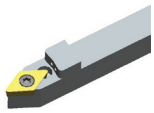

| | DP |
|---|---|
| P | |
| K | |
| N | ○ |
| H | |

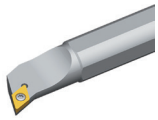
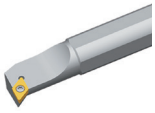
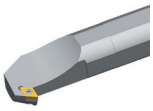
| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **DCGW070202**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| | **DCGW070204**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **DCGW070208**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |
| | **DCGW11T302**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| | **DCGW11T304**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **DCGW11T308**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SDACR/L | SDJCR/L | SDNCN | SDACR/L-SC | SDHCR/L-SC | SDJCR/L-SC | SDNCN-SC |
|---|---|---|---|---|---|---|
| Kr: 90° | Kr: 93° | Kr: 62°30' | Kr: 90° | Kr: 107°30' | Kr: 93° | Kr: 62°30' |
|  |  |  |  |  |  |  |
| A237 | A238 | A239 | A274 | A275 | A276 | A277 |

| SDQCR/L | SDUCR/L | SDZCR/L | SDQCR/L |
|---|---|---|---|
| Kr: 107°30' | Kr: 93° | Kr: 85° | Kr: 107°30' |
|  |  |  | |
| A295 | A296 | A297 | A315 |

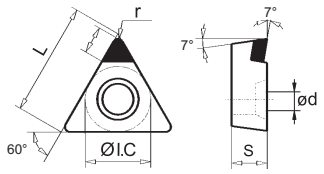
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| TCGT | L | I.C | S | d |
|---|---|---|---|---|
| **11** 02 | 11 | 6.35 | 2.38 | 2.8 |
| **16** T3 | 16.5 | 9.525 | 3.97 | 4.4 |

TC** positive insert



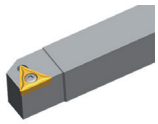
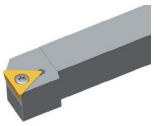
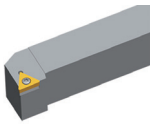
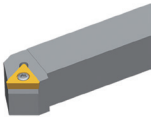
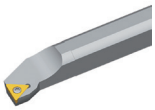

| | DP |
|---|---|
| P | |
| K | |
| N | ● |
| H | |

| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **TCGT110202**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| | **TCGT110204**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **TCGT110208**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |
| | **TCGT16T304**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **TCGT16T308**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| STACR/L | STFCR/L | STGCR/L | STTCR/L | STFCR/L | STFCR/L |
|---|---|---|---|---|---|
| Kr: 90° | Kr: 91° | Kr: 91° | Kr: 60° | Kr: 91° | Kr: 90° |
|  |  |  |  |  | |
| A249 | A250 | A251 | A252 | A300 | A319 |

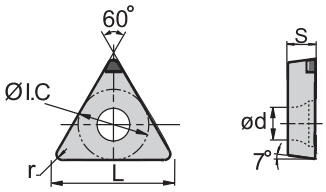
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| TCGW | L | I.C | S | d |
|---|---|---|---|---|
| **11** 02 | 11 | 6.35 | 2.38 | 2.8 |
| **16** T3 | 16.5 | 9.525 | 3.97 | 4.4 |

TC** positive insert



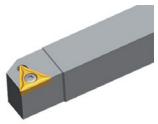
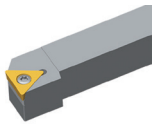
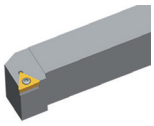
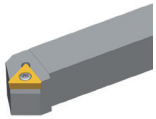
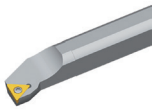

| | DP |
|---|---|
| P | |
| K | |
| N | ○ |
| H | |

| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **TCGW110208**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |
| | **TCGW16T302**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| | **TCGW16T304**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| STACR/L | STFCR/L | STGCR/L | STTCR/L | STFCR/L | STFCR/L |
|---|---|---|---|---|---|
| Kr: 90° | Kr: 91° | Kr: 91° | Kr: 60° | Kr: 91° | Kr: 90° |
|  |  |  |  |  | |
| A249 | A250 | A251 | A252 | A300 | A319 |

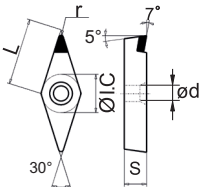
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

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

| VBGT | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.6 | 9.525 | 4.76 | 4.4 |

## Turning PKD inserts

VB** positive insert



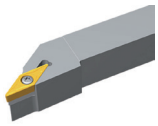
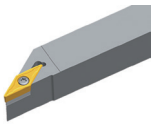
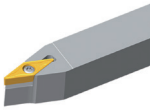
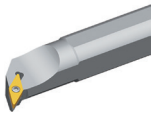

| | DP |
|---|---|
| P | |
| K | |
| N | ○ |
| H | |

| ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|
| **VBGT160402**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| **VBGT160404**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| **VBGT160408**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SVJBR/L | SVABR/L | SVVBN | SVQBR/L | SVUBR/L |
|---|---|---|---|---|
| Kr: 93° | Kr: 90° | Kr: 72°30' | Kr: 107°30' | Kr: 93° |
|  |  |  |  | |
| A240 | A241 | A242 | A304 | A305 |

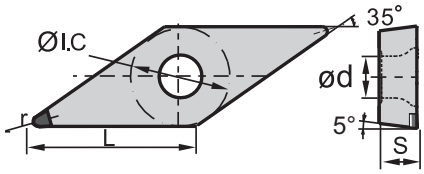
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| VBGW | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.6 | 9.525 | 4.76 | 4.4 |

VB** positive insert



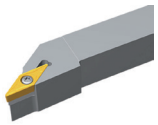
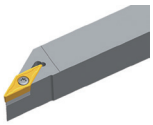
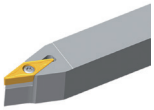
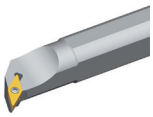

| | DP |
|---|---|
| P | |
| K | |
| N | ● |
| H | |

| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **VBGW160404**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **VBGW160408**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SVJBR/L | SVABR/L | SVVBN | SVQBR/L | SVUBR/L |
|---|---|---|---|---|
| Kr: 93° | Kr: 90° | Kr: 72°30' | Kr: 107°30' | Kr: 93° |
|  |  |  |  | |
| A240 | A241 | A242 | A304 | A305 |

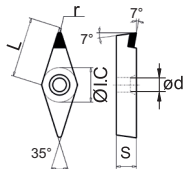
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| VCGT | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.6 | 9.525 | 4.76 | 4.4 |

VC** positive insert



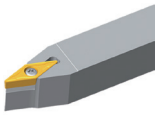
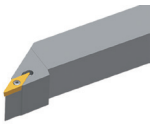
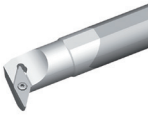

| | DP |
|---|---|
| P | |
| K | |
| N | ● |
| H | |

| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **VCGT160402**** | 0.2 | 0.08-0.50 | 0.05-0.15 | ○ |
| | **VCGT160404**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **VCGT160408**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SVVCN | SVJCR/L | SVUCR/L |
|---|---|---|
| Kr: 72°30' | Kr: 93° | Kr: 93° |
|  |  |  |
| A243 | A244 | A322 |

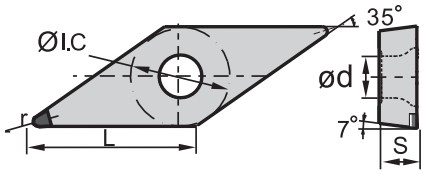
System code A40 | Grade selection A146 | Technical info A447 | Cutting data A324

## Turning PKD inserts

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

| VCGW | L | I.C | S | d |
|---|---|---|---|---|
| **16** 04 | 16.6 | 9.525 | 4.76 | 4.4 |

VC** positive insert



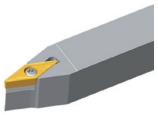
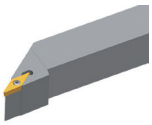
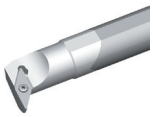

| | DP |
|---|---|
| P | |
| K | |
| N | ● |
| H | |

| | ISO | r | $a_p$ | f | YCD421 |
|---|---|---|---|---|---|
| | **VCGW160404**** | 0.4 | 0.08-0.50 | 0.05-0.20 | ○ |
| | **VCGW160408**** | 0.8 | 0.08-0.50 | 0.05-0.25 | ○ |

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holder

| SVVCN | SVJCR/L | SVUCR/L |
|---|---|---|
| Kr: 72°30' | Kr: 93° | Kr: 93° |
|  |  |  |
| A243 | A244 | A322 |

System code A40 Grade selection A146 Technical info A447 Cutting data A324

## Trouble shooting – PCBN & PCD

| Type of wear | Countermeasure | |
|---|---|---|
| | Geometry | Cutting condition |
| Flank wear | – Sharper cutting edge for reduced cutting force<br>– Smaller negative chamfer<br>– Use positive inserts | – Reduce cutting speed<br>– Increase feed rate to reduce operation time |
| Notch wear | – Bigger radius | – Use "method of altering feed rate" |
| Crater wear/breakage due to crater wear | – Sharper cutting edge for reduced cutting force | – Reduce cutting speed<br>– Increase feed rate to minimise operation time and to increase distance between cutting edge and crater |
| Chipping due to rough condition or vibration | – Bigger negative chamfer angle and/or honed chamfer | – Increase feed rate to reduce number of hits |
| Flaking | – Sharper cutting edge to reduce cutting force<br>– Smaller negative chamfer<br>– Use positive inserts | – Increase feed rate to reduce operation time |
| Thermal crack/breakage | – Sharper cutting edge for reduced cutting force<br>– Smaller negative chamfer<br>– Use positive inserts | – Reduce cutting speed, feed rate and depth of cut<br>– Dry machining |
| Chipping | – Bigger negative chamfer | – Increase cutting speed to reduce cutting force |

For investigation please send us the used inserts. If breakage is the problem please use inserts only 80–90 % of expected tool life because broken inserts almost have no information.