

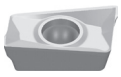

# INDEXABLE MILLING

# Indexable milling


| | |
|---|---|
| Product overview | **B2-B5** |
| System overview | **B6-B25** |
| Chip breaker overview | **B26** |
| Grade overview | **B27-B30** |
| Application fields of grades | **B31** |
| System code – milling bodies | **B32-B33** |
| ISO code – inserts | **B34-B35** |
| System code – slot milling | **B36** |
| System code – QCH series | **B37-B38** |
| Face milling | **B39-B138** |
| Square shoulder milling | **B139-B178** |
| Profile milling | **B179-B196** |
| Slot milling | **B197-B214** |
| High feed milling | **B215-B232** |
| Bore milling | **B233-B234** |
| T-slot milling | **B235-B236** |
| Helical milling | **B237-B242** |
| Chamfer milling | **B243-B254** |
| QCH series | **B255-B301** |
| General milling inserts | **B302-B311** |
| Recommended cutting data | **B312-B347** |
| Trouble shooting | **B618** |
| Technical information | **B619-B632** |
| Special tools | **B633** |

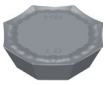
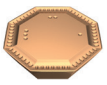

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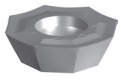
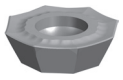
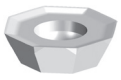
## Milling inserts

|  |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|---|
| **ANGX-GM** | **ANGX-LH** | **APKT-ALH** | **APKT-APF** | **APKT-APL** | **APKT-APM** | **APKT-LH** | **APKT-NM** | |
| 11 15 | 11 15 | 11 16 | 07 11 16 | 11 16 | 07 11 16 | 11 16 | 11 | Edge length |
| B165, B167, B169, B171, B173 | B165, B167, B169, B171, B173 | B140, B143, B147, B150, B152, B267, B288 | B140, B143, B147, B150, B152, B267, B288 | B140, B143, B147, B150, B152, B267, B288 | B140, B143, B147, B150, B152, B267, B288 | B140, B143, B147, B150, B152, B267, B288 | B140, B143, B147, B150, B152, B267, B288 | Page |

|  |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|---|
| **APKT-PF** | **APKT-PM** | **APKT-PR** | **CNE-A/B** | **ENMX-GM** | **HNEX-DR** | **HNGX-HDR** | **HNGX-MR** | |
| 11 16 | 11 15 16 | 11 | 12 | 12 | 09 | 09 | 09 | Edge length |
| B140, B143, B147, B150, B152, B267, B288 | B140, B143, B147, B150, B152, B267, B288 | B140, B143, B147, B150, B152, B267, B288 | B234 | B229, B231, B284 | B71 | B302 | B302 | Page |

|  |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|---|
| **LNCX** | **LNE32.534** | **LNGX-GM** | **LNKT-GL** | **LNKT-GM** | **LNKT-ZR** | **MPHT-DM** | **MPHT-LH** | |
| 18 | | 08 10 14 | 08 12 16 | 08 12 16 | 12 15 20 25 | 06 08 12 | 06 | Edge length |
| B304 | B303 | B210, B213 | B158, B161, B163, B272 | B158, B161, B163, B272 | B73, B80, B90 | B202, B204, B236 | B202, B204, B236 | Page |

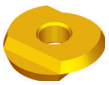
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|---|---|---|---|---|---|---|---|---|---|
| **ODHT-GH** | **ODHT-GL** | **ODHT-GM** | **ODHT-LH** | **ODMT-GM** | **OFKR-DM** | **OFKR-LH** | **OFKR-PM** | |
| 06 | 06 | 06 | 06 | 06 | 07 | 07 | 07 | Edge length |
| B53 | B53 | B53 | B53 | B53 | B51 | B51 | B51 | Page |

|  |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|---|
| **OFKT-DF** | **OFKT-DM** | **OFKT-LH** | **ONHU-GH** | **ONHU-GL** | **ONHU-GM** | **ONMU-GH** | **ONMU-GM** | |
| 05 | 05 | 05 | 06 09 | 06 09 | 06 09 | 06 09 | 06 09 | Edge length |
| B49 | B49 | B49 | B59 | B59 | B59 | B60 | B60 | Page |

|  |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|---|
| **PNEG-CF** | **PNEG-CM** | **PNEG-CR** | **PNEG-PF** | **PNEG-PM** | **PNEG-PR** | **RCKT-DM** | **RCKT-DR** | |
| 11 | 11 | 11 | 11 | 11 | 11 | 10 12 16 20 | 12 16 20 | Edge length |
| B66, B68 | B66, B68 | B66, B68 | B65, B68 | B65, B68 | B65, B68 | B107, B111 | B107, B111 | Page |

|  |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|---|
| **RCKT-ER** | **RCKT-NM** | **RDHT-LH** | **RDKT-MM** | **RDKT-NM** | **RDKW** | **RDMT-M** | **RDMT-MM** | |
| 12 16 20 | 10 12 16 20 | 07 10 12 16 | 10 12 | 10 | 07 08 10 12 16 20 | 10 12 | 10 12 | Edge length |
| B107, B111 | B107, B111 | B117, B119, B124, B260 | B114, B121, B256 | B114, B256 | B114, B121, B256, B286 | B130, B135, B257, B262 | B130, B135, B257, B262 | Page |

## Milling inserts

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | |
| **RDMW-H** | **ROHX** | **RPKT-MM** | **RPMT-M** | **RPMT-MM** | **RPMW-H** | **SDMT** | **SDMT-DM** | |
| 10 12 | 12 16 20 | 10 12 | 10 12 16 | 10 12 16 | 10 12 | 09 | 06 09 12 15 | Edge length |
| B130, B135, B262 | B183 | B133, B138, B265 | B132, B137, B264 | B132, B137, B264 | B132, B137, B264 | B181 | B216, B218, B221, B280, B295 | Page |

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|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | |
| **SDMT-NM** | **SDMT-PM** | **SEEN** | **SEET-APF** | **SEET-APM** | **SEET-APR** | **SEET-CF** | **SEET-CM** | |
| 06 09 12 | 06 09 12 15 | 12 | 09 12 | 09 12 | 09 12 | 12 | 12 | Edge length |
| B216, B218, B221, B280, B295 | B216, B218, B221, B280, B295 | B47 | B88 | B88 | B88 | B41, B43 | B41, B43 | Page |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | |
| **SEET-CR** | **SEET-DF** | **SEET-DM** | **SEET-DR** | **SEET-EF** | **SEET-EM** | **SEET-LH** | **SEET-PF** | |
| 12 | 12 | 12 18 | 12 | 12 | 12 18 | 12 | 09 12 | Edge length |
| B41, B43 | B41, B43 | B41, B43 | B41, B43 | B41, B43 | B41, B43 | B41, B43 | B88 | Page |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | |
| **SEET-PM** | **SEET-PR** | **SEET-W** | **SEKN** | **SEKR** | **SNCU-CF** | **SNCU-CM** | **SNEG-E** | |
| 09 12 | 09 12 | 12 18 | 12 15 | 12 | 12 | 12 | 15 | Edge length |
| B88 | B88 | B40, B43 | B46 | B47 | B91, B94 | B91, B94 | B56 | Page |

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|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | |
| **SNEG-GM** | **SNEG-GR** | **SNEG-HGR** | **SNEG-W** | **SNGX-ANN-GH** | **SNGX-ANN-GL** | **SNGX-ANN-GM** | **SNGX-ANN-LH** | |
| 12 15 | 12 15 19 | 12 15 | 12 15 | 12 | 12 | 12 | 12 | Edge length |
| B56 | B56 | B56 | B57 | B62 | B62 | B62 | B62 | Page |

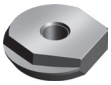
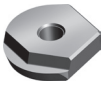
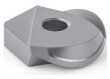
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|  |  |  |  |  |  |  |  | |
| **SNGX-ANN-W** | **SNGX-GH** | **SNGX--ENN-GL** | **SNGX--ENN-GM** | **SNGX-ENN-W** | **SNGX-PNN-GH** | **SNGX-PNN-GL** | **SNGX-PNN-GM** | |
| 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | Edge length |
| B63 | B83 | B83 | B83 | B83 | B100 | B100 | B100 | Page |

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|  |  |  |  |  |  |  |  | |
| **SNGX-PNN-W** | **SNKN** | **SNMX-GH** | **SNMX-GM** | **SPCN** | **SPGN** | **SPKN** | **SPKR** | |
| 12 | 12 15 | 12 | 12 | 12 15 | 12 | 12 15 | 12 | Edge length |
| B101 | B305 | B63, B82, B101 | B63, B82, B101 | B306 | B309 | B77 | B78 | Page |

## Milling inserts

|  |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|---|
| **SPKR-GM** | **SPKT** | **SPKW** | **SPMR** | **SPMT** | **SPMT-HT** | **SPMT-KT** | **SPMT-PM** | |
| 12 15 | 12 | 12 | 12 | 06 09 12 | 09 12 | 06 | 12 | Edge length |
| B78 | B75 | B75 | B307 | B181, B244, B246, B248, B250, B252, B254 | B308 | B181 | B238, B240, B242 | Page |

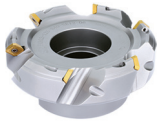
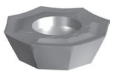
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|---|---|---|---|---|---|---|---|---|---|
| **SPUN** | **TPKN** | **TPMR** | **TPUN** | **VPGT-LP** | **WNHU-LH** | **WPGT** | **WPGT-PM** | |
| 12 15 | 16 22 | 11 16 22 | 11 16 22 | 22 | 08 | 05 06 08 09 | 05 06 08 09 | Edge length |
| B309 | B84, B310 | B311 | B311 | B175, B177, B274 | B96 | B223, B225, B227, B282, B297 | B223, B225, B227, B282, B297 | Page |

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|---|---|---|---|---|---|---|---|---|---|
| **XEEC** | **XPHT-GM** | **XSEQ** | **ZDET** | **ZDET-PM** | **ZOHX-GF** | **ZOHX-GM** | **ZOHX-HM** | |
| 12 | 16 20 25 30 32 40 50 | 12 | 08 11 | 13 | 12 16 20 25 30 32 | 12 16 20 25 30 32 | 12 16 20 25 30 32 | Edge length |
| B105 | B185, B187, B189, B191, B276, B291 | B198, B200 | B180 | B180 | B193, B195, B278, B293 | B193, B195, B278, B293 | B193, B195, B278, B293 | Page |

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|---|---|---|---|---|---|---|---|---|
| **ZPNT** | | | | | | | | |
| 22 | | | | | | | | Edge length |
| B180 | | | | | | | | Page |

**Notes**

## Face milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **FMA01** |  |  SEET12T3 SEET18T6 | 45° | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø50 – 315 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys<br>• Milling cutter with positive, soft cutting geometry<br>• Wiper inserts for good surface quality | B39 |
| **FMA02** |  |  SEET12T3 | 45° | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø50 – 125 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys<br>• Milling cutter with positive, soft cutting geometry<br>• Wide pitch | B42 |
| **FMA03** |  |  SEEN1203 SEKN1203 SEKR1203 SEKN1504 SEKR1504 | 45° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø80 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Milling cutter with positive, soft cutting geometry<br>• Wedge clamping | B45 |
| **FMA04** |  |  OFKT05T3 | 45° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø50 – 160 mm<br>• For steel, stainless steel, cast iron and non-ferrous metals<br>• Inserts with eight cutting edges<br>• Screw clamping | B48 |
| **FMA04** |  |  OFKR0704 | 45° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø125 – 315 mm<br>• For steel, stainless steel, cast iron and non-ferrous metals<br>• Inserts with eight cutting edges<br>• Wedge clamping | B50 |
| **FMA04** |  |  OD*T0605** | 45° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø50 – 160 mm<br>• For steel, stainless steel, cast iron and non-ferrous metals<br>• Inserts with eight cutting edges<br>• Screw clamping | B52 |

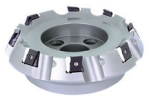
✔ Very suitable ✔ Suitable

## Face milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **FMA11** |  | SNEG1205<br>SNEG1506<br>SNEG1907 | 45° | ✔ | ✔ | ✔ | | ✔ | | • Diameter range Ø63 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with eight cutting edges<br>• Double sided, thicker inserts for high stability and deeper cutting depths<br>• Wiper geometry for good surface quality<br>• Normal and fine pitch | B54 |
| **FMA12** |  |  <br>ON*U0604**<br>ON*U09T5** | 45° | ✔ | ✔ | ✔ | | ✔ | | • Diameter range Ø63 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with 16 cutting edges | B58 |
| **FMA17** |  |  <br>SNGX1205 | 45° | | | | | | | • Diameter range Ø50–400 mm<br>• For steel, stainless steel and cast iron<br>• Versatile 45° milling system with negative INSERTs ensures stable cutting edge<br>• INSERTs with eight cutting edges | B61 |
| **FMD02** |  |  <br>PNEG1105 | 67° | ✔ | ✔ | ✔ | | | | • Diameter range Ø50 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with ten cutting edges<br>• Wedge clamping or screw clamping<br>• Normal and fine pitch | B64 |
| **FMD02** |  |  <br>PNEG1105 | 67° | | | ✔ | | | | • Diameter range Ø50 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with ten cutting edges<br>• Wedge clamping or screw clamping<br>• Normal and fine pitch | B67 |
| **FMD02** |  |  <br>HNEX0905 | 55° | | | ✔ | | | | • Diameter range Ø80 – 315 mm<br>• For cast iron<br>• Wedge clamping<br>• Inserts with twelve cutting edges | B70 |

✔ Very suitable ✔ Suitable

## Face milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **FMD03** |  |  LNKT2007-ZR LNKT2510-ZR | 60° | ✔ | | ✔ | | | | • Diameter range Ø100 – 400 mm<br>• For steel, stainless steel and cast iron<br>• Tangential insert with four cutting edges<br>• Heavy duty machining for high cutting depths• Screw clamping | B72 |
| **FME02** |  |  SPKT1204 SPKW1204 | 75° | ✔ | ✔ | ✔ | | | | • Diameter range Ø50 – 125 mm<br>• For steel and cast iron<br>• Screw clamping | B74 |
| **FME03** |  |  SPKN1203 SPKR1203 SPEX1203 SPKN1504 SPKR1504 SPEX1504 | 75° | ✔ | ✔ | ✔ | | | | • Diameter range Ø80 – 400 mm<br>• For steel and cast iron<br>• Wedge clamping | B76 |
| **FME04** |  |  LNKT1506-ZR | 75° | ✔ | | ✔ | | | | • Diameter range Ø125 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Tangential insert with four cutting edges<br>• Heavy duty machining for high cutting depths<br>• Screw clamping | B79 |
| **FME17** |  |  SNGX1205ENN | 75° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø50–400 mm<br>- For steel, stainless steel and cast iron<br>• Negative milling system<br>• Versatile 75° system for efficient surface machining operations<br>• Inserts with eight cutting edges | B81 |
| **FMP01** |  |  TPKN2204 | 90° | ✔ | ✔ | ✔ | | ✔ | | • Diameter range Ø80 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Milling cutter with positive, soft cutting geometry<br>• Wedge clamping | B84 |

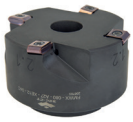
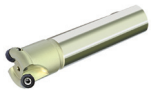
✔ Very suitable ✔ Suitable

## Face milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **FMP02** |  |  SEET09T3 SEET1203 | 90° | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø50 – 315 mm<br>• For steel, stainless steel, cast iron an non-ferrous metals<br>• Screw clamping | B86 |
| **FMP03** |  |  LNKT120608-ZR LNKT1506EN-ZR LNKT2007DN-ZR LNKT2510-ZR | 89° | ✔ | | ✔ | | | | • Diameter range Ø50 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Tangential insert with four cutting edges<br>• Screw clamping | B89 |
| **FMP06** |  |  SN**1204 | 88° | ✔ | | ✔ | | | | • Diameter range: Ø50–160 mm<br>• For steel, stainless steel and cast iron<br>• Negative milling system<br>• Milling without interfering contours thanks to 88° approach angle<br>• Inserts with eight cutting edges<br>• Screw clamping; use an insert with a hole | B91 |
| **FMP06** |  |  SN**1204 | 88° | ✔ | | ✔ | | | | • Diameter range: Ø63–250 mm<br>• For steel, stainless steel and cast iron<br>• Negative milling system<br>• Milling without interfering contours thanks to 88° approach angle<br>• Inserts with eight cutting edges<br>• Wedge clamping; use of an insert with or without a hole possible | B93 |
| **FMP12** |  |  WNHU0604 WNHU0806 | 90° | ✔ | | ✔ | | | | • Diameter range Ø50 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Tangential insert with four cutting edges<br>• Screw clamping | B95 |
| **FMP12** |  |  WNHU0604 | 90° | ✔ | | ✔ | | | | • Diameter range Ø50 – 315 mm<br>• For steel, stainless steel and cast iron<br>• Tangential insert with four cutting edges<br>• Screw clamping | B97 |

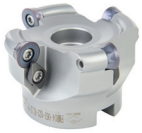
✔ Very suitable ✔ Suitable

## Face milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **FMP17** |  |  SNGX1205 | 88° | ✔ | ✔ | ✔ | | | | • Diameter range Ø50–400 mm<br>• For steel, stainless steel and cast iron<br>• 88° milling system with negative INSERTs ensures stable cutting edge<br>• INSERTs with eight cutting edges | B99 |
| **FMWX** |  |  XEEC1209 | | ✔ | | ✔ | | | | • Diameter range: Ø50–125 mm<br>• High-feed wiper milling cutter for steel and cast materials<br>• Insert with four cutting edges<br>• Reserve insert seats increase longevity of milling body<br>• Milling body is only fitted with two opposing inserts | B104 |
| **FMR01** |  |  RCKT10T3<br>RCKT1204<br>RCGX1204 | | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø25 – 63 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys<br>• Screw clamping | B106 |
| **FMR02** |  |  RCGX1204<br>RCKT1204<br>RCMW1204<br>RCKT1606<br>RCKT2006 | | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø50 – 250 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys<br>• Screw clamping | B109 |
| **FMR03** |  |  RD**0803<br>RD**10T3<br>RD**1204 | | ✔ | ✔ | ✔ | | | ✔ | • Diameter range Ø15 – 50 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Mould and die industry | B113 |
| **FMR03** |  |  RDKW0702<br>RDKW1003 | | ✔ | ✔ | ✔ | | | ✔ | • Diameter range: Ø15–50 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Die and mould making | B118 |

✔ Very suitable ✔ Suitable

## Face milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **FMR03** |  |  RDKW0702 RDKW1003 | | ✔ | ✔ | ✔ | | | ✔ | • Diameter range Ø15 – 50 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Mould and die industry | B115 |
| **FMR04** |  |  RD**1204 RD**1605 RD**2006 | | ✔ | ✔ | ✔ | | | ✔ | • Diameter range Ø50 – 200 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Mould and die industry | B120 |
| **FMR04** |  |  RDKW1003 RDKW12T3 RDKW1604 | | ✔ | ✔ | ✔ | | | ✔ | • Diameter range Ø42 – 200 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Mould and die industry | B122 |
| **FMR06** |  |  RNGN0903 RNGN0904 RNGN1204 RNGN1207 | | | | | | ✔ | ✔ | • Diameter range: Ø50–125 mm<br>• Maximum stability in facing operations<br>• Milling system for solid CBN and ceramic inserts<br>• Safe and easy to use thanks to wedge clamping<br>• Air cooling (AC) for optimum chip removal | B127 |
| **FMR11** |  |  RD**10T3 RD**1204 | | ✔ | ✔ | ✔ | | ✔ | ✔ | • Diameter range Ø40–80 mm<br>• For steel, stainless steel and cast iron• The ideal choice for difficult cutting operations and interrupted cuts<br>• Indexing the INSERT facilitates precise positioning in the milling body<br>• Optimum chip removal achieved by eliminating need for rigid clamping | B129 |
| **FMR11** |  |  RP**10T3 RP**1204 RP**1605 | | ✔ | ✔ | ✔ | | ✔ | | • Diameter range Ø40–80 mm<br>• For steel, stainless steel and cast iron<br>• The ideal choice for difficult cutting operations and interrupted cuts<br>• Indexing the INSERT facilitates precise positioning in the milling body<br>• Optimum chip removal achieved by eliminating need for rigid clamping | B131 |

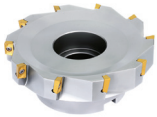
✔ Very suitable ✔ Suitable

# Indexable milling System overview

## Face milling

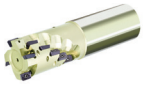
| Series | Milling body | Inserts | Kr | Application P | M | K | N | S | H | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMR11** |  |  RD**10T3 RD**1204 | | ✔ | ✔ | ✔ | | ✔ | | • Diameter range Ø32–40 mm<br>• For steel, stainless steel and cast iron<br>• The ideal choice for difficult cutting operations and interrupted cuts<br>• Indexing the INSERT facilitates precise positioning in the milling body<br>• Optimum chip removal achieved by eliminating need for rigid clamping | B134 |
| **FMR11** |  |  RP**10T3 RP**1204 | | ✔ | ✔ | ✔ | | ✔ | | • Diameter range: Ø32–40 mm<br>• For steel and stainless/cast materials; ideal choice for difficult cutting conditions and interrupted cuts<br>• Insert indexed for precise positioning in the milling body<br>• Optimum chip removal achieved by eliminating need for rigid clamping | B136 |

## Square shoulder milling

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **EMP01** |  |  APKT0702 APKT11T3 APKT1604 | 90° | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø12 – 63 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys<br>• Weldon shank<br>• For square shoulder milling, slot milling and ramping<br>• Milling cutter with positive, soft cutting geometry<br>• Inserts with two cutting edges | B139 |
| **EMP01** |  |  APKT11T3 APKT0702 APKT1604 | 90° | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø12 – 63 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys<br>• Weldon shank<br>• For square shoulder milling, slot milling and ramping<br>• Milling cutter with positive, soft cutting geometry<br>• Inserts with two cutting edges | B142 |
| **EMP02** |  |  APKT0702 APKT11T3 APKT1604 | 90° | ✔ | ✔ | ✔ | ✔ | ✔ | | • Diameter range Ø40–250 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heat-resistant alloys<br>• For square-shoulder, slot and plunge milling<br>• Milling cutter with positive, soft cutting geometry<br>• INSERTs with two cutting edges | B145 |

✔ Very suitable ✔ Suitable

## Square shoulder milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **EMP03** |  |  APKT11T3 | 90° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø50–100 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heat-resistant alloys<br>• For square-shoulder, slot and plunge milling<br>• Milling cutter with positive, soft cutting geometry<br>• INSERTs with two cutting edges | B149 |
| **EMP04** |  |  APKT11T3 | 90° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø20–40 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heat-resistant alloys<br>• For square-shoulder, slot and plunge milling<br>• Milling cutter with positive, soft cutting geometry<br>• INSERTs with two cutting edges | B151 |
| **EMP05** |  |  ADKT0803L & ADKT0903R<br>ADKT1003L & ADKT1003R<br>ADKT12T3L & ADKT12T3R<br>ADKT1605L & ADKT1505R | 90° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø16 – 50 mm<br>• For steel, stainless steel and cast iron<br>• Straight shank<br>• For square-shoulder, slot and plunge milling<br>• Double seats, specifically for deep grooving<br>• ADKT inserts available for right and left-hand cutting | B153 |
| **EMP05** |  | ADKT0803L & ADKT0903R<br>ADKT1003L & ADKT1003R<br>ADKT12T3L & ADKT12T3R<br>ADKT1605L & ADKT1505R | 90° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø16 – 50 mm<br>• For steel, stainless steel and cast iron<br>• Straight shank<br>• For square-shoulder, slot and plunge milling<br>• ADKT inserts available for right and left-hand cutting | B155 |
| **EMP09** |  |  LNKT0804PNR**<br>LNKT1206PNR**<br>LNKT1607PNR** | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø40 – 125 mm<br>• Sharp cutting edge geometry combined with robust tangential inserts<br>• First choice for large cutting depths with high feed rates.<br>• Specially designed cutting edge with high precision control for high quality 90 degree square shoulder milling | B157 |
| **EMP09** |  |  LNKT0804PNR-GM<br>LNKT1206PNR-GM | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø40 – 80 mm<br>• Sharp cutting edge geometry combined with robust tangential inserts<br>• First choice for large cutting depths with high feed rates.<br>• Specially designed cutting edge with high precision control for high quality 90 degree square shoulder milling | B160 |

✔ Very suitable ✔ Suitable

## Square shoulder milling

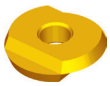
| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **EMP09** |  |  LNKT0804PNR** LNKT1206PNR** | 90° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø32–??? mm<br>• Sharp cutting edge geometry combined with rugged tangential inserts<br>• Ideal choice for large cutting depths at high feed rates<br>• Specially developed cutting edges with high precision control for high-quality 90° square shoulder milling | B162 |
| **EMP13** |  |  ANGX1105 ANGX1506 | 90° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø40 – 250 mm<br>• For steel, cast iron and non-ferrous metals<br>• Double sided, thicker inserts for high stability and deeper cutting depths<br>• Inserts with four cutting edges | B164 |
| **EMP13** |  |  ANGX1105 ANGX1506 | 90° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø25 – 40 mm<br>• For steel, cast iron and non-ferrous metals<br>• Double sided, thicker inserts for high stability and deeper cutting depths<br>• Inserts with four cutting edges | B166 |
| **EMP13** |  |  ANGX1105 ANGX1506 | 90° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø25 – 40 mm<br>• For steel, cast iron and non-ferrous metals<br>• Double sided, thicker inserts for high stability and deeper cutting depths<br>• Inserts with four cutting edges | B168 |
| **EMP13** |  |  ANGX1105 ANGX1506 | 90° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø50 – 80 mm<br>• For steel, cast iron and non-ferrous metals<br>• Double sided, thicker inserts for high stability and deeper cutting depths<br>• Inserts with four cutting edges | B170 |
| **EMP13** |  |  ANGX1105 ANGX1506 | 90° | ✔ | ✔ | ✔ | ✔ | | | • Diameter range Ø25 – 40 mm<br>• For steel, cast iron and non-ferrous metals<br>• Double sided, thicker inserts for high stability and deeper cutting depths<br>• Inserts with four cutting edges | B172 |

✔ Very suitable ✔ Suitable

## Square shoulder milling

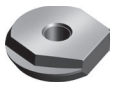
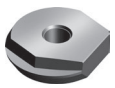
| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **EMP14** |  |  VPGT2205 | 90° | | | | ✔ | | | • Diameter range: Ø40–125 mm<br>• For non-ferrous metals<br>• Highly polished inserts precision-ground to exactly 90°<br>• Wide assortment of nose radii available to choose from<br>• Inserts with two cutting edges | B174 |
| **EMP14** |  |  VPGT2205 | 90° | | | | ✔ | | | • Diameter range: Ø32 mm<br>• For non-ferrous metals<br>• Highly polished inserts precision-ground to exactly 90°<br>• Wide assortment of nose radii available to choose from<br>• Inserts with two cutting edges | B176 |

## Profile milling

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **BMR01** |  |  ZDET08T2 & SPMT0603<br>ZDET1103 & SPMT0603<br>ZDET13T2 & SDMT0903<br>ZPNT2204 & SPMT1204 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø20 – 63 mm<br>• For steel, stainless steel and cast iron<br>• Very suitable for roughing of big moulds<br>• Inserts with three cutting edges | B179 |
| **BMR02** |  |  ROHX1203<br>ROHX1604<br>ROHX2005 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 20 mm<br>• For steel, stainless steel and cast iron<br>• Very suitable for finishing in mould and die industry<br>• Inserts with two cutting edges | B182 |
| **BMR03** |  |  XPHT16<br>XPHT20<br>XPHT25<br>XPHT30<br>XPHT32<br>XPHT40 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 40 mm<br>• For steel and cast iron<br>• Very suitable for roughing in mould and die industry<br>• Tool with high stability | B184 |

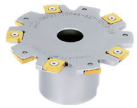
✔ Very suitable ✔ Suitable

## Profile milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **BMR03** |  |  XPHT16 XPHT20 XPHT25 XPHT30 XPHT32 XPHT40 XPHT50 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 40 mm<br>• For steel and cast iron<br>• Very suitable for roughing in mould and die industry<br>• Tool with high stability | B186 |
| **BMR03** |  |  XPHT20 XPHT25 XPHT30 XPHT32 XPHT40 XPHT50 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 40 mm<br>• For steel and cast iron<br>• Very suitable for roughing in mould and die industry<br>• Tool with high stability | B188 |
| **BMR03** |  |  XPHT40 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 40 mm<br>• For steel and cast iron<br>• Very suitable for roughing in mould and die industry<br>• Tool with high stability | B190 |
| **BMR04** |  |  ZOHX12 ZOHX16 ZOHX20 ZOHX25 ZOHX30 ZOHX32 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Very suitable for finishing in mould and die industry<br>• Inserts with two cutting edges | B192 |
| **BMR04** |  |  ZOHX12 ZOHX16 ZOHX20 ZOHX25 ZOHX30 ZOHX32 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Very suitable for finishing in mould and die industry<br>• Inserts with two cutting edges | B194 |

✔ Very suitable ✔ Suitable

## Slot milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **SMP01** |  |  XSEQ1202 XSEQ1203 XSEQ12T3 XSEQ1204 XSEQ12T4 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø100 – 250 mm<br>• For steel, stainless steel and cast iron<br>• Bore with keyway<br>• Groove widths 4, 5, 6, 7, 8 mm | B197 |
| **SMP01** |  |  XSEQ1202 XSEQ1203 XSEQ12T3 XSEQ1204 XSEQ12T4 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø63 – 160 mm<br>• For steel, stainless steel and cast iron<br>• Groove widths 4, 5, 6, 7, 8 mm | B199 |
| **SMP03** |  |  MPHT0603 MPHT0803 MPHT1204 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø80 – 200 mm<br>• For steel, stainless steel and cast iron<br>• Bore with keyway<br>• Groove widths 8, 10, 12, 16, 18, 20 mm | B201 |
| **SMP03** |  |  MPHT0603 MPHT0803 MPHT1204 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø80 – 200 mm<br>• For steel, stainless steel and cast iron<br>• Groove widths 8, 10, 12, 16, 18, 20 mm | B203 |
| **SMP05** |  |  QC16L QC22L | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø25 – 44 mm<br>• For steel, stainless steel and cast iron<br>• Groove widths range 1,1 – 4,8 mm | B205 |

✔ Very suitable ✔ Suitable

# Indexable milling System overview

## Slot milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **SMP09** |  |  LNGX0804* LNGX1005** LNGX1407** | 90° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø80–250 mm<br>• For steel, stainless steel and cast iron<br>• Groove width range: 10–20 mm | B208 |
| **SMP09** |  |  LNGX0804* LNGX1005** LNGX1407** | 90° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø80–315 mm<br>• For steel, stainless steel and cast iron<br>• Groove width range: 10–20 mm | B211 |

## High-feed milling

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XMR01** |  |  SDMT06T2 SDMT09T3 SDMT1204 SDMT1505 | 15° | ✔ | ✔ | ✔ | | | | • Diameter range Ø20 – 40 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with four cutting edges<br>• Ramping possible<br>• Double clamping system for inserts | B215 |
| **XMR01** |  |  SDMT09T3 SDMT1204 | 15° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø20–40 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with four cutting edges<br>• Plunge milling possible<br>• Double clamping system for inserts | B217 |
| **XMR01** |  |  SDMT06T2 SDMT09T3 SDMT1204 SDMT1505 | 15° | ✔ | ✔ | ✔ | | | | • Diameter range Ø40 – 125 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with four cutting edges<br>• Ramping possible<br>• Double clamping system for inserts | B219 |

✔ Very suitable ✔ Suitable

## High-feed milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **XMR01** |  |  WPGT0503 WPGT0604 | 11°-22° | ✔ | ✔ | ✔ | | | | • Diameter range Ø20 – 40 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with three cutting edges<br>• Ramping possible<br>• Double clamping system for inserts | B222 |
| **XMR01** |  |  WPGT0503 WPGT0604 | 11°-22° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø20–40 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with three cutting edges<br>• Plunge milling possible<br>• Double clamping system for inserts | B224 |
| **XMR01** |  |  WPGT0604 WPGT0806 WPGT0907 | 11°-22° | ✔ | ✔ | ✔ | | | | • Diameter range Ø42 – 160 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with three cutting edges<br>• Ramping possible<br>• Double clamping system for inserts | B226 |
| **XMR12** |  |  ENMX1206** | 18° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø40–63 mm<br>• For steel, stainless steel and cast iron<br>• Insert with four cutting edges<br>• Plunge milling possible | B228 |
| **XMR12** |  |  ENMX1206** | 18° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø16–35 mm<br>• For steel, stainless steel and cast iron<br>• Insert with four cutting edges<br>• Plunge milling possible | B230 |

✔ Very suitable ✔ Suitable

# Indexable milling System overview

## Bore milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| XMP01 |  |  CNE12 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø80 – 400 mm<br>• For steel, stainless steel and cast iron<br>• Also for face and square shoulder milling | B233 |

## T-slot milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| TMP01 |  |  MPHT0603<br>MPHT0803<br>MPHT1204 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø21 – 60 mm<br>• For cast iron<br>• Groove widths 9, 11, 14, 18, 22, 28 mm | B235 |

## Helical milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| HMP01 |  |  APKT1504 & SPMT1204 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø40 – 50 mm<br>• For steel and cast iron<br>• Weldon shank | B237 |
| HMP01 |  |  APKT1504 & SPMT1204 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø50 – 80 mm<br>• For steel and cast iron<br>• With JT coupling | B239 |
| HMP01-EC |  |  APKT1504 & SPMT1204 | 90° | ✔ | ✔ | ✔ | | | | • Diameter range Ø50 – 80 mm<br>• For steel and cast iron<br>• With JT coupling<br>• With indexable head | B241 |

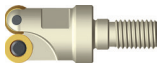
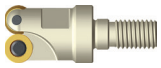
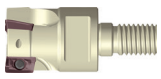
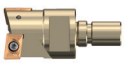
✔ Very suitable ✔ Suitable

## Chamfer milling

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **CMZ01** |  |  SPMT1204 | 30° | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Chamfer milling cutter 30° | B245 |
| **CMZ01** |  |  SPMT1204 | 30° | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Chamfer milling cutter 30° | B243 |
| **CMA01** |  |  SPMT1204 | 45° | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Chamfer milling cutter 45°<br>• Weldon shank | B247 |
| **CMA01** |  |  SPMT1204 | 45° | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Chamfer milling cutter 45°<br>• Weldon shank | B249 |
| **CMD01** |  |  SPMT1204 | 60° | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Chamfer milling cutter 60°<br>• Weldon shank | B251 |
| **CMD01** |  |  SPMT1204 | 60° | ✔ | ✔ | ✔ | | | | • Diameter range Ø12 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Chamfer milling cutter 60°<br>• Weldon shank | B253 |

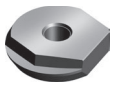
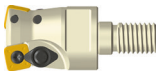
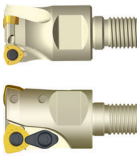
✔ Very suitable ✔ Suitable

## Indexable heads - QCH series

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **QCH-RD** |  |  RDKW0702<br>RDKW10T3<br>RDKW1605 | | ✓ | ✓ | ✓ | | | ✓ | • Diameter range Ø15 – 42 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Mould and die industry<br>• For two different thicknesses of inserts | B255 |
| **QCH-RD** |  |  RDKW0702<br>RDKW1003<br>RDKW12T3<br>RDKW1604 | | ✓ | ✓ | ✓ | | | ✓ | • Diameter range Ø15 – 42 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Mould and die industry<br>• For two different thicknesses of inserts | B258 |
| **QCH-RD-M-FMR11** |  |  RD**10T3<br>RD**1204 | | ✓ | ✓ | ✓ | | ✓ | | • Diameter range Ø20–40 mm<br>• For steel, stainless steel and cast iron<br>• The ideal choice for difficult cutting operations and interrupted cuts<br>• Indexing the INSERT facilitates precise positioning in the milling body<br>• Optimum chip removal achieved by eliminating need for rigid clamping | B261 |
| **QCH-RP-M-FMR11** |  |  RP**10T3<br>RP**1204 | | ✓ | ✓ | ✓ | | ✓ | | • Diameter range Ø20–40 mm<br>• For steel, stainless steel and cast iron<br>• The ideal choice for difficult cutting operations and interrupted cuts<br>• Indexing the INSERT facilitates precise positioning in the milling body<br>• Optimum chip removal achieved by eliminating need for rigid clamping | B263 |
| **QCH-APKT** |  |  APKT0702<br>APKT11T3<br>APKT1604 | 90° | ✓ | ✓ | ✓ | ✓ | ✓ | | • Diameter range Ø16–40 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heat-resistant alloys<br>• For square-shoulder, slot and plunge milling<br>• Milling cutter with positive, soft cutting geometry<br>• INSERTs with two cutting edges<br>• For metric ISO threads according to DIN standard only | B266 |
| **QCH-ADKT** |  | ADKT-GM | 90° | ✓ | ✓ | ✓ | | | | • Diameter range: Ø16–40 mm<br>• For steel and stainless steel<br>• For slot and plunge milling<br>• Equipped with two inserts for deep groove milling<br>• Ramping possible (ideal for die and mould making)<br>• Can be used in centre cutting operations and as a groove milling cutter | B269 |

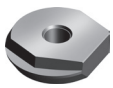
✓ Very suitable ✓ Suitable

## Indexable heads - QCH series

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| **QCH-LNKT** |  |  LNKT080404PNR-GM<br>LNKT1206PNR-GM | 90° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø25–40 mm<br>• Sharp cutting edge geometry combined with rugged tangential inserts<br>• Ideal choice for large cutting depths at high feed rates<br>• Specially developed cutting edges with high precision control for high-quality 90° square shoulder milling | B271 |
| **QCH-VP** |  |  VPGT2205 | 90° | | | | ✔ | | | • Diameter range: Ø32 mm<br>• For non-ferrous metals<br>• Highly polished inserts precision-ground to exactly 90°<br>• Wide assortment of nose radii available to choose from<br>• Inserts with two cutting edges<br>• For square-shoulder milling, slot milling and ramping<br>• For metric ISO threads according to DIN standard only | B273 |
| **QCH-XPHT** |  |  XPHT16<br>XPHT20<br>XPHT25<br>XPHT30<br>XPHT32 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 32 mm<br>• For steel and cast iron<br>• Very suitable for roughing in mould and die industry | B275 |
| **QCH-ZOHX** |  |  ZOHX16<br>ZOHX20<br>ZOHX25<br>ZOHX32 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 32 mm<br>• For steel, stainless steel and cast iron<br>• Very suitable for finishing in mould and die industry<br>• Inserts with two cutting edges | B277 |
| **QCH-SDMT** |  |  SDMT06T2<br>SDMT09T3<br>SDMT1204 | 15° | ✔ | ✔ | ✔ | | | | • Diameter range Ø20 – 40 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with four cutting edges<br>• Ramping possible<br>• Double clamping system for inserts | B279 |
| **QCH-WPGT** |  |  WPGT0503<br>WPGT0604<br>WPGT0806 | 11°-<br>22° | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 42 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with three cutting edges<br>• Ramping possible<br>• Double clamping system for inserts | B281 |

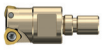
✔ Very suitable ✔ Suitable

## Indexable heads - QCH series

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| QCH-EN |  |  ENMX1206** | 18 | ✓ | ✓ | ✓ | | | | • Diameter range: Ø16–40 mm<br>• For steel, stainless steel and cast iron<br>• Insert with four cutting edges<br>• Plunge milling possible | B283 |
| QCH-RD-Q |  |  RDKW0702<br>RDKW10T3<br>RDKW1605 | | ✓ | ✓ | ✓ | | | ✓ | • Diameter range: Ø20–32 mm<br>• For steel, stainless steel and cast iron<br>• Screw clamping<br>• Die and mould making<br>• For two different insert thicknesses• Only for Q thread captive to ZCC-CT | B285 |
| QCH-APKT-Q |  |  APKT0702<br>APKT11T3<br>APKT1604 | 90° | ✓ | ✓ | ✓ | | | | • Diameter range Ø16–40 mm<br>• For steel, stainless steel, cast iron, non-ferrous metals and heat-resistant alloys<br>• For square-shoulder, slot and plunge milling<br>• Milling cutter with positive, soft cutting geometry<br>• Inserts with two cutting edges<BR• Only for Q-thread according to ZCC-CT factory standard | B287 |
| QCH-XPHT-Q |  |  XPHT16<br>XPHT20<br>XPHT25<br>XPHT30<br>XPHT32 | | ✓ | ✓ | ✓ | | | | • Diameter range: Ø16–32 mm<br>• For steel and cast iron<br>• Well suited for roughing applications in mould and die making• Only for Q thread captive to ZCC-CT | B290 |
| QCH-ZOHX-Q |  |  ZOHX16<br>ZOHX20<br>ZOHX25<br>ZOHX30<br>ZOHX32 | | ✓ | ✓ | ✓ | | | | • Diameter range: Ø16–32 mm<br>• For steel, stainless steel and cast iron<br>• Well suited for finishing applications in mould and die making<br>• Inserts with two cutting edges<br>• Only for Q thread captive to ZCC-CT | B292 |
| QCH-SDMT-Q |  |  SDMT09T3<br>SDMT1204 | | ✓ | ✓ | ✓ | | | | • Diameter range Ø20 – 40 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with four cutting edges<br>• Ramping possible<br>• Double clamping system for inserts<br>• Only for Q-thread according to ZCC-CT factory standard | B294 |

✓ Very suitable ✓ Suitable

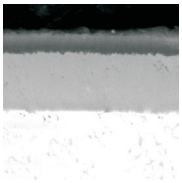
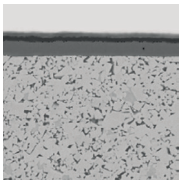
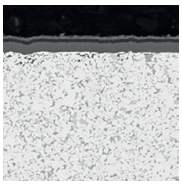
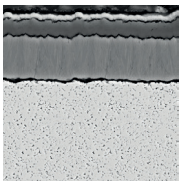
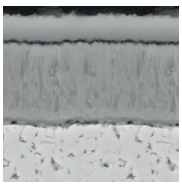
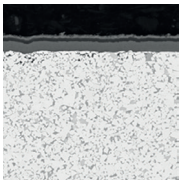
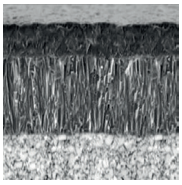
## Indexable heads - QCH series

| Series | Milling body | Inserts | Kr | Application | | | | | | Features | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | M | K | N | S | H | | |
| QCH-WPGT-Q |  |  WPGT0503 WPGT0604 | 11°-22° | ✔ | ✔ | ✔ | | | | • Diameter range: Ø20–35 mm<br>• For steel, stainless steel and cast iron<br>• Inserts with three cutting edges<br>• Plunge milling possible<br>• Double clamping system for inserts• Only for Q thread captive to ZCC-CT | B296 |
| QCH-SPGT-Q |  |  SPGT0502 | | ✔ | ✔ | ✔ | | | | • Diameter range Ø16 – 20 mm<br>• For steel, stainless steel and cast iron<br>• For deburring and chamfer milling<br>• Soft cutting milling cutter with large, positive cutting edge geometry<br>• Inserts with four cutting edges<br>• Only for Q-thread according to ZCC-CT factory standard | B298 |

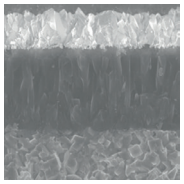
## Chip breaker overview

| | Finishing | Medium machining | Roughing |
|---|---|---|---|
| P | DF | DM | DR |
| | APF | APM / APL | – |
| | PF | PM | PR |
| | GF | GM | GR |
| | GL | GM | GH |
| | – | HGR | – |
| | – | – | ZR |
| | – | XR | – |
| | – | MM | – |
| | MO-2 | MO-1 | MO-3 |
| M | EF | EM | – |
| | APF | APM | – |
| | DF | DM | – |
| | PF | PM | PR |
| | GF | GM | GR |
| | GL | GM | GH |
| | – | HGR | – |
| | E | E | – |
| | – | – | ZR |
| | – | XR | – |
| | – | NM | – |
| K | CF | CM | CR |
| | DF | DM | DR |
| | EDFR | DER | DER |
| | PF | PM | PR |
| | GF | GM | GR |
| | GL | GM | GH |
| | – | – | ZR |
| | – | XR | – |
| | MO-2 | MO-1 | MO-3 |
| S | EF | EM | – |
| | NM | NM | – |
| N | LH | LH | LH |
| | ALH | ALH | ALH |

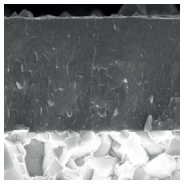
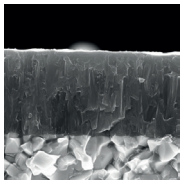
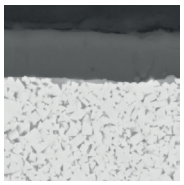
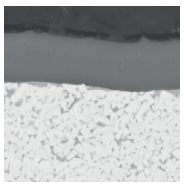
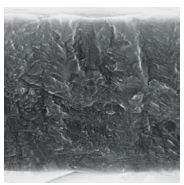
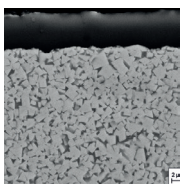
## Coated cemented carbide CVD

| Grade | ISO | Micro structure | Grade description |
|---|---|---|---|
| **YBC302** | P20 - P35 |  | CVD coated P20–P35 carbide grade for medium operation to roughing of steel at higher cutting speed. Optimal performance of wear resistance and toughness for a wide application field. |
| **YBC301** | P20 - P35 |  | CVD coated P20–P35 carbide grade for medium operation to roughing of steel at lower cutting speed. |
| **YBC401** | P30 - P50<br>M30 - M40 |  | CVD coated P30–P50/M30–M40 carbide grade for roughing operation of steel at lower cutting speed and unstable condition. |
| **YBM251** | P20 - P30<br>M15 - M35 |  | CVD coated P20–P30/M15–M35 carbide grade for medium to roughing operation in stainless steel and steel with wide application field. Good wear resistance and capability against plastic deformation at normal cutting speed. |
| **YBM253** | 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. |
| **YBM351** | P25 - P40<br>M20 - M40 |  | CVD coated P25–P40/M25–M40 carbide grade for roughing operation in stainless steel and steel. Good wear resistance and edge stability at normal cutting speed. |
| **YBD152** | K10 - K25 |  | CVD coated K10–K25 carbide substrate. Optimized for medium to roughing operation of cast iron. Good wear resistance and toughness at higher cutting speed. |
| **YBD252** | K20 - K35 |  | CVD coated K20–K35 carbide substrate. Optimized for medium to roughing operation of cast iron and Steel. Good wear resistance and toughness at higher cutting speed. |

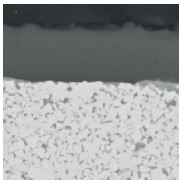
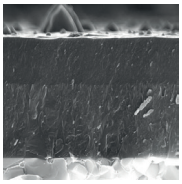
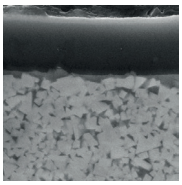
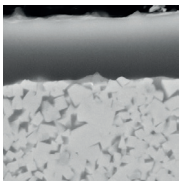
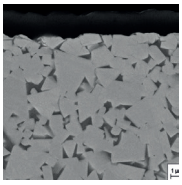
## Coated cemented carbide CVD

| Grade | ISO | Micro structure | Grade description |
|---|---|---|---|
| **YBD203** | K10–K30 |  | CVD-coated K10–30 carbide grade for applications ranging from semi-finishing to roughing of cast materials and steel. Highly resistant to mechanical fatigue and chipping. Tough and highly resistant to wear at higher cutting speeds. |

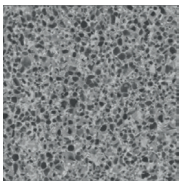
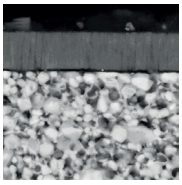
## Coated cemented carbide PVD

| Grade | ISO | Micro structure | Grade description |
|---|---|---|---|
| **YBH053** | P05–P15 |  | PVD-coated P05–P15 carbide grade for an array of application ranging from finishing to semi-finishing of steel. High thermal conductivity and temperature resistance make the substrate more resistant to cracking and deformation. Excellent hot hardness and wear resistance for precise machining results. |
| **YBG101** | N05 - N20 |  | PVD coated N05–N20 carbide substrate for finishing to semi-finishing in aluminium materials. Coating only on the top face, in combination with the aluminium chip breakers, prevents built-up edges and gives a smooth cut. |
| **YBG102** | S05 - S15 |  | PVD coated S05–S15 carbide substrate for finishing to medium application of super alloy material, stainless steel and aluminum. Good wear resistance in a wide application field. |
| **YBG202** | P10 - P30<br>M10-M25 |  | PVD coated P10–P30/M10–M25 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field. |
| **YBG212** | P25 - P35<br>M25-M40 |  | PVD coated M25–M40/P25–P35 carbide substrate for steel and stainless steel. Especially for inner insert at drilling operation. |
| **YBS203** | S15 – S25 |  | Turning and milling grades for processing heat-resistant materials. A special carbon substrate and the latest PVD coating technology enable a very good wear behaviour, high fracture toughness and high thermal stability. |

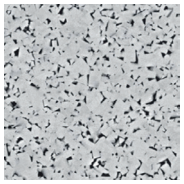
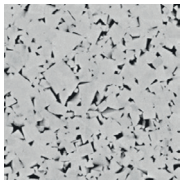
## Coated cemented carbide PVD

| Grade | ISO | Micro structure | Grade description |
|---|---|---|---|
| **YBG205** | P10 - P30<br>M20 - M40<br>S15-S25 |  | PVD multilayer coated P10–P30/M20–M40/S15–S25 carbide substrate for finishing to medium machining of stainless steel, super alloys and steel (milling). Excellent wear resistance and thermal stability in a wide range of applications. |
| **YBG205H** | P10–P30<br>M20–M40<br>S15–S25 |  | PVD-coated carbide grade with TiAlN composite coating for applications ranging from finishing to semi-finishing of steel, stainless steel and heat-resistant materials. The coating is extremely hard and resistant to thermal shocks and cracking in a wide range of applications. |
| **YB9320** | P10 - P30<br>M10-M25 |  | PVD multilayer coated P10–P30/M10–M25 carbide substrate for finishing to medium machining of stainless steel, super alloys and steel (grooving/milling). Optimised coating stability for higher wear resistance and thermal stability in a wide range of applications. |
| **YBG302** | P15 - P30<br>M25 - M40 |  | PVD coated P15–P30/M25–M40 carbide substrate for medium roughing application of stainless steel and steel (milling). Good wear resistance and toughness. |
| **YBS303** | S25 - S35 |  | Milling grade for machining titanium alloys. A tough carbide substrate and the latest PVD coating technology with increased impact resistance and high thermal stability. |

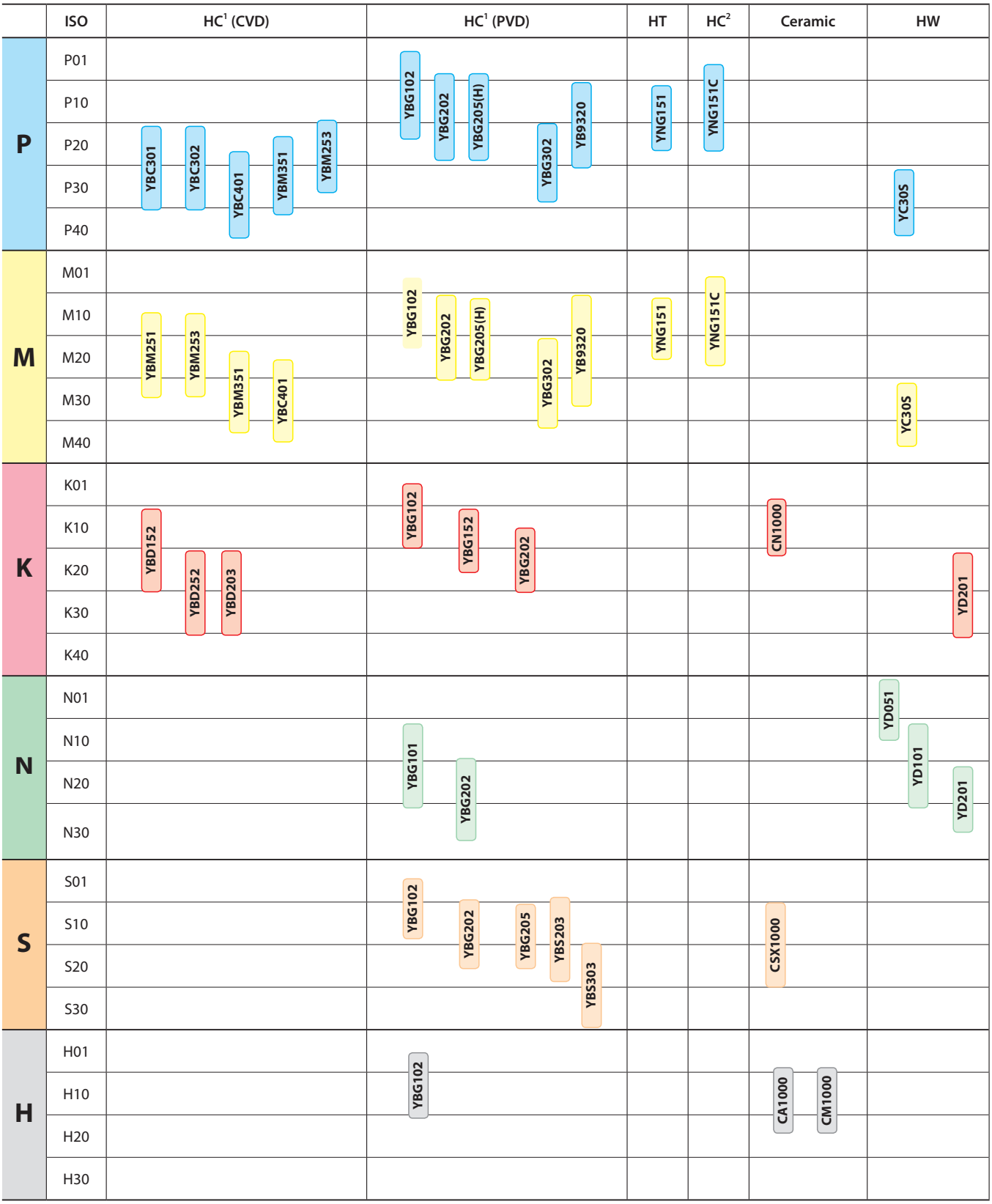
## Cermet

| Grade | ISO | Micro structure | Grade description |
|---|---|---|---|
| **YNG151** | P05 - P15 |  | Uncoated P05–P15 cermet grade for fine finishing operation of steel and stainless steel. Good resistance against plastic deformation for good surface finishing. |
| **YNG151C** | P05 - P15 |  | PVD coated P05–P15 cermet grade for fine finishing operation of steel and stainless steel. Good wear resistance and capability against plastic deformation for good surface roughness. |

## Uncoated cemented carbide

| Grade | ISO | Micro structure | Grade description |
|---|---|---|---|
| **YD101** | N05 - N25<br>K05 - K20 |  | Uncoated K05–K20/N05–N20 carbide substrate for fine to medium application in aluminum and other material. |
| **YD201** | K10 - K30<br>N10 - N30 |  | Uncoated K10–K30/N10–N30 carbide substrate for medium application in aluminum and other material. |

## Application fields of grades – indexable milling




| | | | |
|---|---|---|---|
| P | Steel | N | Non-ferrous metals |
| M | Stainless steel | S | Heat-resistant alloys |
| K | Cast iron | H | Hardened materials |

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated carbide
HW Uncoated carbide

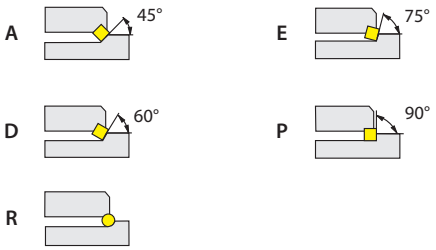
# Indexable milling System code – milling bodies

| FM | A | 12 | 050 | – | A22 | O | – | N | 06 | – | 04 | (L) | (C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | 5 | 6 | | 7 | 8 | | 9 | 10 | 11 |

| Type | |
|---|---|
| Code | Description |
| BM | Profile milling |
| CM | Chamfer milling |
| EM | Square shoulder milling |
| FM | Face milling |
| HM | Helical milling |
| SM | Slot milling |
| TM | T-slot milling |
| XM | Special |

**1**

**Entering angle**




**2**

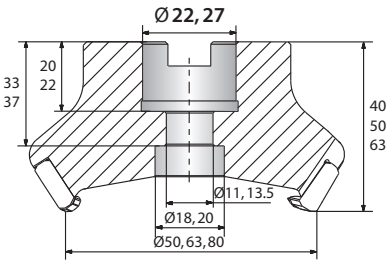
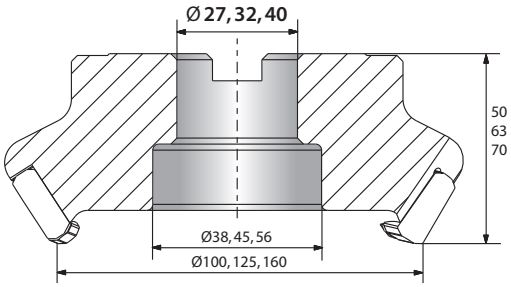
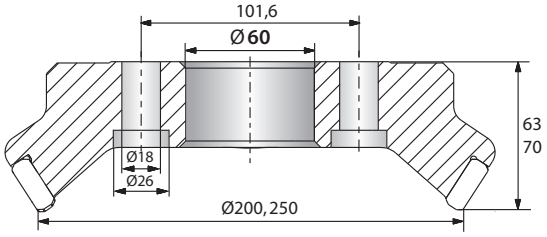
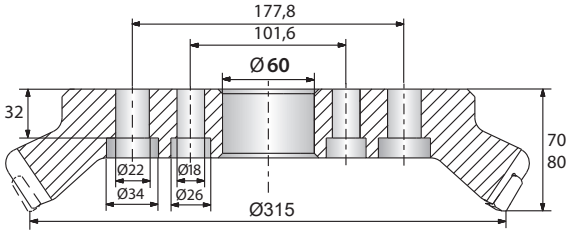
**Serial number**

**3**

| Nominal diameter [mm] | |
|---|---|
| Code | Description |
| 025 | 25 |
| 050 | 50 |
| 160 | 160 |
| 315 | 315 |
| ... | |

**4**

**Type and size of tool holders**

| Code | Type | Code | Type |
|---|---|---|---|
| A | Nominal diameter Ø50 – 80 mm   | B | Nominal diameter Ø100 – 160 mm   |
| C | Nominal diameter Ø200 – 250 mm   | D | Nominal diameter Ø315 mm   |
| G | Straight shank | XP | Weldon shank |
| K | Bore with keyway | | |

**5**

With respect to mounting please adhere to the information provided by the tool holder manufacturer.

| Insert shape | | | |
|---|---|---|---|
| A | | C | |
| H | | L | |
| M | | O | |
| P | | R | |
| S | | T | |
| W | | X | Special |
| Z | Special | | |

**6**

| Clearance angle | | | |
|---|---|---|---|
| B | 5° | C | 7° |
| D | 15° | E | 20° |
| F | 25° | N | 0° |
| P | 11° | | |

**7**

| Cutting edge length l [mm] | |
|---|---|
| Insert shape | |
| A | C, M |
| H, O, P | L |
| R | S |
| T | W |

**8**

| Number of teeth |
|---|

**9**

| Cutting direction | |
|---|---|
| Code | Description |
| L | Left |

**10**

| With inner cooling |
|---|

**11**

**Tools with B coupling and inner coolant supply require the following spare parts:**



Coolant clamp screw



Coolant shower plate



**Spare parts (B coupling with inner coolant supply)**

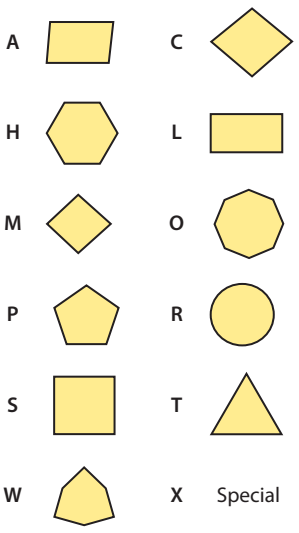
| | | B27 | B32 | B40 | B40 |
|---|---|---|---|---|---|
| | **Ø** | **80** | **100** | **125** | **160** |
|  | **Coolant clamp screw** | LDB27C | LDB32C | LDB40C | LDB40C |
|  | **Coolant shower plate** | B27-002-CP | B32-002-CP | B40-002-CP | B40-003-CP |

When purchasing tools with inner coolant supply and B coupling these spare parts are included in delivery.

# Indexable milling ISO code – inserts

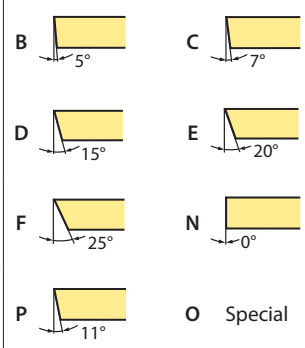
| S | P | K | N | 12 | 04 | ED | T21K | R | – | DM |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | 10 |

## Insert shape



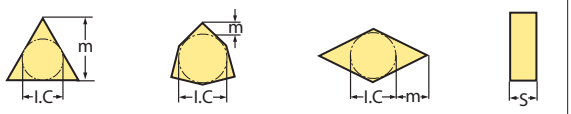

1

## Clearance angle




2

## Tolerance class

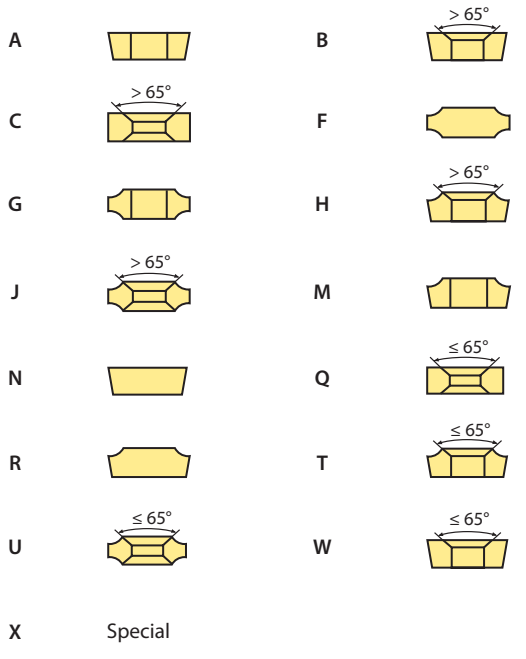



| Code | I.C [mm] | m [mm] | S [mm] |
|---|---|---|---|
| A | ±0,025 | ±0,005 | ±0,025 |
| C | ±0,025 | ±0,013 | ±0,025 |
| E | ±0,025 | ±0,025 | ±0,025 |
| F | ±0,013 | ±0,005 | ±0,025 |
| G | ±0,025 | ±0,025 | ±0,130 |
| H | ±0,013 | ±0,013 | ±0,025 |
| J | ±0,05–0,13 | ±0,005 | ±0,025 |
| K | ±0,05–0,13 | ±0,013 | ±0,025 |
| L | ±0,05–0,13 | ±0,025 | ±0,025 |
| M | ±0,05–0,13 | ±0,08–0,18 | ±0,130 |
| N | ±0,05–0,13 | ±0,08–0,18 | ±0,025 |
| U | ±0,08–0,25 | ±0,13–0,38 | ±0,130 |

3

## Fastening features (metric)

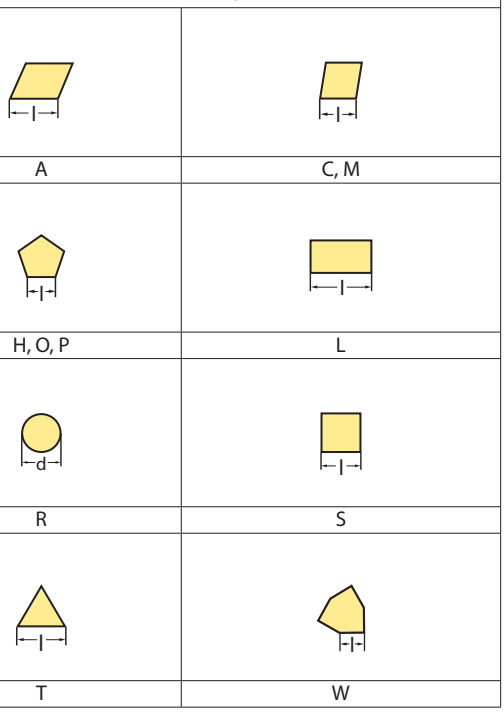
Insert shape




4

## Cutting edge length l [mm]

Insert shape




5

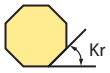
## Insert thickness S [mm]




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

**6**

## Angle







| Code | Kr | Code | αn |
|---|---|---|---|
| **A** | 45° | **A** | 3° |
| **D** | 60° | **B** | 5° |
| **E** | 75° | **C** | 7° |
| **F** | 85° | **D** | 15° |
| **P** | 90° | **E** | 20° |
| **Z** | Special | **F** | 25° |
| | | **G** | 30° |
| | | **N** | 0° |
| | | **P** | 11° |
| | | **Z** | Special |

**7**

## Chamfer

| Code | Type | Code | Angle | Code | Width [mm] | Code | Position |
|---|---|---|---|---|---|---|---|
| **F** |  | **0** | 5° | **0** | 0,10 | **K** |  |
| **E** |  | **1** | 10° | **1** | 0,15 | | |
| **T** |  | **2** | 15° | **2** | 0,20 | **P** |  |
| **S** |  | **3** | 20° | **3** | 0,25 | | |
| | | **4** | 25° | **4** | 0,30 | **W** |  |
| | | **5** | 30° | **5** | 0,35 | | |
| | | | | **6** | 0,40 | **–** |  |
| | | | | **7** | 0,45 | | |

**8**

## Cutting direction

| Code | Description |
|---|---|
| **R** | Right |
| **L** | Left |
| **N** | Right and left |

**9**

**Chip breaker overview**
**(on page B26)**

**10**

# Indexable milling System code – slot milling

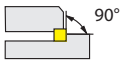
| SM | P | 03 | – | 160 × 16 | – | K | 40 | – | M | P | 12 | – | 12 | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | 12 |

**Type**

| Code | Description |
|---|---|
| SM | Slot milling cutter |

1

**Entering angle**

P 


2

**Serial number**

3

**Nominal diameter [mm]**

4

**Cutting width [mm]**

5

**Tool holder type**

| Code | Description | Code | Description |
|---|---|---|---|
| A | A type | B | B type |
| C | C type | D | D type |
| K | With feather key | | |

6

**Diameter of mounting hole [mm]**

7

**Insert shape**

M 

S 
L 

8

**Clearance angle**

N 

P 


9

**Insert size [mm]**

10

**Number of teeth**

11

**Cutting direction**

| Code | Description |
|---|---|
| R | Right |
| L | Left |

12

# QCH – 35 – SDMT 09 – Q 18 – 03

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

**Series [mm]**

| Code | Description |
|---|---|
| **QCH** | Indexable head system |

**1**

**Nominal diameter [mm]**

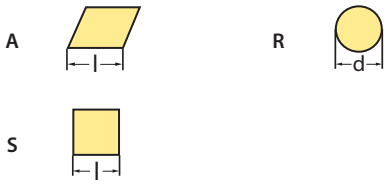
| Code | Description |
|---|---|
| **16** | 16 |
| **20** | 20 |
| **25** | 25 |
| **35** | 35 |
| ... | |

**2**

**Insert shape**

**3**

**Cutting edge length l [mm]**




**4**

**Thread type**

| Code | Description |
|---|---|
| **M** | Metric |
| **Q** | Q thread |

**5**

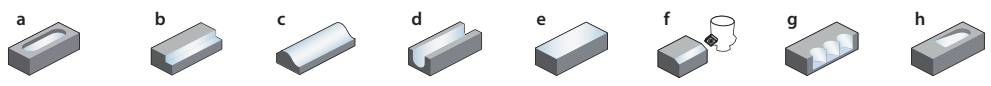
**Thread size [mm]**

| Code | Description |
|---|---|
| **8** | 8 |
| **10** | 10 |
| **12** | 12 |
| **14** | 14 |
| ... | |

**6**

**Number of teeth**

**7**




**a** Groove milling **b** Square shoulder milling **c** Profile milling **d** Slot milling **e** Face milling **f** Chamfer milling **g** Plunge milling **h** Circular milling/Ramping

## G 25 – QCH – Q 12 – 250 C – (ZJ) (115)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|

**Clamping form**

| Code | Description |
|---|---|
| G | Cylindrical |
| XP | Weldon |

**1**

**Clamping diameter [mm]**

| Code | Description |
|---|---|
| 12 | 12 |
| 16 | 16 |
| 20 | 20 |
| 25 | 25 |
| 32 | 32 |

**2**

**Series [mm]**

| Code | Description |
|---|---|
| QCH | Indexable head system |

**3**

**Thread type**

| Code | Description |
|---|---|
| M | Metric |
| Q | Q thread |

**4**

**Thread size [mm]**

| Code | Description |
|---|---|
| 8 | 8 |
| 10 | 10 |
| 12 | 12 |
| 14 | 14 |
| ... | |

**5**

**Total length [mm]**

| Code | Description |
|---|---|
| 85 | 85 |
| 150 | 150 |
| 200 | 200 |
| ... | |

**6**

**Material**

| Code | Description |
|---|---|
| C | Solid carbide |
| S | Steel |

**7**

**Shank**

| Code | Description |
|---|---|
| ZJ | Conical |
| – | Cylindrically stepped |

**8**

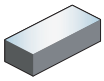
**Taper length [mm]**

| Code | Description |
|---|---|
| 90 | 90 |
| 115 | 115 |
| ... | |

**9**

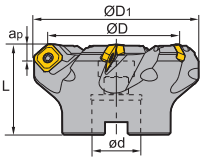
## Face milling

### FMA01 Kr: 45°

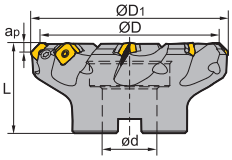




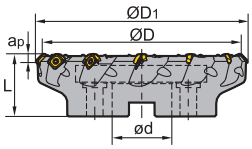
Fine pitch



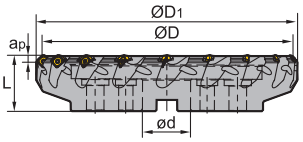

A




B




C




D

| Article | ✲ | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMA01-040-A22-SE12-04C** | ✲ | ○ | | 40 | 51 | 22 | 40 | 6 | 4 | A | 0.34 | |
| **FMA01-050-A22-SE12-04** | | ● | ○ | 50 | 61 | 22 | 40 | 6 | 4 | A | 0.3 | |
| **FMA01-050-A22-SE12-04C** | ✲ | ● | ○ | 50 | 61 | 22 | 40 | 6 | 4 | A | 0.3 | |
| **FMA01-050-A22-SE12-05C** | ✲ | ○ | ○ | 50 | 61 | 22 | 40 | 6 | 5 | A | 0.450.42 | |
| **FMA01-063-A22-SE12-05** | | ● | | 63 | 74 | 22 | 40 | 6 | 5 | A | 0.5 | |
| **FMA01-063-A22-SE12-05C** | ✲ | ● | ○ | 63 | 74 | 22 | 40 | 6 | 5 | A | 1.2 | |
| **FMA01-063-A22-SE12-06C** | ✲ | ● | ○ | 63 | 74 | 22 | 40 | 6 | 6 | A | 0.53 | |
| **FMA01-080-A27-SE12-06** | | ● | ● | 80 | 91 | 27 | 50 | 6 | 6 | A | 1.2 | |
| **FMA01-080-A27-SE12-06C** | ✲ | ● | ○ | 80 | 91 | 27 | 50 | 6 | 6 | A | 1.2 | |
| **FMA01-080-A27-SE12-08C** | ✲ | ○ | | 80 | 91 | 27 | 50 | 6 | 8 | A | 1.37 | |
| **FMA01-100-B32-SE12-07** | | ● | ○ | 100 | 107 | 32 | 50 | 6 | 7 | B | 1.2 | |
| **FMA01-100-B32-SE12-07C** | ✲ | ○ | ○ | 100 | 107 | 32 | 50 | 6 | 7 | B | 1.2 | |
| **FMA01-100-B32-SE12-08C** | ✲ | ○ | ○ | 100 | 107 | 32 | 50 | 6 | 8 | B | 1.99 | SEET12T3 |
| **FMA01-100-B32-SE12-09** | | ○ | | 100 | 107 | 32 | 50 | 6 | 9 | B | 1.85 | |
| **FMA01-100-B32-SE12-09C** | ✲ | ○ | | 100 | 107 | 32 | 50 | 6 | 9 | B | 2.02 | |
| **FMA01-125-B40-SE12-08** | | ● | ● | 125 | 136 | 40 | 63 | 6 | 8 | B | 2.6 | |
| **FMA01-125-B40-SE12-08C** | ✲ | ○ | | 125 | 136 | 40 | 63 | 6 | 8 | B | 2.6 | |
| **FMA01-125-B40-SE12-12** | | ○ | | 125 | 136 | 40 | 63 | 6 | 12 | B | 3.71 | |
| **FMA01-125-B40-SE12-12C** | ✲ | ○ | ○ | 125 | 136 | 40 | 63 | 6 | 12 | B | 3.33 | |
| **FMA01-160-B40-SE12-10** | | ● | ● | 160 | 170 | 40 | 63 | 6 | 10 | B | 4.3 | |
| **FMA01-160-B40-SE12-10C** | ✲ | ○ | | 160 | 170 | 40 | 63 | 6 | 10 | B | 4.3 | |
| **FMA01-200-C60-SE12-12** | | ● | ○ | 200 | 210 | 60 | 63 | 6 | 12 | C | 7.6 | |
| **FMA01-250-C60-SE12-14** | | ● | ○ | 250 | 260 | 60 | 63 | 6 | 14 | C | 13.5 | |
| **FMA01-315-D60-SE12-14** | | ○ | | 315 | 335 | 60 | 70 | 6 | 14 | D | 20.71 | |
| **FMA01-315-D60-SE12-18** | | ● | | 315 | 325 | 60 | 70 | 6 | 18 | D | 20.8 | |
| **FMA01-100-B32-SE18-04** | | ○ | ○ | 100 | 120 | 32 | 63 | 10 | 4 | B | 1.2 | |
| **FMA01-125-B40-SE18-05** | | ○ | ○ | 125 | 145 | 40 | 63 | 10 | 5 | B | 2.6 | SEET18T6 |
| **FMA01-125-B40-SE18-07** | | ○ | | 125 | 145 | 40 | 63 | 10 | 7 | B | 3.22 | |
| **FMA01-160-C40-SE18-06** | | ○ | ○ | 160 | 180 | 40 | 63 | 10 | 6 | C | 4.3 | |

● Ex stock ○ On demand

✲ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

# Indexable milling Face milling

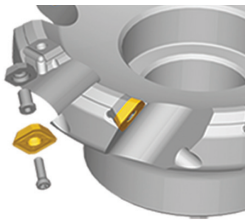
| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMA01-160-C40-SE18-09** | | ○ | | 160 | 180 | 40 | 63 | 10 | 9 | C | 4.8 | SEET18T6 |
| **FMA01-200-C60-SE18-08** | | ● | ○ | 200 | 220 | 60 | 63 | 10 | 8 | C | 7.6 | |
| **FMA01-250-C60-SE18-10** | | ● | | 250 | 270 | 60 | 63 | 10 | 10 | C | 13.5 | |
| **FMA01-315-D60-SE18-12** | | ○ | ○ | 315 | 335 | 60 | 80 | 10 | 12 | D | 20.8 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | SEET12T3 | SEET12T3 | SEET18T6 |
|---|---|---|---|---|
| | ØD | 50-100 | 125 - 315 | 100- 315 |
| | Screw (insert) | I60M3.5×10 (2.7 Nm) | I60M3.5×12 (2.7 Nm) | I60M5×17 (6.7 Nm) |
| | Screw (shim) | | SM5×7XA | SM8×9XA |
| | Shim | | S13BS | S18BS |
| | Wrench (shim) | | WH35L | WH50L |
| | Wrench (insert) | WT15IS | WT15IS | |
| | Wrench (insert) | | | WT20IT |

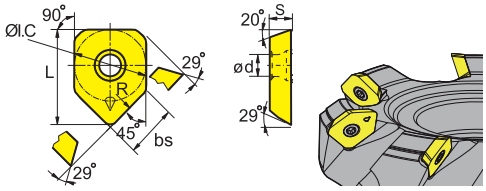


## Milling inserts

● Ideal machining conditions
● Normal machining conditions
● Unfavourable machining conditions

| SEET | L | I.C | S | d |
|---|---|---|---|---|
| **12** T3 | 17.82 | 13.4 | 3.97 | 4.1 |
| **18** T6 | 24.78 | 18 | 6.1 | 5.5 |

SE** milling insert




| | HC1 (CVD) | | | | | | | | HC1 (PVD) | | | | | | | | | | HT | HC2 | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | ● | ● | | |
| M | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ● | ● | | |
| K | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | ● | | | | |
| N | | | | | | | | | ◐ | | | | | | | | | | | | ◐ | ◐ |
| S | | | ◐ | | ◐ | | | | | ● | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | |
| H | | | | | | | | | ○ | | | | | | ◐ | | | | | | | |

| ISO | | R | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **SEET12T3-W** | 500 | 9.46 | | | | | | | ○ | | | | | | | | | ● | | | | | | ○ | ○ | | |
| | **SEET12T3S11-W** | 500 | 9.46 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | **SEET12T3S20-W** | 500 | 9.46 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |
| | **SEET18T6-W** | 500 | 11 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |

● Ex stock ○ On demand

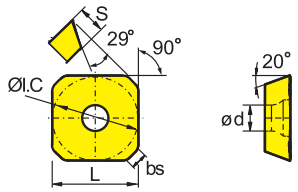
HC1 Coated carbide
HT Uncoated cermet
HC2 Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SEET | L | I.C | S | d |
|---|---|---|---|---|
| **12** T3 | 13.4 | 13.4 | 3.97 | 4.1 |
| **18** T6 | 18 | 18 | 6.1 | 5.5 |




| SE** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | SEET12T3-CF | 2.55 | | | | | | | ○ | | | | | ○ | | | | | | | | | | | | | |
| | SEET12T3-CM | 2.55 | | | | | | | ● | | | | | ○ | | | | | | | | | | | | | |
| | SEET12T3-CR | 2.55 | | | | | | | ● | ● | | | | ○ | | | | | | | | | | | | | |
| | SEET12T3-DF | 2.55 | ● | ● | | | | ● | | | | | | | | | | | ● | | ○ | | | ○ | ○ | | |
| | SEET18T6-DH | 2.29 | ○ | | | ○ | | | | | | | | | | | | ○ | | | | | | | | | |
| | SEET12T3-DM | 2.55 | ● | ○ | ● | ● | | ● | | | | | | | ○ | | | | ● | ● | ● | | | | | | |
| | SEET18T6-DM | 2.29 | ● | | | ● | | | | | | | | | | | | | | | | | | | | | |
| | SEET12T3-DR | 2.55 | ○ | | ● | | | ● | | ○ | | | | | | | | | | | ○ | | | | | | |
| | SEET12T3-EF | 2.55 | | | | | | | | | | | | | ○ | | ○ | | | | ● | ○ | | | | | |
| | SEET12T3-EM | 2.55 | | | | | | ● | | | | | | | ○ | | ○ | ● | | | ● | ○ | | | | | |
| | SEET18T6-EM | 2.29 | | | | ● | | | | | | | | | | | | | | ● | | | | | | | |
| | SEET12T3-LH | 2.55 | | | | | | | | | | | ○ | | | | | | | | | | | | | ● | ● |

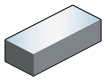
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

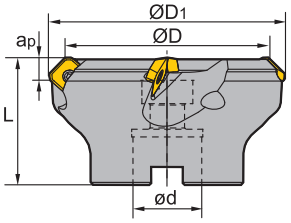
## Face milling

**FMA02** Kr: 45°

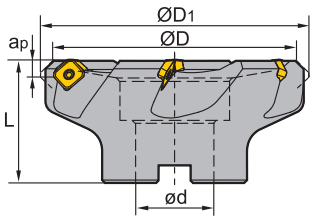




Coarse and differential pitch




A




B

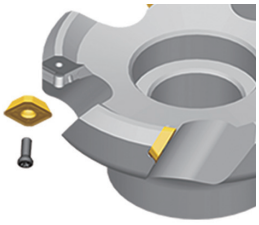
| Article | ✻ | Stock | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMA02-050-A22-SE12-03** | | ● | 50 | 61 | 22 | 40 | 6 | 3 | A | 0.4 | SEET12T3 |
| **FMA02-063-A22-SE12-04** | | ● | 63 | 74 | 22 | 40 | 6 | 4 | A | 0.6 | |
| **FMA02-080-A27-SE12-04** | | ● | 80 | 91 | 27 | 50 | 6 | 4 | A | 1.3 | |
| **FMA02-100-B32-SE12-05** | | ● | 100 | 107 | 32 | 50 | 6 | 5 | B | 1.3 | |
| **FMA02-125-B40-SE12-06** | | ○ | 125 | 131 | 40 | 63 | 6 | 6 | B | 2.6 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | SEET12T3 |
|---|---|---|
| | ØD | 50-125 |
|  | Screw (insert) | I60M3.5×10 (2.7 Nm) |
|  | Wrench (insert) | WT15IS |



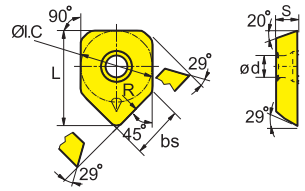
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SEET | L | I.C | S | d |
|---|---|---|---|---|
| **12** T3 | 17.82 | 13.4 | 3.97 | 4.1 |

SE** milling insert




| | ISO | R | bs | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SEET12T3-W** | 500 | 9.46 | | | | | | | ○ | | | | | | | | | ● | | ○ | | | | ○ | ○ | | |
| | **SEET12T3S11-W** | 500 | 9.46 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **SEET12T3S20-W** | 500 | 9.46 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |

● Ex stock ○ On demand

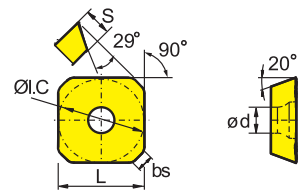
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SEET | L | I.C | S | d |
|---|---|---|---|---|
| **12** T3 | 13.4 | 13.4 | 3.97 | 4.1 |

SE** milling insert




| | ISO | bs | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SEET12T3-CF** | 2.55 | | | | | | | ○ | | | | | ○ | | | | | | | | | | | | | |
|  | **SEET12T3-CM** | 2.55 | | | | | | | ● | | | | | ○ | | | | | | | | | | | | | |
|  | **SEET12T3-CR** | 2.55 | | | | | | | ● | ● | | | | ○ | | | | | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

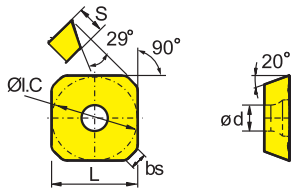
A Turning
B Milling
C Drilling
D Technical Information
E Index

System code B32 Grade selection B31 Technical info B617 Cutting data B312

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

| SEET | L | I.C | S | d |
|---|---|---|---|---|
| **12** T3 | 13.4 | 13.4 | 3.97 | 4.1 |

## Milling inserts




| SE** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | SEET12T3-DF | 2.55 | ● | ● | | | | ● | | | | | | | | | | | ● | | ○ | | | ○ | ○ | | |
| | SEET12T3-DM | 2.55 | ● | ○ | ● | ● | | ● | | | | | | | ○ | | | | ● | ● | ● | | | | | | |
| | SEET12T3-DR | 2.55 | ○ | | ● | | | ● | | ○ | | | | | | | | | | | ○ | | | | | | |
| | SEET12T3-EF | 2.55 | | | | | | | | | | | | | ○ | | ○ | | | | ● | ○ | | | | | |
| | SEET12T3-EM | 2.55 | | | | | | ● | | | | | | | ○ | | ○ | ● | | | ● | ○ | | | | | |
| | SEET12T3-LH | 2.55 | | | | | | | | | | | ○ | | | | | | | | | | | | | ● | ● |

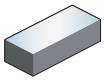
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

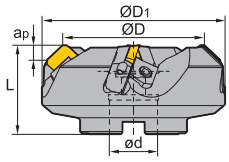

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

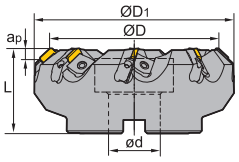
### FMA03 Kr: 45°



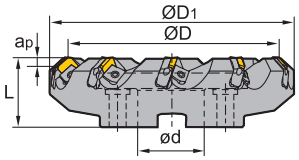




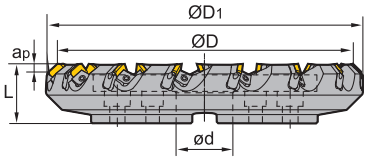
A



B



C



D

| Article | * | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMA03-080-A27-SE12-04** | | ○ | ○ | 80 | 103 | 27 | 50 | 5.5 | 4 | A | 1.8 | SEEN1203 SEKN1203 SEKR1203 |
| **FMA03-100-B32-SE12-05** | | ○ | ○ | 100 | 122 | 32 | 50 | 5.5 | 5 | B | 2.4 | |
| **FMA03-125-B40-SE12-06** | | ○ | ○ | 125 | 147 | 40 | 63 | 5.5 | 6 | B | 4.4 | |
| **FMA03-160-B40-SE12-08** | | ○ | | 160 | 181 | 40 | 63 | 5.5 | 8 | B | 6.4 | |
| **FMA03-200-C60-SE12-10** | | ○ | ○ | 200 | 221 | 60 | 63 | 5.5 | 10 | C | 8.5 | |
| **FMA03-250-C60-SE12-12** | | ○ | ○ | 250 | 270 | 60 | 63 | 5.5 | 12 | C | 14.1 | |
| **FMA03-315-D60-SE12-15** | | ○ | ○ | 315 | 353 | 60 | 63 | 5.5 | 15 | D | 22.2 | |
| **FMA03-080-A27-SE15-04** | | ○ | | 80 | 103 | 27 | 50 | 7.5 | 4 | A | 1.7 | SEKN1504 SEKR1504 |
| **FMA03-100-B32-SE15-05** | | ○ | | 100 | 122 | 32 | 50 | 7.5 | 5 | B | 2.3 | |
| **FMA03-125-B40-SE15-06** | | ○ | | 125 | 147 | 40 | 63 | 7.5 | 6 | B | 4.2 | |
| **FMA03-160-B40-SE15-08** | | ○ | | 160 | 181 | 40 | 63 | 7.5 | 8 | B | 6.1 | |
| **FMA03-200-C60-SE15-10** | | ○ | ○ | 200 | 221 | 60 | 63 | 7.5 | 10 | C | 8.3 | |
| **FMA03-250-C60-SE15-12** | | ○ | ○ | 250 | 270 | 60 | 63 | 7.5 | 12 | C | 13.6 | |
| **FMA03-315-D60-SE15-15** | | ○ | ○ | 315 | 353 | 60 | 63 | 7.5 | 15 | D | 21.8 | |

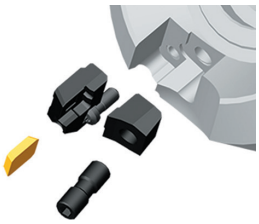
● Ex stock ○ On demand

* With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

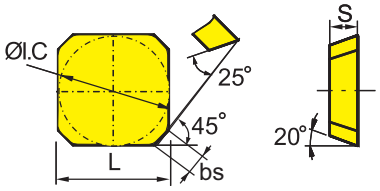
| | Insert | SEEN1203<br>SEKN1203<br>SEKR1203 | SEKN1504<br>SEKR1504 |
|---|---|---|---|
| | ØD | 80- 315 | 80- 315 |
| | Adjustable screw | LOM5×15.1 | LOM5×15.1 |
| | Cassette (left) | LSE12L | LSE15L |
| | Cassette (right) | LSE12R | LSE15R |
| | Screw (wedge) | DM8×21X<br>(10.2 Nm) | DM8×21X<br>(10.2 Nm) |
| | Wedge (left) | W01L | W01L |
| | Wedge (right) | W01R | W01R |
| | Wrench (locator) | WT20T | WT20T |
| | Wrench (wedge) | WH40T | WH40T |



## Milling inserts

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

| SEKN | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 3.18 |
| **15** 04 | 15.875 | 15.875 | 4.76 |




| SE** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | | ◌ | ◌ | | | ◌ | ◌ | | ◌ | ◌ | ◌ | ◌ | ● | ● | | |
| | M | | ◌ | ◌ | ◌ | ◌ | ◌ | | ◌ | ◌ | | | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | | |
| | K | | | | | | ◌ | ◌ | ◌ | | | | | | | | | | | ● | | | |
| | N | | | | | | | | | ◌ | | | | | | | | | | | | ◌ | ◌ |
| | S | | | | ◌ | | ◌ | | | | ◌ | ◌ | | ◌ | ◌ | | ◌ | | ◌ | | | | |
| | H | | | | | | | | | ○ | | | | | | ◌ | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | bs | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEKN1203AFN | 1.8 | | ○ | | | | | | | | | | | | | | | | | | | | | | | |
| SEKN1203AFTN | 1.8 | | ● | | ● | | ○ | ○ | ○ | | | | | ○ | | | ○ | | | | | | ○ | ○ | | ○ |
| SEKN1203AFTNX | | | ○ | | | | | ○ | ○ | | | | | | | | | | | | | | | ○ | | |
| SEKN1504AFTN | 1.6 | ○ | ● | ○ | | ○ | ● | | | | | | | | | | | | ● | | | | | | | |
| SEKN1504AFTNX | | ○ | ○ | ○ | | ○ | | | | | | | | | | | | | | | | | | | | |
| SEKN1504AZ | 1.6 | | ○ | | | | | | | | | | | | | | | | | | | | | | | |



● Ex stock ○ On demand

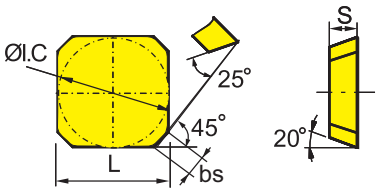
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SEEN | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 3.18 |

| SE** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | ○ | ○ | ◐ | ◐ | ◐ | ◐ | ○ | ○ | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | | ○ | | ○ | ○ | | | |
| | | M | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ○ | | ○ | ○ | | | |
| | | K | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | | ○ | | | | | | |
| | | N | | | | | | | | | ◐ | | | | | | | | | | | | | | | ◐ | ◐ |
| | | S | | | | ◐ | | ◐ | | | | ○ | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | | | | |
| | | H | | | | | | | | | ○ | | | | | | ◐ | | | | | | | | | | |
| | ISO | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SEEN1203AFTN** | 1.8 | | | | | | | | | | | | | | | | | | | | | ● | | | |

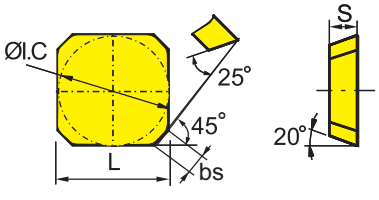
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SEKR | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 3.18 |

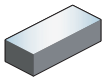
| SE** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | ○ | ○ | ◐ | ◐ | ◐ | ◐ | ○ | ○ | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | | ○ | | ○ | ○ | | | |
| | | M | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ○ | | ○ | ○ | | | |
| | | K | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | | ○ | | | | | | |
| | | N | | | | | | | | | ◐ | | | | | | | | | | | | | | | ◐ | ◐ |
| | | S | | | | ◐ | | ◐ | | | | ○ | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | | | | |
| | | H | | | | | | | | | ○ | | | | | | ◐ | | | | | | | | | | |
| | ISO | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SEKR1203AFN** | 1.8 | | ● | | | | | | | | | | ○ | | | | | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

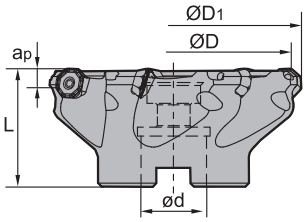
## Face milling

**FMA04** Kr: 45°

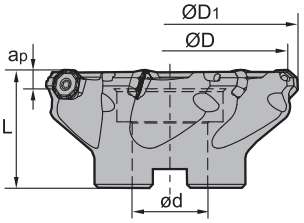




Screw Clamping




A



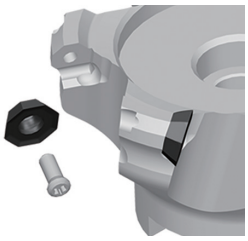

B

| Article | * | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMA04-050-A22-OF05-04** | | ○ | | 50 | 56 | 22 | 40 | 3.5 | 4 | A | 0.3 | OFKT05T3 |
| **FMA04-050-A22-OF05-05** | | ○ | | 50 | 56 | 22 | 40 | 3.5 | 5 | A | 0.4 | |
| **FMA04-050-A22-OF05-05C** | * | ○ | | 50 | 56 | 22 | 40 | 3.5 | 5 | A | 0.4 | |
| **FMA04-063-A22-OF05-05** | | ○ | | 63 | 69 | 22 | 40 | 3.5 | 5 | A | 0.5 | |
| **FMA04-063-A22-OF05-05C** | * | ○ | | 63 | 69 | 22 | 40 | 3.5 | 5 | A | 0.5 | |
| **FMA04-080-A27-OF05-06** | | ○ | ○ | 80 | 86 | 27 | 50 | 3.5 | 6 | A | 0.8 | |
| **FMA04-080-A27-OF05-06C** | * | ○ | | 80 | 86 | 27 | 50 | 3.5 | 6 | A | 0.8 | |
| **FMA04-100-B32-OF05-07** | | ○ | ○ | 100 | 106 | 32 | 50 | 3.5 | 7 | B | 1.2 | |
| **FMA04-100-B32-OF05-07C** | * | ○ | | 100 | 106 | 32 | 50 | 3.5 | 7 | B | 1.2 | |
| **FMA04-125-B40-OF05-08** | | ○ | | 125 | 130 | 40 | 63 | 3.5 | 8 | B | 2.7 | |
| **FMA04-125-B40-OF05-08C** | * | ○ | | 125 | 130 | 40 | 63 | 3.5 | 8 | B | 2.7 | |
| **FMA04-160-B40-OF05-10** | | ○ | | 160 | 165 | 40 | 63 | 3.5 | 10 | B | 5.1 | |

● Ex stock ○ On demand

* With internal cooling

Spare parts

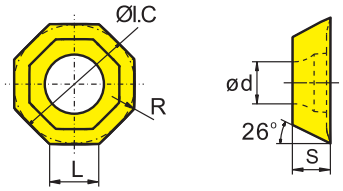
| | Insert | OFKT05T3 | OFKT05T3 | |
|---|---|---|---|---|
| | ØD | 50-63 | 80-160 | |
|  | Screw (insert) | I60M4×8.4 (3.4 Nm) | I60M4×10 (3.4 Nm) |  |
|  | Wrench (insert) | WT15IS | WT15IS | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| OFKT | L | I.C | S | d |
|---|---|---|---|---|
| **05** T3 | 5.26 | 12.7 | 3.97 | 4.4 |




| OF** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **OFKT05T3-DF** | 0.5 | | | | | | | | | | | | ○ | ○ | | | | | | | | | | | |
| | **OFKT05T3-DM** | 0.5 | | | | ● | | ○ | | | | | | ○ | | | | ● | | ● | ○ | | | | | |
| | **OFKT05T3-LH** | 0.5 | | | | | | | | | | | | | | | | | | | | | | | ● | |

● Ex stock ○ On demand

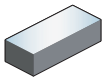
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

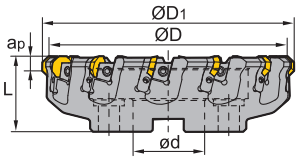
## Face milling

### FMA04 Kr: 45°

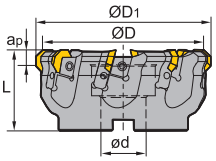




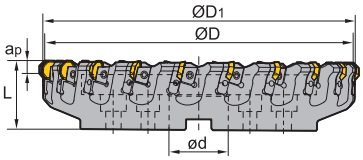
Wedge




C




B




D

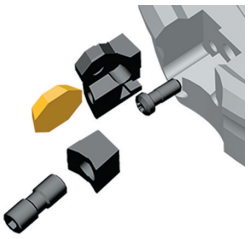
| Article | * | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMA04-125-B40-OF07-08 | | ○ | | 125 | 136 | 40 | 63 | 5 | 8 | B | 3.9 | OFKR0704 |
| FMA04-200-C60-OF07-12 | | ○ | | 200 | 211 | 60 | 63 | 5 | 12 | C | 7.6 | |
| FMA04-250-C60-OF07-16 | | ○ | | 250 | 261 | 60 | 63 | 5 | 16 | C | 13.3 | |
| FMA04-315-D60-OF07-20 | | | ○ | 315 | 321 | 60 | 63 | 5 | 20 | D | 20.3 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | OFKR0704 |
|---|---|---|
| | ØD | 125 - 315 |
| | Adjustable screw | LOM5×15.1 |
| | Cassette (left) | LOF07L |
| | Cassette (right) | LOF07R |
| | Screw (wedge) | DM8×21X (10.2 Nm) |
| | Wedge (left) | W02L |
| | Wedge (right) | W02R |
| | Wrench (locator) | WT20T |
| | Wrench (wedge) | WH40T |

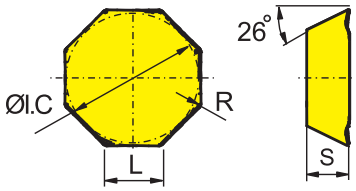


System code B32 Grade selection B31 Technical info B617 Cutting data B312

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| OFKR | L | I.C | S |
|---|---|---|---|
| **07** 04 | 7.45 | 17.94 | 4.76 |

## Milling inserts




| OF** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | | ● | ● | | |
| | | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | | |
| | | K | | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | | | |
| | | N | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| | | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | | | | |
| | | H | | | | | | | | | ○ | | | | | | | ○ | | | | | | | | | |
| ISO | | R | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **OFKR0704-DM** | 0.8 | | ○ | ○ | | ○ | ○ | | ○ | | | | | ○ | | | | | | ○ | | | | | | |
| | **OFKR0704W-DM** | 0.8 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
|  | **OFKR0704-LH** | 0.8 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
|  | **OFKR0704-PM** | 0.8 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

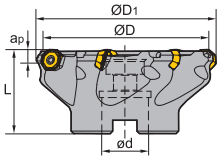
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

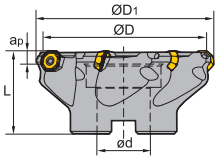
### FMA04 Kr: 45°



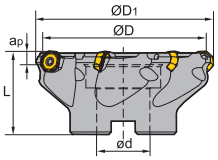
Screw Clamping




A




B




C

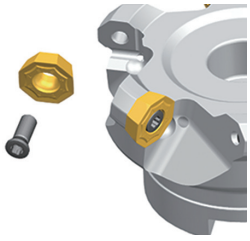
| Article | ✲ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | ød | L | $a_{p\ max}$ | | | |
| **FMA04-050-A22-OD06-04C** | ✲ | ○ | 50 | 60 | 22 | 40 | 4 | 4 | 0.284 | |
| **FMA04-063-A22-OD06-05C** | ✲ | ○ | 63 | 73 | 22 | 40 | 4 | 5 | 0.409 | |
| **FMA04-066-A27-OD06-05C** | ✲ | ○ | 66 | 76 | 27 | 50 | 4 | 5 | 0.88 | |
| **FMA04-070-A27-OD06-06C** | ✲ | ○ | 70 | 80 | 27 | 50 | 4 | 6 | 0.88 | |
| **FMA04-080-A27-OD06-06C** | ✲ | ○ | 80 | 90 | 27 | 50 | 4 | 6 | 1.017 | OD*T0605** |
| **FMA04-100-A32-OD06-07C** | ✲ | ○ | 100 | 110 | 32 | 50 | 4 | 7 | 1.536 | |
| **FMA04-125-B40-OD06-08** | | ○ | 125 | 135 | 40 | 63 | 4 | 8 | 2.931 | |
| **FMA04-125-B40-OD06-12** | | ○ | 125 | 135 | 40 | 63 | 4 | 12 | 3.295 | |
| **FMA04-160-C40-OD06-10** | | ○ | 160 | 170 | 40 | 63 | 4 | 10 | 3.838 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | **Insert** | **OD*T0605**** |
|---|---|---|
| | **ØD** | **50-160** |
|  | Screw (insert) | l60M5×13 (6.7 Nm) |
|  | Wrench (insert) | WT20IS |

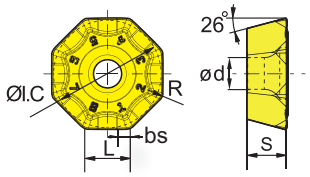


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| ODHT | L | I.C | S | d |
|---|---|---|---|---|
| **06** 05 | 6.5 | 15.875 | 5.56 | 5.4 |
| **06** 05 | 6.5 | 15.875 | 5.56 | 5.4 |




| OD**milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | | | | | | | | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ODHT060508-GH** | 0.8 | 1.6 | | | | ● | | | ● | ● | | | | | | | | | | ● | | | | | | | |
|  | **ODHT060508-GL** | 0.8 | 1.6 | | | | ○ | | | ○ | | | | | | | | | | | ● | | | | | | | |
|  | **ODHT060508-GM** | 0.8 | 1.6 | ● | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
|  | **ODHT060508-LH** | 0.8 | 1.6 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
|  | **ODMT060512-GM** | 1.2 | 1.6 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |

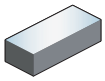
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

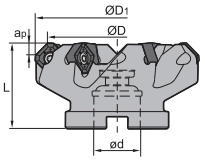
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

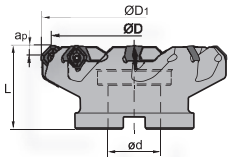
**FMA11** Kr: 45°



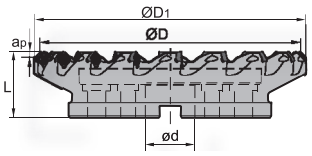




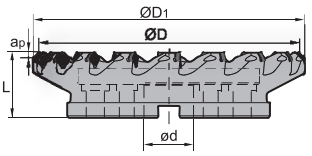
A



B



C



D

| Article | ✻ | Stock | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FMA11-032-A16-SN12-03C | ✻ | ● | 32 | 43.47 | 16 | 40 | 5.5 | 3 | A | 0.33 | |
| FMA11-040-A16-SN12-04C | ✻ | ● | 40 | 51.47 | 16 | 40 | 5.5 | 4 | A | 0.33 | |
| FMA11-050-A22-SN12-04C | ✻ | ● | 50 | 61.47 | 22 | 40 | 5.5 | 4 | A | 0.44 | |
| FMA11-063-A22-SN12-05C | ✻ | ● | 63 | 74.47 | 22 | 40 | 5.5 | 5 | A | 0.55 | |
| FMA11-063-A22-SN12-06C | ✻ | ● | 63 | 74.47 | 22 | 40 | 5.5 | 6 | A | 0.58 | |
| FMA11-080-A27-SN12-06C | ✻ | ● | 80 | 91.47 | 27 | 50 | 5.5 | 6 | A | 1.14 | |
| FMA11-080-A27-SN12-08C | ✻ | ● | 80 | 91.47 | 27 | 50 | 5.5 | 8 | A | 1.16 | |
| FMA11-100-B32-SN12-07 | | ● | 100 | 111.47 | 32 | 50 | 5.5 | 7 | B | 1.42 | SNEG1205 |
| FMA11-100-B32-SN12-07C | ✻ | ○ | 100 | 111.47 | 32 | 50 | 5.5 | 7 | B | 1.42 | |
| FMA11-100-B32-SN12-10C | ✻ | ● | 100 | 111.47 | 32 | 50 | 5.5 | 10 | B | 1.42 | |
| FMA11-125-B40-SN12-08 | | ● | 125 | 136.47 | 40 | 63 | 5.5 | 8 | B | 2.86 | |
| FMA11-125-B40-SN12-08C | ✻ | ○ | 125 | 136.47 | 40 | 63 | 5.5 | 8 | B | 2.86 | |
| FMA11-125-B40-SN12-12C | ✻ | ● | 125 | 136.47 | 40 | 63 | 5.5 | 12 | B | 2.86 | |
| FMA11-160-C40-SN12-10 | | ● | 160 | 171.47 | 40 | 63 | 5.5 | 10 | C | 4.06 | |
| FMA11-160-C40-SN12-15 | | ● | 160 | 171.47 | 40 | 63 | 5.5 | 15 | C | 4.06 | |
| FMA11-200-C60-SN12-14 | | ● | 200 | 212.08 | 60 | 63 | 5.5 | 14 | C | 6.89 | |
| FMA11-063-A22-SN15-05C | ✻ | ● | 63 | 77.4 | 22 | 40 | 7 | 5 | A | 0.56 | |
| FMA11-080-A27-SN15-06C | ✻ | ● | 80 | 94.4 | 27 | 50 | 7 | 6 | A | 1.06 | |
| FMA11-100-B32-SN15-07 | | ● | 100 | 114.4 | 32 | 50 | 7 | 7 | B | 1.47 | |
| FMA11-100-B32-SN15-07C | ✻ | ○ | 100 | 114.4 | 32 | 50 | 7 | 7 | B | 1.47 | |
| FMA11-100-B32-SN15-09C | ✻ | ● | 100 | 114.4 | 32 | 50 | 7 | 9 | B | 1.47 | |
| FMA11-125-B40-SN15-08 | | ● | 125 | 139.4 | 40 | 63 | 7 | 8 | B | 2.7 | |
| FMA11-125-B40-SN15-08C | ✻ | ○ | 125 | 139.4 | 40 | 63 | 7 | 8 | B | 2.7 | SNEG1506 |
| FMA11-125-B40-SN15-10C | ✻ | ● | 125 | 140.25 | 40 | 63 | 7 | 10 | B | 3.1 | |
| FMA11-160-C40-SN15-10 | | ● | 160 | 174.4 | 40 | 63 | 7 | 10 | C | 3.92 | |
| FMA11-160-C40-SN15-13 | | ● | 160 | 175.25 | 40 | 63 | 7 | 13 | C | 4.14 | |
| FMA11-200-C60-SN15-12 | | ● | 200 | 214.4 | 60 | 63 | 7 | 12 | C | 5.46 | |
| FMA11-250-C60-SN15-14 | | ● | 250 | 264.4 | 60 | 63 | 7 | 14 | C | 11.26 | |
| FMA11-315-D60-SN15-18 | | ○ | 315 | 329.4 | 60 | 80 | 7 | 18 | D | 20 | |

● Ex stock ○ On demand

✻ With internal cooling

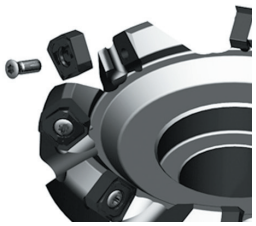
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | ød | L | $a_{p\,max}$ | | | | |
| **FMA11-125-B40-SN19-07** | | ● | 125 | 142.63 | 40 | 63 | 9 | 7 | B | 3 | SNEG1907 |
| **FMA11-125-B40-SN19-07C** | ✻ | ● | 125 | 142.63 | 40 | 63 | 9 | 7 | B | 3 | |
| **FMA11-160-C40-SN19-09** | | ● | 160 | 167.63 | 40 | 63 | 9 | 9 | C | 4.25 | |
| **FMA11-200-C60-SN19-11** | | ● | 200 | 217.63 | 60 | 63 | 9 | 11 | C | 6.18 | |
| **FMA11-250-C60-SN19-13** | | ● | 250 | 267.63 | 60 | 63 | 9 | 13 | C | 11.55 | |
| **FMA11-315-D60-SN19-16** | | ○ | 315 | 332.63 | 60 | 80 | 9 | 16 | D | 20.9 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SNEG1205** | **SNEG1506** | **SNEG1907** | |
|---|---|---|---|---|---|
| | **ØD** | **32-200** | **63-315** | **125-315** | |
|  | Screw (insert) | I60M3.5×10 (2.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) |  |
|  | Wrench (insert) | WT15IS | | | |
|  | Wrench (insert) | | WT20IT | WT25IT | |

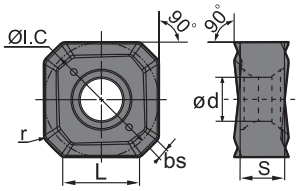
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SNEG | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 7.6 | 12 | 4.76 | 4.6 |
| **15** 06 | 9.4 | 15 | 5.6 | 5.5 |
| **19** 07 | 12.1 | 19 | 7 | 7.2 |

SN** negative insert




| | | | | HC¹ (CVD) | | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| | ISO | r | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SNEG1506ANR-E** | 0.9 | 1.3 | | | | | | | | | | | | | | | ● | | | | | | | | | |
|  | **SNEG1205ANR-GM** | 0.8 | 1.05 | ● | | | ● | | | ● | | | | | | | | | | ● | ● | | | | | | | |
| | **SNEG1506ANR-GM** | 0.9 | 1.3 | ● | | | ● | | | ● | | | | | | | | | ○ | ● | | | | | | | | |
|  | **SNEG1205ANR-GR** | 0.8 | 1.05 | ● | | | ● | | | ● | | | | | | | | ○ | | | | | ○ | | | | | |
| | **SNEG1506ANR-GR** | 0.9 | 1.3 | ● | | | ● | | | ● | | | | | | | | ○ | | | | | ○ | | | | | |
| | **SNEG1907ANR-GR** | 1 | 1.67 | ● | | | ● | | | ● | ● | | | | | | | | | | | | | | | | | |
|  | **SNEG1506ANR-HGR** | | | | | | ● | | | | ○ | | | | | | | | | ● | ● | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

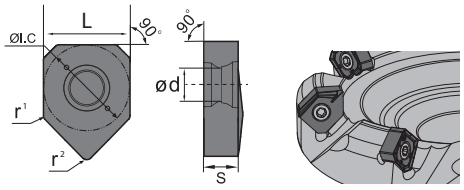

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SNEG | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 15.9 | 12 | 4.76 | 4.6 |
| **15** 06 | 19.9 | 15 | 5.54 | 5.5 |

SN** negative insert




| | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| **P** | ● | ● | ● | ● | ● | ● | | ● | ● | | | | ● | ● | | ● | ● | ● | ● | | ● | ● | ● | | |
| **M** | | ○ | ● | ○ | ● | ○ | ● | | | | | | ○ | ● | ○ | ○ | ● | ○ | ● | ○ | ○ | ○ | ○ | | |
| **K** | | | | | | | ○ | ○ | ○ | | | | | | | | | | | | ○ | | | | |
| **N** | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| **S** | | | | ○ | | ○ | | | | | | ○ | ○ | | ○ | ○ | | ○ | | ○ | | | | | |
| **H** | | | | | | | | | | ○ | | | | | | | ○ | | | | | | | | |

| ISO | r1 | r2 |
|---|---|---|
| **SNEG1205ANR-W** | 0.6 | 0.8 |
| **SNEG1506ANR-W** | 0.9 | 0.8 |

● Ex stock ○ On demand

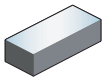
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

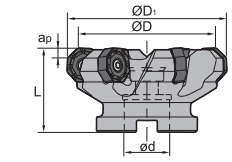
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Face milling

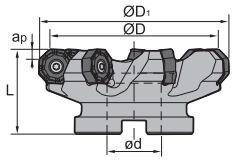
**FMA12** Kr: 45°



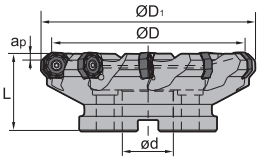




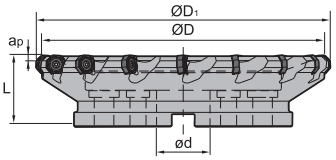
A



B



C



D

| Article | ✻ | Stock | | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | R | L | ØD | $ØD_1$ | ød | L | $a_{p\,max}$ | | | | |
| FMA12-050-A22-ON06-04C | ✻ | ● | | 50 | 59 | 22 | 40 | 4 | 4 | A | 0.309 | |
| FMA12-050-A22-ON06-05C | ✻ | ● | | 50 | 59 | 22 | 40 | 4 | 5 | A | 0.352 | |
| FMA12-063-A27-ON06-05C | ✻ | ● | | 63 | 72 | 27 | 50 | 4 | 5 | A | 0.645 | |
| FMA12-063-A27-ON06-07C | ✻ | ● | | 63 | 72 | 27 | 50 | 4 | 7 | A | 0.695 | |
| FMA12-080-A27-ON06-07C | ✻ | ● | | 80 | 90 | 27 | 50 | 4 | 7 | A | 1.071 | |
| FMA12-080-A27-ON06-09C | ✻ | ● | | 80 | 90 | 27 | 50 | 4 | 9 | A | 1.098 | |
| FMA12-100-A32-ON06-08C | ✻ | ● | | 100 | 110 | 32 | 50 | 4 | 8 | A | 1.599 | |
| FMA12-100-A32-ON06-11C | ✻ | ● | | 100 | 110 | 32 | 50 | 4 | 11 | A | 1.616 | ON*U0604** |
| FMA12-125-B40-ON06-10 | | ● | | 125 | 135 | 40 | 63 | 4 | 10 | B | 3.114 | |
| FMA12-125-B40-ON06-14 | | ● | | 125 | 135 | 40 | 63 | 4 | 14 | B | 3.151 | |
| FMA12-160-C40-ON06-12 | | ● | | 160 | 170 | 40 | 63 | 4 | 12 | C | 4.504 | |
| FMA12-160-C40-ON06-18 | | ● | ○ | 160 | 170 | 40 | 63 | 4 | 18 | C | 4.568 | |
| FMA12-200-C60-ON06-14 | | ○ | | 200 | 210 | 60 | 63 | 4 | 14 | C | 6.76 | |
| FMA12-200-C60-ON06-22 | | ○ | ○ | 200 | 210 | 60 | 63 | 4 | 22 | C | 6.4 | |
| FMA12-250-C60-ON06-27 | | ○ | ○ | 250 | 260 | 60 | 63 | 4 | 27 | C | 11.9 | |
| FMA12-063-A22-ON09-04C | | ○ | | 63 | 76 | 22 | 50 | 4 | 4 | A | 0.7 | |
| FMA12-063-A22-ON09-06C | | ● | | 63 | 76 | 22 | 50 | 4 | 6 | A | 0.84 | |
| FMA12-080-A27-ON09-05C | | ○ | | 80 | 93 | 27 | 50 | 4 | 5 | A | 1.1 | |
| FMA12-080-A27-ON09-07C | | ● | | 80 | 93 | 27 | 50 | 4 | 7 | A | 1.24 | |
| FMA12-100-A32-ON09-06C | | ○ | | 100 | 113 | 32 | 50 | 4 | 6 | A | 1.6 | |
| FMA12-100-A32-ON09-10C | | ● | | 100 | 113 | 32 | 50 | 4 | 10 | A | 1.809 | |
| FMA12-125-B40-ON09-08 | | ○ | | 125 | 138 | 40 | 63 | 4 | 8 | B | 3.1 | |
| FMA12-125-B40-ON09-12 | | ○ | | 125 | 138 | 40 | 63 | 4 | 12 | B | 3.586 | ON*U09T5** |
| FMA12-125-B40-ON09-12C | | ● | | 125 | 138 | 40 | 63 | 4 | 12 | B | 3.648 | |
| FMA12-160-C40-ON09-10 | | ○ | | 160 | 173 | 40 | 63 | 4 | 10 | C | 3.982 | |
| FMA12-160-C40-ON09-15 | | ○ | | 160 | 173 | 40 | 63 | 4 | 15 | C | 4.303 | |
| FMA12-200-C60-ON09-12 | | ○ | ○ | 200 | 213 | 60 | 63 | 5.54 | 12 | C | 4.987 | |
| FMA12-200-C60-ON09-18 | | ○ | ○ | 200 | 213 | 60 | 63 | 45.5 | 18 | C | 5.754 | |
| FMA12-500-D60-ON09-30 | | ○ | ○ | 500 | 513 | 60 | 80 | 5.5 | 30 | D | 66.5 | |

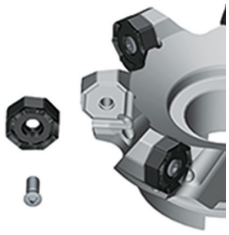
● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

| | Insert | ON*U0604** | ON*U09T5** |
|---|---|---|---|
| | ØD | 32-300 | 50-550 |
| | Screw (insert) | IRM4×10 (3.4 Nm) | IRM5×13 |
| | Wrench (insert) | WT15IS | |
| | Wrench (insert) | | WT20IT |

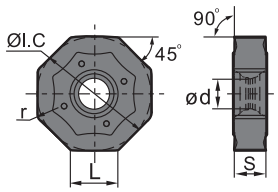


## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| ONHU | L | I.C | S | d |
|---|---|---|---|---|
| **06** 04 | 6.15 | 15.8 | 5.54 | 6 |
| **09** T5 | 8 | 20.2 | 5.8 | 7 |

ON**milling insert




| | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | | ◌ | ◌ | | | ◌ | ◌ | | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | |
| M | | ◌ | ◌ | ◌ | ◌ | ◌ | | | | | | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | |
| K | | | | | | | ◌ | ◌ | | | | | | | | | ◌ | | | | |
| N | | | | | | | | | | ◌ | | | | | | | | | | ◌ | ◌ |
| S | | | | ◌ | | ◌ | | | | | ◌ | ◌ | | ◌ | ◌ | | ◌ | | | | |
| H | | | | | | | | | ◯ | | | | | | ◌ | | | | | | |

| ISO | | r | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **ONHU060408ANN-GH** | 0.8 | 1 | | | | ● | | | ○ | ● | | | | | | | | ○ | | ● | | ○ | | | | | |
| | **ONHU09T508ANN-GH** | 0.8 | 1.2 | | | | ● | | | ● | | | | | | | | | | | | | | | | | | |
|  | **ONHU060404ANN-GL** | 0.4 | 1 | | | | ● | | | ○ | | | | | | | | | ● | | ● | | ○ | | | | | |
| | **ONHU09T508ANN-GL** | 0.8 | 1.2 | | | | | | | | | | | | | | | | | ● | | | | | | | | |
|  | **ONHU060408ANN-GM** | 0.8 | 1 | | | | ● | | | ● | | | | | | | | | ○ | | ● | | | | | | | |
| | **ONHU09T508ANN-GM** | 0.8 | 1.2 | | | | | | | ● | | | | | | | | | | ● | | | | | | | | |

● Ex stock ○ On demand

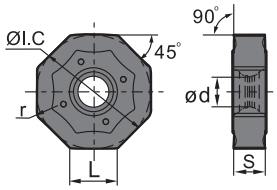
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| ONMU | L | I.C | S | d |
|---|---|---|---|---|
| **06** 04 | 6.15 | 15.8 | 5.54 | 6 |
| **09** T5 | 8 | 20.2 | 5.8 | 7 |




| ON**milling insert | | | | HC¹ (CVD) | | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ISO | r | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | ONMU060408-GH | 0.8 | 1 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | | |
| | ONMU060408-GM | 0.8 | 1 | | | | ○ | | | ○ | | | | | | | | | | | ● | | ● | | | | | | |
| | ONMU09T512-GH | 1.2 | 1.2 | | | | ○ | | | ○ | | | | | | | | | | | ○ | | | | | | | | |
| | ONMU09T512-GM | 1.2 | 1.2 | | | | ○ | | | ○ | | | | | | | | | | | ○ | | | | | | | | |

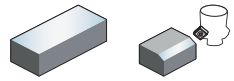
● Ex stock ○ On demand

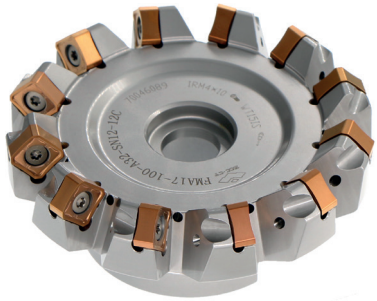
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

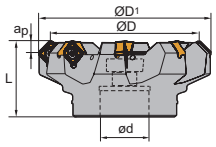

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

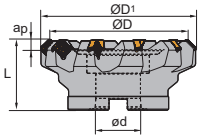
### FMA17 Kr: 45°



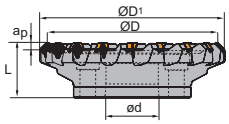




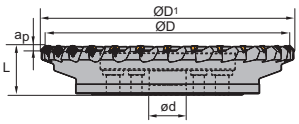
A



B



C



D

| Article | ✲ | Stock R | Stock L | Dimensions [mm] ØD | ØD$_1$ | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMA17-050-A22-SN12-04C** | ✲ | ○ | ○ | 50 | 65 | 22 | 40 | 6.5 | 4 | A | 0.384 | |
| **FMA17-050-A22-SN12-06C** | ✲ | ● | | 50 | 65 | 22 | 40 | 6.5 | 6 | A | 0.381 | |
| **FMA17-063-A22-SN12-06C** | ✲ | ● | ○ | 63 | 78 | 22 | 50 | 6.5 | 6 | A | 0.717 | |
| **FMA17-063-A22-SN12-08C** | ✲ | ● | | 63 | 78 | 22 | 50 | 6.5 | 8 | A | 0.717 | |
| **FMA17-080-A27-SN12-07C** | ✲ | ● | ○ | 80 | 95 | 27 | 63 | 6.5 | 7 | A | 1.085 | |
| **FMA17-080-A27-SN12-10C** | ✲ | ● | | 80 | 95 | 27 | 63 | 6.5 | 10 | A | 1.105 | |
| **FMA17-100-A32-SN12-08C** | ✲ | ● | | 100 | 115 | 32 | 63 | 6.5 | 8 | A | 1.558 | |
| **FMA17-100-A32-SN12-12C** | ✲ | ● | | 100 | 115 | 32 | 63 | 6.5 | 12 | A | 1.656 | |
| **FMA17-125-B40-SN12-10** | | ● | ○ | 125 | 140 | 40 | 63 | 6.5 | 10 | B | 3.012 | SNGX1205 |
| **FMA17-125-B40-SN12-16** | | ● | | 125 | 140 | 40 | 63 | 6.5 | 16 | B | 3.103 | |
| **FMA17-160-C40-SN12-12** | | ● | ○ | 160 | 175 | 40 | 63 | 6.5 | 12 | C | 4.358 | |
| **FMA17-160-C40-SN12-20** | | ○ | | 160 | 175 | 40 | 63 | 6.5 | 20 | C | 4.6 | |
| **FMA17-200-C60-SN12-18** | | ● | | 200 | 215 | 60 | 63 | 6.5 | 18 | C | 6.337 | |
| **FMA17-200-C60-SN12-24** | | ○ | | 200 | 215 | 60 | 63 | 6.5 | 24 | C | 6.569 | |
| **FMA17-250-C60-SN12-20** | | ● | | 250 | 265 | 60 | 63 | 6.5 | 20 | C | 12.36 | |
| **FMA17-315-D60-SN12-22** | | ○ | | 315 | 330 | 60 | 80 | 6.5 | 22 | D | 21.224 | |
| **FMA17-400-D60-SN12-28** | | ○ | | 400 | 415 | 60 | 80 | 6.5 | 28 | D | 39.535 | |

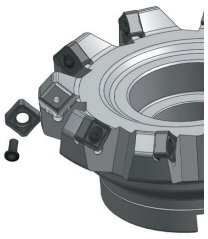
● Ex stock ○ On demand

✲ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

| | Insert | SNGX1205 | SNGX1205 | SNGX1205 |
|---|---|---|---|---|
| | ØD | 50-78 | 80-180 | 200-400 |
| | Screw (insert) | IRM4×10 (3.4 Nm) | IRM4×10 (3.4 Nm) | IRM4×10 (3.4 Nm) |
| | Wrench (insert) | WT15IP | | |
| | Wrench (insert) | | WT15IS | |
| | Wrench (insert) | | | WT15IT |

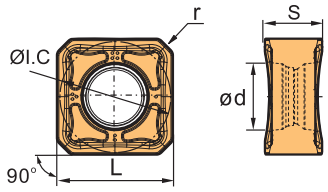


- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

| SNGX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 12.7 | 12.7 | 6.5 | 5.9 |

## Milling inserts

SN** negative insert




| | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | | ❁ | ❁ | | | ❁ | ❁ | | ❁ | ❁ | ❁ | ❁ | | ● | ● | ● | | |
| | | M | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | | | | | | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ○ | ○ | ○ | | |
| | | K | | | | | | | ❁ | ❁ | ❁ | | | | | | | | | | | ● | | | | |
| | | N | | | | | | | | | | ❁ | | | | | | | | | | | | | ❁ | ❁ |
| | | S | | | | ❁ | | ❁ | | | | | ● | ❁ | | ❁ | ❁ | | ❁ | | ❁ | | | | | |
| | | H | | | | | | | | | | ○ | | | | | | ❁ | | | | | | | | |
| | ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | SNGX1205ANN-GH | | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |
|  | SNGX1205ANN-GL | | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |
|  | SNGX1205ANN-GM | | 1.2 | | | | | | | | ● | | | | | | | | ● | | | ● | | | | | |
|  | SNGX1205ANN-LH | | 0.8 | | | | | | | | | | | | | | | | | | | | | | | ● | |

● Ex stock ○ On demand

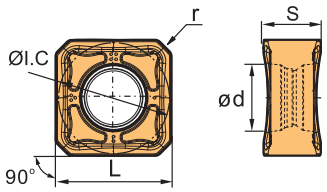
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SNMX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 12.7 | 12.7 | 6.5 | 5.9 |




| SN** negative insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SNMX120512-GH** | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |
|  | **SNMX120512-GM** | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |

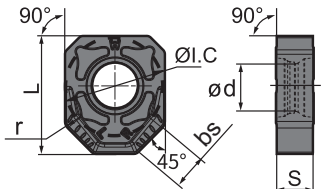
● Ex stock ○ On demand

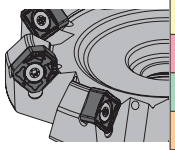
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SNGX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 15 | 12,7 | 4,8 | 5,9 |



| SN** negative insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG105 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SNGX1205ANN-W** | 4,32 | 1,2 | | | | | | | | | | | | ● | | | | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

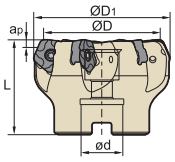
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Face milling

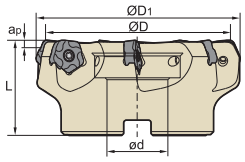
**FMD02** Kr: 67°



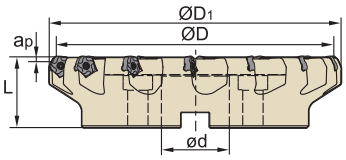




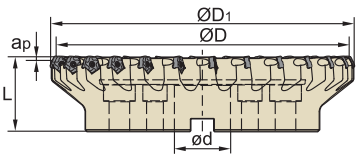
A



B



C



D

| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMD02-050-A22-PN11-04 | | ● | ○ | 50 | 60.1 | 22 | 50 | 5 | 4 | A | 0.6 | |
| FMD02-050-A22-PN11-04C | ✻ | ○ | | 50 | 60.1 | 22 | 50 | 5 | 4 | A | 0.6 | |
| FMD02-050-A22-PN11-05 | | ● | | 50 | 60.1 | 22 | 50 | 5 | 5 | A | 0.6 | |
| FMD02-050-A22-PN11-05C | ✻ | ● | | 50 | 60.1 | 22 | 50 | 5 | 5 | A | 0.6 | |
| FMD02-063-A22-PN11-05 | | ● | ○ | 63 | 73.1 | 22 | 50 | 5 | 5 | A | 0.8 | |
| FMD02-063-A22-PN11-05C | ✻ | ○ | | 63 | 73.1 | 22 | 50 | 5 | 5 | A | 0.8 | |
| FMD02-063-A22-PN11-06 | | ● | | 63 | 73.1 | 22 | 50 | 5 | 6 | A | 0.9 | |
| FMD02-063-A22-PN11-06C | ✻ | ● | | 63 | 73.1 | 22 | 50 | 5 | 6 | A | 0.9 | |
| FMD02-080-A27-PN11-06 | | ● | | 80 | 90.1 | 27 | 50 | 5 | 6 | A | 1.1 | |
| FMD02-080-A27-PN11-08 | | ● | | 80 | 90.1 | 27 | 50 | 5 | 8 | A | 1.2 | |
| FMD02-080-A27-PN11-08C | ✻ | ● | | 80 | 90.1 | 27 | 50 | 5 | 8 | A | 1.2 | |
| FMD02-100-B32-PN11-07 | | ● | | 100 | 110.1 | 32 | 50 | 5 | 7 | B | 1.8 | |
| FMD02-100-B32-PN11-07C | ✻ | ○ | | 100 | 110.1 | 32 | 50 | 5 | 7 | B | 1.8 | |
| FMD02-100-B32-PN11-10 | | ● | | 100 | 110.1 | 32 | 50 | 5 | 10 | B | 1.9 | |
| FMD02-100-B32-PN11-10C | ✻ | ○ | | 100 | 110.1 | 32 | 50 | 5 | 10 | B | 1.9 | PNEG1105 |
| FMD02-125-B40-PN11-08 | | ● | ● | 125 | 135.1 | 40 | 63 | 5 | 8 | B | 2.9 | |
| FMD02-125-B40-PN11-08C | ✻ | ○ | | 125 | 135.1 | 40 | 63 | 5 | 8 | B | 2.9 | |
| FMD02-125-B40-PN11-12 | | ● | ○ | 125 | 135.1 | 40 | 63 | 5 | 12 | B | 3.2 | |
| FMD02-125-B40-PN11-12C | ✻ | ○ | | 125 | 135.1 | 40 | 63 | 5 | 12 | B | 3.2 | |
| FMD02-160-B40-PN11-10 | | ● | ○ | 160 | 170.1 | 40 | 63 | 5 | 10 | B | 5.6 | |
| FMD02-160-B40-PN11-14 | | ● | ○ | 160 | 170.1 | 40 | 63 | 5 | 14 | B | 6.4 | |
| FMD02-200-C60-PN11-12 | | ○ | ○ | 200 | 210.1 | 60 | 63 | 5 | 12 | C | 7.9 | |
| FMD02-200-C60-PN11-16 | | ● | ○ | 200 | 210.1 | 60 | 63 | 5 | 16 | C | 8.5 | |
| FMD02-200-C60-PN11-20 | | ○ | ○ | 200 | 210.1 | 60 | 63 | 5 | 20 | C | 8.5 | |
| FMD02-200-C60-PN11-24 | | ● | | 200 | 210.1 | 60 | 63 | 5 | 24 | C | 8.6 | |
| FMD02-250-C60-PN11-14 | | ○ | | 250 | 260.1 | 60 | 63 | 5 | 14 | C | 13.4 | |
| FMD02-250-C60-PN11-18 | | ● | ○ | 250 | 260.1 | 60 | 63 | 5 | 18 | C | 18 | |
| FMD02-315-D60-PN11-26 | | ○ | ○ | 315 | 325.1 | 60 | 80 | 5 | 26 | D | 24.5 | |

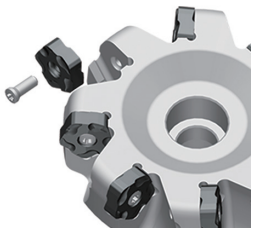
● Ex stock ○ On demand

✻ With internal cooling

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

Spare parts

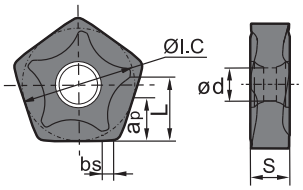
| | Insert | PNEG1105 |
|---|---|---|
| | ØD | 50- 315 |
|  | Screw (insert) | l60M4×10 (3.4 Nm) |
|  | Wrench (insert) | WT15IS |



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

| PNEG | L | I.C | S | d |
|---|---|---|---|---|
| **11** 05 | 7.5 | 15.875 | 5.56 | 4.64 |

## Milling inserts




| PN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | $a_p$ max | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **PNEG110512L-PF** | 1.6 | 7.5 | ○ | | | | | | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-PF** | 1.6 | 7.5 | ○ | | | ○ | | | | | | | | | | | | | | | | | | | | |
|  | **PNEG110512L-PM** | 1.6 | 7.5 | ○ | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-PM** | | | ● | | | ● | | | | ○ | | | | | | | | | | | | | | | | |
|  | **PNEG110512L-PR** | 1.6 | 7.5 | ○ | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-PR** | 1.6 | 7.5 | ○ | | | ● | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

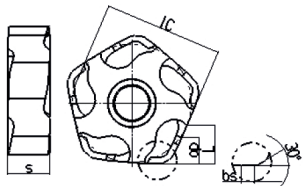
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| PNEG | L | I.C | S | d |
|---|---|---|---|---|
| **11** 05 | 5.4 | 15.875 | 5.56 | 4.64 |

## Milling inserts




| PN** milling insert | | | | HC[1] (CVD) | | | | | | | | | HC[1] (PVD) | | | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | $a_{p\,max}$ | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **PNEG110512R-CF** | 1.6 | 5 | | | | | | | ● | | | | | | | | | | | | | | | | | | | |
|  | **PNEG110512L-CM** | 1.6 | 5 | | | | | | | ○ | | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-CM** | 1.6 | 5 | | | | | | | ● | | | | | | | | | | | | | | | | | | | |
|  | **PNEG110512L-CR** | 1.6 | 5 | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-CR** | 1.6 | 5 | | | | | | | ● | ● | | | | | | | | | | | | | | | | | | |

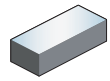
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

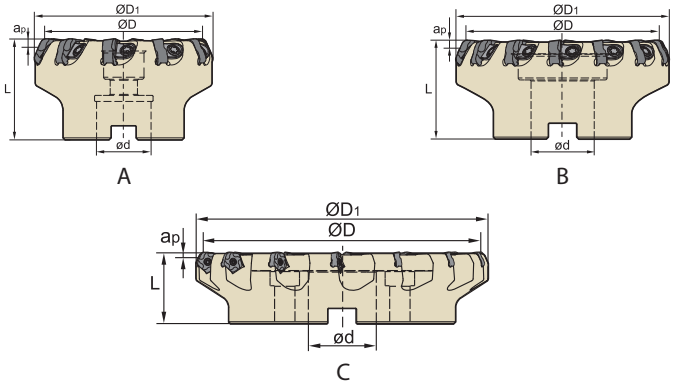

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Face milling

### FMD02 Kr: 67°








| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMD02-080-A27-PN11-10** | | ● | | 80 | 90.1 | 27 | 50 | 5 | 10 | A | 1.3 | PNEG1105 |
| **FMD02-100-B32-PN11-14** | | ● | ○ | 100 | 110.1 | 32 | 50 | 5 | 14 | B | 1.6 | |
| **FMD02-125-B40-PN11-18** | | ● | | 125 | 135.1 | 40 | 63 | 5 | 18 | B | 3.2 | |
| **FMD02-160-B40-PN11-22** | | ● | | 160 | 170.1 | 40 | 63 | 5 | 22 | B | 5.8 | |
| **FMD02-200-C60-PN11-28** | | | ○ | 200 | 210.1 | 60 | 63 | 5 | 28 | C | 8.5 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | PNEG1105 |
|---|---|---|
| | ØD | 80-200 |
|  | Screw (wedge) | DM6×20A (7.0 Nm) |
|  | Wedge | W18N |
|  | Wrench (wedge) | WT15IT |

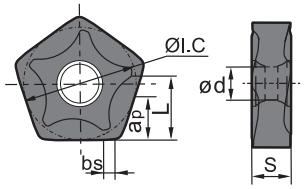


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| PNEG | L | I.C | S | d |
|---|---|---|---|---|
| **11** 05 | 7.5 | 15.875 | 5.56 | 4.64 |




| PN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | $a_{p\ max}$ | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **PNEG110512L-PF** | 1.6 | 7.5 | ○ | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-PF** | 1.6 | 7.5 | ○ | | | ○ | | | | | | | | | | | | | | | | | | | | |
|  | **PNEG110512L-PM** | 1.6 | 7.5 | ○ | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-PM** | | | ● | | | ● | | | | ○ | | | | | | | | | | | | | | | | |
|  | **PNEG110512L-PR** | 1.6 | 7.5 | ○ | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-PR** | 1.6 | 7.5 | ○ | | | ● | | | | | | | | | | | | | | | | | | | | |

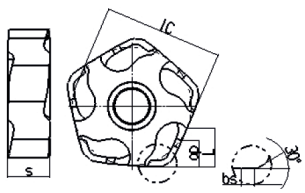
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| PNEG | L | I.C | S | d |
|---|---|---|---|---|
| **11** 05 | 5.4 | 15.875 | 5.56 | 4.64 |




| PN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | $a_{p\ max}$ | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **PNEG110512R-CF** | 1.6 | 5 | | | | | | | ● | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

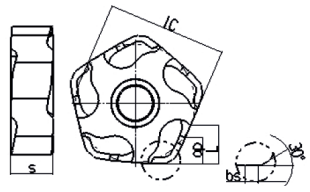
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| PNEG | L | I.C | S | d |
|---|---|---|---|---|
| **11** 05 | 5.4 | 15.875 | 5.56 | 4.64 |

## Milling inserts




| PN** milling insert | | | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| | ISO | bs | $a_{p\,max}$ | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **PNEG110512L-CM** | 1.6 | 5 | | | | | | | ○ | | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-CM** | 1.6 | 5 | | | | | | | ● | | | | | | | | | | | | | | | | | | |
| | **PNEG110512L-CR** | 1.6 | 5 | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | |
| | **PNEG110512R-CR** | 1.6 | 5 | | | | | | | ● | ● | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

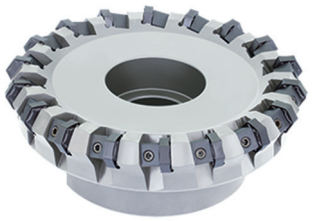
HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

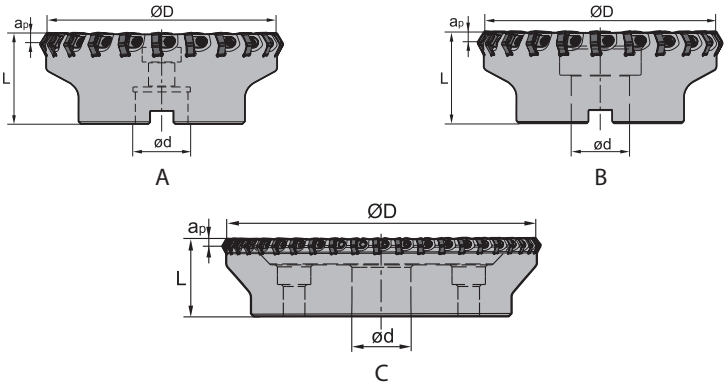
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMD02 Kr: 55°








| Article | * | Stock R | Stock L | Dimensions [mm] ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMD02-080-A27-HN09-08** | | ○ | | 80 | 27 | 50 | 6 | 8 | A | 1.19 | |
| **FMD02-080-A27-HN09-10** | | ○ | | 80 | 27 | 50 | 6 | 10 | A | 1.1 | |
| **FMD02-100-B32-HN09-10** | | ○ | | 100 | 32 | 50 | 6 | 10 | B | 1.77 | |
| **FMD02-125-B40-HN09-14** | | ○ | | 125 | 40 | 63 | 6 | 14 | B | 3.55 | |
| **FMD02-125-B40-HN09-18** | | ○ | | 125 | 40 | 63 | 6 | 18 | B | 3.7 | HNEX0905 |
| **FMD02-160-B40-HN09-18** | | ● | | 160 | 40 | 63 | 6 | 18 | B | 5.62 | |
| **FMD02-160-B40-HN09-22** | | ○ | | 160 | 40 | 63 | 6 | 22 | B | 5.6 | |
| **FMD02-200-C60-HN09-22** | | ○ | | 200 | 60 | 63 | 6 | 22 | C | 6.7 | |
| **FMD02-250-C60-HN09-28** | | ○ | ○ | 250 | 60 | 63 | 6 | 28 | C | 13 | |

● Ex stock ○ On demand

* With internal cooling

Spare parts

| | Insert | HNEX0905 |
|---|---|---|
| | **ØD** | **80- 315** |
| | Screw (wedge) | DM6×20A (7.0 Nm) |
| | Wedge | W18N |
| | Wrench (wedge) | WT15IT |

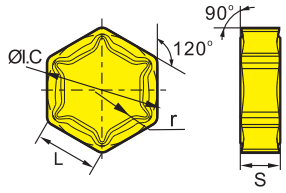


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| HNEX | L | I.C | S |
|---|---|---|---|
| **09** 05 | 9.16 | 15.875 | 5.56 |




| HN** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **HNEX090512-DR** | 1.2 | | | | | | | | ● | | | | | | | | | | | | | | | | |

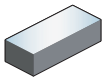
● Ex stock ○ On demand

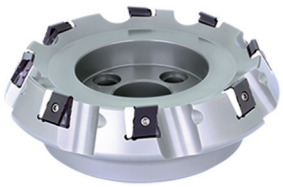
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

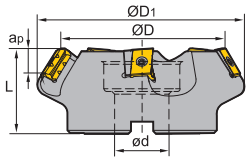
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

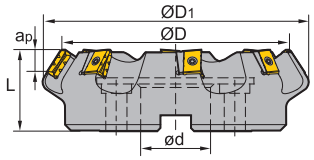
**FMD03** Kr: 60°



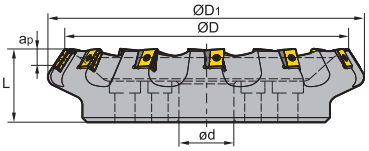




B



C



D

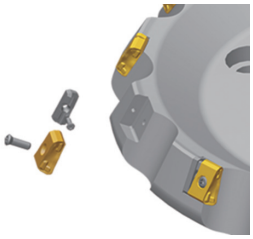
| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMD03-100-B32-LN20-05 | | ○ | | 100 | 129 | 32 | 63 | 12 | 5 | B | 3.02 | LNKT2007-ZR |
| FMD03-125-B40-LN20-06 | | ● | | 125 | 153 | 40 | 63 | 12 | 6 | B | 4.5 | |
| FMD03-160-C40-LN20-08 | | ● | | 160 | 187 | 40 | 63 | 12 | 8 | C | 6.9 | |
| FMD03-160-C40-LN20-09 | | ○ | | 160 | 187 | 40 | 63 | 12 | 9 | C | 6.7 | |
| FMD03-200-C60-LN20-10 | | ● | | 200 | 227 | 60 | 70 | 12 | 10 | C | 10.5 | |
| FMD03-250-C60-LN20-12 | | ● | | 250 | 276 | 60 | 70 | 12 | 12 | C | 13.4 | |
| FMD03-315-D60-LN20-15 | | ○ | | 315 | 339 | 60 | 80 | 12 | 15 | D | 26.2 | |
| FMD03-125-B40-LN25-05 | | ○ | | 125 | 154 | 40 | 63 | 16 | 5 | B | 4.5 | LNKT2510-ZR |
| FMD03-160-C40-LN25-06 | | ● | | 160 | 189 | 40 | 63 | 16 | 6 | C | 6.9 | |
| FMD03-200-C60-LN25-08 | | ● | | 200 | 229 | 60 | 70 | 16 | 8 | C | 10.5 | |
| FMD03-250-C60-LN25-10 | | ● | | 250 | 278 | 60 | 70 | 16 | 10 | C | 16.7 | |
| FMD03-315-D60-LN25-12 | | ○ | ○ | 315 | 346 | 60 | 80 | 16 | 12 | D | 27.3 | |
| FMD03-400-D60-LN25-16 | | ○ | ○ | 400 | 427 | 60 | 80 | 16 | 16 | D | 47.1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | LNKT2007-ZR | LNKT2510-ZR |
|---|---|---|---|
| | ØD | 100- 315 | 125 -400 |
| | Screw (insert) | I60M4×15 (3.4 Nm) | I60M5×17 (6.7 Nm) |
| | Screw (shim) | I60M3×7 | I60M3.5×10.4 |
| | Shim | LLN20R-ZR | LLN25R-ZR |
| | Wrench (shim) | WT09IS | WT15IS |
| | Wrench (insert) | WT15IS | |
| | Wrench (insert) | | WT20IT |

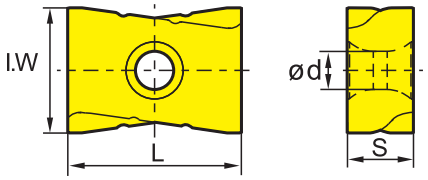


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| LNKT | L | S | d |
|---|---|---|---|
| **20** 07 | 20 | 7.94 | 4.6 |
| **25** 10 | 20 | 9.525 | 5.5 |




| LN** milling insert | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | HT | HC[2] | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ● | ● | ◉ | ● | ● | ◉ | | ● | ● | | | | ● | ◉ | | ● | ● | ● | ◉ | | ● | ○ | | | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ○ | ○ | ○ | | | |
| K | | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ● | | | | | | |
| N | | | | | | | | | | | ◉ | | | | | | | | | | | | | ◉ | ◉ | |
| S | | | | | ◉ | | ◉ | | | | | ● | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | | | |
| H | | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | | | |
| ISO | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| **LNKT2007DN-ZR** | 17 | | | | ● | | ● | | ○ | | | | | | | | | | | ● | | | | | | |
| **LNKT2510-ZR** | 18 | | | | | | ● | | ● | | | | | | | | | | | ● | | | | | | |

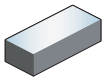
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

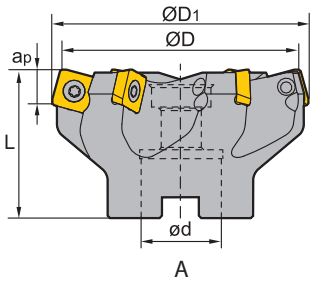
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

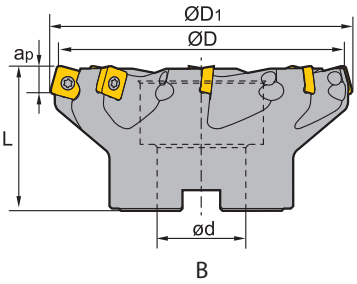
## Face milling

**FME02** Kr: 75°







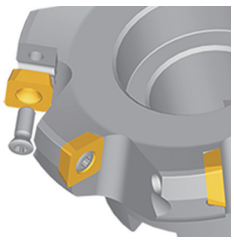

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | ød | L | $a_{p\ max}$ | | | | |
| **FME02-050-A22-SP12-04** | | ● | 50 | 54 | 22 | 40 | 6 | 4 | A | 0.3 | SPKT1204 SPKW1204 |
| **FME02-063-A22-SP12-05** | | ● | 63 | 66 | 22 | 50 | 6 | 5 | A | 0.6 | |
| **FME02-080-A27-SP12-06** | | ● | 80 | 83 | 27 | 50 | 6 | 6 | A | 0.9 | |
| **FME02-100-B32-SP12-07** | | ● | 100 | 103 | 32 | 50 | 6 | 7 | B | 1.4 | |
| **FME02-125-B40-SP12-08** | | ● | 125 | 128 | 40 | 63 | 6 | 8 | B | 2.5 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SPKT1204 SPKW1204** |
|---|---|---|
| | **ØD** | **50-125** |
|  | Screw (insert) | I60M5×13.2 (6.7 Nm) |
|  | Wrench (insert) | WT20IS |

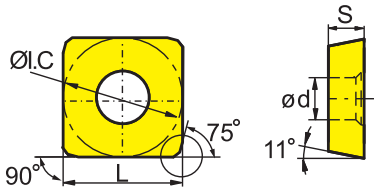


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SPKW | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.56 |




| SP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | SPKW1204EDFR | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | SPKW1204EDSR | | | | | | | | | | | | | ○ | | | | | | | | | | | | |

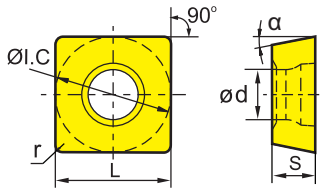
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| SPKT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.56 |




| SP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | SPKT1204EDR | | | | | | | | | | | | | ○ | | | | | | | | | | | | |

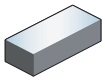
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

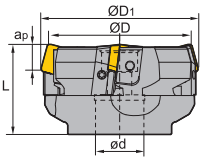
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Face milling

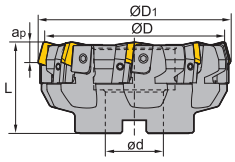
**FME03** Kr: 75°



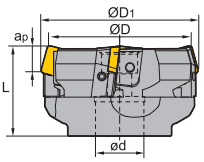




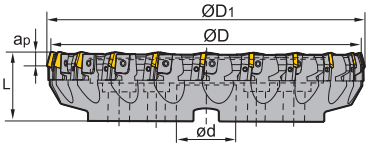
A



B



C



D

| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FME03-080-A27-SP12-04** | | ○ | | 80 | 84 | 27 | 50 | 6 | 4 | A | 1.1 | SPKN1203 SPKR1203 SPEX1203 |
| **FME03-100-B32-SP12-06** | | ● | | 100 | 104 | 32 | 50 | 6 | 6 | B | 1.9 | |
| **FME03-125-B40-SP12-08** | | ○ | ○ | 125 | 129 | 40 | 63 | 6 | 8 | B | 3.5 | |
| **FME03-160-B40-SP12-10** | | ● | ○ | 160 | 164 | 40 | 63 | 6 | 10 | B | 5.7 | |
| **FME03-200-C60-SP12-12** | | ○ | ○ | 200 | 203 | 60 | 63 | 6 | 12 | C | 8.2 | |
| **FME03-250-C60-SP12-16** | | ○ | | 250 | 253 | 60 | 63 | 6 | 16 | C | 13.8 | |
| **FME03-315-D60-SP12-20** | | ○ | | 315 | 318 | 60 | 70 | 6 | 20 | D | 23.5 | |
| **FME03-080-A27-SP15-04** | | ○ | ○ | 80 | 84 | 27 | 50 | 8 | 4 | A | 1 | SPKN1504 SPKR1504 SPEX1504 |
| **FME03-100-B27-SP15-06** | | ○ | | 100 | 104 | 27 | 50 | 8 | 6 | B | 1.8 | |
| **FME03-125-B40-SP15-08** | | ● | ○ | 125 | 129 | 40 | 63 | 8 | 8 | B | 3.3 | |
| **FME03-160-B40-SP15-10** | | ○ | ○ | 160 | 164 | 40 | 63 | 8 | 10 | B | 5.4 | |
| **FME03-200-C60-SP15-12** | | ○ | ○ | 200 | 204 | 60 | 63 | 8 | 12 | C | 7.9 | |
| **FME03-250-C60-SP15-16** | | ○ | ○ | 250 | 253 | 60 | 63 | 8 | 16 | C | 13.6 | |
| **FME03-315-D60-SP15-20** | | ○ | ○ | 315 | 318 | 60 | 70 | 8 | 20 | D | 23.1 | |

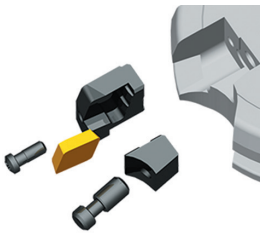
● Ex stock ○ On demand

✻ With internal cooling

System code B32 Grade selection B31 Technical info B617 Cutting data B312

Spare parts

| | Insert | SPKN1203<br>SPKR1203<br>SPEX1203 | SPKN1203<br>SPKR1203<br>SPEX1203 | SPKN1504<br>SPKR1504<br>SPEX1504 |
|---|---|---|---|---|
| | ØD | 80-100 | 125 - 315 | 80- 315 |
| | Adjustable screw | LOM5×15.1 | LOM5×15.1 | LOM5×15.1 |
| | Cassette (left) | LSP12L | LSP12L | LSP15L |
| | Cassette (right) | LSP12R | LSP12R | LSP15R |
| | Screw (wedge) | WM8×17 | WM8×22 | WM8×22 |
| | Wedge (left) | W04L | W04L | W04L |
| | Wedge (right) | W04R | W04R | W04R |
| | Wrench (locator) | WT20T | WT20T | WT20T |
| | Wrench (wedge) | WT25T | WT25T | WT25T |

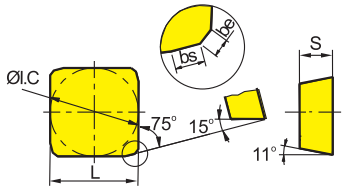


## Milling inserts

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

| SPKN | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 3.18 |
| **15** 04 | 15.875 | 15.875 | 4.76 |

SP** milling insert




| | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ISO | be | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| P | | | | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | | | ❁ | ❁ | | ❁ | ❁ | ❁ | ❁ | ❁ | | ● | ● | | |
| M | | | | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | | | | | | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ❁ | ● | ● | ● | | |
| K | | | | | | | | | | ❁ | ❁ | ❁ | | | | | | | | | | | ● | | | | |
| N | | | | | | | | | | | | | ❁ | | | | | | | | | | | | | ❁ | ❁ |
| S | | | | | | ❁ | | ❁ | | | | | | ● | ❁ | | ❁ | ❁ | | | ❁ | | ❁ | | | | |
| H | | | | | | | | | | | | | ○ | | | | | | | ❁ | | | | | | | |
| | SPKN1203EDFL | 1 | 1.4 | | | | | | | | | | | | | | | | | | | | | | | | | ● |
| | SPKN1203EDFR | 1 | 1.4 | | ○ | | | | | | | | | | ○ | | | | | | | | | | | | | ● |
| | SPKN1203EDSKL | 1 | 1.4 | | ● | | | | | | | | | | | | | | | | | | | | | | | |
| | SPKN1203EDSKR | 1 | 1.4 | | ● | | | | ○ | | ○ | | | | | ○ | | | | | | ● | | | | | | |
| | SPKN1203EDTKR | 1 | 1.4 | | | | | | ○ | | | | | | | | | | | | | ○ | | | | | | |
| | SPKN1504EDFL | 1 | 1.4 | | | | | | | | | | | | | | | | | | | | | | | | | ○ |
| | SPKN1504EDS32PR | 1 | 1.4 | | ○ | | | | | | | | | | | | ○ | | | | | | | | | | | |
| | SPKN1504EDSKR | 1 | 1.4 | | ● | | | ○ | | | ● | | | | | ○ | | | | | | ● | | | | | | |
| | SPKN1504EDTKR | 1 | 1.4 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |

● Ex stock ○ On demand

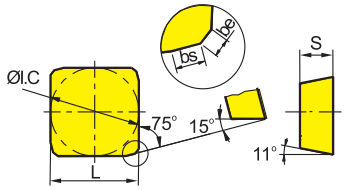
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SPKR | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 3.18 |
| **15** 04 | 15.875 | 15.875 | 4.76 |




| SP** milling insert | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | | | ◌ | | | ◌ | ◌ | | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | | |
| M | | | ◌ | ◌ | ◌ | ◌ | ◌ | | | ◌ | | | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | ◌ | | |
| K | | | | | | | | ◌ | ◌ | ◌ | | | | | | | | | | | ◌ | | | | |
| N | | | | | | | | | | | ◌ | | | | | | | | | | | | | ◌ | ◌ |
| S | | | | | ◌ | | ◌ | | | | | ◌ | ◌ | | ◌ | ◌ | | ◌ | | ◌ | | | | | |
| H | | | | | | | | | | ○ | | | | | | | ◌ | | | | | | | | |
| ISO | | be | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPKR1203EDL-GM** | 1 | 1.4 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **SPKR1203EDR-GM** | 1 | 1.4 | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **SPKR1504EDR-GM** | 1 | 1.4 | | | | ○ | | | | | | | | | ○ | | | | | | | | | | | | |
|  | **SPKR1203EDR** | 1 | 1.4 | | ○ | | | | | | | | | | | | | | | | | | | | | | | |

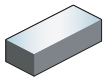
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

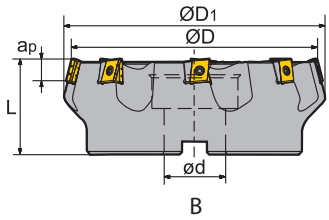

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

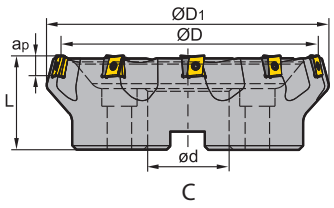
## Face milling

### FME04 Kr: 75°







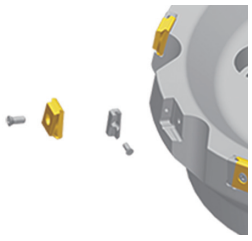

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | ød | L | $a_{p\,max}$ | | | | |
| **FME04-125-B40-LN15-06** | | ● | 125 | 137 | 40 | 63 | 10 | 6 | B | 3.8 | LNKT1506-ZR |
| **FME04-200-C60-LN15-10** | | ● | 200 | 208 | 60 | 70 | 10 | 10 | C | 9.6 | |
| **FME04-250-C60-LN15-12** | | ○ | 250 | 257 | 60 | 70 | 10 | 12 | C | 13.4 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **LNKT1506-ZR** |
|---|---|---|
| | **ØD** | **125 - 315** |
| | Screw (insert) | I60M4×12 (3.4 Nm) |
| | Screw (shim) | I60M3×7 |
| | Shim | LLN15-ZR |
| | Wrench (shim) | WT09IS |
| | Wrench (insert) | WT15IS |

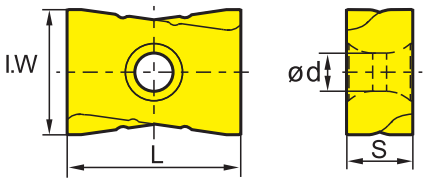


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| LNKT | L | S | d |
|---|---|---|---|
| **15** 06 | 15.875 | 6.35 | 4.6 |




| LN** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | |
| | M | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | |
| | K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | | | |
| | N | | | | | | | | | | ◉ | | | | | | | | | | | ◉ | ◉ |
| | S | | | | ◉ | | ◉ | | | | | ◉ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | |
| | H | | | | | | | | | | ○ | | | | | | ◉ | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **LNKT1506EN-ZR** | 14 | | ○ | | | ● | ● | ● | | | | | | | | | | | ○ | | | | | | |

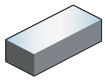
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

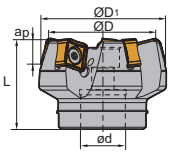

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Face milling

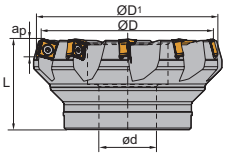
### FME17 Kr: 75°



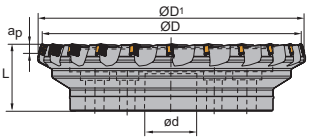




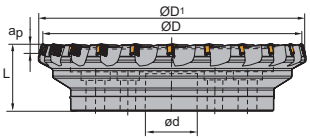
A



B



C



D

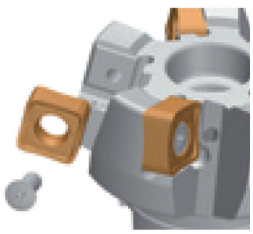
| Article | ✲ | Stock R | Stock L | Dimensions [mm] ØD | ØD1 | ød | L | ap max | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FME17-050-A22-SN12-04C** | ✲ | ○ | ○ | 50 | 60 | 22 | 40 | 8 | 4 | A | 0.361 | |
| **FME17-050-A22-SN12-05C** | ✲ | ● | | 50 | 60 | 22 | 40 | 8 | 5 | A | 0.337 | |
| **FME17-063-A22-SN12-05C** | ✲ | ○ | ○ | 63 | 73 | 22 | 50 | 8 | 5 | A | 0.52 | |
| **FME17-063-A22-SN12-07C** | ✲ | ● | | 63 | 73 | 22 | 50 | 8 | 7 | A | 0.53 | |
| **FME17-080-A27-SN12-06C** | ✲ | ● | ○ | 80 | 90 | 27 | 63 | 8 | 6 | A | 1.101 | |
| **FME17-080-A27-SN12-09C** | ✲ | ● | | 80 | 90 | 27 | 63 | 8 | 9 | A | 1.112 | |
| **FME17-100-A32-SN12-08C** | ✲ | ● | ○ | 100 | 110 | 32 | 63 | 8 | 8 | A | 1.663 | |
| **FME17-100-A32-SN12-11C** | ✲ | ● | | 100 | 110 | 32 | 63 | 8 | 11 | A | 1.577 | SNGX1205ENN |
| **FME17-125-B40-SN12-10** | | ● | ○ | 125 | 135 | 40 | 63 | 8 | 10 | B | 3.099 | |
| **FME17-125-B40-SN12-14** | | ● | | 125 | 170 | 40 | 63 | 8 | 14 | B | 3.145 | |
| **FME17-160-C40-SN12-12** | | ● | ○ | 160 | 170 | 40 | 63 | 8 | 12 | C | 4.535 | |
| **FME17-160-C40-SN12-18** | | ● | | 160 | 210 | 40 | 63 | 8 | 20 | C | 4.647 | |
| **FME17-200-C60-SN12-14** | | ○ | ○ | 200 | 210 | 60 | 63 | 8 | 18 | C | 6.45 | |
| **FME17-200-C60-SN12-22** | | ○ | | 200 | 215 | 60 | 63 | 8 | 22 | C | 6.552 | |
| **FME17-250-C60-SN12-18** | | ○ | | 250 | 260 | 60 | 63 | 8 | 18 | C | 12.98 | |
| **FME17-315-D60-SN12-22** | | ○ | | 315 | 325 | 60 | 80 | 8 | 22 | D | 21.98 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | Insert | SNGX1205ENN | SNGX1205ENN | SNGX1205ENN |
|---|---|---|---|---|
| | ØD | 50-75 | 80-180 | 200-400 |
| | Screw (insert) | IRM4×10 (3.4 Nm) | IRM4×10 (3.4 Nm) | IRM4×10 (3.4 Nm) |
| | Wrench (insert) | WT15IP | | |
| | Wrench (insert) | | WT15IS | |
| | Wrench (insert) | | | WT15IT |

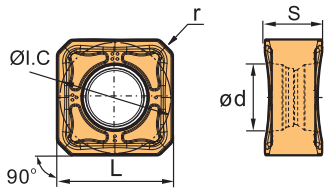


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SNMX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 12.7 | 12.7 | 6.5 | 5.9 |

## Milling inserts




| SN** negative insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ● | ◉ | ◉ | | |
| M | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ○ | ○ | ○ | | |
| K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ● | | | | |
| N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | ◉ | | ◉ | | | | | ◉ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | |
| H | | | | | | | | | | ○ | | | | | | ◉ | | | | | | | |
| ISO | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  SNMX120512-GH | 1.2 | | | | | | | | ● | | | | | | | | | ● | | | | | | | |
|  SNMX120512-GM | 1.2 | | | | | | | | ● | | | | | | | | | ● | | | | | | | |

● Ex stock ○ On demand

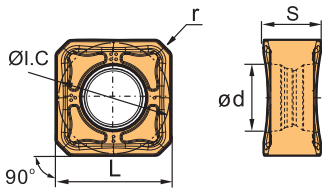
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SNGX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 12.7 | 12.7 | 6.5 | 5.9 |

## Milling inserts

| SN** negative insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | ● | ● | ● | | |
| | | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | | K | | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | |
| | | N | | | | | | | | | | ● | | | | | | | | | | | | ● | ● |
| | | S | | | ● | | ● | | | | | | ● | ● | | ● | ● | | ● | | ● | | | | |
| | | H | | | | | | | | | ○ | | | | | | | ● | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SNGX1205ENN-GH** | 0.8 | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |
|  | **SNGX1205ENN-GL** | 0.8 | | | | | | | | | | | | | | | | | ● | | | | | | | | |
|  | **SNGX1205ENN-GM** | 0.8 | | | | | | | ○ | ● | | | | | | | | | ● | | | | | | | | |

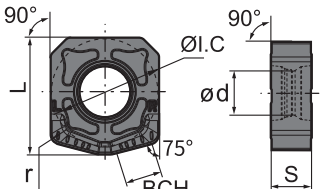
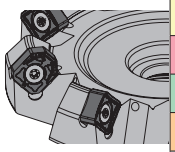
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SNGX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 13,7 | 12,7 | 4,8 | 5,9 |

## Milling inserts

| SN** negative insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|   | | | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | ● | ● | ● | | ● | ● | ● | ● | | |
| | | | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | | ● | ● | ● | ● | ● | ● | ● | | |
| | | | K | | | | | | | ● | ● | ● | | | | | | | | | | | | ● | | | |
| | | | N | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | | | S | | | ● | | ● | | | | | | ● | ● | | ● | ● | | ● | | ● | | | | | |
| | | | H | | | | | | | | | ○ | | | | | | | ● | | | | | | | | |
| ISO | | bs | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG105 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SNGX1205ENN-W** | 4,69 | 1,2 | | | | | | | | | | | | ● | | | | | | | | | | | | |

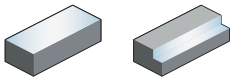
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

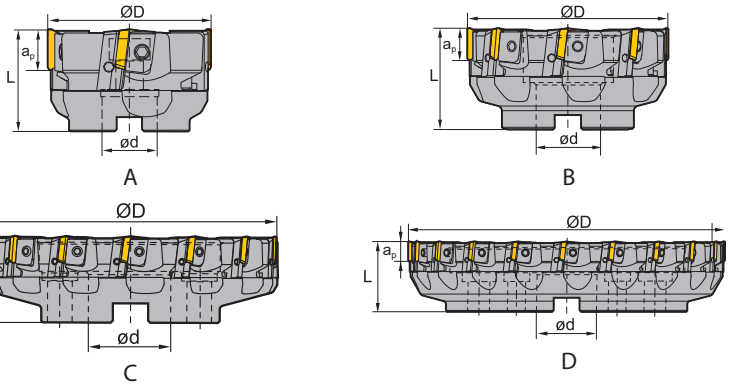
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

**FMP01** Kr: 90°







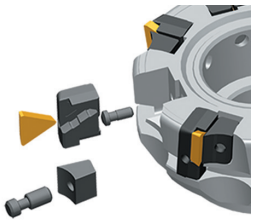

| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMP01-080-A27-TP22-04** | | ● | | 80 | 27 | 50 | 18 | 4 | A | 1.2 | |
| **FMP01-100-B32-TP22-06** | | ● | | 100 | 32 | 50 | 18 | 6 | B | 1.7 | |
| **FMP01-125-B40-TP22-08** | | ● | ○ | 125 | 40 | 63 | 18 | 8 | B | 3.2 | |
| **FMP01-160-B40-TP22-10** | | ● | ○ | 160 | 40 | 63 | 18 | 10 | B | 5.1 | TPKN2204 |
| **FMP01-200-C60-TP22-12** | | ● | ○ | 200 | 60 | 63 | 18 | 12 | C | 7.4 | |
| **FMP01-250-C60-TP22-16** | | ○ | ○ | 250 | 60 | 63 | 18 | 16 | C | 12.3 | |
| **FMP01-315-D60-TP22-20** | | ○ | ○ | 315 | 60 | 70 | 18 | 20 | D | 21.9 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | TPKN2204 | TPKN2204 |
|---|---|---|---|
| | ØD | 80-100 | 125 - 315 |
| | Adjustable screw | LOM5×15.1 | LOM5×15.1 |
| | Cassette (left) | LTP4L1 | LTP4L |
| | Cassette (right) | LTP4R1 | LTP4R |
| | Screw (wedge) | WM8×17 | WM8×22 |
| | Wedge (left) | W04L | W04L |
| | Wedge (right) | W04R | W04R |
| | Wrench (locator) | WT20T | WT20T |
| | Wrench (wedge) | WT25T | WT25T |

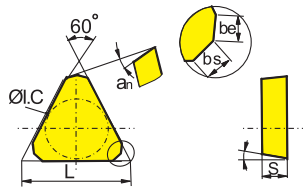


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| TPKN | L | I.C | S |
|---|---|---|---|
| **22** 04 | 22 | 12.7 | 4.76 |




| TP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | ● | | ● | |
| | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | | ● | ● | ● | | | | | | | | | | ● | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | | |
| | H | | | | | | | | | ○ | | | | | | ● | | | | | | | |

| ISO | | be | bs | an | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **TPKN2204PDFR** | 1.4 | 0.7 | 11° | | | | | | | | | | | | ○ | | | | | | | | | | | | ● |
| | **TPKN2204PDS32PR** | 1.4 | 0.7 | 11° | | | | | | | | | | | | | | ○ | | ○ | | | | | | | | | |
| | **TPKN2204PDSKL** | 1.4 | 0.7 | 11° | | ○ | | | | | | | | | | | | | | | | | | | | | | | |
| | **TPKN2204PDSKR** | 1.4 | 0.7 | 11° | | ● | ● | | | ● | | ● | | | | | ○ | | | ● | | | ● | | | | | | |
| | **TPKN2204PDSKRX** | | | | | | | | | ○ | | ○ | | | | | | | | | | | ○ | | | | | | |
| | **TPKN2204PDTKR** | 1.4 | 0.7 | 11° | | | | | | | | | | | | ○ | | | | | | | | | | | | | |

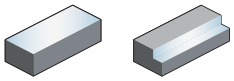
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

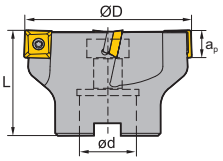
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Face milling

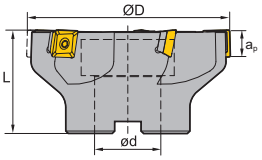
### FMP02 Kr: 90°



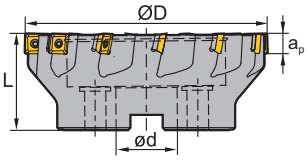




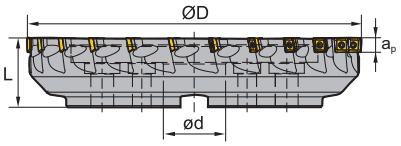
A



B



C



D

| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | $a_{p\,max}$ | | | | |
| FMP02-050-A22-SE09-05 | | ● | 50 | 22 | 40 | 6.7 | 5 | A | 0.3 | SEET09T3 |
| FMP02-050-A22-SE09-05C | ✻ | ● | 50 | 22 | 40 | 6.7 | 5 | A | 0.3 | |
| FMP02-063-A22-SE09-06 | | ● | 63 | 22 | 40 | 6.7 | 6 | A | 0.5 | |
| FMP02-063-A22-SE09-06C | ✻ | ● | 63 | 22 | 40 | 6.7 | 6 | A | 0.5 | |
| FMP02-080-A27-SE09-08 | | ● | 80 | 27 | 50 | 6.7 | 8 | A | 0.9 | |
| FMP02-100-B32-SE09-08 | | ○ | 100 | 32 | 50 | 6.7 | 8 | B | 1.7 | |
| FMP02-100-B32-SE09-10 | | ○ | 100 | 32 | 50 | 6.7 | 10 | B | 1.7 | |
| FMP02-100-B32-SE09-10C | ✻ | ○ | 100 | 32 | 50 | 6.7 | 10 | B | 1.7 | |
| FMP02-125-B40-SE09-12 | | ● | 125 | 40 | 63 | 6.7 | 12 | B | 2.6 | |
| FMP02-125-B40-SE09-12C | ✻ | ○ | 125 | 40 | 63 | 6.7 | 12 | B | 2.6 | |
| FMP02-050-A22-SE12-03 | | ○ | 50 | 22 | 40 | 10.8 | 3 | A | 0.3 | SEET1203 |
| FMP02-050-A22-SE12-03C | ✻ | ○ | 50 | 22 | 40 | 10.8 | 3 | A | 0.3 | |
| FMP02-050-A22-SE12-04 | | ● | 50 | 22 | 40 | 10.8 | 4 | A | 0.3 | |
| FMP02-050-A22-SE12-04C | ✻ | ● | 50 | 22 | 40 | 10.8 | 4 | A | 0.3 | |
| FMP02-050-A22-SE12-05 | | ● | 50 | 22 | 40 | 10.8 | 5 | A | 0.2 | |
| FMP02-050-A22-SE12-05C | ✻ | ○ | 50 | 22 | 40 | 10.8 | 5 | A | 0.2 | |
| FMP02-063-A22-SE12-04 | | ○ | 63 | 22 | 40 | 10.8 | 4 | A | 0.4 | |
| FMP02-063-A22-SE12-05 | | ● | 63 | 22 | 40 | 10.8 | 5 | A | 0.4 | |
| FMP02-063-A22-SE12-05C | ✻ | ● | 63 | 22 | 40 | 10.8 | 5 | A | 0.4 | |
| FMP02-063-A22-SE12-06 | | ● | 63 | 22 | 40 | 10.8 | 6 | A | 0.4 | |
| FMP02-063-A22-SE12-06C | ✻ | ○ | 63 | 22 | 40 | 10.8 | 6 | A | 0.4 | |
| FMP02-080-A27-SE12-04 | | ○ | 80 | 27 | 50 | 10.8 | 4 | A | 0.9 | |
| FMP02-080-A27-SE12-06 | | ● | 80 | 27 | 50 | 10.8 | 6 | A | 0.8 | |
| FMP02-080-A27-SE12-06C | ✻ | ● | 80 | 27 | 50 | 10.8 | 6 | A | 0.8 | |
| FMP02-080-A27-SE12-08 | | ● | 80 | 27 | 50 | 10.8 | 8 | A | 0.8 | |
| FMP02-080-A27-SE12-08C | ✻ | ○ | 80 | 27 | 50 | 10.8 | 8 | A | 0.8 | |
| FMP02-100-B32-SE12-05 | | ● | 100 | 32 | 50 | 10.8 | 5 | B | 1.2 | |
| FMP02-100-B32-SE12-07 | | ● | 100 | 32 | 50 | 10.8 | 7 | B | 1.2 | |
| FMP02-100-B32-SE12-07C | ✻ | ○ | 100 | 32 | 50 | 10.8 | 7 | B | 1.2 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

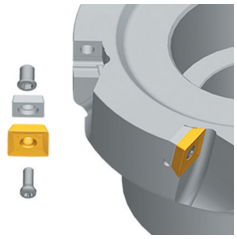
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | $a_{p\,max}$ | | | | |
| **FMP02-100-B32-SE12-10** | | ● | 100 | 32 | 50 | 10.8 | 10 | B | 1.2 | |
| **FMP02-100-B32-SE12-10C** | ✻ | ○ | 100 | 32 | 50 | 10.8 | 10 | B | 1.2 | |
| **FMP02-125-B40-SE12-06** | | ○ | 125 | 40 | 63 | 10.8 | 6 | B | 3.1 | |
| **FMP02-125-B40-SE12-08** | | ● | 125 | 40 | 63 | 10.8 | 8 | B | 3 | |
| **FMP02-125-B40-SE12-08C** | ✻ | ○ | 125 | 40 | 63 | 10.8 | 8 | B | 3 | |
| **FMP02-125-B40-SE12-12** | | ● | 125 | 40 | 63 | 10.8 | 12 | B | 2.9 | SEET1203 |
| **FMP02-160-C40-SE12-08** | | ● | 160 | 40 | 63 | 10.8 | 8 | C | 4.1 | |
| **FMP02-160-C40-SE12-12** | | ● | 160 | 40 | 63 | 10.8 | 12 | C | 3.9 | |
| **FMP02-250-C60-SE12-12** | | ○ | 250 | 60 | 63 | 10.8 | 12 | C | 11.1 | |
| **FMP02-250-C60-SE12-18** | | ● | 250 | 60 | 63 | 10.8 | 18 | C | 10.9 | |
| **FMP02-315-D60-SE12-24** | | ○ | 315 | 60 | 63 | 10.8 | 24 | D | 21.6 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SEET09T3** | **SEET1203** | **SEET1203** |
|---|---|---|---|---|
| | **ØD** | **50-125** | **50** | **63- 315** |
| | Screw (insert) | I60M3×7 (1.8 Nm) | I60M3.5×10 (2.7 Nm) | I60M3.5×12 (2.7 Nm) |
| | Screw (shim) | | | SM5×7XA |
| | Shim | | | S12BSX |
| | Wrench (shim) | | | WH35L |
| | Wrench (insert) | WT09IS | WT15IS | WT15IS |



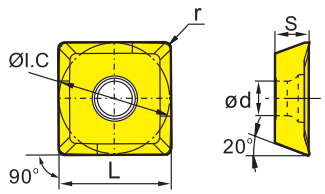
System code B32 Grade selection B31 Technical info B617 Cutting data B312

# Indexable milling Face milling

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SEET | L | I.C | S | d |
|---|---|---|---|---|
| **09** T3 | 9.525 | 9.525 | 4.01 | 3.3 |
| **12** 03 | 13.308 | 13.308 | 4.04 | 4.1 |




| SE** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | SEET09T308PER-APF | 0.8 | | | | | | ○ | | | | | | ○ | | | | | ● | ● | | ● | | | | | |
| | SEET120308PER-APF | 0.8 | | | | | | ○ | | | | | | ○ | | | | | ● | ● | | ● | | | | | |
| | SEET09T308PER-APM | 0.8 | | | | | | ○ | | | | | | | | | | | ● | ● | | ● | | | | | |
| | SEET120308PER-APM | 0.8 | | | | | | ● | | | | | | ○ | | | | | ● | ● | | ● | | | | | |
| | SEET09T308PER-APR | 0.8 | | | | | | ○ | | | | | | | | | | | ● | ○ | | | | | | | |
| | SEET120308PER-APR | 0.8 | | | | | | ● | | | | | | ○ | | | | | ● | ● | | | | | | | |
| | SEET120308-LH | 0.8 | | | | | | | | | | | | ○ | | | | | | | | | | | | ● | |
| | SEET09T308PER-PF | 0.8 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | SEET120308PER-PF | 0.8 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | SEET09T308PER-PM | 0.8 | | | | | | | ○ | | | | | | ○ | | | | | | | | | | | | |
| | SEET120308PER-PM | 0.8 | ○ | | | | | ○ | ○ | ○ | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | SEET09T308PER-PR | 0.8 | | | | | | | ○ | | | | | | | | | | | | ○ | | | | | | |
| | SEET120308PER-PR | 0.8 | ○ | | | | | ○ | ○ | ○ | | | | | ○ | | | | | | ○ | | | | | | |

● Ex stock ○ On demand

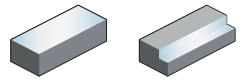
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

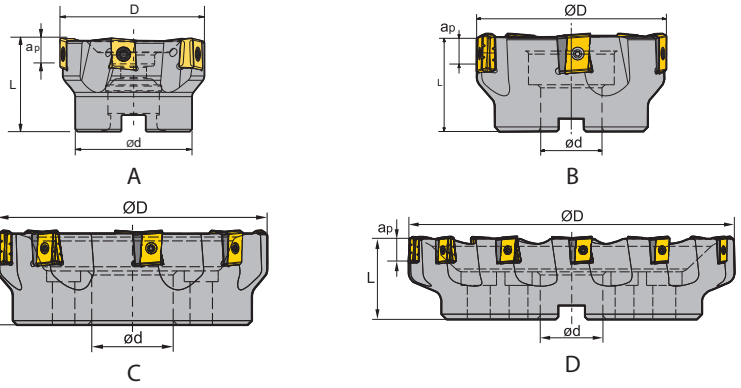
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMP03 Kr: 89°








| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ød | L | $a_{p\ max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMP03-050-A22-LN12-04C** | ✻ | ● | | 50 | 22 | 40 | 7 | 4 | A | 0.3 | LNKT120608-ZR |
| **FMP03-050-A22-LN12-05C** | ✻ | ○ | | 50 | 22 | 40 | 7 | 5 | A | 0.3 | |
| **FMP03-063-A22-LN12-05C** | ✻ | ● | | 63 | 22 | 40 | 7 | 5 | A | 0.5 | |
| **FMP03-063-A27-LN12-05C** | ✻ | ○ | | 63 | 27 | 50 | 7 | 5 | A | 0.64 | |
| **FMP03-063-A22-LN12-06C** | ✻ | ○ | | 63 | 22 | 40 | 7 | 6 | A | 0.5 | |
| **FMP03-063-A27-LN12-06C** | ✻ | ● | | 63 | 27 | 50 | 7 | 6 | A | 0.65 | |
| **FMP03-063-A27-LN12-07C** | ✻ | ○ | | 63 | 27 | 50 | 7 | 7 | A | 0.64 | |
| **FMP03-080-A27-LN12-06C** | ✻ | ● | | 80 | 27 | 50 | 7 | 6 | A | 1 | |
| **FMP03-080-A27-LN12-07C** | ✻ | ○ | | 80 | 27 | 50 | 7 | 7 | A | 1 | |
| **FMP03-100-B32-LN12-06** | | ○ | | 100 | 32 | 50 | 7 | 6 | B | 1.47 | |
| **FMP03-125-B40-LN15-06** | | ● | | 125 | 40 | 63 | 12 | 6 | B | 3.2 | LNKT1506EN-ZR |
| **FMP03-160-C40-LN15-08** | | ● | | 160 | 40 | 63 | 12 | 8 | C | 5.1 | |
| **FMP03-160-C40-LN15-09** | | ○ | | 160 | 40 | 63 | 12 | 9 | C | | |
| **FMP03-200-C60-LN15-10** | | ● | | 200 | 60 | 70 | 12 | 10 | C | 7.5 | |
| **FMP03-250-C60-LN15-12** | | ○ | | 250 | 60 | 70 | 12 | 12 | C | 12.2 | |
| **FMP03-250-C60-LN15-13** | | ○ | | 250 | 60 | 70 | 12 | 13 | C | | |
| **FMP03-125-B40-LN20-06** | | ○ | | 125 | 40 | 63 | 16 | 6 | B | 3.3 | LNKT2007DN-ZR |
| **FMP03-160-C40-LN20-08** | | ● | | 160 | 40 | 63 | 16 | 8 | C | 5.3 | |
| **FMP03-200-C60-LN20-10** | | ● | | 200 | 60 | 70 | 16 | 10 | C | 8.8 | |
| **FMP03-200-C60-LN20-11** | | ○ | | 200 | 60 | 70 | 16 | 11 | C | | |
| **FMP03-315-D60-LN20-15** | | ○ | | 315 | 60 | 80 | 16 | 15 | D | 23.9 | |
| **FMP03-125-B40-LN25-05** | | ○ | | 125 | 40 | 63 | 20 | 5 | B | 3.3 | LNKT2510-ZR |
| **FMP03-160-C40-LN25-06** | | ○ | ○ | 160 | 40 | 63 | 20 | 6 | C | 5.1 | |
| **FMP03-200-C60-LN25-08** | | ○ | | 200 | 60 | 70 | 20 | 8 | C | 8.9 | |
| **FMP03-250-C60-LN25-10** | | ● | ○ | 250 | 60 | 70 | 20 | 10 | C | 12 | |
| **FMP03-315-D60-LN25-12** | | ○ | ○ | 315 | 60 | 80 | 20 | 12 | D | 21.9 | |

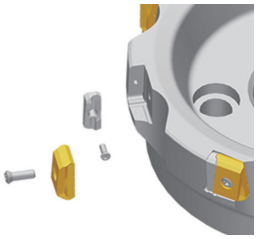
● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

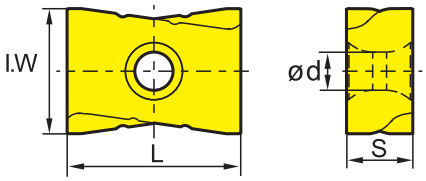
| | Insert | LNKT120608-ZR | LNKT1506EN-ZR | LNKT2007DN-ZR | LNKT2510-ZR |
|---|---|---|---|---|---|
| | ØD | 50-100 | 125 - 315 | 125 - 315 | 125 - 315 |
| | Screw (insert) | I60M4×12 (3.4 Nm) | I60M4×12 (3.4 Nm) | I60M4×15 (3.4 Nm) | I60M5×17 (6.7 Nm) |
| | Screw (shim) | | I60M3×7 | I60M3×7 | I60M3.5×10.4 |
| | Shim | | LLN15-ZR | LLN20R-ZR | LLN25R-ZR |
| | Wrench (shim) | | WT09IS | WT09IS | WT15IS |
| | Wrench (insert) | WT15IS | WT15IS | WT15IS | |
| | Wrench (insert) | | | | WT20IT |



| LNKT | L | S | d |
|---|---|---|---|
| **12** 06 | 12.7 | 6.65 | 4.4 |
| **15** 06 | 15.875 | 6.35 | 4.6 |
| **20** 07 | 20 | 7.94 | 4.6 |
| **25** 10 | 20 | 9.525 | 5.5 |

## Milling inserts

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




| LN** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | l.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **LNKT120608-ZR** | 12 | ● | | | ● | | | | | | | | | | | | | | ● | | | | | | | |
| | **LNKT1506EN-ZR** | 14 | | ○ | | | | ● | ● | ● | | | | | | | | | | | ○ | | | | | | |
| | **LNKT2007DN-ZR** | 17 | | | | ● | | ● | | ○ | | | | | | | | | | | ● | | | | | | |
| | **LNKT2510-ZR** | 18 | | | | | | ● | | ● | | | | | | | | | | | ● | | | | | | |

● Ex stock ○ On demand

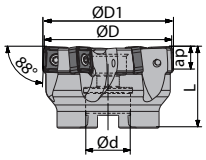
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

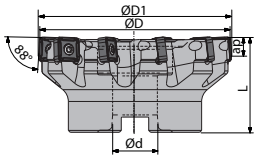
## Face milling

### FMP06 Kr: 88°

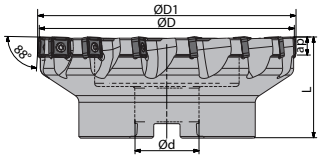




A



B



C

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | ød | L | $a_{p\,max}$ | | | | |
| **FMP06-050-A16-SN12-04** | | ● | 51.3 | 51.3 | 16 | 40 | 9.8 | 4 | A | 0.51 | SN**1204 |
| **FMP06-063-A22-SN12-06** | | ○ | 64.3 | 64.3 | 22 | 40 | 9.8 | 6 | A | 0.55 | |
| **FMP06-080-A27-SN12-08** | | ○ | 81.3 | 81.3 | 27 | 40 | 9.8 | 8 | A | 1.1 | |
| **FMP06-100-A32-SN12-10** | | ○ | 101.3 | 101.3 | 32 | 50 | 9.8 | 10 | A | 1.4 | |
| **FMP06-125-B40-SN12-12** | | ○ | 126.3 | 126.3 | 40 | 63 | 9.8 | 12 | B | 3.2 | |
| **FMP06-160-C40-SN12-14** | | ○ | 161.3 | 161.3 | 40 | 63 | 9.8 | 14 | C | 4 | |
| **FMP06-200-C60-SN12-16** | | ○ | 201.2 | 201.2 | 60 | 63 | 9.8 | 16 | C | 6.5 | |
| **FMP06-250-C60-SN12-18** | | ○ | 251.2 | 251.2 | 60 | 63 | 9.8 | 18 | C | 11.5 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SN**1204** |
|---|---|---|
| | **ØD** | **50-250** |
|  | Screw (insert) | l60M4×10 (3.4 Nm) |
|  | Wrench (insert) | WT15IT |

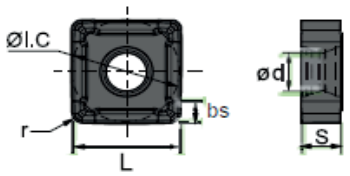


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| SNCU | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 4.68 |

## Milling inserts

| SN** negative insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ● | | ● | ● | | |
| | M | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | ● | | |
| | K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ● | | | | |
| | N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| | S | | | | ◉ | | ◉ | | | | | ● | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | | |
| | H | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | |

| | ISO | r | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **SNCU120412-CF** | 1.2 | 1.5 | ○ | | | | | | ○ | ○ | | | | | | | | ○ | | | | | | | | | |
|  | **SNCU120412-CM** | 1.2 | 1.5 | ○ | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | |
|  | **SNCU120420-W** | | 4 | | | | | | | ○ | | | | | | | | | | | | | | | | | | |

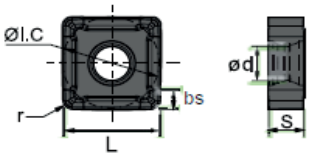
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

- 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 |

## Milling inserts

| SN** negative insert | | HC¹ (CVD) | | | | HC¹ (PVD) | | | | | CN | CM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | ◉ | | ◉ | | | ◉ | | | | | |
| | M | | | ◉ | | | | | | | | |
| | K | | | | | ◉ | ◉ | | | | ● | |
| | N | | | | | | | | | | | |
| | S | | | ◉ | | ◉ | | | | | | |
| | H | | | | | | | | | | | ● |

| | ISO | r | bs | YBC302 | YBM253 | YBD152 | YBD252 | YBG102 | CN1000 | CM1000 |
|---|---|---|---|---|---|---|---|---|---|---|
|  | **SNGA120404T02020** | 0,4 | – | | | | | | ○ | |
| | **SNGA120408S02020** | 0,8 | – | | | | | | | ○ |
| | **SNGA120408T02020** | 0,8 | – | | | | | | ○ | ○ |
| | **SNGA120412T02020** | 1,2 | – | | | | | | ○ | |

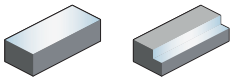
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

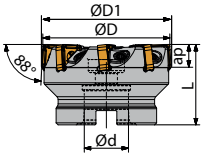

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

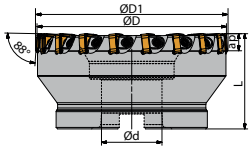
### FMP06 Kr: 88°



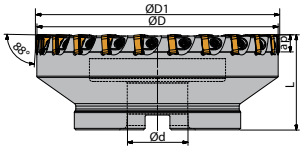





A




B




C

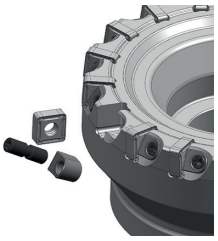
| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | ød | L | $a_{p\ max}$ | | | | |
| **FMP06-063-A22-SN12-08** | | ● | 64.3 | 64.3 | 22 | 50 | 9.8 | 8 | A | 0.5 | |
| **FMP06-080-A27-SN12-11** | | ● | 81.3 | 81.3 | 27 | 50 | 9.8 | 11 | A | 1.2 | |
| **FMP06-100-A32-SN12-14** | | ● | 101.3 | 101.3 | 32 | 50 | 9.8 | 14 | A | 1.8 | |
| **FMP06-125-B40-SN12-18** | | ● | 126.3 | 126.3 | 40 | 63 | 9.8 | 18 | B | 3.5 | SN**1204 |
| **FMP06-160-C40-SN12-22** | | ● | 161.3 | 161.3 | 40 | 63 | 9.8 | 22 | C | 4.7 | |
| **FMP06-200-C60-SN12-28** | | ○ | 201.2 | 201.2 | 60 | 63 | 9.8 | 28 | C | 6.6 | |
| **FMP06-250-C60-SN12-36** | | ○ | 251.2 | 251.2 | 60 | 63 | 9.8 | 36 | C | 13 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SN**1204** |
|---|---|---|
| | **ØD** | **63-250** |
| | Screw (wedge) | DM6×20A (7.0 Nm) |
| | Wedge | W18N |
| | Wrench (insert) | WT15IT |

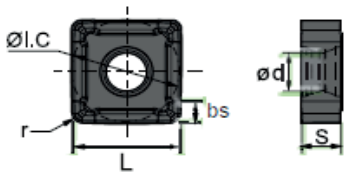


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| SNCU | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 4.68 |

## Milling inserts

| SN** negative insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ● | | ● | ● | | |
| | M | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | | |
| | K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | ● | | | |
| | N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| | S | | | | ◉ | | ◉ | | | | | ● | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | | |
| | H | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | |

| | ISO | r | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **SNCU120412-CF** | 1.2 | 1.5 | ○ | | | | | | ○ | ○ | | | | | | | | ○ | | | | | | | | | |
|  | **SNCU120412-CM** | 1.2 | 1.5 | ○ | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | |
|  | **SNCU120420-W** | | 4 | | | | | | | ○ | | | | | | | | | | | | | | | | | | |

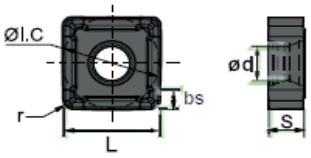
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

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

| SNGN | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12,7 | 12,7 | 4,76 | – |

## Milling inserts

| SN** negative insert | | HC¹ (CVD) | | | | HC¹ (PVD) | | | | | CN | CM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | ◉ | | ◉ | | | ◉ | | | | | |
| | M | | | ◉ | | | | | | | | |
| | K | | | | ◉ | ◉ | | | | | ● | |
| | N | | | | | | | | | | | |
| | S | | | ◉ | | ● | | | | | | |
| | H | | | | | | | | | | | ○ |

| | ISO | r | bs | YBC302 | YBM253 | YBD152 | YBD252 | YBG102 | CN1000 | CM1000 |
|---|---|---|---|---|---|---|---|---|---|---|
|  | **SNGN120408S02020** | 0,8 | – | | | | | | | ○ |
| | **SNGN120408T00520** | 0,8 | – | | | | | | ○ | |
| | **SNGN120408T02020** | 0,8 | – | | | | | | ● | |
| | **SNGN120412T02020** | 1,2 | – | | | | | | ○ | |
| | **SNGN120416T02020** | 1,6 | – | | | | | | ○ | |

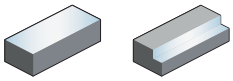
● Ex stock ○ On demand

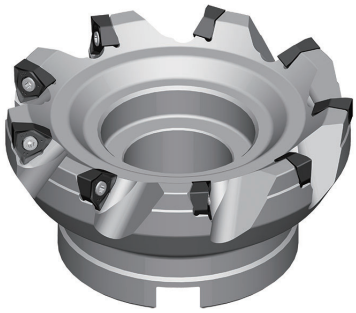
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

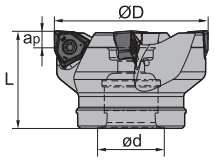

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Face milling

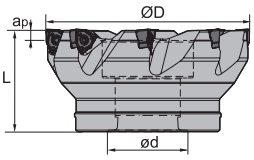
### FMP12 Kr: 90°



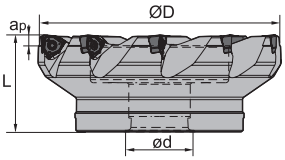




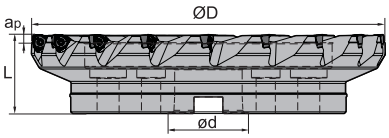
A



B



C



D

| Article | ✲ | Stock | Dimensions [mm] ØD | ød | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| **FMP12-050-A22-WN06-05C** | ✲ | ○ | 50 | 22 | 5.7 | 5 | A | 0.55 | |
| **FMP12-063-A22-WN06-06C** | ✲ | ● | 63 | 22 | 5.7 | 6 | A | 0.45 | |
| **FMP12-080-A27-WN06-07C** | ✲ | ● | 80 | 27 | 5.7 | 7 | A | 1 | |
| **FMP12-100-B32-WN06-09** | | ● | 100 | 32 | 5.7 | 9 | A | 1.4 | WNHU0604 |
| **FMP12-100-B32-WN06-09C** | ✲ | ● | 100 | 32 | 5.7 | 9 | A | 1.4 | |
| **FMP12-125-B40-WN06-11C** | ✲ | ○ | 125 | 40 | 5.7 | 11 | B | 3.4 | |
| **FMP12-160-C40-WN06-14** | | ● | 160 | 40 | 5.7 | 14 | C | 5.4 | |
| **FMP12-063-A22-WN08-04C** | ✲ | ● | 63 | 22 | 7.7 | 4 | A | 0.39 | |
| **FMP12-063-A22-WN08-05C** | ✲ | ● | 63 | 22 | 7.7 | 5 | A | 0.45 | |
| **FMP12-080-A27-WN08-05C** | ✲ | ● | 80 | 27 | 7.7 | 5 | A | 0.95 | |
| **FMP12-100-B32-WN08-06** | | ● | 100 | 32 | 7.7 | 6 | B | 1.32 | |
| **FMP12-100-B32-WN08-06C** | ✲ | ● | 100 | 32 | 7.7 | 6 | B | 1.32 | WNHU0806 |
| **FMP12-125-B40-WN08-08C** | ✲ | ● | 125 | 40 | 7.7 | 8 | B | 3.3 | |
| **FMP12-160-C40-WN08-10** | | ● | 160 | 40 | 7.7 | 10 | C | 5.2 | |
| **FMP12-200-C60-WN08-12** | | ○ | 200 | 60 | 7.7 | 12 | C | 5.9 | |
| **FMP12-250-C60-WN08-14** | | ○ | 250 | 60 | 7.7 | 14 | C | 12.3 | |
| **FMP12-315-D60-WN08-18** | | ○ | 315 | 60 | 7.7 | 18 | D | 19.7 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | Insert | WNHU0604 | WNHU0806 |
|---|---|---|---|
| | **ØD** | **50-315** | **50-315** |
|  | Screw (insert) | I60M3×9 (1.8 Nm) | I60M4×10 (3.4 Nm) |
|  | Wrench (insert) | WT09IS | |
|  | Wrench (insert) | | WT20IT |

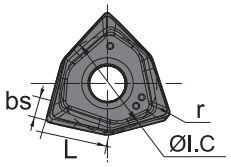
System code B32 Grade selection B31 Technical info B617 Cutting data B312

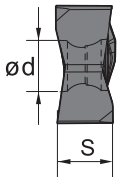
## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| WNHU | L | I.C | S | d |
|---|---|---|---|---|
| **06** 04 | 5.73 | 9.525 | 4.704 | 3.5 |
| **08** 06 | 7.76 | 12.7 | 6.32 | 4.4 |

WN** negative insert




| | ISO | r | bs | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **WNHU060404PNR-GM** | 0.4 | 1.35 | | | | ● | | | ● | | | | | | | | | ● | | | | | | | | | |
| | **WNHU060408PNR-GM** | 0.8 | 1.35 | | | | ● | | | ● | ● | | | | | | | ● | ● | | | | ● | | | | | |
| | **WNHU080608PNR-GM** | 0.8 | 1.6 | | | | ● | | | ● | ● | | | | | | | ● | ● | | ● | | ● | | | | | |
| | **WNHU080616PNR-GM** | 1.6 | 1.6 | | | | ● | | | ● | ● | | | | | | | | | | | | | | | | | |
|  | **WNHU080608PNR-LH** | | 1.6 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

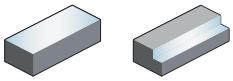
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

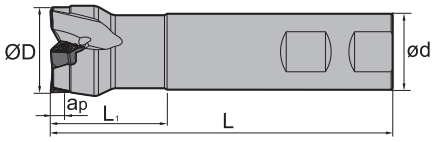

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMP12 Kr: 90°







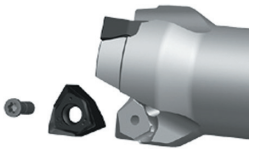

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | $a_{p\,max}$ | | | |
| **FMP12-025-XP25-WN06-02C** | ✻ | ○ | 25 | 25 | 30 | 100 | 5.7 | 2 | 0.34 | WNHU0604 |
| **FMP12-032-XP25-WN06-03C** | ✻ | ○ | 32 | 25 | 40 | 120 | 5.7 | 3 | 0.42 | |
| **FMP12-040-XP32-WN06-04C** | ✻ | ○ | 40 | 32 | 40 | 140 | 5.7 | 4 | 0.81 | |
| **FMP12-050-XP40-WN06-05C** | ✻ | ○ | 50 | 40 | 40 | 169 | 5.7 | 5 | 1.51 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **WNHU0604** |
|---|---|---|
| | **ØD** | **25-50** |
|  | Screw (insert) | I60M3×9 (1.8 Nm) |
|  | Wrench (insert) | WT09IS |

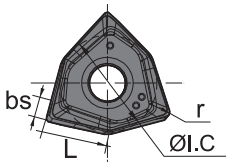


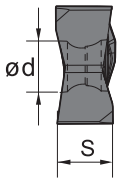
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| WNHU | L | I.C | S | d |
|---|---|---|---|---|
| **06** 04 | 5.73 | 9.525 | 4.704 | 3.5 |




| WN** negative insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **WNHU060404PNR-GM** | 0.4 | 1.35 | | | | ● | | | ● | | | | | | | | | ● | | | | | | | | | |
| | **WNHU060408PNR-GM** | 0.8 | 1.35 | | | | ● | | | ● | ● | | | | | | | ● | ● | | | | ● | | | | | |

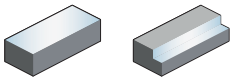
● Ex stock ○ On demand

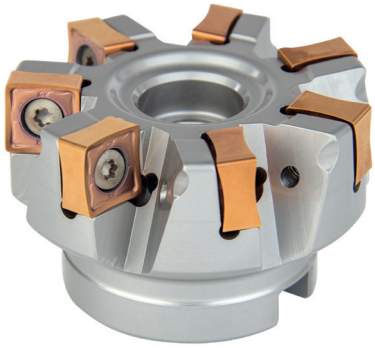
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

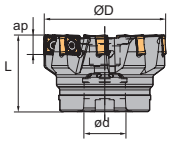

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Face milling

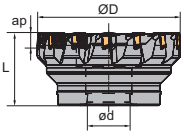
### FMP17 Kr: 88°



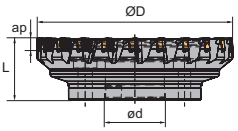




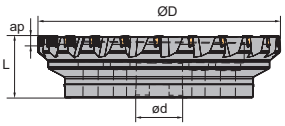
A



B



C



D

| Article | ✲ | Stock R | Stock L | Dimensions [mm] ØD | Dimensions [mm] ød | Dimensions [mm] L | Dimensions [mm] $a_{p\ max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMP17-050-A22-SN12-04C** | ✲ | ○ | ○ | 50 | 22 | 40 | 10.5 | 4 | A | 0.296 | |
| **FMP17-050-A22-SN12-05C** | ✲ | ● | | 50 | 22 | 40 | 10.5 | 5 | A | 0.288 | |
| **FMP17-063-A22-SN12-05C** | ✲ | ● | ○ | 63 | 22 | 50 | 10.5 | 5 | A | 0.462 | |
| **FMP17-063-A22-SN12-07C** | ✲ | ● | | 63 | 22 | 50 | 10.5 | 7 | A | 0.466 | |
| **FMP17-080-A27-SN12-07C** | ✲ | ● | ○ | 80 | 27 | 63 | 10.5 | 7 | A | 1 | |
| **FMP17-080-A27-SN12-09C** | ✲ | ● | | 80 | 27 | 63 | 10.5 | 9 | A | 1.02 | |
| **FMP17-100-A32-SN12-08** | | | ○ | 100 | 32 | 63 | 10.5 | 8 | A | 1.577 | |
| **FMP17-100-A32-SN12-08C** | ✲ | ● | | 100 | 32 | 63 | 10.5 | 8 | A | 1.577 | |
| **FMP17-100-A32-SN12-11C** | ✲ | ● | | 100 | 32 | 63 | 10.5 | 11 | A | 1.592 | |
| **FMP17-125-B40-SN12-10** | | ● | ○ | 125 | 40 | 63 | 10.5 | 10 | B | 3.043 | SNGX1205 |
| **FMP17-125-B40-SN12-14** | | ● | | 125 | 40 | 63 | 10.5 | 14 | B | 3.033 | |
| **FMP17-160-C40-SN12-12** | | ● | ○ | 160 | 40 | 63 | 10.5 | 12 | C | 4.344 | |
| **FMP17-160-C40-SN12-18** | | ○ | | 160 | 40 | 63 | 10.5 | 18 | C | 4.431 | |
| **FMP17-200-C60-SN12-14** | | ● | | 200 | 60 | 63 | 10.5 | 14 | C | 6.552 | |
| **FMP17-200-C60-SN12-22** | | ○ | | 200 | 60 | 63 | 10.5 | 22 | C | 6.711 | |
| **FMP17-250-C60-SN12-18** | | ○ | | 250 | 60 | 63 | 10.5 | 18 | C | 13.025 | |
| **FMP17-315-D60-SN12-22** | | ○ | | 315 | 60 | 80 | 10.5 | 22 | D | 21.935 | |
| **FMP17-400-D60-SN12-28** | | ○ | | 400 | 60 | 80 | 10.5 | 28 | D | 41.661 | |

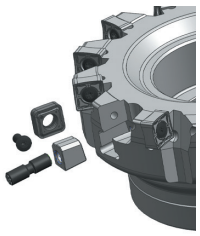
● Ex stock ○ On demand

✲ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

| | Insert | SNGX1205 | SNGX1205 | SNGX1205 |
|---|---|---|---|---|
| | ØD | 50-63 | 80-180 | 200-400 |
| | Screw (insert) | IRM4×10 (3.4 Nm) | IRM4×10 (3.4 Nm) | IRM4×10 (3.4 Nm) |
| | Wrench (insert) | WT15IP | | |
| | Wrench (insert) | | WT15IS | |
| | Wrench (insert) | | | WT15IT |

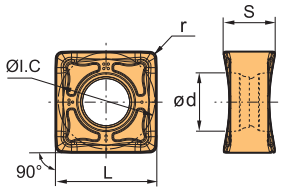


- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

| SNGX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 12.7 | 12.7 | 6.5 | 5.9 |

## Milling inserts

SN** negative insert




| | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | ● | ● | ◉ | ● | ● | ◉ | | ● | ● | | | ◉ | ● | | ◉ | ● | ● | ◉ | | ● | ● | ● | | |
| | | M | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ● | ● | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | ● | | |
| | | K | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | | ● | | | | |
| | | N | | | | | | | | | ◉ | | | | | | | | | | | | | | ◉ | ◉ |
| | | S | | | ◉ | | ◉ | | | | | ● | ◉ | | ◉ | ◉ | | ◉ | | | ◉ | | | | | |
| | | H | | | | | | | | | ○ | | | | | | ◉ | | | | | | | | | |
| | ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | SNGX1205PNN-GH | | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |
|  | SNGX1205PNN-GL | | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |
|  | SNGX1205PNN-GM | | 1.2 | | | | | | | | ● | | | | | | | | ● | | | ● | | | | | |

● Ex stock ○ On demand

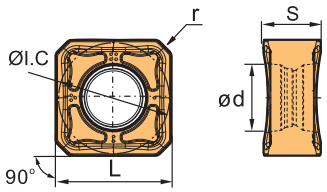
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SNMX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 12.7 | 12.7 | 6.5 | 5.9 |




| SN** negative insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | r | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SNMX120512-GH** | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |
|  | **SNMX120512-GM** | 1.2 | | | | | | | | ● | | | | | | | | ● | | | | | | | | |

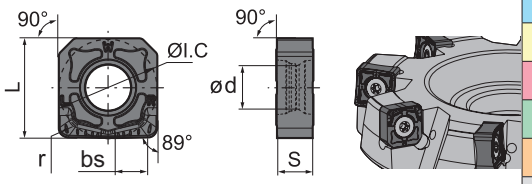
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| SNGX | L | I.C | S | d |
|---|---|---|---|---|
| **12** 05 | 12,86 | 12,7 | 4,8 | 5,9 |




| SN** negative insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | bs | r | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG105 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SNGX1205PNN-W** | 4,26 | 1,2 | | | | | | | | | | | | ● | | | | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Notes

# IMPORTANT INFORMATION

## Notes on using the **FMWX series**

**Please note the following:** The milling body is only equipped with two opposing inserts.

Select insert seat **1.1** in combination with **1.2** *or* insert seat **2.1** in combination with **2.2**.

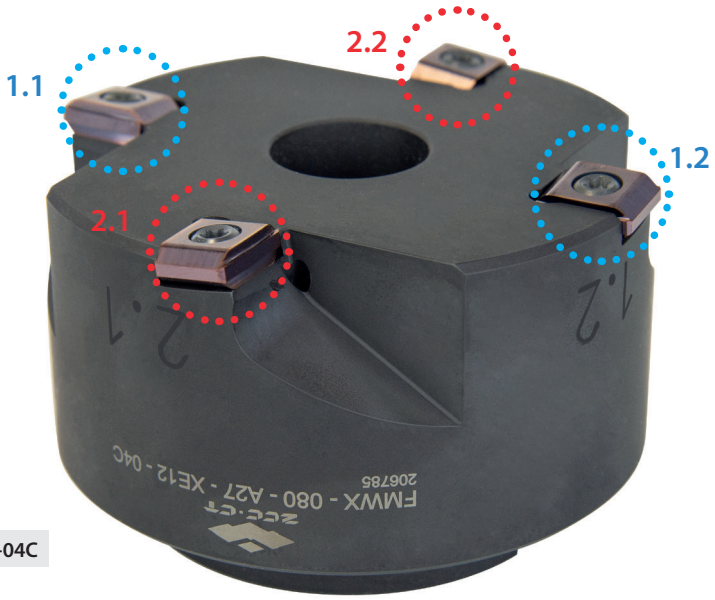


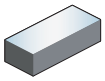

Fig.: **FMWX-063-A27-XE12-04C**

### Cutting data

| ISO group | Material | $v_c$ (m/min) | $F_n$ [mm/rev] | $a_p$ [mm] |
|---|---|---|---|---|
| **P** | Low-alloy steel | 300–400 | 3,50–5,00 | 0,02–0,05 |
| **M** | Stainless steels | 280–300 | 3,50–5,00 | 0,02–0,05 |
| **K** | Cast steel | 300–400 | 3,50–5,00 | 0,02–0,05 |

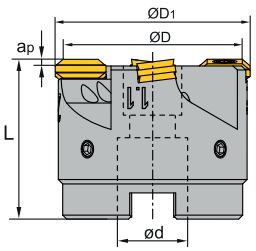
## Face milling

### FMWX

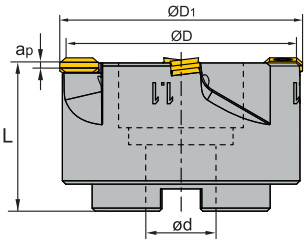




Screw Clamping




A




B

| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | $ØD_1$ | ød | L | $a_{p\ max}$ | | | | |
| **FMWX-050-A22-XE12-04C** | ✻ | ○ | 46 | 22 | 40 | 0.1 | 4 | A | 0.3 | |
| **FMWX-063-A27-XE12-04C** | ✻ | ○ | 59 | 27 | 40 | 0.1 | 4 | A | 0.5 | |
| **FMWX-080-A27-XE12-04C** | ✻ | ○ | 76 | 27 | 50 | 0.1 | 4 | A | 1 | XEEC1209 |
| **FMWX-100-B32-XE12-06C** | ✻ | ○ | 96 | 32 | 50 | 0.1 | 6 | B | 1.9 | |
| **FMWX-125-B40-XE12-06C** | ✻ | ○ | 121 | 40 | 63 | 0.1 | 6 | B | 3.5 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

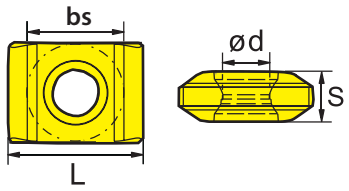
| | **Insert** | **XEEC1209** |
|---|---|---|
| | **ØD** | **50-125** |
| | Screw (insert) | WT15IS |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| XEEC | L | S | d |
|---|---|---|---|
| **12** 09 | 12.7 | 4.76 | 4.4 |

## Milling inserts




| XE** positive insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG105 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **XEEC120904** | 7.3 | | | | | | | ● | | | | | | | | | ○ | | | | | | | | | |

● Ex stock ○ On demand

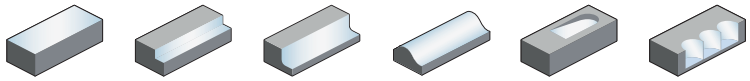
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

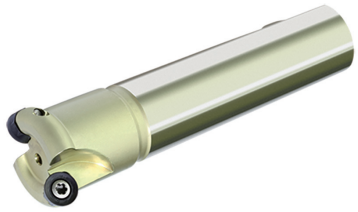
A Turning
B Milling
C Drilling
D Technical Information
E Index

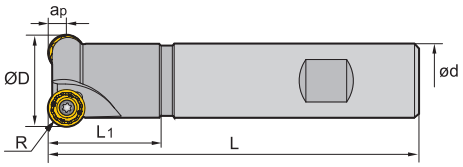
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMR01





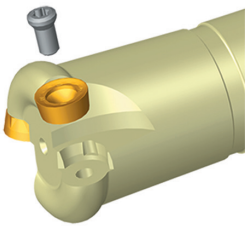



| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | $L_1$ | L | $a_{p\,max}$ | | | |
| **FMR01-025-XP20-RC10-02** | | ○ | 5 | 25 | 20 | 30 | 100 | 5 | 2 | 0.2 | RCKT10T3 |
| **FMR01-025-XP20-RC10-02C** | ✻ | ○ | 5 | 25 | 20 | 30 | 100 | 5 | 2 | 0.2 | |
| **FMR01-032-XP25-RC10-02** | | ● | 5 | 32 | 25 | 35 | 120 | 5 | 2 | 0.5 | |
| **FMR01-032-XP25-RC10-02C** | ✻ | ● | 5 | 32 | 25 | 35 | 120 | 5 | 2 | 0.5 | |
| **FMR01-040-XP32-RC12-03** | | ● | 6 | 40 | 32 | 40 | 120 | 6 | 3 | 0.7 | RCKT1204<br>RCGX1204 |
| **FMR01-040-XP32-RC12-03C** | ✻ | ● | 6 | 40 | 32 | 40 | 120 | 6 | 3 | 0.7 | |
| **FMR01-050-XP32-RC12-03** | | ● | 6 | 50 | 32 | 40 | 120 | 6 | 3 | 0.8 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

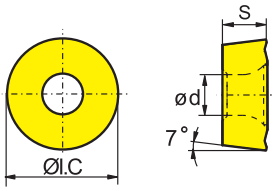
| | **Insert** | **RCKT10T3** | **RCKT1204<br>RCGX1204** | |
|---|---|---|---|---|
| | **ØD** | **25-32** | **40-50** | |
|  | Screw (insert) | I60M4×8.4<br>(3.4 Nm) | I60M3.5×10<br>(2.7 Nm) |  |
|  | Wrench (insert) | WT15S | WT15S | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RCKT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.4 |
| **12** 04 | 12 | 4.76 | 4 |




| RC** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RCKT10T3MO-DM | | ○ | | | | | | ○ | | | | | | | | | | ● | ○ | | | | | | |
| | RCKT1204MO-DM | | ○ | ○ | | | ● | ○ | | | | | | ○ | | | | | ● | ○ | | | | | | |
|  | RCKT1204MO-DR | | ○ | ○ | | ○ | ● | | ○ | | | | | | | | ● | ○ | | | | | | | | |
|  | RCKT1204MO-ER | | | | ● | | | | | | | | | | | | | ○ | | | | | | | | |
| | RCKT10T3MO-MM | | | | ○ | | | | | | | | | | | | | | | | | | | | | |
|  | RCKT10T3MO-NM | | | | | | | | | | | | | | | ○ | | | | | ○ | | | | | |
| | RCKT1204MO-NM | | | | | | | | | | | | | | ○ | ● | | ○ | | | | | | | | |

● Ex stock ○ On demand

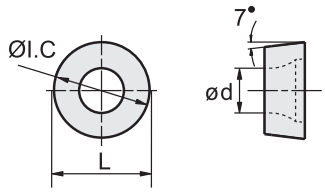
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RCGX | I.C | S | d |
|---|---|---|---|
| **12** 04 | 12 | 4.76 | 4 |




| RC** positive insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RCGX1204MO-LH | | | | | | | | | | | | | | | | | | | | | | | ● | |

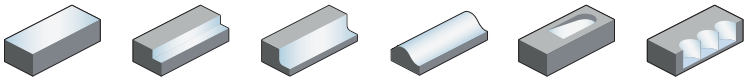
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

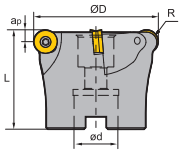
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

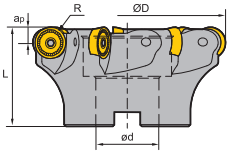
### FMR02



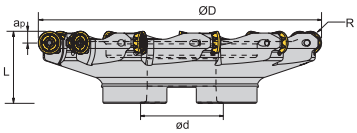





A




B




C

| Article | ✲ | Stock R | Stock L | Dimensions [mm] R | ØD | ød | L | $a_{p\ max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMR02-040-A16-RC12-04C | ✲ | ● | | 6 | 40 | 16 | 40 | 6 | 4 | A | 0.16 | RCGX1204 RCKT1204 RCMW1204 |
| FMR02-042-A16-RC12-04C | ✲ | ○ | | 6 | 42 | 16 | 40 | 6 | 4 | A | 0.17 | |
| FMR02-050-A22-RC12-05C | ✲ | ● | | 6 | 50 | 22 | 40 | 6 | 5 | A | 0.7 | |
| FMR02-050-A22-RC12-06C | ✲ | ○ | | 6 | 50 | 22 | 40 | 6 | 6 | A | 0.7 | |
| FMR02-052-A22-RC12-05C | ✲ | ● | | 6 | 52 | 22 | 40 | 6 | 5 | A | 0.7 | |
| FMR02-063-A22-RC12-04 | | ● | | 6 | 63 | 22 | 40 | 6 | 4 | A | 0.7 | |
| FMR02-063-A22-RC12-05C | ✲ | ● | | 6 | 63 | 22 | 40 | 6 | 5 | A | 0.7 | |
| FMR02-063-A22-RC12-06 | | ● | | 6 | 63 | 22 | 40 | 6 | 6 | A | 0.7 | |
| FMR02-063-A22-RC12-06C | ✲ | ● | | 6 | 63 | 22 | 40 | 6 | 6 | A | 0.7 | |
| FMR02-080-A27-RC12-07C | ✲ | ● | | 6 | 80 | 27 | 50 | 6 | 7 | B | 0.7 | |
| FMR02-100-B32-RC12-08 | | ○ | | 6 | 100 | 32 | 50 | 10 | 8 | B | 1.26 | |
| FMR02-100-B32-RC12-08C | ✲ | ● | | 6 | 100 | 32 | 50 | 6 | 8 | B | 0.89 | |
| FMR02-063-A22-RC16-04 | | ● | | 8 | 63 | 22 | 40 | 8 | 4 | A | 0.7 | RCKT1606 |
| FMR02-063-A22-RC16-04C | ✲ | ○ | | 8 | 63 | 22 | 40 | 8 | 4 | A | 0.7 | |
| FMR02-063-A22-RC16-05C | ✲ | ○ | | 8 | 63 | 22 | 40 | 8 | 5 | A | 0.7 | |
| FMR02-066-A27-RC16-05C(FB) | ✲ | ● | | 8 | 66 | 27 | 50 | 8 | 5 | A | 0.5 | |
| FMR02-080-A27-RC16-07C | ✲ | ○ | | 8 | 80 | 27 | 50 | 10 | 7 | A | 0.87 | |
| FMR02-080-B27-RC16-05 | | ● | | 8 | 80 | 27 | 50 | 8 | 5 | B | 0.7 | |
| FMR02-080-B27-RC16-07 | | ● | | 8 | 80 | 27 | 50 | 8 | 7 | B | 0.7 | |
| FMR02-100-B32-RC16-06 | | ● | | 8 | 100 | 32 | 63 | 8 | 6 | B | 1.2 | |
| FMR02-100-A32-RC16-06C | ✲ | ○ | | 8 | 100 | 32 | 63 | 8 | 6 | B | 1.2 | |
| FMR02-125-B40-RC16-07 | | ● | | 8 | 125 | 40 | 63 | 8 | 7 | B | 2.5 | |
| FMR02-125-B40-RC16-07C | ✲ | ○ | | 8 | 125 | 40 | 63 | 8 | 7 | B | 2.5 | |
| FMR02-136-B40-RC16-07C | ✲ | ○ | | | 136 | 40 | 63 | 8 | 7 | B | | |
| FMR02-140-C40-RC16-08 | | ○ | | 8 | 140 | 40 | 63 | 8 | 8 | C | 1.48 | |
| FMR02-160-B40-RC16-10(FB) | | ○ | | 8 | 160 | 40 | 63 | 8 | 10 | B | 3.94 | |
| FMR02-200-C60-RC16-12(FB) | | ● | | 8 | 200 | 60 | 63 | 8 | 12 | C | 5.4 | |
| FMR02-063-A22-RC20-04 | | ○ | | | 63 | 22 | 40 | 10 | 4 | A | 0.553 | RCKT2006 |
| FMR02-080-A27-RC20-04 | | ● | | 10 | 80 | 27 | 50 | 10 | 4 | A | 0.7 | |

● Ex stock ○ On demand

✲ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

# Indexable milling



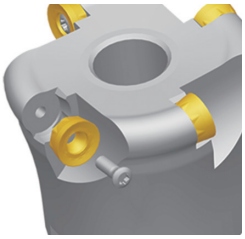
| Article | ✲ | Stock R | Stock L | Dimensions [mm] R | ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMR02-080-A27-RC20-04C(FB)** | ✲ | ● | | 10 | 80 | 27 | 50 | 10 | 4 | A | 0.7 | |
| **FMR02-080-A27-RC20-05C** | ✲ | ● | | 10 | 80 | 27 | 50 | 10 | 5 | A | 0.65 | |
| **FMR02-080-A27-RC20-06C** | ✲ | ○ | ○ | 10 | 80 | 27 | 50 | 10 | 6 | A | 0.64 | |
| **FMR02-100-B32-RC20-05** | | ● | | 10 | 100 | 32 | 63 | 10 | 5 | B | 1.2 | |
| **FMR02-100-B32-RC20-06** | | ● | | 10 | 100 | 32 | 63 | 10 | 6 | B | 1.2 | |
| **FMR02-100-A32-RC20-06C** | ✲ | ○ | | 10 | 125 | 32 | 50 | 10 | 6 | A | 1.25 | |
| **FMR02-125-B32-RC20-05** | | ○ | | 10 | 125 | 32 | 63 | 10 | 5 | B | 1.2 | |
| **FMR02-125-B40-RC20-06** | | ● | | 10 | 125 | 40 | 63 | 10 | 6 | B | 1.2 | |
| **FMR02-125-B40-RC20-07** | | ● | | 10 | 125 | 40 | 63 | 10 | 7 | B | 2.2 | RCKT2006 |
| **FMR02-125-B40-RC20-07C** | ✲ | ○ | | 10 | 125 | 40 | 63 | 10 | 7 | B | 2.2 | |
| **FMR02-140-C40-RC20-07** | | ○ | | 10 | 140 | 40 | 63 | 10 | 7 | C | 2.93 | |
| **FMR02-160-B40-RC20-08** | | ● | | 10 | 160 | 40 | 63 | 10 | 8 | B | 4.2 | |
| **FMR02-160-B40-RC20-08C** | ✲ | ○ | | 10 | 160 | 40 | 63 | 10 | 8 | B | 4.2 | |
| **FMR02-160-C40-RC20-08** | | ○ | | 10 | 160 | 40 | 63 | 10 | 8 | C | 3.6 | |
| **FMR02-220-C60-RC20-10** | | ○ | | 10 | 220 | 60 | 63 | 10 | 10 | C | 6.53 | |
| **FMR02-250-C60-RC20-10** | | ● | | 10 | 250 | 60 | 63 | 10 | 10 | C | 8.49 | |
| **FMR02-250-C60-RC20-11** | | ○ | | 10 | 250 | 60 | 63 | 10 | 11 | C | 8.37 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | **Insert** | **RCGX1204 RCKT1204 RCMW1204** | **RCKT1606** | **RCKT2006** |
|---|---|---|---|---|
| | **ØD** | **32-125** | **63-200** | **63-250** |
|  | Screw (insert) | I60M3.5×10 (2.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) |
|  | Wrench (insert) | WT15IS | | |
|  | Wrench (insert) | | WT20IT | WT25IT |

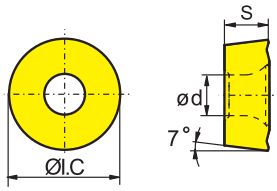


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RCKT | I.C | S | d |
|---|---|---|---|
| **12** 04 | 12 | 4.76 | 4 |
| **16** 06 | 16 | 6.35 | 5.56 |
| **20** 06 | 20 | 6.35 | 6.55 |




| RC** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | RCKT1204MO-DM | | ○ | ○ | | | ● | ○ | | | | | | ○ | | | | | ● | ○ | | | | | | |
| | RCKT1606MO-DM | | | | | | | | | | | | | | | | ● | | | ○ | | | | | | |
| | RCKT2006MO-DM | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | |
| | RCKT1204MO-DR | | ○ | ○ | | ○ | ● | | ○ | | | | | | | | ● | ○ | | | | | | | | |
| | RCKT1606MO-DR | ● | ○ | ● | | | ● | | ● | | | | | | | | | | ● | | | | | | | |
| | RCKT2006MO-DR | ● | ○ | ● | | | ○ | | ● | | | | | | | | | | | ○ | | | | | | |
| | RCKT1204MO-ER | | | | ● | | | | | | | | | | | | | ○ | | | | | | | | |
| | RCKT1606MO-ER | | | | ● | | | | | | | | | | | | | | ○ | | | | | | | |
| | RCKT2006MO-ER | | | | ● | | | | | | | | | | | | | | | | | | | | | |
| | RCKT1204MO-NM | | | | | | | | | | | | | | ○ | ● | | ○ | | | | | | | | |
| | RCKT1606MO-NM | | | | | | | | | | | | | | ○ | ● | | | | | ● | | | | | |
| | RCKT2006MO-NM | | | | | | | | | | | | | | | ○ | | ○ | | | ○ | | | | | |

● Ex stock ○ On demand

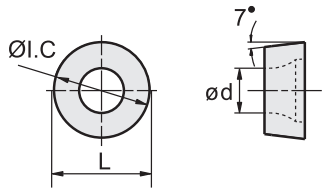
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

## Milling inserts

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

| RCGX | I.C | S | d |
|---|---|---|---|
| **12** 04 | 12 | 4.76 | 4 |




| RC** positive insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | M | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |
| | K | | | | | | | ○ | ○ | ○ | | | | | | | | | | | | ○ | | | | |
| | N | | | | | | | | | | ○ | | | | | | | | | | | | | | ○ | ○ |
| | S | | | | ○ | | ○ | | | | | ○ | ○ | | ○ | ○ | | ○ | | | ○ | | | | | |
| | H | | | | | | | | | | ○ | | | | | | | ○ | | | | | | | | |
| ISO | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RCGX1204MO-LH | | | | | | | | | | | | | | | | | | | | | | | | | ● | |

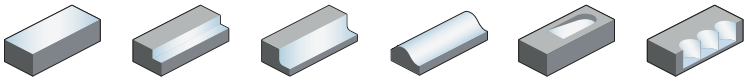
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

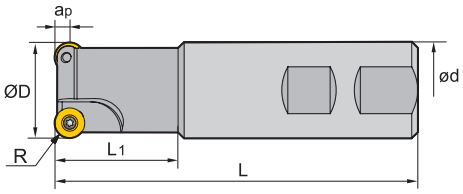
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMR03







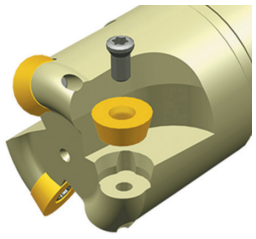

| Article | ✻ | Stock | Dimensions [mm] R | ØD | ød | $L_1$ | L | $a_{p\,max}$ | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FMR03-016-XP16-RD08-02** | | ○ | 4 | 16 | 16 | 25 | 100 | 4 | 2 | 0.1 | |
| **FMR03-025-XP25-RD08-02** | | ● | 4 | 25 | 25 | 30 | 100 | 4 | 2 | 0.3 | RD**0803 |
| **FMR03-025-XP25-RD08-02C** | ✻ | ○ | 4 | 25 | 25 | 30 | 100 | 4 | 2 | 0.3 | |
| **FMR03-032-XP32-RD10-02** | | ● | 5 | 32 | 32 | 40 | 120 | 5 | 2 | 0.7 | RD**10T3 |
| **FMR03-040-XP32-RD12-03** | | ● | 6 | 40 | 32 | 40 | 120 | 6 | 3 | 0.7 | |
| **FMR03-050-XP32-RD12-03** | | ● | 6 | 50 | 32 | 40 | 120 | 6 | 3 | 0.85 | RD**1204 |
| **FMR03-050-XP32-RD12-04** | | ● | 6 | 50 | 32 | 40 | 120 | 6 | 4 | 0.8 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | RD**0803 | RD**10T3 | RD**1204 |
|---|---|---|---|---|
| | ØD | 16-25 | 32 | 32-60 |
| | Screw (insert) | I60M3×7 (1.8 Nm) | I60M4×10 (3.4 Nm) | I60M4×10 (3.4 Nm) |
| | Wrench (insert) | WT09IP | WT15IP | WT15IP |

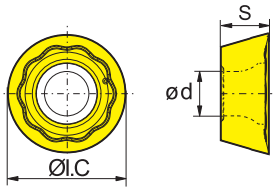


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RDKT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 3.85 |
| **12** 04 | 12 | 4.76 | 4.5 |

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDKT10T3MO-MM | | | | | | | | | | | | | | | ○ | | | | | ○ | | | | | |
| | RDKT1204MO-MM | | | | | | | | | | | | | | | | | ● | | | ○ | | | | | |
|  | RDKT10T3MO-NM | | | | | | | | | | | | | | | ○ | | | | | ○ | | | | | |

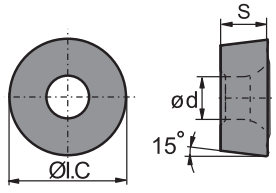
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

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

| RDKW | I.C | S | d |
|---|---|---|---|
| **08** T2 | 8 | 2.58 | 3.4 |
| **08** 03 | 8 | 3.18 | 3.4 |
| **10** T3 | 10 | 3.97 | 4.4 |
| **12** 04 | 12 | 4.76 | 4.4 |

## Milling inserts

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDKW0803MO | | | | | | ○ | | | | | | ○ | | | | | | | | | | | | | |
| | RDKW10T3MO | ● | | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | RDKW1204MO | ● | | | | | ● | | | | | | ● | ○ | | | ● | | ● | | | | | | | |
|  | RDKW0803MO-1 | | | | | | | | | | | | | | | | | ● | | | | | | | | |
| | RDKW08T2MO-1 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |

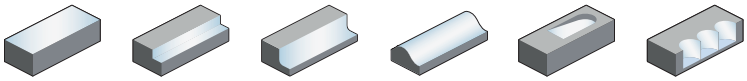
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

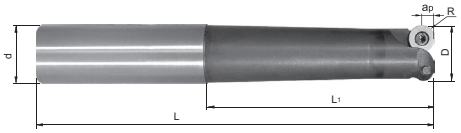

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMR03








| Article | ✲ | Stock | Dimensions [mm] | | | | | | Teeth | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | $L_1$ | L | $a_{p\,max}$ | | |
| **FMR03-015-G16-XS-RD0702-02** | | ● | 3.5 | 15 | 16 | 40 | 88 | 3.5 | 2 | RDKW0702 |
| **FMR03-015-G16-XS-RD0702-02C** | ✲ | ○ | 3.5 | 15 | 16 | 40 | 88 | 3.5 | 2 | |
| **FMR03-015-G16-S-RD0702-02** | | ● | 3.5 | 15 | 16 | 60 | 108 | 3.5 | 2 | |
| **FMR03-015-G16-S-RD0702-02C** | ✲ | ○ | 3.5 | 15 | 16 | 60 | 108 | 3.5 | 2 | |
| **FMR03-015-G20-M-RD0702-02** | | ● | 3.5 | 15 | 20 | 80 | 130 | 3.5 | 2 | |
| **FMR03-015-G20-M-RD0702-02C** | ✲ | ○ | 3.5 | 15 | 20 | 80 | 130 | 3.5 | 2 | |
| **FMR03-015-G25-XL-RD0702-02** | | ● | 3.5 | 15 | 25 | 120 | 176 | 3.5 | 2 | |
| **FMR03-015-G25-XL-RD0702-02C** | ✲ | ○ | 3.5 | 15 | 25 | 120 | 176 | 3.5 | 2 | |
| **FMR03-020-G20-XS-RD1003-02** | | ● | 5 | 20 | 20 | 40 | 90 | 5 | 2 | RDKW1003 |
| **FMR03-020-G20-XS-RD1003-02C** | ✲ | ○ | 5 | 20 | 20 | 40 | 90 | 5 | 2 | |
| **FMR03-020-G20-S-RD1003-02** | | ● | 5 | 20 | 20 | 60 | 110 | 5 | 2 | |
| **FMR03-020-G20-S-RD1003-02C** | ✲ | ○ | 5 | 20 | 20 | 60 | 110 | 5 | 2 | |
| **FMR03-020-G25-M-RD1003-02** | | ● | 5 | 20 | 25 | 80 | 136 | 5 | 2 | |
| **FMR03-020-G25-M-RD1003-02C** | ✲ | ○ | 5 | 20 | 25 | 80 | 136 | 5 | 2 | |
| **FMR03-020-G25-L-RD1003-02** | | ● | 5 | 20 | 25 | 100 | 156 | 5 | 2 | |
| **FMR03-020-G25-L-RD1003-02C** | ✲ | ○ | 5 | 20 | 25 | 100 | 156 | 5 | 2 | |
| **FMR03-020-G25-XL-RD1003-02** | | ● | 5 | 20 | 25 | 120 | 176 | 5 | 2 | |
| **FMR03-020-G25-XL-RD1003-02C** | ✲ | ○ | 5 | 20 | 25 | 120 | 176 | 5 | 2 | |

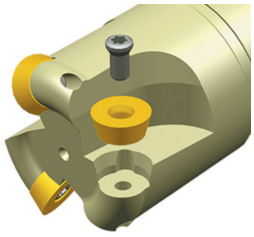
● Ex stock ○ On demand

✲ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

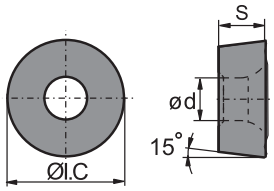
| | Insert | RDKW0702 | RDKW1003 |
|---|---|---|---|
| | ØD | 15 | 20 |
| | Screw (insert) | I60M2.5×5.0 (1.0 Nm) | |
| | Screw (insert) | | I60M3.5×6.5TT (2.7 Nm) |
| | Wrench (insert) | | WT10IP |
| | Wrench (insert) | WT07P | |



## Milling inserts

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

| RDKW | I.C | S | d |
|---|---|---|---|
| **07** 02 | 7 | 2.38 | 2.7 |
| **10** 03 | 10 | 3.18 | 3.9 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | ● | ● | ● | |
| | M | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| | K | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | |
| | H | | | | | | | | | ○ | | | | | | | ◐ | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | RDKW0702MO-1 | | | | | | ● | | | | | | ○ | | | | ● | ○ | | | | | | | | |
| | RDKW0702MO-2 | | | | | | | | | | | | ● | | | | | | | | | | | | | |
| | RDKW1003MO-1 | | | | | | ○ | | | | | | ○ | | | | ● | ● | ● | | | | | | | |
| | RDKW1003MO-2 | | | | | | | | | | | | ○ | | | | | | | | | | | | | |
| | RDKW1003MO-3 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |



● Ex stock ○ On demand

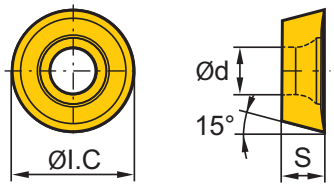
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| RDHT | L | I.C | S | d |
|---|---|---|---|---|
| **07** 02 | | 7 | 2.38 | 2.7 |
| **10** 03 | | 10 | 3.18 | 3.9 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | | ● | ● | ● | | | | | | | | | | ● | | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | | | ● ● |
| | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | | |
| | H | | | | | | | | | ○ | | | | | | | ● | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDHT0702MO-LH | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | RDHT1003MO-LH | | | | | | | | | | | | | | | | | | | | | | | ● | |

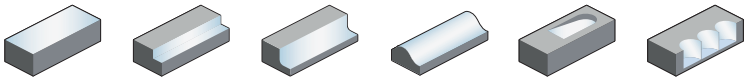
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

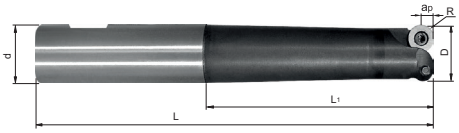
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Face milling

### FMR03







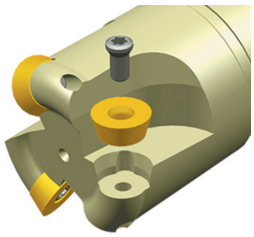

| Article | ✲ | Stock | Dimensions [mm] | | | | | | Teeth | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | $L_1$ | L | $a_{p\,max}$ | | |
| FMR03-015-XP16-S-RD0702-02 | | ○ | 3.5 | 15 | 16 | 60 | 108 | 3.5 | 2 | |
| FMR03-015-XP16-XS-RD0702-02 | | ○ | 3.5 | 15 | 16 | 40 | 88 | 3.5 | 2 | RDKW0702 |
| FMR03-015-XP20-M-RD0702-02 | | ○ | 3.5 | 15 | 20 | 80 | 130 | 3.5 | 2 | |
| FMR03-020-XP20-S-RD1003-02 | | ○ | 5 | 20 | 20 | 60 | 110 | 5 | 2 | |
| FMR03-020-XP20-XS-RD1003-02 | | ○ | 5 | 20 | 20 | 40 | 90 | 5 | 2 | |
| FMR03-020-XP25-L-RD1003-02 | | ○ | 5 | 20 | 25 | 100 | 156 | 5 | 2 | RDKW1003 |
| FMR03-020-XP25-M-RD1003-02 | | ○ | 5 | 20 | 25 | 80 | 136 | 5 | 2 | |
| FMR03-020-XP25-XL-RD1003-02 | | ○ | 5 | 20 | 25 | 120 | 176 | 5 | 2 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | Insert | RDKW0702 | RDKW1003 | |
|---|---|---|---|---|
| | ØD | 15 | 20 | |
| | Screw (insert) | I60M2.5×5.0 (1.0 Nm) | | |
| | Screw (insert) | | I60M3.5×6.5TT (2.7 Nm) | |
| | Wrench (insert) | | WT10IP | |
| | Wrench (insert) | WT07P | | |

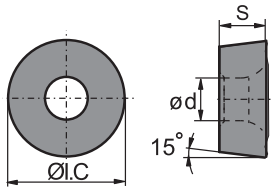


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| RDKW | I.C | S | d |
|---|---|---|---|
| **07** 02 | 7 | 2.38 | 2.7 |
| **10** 03 | 10 | 3.18 | 3.9 |

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDKW0702MO-1 | | | | | | ● | | | | | | | ○ | | | ● | ○ | | | | | | | | |
| | RDKW0702MO-2 | | | | | | | | | | | | ● | | | | | | | | | | | | | |
| | RDKW1003MO-1 | | | | | | ○ | | | | | | | ○ | | | ● | ● | ● | | | | | | | |
| | RDKW1003MO-2 | | | | | | | | | | | | ○ | | | | | | | | | | | | | |
| | RDKW1003MO-3 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |

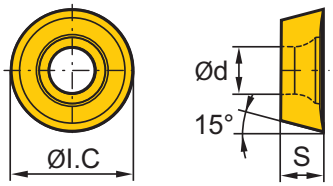
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| RDHT | L | I.C | S | d |
|---|---|---|---|---|
| **07** 02 | | 7 | 2.38 | 2.7 |
| **10** 03 | | 10 | 3.18 | 3.9 |

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDHT0702MO-LH | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | RDHT1003MO-LH | | | | | | | | | | | | | | | | | | | | | | | | ● | |

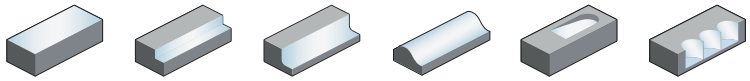
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

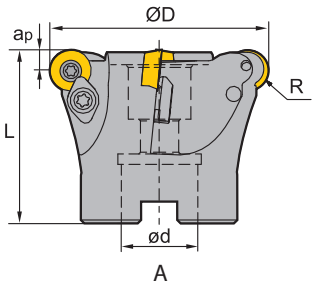
A Turning
B Milling
C Drilling
D Technical Information
E Index

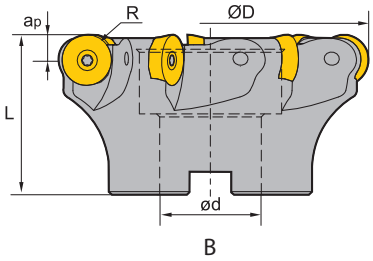
## Face milling

### FMR04







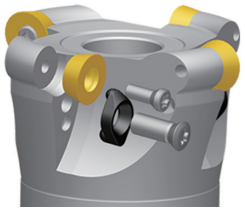

| Article | ✻ | Stock R | Stock L | Dimensions [mm] R | ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMR04-050-A22-RD12-03 | | ● | | 6 | 50 | 22 | 40 | 6 | 3 | A | 0.3 | RD**1204 |
| FMR04-063-A22-RD12-04 | | ● | | 6 | 63 | 22 | 50 | 6 | 4 | A | 0.5 | |
| FMR04-080-A27-RD16-06C | ✻ | ○ | ○ | 8 | 80 | 27 | 50 | 8 | 6 | A | 0.84 | RD**1605 |
| FMR04-080-B27-RD16-05 | | ● | | 8 | 80 | 27 | 50 | 8 | 5 | B | 1.2 | |
| FMR04-100-B32-RD16-06 | | ● | | 8 | 100 | 32 | 50 | 8 | 6 | B | 1 | |
| FMR04-100-A32-RD20-06C | ✻ | ○ | | 10 | 100 | 32 | 50 | 10 | 6 | A | 1 | RD**2006 |
| FMR04-100-B32-RD20-06C | ✻ | ○ | | 10 | 100 | 32 | 50 | 10 | 6 | B | 1 | |
| FMR04-125-B40-RD20-06 | | ○ | | 10 | 125 | 40 | 63 | 10 | 6 | B | 1.9 | |
| FMR04-125-B40-RD20-06C | ✻ | ○ | | 10 | 125 | 40 | 63 | 10 | 6 | B | 1.9 | |
| FMR04-160-B40-RD20-07 | | ○ | | 10 | 160 | 40 | 63 | 10 | 7 | B | 3.7 | |
| FMR04-160-B40-RD20-09 | | ○ | | 10 | 160 | 32 | 63 | 10 | 9 | B | 4.09 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | RD**1204 | RD**1605 | RD**2006 |
|---|---|---|---|---|
| | ØD | 50-63 | 80-100 | 100-200 |
| | Clamp | WD-204 | WD-207 | |
| | Screw (clamp) | I60M4×10 (3.4 Nm) | I60M5×13 (6.7 Nm) | |
| | Screw (insert) | I60M3.5×10 (2.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) |
| | Wrench (clamp) | WT15IP | | |
| | Wrench (clamp) | | WT20IT | |
| | Wrench (insert) | WT15IP | | |
| | Wrench (insert) | | WT20IT | WT25IT |

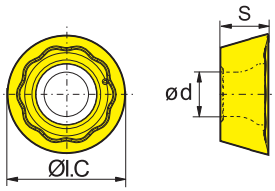


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RDKT | I.C | S | d |
|---|---|---|---|
| **12** 04 | 12 | 4.76 | 4.5 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **RDKT1204MO-MM** | | | | | | | | | | | | | | | | | ● | | | ○ | | | | | |

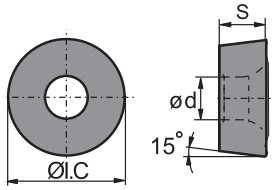
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RDKW | I.C | S | d |
|---|---|---|---|
| **12** 04 | 12 | 4.76 | 4.4 |
| **16** 05 | 16 | 5.56 | 5.5 |
| **20** 06 | 20 | 6.35 | 6.5 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **RDKW1204MO** | ● | | | | | ● | | | | | | ● | ○ | | | ● | | ● | | | | | | | |
| | **RDKW1605MO** | | | | | | ○ | | | | | | | ○ | ○ | | | | | ○ | | | | | | |
| | **RDKW2006MO** | | | | | | ○ | | ○ | | | | | | | | | | | | | | | | | |
|  | **RDKW2006MO-3** | | | | | | | | | | | | | | | | ● | | | | | | | | | |

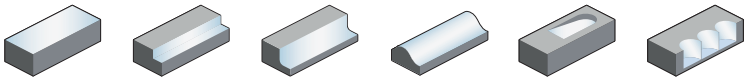
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

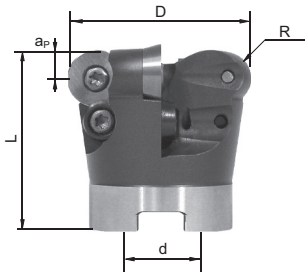
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMR04








| Article | ✲ | Stock | Dimensions [mm] | | | | | Teeth | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | L | $a_{p\,max}$ | | |
| FMR04-042-A16-RD1003-06 | | ○ | 5 | 42 | 16 | 44 | 5 | 6 | RDKW1003 |
| FMR04-042-A16-RD1003-06C | ✲ | ● | 5 | 42 | 16 | 44 | 5 | 6 | |
| FMR04-052-A22-RD1003-07C | ✲ | ● | 5 | 52 | 22 | 50 | 5 | 7 | |
| FMR04-042-A16-RD12T3-05 | | ○ | 6 | 42 | 16 | 42 | 6 | 5 | RDKW12T3 |
| FMR04-042-A16-RD12T3-05C | ✲ | ● | 6 | 42 | 16 | 42 | 6 | 5 | |
| FMR04-052-A22-RD12T3-05 | | ○ | 6 | 52 | 22 | 50 | 6 | 5 | |
| FMR04-052-A22-RD12T3-05C | ✲ | ● | 6 | 52 | 22 | 50 | 6 | 5 | |
| FMR04-066-A27-RD12T3-06 | | ○ | 6 | 66 | 27 | 50 | 6 | 6 | |
| FMR04-066-A27-RD12T3-06C | ✲ | ● | 6 | 66 | 27 | 50 | 6 | 6 | |
| FMR04-080-A27-RD12T3-07 | | ○ | 6 | 80 | 27 | 50 | 6 | 7 | |
| FMR04-080-A27-RD12T3-07C | ✲ | ● | 6 | 80 | 27 | 50 | 6 | 7 | |
| FMR04-052-A22-RD1604-04 | | ○ | 8 | 52 | 22 | 50 | 8 | 4 | RDKW1604 |
| FMR04-052-A22-RD1604-04C | ✲ | ● | 8 | 52 | 22 | 50 | 8 | 4 | |
| FMR04-066-A27-RD1604-05 | | ○ | 8 | 66 | 27 | 50 | 8 | 5 | |
| FMR04-066-A27-RD1604-05C | ✲ | ● | 8 | 66 | 27 | 50 | 8 | 5 | |
| FMR04-080-A27-RD1604-06 | | ○ | 8 | 80 | 27 | 52 | 8 | 6 | |
| FMR04-080-A27-RD1604-06C | ✲ | ● | 8 | 80 | 27 | 52 | 8 | 6 | |
| FMR04-100-B32-RD1604-07 | | ○ | 8 | 100 | 32 | 52 | 8 | 7 | |
| FMR04-100-B32-RD1604-07C | ✲ | ● | 8 | 100 | 32 | 52 | 8 | 7 | |
| FMR04-125-B40-RD1604-08 | | ○ | 8 | 125 | 40 | 52 | 8 | 8 | |
| FMR04-160-B40-RD1604-09 | | ○ | 8 | 160 | 40 | 52 | 8 | 9 | |
| FMR04-160-B40-RD1604-09C | ✲ | ● | 8 | 160 | 40 | 52 | 8 | 9 | |

● Ex stock ○ On demand

✲ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

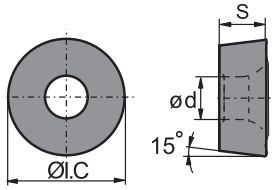
| | Insert | RDKW1003 | RDKW12T3 | RDKW12T3 | RDKW1604 | RDKW1604 |
|---|---|---|---|---|---|---|
| | ØD | 42-52 | 42 | 52-80 | 52 | 66-200 |
|  | Clamp | | | | | WX16N |
|  | Clamp | | | LOM3.5×7.1 | | |
|  | Screw (clamp) | | | | | I60M4.5×10 (5.0 Nm) |
|  | Screw (insert) | | I60M3.5×7.7 (2.7 Nm) | I60M3.5×7.7 (2.7 Nm) | I60M4.5×10 (5.0 Nm) | I60M4.5×10 (5.0 Nm) |
|  | Screw (insert) | I60M3.5×6.5TT (2.7 Nm) | | | | |
|  | Wrench (clamp) | | | WT15P | | |
|  | Wrench (clamp) | | | | | WT20T |
|  | Wrench (insert) | WT10IP | | | | |
|  | Wrench (insert) | | WT15P | WT15P | | |
|  | Wrench (insert) | | | | WT20T | WT20T |

## Milling inserts

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

| RDKW | I.C | S | d |
|---|---|---|---|
| **10** 03 | 10 | 3.18 | 3.9 |
| **12** T3 | 12 | 3.97 | 3.9 |
| **16** 04 | 16 | 4.76 | 5.2 |

RD** milling insert




| | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | | ● | ● | | | ● | ● | | ● | | ● | | | | |
| | H | | | | | | | | | ○ | | | | | | | | ● | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDKW1003MO-1 | | | | | | ○ | | | | | | ○ | | | | ● | ● | ● | | | | | | | |
| | RDKW1003MO-2 | | | | | | | | | | | | ○ | | | | | | | | | | | | | |
| | RDKW1003MO-3 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | RDKW12T3MO-1 | | | | | | ● | | | | | | | ○ | | | ○ | ● | ● | | | | | | | |
| | RDKW12T3MO-2 | | | | | | | | | | | | ● | | | | ○ | | | | | | | | | |
| | RDKW12T3MO-3 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | RDKW1604MO-1 | | | | | | ○ | | | | | | | ○ | | | ● | ● | ● | ○ | | | | | | |
| | RDKW1604MO-2 | | | | | | | | | | | | ○ | | | | | | | | | | | | | |
| | RDKW1604MO-3 | ○ | | ○ | | | | | ● | | | | | | | | ● | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

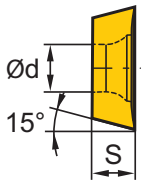
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| RDHT | L | I.C | S | d |
|---|---|---|---|---|
| **10** 03 | | 10 | 3.18 | 3.9 |
| **12** T3 | | 12 | 3.97 | 3.9 |
| **16** 04 | | 16 | 4.76 | 5.2 |

## Milling inserts




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | | | ○ | ○ | | ○ | ○ | ○ | ○ | | ● | ○ | | |
| M | | | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |
| K | | | | | | | | ○ | ○ | ○ | | | | | | | | | | ○ | | | | |
| N | | | | | | | | | | | ○ | | | | | | | | | | | | ○ | ○ |
| S | | | | | ○ | | ○ | | | | | ○ | ○ | | | ○ | ○ | | ○ | | ○ | | | |
| H | | | | | | | | | | ○ | | | | | | | ○ | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **RDHT1003MO-LH** | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **RDHT12T3MO-LH** | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **RDHT1604MO-LH** | | | | | | | | | | | | | | | | | | | | | | | ● | |

● Ex stock ○ On demand

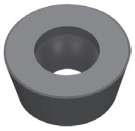
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

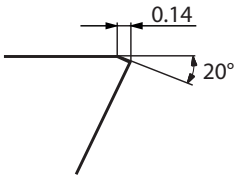
# IMPORTANT INFORMATION

## Cutting edge design **RDKW**

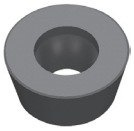
RDKW*MO–1



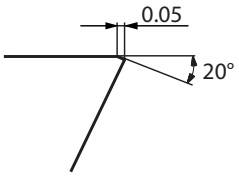
General machining



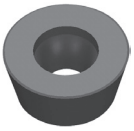

RDKW*MO–2



Soft cutting geometry
(Finishing)




RDKW*MO–3



Roughing

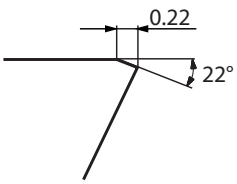


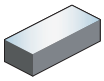



Fig.: **FMR04-052-B22-RD12T3-05C**

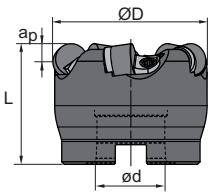
**Notes**

## Face milling

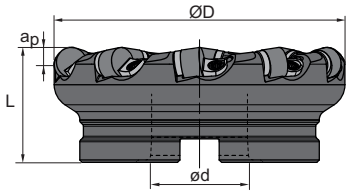
### FMR06







A



B

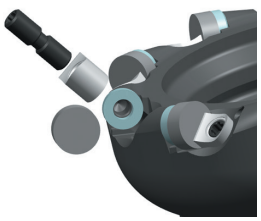
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | $a_{p\,max}$ | | | | |
| **FMR06-050-A22-RN0903-05AC** | ✻ | ○ | | 22 | 50 | 2 | 5 | A | 0.3 | RNGN0903 |
| **FMR06-050-A22-RN0904-05AC** | ✻ | ○ | | 22 | 50 | 2 | 5 | A | 0.3 | RNGN0904 |
| **FMR06-063-A27-RN1204-05AC** | ✻ | ○ | | 27 | 50 | 4 | 5 | A | 0.74 | RNGN1204 |
| **FMR06-080-A27-RN1204-07AC** | ✻ | ○ | | 27 | 50 | 4 | 7 | A | 0.7 | |
| **FMR06-100-B32-RN1204-09AC** | ✻ | ○ | | 32 | 50 | 4 | 9 | B | 1.2 | |
| **FMR06-125-B40-RN1204-11AC** | ✻ | ○ | | 40 | 63 | 4 | 11 | B | 1.9 | |
| **FMR06-063-A27-RN1207-05AC** | ✻ | ○ | | 27 | 50 | 4 | 5 | A | 1.416 | RNGN1207 |
| **FMR06-080-A27-RN1207-06AC** | ✻ | ○ | | 27 | 50 | 4 | 6 | A | 0.7 | |
| **FMR06-100-B32-RN1207-08AC** | ✻ | ○ | | 32 | 50 | 4 | 8 | B | 1.2 | |
| **FMR06-125-B40-RN1207-10AC** | ✻ | ○ | | 40 | 63 | 4 | 10 | B | 1.9 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | RNGN0903 | RNGN0904 | RNGN1204 | RNGN1207 |
|---|---|---|---|---|---|
| | **ØD** | **50-160** | **50-160** | **50-160** | **50-160** |
| | Screw (wedge) | DM6×17.5A (11.4 Nm) | DM6×17.5A (11.4 Nm) | DM6×17.5A (11.4 Nm) | DM6×17.5A (11.4 Nm) |
| | Shim pin (shim) | | | SM5×8.65XA (4.0 Nm) | SM5×8.65XA (4.0 Nm) |
| | Shim pin (shim) | SP3 | SP3 | | |
| | Shim | R09BS | R09BS | R12BS | R12BS |
| | Wedge | W18N | W18N | W18N | W18N |
| | Wrench (wedge) | WT15IT | WT15IT | WT15IT | WT15IT |

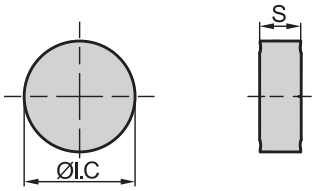


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RNGN | I.C | S |
|---|---|---|
| **09** 03 | 9,525 | 3,18 |
| **12** 04 | 12,40 | 4,76 |
| **12** 07 | 12,70 | 7,94 |




| RN** milling Insert | | | CM | | CC | | CN | | CR | | CS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | |
| | | M | | | | | | | | | | |
| | | K | ○ | | ○ | | ◎ | | | | | |
| | | N | | | | | | | | | | |
| | | S | | | | | | | ◎ | ◎ | ◎ | |
| | | H | ◎ | | ◎ | | | | | | | |
| ISO | | r | CA1000 | | CM1000 | | CN1000 | | CW1400 | CW1800 | CSX1000 | |
| | **RNGN090300 T01525** | | 4,5 | ● | | ● | | | | | | ● |
| | **RNGN120400 T01525** | | 6,0 | ● | | ● | | | | | | ● |
| | **RNGN120700 T01525** | | 6,0 | ● | | ● | | | | | | ● |

● Ex stock ○ On demand

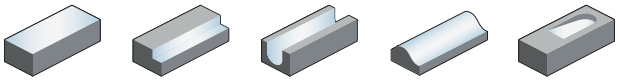
Other cutting edge designs and grades available on demand!

CM Mixed ceramic
CC Mixed ceramic, coated
CN Si3N4 Ceramic
CR Al2O3 cutting ceramic, reinforced
CS Cutting ceramic, SiAlON

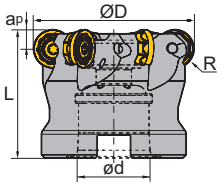

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Face milling

### FMR11








| Article | ✲ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | L | $a_{p\ max}$ | | | | |
| **FMR11-040-A16-RD10-06C** | ✲ | ○ | 5 | 40 | 16 | 40 | 5 | 6 | A | 0.188 | |
| **FMR11-050-A22-RD10-07C** | ✲ | ● | 5 | 50 | 22 | 40 | 5 | 7 | A | 0.3 | |
| **FMR11-052-A22-RD10-07C** | ✲ | ● | 5 | 52 | 22 | 40 | 5 | 7 | A | 0.286 | RD**10T3 |
| **FMR11-063-A22-RD10-08C** | ✲ | ● | 5 | 63 | 22 | 40 | 5 | 8 | A | 0.5 | |
| **FMR11-066-A22-RD10-08C** | ✲ | ● | 5 | 66 | 22 | 40 | 5 | 8 | A | 0.465 | |
| **FMR11-080-A27-RD10-09C** | ✲ | ● | 5 | 80 | 27 | 50 | 5 | 9 | A | 0.825 | |
| **FMR11-040-A16-RD12-04C** | ✲ | ○ | 5 | 40 | 16 | 40 | 5 | 4 | A | 0.19 | |
| **FMR11-040-A16-RD12-05C** | ✲ | ● | 6 | 40 | 16 | 40 | 6 | 5 | A | 0.18 | |
| **FMR11-050-A22-RD12-05C** | ✲ | ● | 6 | 50 | 22 | 40 | 6 | 5 | A | 0.27 | |
| **FMR11-052-A22-RD12-05C** | ✲ | ○ | 6 | 52 | 22 | 40 | 6 | 5 | A | 0.435 | |
| **FMR11-050-A22-RD12-06C** | ✲ | ● | 6 | 50 | 22 | 40 | 6 | 6 | A | 0.27 | |
| **FMR11-052-A22-RD12-06C** | ✲ | ● | 6 | 52 | 22 | 40 | 6 | 6 | A | 0.276 | RD**1204 |
| **FMR11-063-A22-RD12-07C** | ✲ | ○ | 6 | 63 | 22 | 40 | 6 | 7 | A | 0.44 | |
| **FMR11-063-A27-RD12-07C** | ✲ | ● | 6 | 63 | 27 | 40 | 6 | 7 | A | 0.398 | |
| **FMR11-066-A27-RD12-07C** | ✲ | ● | 6 | 66 | 27 | 40 | 6 | 7 | A | 0.405 | |
| **FMR11-080-A27-RD12-08C** | ✲ | ● | 6 | 80 | 27 | 50 | 6 | 8 | A | 1 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

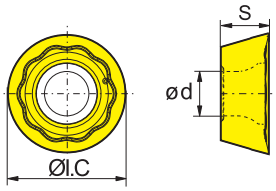
| | Insert | RD**10T3 | RD**1204 |
|---|---|---|---|
| | **ØD** | **20-100** | **20-100** |
|  | Screw (insert) | I60M3.5×8 (2.7 Nm) | I60M4×8.4 (3.4 Nm) |
|  | Wrench (insert) | WT15IP | |
|  | Wrench (insert) | | WT15IS |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RDMT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDMT10T3MO-M | | | | | | | | ● | | | | | | | | ● | | | | ● | | | | | |
| | RDMT1204MO-M | | | | | | | | ● | | | | | | ○ | | ● | | | | ● | | | | | |
|  | RDMT10T3MO-MM | | | | | | | | | | | | | | | | ● | | | | ● | | | | | |
| | RDMT1204MO-MM | | | | | | | | | | | | | | ○ | | ● | | | | ● | | | | | |

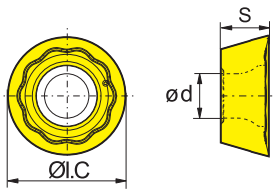
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| RDMW | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDMW10T3MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |
| | RDMW1204MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |

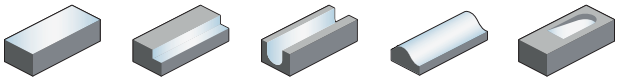
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

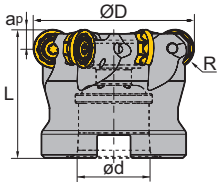

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMR11








| Article | ✲ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | L | $a_{p\ max}$ | | | | |
| **FMR11-040-A16-RP10-06C** | ✲ | ● | 5 | 40 | 16 | 40 | 5 | 6 | A | 0.19 | |
| **FMR11-050-A22-RP10-07C** | ✲ | ● | 5 | 50 | 22 | 40 | 5 | 7 | A | 0.29 | |
| **FMR11-052-A22-RP10-07C** | ✲ | ● | 5 | 52 | 22 | 40 | 5 | 7 | A | 0.295 | RP**10T3 |
| **FMR11-063-A22-RP10-08C** | ✲ | ● | 5 | 63 | 22 | 40 | 5 | 8 | A | 0.48 | |
| **FMR11-066-A22-RP10-08C** | ✲ | ● | 5 | 66 | 22 | 40 | 5 | 8 | A | 0.495 | |
| **FMR11-080-A27-RP10-09C** | ✲ | ● | 5 | 80 | 27 | 50 | 5 | 9 | A | 0.93 | |
| **FMR11-040-A16-RP12-05C** | ✲ | ● | 6 | 40 | 16 | 40 | 6 | 5 | A | 0.16 | |
| **FMR11-050-A22-RP12-06C** | ✲ | ● | 6 | 50 | 22 | 40 | 6 | 6 | A | 0.27 | |
| **FMR11-052-A22-RP12-06C** | ✲ | ● | 6 | 52 | 22 | 40 | 6 | 6 | A | 0.28 | |
| **FMR11-063-A27-RP12-07C** | ✲ | ● | 6 | 63 | 27 | 40 | 6 | 7 | A | 0.4 | RP**1204 |
| **FMR11-066-A27-RP12-07C** | ✲ | ● | 6 | 66 | 27 | 40 | 6 | 7 | A | 0.435 | |
| **FMR11-080-A27-RP12-08C** | ✲ | ● | 6 | 80 | 27 | 50 | 6 | 8 | A | 1 | |
| **FMR11-052-A22-RP16-04C** | ✲ | ○ | 8 | 52 | 22 | 40 | 8 | 4 | A | 0.31 | |
| **FMR11-063-A27-RP16-06C** | ✲ | ○ | 8 | 63 | 27 | 40 | 8 | 7 | A | 0.45 | RP**1605 |
| **FMR11-080-A27-RP16-07C** | ✲ | ○ | 8 | 80 | 27 | 50 | 8 | 7 | A | 0.99 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | **Insert** | **RP**10T3** | **RP**1204** | **RP**1605** |
|---|---|---|---|---|
| | **ØD** | **20-100** | **20-150** | **50-250** |
|  | Screw (insert) | I60M3.5×8 (2.7 Nm) | I60M4×8.4 (3.4 Nm) | I60M5×13 (6.7 Nm) |
|  | Wrench (insert) | WT15IP | | |
|  | Wrench (insert) | | WT15IS | |
|  | Wrench (insert) | | | WT20IT |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

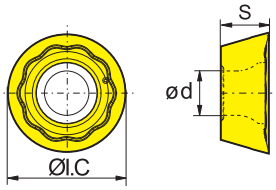
# Indexable milling Face milling

## Milling inserts

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

| RPMT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |
| **16** 05 | 16 | 5.57 | 5.5 |

| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | ● | ● | ● | ● | | |
| | M | | ◐ | ◐ | ◐ | ◐ | ◐ | | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ● | ● | ● | | | |
| | K | | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | ● | | | | | |
| | N | | | | | | | | | | ◐ | | | | | | | | | | | | | ◐ | ◐ |
| | S | | | | ◐ | | ◐ | | | | | ● | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | | |
| | H | | | | | | | | | ○ | | | | | | | ◐ | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPMT10T3MO-M | | | | | | | | ● | | | | | | | | | ● | | | ● | | | | |
| | RPMT1204MO-M | | | | | | | | ● | | | | | | | | | ● | | | ● | | | | |
| | RPMT1605MO-M | | | | | | | | | | | | | | | | | ○ | | | | | | | |
|  | RPMT10T3MO-MM | | | | | | | | | | | | | | | | | ● | | | ○ | | | | |
| | RPMT1204MO-MM | | | | | | | | | | | | | | | | | ● | | | ○ | | | | |
| | RPMT1605MO-MM | | | | | | | | | | | | | | | ○ | | | | | ○ | | | | |




● Ex stock ○ On demand

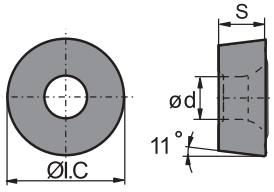
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| RPMW | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |

| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | ● | ● | ● | ● | | |
| | M | | ◐ | ◐ | ◐ | ◐ | ◐ | | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ● | ● | ● | | | |
| | K | | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | ● | | | | | |
| | N | | | | | | | | | | ◐ | | | | | | | | | | | | | ◐ | ◐ |
| | S | | | | ◐ | | ◐ | | | | | ● | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | | |
| | H | | | | | | | | | ○ | | | | | | | ◐ | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPMW10T3MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | |
| | RPMW1204MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | |




● Ex stock ○ On demand

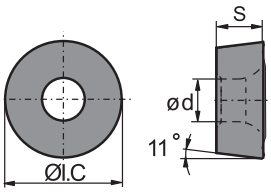
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RPKT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |

| RP** milling insert | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **RPKT10T3MO-MM** | | | | | | | | | | | | | | | | | | | | ○ | | | | | |
| | **RPKT1204MO-MM** | | | | | | | | | | | | | | | | | | | | ○ | | | | | |

● Ex stock ○ On demand

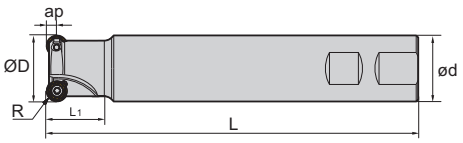
HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Face milling

### FMR11






| Article | ✲ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | $a_{p\,max}$ | | | |
| **FMR11-032-XP32-RD10-03C** | ✲ | ○ | 32 | 32 | 120 | 5 | 3 | 0.64 | RD**10T3 |
| **FMR11-040-XP32-RD10-04C** | ✲ | ○ | 40 | 32 | 120 | 5 | 4 | 0.7 | |
| **FMR11-032-XP32-RD12-03C** | ✲ | ○ | 32 | 32 | 120 | 6 | 3 | 0.64 | RD**1204 |
| **FMR11-040-XP32-RD12-04C** | ✲ | ○ | 40 | 32 | 120 | 6 | 4 | 0.69 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

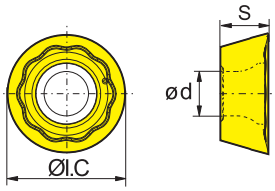
| | **Insert** | **RD**10T3** | **RD**1204** |
|---|---|---|---|
| | **ØD** | **20-78** | **20-78** |
| | Screw (insert) | I60M3.5×8 (2.7 Nm) | I60M3.5×8 (2.7 Nm) |
| | Wrench (insert) | WT15IP | WT15IP |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RDMT | l.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDMT10T3MO-M | | | | | | | | ● | | | | | | | | | ● | | | ● | | | | | |
| | RDMT1204MO-M | | | | | | | | ● | | | | | | | ○ | | ● | | | ● | | | | | |
|  | RDMT10T3MO-MM | | | | | | | | | | | | | | | | | ● | | | ● | | | | | |
| | RDMT1204MO-MM | | | | | | | | | | | | | | | ○ | | ● | | | ● | | | | | |

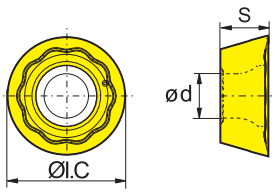
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RDMW | l.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDMW10T3MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |
| | RDMW1204MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |

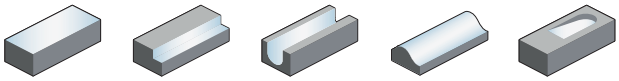
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

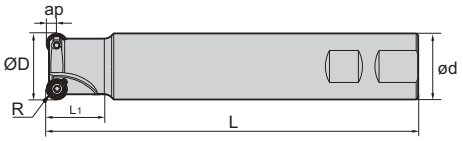
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Face milling

### FMR11








| Article | ✲ | Stock | Dimensions [mm] | | | | Teeth | Inserts |
|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | $a_{p\,max}$ | | |
| **FMR11-032-XP32-RP10-03C** | ✲ | ○ | 32 | 32 | 120 | 5 | 3 | RP**10T3 |
| **FMR11-040-XP32-RP10-04C** | ✲ | ○ | 40 | 32 | 120 | 5 | 4 | |
| **FMR11-032-XP32-RP12-03C** | ✲ | ○ | 32 | 32 | 120 | 6 | 3 | RP**1204 |
| **FMR11-040-XP32-RP12-04C** | ✲ | ○ | 40 | 32 | 120 | 6 | 4 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

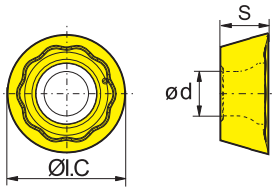
| | **Insert** | **RP**10T3** | **RP**1204** |
|---|---|---|---|
| | **ØD** | **20-78** | **20-78** |
| | Screw (insert) | I60M3.5×8 (2.7 Nm) | I60M3.5×8 (2.7 Nm) |
| | Wrench (insert) | WT15IP | WT15IP |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RPMT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |

| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPMT10T3MO-M | | | | | | | | ● | | | | | | | | | ● | | | ● | | | | | |
| | RPMT1204MO-M | | | | | | | | ● | | | | | | | | | ● | | | ● | | | | | |
|  | RPMT10T3MO-MM | | | | | | | | | | | | | | | | | ● | | | ○ | | | | | |
| | RPMT1204MO-MM | | | | | | | | | | | | | | | | | ● | | | ○ | | | | | |

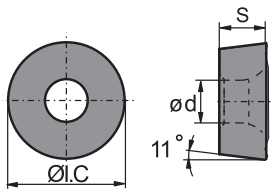
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RPMW | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |

| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPMW10T3MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |
| | RPMW1204MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

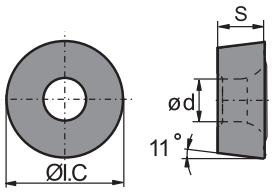
A Turning
B Milling
C Drilling
D Technical Information
E Index

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RPKT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | | ● | ● | ● | | | | | | | | | | ● | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | | |
| | H | | | | | | | | | | ○ | | | | | | ● | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPKT10T3MO-MM | | | | | | | | | | | | | | | | | | | | ○ | | | | | |
| | RPKT1204MO-MM | | | | | | | | | | | | | | | | | | | | ○ | | | | | |

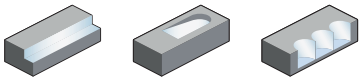
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

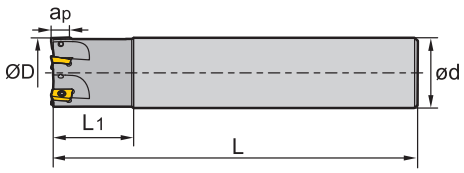

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Square shoulder milling

**EMP01** Kr: 90°








Straight shank

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | $L_1$ | L | $a_{p\,max}$ | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| **EMP01-010-G10-AP07-02C** | ✻ | ○ | 10 | 10 | 20 | 70 | 6.4 | 2 | | APKT0702 |
| **EMP01-012-G12-AP07-02C** | ✻ | ● | 12 | 12 | 25 | 75 | 6.4 | 2 | 0.31 | |
| **EMP01-014-G16-AP07-03C** | ✻ | ● | 14 | 16 | 25 | 85 | 6.4 | 3 | 0.61 | |
| **EMP01-016-G16-AP07-04C** | ✻ | ● | 16 | 16 | 30 | 90 | 6.4 | 4 | 0.75 | |
| **EMP01-012-G16-AP11-01** | | ● | 12 | 16 | 25 | 85 | 10.5 | 1 | 0.1 | APKT11T3 |
| **EMP01-016-G16-AP11-02** | | ● | 16 | 16 | 25 | 90 | 10.5 | 2 | 0.1 | |
| **EMP01-016-G16-AP11-02C** | ✻ | ○ | 16 | 16 | 25 | 90 | 10.5 | 2 | 0.1 | |
| **EMP01-018-G25-AP11-02** | | ○ | 18 | 25 | 35 | 115 | 10.5 | 2 | | |
| **EMP01-020-G20-AP11-02** | | ● | 20 | 20 | 30 | 100 | 10.5 | 2 | 0.2 | |
| **EMP01-020-G20-AP11-02C** | ✻ | ● | 20 | 20 | 30 | 100 | 10.5 | 2 | 0.2 | |
| **EMP01-020-G20-AP11-03** | | ○ | 20 | 20 | 30 | 100 | 10.5 | 3 | 0.2 | |
| **EMP01-020-G20-AP11-03C** | ✻ | ● | 20 | 20 | 30 | 100 | 10.5 | 3 | 0.2 | |
| **EMP01-025-G25-AP11-03** | | ● | 25 | 25 | 35 | 115 | 10.5 | 3 | 0.4 | |
| **EMP01-025-G25-AP11-03C** | ✻ | ○ | 25 | 25 | 35 | 115 | 10.5 | 3 | 0.4 | |
| **EMP01-025-G25-AP11-04** | | ● | 25 | 25 | 35 | 115 | 10.5 | 4 | 0.4 | |
| **EMP01-025-G25-AP11-04C** | ✻ | ● | 25 | 25 | 35 | 115 | 10.5 | 4 | 0.4 | |
| **EMP01-032-G32-AP11-04** | | ● | 32 | 32 | 40 | 125 | 10.5 | 4 | 0.7 | |
| **EMP01-025-G25-AP16-02** | | ● | 25 | 25 | 35 | 115 | 15.5 | 2 | 0.4 | APKT1604 |
| **EMP01-025-G25-AP16-02C** | ✻ | ● | 25 | 25 | 35 | 115 | 15.5 | 2 | 0.4 | |
| **EMP01-032-G32-AP16-03** | | ● | 32 | 32 | 40 | 125 | 15.5 | 3 | 0.7 | |
| **EMP01-032-G32-AP16-03C** | ✻ | ● | 32 | 32 | 40 | 125 | 15.5 | 3 | 0.7 | |
| **EMP01-040-G32-AP16-03** | | ● | 40 | 32 | 42 | 130 | 15.5 | 3 | 0.7 | |
| **EMP01-040-G32-AP16-03C** | ✻ | ● | 40 | 32 | 42 | 130 | 15.5 | 3 | 0.7 | |
| **EMP01-040-G32-AP16-04** | | ○ | 40 | 32 | 42 | 130 | 15.5 | 4 | 0.8 | |
| **EMP01-040-G32-AP16-04C** | ✻ | ○ | 40 | 32 | 42 | 130 | 15.5 | 4 | 0.8 | |
| **EMP01-050-G32-AP16-05** | | ● | 50 | 32 | 45 | 135 | 15.5 | 5 | 1 | |
| **EMP01-063-G32-AP16-06** | | ● | 63 | 32 | 45 | 135 | 15.5 | 6 | 1.4 | |

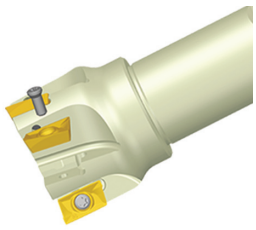
● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

| | Insert | APKT0702 | APKT11T3 | APKT1604 |
|---|---|---|---|---|
| | ØD | 10-25 | 12-32 | 25-63 |
| | Screw (insert) | I60M1.8×4 (0.5 Nm) | | I60M4×8.4 (3.4 Nm) |
| | Screw (insert) | | I60M2.5×6.5T (1.0 Nm) | |
| | Wrench (insert) | WT05IP | WT08IP | |
| | Wrench (insert) | | | WT15S |

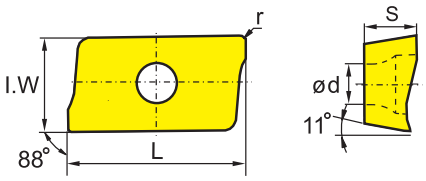


| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |

## Milling inserts

● Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

AP** milling insert




| | ISO | r | I.W | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **APKT11T304-ALH** | 0.4 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
|  | **APKT11T308-ALH** | 0.8 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | **APKT160404-ALH** | 0.4 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **APKT160408-ALH** | 0.8 | 9.33 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ○ |
| | **APKT11T304-APF** | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
|  | **APKT11T308-APF** | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | **APKT160408-APF** | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | ● | ● | ○ | ○ | | | | | |
| | **APKT11T304-APL** | 0.4 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
|  | **APKT11T308-APL** | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | **APKT160408-APL** | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | **APKT160420-APL** | 2 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ● | | | | | |

● Ex stock ○ On demand

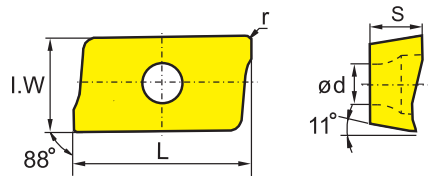
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |




| | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | | ○ | ○ | | | |
| M | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ○ | ○ | | | |
| K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ◉ | | | | | |
| N | | | | | | | | | | ◉ | | | | | | | | | | | | | ◉ | ◉ |
| S | | | | ◉ | | ◉ | | | | | ○ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | | |
| H | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | | |

| | ISO | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | APKT070204-APM | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APM | 0.4 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APM | 0.8 | 6.5 | | | | ● | | | ● | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT11T312-APM | 1.2 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T316-APM | 1.6 | 6.5 | | | | ● | | | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT11T320-APM | 2 | 6.5 | | | | ● | | | ● | | | | | | | | | | ● | ● | | | | | | | |
| | APKT160408-APM | 0.8 | 9.33 | | | | ● | | | ● | ● | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160416-APM | 1.6 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160420-APM | 2 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160424-APM | 2.4 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160430-APM | 3 | 9.33 | | | ○ | ● | | | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-LH | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-LH | 0.8 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
| | APKT160408-LH | 0.8 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-NM | 0.8 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T312-NM | 1.2 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T304-PF | 0.4 | 6.5 | | ○ | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T316-PF | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT160408-PF | 0.8 | 9.33 | | | | | | ○ | | | | | | | | | | | | | | | | | | | |
| | APKT160430-PF | 3 | 9.33 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | APKT11T304-PM | 0.4 | 6.5 | ○ | ○ | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T308-PM | 0.8 | 6.5 | ○ | | | ○ | | ● | ○ | ○ | | | | ○ | ○ | | | ○ | | | ○ | | | | | | |
| | APKT11T312-PM | 1.2 | 6.5 | | | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| | APKT11T316-PM | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT160408-PM | 0.8 | 9.33 | ○ | ○ | ○ | ● | | ● | ○ | ○ | | | | ○ | ○ | ○ | | ○ | | | ● | | | | | | |
| | APKT160416-PM | 1.6 | 9.33 | ○ | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT11T304-PR | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | APKT11T316-PR | 1.6 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | APKT11T3-XR | | 6.5 | | | | | | | | ● | | | | | | | | | | ● | ● | | | | | | |

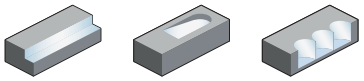
● Ex stock ○ On demand

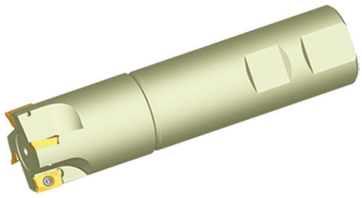
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

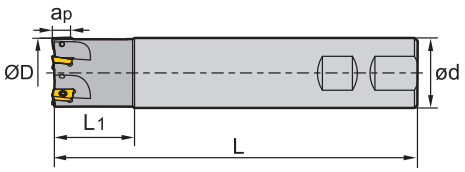
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP01** Kr: 90°








Weldon shank

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | $L_1$ | L | $a_{p\,max}$ | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| EMP01-020-XP20-AP07-05C | ✻ | ● | 20 | 20 | 30 | 100 | 6.4 | 5 | 0.31 | APKT0702 |
| EMP01-025-XP25-AP07-07C | ✻ | ● | 25 | 25 | 35 | 115 | 6.4 | 7 | 0.61 | |
| EMP01-012-XP16-AP11-01 | | ● | 12 | 16 | 25 | 85 | 10.5 | 1 | 0.1 | APKT11T3 |
| EMP01-012-XP16-AP11-01C | ✻ | ○ | 12 | 16 | 25 | 85 | 10.5 | 1 | 0.1 | |
| EMP01-016-XP16-AP11-02 | | ● | 16 | 16 | 25 | 90 | 10.5 | 2 | 0.1 | |
| EMP01-016-XP16-AP11-02C | ✻ | ○ | 16 | 16 | 25 | 90 | 10.5 | 2 | 0.1 | |
| EMP01-020-XP20-AP11-02 | | ● | 20 | 20 | 30 | 100 | 10.5 | 2 | 0.2 | |
| EMP01-020-XP20-AP11-02C | ✻ | ○ | 20 | 20 | 30 | 100 | 10.5 | 2 | 0.2 | |
| EMP01-020-XP20-AP11-03C-L1-25-L-90 | ✻ | ○ | 20 | 20 | 25 | 90 | 10.5 | 3 | | |
| EMP01-020-XP20-AP11-03 | | ● | 20 | 20 | 30 | 100 | 10.5 | 3 | 0.2 | |
| EMP01-020-XP20-AP11-03C | ✻ | ● | 20 | 20 | 30 | 100 | 10.5 | 3 | 0.2 | |
| EMP01-025-XP25-AP11-03 | | ● | 25 | 25 | 35 | 115 | 10.5 | 3 | 0.4 | |
| EMP01-025-XP25-AP11-03C | ✻ | ● | 25 | 25 | 35 | 115 | 10.5 | 3 | 0.4 | |
| EMP01-025-XP25-AP11-04 | | ● | 25 | 25 | 35 | 115 | 10.5 | 4 | 0.4 | |
| EMP01-025-XP25-AP11-04C | ✻ | ○ | 25 | 25 | 35 | 115 | 10.5 | 4 | 0.4 | |
| EMP01-032-XP32-AP11-04 | | ● | 32 | 32 | 40 | 125 | 10.5 | 4 | 0.7 | |
| EMP01-032-XP32-AP11-04C | ✻ | ○ | 32 | 32 | 40 | 125 | 10.5 | 4 | 0.7 | |
| EMP01-025-XP25-AP16-02 | | ● | 25 | 25 | 35 | 115 | 15.5 | 2 | 0.4 | APKT1604 |
| EMP01-025-XP25-AP16-02C | ✻ | ○ | 25 | 25 | 35 | 115 | 15.5 | 2 | 0.4 | |
| EMP01-032-XP32-AP16-03 | | ● | 32 | 32 | 40 | 125 | 15.5 | 3 | 0.7 | |
| EMP01-032-XP32-AP16-03C | ✻ | ○ | 32 | 32 | 40 | 125 | 15.5 | 3 | 0.7 | |
| EMP01-040-XP32-AP16-04 | | ● | 40 | 32 | 42 | 130 | 15.5 | 4 | 0.8 | |
| EMP01-040-XP32-AP16-04C | ✻ | ○ | 40 | 32 | 42 | 130 | 15.5 | 4 | 0.8 | |
| EMP01-050-XP32-AP16-05 | | ● | 50 | 32 | 45 | 135 | 15.5 | 5 | 1 | |
| EMP01-063-XP32-AP16-06 | | ○ | 63 | 32 | 45 | 135 | 15.5 | 6 | 1.4 | |

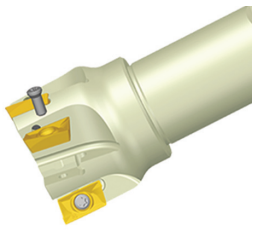
● Ex stock ○ On demand

✻ With internal cooling

System code B32 Grade selection B31 Technical info B617 Cutting data B312

Spare parts

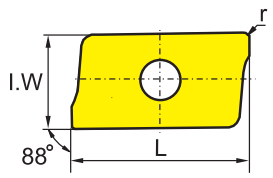
| | Insert | APKT0702 | APKT11T3 | APKT1604 |
|---|---|---|---|---|
| | ØD | 12-25 | 12-32 | 25-63 |
| | Screw (insert) | I60M1.8×4 (0.5 Nm) | | I60M4×8.4 (3.4 Nm) |
| | Screw (insert) | | I60M2.5×6.5T (1.0 Nm) | |
| | Wrench (insert) | WT05IP | WT08IP | |
| | Wrench (insert) | | | WT15S |



| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions




| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| | ISO | | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **APKT11T304-ALH** | | 0.4 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | ● | ● |
| | **APKT11T308-ALH** | | 0.8 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | ● | ● |
| | **APKT160404-ALH** | | 0.4 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **APKT160408-ALH** | | 0.8 | 9.33 | | | | | | | | | | | ● | | | | | | | | | | | | ● | ○ |
|  | **APKT11T304-APF** | | 0.4 | 6.5 | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **APKT11T308-APF** | | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | ● | ● | | ○ | | | | |
| | **APKT160408-APF** | | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | ● | ● | ○ | ○ | | | | |
|  | **APKT11T304-APL** | | 0.4 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | |
| | **APKT11T308-APL** | | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | |
| | **APKT160408-APL** | | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | |
| | **APKT160420-APL** | | 2 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ● | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

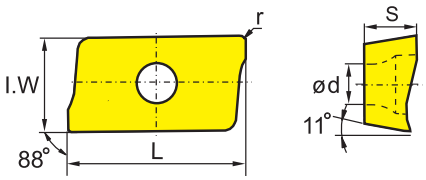
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |

AP** milling insert




| | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ISO | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| P | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | | | | | ● | | | ● | ● | ● | | |
| M | | | | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| K | | | | | | | | | | ● | ● | ● | | | | | | | | | | | | ● | | | | |
| N | | | | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| S | | | | | | | ● | | ● | | | | | ● | ● | | | ● | ● | | ● | | ● | | | | | |
| H | | | | | | | | | | | | | ○ | | | | | | | ● | | | | | | | | |
| | APKT070204-APM | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APM | 0.4 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APM | 0.8 | 6.5 | | | | ● | | | ● | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT11T312-APM | 1.2 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T316-APM | 1.6 | 6.5 | | | | ● | | | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT11T320-APM | 2 | 6.5 | | | | ● | | | ● | | | | | | | | | | ● | ● | | | | | | | |
| | APKT160408-APM | 0.8 | 9.33 | | | | ● | | | ● | ● | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160416-APM | 1.6 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160420-APM | 2 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160424-APM | 2.4 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160430-APM | 3 | 9.33 | | | ○ | ● | | | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-LH | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-LH | 0.8 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
| | APKT160408-LH | 0.8 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-NM | 0.8 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T312-NM | 1.2 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T304-PF | 0.4 | 6.5 | | ○ | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T316-PF | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT160408-PF | 0.8 | 9.33 | | | | | | ○ | | | | | | | | | | | | | | | | | | | |
| | APKT160430-PF | 3 | 9.33 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | APKT11T304-PM | 0.4 | 6.5 | ○ | ○ | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T308-PM | 0.8 | 6.5 | ○ | | | ○ | | ● | ○ | ○ | | | | ○ | ○ | | | ○ | | | ○ | | | | | | |
| | APKT11T312-PM | 1.2 | 6.5 | | | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| | APKT11T316-PM | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT160408-PM | 0.8 | 9.33 | ○ | ○ | ○ | ● | | ● | ○ | ○ | | | | ○ | ○ | ○ | | ○ | | | ● | | | | | | |
| | APKT160416-PM | 1.6 | 9.33 | ○ | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT11T304-PR | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | APKT11T316-PR | 1.6 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | APKT11T3-XR | | 6.5 | | | | | | | | ● | | | | | | | | | | ● | ● | | | | | | |

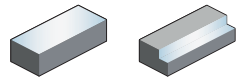
● Ex stock ○ On demand

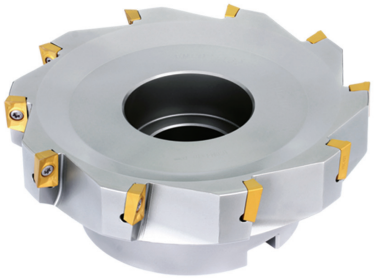
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

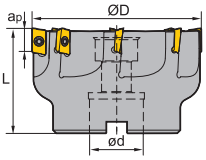

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Square shoulder milling

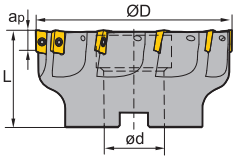
### EMP02 Kr: 90°



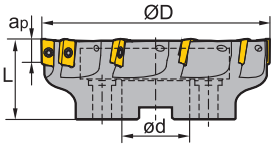




A



B



C

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| EMP02-032-A16-AP07-08C | ✻ | ● | 32 | 16 | 35 | 6.4 | 8 | A | 0.34 | |
| EMP02-040-A16-AP07-10C | ✻ | ● | 40 | 16 | 40 | 6.4 | 10 | A | 0.4 | APKT0702 |
| EMP02-050-A22-AP07-12C | ✻ | ● | 50 | 22 | 40 | 6.4 | 12 | A | 0.6 | |
| EMP02-040-A16-AP11-04C | ✻ | ● | 40 | 16 | 40 | 11 | 4 | A | 0.237 | |
| EMP02-040-A16-AP11-05C | ✻ | ● | 40 | 16 | 40 | 11 | 5 | A | 0.177 | |
| EMP02-040-A16-AP11-06C | ✻ | ● | 40 | 16 | 40 | 11 | 6 | A | 0.234 | |
| EMP02-050-A22-AP11-06 | | ● | 50 | 22 | 40 | 11 | 6 | A | 0.3 | |
| EMP02-050-A22-AP11-06C | ✻ | ● | 50 | 22 | 40 | 11 | 6 | A | 0.3 | |
| EMP02-050-A22-AP11-07C | ✻ | ● | 50 | 22 | 40 | 11 | 7 | A | 0.39 | |
| EMP02-063-A22-AP11-08 | | ● | 63 | 22 | 40 | 11 | 8 | A | 0.6 | |
| EMP02-063-A22-AP11-08C | ✻ | ● | 63 | 22 | 40 | 11 | 8 | A | 0.6 | APKT11T3 |
| EMP02-063-A22-AP11-09C | ✻ | ● | 63 | 22 | 40 | 11 | 9 | A | 0.54 | |
| EMP02-080-A27-AP11-08 | | ● | 80 | 27 | 50 | 11 | 8 | A | 1.2 | |
| EMP02-080-A27-AP11-08C | ✻ | ● | 80 | 27 | 50 | 11 | 8 | A | 1.2 | |
| EMP02-080-A27-AP11-10C | ✻ | ● | 80 | 27 | 50 | 11 | 10 | A | 1.13 | |
| EMP02-100-B32-AP11-10 | | ● | 100 | 32 | 50 | 11 | 10 | B | 1.7 | |
| EMP02-100-B32-AP11-10C | ✻ | ○ | 100 | 32 | 50 | 11 | 10 | B | 1.7 | |
| EMP02-125-B40-AP11-10 | | ○ | 125 | 40 | 63 | 11 | 10 | B | 3.42 | |
| EMP02-040-A16-AP16-03 | | ○ | 40 | 16 | 40 | 15.5 | 3 | A | 0.17 | |
| EMP02-040-A16-AP16-04C | ✻ | ● | 40 | 16 | 40 | 15.5 | 4 | A | 0.17 | |
| EMP02-050-A22-AP16-05 | | ● | 50 | 22 | 40 | 15.5 | 5 | A | 0.3 | |
| EMP02-050-A22-AP16-05C | ✻ | ● | 50 | 22 | 40 | 15.5 | 5 | A | 0.3 | |
| EMP02-063-A22-AP16-06 | | ● | 63 | 22 | 40 | 15.5 | 6 | A | 0.5 | |
| EMP02-063-A22-AP16-06C | ✻ | ● | 63 | 22 | 40 | 15.5 | 6 | A | 0.5 | APKT1604 |
| EMP02-080-A27-AP16-06C | ✻ | ○ | 80 | 27 | 50 | 15.5 | 6 | A | 1.08 | |
| EMP02-080-A27-AP16-07 | | ● | 80 | 27 | 50 | 15.5 | 7 | A | 1.1 | |
| EMP02-080-A27-AP16-07C | ✻ | ● | 80 | 27 | 50 | 15.5 | 7 | A | 1.1 | |
| EMP02-100-B32-AP16-08 | | ● | 100 | 32 | 50 | 15.5 | 8 | B | 1.6 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

# Indexable milling

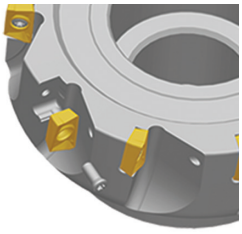
| Article | ✻ | Stock | Dimensions [mm] ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| **EMP02-100-B32-AP16-08C** | ✻ | ● | 100 | 32 | 50 | 15.5 | 8 | B | 1.6 | APKT1604 |
| **EMP02-125-B40-AP16-06C** | ✻ | ○ | 125 | 40 | 63 | 15.5 | 6 | B | 3.18 | |
| **EMP02-125-B40-AP16-10** | | ○ | 125 | 40 | 63 | 15.5 | 10 | B | 3.2 | |
| **EMP02-125-B40-AP16-10C** | ✻ | ○ | 125 | 40 | 63 | 15.5 | 10 | B | 3.2 | |
| **EMP02-160-B40-AP16-07C** | ✻ | ○ | 160 | 40 | 63 | 15.5 | 7 | B | 4.3 | |
| **EMP02-160-B40-AP16-10** | | ○ | 160 | 40 | 63 | 15.5 | 10 | B | 6.3 | |
| **EMP02-160-B40-AP16-10C** | ✻ | ○ | 160 | 40 | 63 | 15.5 | 10 | B | 6.3 | |
| **EMP02-200-C60-AP16-12** | | ○ | 200 | 60 | 63 | 15.5 | 12 | C | 8.1 | |
| **EMP02-250-C60-AP16-12** | | ○ | 250 | 60 | 63 | 15.5 | 12 | C | 11.2 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **APKT11T3** | **APKT1604** | **APKT1604** |
|---|---|---|---|---|
| | **ØD** | **40-125** | **40-160** | **160-250** |
| | Cassette | | | Locator-APKT16 |
| | Screw (insert) | | l60M4×10 (3.4 Nm) | l60M4×10 (3.4 Nm) |
| | Screw (insert) | l60M2.5×6.5T (1.0 Nm) | | |
| | Wrench (insert) | WT08IS | WT15IS | WT15IS |

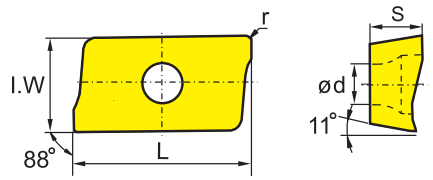


System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |




| | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | | ○ | ○ | | | |
| M | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ○ | ○ | | | |
| K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ◉ | | | | | |
| N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ | |
| S | | | | ◉ | | ◉ | | | | | ○ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | | |
| H | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | | |

| ISO | | r | l.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | APKT11T304-ALH | 0.4 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | APKT11T308-ALH | 0.8 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | APKT160404-ALH | 0.4 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | APKT160408-ALH | 0.8 | 9.33 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ○ |
|  | APKT070204-APF | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APF | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APF | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160408-APF | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | ● | ● | ○ | ○ | | | | | |
|  | APKT11T304-APL | 0.4 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT11T308-APL | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT160408-APL | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT160420-APL | 2 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ● | | | | | |
|  | APKT070204-APM | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APM | 0.4 | 6.5 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APM | 0.8 | 6.5 | | | | ● | | ● | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT11T312-APM | 1.2 | 6.5 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T316-APM | 1.6 | 6.5 | | | | ● | | | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT11T320-APM | 2 | 6.5 | | | | ● | | ● | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT160408-APM | 0.8 | 9.33 | | | | ● | | ● | | ● | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160416-APM | 1.6 | 9.33 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT160420-APM | 2 | 9.33 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT160424-APM | 2.4 | 9.33 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT160430-APM | 3 | 9.33 | | | ○ | ● | | | | | | | | | | | | | | ● | | | | | | | |
|  | APKT11T304-LH | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-LH | 0.8 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
| | APKT160408-LH | 0.8 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
|  | APKT11T308-NM | 0.8 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T312-NM | 1.2 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | APKT11T304-PF | 0.4 | 6.5 | | ○ | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T316-PF | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT160408-PF | 0.8 | 9.33 | | | | | | ○ | | | | | | | | | | | | | | | | | | | |
| | APKT160430-PF | 3 | 9.33 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

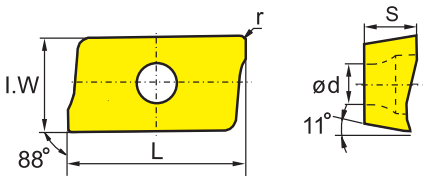
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |




| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ISO | r | l.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **APKT11T304-PM** | 0.4 | 6.5 | ○ | ○ | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | **APKT11T308-PM** | 0.8 | 6.5 | ○ | | | ○ | | ● | ○ | ○ | | | | ○ | ○ | | | ○ | | | ○ | | | | | | |
| | **APKT11T312-PM** | 1.2 | 6.5 | | | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| | **APKT11T316-PM** | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | **APKT160408-PM** | 0.8 | 9.33 | ○ | ○ | ○ | ● | | ● | ○ | ○ | | | | ○ | ○ | ○ | | ○ | | | ● | | | | | | |
| | **APKT160416-PM** | 1.6 | 9.33 | ○ | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | **APKT11T304-PR** | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | **APKT11T316-PR** | 1.6 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **APKT0702-XR** | | 6.91 | | | | | | | | | | | | | | | | | ● | ● | | | | | | | |
| | **APKT11T3-XR** | | 6.5 | | | | | | | | ● | | | | | | | | | ● | ● | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

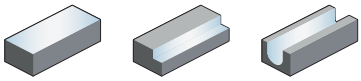
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

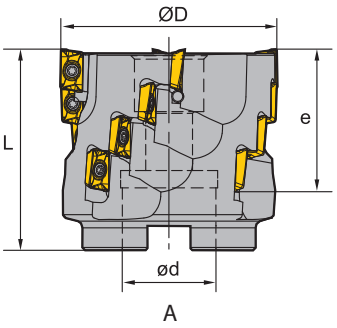

System code B32 Grade selection B31 Technical info B617 Cutting data B312

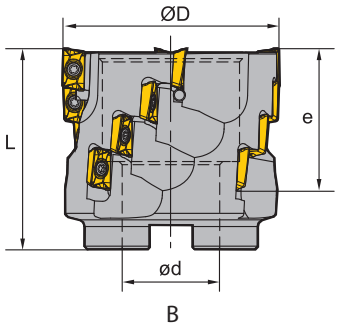
## Square shoulder milling

### EMP03 Kr: 90°







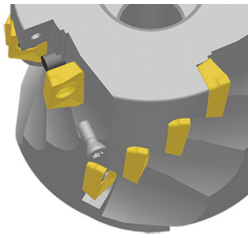

| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | Coupling | No. of inserts | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | ød | L | | | | | |
| **EMP03-050-A22-AP11-04** | | ● | 50 | 39 | 22 | 58 | 4 | A | 16 | 0.5 | APKT11T3 |
| **EMP03-050-A22-AP11-04C** | ✻ | ○ | 50 | 39 | 22 | 58 | 4 | A | 16 | 0.5 | |
| **EMP03-063-A27-AP11-04** | | ● | 63 | 39 | 27 | 58 | 4 | A | 16 | 0.9 | |
| **EMP03-063-A27-AP11-04C** | ✻ | ○ | 63 | 39 | 27 | 58 | 4 | A | 16 | 0.9 | |
| **EMP03-080-B32-AP11-05** | | ● | 80 | 39 | 32 | 63 | 5 | B | 20 | 1.3 | |
| **EMP03-080-B32-AP11-05C** | ✻ | ○ | 80 | 39 | 32 | 63 | 5 | B | 20 | 1.3 | |
| **EMP03-100-B40-AP11-06** | | ● | 100 | 39 | 40 | 63 | 6 | B | 24 | 2 | |
| **EMP03-100-B40-AP11-06C** | ✻ | ○ | 100 | 39 | 40 | 63 | 6 | B | 24 | 2 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **APKT11T3** |
|---|---|---|
| | **ØD** | **50-100** |
|  | Screw (insert) | l60M2.5×6.5T (1.0 Nm) |
|  | Wrench (insert) | WT08IS |

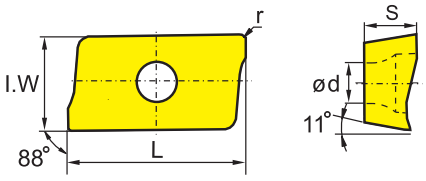


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **11** T3 | 12.24 | 3.6 | 2.8 |




| AP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | APKT11T304-ALH | 0.4 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | APKT11T308-ALH | 0.8 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | APKT11T304-APF | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APF | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT11T304-APL | 0.4 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT11T308-APL | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT11T304-APM | 0.4 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APM | 0.8 | 6.5 | | | | ● | | | ● | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT11T312-APM | 1.2 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T316-APM | 1.6 | 6.5 | | | | ● | | | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT11T320-APM | 2 | 6.5 | | | | ● | | | ● | | | | | | | | | | ● | ● | | | | | | | |
| | APKT11T304-LH | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-LH | 0.8 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
| | APKT11T308-NM | 0.8 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T312-NM | 1.2 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T304-PF | 0.4 | 6.5 | | ○ | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T316-PF | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT11T304-PM | 0.4 | 6.5 | ○ | ○ | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T308-PM | 0.8 | 6.5 | ○ | | | ○ | | ● | ○ | ○ | | | | ○ | ○ | | | ○ | | | ○ | | | | | | |
| | APKT11T312-PM | 1.2 | 6.5 | | | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| | APKT11T316-PM | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT11T304-PR | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | APKT11T316-PR | 1.6 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | APKT11T3-XR | | 6.5 | | | | | | | | ● | | | | | | | | | ● | ● | | | | | | | |

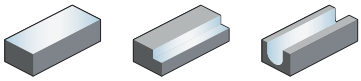
● Ex stock ○ On demand

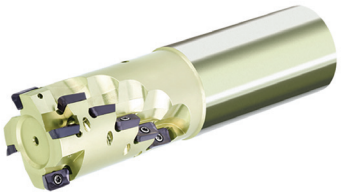
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

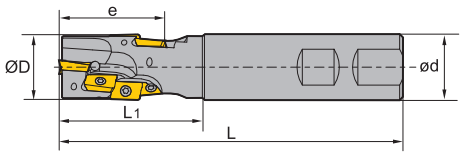

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Square shoulder milling

**EMP04** Kr: 90°








Weldon shank

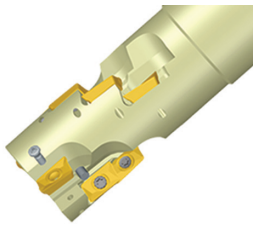
| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | No. of inserts | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | ød | $L_1$ | L | | | | |
| **EMP04-020-XP20-AP11-01** | | ● | 20 | 29.4 | 20 | 45 | 120 | 1 | 3 | 0.3 | APKT11T3 |
| **EMP04-025-XP25-AP11-02** | | ● | 25 | 38.9 | 25 | 55 | 130 | 2 | 8 | 0.4 | |
| **EMP04-032-XP32-AP11-02** | | ● | 32 | 48.5 | 32 | 65 | 140 | 2 | 10 | 0.7 | |
| **EMP04-040-XP40-AP11-02** | | ● | 40 | 58 | 40 | 75 | 150 | 2 | 14 | 1.3 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **APKT11T3** |
|---|---|---|
| | **ØD** | **20-40** |
|  | Screw (insert) | l60M2.5×6.5T (1.0 Nm) |
|  | Wrench (insert) | WT08IS |



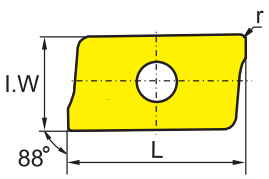
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

# Indexable milling Square shoulder milling

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **11** T3 | 12.24 | 3.6 | 2.8 |




| AP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | ◐ | ◐ | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | ○ | ○ | | |
| M | | | ◐ | ◐ | ◐ | ◐ | ◐ | | | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ○ | ○ | | |
| K | | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | ○ | | | | |
| N | | | | | | | | | | ◐ | | | | | | | | | | | | ◐ | ◐ |
| S | | | | | ◐ | | ◐ | | | | ○ | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | |
| H | | | | | | | | | | ○ | | | | | | ◐ | | | | | | | |
| ISO | r | l.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| APKT11T304-ALH | 0.4 | 6.5 | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| APKT11T308-ALH | 0.8 | 6.5 | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| APKT11T304-APF | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| APKT11T308-APF | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| APKT11T304-APL | 0.4 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| APKT11T308-APL | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| APKT11T304-APM | 0.4 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| APKT11T308-APM | 0.8 | 6.5 | | | | ● | | | ● | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| APKT11T312-APM | 1.2 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| APKT11T316-APM | 1.6 | 6.5 | | | | ● | | | | | | | | | | | | | ● | ● | | | | | | | |
| APKT11T320-APM | 2 | 6.5 | | | | ● | | | ● | | | | | | | | | | ● | ● | | | | | | | |
| APKT11T304-LH | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| APKT11T308-LH | 0.8 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
| APKT11T308-NM | 0.8 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| APKT11T312-NM | 1.2 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| APKT11T304-PF | 0.4 | 6.5 | | ○ | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| APKT11T316-PF | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| APKT11T304-PM | 0.4 | 6.5 | ○ | ○ | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| APKT11T308-PM | 0.8 | 6.5 | ○ | | | ○ | | ● | ○ | ○ | | | | ○ | ○ | | | ○ | | | ○ | | | | | | |
| APKT11T312-PM | 1.2 | 6.5 | | | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| APKT11T316-PM | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| APKT11T304-PR | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| APKT11T316-PR | 1.6 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| APKT11T3-XR | | 6.5 | | | | | | | | ● | | | | | | | | | ● | ● | | | | | | | |

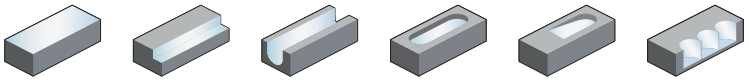
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

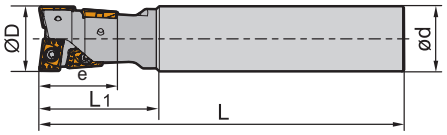
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP05** Kr: 90°








Straight shank

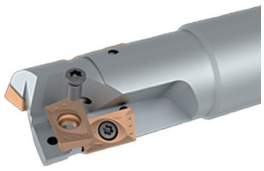
| Article | ✲ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | ød | $L_1$ | L | | | |
| **EMP05-016-G16-AD08-C** | ✲ | ● | 16 | 19 | 16 | 33 | 120 | 4 | 0.154 | ADKT0803L & ADKT0903R |
| **EMP05-020-G20-AD10-C** | ✲ | ● | 20 | 23 | 20 | 35 | 130 | 4 | 0.262 | ADKT1003L & ADKT1003R |
| **EMP05-025-G25-AD12-C** | ✲ | ● | 25 | 29 | 25 | 45 | 140 | 4 | 0.425 | ADKT12T3L & ADKT12T3R |
| **EMP05-040-G32-AD12-C** | ✲ | ● | 40 | 40 | 32 | 55 | 160 | 6 | 0.943 | |
| **EMP05-032-G32-AD15-C** | ✲ | ● | 32 | 34 | 32 | 50 | 150 | 4 | 0.425 | ADKT1605L & ADKT1505R |
| **EMP05-050-G40-AD15-C** | ✲ | ● | 50 | 50 | 40 | 70 | 170 | 6 | 1.612 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | Insert | ADKT0803L & ADKT0903R | ADKT1003L & ADKT1003R | ADKT12T3L & ADKT12T3R | ADKT12T3L & ADKT12T3R | ADKT1605L & ADKT1505R | ADKT1605L & ADKT1505R |
|---|---|---|---|---|---|---|---|
| | **ØD** | **16** | **20** | **25** | **40** | **32** | **50** |
| | Screw (insert) | I60M2.2×5.5 (0.8 Nm) | | I60M3×7 (1.8 Nm) | I60M3×7 (1.8 Nm) | I43M4×8 (3.4 Nm) | I43M4×8 (3.4 Nm) |
| | Screw (insert) | | I60M2.5×6.5T (1.0 Nm) | | | | |
| | Wrench (insert) | WT07IP | WT08IP | WT09IP | WT09IP | | |
| | Wrench (insert) | | | | | WT15S | WT15S |



System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| ADKT | L | S | d |
|---|---|---|---|
| **08** 03 | 7.96 | 3 | 2.4 |
| **10** 03 | 10 | 3.2 | 2.8 |
| **12** T3 | 12.44 | 3.9 | 3.5 |
| **16** 05 | 16 | 5 | 4.4 |

| AD** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **ADKT080308L-GM** | 5.33 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT100308L-GM** | 6.44 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT12T308L-GM** | 8 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT160508L-GM** | 9.62 | | | | | | | | | | | | | | | | | | ● | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

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

| ADKT | L | S | d |
|---|---|---|---|
| **09** 03 | 10 | 2.8 | 2.4 |
| **10** 03 | 11.65 | 3.5 | 2.8 |
| **12** T3 | 15 | 3.9 | 3.54 |
| **15** 05 | 17.05 | 4.95 | 4.5 |

## Milling inserts

| AD** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **ADKT090308R-GM** | 5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT100308R-GM** | 6.04 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT12T308R-GM** | 8.16 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT150508R-GM** | 8.81 | | | | | | | | | | | | | | | | | | ● | | | | | | | |

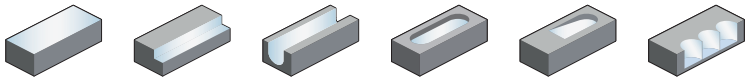
● Ex stock ○ On demand

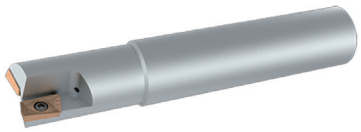
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

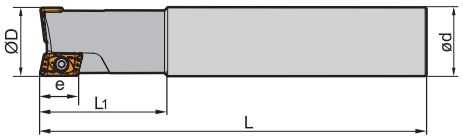

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Square shoulder milling

**EMP05** Kr: 90°





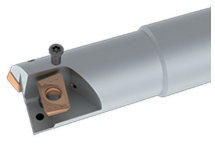



| Article | ✲ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | ød | $L_1$ | L | | | |
| **EMP05-S017-G16-AD08-C** | ✲ | ○ | 17 | 8.5 | 16 | 33 | 120 | 2 | 0.166 | ADKT0803L & ADKT0903R |
| **EMP05-S020-G20-AD10-C** | ✲ | ○ | 20 | 9.5 | 20 | 35 | 130 | 2 | 0.275 | ADKT1003L & ADKT1003R |
| **EMP05-S021-G20-AD10-C** | ✲ | ○ | 21 | 9.5 | 20 | 35 | 130 | 2 | 0.282 | |
| **EMP05-S025-G25-AD12-C** | ✲ | ○ | 25 | 12.5 | 25 | 45 | 140 | 2 | 0.453 | ADKT12T3L & ADKT12T3R |
| **EMP05-S026-G25-AD12-C** | ✲ | ○ | 26 | 12.5 | 25 | 45 | 140 | 2 | 0.467 | |
| **EMP05-S040-G32-AD12-C** | ✲ | ○ | 40 | 12.5 | 32 | 55 | 160 | 3 | 1.02 | |
| **EMP05-S032-G32-AD15-C** | ✲ | ○ | 32 | 14.5 | 32 | 50 | 150 | 2 | 0.81 | ADKT1605L & ADKT1505R |
| **EMP05-S033-G32-AD15-C** | ✲ | ○ | 33 | 14.5 | 32 | 50 | 150 | 2 | 0.829 | |
| **EMP05-S050-G40-AD15-C** | ✲ | ○ | 50 | 14.5 | 40 | 70 | 170 | 3 | 1.725 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

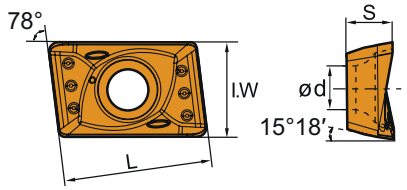
| | Insert | ADKT0803L & ADKT0903R | ADKT1003L & ADKT1003R | ADKT1003L & ADKT1003R | ADKT12T3L & ADKT12T3R | ADKT12T3L & ADKT12T3R | ADKT12T3L & ADKT12T3R | ADKT1605L & ADKT1505R | ADKT1605L & ADKT1505R | ADKT1605L & ADKT1505R | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **ØD** | **17** | **20** | **21** | **25** | **26** | **40** | **32** | **33** | **50** | |
| | Screw (insert) | I60M2.2×5.5 (0.8 Nm) | | | I60M3×7 (1.8 Nm) | I60M3×7 (1.8 Nm) | I60M3×7 (1.8 Nm) | I43M4×8 (3.4 Nm) | I43M4×8 (3.4 Nm) | I43M4×8 (3.4 Nm) |  |
| | Screw (insert) | | I60M2.5×6.5T (1.0 Nm) | I60M2.5×6.5T (1.0 Nm) | | | | | | | |
| | Wrench (insert) | WT07IP | WT08IP | WT08IP | WT09IP | WT09IP | WT09IP | | | | |
| | Wrench (insert) | | | | | | | WT15S | WT15S | WT15S | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| ADKT | L | S | d |
|---|---|---|---|
| **08** 03 | 7.96 | 3 | 2.4 |
| **10** 03 | 10 | 3.2 | 2.8 |
| **12** T3 | 12.44 | 3.9 | 3.5 |
| **16** 05 | 16 | 5 | 4.4 |

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

## Milling inserts




| AD** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **ADKT080308L-GM** | 5.33 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT100308L-GM** | 6.44 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT12T308L-GM** | 8 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT160508L-GM** | 9.62 | | | | | | | | | | | | | | | | | | ● | | | | | | | |

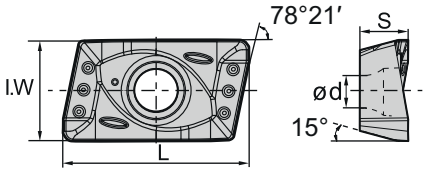
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| ADKT | L | S | d |
|---|---|---|---|
| **09** 03 | 10 | 2.8 | 2.4 |
| **10** 03 | 11.65 | 3.5 | 2.8 |
| **12** T3 | 15 | 3.9 | 3.54 |
| **15** 05 | 17.05 | 4.95 | 4.5 |

## Milling inserts




| AD** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **ADKT090308R-GM** | 5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT100308R-GM** | 6.04 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT12T308R-GM** | 8.16 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT150508R-GM** | 8.81 | | | | | | | | | | | | | | | | | | ● | | | | | | | |

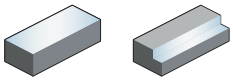
● Ex stock ○ On demand

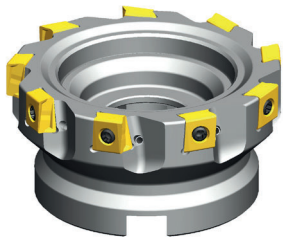
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

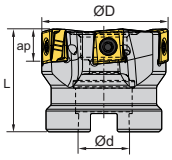

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Square shoulder milling

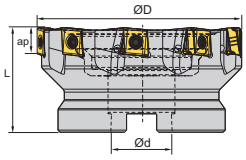
**EMP09** Kr: 90°



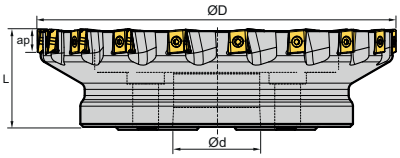




A



B



C

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| EMP09-040-A16-LN08-05C | ✻ | ● | 40 | 16 | 40 | 8 | 5 | A | 0.27 | |
| EMP09-040-A16-LN08-06C | ✻ | ○ | 40 | 16 | 40 | 8 | 6 | A | 0.22 | |
| EMP09-050-A22-LN08-06C | ✻ | ● | 50 | 22 | 40 | 8 | 6 | A | 0.38 | |
| EMP09-050-A22-LN08-07C | ✻ | ● | 50 | 22 | 40 | 8 | 7 | A | 0.35 | |
| EMP09-063-A22-LN08-08C | ✻ | ● | 63 | 22 | 40 | 8 | 8 | A | 0.63 | LNKT0804PNR** |
| EMP09-063-A22-LN08-10C | ✻ | ○ | 63 | 22 | 40 | 8 | 10 | A | 0.59 | |
| EMP09-063-A27-LN08-10C | ✻ | ● | 63 | 27 | 50 | 8 | 10 | A | 0.73 | |
| EMP09-080-A27-LN08-10C | ✻ | ○ | 80 | 27 | 50 | 8 | 10 | A | 1.29 | |
| EMP09-080-A27-LN08-12C | ✻ | ● | 80 | 27 | 50 | 8 | 12 | A | 1.3 | |
| EMP09-040-A16-LN12-04C | ✻ | ● | 40 | 16 | 40 | 11.5 | 4 | A | 0.19 | |
| EMP09-050-A22-LN12-05C | ✻ | ● | 50 | 22 | 40 | 11.5 | 5 | A | 0.33 | |
| EMP09-050-A22-LN12-06C | ✻ | ● | 50 | 22 | 40 | 11.5 | 6 | A | 0.32 | |
| EMP09-063-A22-LN12-06C | ✻ | ● | 63 | 22 | 40 | 11.5 | 6 | A | 0.53 | |
| EMP09-063-A22-LN12-08C | ✻ | ○ | 63 | 22 | 40 | 11.5 | 8 | A | 0.6 | |
| EMP09-080-A27-LN12-07C | ✻ | ● | 80 | 27 | 50 | 11.5 | 7 | A | 1.18 | |
| EMP09-080-A27-LN12-10C | ✻ | ● | 80 | 27 | 50 | 11.5 | 10 | A | 1.24 | |
| EMP09-100-B32-LN12-09C | ✻ | ● | 100 | 32 | 50 | 11.5 | 9 | B | 1.62 | LNKT1206PNR** |
| EMP09-100-B32-LN12-13C | ✻ | ○ | 100 | 32 | 50 | 11.5 | 13 | B | 1.69 | |
| EMP09-125-B40-LN12-11C | ✻ | ● | 125 | 40 | 63 | 11.5 | 11 | B | 3.25 | |
| EMP09-125-B40-LN12-16C | ✻ | ○ | 125 | 40 | 63 | 11.5 | 16 | B | 3.17 | |
| EMP09-125-B40-LN12-17C | ✻ | ○ | 125 | 40 | 63 | 11.5 | 17 | B | 3.16 | |
| EMP09-130-B40-LN12-13C | ✻ | ○ | 130 | 40 | 63 | 11.5 | 13 | B | 3.35 | |
| EMP09-160-B40-LN12-12C | ✻ | ● | 160 | 40 | 63 | 11.5 | 12 | B | 6.42 | |
| EMP09-200-C60-LN12-16 | | ○ | 200 | 60 | 70 | 11.5 | 16 | C | 8.83 | |
| EMP09-050-A22-LN16-05C | ✻ | ○ | 50 | 22 | 40 | 15 | 5 | A | 0.32 | |
| EMP09-063-A22-LN16-05C | ✻ | ○ | 63 | 22 | 40 | 15 | 5 | A | 0.6 | LNKT1607PNR** |
| EMP09-063-A22-LN16-06C | ✻ | ○ | 63 | 22 | 40 | 15 | 6 | A | 0.58 | |
| EMP09-063-A27-LN16-06C | ✻ | ● | 63 | 27 | 50 | 15 | 6 | A | 0.72 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

# Indexable milling Square shoulder milling

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | L | $a_{p\,max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| **EMP09-080-A27-LN16-06C** | ✻ | ● | 80 | 27 | 50 | 15 | 6 | A | 1.28 | LNKT1607PNR** |
| **EMP09-100-B32-LN16-08C** | ✻ | ● | 100 | 32 | 50 | 15 | 8 | B | 1.68 | |
| **EMP09-100-B32-LN16-10C** | ✻ | ○ | 100 | 32 | 50 | 15 | 10 | B | 1.76 | |
| **EMP09-125-B40-LN16-10C** | ✻ | ● | 125 | 40 | 63 | 15 | 10 | B | 3.25 | |
| **EMP09-160-B40-LN16-12C** | ✻ | ● | 160 | 40 | 63 | 15 | 12 | B | 6.35 | |
| **EMP09-160-B40-LN16-16C** | ✻ | ○ | 160 | 40 | 63 | 15 | 16 | B | 6.32 | |
| **EMP09-200-C60-LN16-16** | | ○ | 200 | 60 | 70 | 15 | 16 | C | 8.71 | |
| **EMP09-250-C60-LN16-12** | | ○ | 250 | 60 | 70 | 15 | 12 | C | 12.4 | |
| **EMP09-250-C60-LN16-18** | | ○ | 250 | 60 | 70 | 15 | 18 | C | 12.1 | |
| **EMP09-315-D60-LN16-16** | | ○ | 315 | 60 | 80 | 15 | 16 | D | 22.9 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

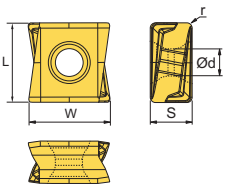
| | Insert | LNKT0804PNR** | LNKT1206PNR** | LNKT1607PNR** |
|---|---|---|---|---|
| | **ØD** | **40-80** | **40-250** | **40-360** |
|  | Screw (insert) | I60M3×7 (1.8 Nm) | I60M4×12 (3.4 Nm) | I60M5×13 (6.7 Nm) |
|  | Wrench (insert) | WT09IP | | |
|  | Wrench (insert) | | WT15IS | WT20IS |

## Milling inserts

● Ideal machining conditions
◐ Normal machining conditions
◌ Unfavourable machining conditions

| LNKT | L | S | d |
|---|---|---|---|
| **08** 04 | 8.75 | 4.45 | 3.4 |
| **12** 06 | 12.7 | 6.75 | 4.4 |
| **16** 07 | 16.05 | 7.35 | 5.5 |

LN** milling insert




| | ISO | W | r | HC¹ (CVD) YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | HC¹ (PVD) YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | HT YNG151 | HC² YNG151C | HW YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | ◐ | | ● | ● | ● | | | |
| M | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ● | ● | ● | | | |
| K | | | | | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | | | ● | | | | | |
| N | | | | | | | | | | | | | | ◐ | | | | | | | | | | | | | ◐ | ◐ | |
| S | | | | | | | ◐ | | ◐ | | | | | | ◐ | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | | | |
| H | | | | | | | | | | | | | ○ | | | | | | | ◐ | | | | | | | | | |
|  | **LNKT080404PNR-GL** | 8.5 | 0.4 | | | | | | | | ● | | | | | | | | | | ● | | ● | | | | | |
| | **LNKT120608PNR-GL** | 13 | 0.8 | | | | | | | | ● | | | | | | | | | | ● | | ● | | | | | |
| | **LNKT160708PNR-GL** | 15 | 0.8 | | | | | | | | ● | | | | | | | | | | ● | | ● | | | | | |

● Ex stock ○ On demand

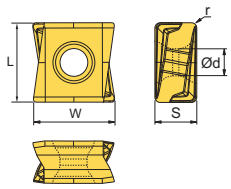
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| LNKT | L | S | d |
|---|---|---|---|
| **08** 04 | 8.75 | 4.45 | 3.4 |
| **12** 06 | 12.7 | 6.75 | 4.4 |
| **16** 07 | 16.05 | 7.35 | 5.5 |




| LN** milling insert | | | | HC¹ (CVD) | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | |
| ISO | | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **LNKT080404PNR-GM** | 8.5 | 0.4 | | | | ● | | | | | | | | | | | | | | ● | | | | | | | |
| | **LNKT120608PNR-GM** | 13 | 0.8 | | | | ● | | | | ● | | | | | | | | | | ● | | | | | | | |
| | **LNKT160708PNR-GM** | 15 | 0.8 | | | | ● | | | ○ | | | | | | | | | | | ● | | | | | | | |

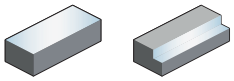
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

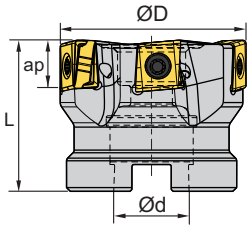
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP09** Kr: 90°








| Article | ✻ | Stock | Dimensions [mm] ØD | e | ød | L | Teeth row | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EMP09-032x38-A16-LN08-03C | ✻ | ○ | 32 | 38 | 16 | 55 | 3 | 15 | A | 0.18 | LNKT0804PNR-GM |
| EMP09-040x38-A16-LN08-04C | ✻ | ○ | 40 | 38 | 16 | 55 | 4 | 20 | A | 0.32 | |
| EMP09-040x43-A16-LN12-02C | ✻ | ○ | 40 | 43 | 16 | 70 | 2 | 8 | A | 0.4 | LNKT1206PNR-GM |
| EMP09-050x43-A22-LN12-03C | ✻ | ● | 50 | 43 | 22 | 70 | 3 | 12 | A | 0.64 | |
| EMP09-050x63-A22-LN12-03C | ✻ | ○ | 50 | 64.6 | 22 | 85 | 3 | 18 | A | 0.73 | |
| EMP09-063x43-A27-LN12-04C | ✻ | ○ | 63 | 43 | 27 | 70 | 4 | 16 | A | 1.08 | |
| EMP09-063x53-A27-LN12-04C | ✻ | ● | 63 | 53 | 27 | 80 | 4 | 20 | A | 1.31 | |
| EMP09-063x85-A27-LN12-04C | ✻ | ○ | 63 | 85 | 27 | 110 | 4 | 32 | A | 1.152 | |
| EMP09-080x53-A27-LN12-05C | ✻ | ○ | 80 | 53 | 27 | 80 | 5 | 25 | A | 2.33 | |
| EMP09-080x53-A32-LN12-05C | ✻ | ○ | 80 | 54.6 | 32 | 80 | 5 | 25 | A | 2.33 | |
| EMP09-080x74-A32-LN12-05C | ✻ | ○ | 80 | 74 | 32 | 100 | 5 | 35 | A | | |
| EMP09-100x65-A40-LN12-06C | ✻ | ○ | 100 | 65 | 40 | 90 | 6 | 36 | A | 3.57 | |
| EMP09-125x54-A40-LN12-07C | ✻ | ○ | 125 | 54 | 40 | 80 | 7 | 35 | A | 5.53 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

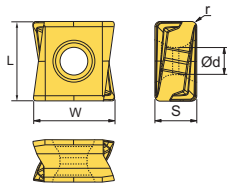
| | Insert | LNKT0804PNR-GM | LNKT1206PNR-GM |
|---|---|---|---|
| | ØD | 25-80 | 40-150 |
|  | Screw (insert) | I60M3×7 (1.8 Nm) | I60M4×12 (3.4 Nm) |
|  | Wrench | | WT15IS |
|  | Wrench (insert) | WT09IP | |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| LNKT | L | S | d |
|---|---|---|---|
| **08** 04 | 8.75 | 4.45 | 3.4 |
| **12** 06 | 12.7 | 6.75 | 4.4 |




| LN** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ○ | ○ | ◉ | ○ | ○ | ◉ | | ○ | ○ | | | ◉ | ◉ | | ○ | ○ | ◉ | ○ | ○ | ○ | ○ | | |
| M | | | ○ | ◉ | ○ | ○ | ◉ | | | | | | ○ | ◉ | ○ | ○ | ○ | ◉ | ○ | ○ | ○ | ○ | | |
| K | | | | | | | | ◉ | ◉ | ○ | | | | | | | | | | ○ | | | | |
| N | | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | ◉ | | ◉ | | | | | | ○ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | |
| H | | | | | | | | | | ○ | | | | | | ○ | | | | | | | | |
| ISO | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  **LNKT080404PNR-GL** | 8.5 | 0.4 | | | | | | | | ● | | | | | | | | | | ● | | ● | | | | | |
| **LNKT120608PNR-GL** | 13 | 0.8 | | | | | | | | ● | | | | | | | | | | ● | | ● | | | | | |
|  **LNKT080404PNR-GM** | 8.5 | 0.4 | | | | ● | | | | | | | | | | | | | | ● | | | | | | | |
| **LNKT120608PNR-GM** | 13 | 0.8 | | | | ● | | | | ● | | | | | | | | | | ● | | | | | | | |

● Ex stock ○ On demand

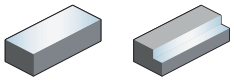
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

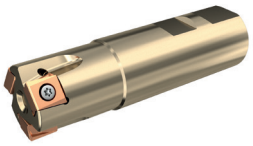
A Turning
B Milling
C Drilling
D Technical Information
E Index

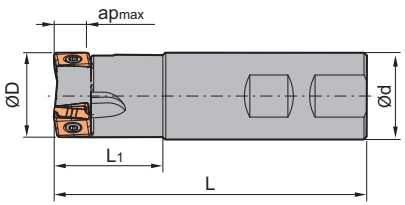
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP09** Kr: 90°








Weldon shank

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | $L_1$ | L | $a_{p\,max}$ | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| **EMP09-018-XP20-LN08-02C** | ✻ | ○ | 18 | 20 | 25 | 100 | 8 | 2 | 0.2 | LNKT0804PNR** |
| **EMP09-020-XP20-LN08-03C** | ✻ | ○ | 20 | 20 | 25 | 100 | 8 | 3 | 0.26 | |
| **EMP09-022-XP20-LN08-03C** | ✻ | ○ | 22 | 20 | 25 | 100 | 8 | 3 | 0.22 | |
| **EMP09-025-XP25-LN08-03C** | ✻ | ○ | 25 | 25 | | 100 | 8 | 3 | 0.36 | |
| **EMP09-025-XP25-LN08-04C** | ✻ | ● | 25 | 25 | 32 | 100 | 8 | 4 | 0.4 | |
| **EMP09-032-XP32-LN08-04C** | ✻ | ○ | 32 | 32 | 40 | 115 | 8 | 4 | 0.695 | |
| **EMP09-032-XP32-LN08-05C** | ✻ | ● | 32 | 32 | 40 | 115 | 8 | 5 | 0.715 | |
| **EMP09-040-XP40-LN08-06C** | ✻ | ○ | 40 | 40 | 40 | 125 | 8 | 6 | 1.154 | |
| **EMP09-025-XP25-LN12-02C** | ✻ | ○ | 25 | 25 | 32 | 100 | 11.5 | 2 | 0.3 | LNKT1206PNR** |
| **EMP09-032-XP32-LN12-03C** | ✻ | ○ | 32 | 32 | | 115 | 11.5 | 3 | 0.63 | |
| **EMP09-035-XP32-LN12-03C** | ✻ | ○ | 35 | 32 | 40 | 115 | 11.5 | 3 | 0.69 | |
| **EMP09-040-XP40-LN12-03C** | ✻ | ○ | 40 | 40 | 40 | 125 | 11.5 | 3 | 1.139 | |
| **EMP09-040-XP40-LN12-04C** | ✻ | ○ | 40 | 40 | | 125 | 11.5 | 4 | 1.1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | LNKT0804PNR** | LNKT1206PNR** |
|---|---|---|---|
| | ØD | 16-45 | 20-50 |
| | Screw (insert) | I60M3×7 (1.8 Nm) | I60M4×12 (3.4 Nm) |
| | Wrench | | WT15IS |
| | Wrench (insert) | WT09IP | WT15IP |

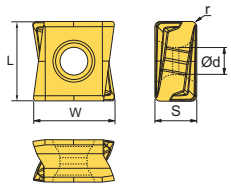


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| LNKT | L | S | d |
|---|---|---|---|
| **08** 04 | 8.75 | 4.45 | 3.4 |
| **12** 06 | 12.7 | 6.75 | 4.4 |




| LN** milling insert | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | | ○ | ○ | | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ○ | ○ | | |
| K | | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ◉ | | | | |
| N | | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | | ◉ | | ◉ | | | | | ○ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | | |
| H | | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | |
| ISO | | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **LNKT080404PNR-GL** | 8.5 | 0.4 | | | | | | | | ● | | | | | | | | | ● | ● | | ● | | | | | |
| | **LNKT120608PNR-GL** | 13 | 0.8 | | | | | | | | ● | | | | | | | | | ● | ● | | ● | | | | | |
|  | **LNKT080404PNR-GM** | 8.5 | 0.4 | | | | ● | | | | ● | | | | | | | | | ● | ● | | ○ | | | | | |
| | **LNKT080408PNR-GM** | 8.5 | 0.8 | ○ | | | | | | | ○ | | | | | | | | | ● | ● | | | | | | | |
| | **LNKT080412PNR-GM** | 8.5 | 1.2 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | **LNKT080415PNR-GM** | 8.5 | 1.5 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |
| | **LNKT120608PNR-GM** | 13 | 0.8 | | | | ● | | | ○ | ● | | | | | | | | | ● | ● | | ○ | | | | | |
| | **LNKT120612PNR-GM** | 13 | 1.2 | ○ | | | ○ | | | | ● | | | | | | | | | | ○ | | | | | | | |
| | **LNKT120616PNR-GM** | 13 | 1.6 | ○ | | | ○ | | | | ○ | | | | | | | | | | ○ | | | | | | | |
| | **LNKT120624PNR-GM** | 13 | 2.4 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | **LNKT120632PNR-GM** | 13 | 3.2 | | | | ○ | | | | ● | | | | | | | | | | ● | | | | | | | |

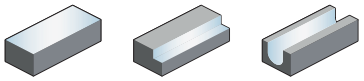
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

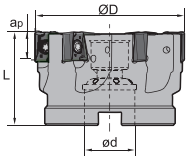
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

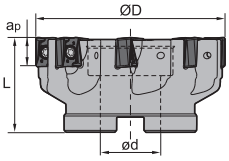
**EMP13** Kr: 90°



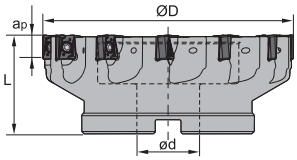




A



B



C

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | L | $a_{p\ max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| EMP13-040-A16-AN11-04C | ✻ | ○ | 40 | 16 | 40 | 11.2 | 4 | A | 0.45 | |
| EMP13-044-A16-AN11-04C | ✻ | ○ | 44 | 22 | 40 | 11.2 | 4 | A | 0.52 | |
| EMP13-050-A22-AN11-06C | ✻ | ● | 50 | 22 | 40 | 11.2 | 6 | A | 0.3 | |
| EMP13-063-A22-AN11-06 | ✻ | ○ | 63 | 22 | 40 | 11.2 | 6 | A | 0.49 | |
| EMP13-063-A22-AN11-07C | ✻ | ● | 63 | 22 | 40 | 11.2 | 7 | A | 0.49 | |
| EMP13-080-A27-AN11-07 | ✻ | ○ | 80 | 27 | 50 | 11.2 | 7 | A | 1.18 | |
| EMP13-080-A27-AN11-07C | ✻ | ○ | 80 | 27 | 50 | 11.2 | 7 | A | 1.07 | ANGX1105 |
| EMP13-080-A27-AN11-09C | ✻ | ● | 80 | 27 | 50 | 11.2 | 9 | A | 1.18 | |
| EMP13-100-B32-AN11-12 | | ● | 100 | 32 | 50 | 11.2 | 12 | B | 1.46 | |
| EMP13-100-B32-AN11-12C | ✻ | ○ | 100 | 32 | 50 | 11.2 | 12 | B | 1.46 | |
| EMP13-125-B40-AN11-14 | | ● | 125 | 40 | 63 | 11.2 | 14 | B | 2.92 | |
| EMP13-125-B40-AN11-14C | ✻ | ○ | 125 | 40 | 63 | 11.2 | 14 | B | 2.92 | |
| EMP13-160-C40-AN11-16 | | ● | 160 | 40 | 63 | 11.2 | 16 | C | 4.3 | |
| EMP13-050-A22-AN15-04C | ✻ | ● | 50 | 22 | 40 | 14.5 | 4 | A | 0.26 | |
| EMP13-060-A22-AN15-05C | ✻ | ○ | 60 | 22 | 40 | 14.5 | 5 | A | 0.53 | |
| EMP13-063-A22-AN15-05C | ✻ | ● | 63 | 22 | 40 | 14.5 | 5 | A | 0.53 | |
| EMP13-080-A27-AN15-06C | ✻ | ● | 80 | 27 | 50 | 14.5 | 6 | A | 1.23 | |
| EMP13-100-B32-AN15-08 | | ● | 100 | 32 | 50 | 14.5 | 8 | B | 1.52 | |
| EMP13-100-B32-AN15-08C | ✻ | ○ | 100 | 32 | 50 | 14.5 | 8 | B | 1.52 | ANGX1506 |
| EMP13-125-B40-AN15-10 | | ● | 125 | 40 | 63 | 14.5 | 10 | B | 3.05 | |
| EMP13-125-B40-AN15-10C | ✻ | ○ | 125 | 40 | 63 | 14.5 | 10 | B | 3.05 | |
| EMP13-160-C40-AN15-12 | | ● | 160 | 40 | 63 | 14.5 | 12 | C | 4.46 | |
| EMP13-200-C60-AN15-16 | | ○ | 200 | 60 | 63 | 14.5 | 16 | C | 6.26 | |
| EMP13-250-C60-AN15-18 | | ○ | 250 | 60 | 63 | 14.5 | 18 | C | 12.86 | |

● Ex stock ○ On demand

✻ With internal cooling

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

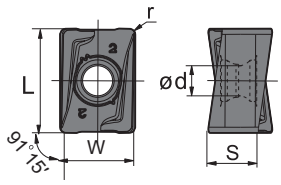
Spare parts

| | Insert | ANGX1105 | ANGX1506 | |
|---|---|---|---|---|
| | ØD | 40-160 | 50-250 | |
|  | Screw (insert) | I60M3×9 (1.8 Nm) | I60M4×12 (3.4 Nm) |  |
|  | Wrench (insert) | WT09IS | WT15IS | |

## Milling inserts

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

| ANGX | L | S | d |
|---|---|---|---|
| **11** 05 | 11.85 | 5.7 | 3.5 |
| **15** 06 | 15.43 | 7.3 | 4.4 |




| AN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ANGX110504PNR-GM** | 8.4 | 0.4 | | | | ● | | | ● | | | | | | | | | ● | | ● | | | | | | | |
| | **ANGX110508PNR-GM** | 8.4 | 0.8 | ● | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX110520PNR-GM** | 8.4 | 2 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | **ANGX150608PNR-GM** | 11 | 0.8 | ○ | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX150612PNR-GM** | 11 | 1.2 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | **ANGX150616PNR-GM** | 11 | 1.6 | | | | ● | | | ● | | | | | | | | | ● | | | | | | | | | |
| | **ANGX150620PNR-GM** | 11 | 2 | | | | | | | ● | ● | | | | | | | | ● | | | | | | | | | |
|  | **ANGX110502PNR-LH** | 8.4 | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **ANGX110504PNR-LH** | 8.4 | 0.4 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **ANGX150608PNR-LH** | 11 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | | ● | |

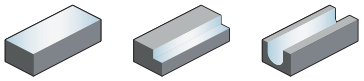
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

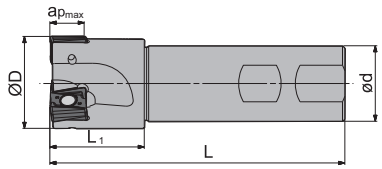
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP13** Kr: 90°








Weldon shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | $a_{p\,max}$ | | | |
| **EMP13-025-XP25-AN11-02C** | ✻ | ● | 25 | 25 | 32 | 100 | 11.2 | 2 | 0.31 | ANGX1105 |
| **EMP13-032-XP32-AN11-03C** | ✻ | ● | 32 | 32 | 40 | 115 | 11.2 | 3 | 0.61 | |
| **EMP13-040-XP32-AN11-04C** | ✻ | ● | 40 | 32 | 40 | 125 | 11.2 | 4 | 0.75 | |
| **EMP13-032-XP32-AN15-02C** | ✻ | ● | 32 | 32 | 40 | 125 | 11.2 | 2 | 0.66 | ANGX1506 |
| **EMP13-040-XP32-AN15-03C** | ✻ | ● | 40 | 32 | 40 | 125 | 11.2 | 3 | 0.76 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

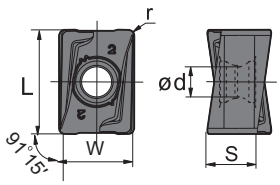
| | Insert | ANGX1105 | ANGX1506 | |
|---|---|---|---|---|
| | ØD | 25-40 | 25-40 | |
|  | Screw (insert) | I60M3×9 (1.8 Nm) | I60M4×12 (3.4 Nm) |  |
|  | Wrench (insert) | WT09IS | WT15IS | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| ANGX | L | S | d |
|---|---|---|---|
| **11** 05 | 11.85 | 5.7 | 3.5 |
| **15** 06 | 15.43 | 7.3 | 4.4 |




| AN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | ● | ● | | | |
| | | | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | | |
| | | | K | | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | | |
| | | | N | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | | | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | | | |
| | | | H | | | | | | | | | | ○ | | | | | | ● | | | | | | | | |
| | ISO | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ANGX110504PNR-GM** | 8.4 | 0.4 | | | | ● | | | ● | | | | | | | | | ● | | ● | | | | | | | |
| | **ANGX110508PNR-GM** | 8.4 | 0.8 | ● | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX110520PNR-GM** | 8.4 | 2 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | **ANGX150608PNR-GM** | 11 | 0.8 | ○ | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX150612PNR-GM** | 11 | 1.2 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | **ANGX150616PNR-GM** | 11 | 1.6 | | | | ● | | | ● | | | | | | | | | ● | | | | | | | | | |
| | **ANGX150620PNR-GM** | 11 | 2 | | | | | | | ● | ● | | | | | | | | ● | | | | | | | | | |
|  | **ANGX110502PNR-LH** | 8.4 | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **ANGX110504PNR-LH** | 8.4 | 0.4 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **ANGX150608PNR-LH** | 11 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | | ● | |

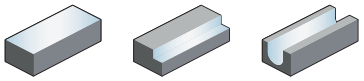
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

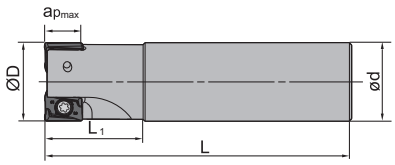
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP13** Kr: 90°








Straight shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | ød | $L_1$ | L | $a_{p\,max}$ | | | |
| **EMP13-025-G25-AN11-02C** | ✻ | ● | 25 | 11.2 | 25 | 32 | 100 | 11.2 | 2 | 0.31 | ANGX1105 |
| **EMP13-032-G32-AN11-03C** | ✻ | ● | 32 | 11.2 | 32 | 40 | 115 | 11.2 | 3 | 0.61 | |
| **EMP13-040-G32-AN11-04C** | ✻ | ● | 40 | 11.2 | 32 | 40 | 125 | 11.2 | 4 | 0.75 | |
| **EMP13-032-G32-AN15-02C** | ✻ | ● | 32 | 14.5 | 32 | 40 | 125 | 14.5 | 2 | 0.66 | ANGX1506 |
| **EMP13-040-G32-AN15-03C** | ✻ | ● | 40 | 14.5 | 32 | 40 | 125 | 14.5 | 3 | 0.76 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **ANGX1105** | **ANGX1506** |
|---|---|---|---|
| | **ØD** | **25-40** | **25-40** |
|  | Screw (insert) | I60M3×9 (1.8 Nm) | I60M4×12 (3.4 Nm) |
|  | Wrench (insert) | WT09IS | WT15IS |

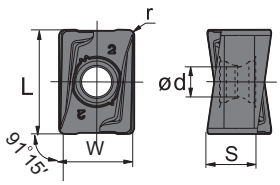


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| ANGX | L | S | d |
|---|---|---|---|
| **11** 05 | 11.85 | 5.7 | 3.5 |
| **15** 06 | 15.43 | 7.3 | 4.4 |




| AN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | |
| | | | M | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | |
| | | | K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ◉ | | | | |
| | | | N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| | | | S | | | | ◉ | | ◉ | | | | | ◉ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | ◉ | | |
| | | | H | | | | | | | | | ○ | | | | | ○ | | | | | | | | | |
| | ISO | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ANGX110504PNR-GM** | 8.4 | 0.4 | | | | ● | | | ● | | | | | | | | | ● | | ● | | | | | | | |
| | **ANGX110508PNR-GM** | 8.4 | 0.8 | ● | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX110520PNR-GM** | 8.4 | 2 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | **ANGX150608PNR-GM** | 11 | 0.8 | ○ | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX150612PNR-GM** | 11 | 1.2 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | **ANGX150616PNR-GM** | 11 | 1.6 | | | | ● | | | ● | | | | | | | | | ● | | | | | | | | | |
| | **ANGX150620PNR-GM** | 11 | 2 | | | | | | | ● | ● | | | | | | | | ● | | | | | | | | | |
|  | **ANGX110502PNR-LH** | 8.4 | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **ANGX110504PNR-LH** | 8.4 | 0.4 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **ANGX150608PNR-LH** | 11 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | | ● | |

● Ex stock ○ On demand

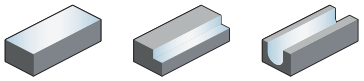
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

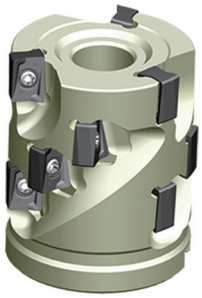
A Turning
B Milling
C Drilling
D Technical Information
E Index

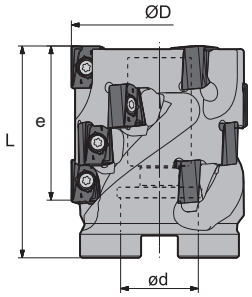
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP13** Kr: 90°








| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | No. of inserts | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | ød | L | | | | |
| **EMP13-050x43-A22-AN11-03** | | ● | 50 | 43 | 22 | 60 | 3 | 12 | 0.52 | ANGX1105 |
| **EMP13-063x64-A27-AN11-04** | | ○ | 63 | 64 | 27 | 80 | 4 | 24 | 1.15 | |
| **EMP13-063x53-A27-AN15-03** | | ○ | 63 | 53 | 27 | 75 | 3 | 12 | 1.14 | ANGX1506 |
| **EMP13-080x53-A32-AN15-04** | | ● | 80 | 53 | 32 | 75 | 4 | 16 | 1.82 | |
| **EMP13-082x67-A32-AN15-04** | | ○ | 80 | 67 | 32 | 90 | 4 | 20 | 2.2 | |
| **EMP13-080x75-A32-AN15-05** | | ○ | 80 | 75 | 32 | 95 | 5 | 30 | 2.07 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **ANGX1105** | **ANGX1506** |
|---|---|---|---|
| | **ØD** | **50-63** | **63-120** |
|  | Screw (insert) | I60M3×9 (1.8 Nm) | I60M4×12 (3.4 Nm) |
|  | Wrench (insert) | WT09IS | WT15IS |

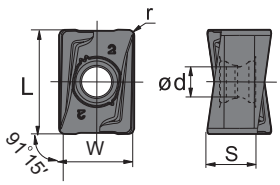


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| ANGX | L | S | d |
|---|---|---|---|
| **11** 05 | 11.85 | 5.7 | 3.5 |
| **15** 06 | 15.43 | 7.3 | 4.4 |




| AN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ANGX110504PNR-GM** | 8.4 | 0.4 | | | | ● | | | ● | | | | | | | | | ● | | ● | | | | | | | |
| | **ANGX110508PNR-GM** | 8.4 | 0.8 | ● | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX110520PNR-GM** | 8.4 | 2 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | **ANGX150608PNR-GM** | 11 | 0.8 | ○ | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX150612PNR-GM** | 11 | 1.2 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | **ANGX150616PNR-GM** | 11 | 1.6 | | | | ● | | | ● | | | | | | | | | ● | | | | | | | | | |
| | **ANGX150620PNR-GM** | 11 | 2 | | | | | | | ● | ● | | | | | | | | ● | | | | | | | | | |
|  | **ANGX110502PNR-LH** | 8.4 | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **ANGX110504PNR-LH** | 8.4 | 0.4 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **ANGX150608PNR-LH** | 11 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | | ● | |

● Ex stock ○ On demand

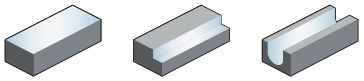
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

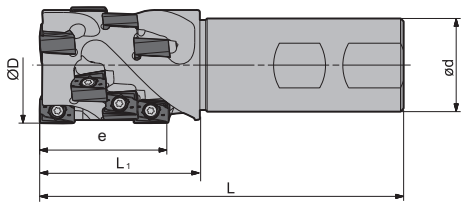
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP13** Kr: 90°







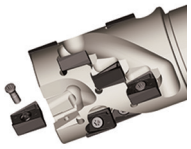

Weldon shank

| Article | ✻ | Stock | Dimensions [mm] ØD | e | ød | $L_1$ | L | Teeth | No. of inserts | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **EMP13-032x43-XP32-AN11-02** | | ○ | 32 | 43 | 32 | 48 | 115 | 2 | 8 | 0.61 | ANGX1105 |
| **EMP13-040x43-XP32-AN11-03** | | ○ | 40 | 43 | 32 | 55 | 125 | 3 | 12 | 0.79 | |
| **EMP13-050x60-XP40-AN11-03C** | ✻ | ○ | 50 | 60 | 40 | | 160 | 3 | 18 | 1.53 | |
| **EMP13-040x40-XP32-AN15-02** | | ○ | 40 | 40 | 32 | 55 | 115 | 2 | 6 | 0.79 | ANGX1506 |
| **EMP13-050x53-XP40-AN15-02** | | ○ | 50 | 53 | 40 | 70 | 145 | 2 | 8 | 1.53 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

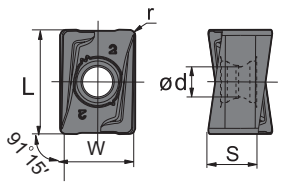
| | Insert | ANGX1105 | ANGX1506 | |
|---|---|---|---|---|
| | ØD | 32-60 | 40-50 | |
|  | Screw (insert) | I60M3×9 (1.8 Nm) | I60M4×12 (3.4 Nm) |  |
|  | Wrench (insert) | WT09IS | WT15IS | |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| ANGX | L | S | d |
|---|---|---|---|
| **11** 05 | 11.85 | 5.7 | 3.5 |
| **15** 06 | 15.43 | 7.3 | 4.4 |




| AN** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ANGX110504PNR-GM** | 8.4 | 0.4 | | | | ● | | | ● | | | | | | | | | ● | | ● | | | | | | | |
| | **ANGX110508PNR-GM** | 8.4 | 0.8 | ● | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX110520PNR-GM** | 8.4 | 2 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | **ANGX150608PNR-GM** | 11 | 0.8 | ○ | | | ● | | | ● | ● | | | | | | | | ● | ● | ● | | ● | | | | | |
| | **ANGX150612PNR-GM** | 11 | 1.2 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | **ANGX150616PNR-GM** | 11 | 1.6 | | | | ● | | | ● | | | | | | | | | ● | | | | | | | | | |
| | **ANGX150620PNR-GM** | 11 | 2 | | | | | | | ● | ● | | | | | | | | ● | | | | | | | | | |
|  | **ANGX110502PNR-LH** | 8.4 | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **ANGX110504PNR-LH** | 8.4 | 0.4 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **ANGX150608PNR-LH** | 11 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | | ● | |

● Ex stock ○ On demand

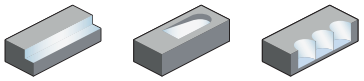
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

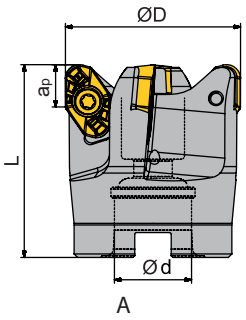
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

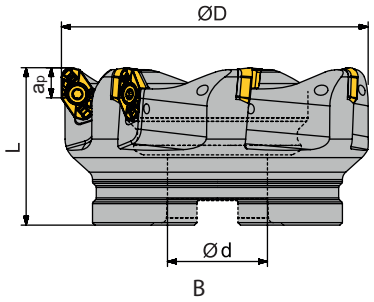
## Square shoulder milling

**EMP14** Kr: 90°








| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | $a_{p\ max}$ | | | | |
| EMP14-040-A16-VP22-03C | ✻ | ○ | 40 | 16 | 55 | 10 | 3 | A | 0.234 | VPGT2205 |
| EMP14-040-A16-VP22-03CA | ✻ | ● | 40 | 16 | 55 | 10 | 3 | A | 0.24 | |
| EMP14-042-A16-VP22-03C | ✻ | ○ | 42 | 16 | 55 | 10 | 3 | A | 0.256 | |
| EMP14-042-A16-VP22-03CA | ✻ | ● | 42 | 16 | 55 | 10 | 3 | A | 0.27 | |
| EMP14-050-A22-VP22-03C | ✻ | ○ | 50 | 22 | 55 | 10 | 3 | A | | |
| EMP14-050-A22-VP22-03CA | ✻ | ○ | 50 | 22 | 55 | 10 | 3 | A | | |
| EMP14-050-A22-VP22-04C | ✻ | ○ | 50 | 22 | 55 | 10 | 4 | A | 0.352 | |
| EMP14-050-A22-VP22-04CA | ✻ | ● | 50 | 22 | 55 | 10 | 4 | A | 0.36 | |
| EMP14-052-A22-VP22-04C | ✻ | ● | 52 | 22 | 55 | 10 | 4 | A | 0.385 | |
| EMP14-052-A22-VP22-04CA | ✻ | ● | 52 | 22 | 55 | 10 | 4 | A | 0.4 | |
| EMP14-063-A27-VP22-04C | ✻ | ● | 63 | 27 | 55 | 10 | 4 | A | 0.61 | |
| EMP14-063-A27-VP22-04CA | ✻ | ● | 63 | 27 | 55 | 10 | 4 | A | 0.62 | |
| EMP14-066-A27-VP22-05C | ✻ | ○ | 66 | 27 | 55 | 10 | 5 | A | 0.625 | |
| EMP14-066-A27-VP22-05CA | ✻ | ○ | 66 | 27 | 55 | 10 | 5 | A | 0.68 | |
| EMP14-080-A27-VP22-05C | ✻ | ● | 80 | 27 | 55 | 10 | 5 | A | 0.95 | |
| EMP14-080-A27-VP22-05CA | ✻ | ● | 80 | 27 | 55 | 10 | 5 | A | 0.97 | |
| EMP14-100-B32-VP22-06C | ✻ | ○ | 100 | 32 | 55 | 10 | 6 | B | 1.4 | |
| EMP14-100-B32-VP22-06CA | ✻ | ○ | 100 | 32 | 55 | 10 | 6 | B | 1.32 | |
| EMP14-125-B40-VP22-05C | ✻ | ○ | 125 | 40 | 63 | 10 | 5 | B | | |
| EMP14-125-B40-VP22-05CA | ✻ | ○ | 125 | 40 | 63 | 10 | 5 | B | | |
| EMP14-125-B40-VP22-07C | ✻ | ● | 125 | 40 | 63 | 10 | 7 | B | 2.7 | |
| EMP14-125-B40-VP22-07CA | ✻ | ● | 125 | 40 | 63 | 10 | 7 | B | 2.75 | |

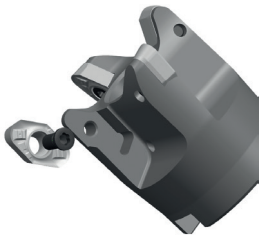
● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

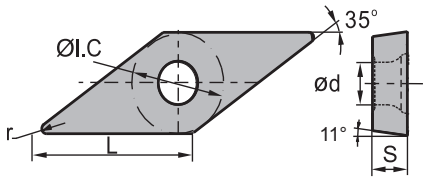
| | Insert | VPGT2205 |
|---|---|---|
| | ØD | 20-150 |
|  | Screw (insert) | I60M5×11 (6.7 Nm) |
|  | Wrench (insert) | WT20IT |



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

| VPGT | L | I.C | S | d |
|---|---|---|---|---|
| **22** 05 | 9 | 12.7 | 5.56 | 5.5 |

## Milling inserts




| VP** positive insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | ● | ● | | |
| M | | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| K | | | | | | | | ● | ● | ● | | | | | | | | | | ● | | | |
| N | | | | | | | | | | | ● | | | | | | | | | | | ● | ● |
| S | | | | ● | | ● | | | | | | ● | ● | | ● | ● | | ● | | ● | | | |
| H | | | | | | | | | | ○ | | | | | | | ● | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | VPGT220502-LP | 0.2 | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | VPGT220505-LP | 0.5 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | VPGT220508-LP | 0.8 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | VPGT220510-LP | 1 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | VPGT220515-LP | 1.5 | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | VPGT220520-LP | 2 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | VPGT220525-LP | 2.5 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | VPGT220530-LP | 3 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | VPGT220532-LP | 3.2 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | VPGT220540-LP | 4 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | VPGT220550-LP | 5 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | VPGT220560-LP | 6 | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | VPGT220564-LP | 6.4 | | | | | | | | | | | | | | | | | | | | | | | ○ | |

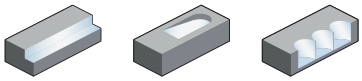
● Ex stock ○ On demand

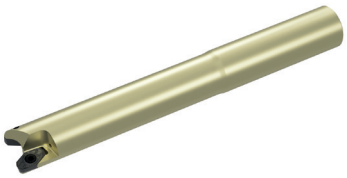
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

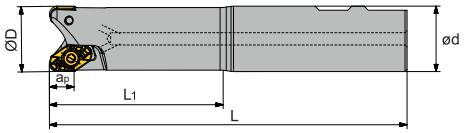
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Square shoulder milling

**EMP14** Kr: 90°







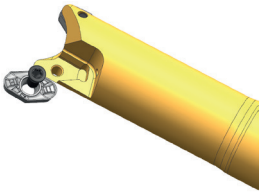

Weldon shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | $a_{p\,max}$ | | | |
| **EMP14-032-XP32-VP22-02C** | ✻ | ● | 32 | 32 | 30 | 125 | 10 | 2 | 0.642 | VPGT2205 |
| **EMP14-032-XP32-VP22-02CA** | ✻ | ● | 32 | 32 | 30 | 125 | 10 | 2 | 0.65 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

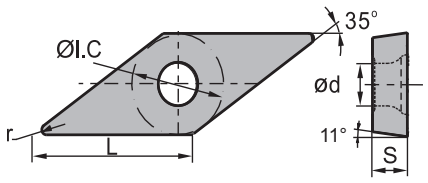
| | Insert | VPGT2205 | |
|---|---|---|---|
| | ØD | 20-150 | |
| | Screw (insert) | I60M5×11 (6.7 Nm) |  |
| | Wrench (insert) | WT20IT | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| VPGT | L | I.C | S | d |
|---|---|---|---|---|
| **22** 05 | 9 | 12.7 | 5.56 | 5.5 |




| VP** positive insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **VPGT220502-LP** | 0.2 | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **VPGT220505-LP** | 0.5 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **VPGT220508-LP** | 0.8 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | **VPGT220510-LP** | 1 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **VPGT220515-LP** | 1.5 | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **VPGT220520-LP** | 2 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **VPGT220525-LP** | 2.5 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | **VPGT220530-LP** | 3 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | **VPGT220532-LP** | 3.2 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | **VPGT220540-LP** | 4 | | | | | | | | | | | | | | | | | ○ | | | | | | ● | |
| | **VPGT220550-LP** | 5 | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **VPGT220560-LP** | 6 | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **VPGT220564-LP** | 6.4 | | | | | | | | | | | | | | | | | | | | | | | ○ | |

● Ex stock ○ On demand

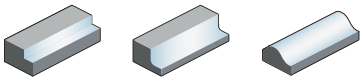
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

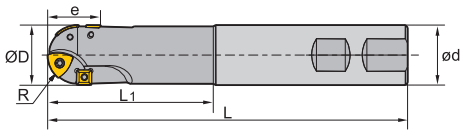
## Notes

## Profile milling

### BMR01







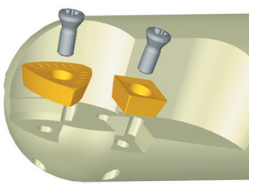

Weldon shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | e | ød | $L_1$ | L | ZDET | SPMT | | |
| **BMR01-020-XP20-S** | | ○ | 10 | 20 | 20 | 20 | 50 | 125 | 2 | 2 | 0.3 | ZDET08T2 & SPMT0603 |
| **BMR01-020-XP20-M** | | ○ | 10 | 20 | 20 | 20 | 75 | 150 | 2 | 2 | 0.3 | |
| **BMR01-020-XP20-L** | | ○ | 10 | 20 | 20 | 20 | 100 | 200 | 2 | 2 | 0.4 | |
| **BMR01-025-XP25-S** | | ○ | 12.5 | 25 | 23 | 25 | 70 | 150 | 2 | 2 | 0.5 | ZDET1103 & SPMT0603 |
| **BMR01-025-XP25-M** | | ○ | 12.5 | 25 | 23 | 25 | 95 | 175 | 2 | 2 | 0.6 | |
| **BMR01-025-XP25-L** | | ○ | 12.5 | 25 | 23 | 25 | 100 | 200 | 2 | 2 | 0.7 | |
| **BMR01-032-XP32-S** | | ○ | 16 | 32 | 31 | 32 | 85 | 175 | 2 | 2 | 0.9 | ZDET13T2 & SDMT0903 |
| **BMR01-032-XP32-M** | | ○ | 16 | 32 | 31 | 32 | 100 | 200 | 2 | 2 | 1.1 | |
| **BMR01-032-XP32-L** | | ○ | 16 | 32 | 31 | 32 | 150 | 250 | 2 | 2 | 1.4 | |
| **BMR01-040-XP40-S** | | ○ | 20 | 40 | 41 | 40 | 85 | 175 | 3 | 2 | 1.4 | ZPNT2204 & SPMT1204 |
| **BMR01-040-XP40-M** | | ○ | 20 | 40 | 41 | 40 | 100 | 200 | 3 | 2 | 1.7 | |
| **BMR01-040-XP40-L** | | ○ | 20 | 40 | 41 | 40 | 150 | 250 | 3 | 2 | 2.1 | |
| **BMR01-050-XP40-S** | | ○ | 25 | 50 | 45 | 40 | 100 | 200 | 3 | 2 | 1.8 | |
| **BMR01-050-XP40-M** | | ○ | 25 | 50 | 45 | 40 | 100 | 300 | 3 | 2 | 2.8 | |
| **BMR01-063-XP40-S** | | ○ | 31.5 | 63 | 52 | 40 | 100 | 200 | 4 | 2 | 3 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

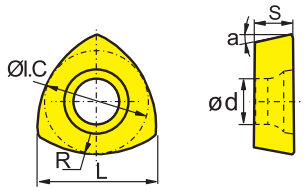
| | Insert | ZDET08T2 & SPMT0603 | ZDET1103 & SPMT0603 | ZDET13T2 & SDMT0903 | ZPNT2204 & SPMT1204 | |
|---|---|---|---|---|---|---|
| | ØD | 20 | 25 | 32 | 40-63 | |
|  | Screw (insert) | I43M2.5×5.7 (1.0 Nm) | I43M2.5×5.7 (1.0 Nm) | I43M4×8 (3.4 Nm) | I43M5×11 (6.7 Nm) |  |
|  | Wrench (insert) | WT07IP | WT07IP | | | |
|  | Wrench (insert) | | | WT15IS | WT20IS | |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

| ZDET | L | I.C | S | d |
|---|---|---|---|---|
| **08** T2 | 8.4 | 6.75 | 2.78 | 2.8 |
| **11** 03 | 10.6 | 8.5 | 3.18 | 2.8 |
| **13** T3 | 13.2 | 10.5 | 3.97 | 4.4 |
| **22** 04 | 16.1 | 12.7 | 4.76 | 5.56 |

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

## Milling inserts




| ZD** milling insert | | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ZDET13T3CYR16-PM** | 16 | | | | | ○ | | | | | | | ○ | | | | | | | | | | | | | |
|  | **ZDET08T2CYR10** | 10 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **ZDET1103CYR12.5** | 12.5 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
|  | **ZPNT2204CY(R20)** | 20 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **ZPNT2204CY(R25)** | 25 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **ZPNT2204CY(R31)** | 31.5 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

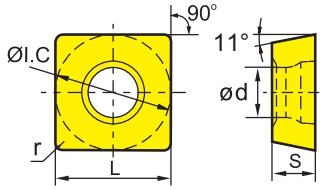
HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide


System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **06** 03 | 6.35 | 6.35 | 3.18 | 2.8 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |

| SP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPMT060304-KT** | | | ○ | | | | | | | | | | | | | | | | | | | | | | |
|  | **SPMT060304** | 0.4 | | | | | ● | | | | | | | | | | | | | | ○ | | | | | |
| | **SPMT120408** | 0.8 | ○ | ● | ○ | | ● | ○ | | | | | | | | | | | ● | | ○ | | | | | |

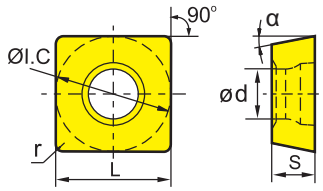
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| SDMT | L | I.C | S | d |
|---|---|---|---|---|
| **09** 03 | 9.525 | 9.525 | 3.18 | 4.4 |

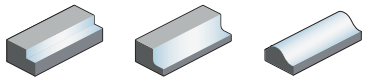
| SD** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SDMT090308** | 0.8 | | | | | ○ | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

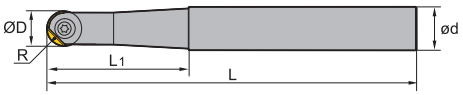
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Profile milling

### BMR02





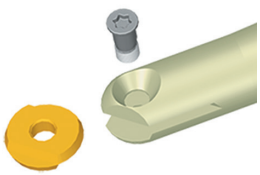



| Article | ✻ | Stock | Dimensions [mm] | | | | | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | $L_1$ | L | | |
| **BMR02-012-G16-S** | | ● | 6 | 12 | 16 | 40 | 110 | 0.1 | ROHX1203 |
| **BMR02-012-G16-M** | | ● | 6 | 12 | 16 | 50 | 130 | 0.2 | |
| **BMR02-012-G16-L** | | ● | 6 | 12 | 16 | 50 | 160 | 0.2 | |
| **BMR02-016-G20-S** | | ● | 8 | 16 | 20 | 45 | 140 | 0.3 | ROHX1604 |
| **BMR02-016-G20-M** | | ● | 8 | 16 | 20 | 65 | 170 | 0.3 | |
| **BMR02-016-G20-L** | | ● | 8 | 16 | 20 | 65 | 200 | 0.4 | |
| **BMR02-020-G25-S** | | ● | 10 | 20 | 25 | 60 | 160 | 0.5 | ROHX2005 |
| **BMR02-020-G25-M** | | ● | 10 | 20 | 25 | 80 | 200 | 0.6 | |
| **BMR02-020-G25-L** | | ● | 10 | 20 | 25 | 80 | 240 | 0.8 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

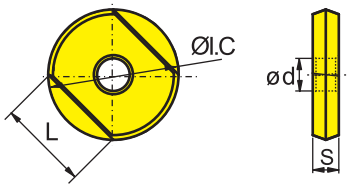
| | Insert | ROHX1203 | ROHX1604 | ROHX2005 | |
|---|---|---|---|---|---|
| | ØD | 12 | 16 | 20 | |
| | Screw (insert) | I70M4×10TT (3.4 Nm) | I70M5×12TT (6.7 Nm) | I70M5×16TT (6.7 Nm) |  |
| | Wrench (insert) | WT15IS | WT20IS | WT20IS | |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| ROHX | | L | I.C | S | d |
|---|---|---|---|---|---|
| **12** | 03 | 8.5 | 12 | 3 | 4 |
| **16** | 04 | 11.3 | 16 | 4 | 5 |
| **20** | 05 | 14.1 | 20 | 5 | 5 |




| RO** positive insert | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ○ | ○ | ◉ | ○ | ○ | ◉ | | ○ | ○ | | | ◉ | ◉ | | ◉ | ○ | ○ | ◉ | | ○ | ○ | ○ | | |
| | M | | ○ | ◉ | ○ | ○ | ◉ | | | | | | ◉ | ◉ | ◉ | ◉ | ○ | ○ | ◉ | ◉ | ○ | ○ | ○ | | |
| | K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ○ | | | | | |
| | N | | | | | | | | | | ◉ | | | | | | | | | | | | | ◉ | ◉ |
| | S | | | ◉ | | ◉ | | | | | | ○ | ◉ | | ◉ | ◉ | | ○ | | ◉ | | | | | |
| | H | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ROHX1604** | | | | | | | | | | | | | ○ | | | | | | | ● | | | | | |
| | **ROHX1203** | | | | | | | | | | | | ○ | ○ | | | | | | | ● | | | | | |
| | **ROHX2005** | | | | | | | | | | | | | ○ | | | | | | | ● | | | | | |

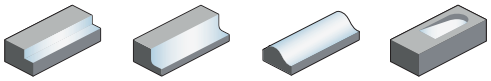
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

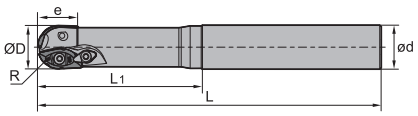
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Profile milling

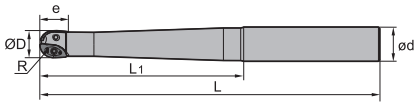
### BMR03








A




B

Straight shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | e | ød | $L_1$ | L | | | | |
| **BMR03-016-G20-S** | | ● | 8 | 16 | 16 | 20 | 70 | 150 | 2 | B | 0.3 | XPHT16 |
| **BMR03-016-G20-M** | | ● | 8 | 16 | 16 | 20 | 80 | 180 | 2 | B | 0.4 | |
| **BMR03-020-G25-S** | | ● | 10 | 20 | 20 | 25 | 80 | 180 | 2 | B | 0.5 | XPHT20 |
| **BMR03-020-G25-M** | | ● | 10 | 20 | 20 | 25 | 100 | 200 | 2 | B | 0.6 | |
| **BMR03-020-G25-L** | | ● | 10 | 20 | 20 | 25 | 150 | 250 | 2 | B | 0.7 | |
| **BMR03-020-G25-XL** | | ○ | 10 | 20 | 20 | 25 | 110 | 300 | 2 | B | 1 | |
| **BMR03-025-G25-S** | | ● | 12.5 | 25 | 25 | 25 | 80 | 180 | 2 | B | 0.6 | XPHT25 |
| **BMR03-025-G25-M** | | ● | 12.5 | 25 | 25 | 25 | 100 | 200 | 2 | B | 0.7 | |
| **BMR03-025-G25-L** | | ○ | 12.5 | 25 | 25 | 25 | 110 | 250 | 2 | B | 0.8 | |
| **BMR03-025-G25-XL** | | ○ | 12.5 | 25 | 25 | 25 | 120 | 300 | 2 | B | 1 | |
| **BMR03-030-G32-S** | | ○ | 15 | 30 | 30 | 32 | 120 | 200 | 2 | A | 1 | XPHT30 |
| **BMR03-030-G32-M** | | ● | 15 | 30 | 30 | 32 | 150 | 250 | 2 | A | 1.3 | |
| **BMR03-030-G32-L** | | ○ | 15 | 30 | 30 | 32 | 200 | 300 | 2 | A | 1.6 | |
| **BMR03-032-G32-S** | | ● | 16 | 32 | 32 | 32 | 120 | 200 | 2 | A | 1.1 | XPHT32 |
| **BMR03-032-G32-M** | | ● | 16 | 32 | 32 | 32 | 150 | 250 | 2 | A | 1.4 | |
| **BMR03-032-G32-L** | | ● | 16 | 32 | 32 | 32 | 200 | 300 | 2 | A | 1.6 | |
| **BMR03-032-G32-XL** | | ○ | 16 | 32 | 32 | 32 | 200 | 350 | 2 | A | 2 | |
| **BMR03-040-G40-S** | | ○ | 20 | 40 | 40 | 40 | 120 | 200 | 2 | A | 1.6 | XPHT40 |
| **BMR03-040-G40-M** | | ○ | 20 | 40 | 40 | 40 | 150 | 250 | 2 | A | 2 | |
| **BMR03-040-G40-L** | | ● | 20 | 40 | 40 | 40 | 200 | 300 | 2 | A | 2.5 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 Grade selection B31 Technical info B617 Cutting data B312

Spare parts

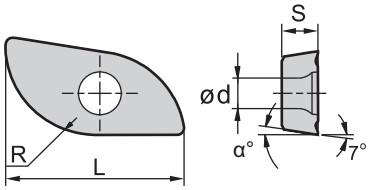
| | Insert | XPHT16 | XPHT20 | XPHT25 | XPHT30 | XPHT32 | XPHT40 |
|---|---|---|---|---|---|---|---|
| | ØD | 16 | 20 | 25 | 30 | 32 | 40 |
|  | Clamp | | | | | | CBH5R1 |
|  | Clamp | | | | WD-208 | WD-208 | |
|  | Screw (clamp) | | | | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) |
|  | Screw (insert) | I60M2.5×6.5 (1.0 Nm) | | I60M4×10 (3.4 Nm) | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) |
|  | Screw (insert) | | I60M3.5×08TT (2.7 Nm) | | | | |
|  | Wrench (clamp) | | | | WT20IT | WT20IT | WT25IT |
|  | Wrench (insert) | | WT10IP | | | | |
|  | Wrench (insert) | | | | WT20IT | WT20IT | WT25IT |
|  | Wrench (insert) | WT07P | | | | | |
|  | Wrench (insert) | | | WT15S | | | |



| XPHT | L | S | d |
|---|---|---|---|
| **16** | 16 | 3.18 | 3.1 |
| **20** | 20 | 3.97 | 4 |
| **25** | 25 | 4.76 | 4.7 |
| **30** | 30 | 6.35 | 5.8 |
| **32** | 32 | 6.35 | 5.8 |
| **40** | 40 | 7.94 | 6.8 |

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions




| XP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | ● | ● | | |
| M | | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| K | | | | | | | | ● | ● | ● | | | | | | | | | | ● | | | |
| N | | | | | | | | | | | ● | | | | | | | | | | | ● | ● |
| S | | | | ● | | ● | | | | | | ● | ● | | ● | ● | | ● | | ● | | | |
| H | | | | | | | | | | ○ | | | | | | | ● | | | | | | |

| ISO | | R | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **XPHT16R0803-GM** | 8 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT20R10T3-GM** | 10 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT25R1204-GM** | 12.5 | 9 | | | | | | | | | | | | | | | | ○ | | | ● | | | | | | |
| | **XPHT30R1506-GM** | 15 | 11 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT32R1606-GM** | 16 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT40R2007-GM** | 20 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |

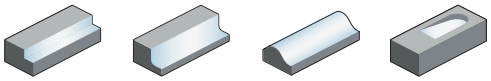
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

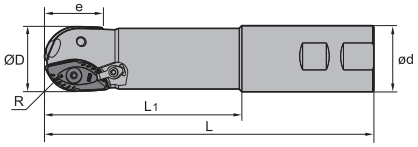
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Profile milling

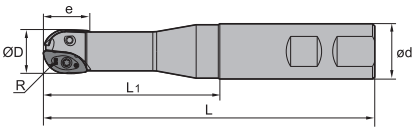
### BMR03








A




B

Weldon shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | e | ød | $L_1$ | L | | | | |
| **BMR03-016-XP20-M** | | ● | 8 | 16 | 16 | 20 | 60 | 111 | 2 | B | 0.2 | XPHT16 |
| **BMR03-020-XP25-M** | | ● | 10 | 20 | 20 | 25 | 70 | 127 | 2 | B | 0.3 | XPHT20 |
| **BMR03-020-XP25-L** | | ● | 10 | 20 | 20 | 25 | 80 | 150 | 2 | B | 0.4 | |
| **BMR03-025-XP25-M** | | ● | 12.5 | 25 | 25 | 25 | 80 | 137 | 2 | B | 0.4 | XPHT25 |
| **BMR03-025-XP25-L** | | ● | 12.5 | 25 | 25 | 25 | 100 | 200 | 2 | B | 0.6 | |
| **BMR03-030-XP32-M** | | ● | 15 | 30 | 30 | 32 | 100 | 161 | 2 | A | 0.8 | XPHT30 |
| **BMR03-030-XP32-L** | | ● | 15 | 30 | 30 | 32 | 150 | 250 | 2 | A | 1.3 | |
| **BMR03-032-XP32-M** | | ● | 16 | 32 | 32 | 32 | 100 | 161 | 2 | A | 0.8 | XPHT32 |
| **BMR03-032-XP32-L** | | ○ | 16 | 32 | 32 | 32 | 120 | 250 | 2 | A | 1.3 | |
| **BMR03-040-XP40-M** | | ○ | 20 | 40 | 40 | 40 | 100 | 175 | 2 | A | 1.3 | XPHT40 |
| **BMR03-040-XP40-L** | | ● | 20 | 40 | 40 | 40 | 120 | 250 | 2 | A | 2 | |
| **BMR03-050-XP50-M** | | ○ | 25 | 50 | 50 | 50 | 100 | 200 | 2 | A | 2.5 | XPHT50 |
| **BMR03-050-XP50-L** | | ○ | 25 | 50 | 50 | 50 | 150 | 250 | 2 | A | 3.1 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

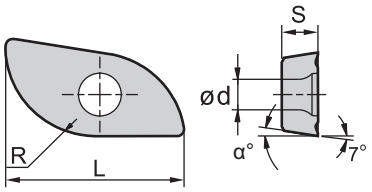
| | Insert | XPHT16 | XPHT20 | XPHT25 | XPHT30 | XPHT32 | XPHT40 | XPHT50 |
|---|---|---|---|---|---|---|---|---|
| | ØD | 16 | 20 | 25 | 30 | 32 | 40 | 50 |
|  | Clamp | | | | | | CBH5R1 | CBH5R1 |
|  | Clamp | | | | WD-208 | WD-208 | | |
|  | Screw (clamp) | | | | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) | I43M6×16 (9.1 Nm) |
|  | Screw (insert) | I60M2.5×6.5 (1.0 Nm) | | I60M4×10 (3.4 Nm) | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) | I43M8×21 (16.2 Nm) |
|  | Screw (insert) | | I60M3.5×08TT (2.7 Nm) | | | | | |
|  | Wrench (clamp) | | | | WT20IT | WT20IT | WT25IT | WT25IT |
|  | Wrench (insert) | | WT10IP | | | | | |
|  | Wrench (insert) | | | | WT20IT | WT20IT | WT25IT | WT30IT |
|  | Wrench (insert) | WT07P | | | | | | |
|  | Wrench (insert) | | | WT15S | | | | |



| XPHT | L | S | d |
|---|---|---|---|
| **16** | 16 | 3.18 | 3.1 |
| **20** | 20 | 3.97 | 4 |
| **25** | 25 | 4.76 | 4.7 |
| **30** | 30 | 6.35 | 5.8 |
| **32** | 32 | 6.35 | 5.8 |
| **40** | 40 | 7.94 | 6.8 |
| **50** | 50 | 7.94 | 9.2 |

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions




| XP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | | ● | ● | | |
| | M | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | ◐ | | |
| | K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | | ● | | | | |
| | N | | | | | | | | | | ◉ | | | | | | | | | | | | | | ◉ | ◉ |
| | S | | | ◉ | | ◉ | | | | | | ○ | ◉ | ○ | ◉ | ◉ | | ◉ | | ◉ | | | | | | |
| | H | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | | | |
| ISO | | R | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **XPHT16R0803-GM** | 8 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT20R10T3-GM** | 10 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT25R1204-GM** | 12.5 | 9 | | | | | | | | | | | | | | | | ○ | | | ● | | | | | | |
| | **XPHT30R1506-GM** | 15 | 11 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT32R1606-GM** | 16 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT40R2007-GM** | 20 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT50R2507-GM** | 25 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |

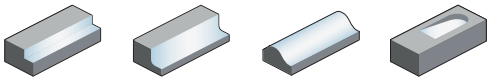
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

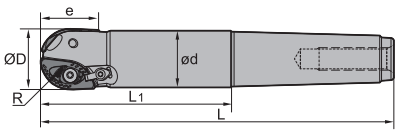
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Profile milling

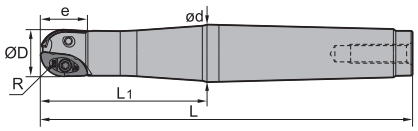
### BMR03








A




B

Morse taper shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | e | ød | $L_1$ | L | | | | |
| **BMR03-020-MT3-M** | | ○ | 10 | 20 | 20 | 18.7 | 70 | 156 | 2 | B | 0.4 | XPHT20 |
| **BMR03-020-MT3-L** | | ○ | 10 | 20 | 20 | 18.7 | 100 | 186 | 2 | B | 0.4 | |
| **BMR03-025-MT3-M** | | ○ | 12.5 | 25 | 25 | 23.5 | 70 | 156 | 2 | B | 0.4 | XPHT25 |
| **BMR03-025-MT3-L** | | ○ | 12.5 | 25 | 25 | 23.5 | 100 | 186 | 2 | B | 0.4 | |
| **BMR03-030-MT4-M** | | ○ | 15 | 30 | 30 | 28.2 | 70 | 189 | 2 | A | 0.8 | XPHT30 |
| **BMR03-030-MT4-L** | | ○ | 15 | 30 | 30 | 28.2 | 120 | 229 | 2 | A | 1 | |
| **BMR03-032-MT4-M** | | ○ | 16 | 32 | 32 | 29.2 | 70 | 179 | 2 | A | 0.9 | XPHT32 |
| **BMR03-032-MT4-L** | | ● | 16 | 32 | 32 | 29.2 | 100 | 209 | 2 | A | 0.9 | |
| **BMR03-040-MT5-L** | | ○ | 20 | 40 | 40 | 36.9 | 90 | 226 | 2 | A | 1.8 | XPHT40 |
| **BMR03-050-MT5-M** | | ● | 25 | 50 | 50 | 46.8 | 100 | 236 | 2 | A | 2.2 | XPHT50 |
| **BMR03-050-MT5-L** | | ○ | 25 | 50 | 50 | 46.8 | 150 | 286 | 2 | A | 2.9 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 Grade selection B31 Technical info B617 Cutting data B312

Spare parts

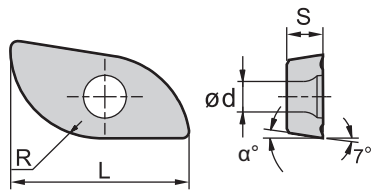
| | Insert | XPHT20 | XPHT25 | XPHT30 | XPHT32 | XPHT40 | XPHT50 |
|---|---|---|---|---|---|---|---|
| | ØD | 20 | 25 | 30 | 32 | 40 | 50 |
| | Clamp | | | | | CBH5R1 | CBH5R1 |
| | Clamp | | | WD-208 | WD-208 | | |
| | Screw (clamp) | | | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) | I43M6×16 (9.1 Nm) |
| | Screw (insert) | | I60M4×10 (3.4 Nm) | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) | I43M6×16 (9.1 Nm) | I43M8×21 (16.2 Nm) |
| | Screw (insert) | I60M3.5×08TT (2.7 Nm) | | | | | |
| | Wrench (clamp) | | | WT20IT | WT20IT | WT25IT | WT25IT |
| | Wrench (insert) | WT10IP | | | | | |
| | Wrench (insert) | | | WT20IT | WT20IT | WT25IT | WT30IT |
| | Wrench (insert) | | WT15S | | | | |



| XPHT | L | S | d |
|---|---|---|---|
| **20** | 20 | 3.97 | 4 |
| **25** | 25 | 4.76 | 4.7 |
| **30** | 30 | 6.35 | 5.8 |
| **32** | 32 | 6.35 | 5.8 |
| **40** | 40 | 7.94 | 6.8 |
| **50** | 50 | 7.94 | 9.2 |

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions




| XP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **XPHT20R10T3-GM** | 10 | 9 | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT25R1204-GM** | 12.5 | 9 | | | | | | | | | | | | | | | | ○ | | ● | | | | | | |
| | **XPHT30R1506-GM** | 15 | 11 | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT32R1606-GM** | 16 | 9 | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT40R2007-GM** | 20 | 9 | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT50R2507-GM** | 25 | 9 | | | | | | | | | | | | | | | | | | ● | | | | | | |

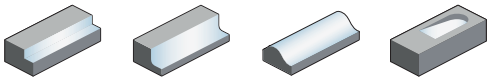
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

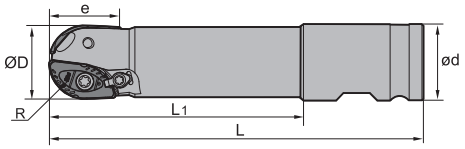
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Profile milling

### BMR03








Compound shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | e | ød | $L_1$ | L | | | |
| **BMR03-040-XPX-M** | | ○ | 20 | 40 | 40 | 50.8 | 170 | 250 | 2 | 1.3 | XPHT40 |
| **BMR03-040-XPX-L** | | ○ | 20 | 40 | 40 | 50.8 | 220 | 300 | 2 | 3.1 | |
| **BMR03-040-XPX-XL** | | ○ | 20 | 40 | 40 | 50.8 | 270 | 350 | 2 | 3.5 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **XPHT40** |
|---|---|---|
| | **ØD** | **40** |
| | Clamp | CBH5R1 |
| | Screw (clamp) | I43M6×16 (9.1 Nm) |
| | Screw (insert) | I43M6×16 (9.1 Nm) |
| | Wrench (clamp) | WT25IT |
| | Wrench (insert) | WT25IT |

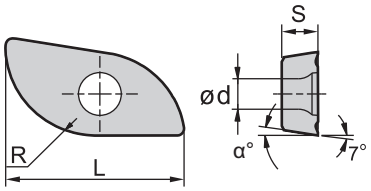


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| XPHT | L | S | d |
|---|---|---|---|
| **40** | 40 | 7.94 | 6.8 |




| XP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | | | ○ | ○ | | ○ | ○ | ○ | ○ | | ○ | ○ | | |
| M | | | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |
| K | | | | | | | | ○ | ○ | ○ | | | | | | | | | | ○ | | | | |
| N | | | | | | | | | | | ○ | | | | | | | | | | | | ○ | ○ |
| S | | | | | ○ | | ○ | | | | | ○ | ○ | | ○ | ○ | | ○ | | ○ | | | | |
| H | | | | | | | | | | ○ | | | | | | | ○ | | | | | | | |
| ISO | R | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| **XPHT40R2007-GM** | 20 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |

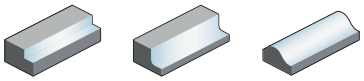
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

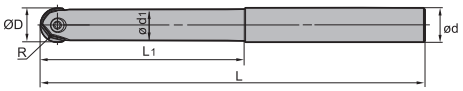
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Profile milling

### BMR04








Straight shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | Ød1 | $L_1$ | L | | |
| **BMR04-012-G12-M** | | ● | 6 | 12 | 12 | 11 | 35 | 125 | 0.1 | ZOHX12 |
| **BMR04-012-G12-L** | | ● | 6 | 12 | 12 | 11 | 45 | 150 | 0.1 | |
| **BMR04-016-G16-M** | | ● | 8 | 16 | 16 | 14 | 40 | 150 | 0.2 | ZOHX16 |
| **BMR04-016-G16-L** | | ● | 8 | 16 | 16 | 14 | 55 | 180 | 0.3 | |
| **BMR04-020-G20-M** | | ● | 10 | 20 | 20 | 18 | 65 | 180 | 0.4 | ZOHX20 |
| **BMR04-020-G20-L** | | ● | 10 | 20 | 20 | 18 | 100 | 250 | 0.6 | |
| **BMR04-025-G25-M** | | ● | 12.5 | 25 | 25 | 23 | 70 | 200 | 0.7 | ZOHX25 |
| **BMR04-025-G25-L** | | ● | 12.5 | 25 | 25 | 23 | 100 | 250 | 0.9 | |
| **BMR04-030-G32-M** | | ● | 15 | 30 | 32 | 27 | 80 | 250 | 1.2 | ZOHX30 |
| **BMR04-030-G32-L** | | ● | 15 | 30 | 32 | 27 | 110 | 300 | 1.5 | |
| **BMR04-032-G32-M** | | ● | 16 | 32 | 32 | 29 | 80 | 250 | 1.4 | ZOHX32 |
| **BMR04-032-G32-L** | | ● | 16 | 32 | 32 | 29 | 110 | 300 | 1.7 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **ZOHX12** | **ZOHX16** | **ZOHX20** | **ZOHX25** | **ZOHX30** | **ZOHX32** |
|---|---|---|---|---|---|---|---|
| | **ØD** | **12** | **16** | **20** | **25** | **30** | **32** |
| | Screw (insert) | I70M4×10TT (3.4 Nm) | I70M5×12TT (6.7 Nm) | I70M5×16TT (6.7 Nm) | I70M6×20TT (9.1 Nm) | I70M8×25TT (16.2 Nm) | I70M8×25TT (16.2 Nm) |
| | Wrench (insert) | WT15IP | WT20IP | WT20IP | WT20IP | | |
| | Wrench (insert) | | | | | WT30IT | WT30IT |

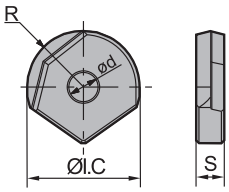


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| ZOHX | I.C | S | d |
|---|---|---|---|
| **12** | 12 | 3 | 4 |
| **16** | 16 | 4 | 5 |
| **20** | 20 | 5 | 5 |
| **25** | 25 | 6 | 6 |
| **30** | 30 | 7 | 8 |
| **32** | 32 | 7 | 8 |

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

## Milling inserts




| ZO** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ZOHX1203-GF** | 6 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX1604-GF** | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2005-GF** | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2506-GF** | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | |
| | **ZOHX3007-GF** | 15 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX3207-GF** | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
|  | **ZOHX1203-GM** | 6 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX1604-GM** | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2005-GM** | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2506-GM** | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | |
| | **ZOHX3007-GM** | 15 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX3207-GM** | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
|  | **ZOHX1203-HM** | 6 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX1604-HM** | 8 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX2005-HM** | 10 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX2506-HM** | 12.5 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX3007-HM** | 15 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX3207-HM** | 16 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

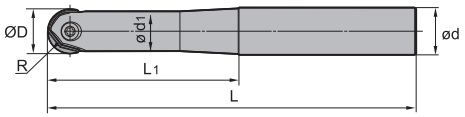
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Profile milling

### BMR04






Straight shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | R | ØD | ød | Ød1 | $L_1$ | L | | |
| **BMR04-012-G16-M** | | ● | 6 | 12 | 16 | 11 | 50 | 125 | 0.2 | ZOHX12 |
| **BMR04-012-G16-L** | | ● | 6 | 12 | 16 | 11 | 70 | 150 | 0.2 | |
| **BMR04-016-G20-M** | | ● | 8 | 16 | 20 | 14 | 60 | 150 | 0.3 | ZOHX16 |
| **BMR04-016-G20-L** | | ● | 8 | 16 | 20 | 14 | 80 | 180 | 0.3 | |
| **BMR04-020-G25-M** | | ● | 10 | 20 | 25 | 18 | 75 | 180 | 0.6 | ZOHX20 |
| **BMR04-020-G25-L** | | ● | 10 | 20 | 25 | 18 | 95 | 200 | 0.6 | |
| **BMR04-025-G32-M** | | ● | 12.5 | 25 | 32 | 23 | 90 | 200 | 1 | ZOHX25 |
| **BMR04-025-G32-L** | | ● | 12.5 | 25 | 32 | 23 | 110 | 250 | 1.3 | |
| **BMR04-030-G40-M** | | ● | 15 | 30 | 40 | 27 | 110 | 250 | 2 | ZOHX30 |
| **BMR04-032-G40-L** | | ● | 16 | 32 | 40 | 29 | 125 | 300 | 2.4 | ZOHX32 |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

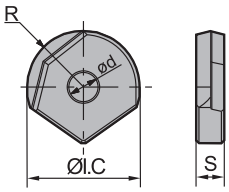
| | Insert | ZOHX12 | ZOHX16 | ZOHX20 | ZOHX25 | ZOHX30 | ZOHX32 | |
|---|---|---|---|---|---|---|---|---|
| | ØD | 12 | 16 | 20 | 25 | 30 | 32 | |
| | Screw (insert) | I70M4×10TT (3.4 Nm) | I70M5×12TT (6.7 Nm) | I70M5×16TT (6.7 Nm) | I70M6×20TT (9.1 Nm) | I70M8×25TT (16.2 Nm) | I70M8×25TT (16.2 Nm) |  |
| | Wrench (insert) | WT15IP | WT20IP | WT20IP | WT20IP | | | |
| | Wrench (insert) | | | | | WT30IT | WT30IT | |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

| ZOHX | I.C | S | d |
|---|---|---|---|
| **12** | 12 | 3 | 4 |
| **16** | 16 | 4 | 5 |
| **20** | 20 | 5 | 5 |
| **25** | 25 | 6 | 6 |
| **30** | 30 | 7 | 8 |
| **32** | 32 | 7 | 8 |

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

## Milling inserts




| ZO** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ZOHX1203-GF** | 6 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX1604-GF** | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2005-GF** | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2506-GF** | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | |
| | **ZOHX3007-GF** | 15 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX3207-GF** | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
|  | **ZOHX1203-GM** | 6 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX1604-GM** | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2005-GM** | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2506-GM** | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | |
| | **ZOHX3007-GM** | 15 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX3207-GM** | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
|  | **ZOHX1203-HM** | 6 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX1604-HM** | 8 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX2005-HM** | 10 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX2506-HM** | 12.5 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX3007-HM** | 15 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX3207-HM** | 16 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

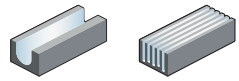
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

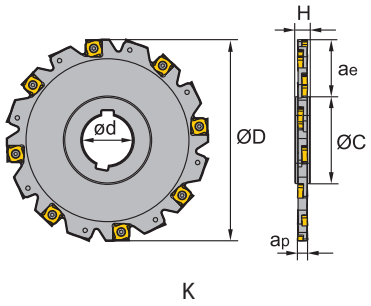
## Notes

## Slot milling

**SMP01** Kr: 90°






K

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | Øc | H | $a_p$ | $a_{e\ max}$ | | | |
| **SMP01-100x4-K27-SN12-10** | | ○ | 100 | 27 | 45 | 12 | 4 | 25 | K | 0.2 | |
| **SMP01-125x4-K40-SN12-12** | | ○ | 125 | 40 | 56 | 12 | 4 | 32 | K | 0.3 | XSEQ1202 |
| **SMP01-160x4-K40-SN12-16** | | ● | 160 | 40 | 67 | 12 | 4 | 44 | K | 0.5 | |
| **SMP01-100x5-K27-SN12-10** | | ○ | 100 | 27 | 45 | 12 | 5 | 25 | K | 0.2 | |
| **SMP01-125x5-K40-SN12-12** | | ○ | 125 | 40 | 56 | 12 | 5 | 32 | K | 0.3 | XSEQ1203 |
| **SMP01-160x5-K40-SN12-16** | | ○ | 160 | 40 | 67 | 12 | 5 | 44 | K | 0.6 | |
| **SMP01-100x7-K27-SN12-10** | | ○ | 100 | 27 | 45 | 12 | 7 | 25 | K | 0.3 | |
| **SMP01-125x7-K40-SN12-12** | | ○ | 125 | 40 | 56 | 12 | 7 | 32 | K | 0.4 | |
| **SMP01-160x7-K40-SN12-16** | | ○ | 160 | 40 | 67 | 12 | 7 | 44 | K | 0.8 | XSEQ1204 |
| **SMP01-200x7-K50-SN12-18** | | ○ | 200 | 50 | 71 | 12 | 7 | 62 | K | 1.2 | |
| **SMP01-250x7-K50-SN12-24** | | ○ | 250 | 50 | 71 | 12 | 7 | 87 | K | 1.9 | |
| **SMP01-100x6-K27-SN12-10** | | ○ | 100 | 27 | 45 | 12 | 6 | 25 | K | 0.3 | |
| **SMP01-125x6-K40-SN12-12** | | ○ | 125 | 40 | 56 | 12 | 6 | 32 | K | 0.4 | |
| **SMP01-160x6-K32-SN12-16** | | ○ | 160 | 32 | | 12 | 6 | 44 | K | | |
| **SMP01-160x6-K40-SN12-16** | | ○ | 160 | 40 | 67 | 12 | 6 | 44 | K | 0.7 | XSEQ12T3 |
| **SMP01-200x6-K50-SN12-18** | | ○ | 200 | 50 | 71 | 12 | 6 | 62 | K | 1.1 | |
| **SMP01-250x6-K50-SN12-24** | | ○ | 250 | 50 | 71 | 12 | 6 | 87 | K | 1.7 | |
| **SMP01-315x6-K50-SN12-32** | | ○ | 315 | 50 | 72 | 11.15 | 6 | 119.6 | K | 2.9 | |
| **SMP01-100x8-K27-SN12-10** | | ○ | 100 | 27 | 45 | 12 | 8 | 25 | K | 0.3 | |
| **SMP01-125x8-K40-SN12-12** | | ○ | 125 | 40 | 56 | 12 | 8 | 32 | K | 0.5 | |
| **SMP01-160x8-K40-SN12-16** | | ○ | 160 | 40 | 67 | 12 | 8 | 44 | K | 0.9 | XSEQ12T4 |
| **SMP01-200x8-K50-SN12-18** | | ○ | 200 | 50 | 71 | 12 | 8 | 62 | K | 1.4 | |
| **SMP01-250x8-K50-SN12-24** | | ○ | 250 | 50 | 71 | 12 | 8 | 87 | K | 2.2 | |

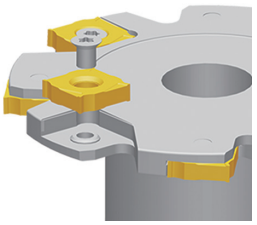
● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

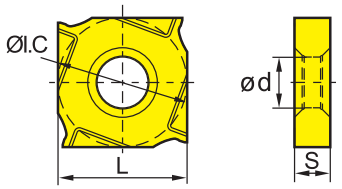
| | Insert | XSEQ1202 | XSEQ1203 | XSEQ1204 | XSEQ12T3 | XSEQ12T3 | XSEQ12T4 |
|---|---|---|---|---|---|---|---|
| | ØD | 63-160 | 63-160 | 63-250 | 63-250 | 63-360 | 63-250 |
| | Screw (insert) | I91M4×3.2X (3.4 Nm) | I91M4×3.2X (3.4 Nm) | I91M4×6.1X (3.4 Nm) | I91M4×5.1X (3.4 Nm) | I91M4×5.1X (3.4 Nm) | I91M4×7.1X (3.4 Nm) |
| | Wrench (insert) | WT08IP | WT08IP | WT08IP | WT08IP | WT08IP | WT08IP |



| XSEQ | L | I.C | S | d |
|---|---|---|---|---|
| **12** 02 | 12.7 | 12.7 | 2.3 | 5 |
| **12** 03 | 12.7 | 12.7 | 3 | 5 |
| **12** T3 | 12.7 | 12.7 | 3.5 | 5 |
| **12** 04 | 12.7 | 12.7 | 4 | 5 |
| **12** T4 | 12.7 | 12.7 | 4.5 | 5 |

## Milling inserts

● Ideal machining conditions
● Normal machining conditions
● Unfavourable machining conditions




| XS** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | XSEQ1202 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | XSEQ1204 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | XSEQ1203 | ○ | | | ● | | | | | | | | | | | | | | | ● | | | | | | |
| | XSEQ12T3 | | ● | | | | | | | | | | | | | | | | | ● | | | | | ○ | |
| | XSEQ12T4 | | | | | | | | ○ | ○ | | | | | | | | | | ● | | | | | | |

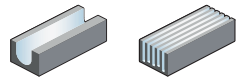
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

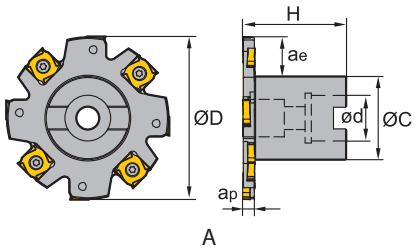

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

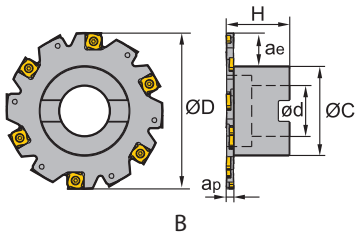
## Slot milling

### SMP01 Kr: 90°








| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | Øc | H | $a_p$ | $a_{e\,max}$ | | | | |
| **SMP01-063x4-A22-SN12-06** | | ○ | 63 | 22 | 32 | 40 | 4 | 14 | 6 | A | 0.2 | XSEQ1202 |
| **SMP01-080x4-A22-SN12-08** | | ○ | 80 | 22 | 40 | 40 | 4 | 18 | 8 | A | 0.4 | |
| **SMP01-100x4-A22-SN12-10** | | ○ | 100 | 22 | | 50 | 4 | 23 | 10 | A | | |
| **SMP01-100x4-A27-SN12-10** | | ○ | 100 | 27 | 48 | 50 | 4 | 23 | 10 | A | 0.6 | |
| **SMP01-063x5-A22-SN12-06** | | ○ | 63 | 22 | 32 | 40 | 5 | 14 | 6 | A | 0.2 | XSEQ1203 |
| **SMP01-080x5-A22-SN12-08** | | ○ | 80 | 22 | 40 | 40 | 5 | 18 | 8 | A | 0.4 | |
| **SMP01-100x5-A27-SN12-10** | | ○ | 100 | 27 | 48 | 50 | 5 | 23 | 10 | A | 0.7 | |
| **SMP01-063x7-A22-SN12-06** | | ○ | 63 | 22 | 32 | 40 | 7 | 14 | 6 | A | 0.2 | XSEQ1204 |
| **SMP01-080x7-A22-SN12-08** | | ○ | 80 | 22 | 40 | 40 | 7 | 18 | 8 | A | 0.5 | |
| **SMP01-100x7-A27-SN12-10** | | ○ | 100 | 27 | 48 | 50 | 7 | 23 | 10 | A | 0.7 | |
| **SMP01-125x7-B40-SN12-12** | | ○ | 125 | 40 | 72 | 50 | 7 | 23 | 12 | B | 1.1 | |
| **SMP01-160x7-B40-SN12-16** | | ○ | 160 | 40 | 70 | 60 | 7 | 41 | 16 | B | 1.4 | |
| **SMP01-063x6-A22-SN12-06** | | ○ | 63 | 22 | 32 | 40 | 6 | 14 | 6 | A | 0.2 | XSEQ12T3 |
| **SMP01-080x6-A22-SN12-08** | | ○ | 80 | 22 | 40 | 40 | 6 | 18 | 8 | A | 0.5 | |
| **SMP01-100x6-A27-SN12-10** | | ○ | 100 | 27 | 48 | 50 | 6 | 23 | 10 | A | 0.7 | |
| **SMP01-125x6-B40-SN12-12** | | ○ | 125 | 40 | 72 | 50 | 6 | 23 | 12 | B | 1 | |
| **SMP01-160x6-B40-SN12-16** | | ○ | 160 | 40 | 70 | 60 | 6 | 41 | 16 | B | 1.3 | |
| **SMP01-063x8-A22-SN12-06** | | ○ | 63 | 22 | 32 | 40 | 8 | 14 | 6 | A | 0.2 | XSEQ12T4 |
| **SMP01-080x8-A22-SN12-08** | | ○ | 80 | 22 | 40 | 40 | 8 | 18 | 8 | A | 0.5 | |
| **SMP01-100x8-A27-SN12-10** | | ○ | 100 | 27 | 48 | 50 | 8 | 23 | 10 | A | 0.8 | |
| **SMP01-125x8-B40-SN12-12** | | ○ | 125 | 40 | 72 | 50 | 8 | 23 | 12 | B | 1.1 | |
| **SMP01-160x8-B40-SN12-16** | | ○ | 160 | 40 | 70 | 60 | 8 | 41 | 16 | B | 1.5 | |

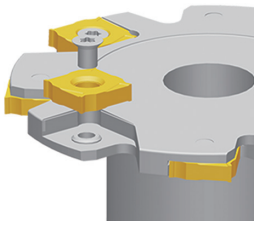
● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

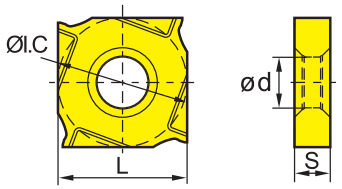
| | Insert | XSEQ1202 | XSEQ1203 | XSEQ1204 | XSEQ12T3 | XSEQ12T4 |
|---|---|---|---|---|---|---|
| | ØD | 63-160 | 63-160 | 63-250 | 63-250 | 63-250 |
| | Screw (insert) | I91M4×3.2X (3.4 Nm) | I91M4×3.2X (3.4 Nm) | I91M4×6.1X (3.4 Nm) | I91M4×5.1X (3.4 Nm) | I91M4×7.1X (3.4 Nm) |
| | Wrench (insert) | WT08IP | WT08IP | WT08IP | WT08IP | WT08IP |



| XSEQ | L | I.C | S | d |
|---|---|---|---|---|
| **12** 02 | 12.7 | 12.7 | 2.3 | 5 |
| **12** 03 | 12.7 | 12.7 | 3 | 5 |
| **12** T3 | 12.7 | 12.7 | 3.5 | 5 |
| **12** 04 | 12.7 | 12.7 | 4 | 5 |
| **12** T4 | 12.7 | 12.7 | 4.5 | 5 |

## Milling inserts

● Ideal machining conditions
● Normal machining conditions
● Unfavourable machining conditions




| XS** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | | | |
| | H | | | | | | | | | | ○ | | | | | | ● | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **XSEQ1202** | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XSEQ1203** | ○ | | | ● | | | | | | | | | | | | | | | ● | | | | | | |
| | **XSEQ1204** | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XSEQ12T3** | | ● | | | | | | | | | | | | | | | | | ● | | | | | ○ | |
| | **XSEQ12T4** | | | | | | | | ○ | ○ | | | | | | | | | | ● | | | | | | |

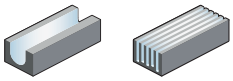
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

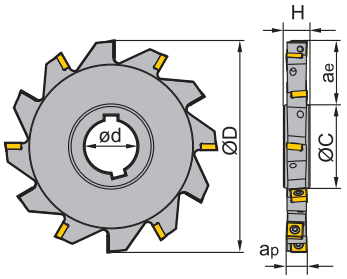

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Slot milling

### SMP03 Kr: 90°








K

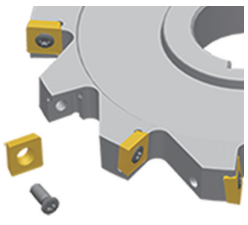
| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | Øc | H | $a_p$ | $a_{e\,max}$ | | | | |
| **SMP03-080x8-K27-MP06-10** | | ○ | 80 | 27 | 44 | 12 | 8 | 17.6 | 10 | K | 0.2 | MPHT0603 |
| **SMP03-100x8-K32-MP06-14** | | ○ | 100 | 32 | 49 | 12 | 8 | 25.1 | 14 | K | 0.3 | |
| **SMP03-100x10-K32-MP06-14** | | ○ | 100 | 32 | 49 | 14 | 10 | 25.1 | 14 | K | 0.4 | |
| **SMP03-125x10-K40-MP06-16** | | ○ | 125 | 40 | 57 | 14 | 10 | 33.6 | 16 | K | 0.6 | |
| **SMP03-125x12-K40-MP08-12** | | ○ | 125 | 40 | 58.3 | 16 | 12 | 32.6 | 12 | K | 0.7 | MPHT0803 |
| **SMP03-160x12-K40-MP08-14** | | ○ | 160 | 40 | 64.3 | 16 | 12 | 31.5 | 14 | K | 1.3 | |
| **SMP03-160x16-K40-MP12-12** | | ○ | 160 | 40 | 64.6 | 20 | 16 | 47.6 | 12 | K | 1.6 | MPHT1204 |
| **SMP03-160x18-K40-MP12-12** | | ○ | 160 | 40 | 65.3 | 24 | 18 | 47.3 | 12 | K | 1.9 | |
| **SMP03-160x20-K40-MP12-12** | | ○ | 160 | 40 | 65.3 | 26 | 20 | 47.3 | 12 | K | 2.1 | |
| **SMP03-200x16-K50-MP12-14** | | ○ | 200 | 50 | 74.6 | 20 | 16 | 62.6 | 14 | K | 2.5 | |
| **SMP03-200x18-K50-MP12-14** | | ○ | 200 | 50 | 75.3 | 24 | 18 | 62.3 | 14 | K | 2.9 | |
| **SMP03-200x20-K50-MP12-14** | | ○ | 200 | 50 | 75.3 | 26 | 20 | 62.3 | 14 | K | 3.3 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **MPHT0603** | **MPHT0803** | **MPHT1204** |
|---|---|---|---|---|
| | **ØD** | **80-125** | **125 -160** | **160-200** |
| | Screw (insert) | I60M2.5×6.5 (1.0 Nm) | I60M3×7 (1.8 Nm) | I60M5×13 (6.7 Nm) |
| | Wrench (insert) | WT07IP | WT09IP | |
| | Wrench (insert) | | | WT20IS |

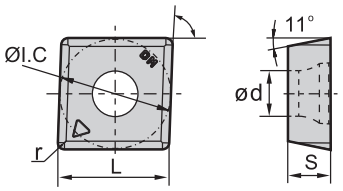


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| MPHT | L | I.C | S | d |
|---|---|---|---|---|
| **06** 03 | 6.35 | 6.35 | 3.18 | 2.8 |
| **08** 03 | 8.3 | 8.3 | 3.18 | 3.4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.56 |




| MP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **MPHT060304-DM** | 0.4 | ● | | | | ○ | | | | | | | | | | | | | | ● | | | | | | |
| | **MPHT080305-DM** | 0.5 | ● | | | | ○ | | | | | | | | | | | | | | ● | | | | | | |
| | **MPHT120408-DM** | 0.8 | ● | | | | ○ | | ● | | | | | | | | | | | ○ | ● | | | | | | |
|  | **MPHT060304-LH** | 0.4 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

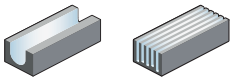
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

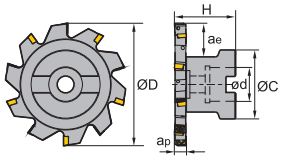

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Slot milling

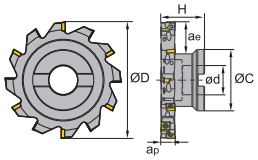
### SMP03 Kr: 90°



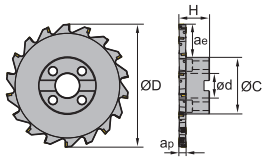




A



B



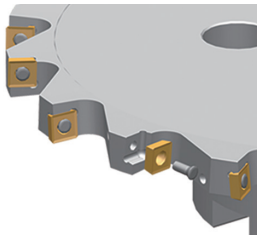
C

| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | Øc | H | $a_p$ | $a_{e\,max}$ | | | | |
| **SMP03-080x8-A22-MP06-10** | | ○ | 80 | 22 | 45 | 40 | 8 | 21 | 10 | A | 0.4 | MPHT0603 |
| **SMP03-100x8-B27-MP06-14** | | ○ | 100 | 27 | 55 | 40 | 8 | 24.5 | 14 | B | 0.6 | |
| **SMP03-100x10-B27-MP06-14** | | ● | 100 | 27 | 55 | 40 | 10 | 24.5 | 14 | B | 0.7 | |
| **SMP03-125x10-B32-MP06-16** | | ○ | 125 | 32 | 65 | 45 | 10 | 33.3 | 16 | B | 1.1 | |
| **SMP03-125x12-B32-MP08-12** | | ○ | 125 | 32 | 65 | 45 | 12 | 33 | 12 | B | 1.4 | MPHT0803 |
| **SMP03-160x12-B40-MP08-14** | | ○ | 160 | 40 | 80 | 50 | 12 | 44 | 14 | B | 1.9 | |
| **SMP03-200x12-C40-MP08-18** | | ○ | 200 | 40 | 92 | 50 | 12 | 52 | 18 | C | 3.2 | |
| **SMP03-125x16-B32-MP12-10** | | ○ | 125 | 32 | 65 | 50 | 16 | 33 | 10 | B | 2.3 | MPHT1204 |
| **SMP03-160x16-B40-MP12-12** | | ○ | 160 | 40 | 80 | 60 | 16 | 45 | 12 | B | 2.3 | |
| **SMP03-160x18-B40-MP12-12** | | ○ | 160 | 40 | 80 | 60 | 18 | 45 | 12 | B | 2.4 | |
| **SMP03-200x16-C40-MP12-14** | | ○ | 200 | 40 | 92 | 50 | 16 | 52 | 14 | C | 3.6 | |
| **SMP03-200x18-C40-MP12-14** | | ○ | 200 | 40 | 92 | 50 | 18 | 52 | 14 | C | 3.9 | |
| **SMP03-200x20-C40-MP12-14** | | ○ | 200 | 40 | 92 | 50 | 20 | 52 | 14 | C | 4.2 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

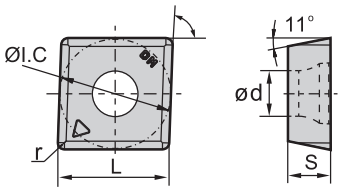
| | **Insert** | **MPHT0603** | **MPHT0803** | **MPHT1204** | |
|---|---|---|---|---|---|
| | **ØD** | **80-125** | **125 -200** | **125 -200** | |
| | Screw (insert) | I60M2.5×6.5 (1.0 Nm) | I60M3×7 (1.8 Nm) | I60M5×13 (6.7 Nm) |  |
| | Wrench (insert) | WT07IP | WT09IP | | |
| | Wrench (insert) | | | WT20IS | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| MPHT | L | I.C | S | d |
|---|---|---|---|---|
| **06** 03 | 6.35 | 6.35 | 3.18 | 2.8 |
| **08** 03 | 8.3 | 8.3 | 3.18 | 3.4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.56 |




| MP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **MPHT060304-DM** | 0.4 | ● | | | | ○ | | | | | | | | | | | | | | ● | | | | | | |
| | **MPHT080305-DM** | 0.5 | ● | | | | ○ | | | | | | | | | | | | | | ● | | | | | | |
| | **MPHT120408-DM** | 0.8 | ● | | | | ○ | | ● | | | | | | | | | | | ○ | ● | | | | | | |
|  | **MPHT060304-LH** | 0.4 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

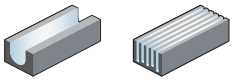
● Ex stock ○ On demand

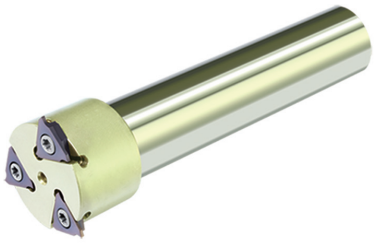
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

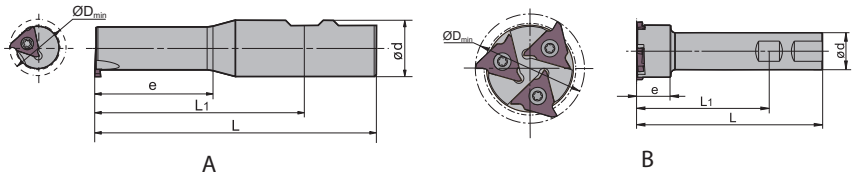

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Slot milling

**SMP05** Kr: 90°





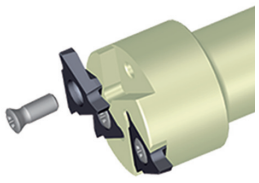



| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | e | ØDmin | ød | $L_1$ | L | | | |
| **SMP05-025x3.0-XP25-QC16-01** | | ● | 40 | 25 | 25 | 89 | 125 | 1 | A | QC16L |
| **SMP05-039x3.0-XP25-QC16-03** | | ● | 23 | 39 | 25 | 89 | 125 | 3 | B | |
| **SMP05-044x4.8-XP25-QC22-03** | | ● | 23 | 44 | 25 | 89 | 125 | 3 | B | QC22L |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

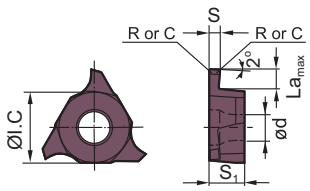
| | **Insert** | **QC16L** | **QC16L** | **QC22L** | |
|---|---|---|---|---|---|
| | **ØD** | **25** | **39** | **44** | |
| | Screw (insert) | I60M3.5×10 (2.7 Nm) | I60M3.5×10 (2.7 Nm) | I60M5×13 (6.7 Nm) |  |
| | Wrench (insert) | WT15IP | WT15IP | WT20IP | |

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Milling inserts

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

| QC16 | I.C | d |
|---|---|---|
| **16** | 9.525 | 4.4 |
| **22** | 12.7 | 5.5 |




| QC** turning/milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | S±0.025 | $La_{max}$ | R/C | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | QC16L075-R01 | 0.75 | 2 | 0.1 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L095-R01 | 0.95 | 2 | 0.1 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L100-R01 | 1 | 2 | 0.1 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L110-R01 | 1.1 | 2 | 0.1 | | | | | | | | | | | | | ○ | | | ● | | | | | | | | | |
| | QC16L120-R01 | 1.2 | 2 | 0.1 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L125-R02 | 1.25 | 2 | 0.2 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | QC16L130-R02 | 1.3 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L145-R02 | 1.45 | 2 | 0.2 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | QC16L150-R02 | 1.5 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L160-R02 | 1.6 | 2 | 0.2 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | QC16L165-R02 | 1.65 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L170-R02 | 1.7 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L175-R02 | 1.75 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L185-R02 | 1.85 | 2.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L200-R02 | 2 | 2.5 | 0.2 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | QC16L210-R02 | 2.1 | 2.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L210-R05 | 2.1 | 2.5 | 0.5 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L220-R02 | 2.2 | 2.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | QC16L250-R02 | 2.5 | 2.5 | 0.2 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | QC16L300-R02 | 3 | 3 | 0.2 | | | | | | | | | | | | | | | | ● | | | | | | | | | |

● Ex stock ○ On demand

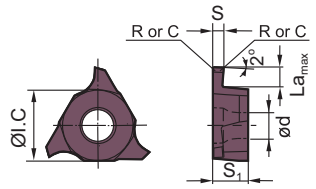
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| QC16 | I.C | d |
|---|---|---|
| **16** | 9.525 | 4.4 |
| **22** | 12.7 | 5.5 |




| QC** turning/milling insert | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | ● | ● | ● | | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | | ● | ● | ● | | | | | | | | | ● | | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | | | | | |
| | H | | | | | | | | | ○ | | | | | | ● | | | | | | | |

| ISO | | S±0.025 | $La_{max}$ | R/C | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **QC22L100-R02** | 1 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L125-R02** | 1.25 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L145-R02** | 1.45 | 2 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L150-R02** | 1.5 | 3.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L175-R02** | 1.75 | 3.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L185-R02** | 1.85 | 3.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L200-R02** | 2 | 3.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L230-R02** | 2.3 | 3.5 | 0.2 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L250-R03** | 2.5 | 4 | 0.3 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L265-R03** | 2.65 | 4 | 0.3 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | **QC22L280-R03** | 2.8 | 4 | 0.3 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L300-R03** | 3 | 4 | 0.3 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L320-R03** | 3.2 | 4 | 0.3 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L330-R03** | 3.3 | 4 | 0.3 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L350-R03** | 3.5 | 5 | 0.3 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |
| | **QC22L400-R04** | 4 | 5 | 0.4 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | **QC22L430-R04** | 4.3 | 5 | 0.4 | | | | | | | | | | | | | ○ | | | ○ | | | | | | | | | |
| | **QC22L450-R04** | 4.5 | 5 | 0.4 | | | | | | | | | | | | | | | | ○ | | | | | | | | ○ | |
| | **QC22L480-R04** | 4.8 | 5 | 0.4 | | | | | | | | | | | | | | | | ○ | | | | | | | | | |

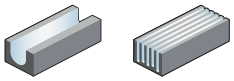
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

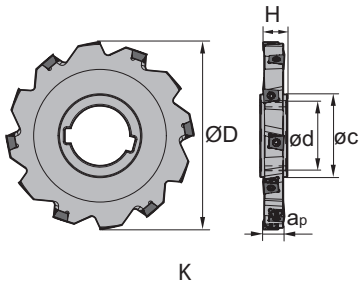
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Slot milling

**SMP09** Kr: 90°





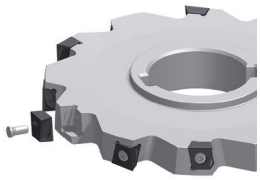

| Article | ✻ | Stock | Dimensions [mm] ØD | ød | H | $a_p$ | $a_{p\ max}$ | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SMP09-080x10-K27-LN08-08 | | ○ | 80 | 27 | 14 | 10 | 17 | 8 | K | 0.2 | |
| SMP09-100x10-K32-LN08-10 | | ○ | 100 | 32 | 14 | 10 | 25 | 10 | K | 0.37 | |
| SMP09-100x12-K32-LN08-10 | | ○ | 100 | 32 | 16 | 12 | 25 | 10 | K | 0.4 | |
| SMP09-125x10-K40-LN08-12 | | ○ | 125 | 40 | 14 | 10 | 34 | 12 | K | 0.5 | |
| SMP09-125x12-K40-LN08-12 | | ○ | 125 | 40 | 16 | 12 | 34 | 12 | K | 0.6 | LNGX0804* |
| SMP09-160x10-K40-LN08-14 | | ○ | 160 | 40 | 14 | 10 | 47 | 14 | K | 1 | |
| SMP09-160x12-K40-LN08-14 | | ○ | 160 | 40 | 16 | 12 | 47 | 14 | K | 1.1 | |
| SMP09-200x10-K50-LN08-16 | | ○ | 200 | 50 | 14 | 10 | 62 | 16 | K | 1.6 | |
| SMP09-200x12-K50-LN08-16 | | ○ | 200 | 50 | 16 | 12 | 62 | 16 | K | 1.8 | |
| SMP09-100x14-K32-LN10-10 | | ○ | 100 | 32 | 18 | 14 | 25 | 10 | K | 0.4 | |
| SMP09-125x14-K40-LN10-12 | | ○ | 125 | 40 | 18 | 14 | 34 | 12 | K | 0.9 | |
| SMP09-125x16-K40-LN10-12 | | ○ | 125 | 40 | 20 | 16 | 34 | 12 | K | 1 | |
| SMP09-125x18-K40-LN10-12 | | ○ | 125 | 40 | 24 | 18 | 34 | 12 | K | 1.2 | |
| SMP09-160x14-K40-LN10-14 | | ○ | 160 | 40 | 18 | 14 | 47 | 14 | K | 1.6 | |
| SMP09-160x16-K40-LN10-14 | | ○ | 160 | 40 | 20 | 16 | 47 | 14 | K | 1.8 | LNGX1005** |
| SMP09-160x18-K40-LN10-14 | | ○ | 160 | 40 | 24 | 18 | 47 | 14 | K | 2.1 | |
| SMP09-200x14-K50-LN10-16 | | ○ | 200 | 50 | 18 | 14 | 62 | 16 | K | 2.5 | |
| SMP09-200x16-K50-LN10-16 | | ○ | 200 | 50 | 20 | 16 | 62 | 16 | K | 2.9 | |
| SMP09-200x18-K50-LN10-16 | | ○ | 200 | 50 | 24 | 18 | 62 | 16 | K | 3.4 | |
| SMP09-250x18-K50-LN10-18 | | ○ | 250 | 50 | 24 | 18 | 83 | 18 | K | 5.5 | |
| SMP09-125x20-K40-LN14-10 | | ○ | 125 | 40 | 26 | 20 | 34 | 10 | K | 1.2 | |
| SMP09-160x20-K40-LN14-12 | | ○ | 160 | 40 | 26 | 20 | 47 | 12 | K | 2.1 | |
| SMP09-160x25-K40-LN14-12 | | ○ | 160 | 40 | 30 | 25 | 47 | 12 | K | 2.8 | |
| SMP09-200x20-K50-LN14-14 | | ○ | 200 | 50 | 26 | 20 | 62 | 14 | K | 3.5 | LNGX1407** |
| SMP09-200x25-K50-LN14-14 | | ○ | 200 | 50 | 30 | 25 | 62 | 14 | K | 4.5 | |
| SMP09-250x20-K50-LN14-16 | | ○ | 250 | 50 | 26 | 20 | 83 | 16 | K | 5.8 | |
| SMP09-250x25-K50-LN14-16 | | ○ | 250 | 50 | 30 | 25 | 83 | 16 | K | 7.5 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

| | Insert | LNGX0804* | LNGX1005** | LNGX1407** | |
|---|---|---|---|---|---|
| | ØD | 80-250 | 100-250 | 125-315 | |
|  | Screw | I60M3×7 (1.8 Nm) | | I60M4×12 (3.4 Nm) |  |
|  | Screw | | I60M3.5×08TT (2.7 Nm) | | |
|  | Wrench (screw) | WT09IP | WT10IS | | |
|  | Wrench (screw) | | | WT15IS | |

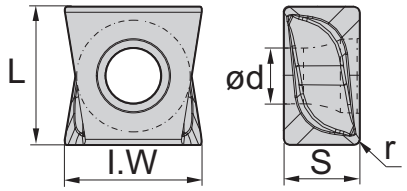
A Turning
B Milling
C Drilling
D Technical Information
E Index

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Milling inserts

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

| LNGX | L | I.C | S | d |
|---|---|---|---|---|
| **08** 04 | 7.75 | 8.5 | 4 | 3.5 |
| **10** 05 | 10 | 9.9 | 5.5 | 4.1 |
| **14** 07 | 14 | 13.4 | 7.5 | 4.4 |




| LN** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | LNGX080404-GM | 0.4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080408-GM | 0.8 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080410-GM | 1 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX080412-GM | 1.2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080416-GM | 1.6 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080420-GM | 2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080424-GM | 2.4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100502-GM | 0.2 | | | | | | | | | | | | | | | | | | | | ○ | | | | | |
| | LNGX100504-GM | 0.4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100508-GM | 0.8 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | LNGX100510-GM | 1 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100512-GM | 1.2 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
|  | LNGX100516-GM | 1.6 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | LNGX100520-GM | 2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100524-GM | 2.4 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX100530-GM | 3 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100540-GM | 4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX140704-GM | 0.4 | | | | ● | | | | | | | | | | | | | | ● | | ● | | | | | |
| | LNGX140708-GM | 0.8 | | | | ● | | | | | | | | | | | | | | ● | | | | | | | |
| | LNGX140710-GM | 1 | | | | ○ | | | | | | | | | | | | | | | | ○ | | | | | |
| | LNGX140712-GM | 1.2 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140716-GM | 1.6 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140720-GM | 2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX140724-GM | 2.4 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140730-GM | 3 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX140732-GM | 3.2 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140740-GM | 4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |

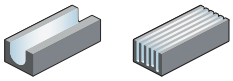
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

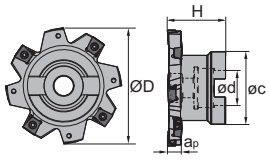

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Slot milling

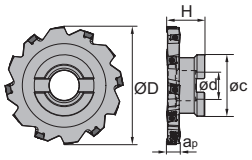
### SMP09 Kr: 90°



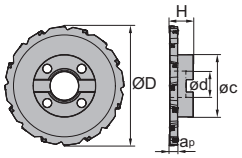




A



B



C

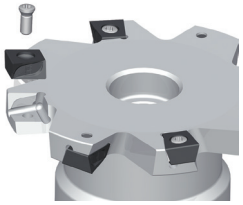
| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | H | $a_p$ | $a_{p\,max}$ | | | | |
| **SMP09-080x10-A22-LN08-08** | | ○ | 80 | 22 | 40 | 10 | 20 | 8 | A | 0.4 | |
| **SMP09-100x10-B27-LN08-10** | | ○ | 100 | 27 | 45 | 10 | 24 | 10 | B | 0.6 | |
| **SMP09-100x12-B27-LN08-10** | | ○ | 100 | 27 | 45 | 12 | 24 | 10 | B | 0.6 | |
| **SMP09-125x10-B32-LN08-12** | | ○ | 125 | 32 | 45 | 10 | 33 | 12 | B | 1 | |
| **SMP09-125x12-B32-LN08-12** | | ○ | 125 | 32 | 45 | 12 | 33 | 12 | B | 1 | LNGX0804* |
| **SMP09-160x10-B40-LN08-14** | | ○ | 160 | 40 | 50 | 10 | 42 | 14 | B | 2 | |
| **SMP09-160x12-B40-LN08-14** | | ○ | 160 | 40 | 50 | 12 | 42 | 14 | B | 2.1 | |
| **SMP09-200x10-C40-LN08-16** | | ○ | 200 | 22 | 50 | 10 | 53 | 16 | C | 2.9 | |
| **SMP09-200x12-C40-LN08-16** | | ○ | 200 | 40 | 50 | 12 | 53 | 16 | C | 2.9 | |
| **SMP09-100x14-B27-LN10-10** | | ○ | 100 | 27 | 50 | 14 | 24 | 10 | B | 0.7 | |
| **SMP09-125x14-B32-LN10-12** | | ○ | 125 | 32 | 50 | 14 | 33 | 12 | B | 1.2 | |
| **SMP09-125x16-B32-LN10-12** | | ○ | 125 | 32 | 50 | 16 | 33 | 12 | B | 1.4 | |
| **SMP09-125x18-B32-LN10-12** | | ○ | 125 | 32 | 50 | 18 | 33 | 12 | B | 1.5 | |
| **SMP09-160x14-B40-LN10-14** | | ○ | 160 | 40 | 50 | 14 | 42 | 14 | B | 2.4 | |
| **SMP09-160x16-B40-LN10-14** | | ○ | 160 | 40 | 50 | 16 | 42 | 14 | B | 2.6 | LNGX1005** |
| **SMP09-160x18-B40-LN10-14** | | ○ | 160 | 40 | 50 | 18 | 42 | 14 | B | 2.9 | |
| **SMP09-200x14-C40-LN10-16** | | ○ | 200 | 40 | 50 | 14 | 53 | 16 | C | 3.6 | |
| **SMP09-200x16-C40-LN10-16** | | ○ | 200 | 40 | 50 | 16 | 53 | 16 | C | 4 | |
| **SMP09-200x18-C40-LN10-16** | | ○ | 200 | 40 | 50 | 18 | 53 | 16 | C | 4.3 | |
| **SMP09-250x18-C60-LN10-18** | | ○ | 250 | 60 | 50 | 18 | 58 | 18 | C | 7.2 | |
| **SMP09-125x20-B32-LN14-10** | | ○ | 125 | 32 | 50 | 20 | 33 | 10 | B | 1.6 | |
| **SMP09-160x20-B40-LN14-12** | | ○ | 160 | 40 | 50 | 20 | 42 | 12 | B | 2.7 | |
| **SMP09-160x25-B40-LN14-12** | | ○ | 160 | 40 | 50 | 25 | 42 | 12 | B | 3.2 | |
| **SMP09-200x20-C40-LN14-14** | | ○ | 200 | 40 | 50 | 20 | 53 | 14 | C | 4.6 | LNGX1407** |
| **SMP09-200x25-C40-LN14-14** | | ○ | 200 | 40 | 50 | 25 | 53 | 14 | C | 5.2 | |
| **SMP09-250x20-C60-LN14-16** | | ○ | 250 | 60 | 50 | 20 | 58 | 16 | C | 7.4 | |
| **SMP09-250x25-C60-LN14-16** | | ○ | 250 | 60 | 50 | 25 | 58 | 16 | C | 8.6 | |
| **SMP09-315x25-C60-LN14-20** | | ○ | 315 | 60 | 50 | 25 | 90 | 20 | C | 13.2 | |

● Ex stock ○ On demand

✻ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

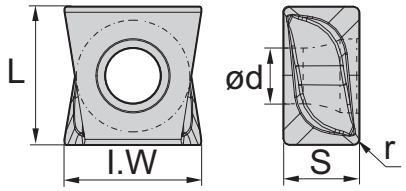
| | Insert | LNGX0804* | LNGX1005** | LNGX1407** | |
|---|---|---|---|---|---|
| | ØD | 80-250 | 100-250 | 125-315 | |
|  | Screw | l60M3×7 (1.8 Nm) | | l60M4×12 (3.4 Nm) |  |
|  | Screw | | l60M3.5×08TT (2.7 Nm) | | |
|  | Wrench (screw) | WT09IP | WT10IS | | |
|  | Wrench (screw) | | | WT15IS | |

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Milling inserts

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

| LNGX | L | I.C | S | d |
|---|---|---|---|---|
| **08** 04 | 7.75 | 8.5 | 4 | 3.5 |
| **10** 05 | 10 | 9.9 | 5.5 | 4.1 |
| **14** 07 | 14 | 13.4 | 7.5 | 4.4 |




| LN** milling insert | | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | LNGX080404-GM | 0.4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080408-GM | 0.8 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080410-GM | 1 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX080412-GM | 1.2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080416-GM | 1.6 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080420-GM | 2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX080424-GM | 2.4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100502-GM | 0.2 | | | | | | | | | | | | | | | | | | | | ○ | | | | | |
| | LNGX100504-GM | 0.4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100508-GM | 0.8 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | LNGX100510-GM | 1 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100512-GM | 1.2 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
|  | LNGX100516-GM | 1.6 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | LNGX100520-GM | 2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100524-GM | 2.4 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX100530-GM | 3 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX100540-GM | 4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX140704-GM | 0.4 | | | | ● | | | | | | | | | | | | | | ● | | ● | | | | | |
| | LNGX140708-GM | 0.8 | | | | ● | | | | | | | | | | | | | | ● | | | | | | | |
| | LNGX140710-GM | 1 | | | | ○ | | | | | | | | | | | | | | | | ○ | | | | | |
| | LNGX140712-GM | 1.2 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140716-GM | 1.6 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140720-GM | 2 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX140724-GM | 2.4 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140730-GM | 3 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |
| | LNGX140732-GM | 3.2 | | | | | | | | | | | | | | | | | | ○ | | | | | | | |
| | LNGX140740-GM | 4 | | | | ○ | | | | | | | | | | | | | | ○ | | ○ | | | | | |

● Ex stock ○ On demand

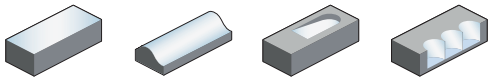
HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

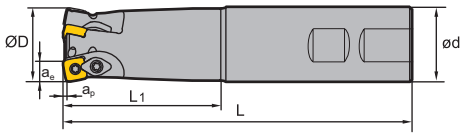
## Notes

## High feed milling

**XMR01** Kr: 15°








S type insert, Weldon shank

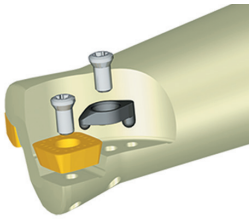
| Article | ✲ | Stock | Dimensions [mm] ØD | ød | $a_p$ | ae | $L_1$ | L | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XMR01-020-XP20-SD06-02C** | ✲ | ● | 20 | 20 | 0.8 | 5.8 | 50 | 130 | 2 | 0.26 | SDMT06T2 |
| **XMR01-020-XP20-SD06-03C** | ✲ | ○ | 20 | 20 | 0.8 | 5.8 | 50 | 130 | 3 | 0.26 | |
| **XMR01-020-XP20-SD06-04C** | ✲ | ○ | 20 | 20 | 0.8 | 5.8 | 50 | 130 | 4 | 0.24 | |
| **XMR01-025-XP25-SD06-03C** | ✲ | ○ | 25 | 25 | 0.8 | 5.8 | 60 | 140 | 3 | 0.46 | |
| **XMR01-025-XP25-SD06-04C** | ✲ | ● | 25 | 25 | 0.8 | 5.8 | 60 | 140 | 4 | 0.45 | |
| **XMR01-025-XP25-SD06-05C** | ✲ | ○ | 25 | 25 | 0.8 | 5.8 | 60 | 140 | 5 | 0.44 | |
| **XMR01-032-XP32-SD06-05C** | ✲ | ● | 32 | 32 | 0.8 | 5.8 | 70 | 150 | 5 | 0.79 | |
| **XMR01-032-XP32-SD06-06C** | ✲ | ○ | 32 | 32 | 0.8 | 5.8 | 70 | 150 | 6 | 0.8 | |
| **XMR01-025-XP25-SD09-02C** | ✲ | ○ | 25 | 25 | 1.4 | 8.8 | 60 | 140 | 2 | 0.46 | SDMT09T3 |
| **XMR01-032-XP32-SD09-03C** | ✲ | ○ | 32 | 32 | 1.4 | 8.8 | 70 | 150 | 3 | 0.8 | |
| **XMR01-035-XP32-SD09-03** | | ○ | 35 | 32 | 1.4 | 8.8 | 70 | 150 | 3 | 0.8 | |
| **XMR01-040-XP40-SD12-03C** | ✲ | ○ | 40 | 40 | 1.8 | 11.7 | 70 | 150 | 3 | 1.2 | SDMT1204 |
| **XMR01-040-XP40-SD15-02** | | ○ | 40 | 40 | 2.2 | 14 | 70 | 200 | 2 | 1.6 | SDMT1505 |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | Insert | SDMT06T2 | SDMT09T3 | SDMT1204 | SDMT1505 |
|---|---|---|---|---|---|
| | **ØD** | **20-63** | **25-63** | **32-100** | **40-160** |
| | Clamp | | WD-204 | WD-204 | WD-208 |
| | Screw (clamp) | | I60M4×8.4 (3.4 Nm) | | I60M5×13 (6.7 Nm) |
| | Screw (insert) | I60M2.2×5.5 (0.8 Nm) | | I60M4×8.4 (3.4 Nm) | I60M5×13 (6.7 Nm) |
| | Screw (insert) | | I60M3.5×08TT (2.7 Nm) | | |
| | Wrench (clamp) | | WT15IP | | WT20IP |
| | Wrench (insert) | WT07IP | WT10IP | WT15IP | WT20IP |

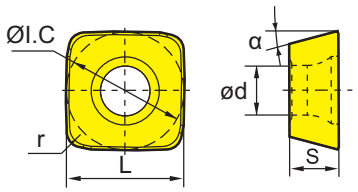


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| SDMT | L | I.C | S | d |
|---|---|---|---|---|
| **06** T2 | 6.35 | 6.35 | 2.58 | 2.5 |
| **09** T3 | 9.525 | 9.525 | 3.97 | 4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 4.4 |
| **15** 05 | 15.875 | 15.875 | 5.56 | 5.5 |

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

## Milling inserts




| SD** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | SDMT06T208-DM | 0.8 | 15 | | | | | | ○ | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | SDMT09T312-DM | 1.2 | 15 | ● | | | | | ● | | ○ | | | | | ○ | | | | ● | ● | ● | | | | | | |
| | SDMT120412-DM | 1.2 | 15 | ● | | | | | ● | | ● | | | | | | ○ | | | | | | | | | | | |
| | SDMT150520-DM | 2 | 15 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | SDMT06T208-NM | 0.8 | 15 | | | | | | | | | | | | | | ○ | | | ● | | | ● | | | | | |
| | SDMT09T312-NM | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | ● | ● | | ● | | | | | |
| | SDMT120412-NM | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | | ● | | ● | | | | | |
| | SDMT06T208-PM | 0.8 | 15 | ● | | | ● | | | | ● | | | | | | | ○ | ● | ● | | | ○ | | | | | |
| | SDMT09T312-PM | 1.2 | 15 | | | | ● | | | | ○ | | | | | ○ | | | ● | ● | | | | | | | | |
| | SDMT120412-PM | 1.2 | 15 | | | | ● | | | | | | | | | | | | ● | | | | | | | | | |
| | SDMT150520-PM | 2 | 15 | | | | ○ | | | | | | | | | | | | ○ | | | | | | | | | |

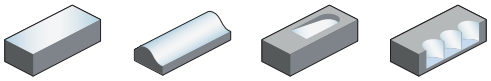
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

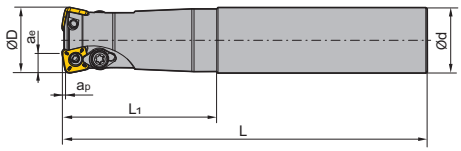

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## High feed milling

**XMR01** Kr: 15°








Straight shank

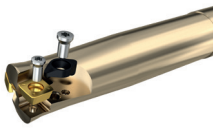
| Article | ✻ | Stock R | Stock L | Dimensions [mm] ØD | ød | $a_p$ | ae | $L_1$ | L | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **XMR01-025-G25-SD09-02C** | ✻ | ● | | 25 | 25 | 1.4 | 8.8 | 60 | 140 | 2 | 0.472 | SDMT09T3 |
| **XMR01-032-G32-SD09-03C** | ✻ | ● | ○ | 32 | 32 | 1.4 | 8.8 | 12070 | 150 | 3 | 0.818 | |
| **XMR01-035-G32-SD09-03C** | ✻ | ○ | | 35 | 32 | 1.4 | 8.8 | 70 | 150 | 3 | 0.847 | |
| **XMR01-032-G32-SD12-02C** | ✻ | ● | | 32 | 32 | 1.8 | 11.7 | 70 | 150 | 2 | 0.87 | SDMT1204 |
| **XMR01-040-G40-SD12-03C** | ✻ | ● | | 40 | 40 | 1.8 | 11.7 | 70 | 150 | 3 | 1.261 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | SDMT09T3 | SDMT1204 |
|---|---|---|---|
| | ØD | 25-63 | 32-100 |
|  | Clamp | WD-204 | WD-204 |
|  | Screw (clamp) | I60M4×8.4 (3.4 Nm) | I60M4×8.4 (3.4 Nm) |
|  | Screw (insert) | | I60M4×8.4 (3.4 Nm) |
|  | Screw (insert) | I60M3.5×08TT (2.7 Nm) | |
|  | Wrench (clamp) | WT15IP | WT15IP |
|  | Wrench (insert) | WT10IP | WT15IP |



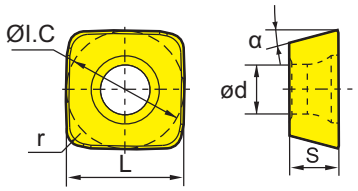
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SDMT | L | I.C | S | d |
|---|---|---|---|---|
| **09** T3 | 9.525 | 9.525 | 3.97 | 4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 4.4 |

SD** milling insert




| | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | | ● | ● | | |
| M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| K | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | | |
| N | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| S | | | | ● | | ● | | | | ● | ● | | | ● | ● | | ● | | ● | | | | |
| H | | | | | | | | | ○ | | | | | | | ● | | | | | | | |

| ISO | | r | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | SDMT09T312-DM | 1.2 | 15 | ● | | | | | ● | | ○ | | | | | ○ | | | | ● | ● | ● | | | | | | |
| | SDMT120412-DM | 1.2 | 15 | ● | | | | | ● | | ● | | | | | | ○ | | | | | | | | | | | |
|  | SDMT09T312-NM | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | ● | ● | | ● | | | | | |
| | SDMT120412-NM | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | | ● | | ● | | | | | |
|  | SDMT09T312-PM | 1.2 | 15 | | | | ● | | | | ○ | | | | | ○ | | | ● | ● | | | | | | | | |
| | SDMT120412-PM | 1.2 | 15 | | | | ● | | | | | | | | | | | | ● | | | | | | | | | |

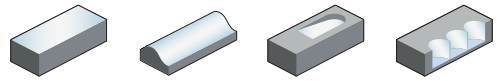
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

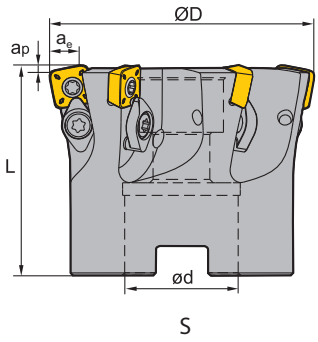

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## High feed milling

**XMR01** Kr: 15°








| Article | ✻ | Stock | Dimensions [mm] ØD | ød | $a_p$ | ae | L | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| XMR01-040-A16-SD06-06C | ✻ | ● | 40 | 16 | 0.8 | 5.8 | 40 | 6 | A | 0.2 | |
| XMR01-040-A16-SD06-07C | ✻ | ○ | 40 | 16 | 0.8 | 5.8 | 40 | 7 | A | 0.178 | |
| XMR01-050-A22-SD06-07C | ✻ | ○ | 50 | 22 | 0.8 | 5.8 | 40 | 7 | A | 0.36 | SDMT06T2 |
| XMR01-050-A22-SD06-08C | ✻ | ○ | 50 | 22 | 0.8 | 5.8 | 40 | 8 | A | 0.36 | |
| XMR01-063-A22-SD06-10C | ✻ | ○ | 63 | 22 | 0.8 | 5.8 | 40 | 10 | A | 0.53 | |
| XMR01-063-A27-SD06-10C | ✻ | ○ | 63 | 27 | 0.8 | 5.8 | 50 | 10 | A | 0.57 | |
| XMR01-040-A16-SD09-04 | | ○ | 40 | 16 | 1.4 | 8.8 | 40 | 4 | A | 0.182 | |
| XMR01-040-A16-SD09-04C | ✻ | ○ | 40 | 16 | 1.4 | 8.8 | 40 | 4 | A | 0.182 | |
| XMR01-040-A16-SD09-05 | | ○ | 40 | 16 | 1.4 | 8.8 | 40 | 5 | A | 0.181 | |
| XMR01-040-A16-SD09-05C | ✻ | ○ | 40 | 16 | 1.4 | 8.8 | 40 | 5 | A | 0.18 | |
| XMR01-050-A22-SD09-04C | ✻ | ● | 50 | 22 | 1.4 | 8.8 | 40 | 4 | A | 0.3 | |
| XMR01-050-A22-SD09-05C | ✻ | ○ | 50 | 22 | 1.4 | 8.8 | 40 | 5 | A | 0.3 | |
| XMR01-050-A22-SD09-06C | ✻ | ● | 50 | 22 | 1.4 | 8.8 | 40 | 6 | A | 0.29 | |
| XMR01-052-A22-SD09-06C | ✻ | ○ | 52 | 22 | 1.4 | 8.8 | 40 | 6 | A | 0.27 | SDMT09T3 |
| XMR01-063-A22-SD09-05C | ✻ | ● | 63 | 22 | 1.4 | 8.8 | 40 | 5 | A | 0.5 | |
| XMR01-063-A22-SD09-06C | ✻ | ● | 63 | 22 | 1.4 | 8.8 | 40 | 6 | A | 0.5 | |
| XMR01-063-A27-SD09-06C | ✻ | ○ | 63 | 27 | 1.4 | 8.8 | 50 | 6 | A | 0.6 | |
| XMR01-063-A22-SD09-07C | ✻ | ● | 63 | 22 | 1.4 | 8.8 | 40 | 7 | A | 0.44 | |
| XMR01-063-A27-SD09-07C | ✻ | ○ | 63 | 27 | 1.4 | 8.8 | 50 | 7 | A | 0.59 | |
| XMR01-066-A22-SD09-07C | ✻ | ○ | 66 | 22 | 1.4 | 8.8 | 50 | 7 | A | 0.48 | |
| XMR01-050-A22-SD12-03C | ✻ | ○ | 50 | 22 | 1.8 | 11.7 | 40 | 3 | A | 0.27 | |
| XMR01-050-A22-SD12-04C | ✻ | ● | 50 | 22 | 1.8 | 11.7 | 40 | 4 | A | 0.26 | |
| XMR01-052-A22-SD12-04C | ✻ | ○ | 52 | 22 | 1.8 | 11.7 | 40 | 4 | A | 0.27 | |
| XMR01-052-A22-SD12-05C | ✻ | ○ | 52 | 22 | 1.8 | 11.7 | 40 | 5 | A | 0.27 | |
| XMR01-060-A22-SD12-05C | ✻ | ○ | 60 | 22 | 1.8 | 11.7 | 40 | 4 | A | | SDMT1204 |
| XMR01-063-A22-SD12-05C | ✻ | ● | 63 | 22 | 1.8 | 11.7 | 50 | 5 | A | 0.5 | |
| XMR01-063-A27-SD12-05C | ✻ | ● | 63 | 27 | 1.8 | 11.7 | 50 | 5 | A | 0.6 | |
| XMR01-063-A22-SD12-06C | ✻ | ● | 63 | 22 | 1.8 | 11.7 | 50 | 6 | A | 0.55 | |

● Ex stock ○ On demand

✻ With internal cooling

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

# Indexable milling

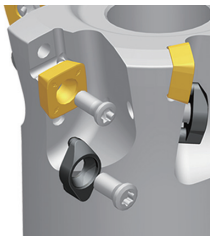
| Article | ✻ | Stock | Dimensions [mm] ØD | ød | $a_p$ | ae | L | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| XMR01-063-A27-SD12-06C | ✻ | ● | 63 | 27 | 1.4 | 11.7 | 50 | 6 | A | 0.51 | |
| XMR01-066-A27-SD12-05C | ✻ | ○ | 66 | 27 | 1.8 | 11.7 | 50 | 5 | A | 0.56 | |
| XMR01-073-A27-SD12-05C | ✻ | ○ | 73 | 27 | 1.8 | 11.7 | 50 | 5 | A | | |
| XMR01-078-A27-SD12-07C | ✻ | ○ | 78 | 27 | 1.8 | 11.7 | 50 | 5 | A | | |
| XMR01-080-A27-SD12-05C | ✻ | ● | 80 | 27 | 1.8 | 11.7 | 50 | 5 | A | 0.9 | |
| XMR01-080-A27-SD12-06C | ✻ | ● | 80 | 27 | 1.8 | 11.7 | 50 | 6 | A | 0.9 | |
| XMR01-080-A27-SD12-07C | ✻ | ● | 80 | 27 | 1.8 | 11.7 | 50 | 7 | A | 0.93 | |
| XMR01-080-A27-SD12-08C | ✻ | ● | 80 | 27 | 1.8 | 11.7 | 50 | 8 | A | 0.92 | |
| XMR01-084-A32-SD12-07C | ✻ | ○ | 84 | 32 | 1.8 | 11.7 | 50 | 7 | A | 0.94 | |
| XMR01-085-A27-SD12-07C | | ○ | 85 | 27 | 1.8 | 11.7 | 50 | 7 | A | 0.93 | SDMT1204 |
| XMR01-085-A27-SD12-08C | ✻ | ○ | 85 | 27 | 1.8 | 11.7 | 50 | 8 | A | 0.99 | |
| XMR01-100-B32-SD12-06 | | ● | 100 | 32 | 1.8 | 11.7 | 50 | 6 | B | 1.8 | |
| XMR01-100-B32-SD12-06C | ✻ | ● | 100 | 32 | 1.8 | 11.7 | 50 | 6 | B | 1.8 | |
| XMR01-100-B32-SD12-07C | ✻ | ● | 100 | 32 | 1.8 | 11.7 | 50 | 7 | B | 1.56 | |
| XMR01-100-B32-SD12-08C | ✻ | ○ | 100 | 32 | 1.8 | 11.7 | 50 | 8 | B | 1.57 | |
| XMR01-125-B40-SD12-08C | ✻ | ● | 125 | 40 | 1.8 | 11.7 | 63 | 8 | B | 3.17 | |
| XMR01-125-B40-SD12-09 | | ○ | 125 | 40 | 1.8 | 11.7 | 63 | 9 | B | 3.07 | |
| XMR01-125-B40-SD12-09C | ✻ | ● | 125 | 40 | 1.8 | 11.7 | 63 | 9 | B | 3.1 | |
| XMR01-160-B40-SD12-10C | ✻ | ○ | 160 | 40 | 1.8 | 11.7 | 63 | 10 | B | 4.78 | |
| XMR01-063-A22-SD15-04C | ✻ | ○ | 63 | 22 | 2.2 | 14 | 40 | 4 | A | 0.49 | |
| XMR01-080-A27-SD15-05C | ✻ | ○ | 80 | 27 | 2.2 | 14 | 50 | 5 | A | 0.79 | |
| XMR01-100-A32-SD15-07C | ✻ | ○ | 100 | 32 | 2.2 | 14 | 50 | 7 | A | | |
| XMR01-100-B32-SD15-07 | | ○ | 100 | 32 | 2.2 | 14 | 50 | 7 | B | 1.2 | SDMT1505 |
| XMR01-100-B32-SD15-07C | ✻ | ○ | 100 | 32 | 2.2 | 14 | 50 | 7 | B | 1.18 | |
| XMR01-125-B40-SD15-09 | | ○ | 125 | 40 | 2.2 | 14 | 63 | 9 | B | 2.9 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | SDMT06T2 | SDMT09T3 | SDMT1204 | SDMT1505 |
|---|---|---|---|---|---|
| | ØD | 20-63 | 25-100 | 32-160 | 40-160 |
| | Clamp | | WD-204 | WD-204 | WD-208 |
| | Screw (clamp) | | I60M4×8.4 (3.4 Nm) | I60M4×8.4 (3.4 Nm) | I60M5×13 (6.7 Nm) |
| | Screw (insert) | I60M2.2×5.5 (0.8 Nm) | | I60M4×8.4 (3.4 Nm) | I60M5×13 (6.7 Nm) |
| | Screw (insert) | | I60M3.5×08TT (2.7 Nm) | | |
| | Wrench (clamp) | | WT15IP | WT15IP | WT20IP |
| | Wrench (insert) | WT07IP | WT10IP | WT15IP | WT20IP |



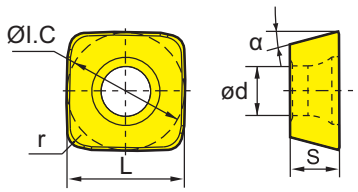
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SDMT | L | I.C | S | d |
|---|---|---|---|---|
| **06** T2 | 6.35 | 6.35 | 2.58 | 2.5 |
| **09** T3 | 9.525 | 9.525 | 3.97 | 4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 4.4 |
| **15** 05 | 15.875 | 15.875 | 5.56 | 5.5 |

SD** milling insert




| | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **SDMT06T208-DM** | | | | | | ○ | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | **SDMT09T312-DM** | ● | | | | | ● | | ○ | | | | | ○ | | | | ● | ● | ● | | | | | | |
| | **SDMT120412-DM** | ● | | | | | ● | | ● | | | | | | ○ | | | ● | ● | | | | | | | |
| | **SDMT150520-DM** | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | **SDMT06T208-NM** | | | | | | | | | | | | | | ○ | | | ● | | | ● | | | | | |
| | **SDMT09T312-NM** | | | | ● | | | | | | | | | | ○ | ● | | ● | ● | | ● | | | | | |
| | **SDMT120412-NM** | | | | ● | | | | | | | | | | ○ | ● | | ○ | ● | | ● | | | | | |
| | **SDMT06T208-PM** | ● | | | ● | | | | ● | | | | | | | ○ | ● | ● | | | ○ | | | | | |
| | **SDMT09T312-PM** | | | | ● | | | | ○ | | | | | ○ | | | ● | ● | | | | | | | | |
| | **SDMT120412-PM** | | | | ● | | | | | | | | | | | | ● | ● | | | | | | | | |
| | **SDMT150520-PM** | | | | ○ | | | | | | | | | | | | ○ | | | | | | | | | |

| ISO | r | α |
|---|---|---|
| **SDMT06T208-DM** | 0.8 | 15 |
| **SDMT09T312-DM** | 1.2 | 15 |
| **SDMT120412-DM** | 1.2 | 15 |
| **SDMT150520-DM** | 2 | 15 |
| **SDMT06T208-NM** | 0.8 | 15 |
| **SDMT09T312-NM** | 1.2 | 15 |
| **SDMT120412-NM** | 1.2 | 15 |
| **SDMT06T208-PM** | 0.8 | 15 |
| **SDMT09T312-PM** | 1.2 | 15 |
| **SDMT120412-PM** | 1.2 | 15 |
| **SDMT150520-PM** | 2 | 15 |

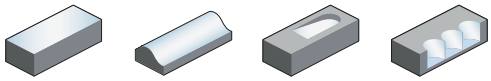
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

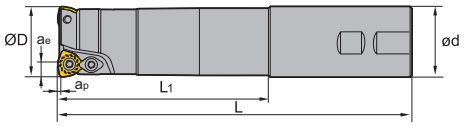
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## High feed milling

**XMR01** Kr: 11°-22°








W type insert, Weldon shank

| Article | ✲ | Stock | Dimensions [mm] ØD | ød | $a_p$ | ae | $L_1$ | L | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| XMR01-020-XP20-WP05-02C-M | ✲ | ○ | 20 | 20 | 1.5 | 3.8 | 50 | 130 | 2 | 0.2 | |
| XMR01-020-XP20-WP05-02C-L | ✲ | ○ | 20 | 32 | 1.5 | 3.8 | 100 | 180 | 2 | 0.37 | WPGT0503 |
| XMR01-020-XP20-WP05-02C-XL | ✲ | ○ | 20 | 32 | 1.5 | 3.8 | 130 | 250 | 2 | 0.53 | |
| XMR01-025-XP25-WP06-02C-M | ✲ | ○ | 25 | 25 | 1.5 | 4.35 | 60 | 140 | 2 | 0.4 | |
| XMR01-025-XP25-WP06-02C-L | ✲ | ○ | 25 | 25 | 1.5 | 4.35 | 120 | 200 | 2 | 0.64 | |
| XMR01-025-XP25-WP06-02C-XL | ✲ | ○ | 25 | 25 | 1.5 | 4.35 | 180 | 300 | 2 | 0.92 | |
| XMR01-032-XP32-WP06-03C-M | ✲ | ○ | 32 | 32 | 1.5 | 4.35 | 70 | 150 | 3 | 0.8 | WPGT0604 |
| XMR01-032-XP32-WP06-03C-L | ✲ | ○ | 32 | 32 | 1.5 | 4.35 | 120 | 200 | 3 | 1.03 | |
| XMR01-032-XP32-WP06-03C-XL | ✲ | ○ | 32 | 32 | 1.5 | 4.35 | 180 | 300 | 3 | 1.55 | |
| XMR01-040-XP32-WP06-03C-M | ✲ | ○ | 40 | 32 | 1.5 | 4.35 | 50 | 150 | 3 | 0.9 | |

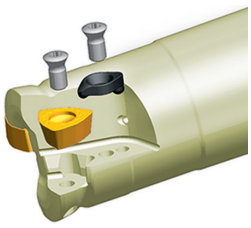
● Ex stock ○ On demand

✲ With internal cooling

Variable lead angle (lead angle ist hier dependent on size of inserts)
lead angle: WPGT05: 16°; WPGT06: 22°; WPGT08: 11°; WPGT09: 21°

Spare parts

| | Insert | WPGT0503 | WPGT0604 |
|---|---|---|---|
| | ØD | 20 | 25-40 |
| | Screw (insert) | | l60M4×8.4 (3.4 Nm) |
| | Screw (insert) | l60M3.5×6.5TT (2.7 Nm) | |
| | Wrench (insert) | WT10IP | WT15IP |

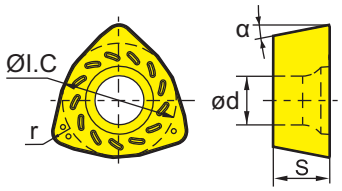


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| WPGT | I.C | S | d |
|---|---|---|---|
| **05** 03 | 7.94 | 3.5 | 4 |
| **06** 04 | 9.525 | 4.2 | 4.4 |




| WP** positive insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **WPGT050315ZSR-PM** | 1.5 | ○ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | | |
| | **WPGT060415ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
|  | **WPGT050315ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | | | | | | | | | | |
| | **WPGT060415ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | | | | | | | | | |

● Ex stock ○ On demand

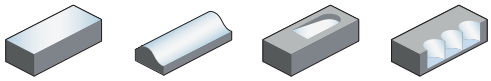
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

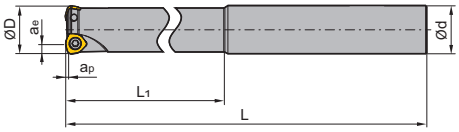
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## High feed milling

**XMR01** Kr: 11°-22°








Straight shank

| Article | ✲ | Stock | Dimensions [mm] | | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $a_p$ | ae | $L_1$ | L | | | |
| **XMR01-020-G20-WP05-02C-M** | ✲ | ○ | 20 | 20 | 1.5 | 3.8 | 50 | 130 | 2 | 0.314 | |
| **XMR01-020-G20-WP05-02C-L** | ✲ | ● | 20 | 20 | 1.5 | 3.8 | 100 | 180 | 2 | 0.408 | WPGT0503 |
| **XMR01-020-G20-WP05-02C-XL** | ✲ | ○ | 20 | 20 | 1.5 | 3.8 | 130 | 250 | 2 | 0.576 | |
| **XMR01-025-G25-WP06-02C-M** | ✲ | ○ | 25 | 25 | 1.5 | 4.35 | 60 | 140 | 2 | 0.548 | |
| **XMR01-025-G25-WP06-02C-L** | ✲ | ○ | 25 | 25 | 1.5 | 4.35 | 120 | 200 | 2 | 0.749 | |
| **XMR01-025-G25-WP06-02C-XL** | ✲ | ○ | 25 | 25 | 1.5 | 4.35 | 180 | 300 | 2 | 1.037 | |
| **XMR01-032-G32-WP06-03C-M** | ✲ | ● | 32 | 32 | 1.5 | 4.35 | 70 | 150 | 3 | 0.82 | |
| **XMR01-032-G32-WP06-03C-L** | ✲ | ● | 32 | 32 | 1.5 | 4.35 | 120 | 200 | 3 | 1.152 | WPGT0604 |
| **XMR01-032-G32-WP06-03C-XL** | ✲ | ○ | 32 | 32 | 1.5 | 4.35 | 180 | 300 | 3 | 1.549 | |
| **XMR01-040-G32-WP06-03C-M** | ✲ | ○ | 40 | 32 | 1.5 | 4.35 | 50 | 150 | 3 | 1.013 | |
| **XMR01-040-G32-WP06-03C-L** | ✲ | ○ | 40 | 32 | 1.5 | 4.35 | 50 | 250 | 3 | 1.492 | |
| **XMR01-040-G32-WP06-03C-XL** | ✲ | ○ | 40 | 32 | 1.5 | 4.35 | 50 | 300 | 3 | 1.834 | |

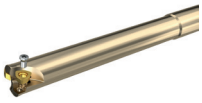
● Ex stock ○ On demand

✲ With internal cooling

Variable lead angle (lead angle ist hier dependent on size of inserts)
lead angle: WPGT05: 16°; WPGT06: 22°; WPGT08: 11°; WPGT09: 21°

Spare parts

| | Insert | WPGT0503 | WPGT0604 |
|---|---|---|---|
| | ØD | 20 | 25-40 |
| | Screw (insert) | | l60M4×8.4 (3.4 Nm) |
| | Screw (insert) | l60M3.5×6.5TT (2.7 Nm) | |
| | Wrench (insert) | WT10IP | WT15IP |

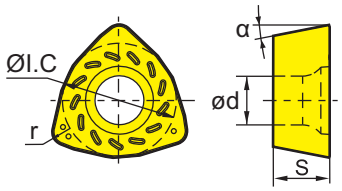


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| WPGT | I.C | S | d |
|---|---|---|---|
| **05** 03 | 7.94 | 3.5 | 4 |
| **06** 04 | 9.525 | 4.2 | 4.4 |




| WP** positive insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | ● | ● | | ● | ● | | |
| | | M | | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ● | | |
| | | K | | | | | | | ● | ● | ● | | | | | | | | | | | ● | | | | |
| | | N | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | ● | | ● | | | | | |
| | | H | | | | | | | | | | ○ | | | | | | ● | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **WPGT050315ZSR-PM** | 1.5 | ○ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | | |
| | **WPGT060415ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
|  | **WPGT050315ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | | | | | | | | | | |
| | **WPGT060415ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | | | | | | | | | |

● Ex stock ○ On demand

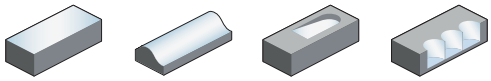
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

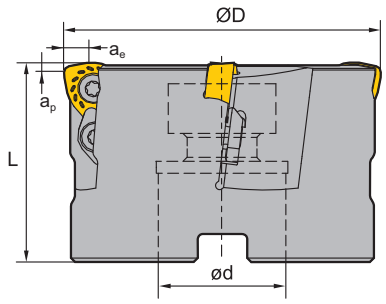
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## High feed milling

**XMR01** Kr: 11°-22°








W type insert, Arbor mounting

| Article | ✲ | Stock | Dimensions [mm] ØD | ød | $a_p$ | ae | L | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| XMR01-050-A22-WP06-04 | | ● | 50 | 22 | 1.5 | 4.35 | 50 | 4 | A | 0.4 | WPGT0604 |
| XMR01-050-A22-WP06-04C | ✲ | ● | 50 | 22 | 1.5 | 4.35 | 50 | 4 | A | 0.4 | |
| XMR01-050-A22-WP08-03 | | ○ | 50 | 22 | 1.5 | 5.66 | 50 | 3 | A | 0.4 | WPGT0806 |
| XMR01-063-A22-WP08-04C | ✲ | ● | 63 | 22 | 1.5 | 5.66 | 50 | 4 | A | 0.7 | |
| XMR01-063-A27-WP08-04C | ✲ | ○ | 63 | 27 | 1.5 | 5.66 | 50 | 4 | A | 0.7 | |
| XMR01-080-A27-WP08-05C | ✲ | ● | 80 | 27 | 1.5 | 5.66 | 63 | 5 | A | 1.5 | |
| XMR01-100-B32-WP08-06 | | ● | 100 | 32 | 1.5 | 5.66 | 63 | 6 | B | 2.2 | |
| XMR01-125-B40-WP08-07 | | ● | 125 | 40 | 1.5 | 5.66 | 63 | 7 | B | 3.5 | |
| XMR01-160-B40-WP08-08 | | ○ | 160 | 40 | 1.5 | 5.66 | 63 | 8 | B | 6 | |
| XMR01-063-A22-WP09-03C | ✲ | ○ | 63 | 22 | 3 | 6.8 | 50 | 3 | A | 0.7 | WPGT0907 |
| XMR01-080-A27-WP09-06C | ✲ | ○ | 80 | 27 | 3 | 6.8 | 63 | 6 | | 1.205 | |
| XMR01-080-A27-WP09-04C | ✲ | ○ | 80 | 27 | 3 | 6.8 | 63 | 4 | A | 1.4 | |
| XMR01-100-B32-WP09-05 | | ○ | 100 | 32 | 3 | 6.8 | 63 | 5 | B | 2.1 | |
| XMR01-125-B40-WP09-06 | | ○ | 125 | 40 | 3 | 6.8 | 63 | 6 | B | 3.7 | |
| XMR01-160-B40-WP09-07 | | ○ | 160 | 40 | 3 | 6.8 | 63 | 7 | B | 6.3 | |

● Ex stock ○ On demand

✲ With internal cooling

Variable lead angle (lead angle ist hier dependent on size of inserts)
lead angle: WPGT05: 16°; WPGT06: 22°; WPGT08: 11°; WPGT09: 21°

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Spare parts

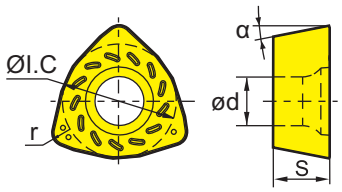
| | Insert | WPGT0604 | WPGT0806 | WPGT0907 |
|---|---|---|---|---|
| | ØD | 50 | 50-160 | 3-160 |
| | Clamp | | WD-208 | WD-208 |
| | Screw (clamp) | | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) |
| | Screw (insert) | I60M4×8.4 (3.4 Nm) | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) |
| | Wrench (clamp) | | WT20IT | WT20IT |
| | Wrench (insert) | WT15IS | | |
| | Wrench (insert) | | WT20IT | WT20IT |



| WPGT | I.C | S | d |
|---|---|---|---|
| **06** 04 | 9.525 | 4.2 | 4.4 |
| **08** 06 | 12.85 | 6.35 | 5.5 |
| **09** 07 | 15 | 7 | 5.5 |

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions




| WP** positive insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **WPGT060415ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
| | **WPGT080615ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
| | **WPGT090725ZSR-PM** | 2.5 | | | | | | | | | | | | | | | | ● | | | | | | | | | |
| | **WPGT060415ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | | | | | | | | | |
| | **WPGT080615ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | ● | ○ | | | | | | | |
| | **WPGT090725ZSR** | 2.5 | | | | | | ● | | | | | | | | ○ | | ● | | | | | | | | | |

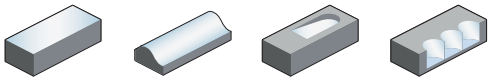
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

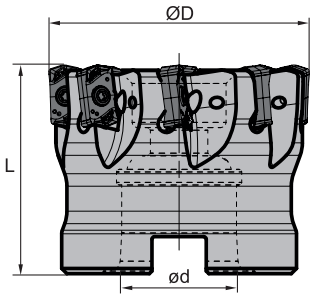
System code B32 Grade selection B31 Technical info B617 Cutting data B312

## High feed milling

**XMR12** Kr: 18°







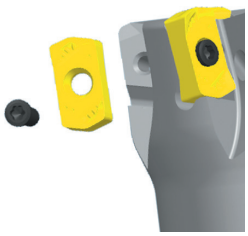

| Article | ✻ | Stock | Dimensions [mm] | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | | | | |
| **XMR12-040-A16-EN12-06C** | ✻ | ● | 40 | 16 | 40 | 6 | A | 0.204 | ENMX1206** |
| **XMR12-050-A22-EN12-08C** | ✻ | ● | 50 | 22 | 50 | 8 | A | 0.336 | |
| **XMR12-063-A22-EN12-10C** | ✻ | ● | 63 | 22 | 50 | 10 | A | 0.48 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **ENMX1206**** |
|---|---|---|
| | **ØD** | **32-80** |
| | Screw | I60M2.5×7.4 (1.0 Nm) |
| | Wrench | WT07IP |

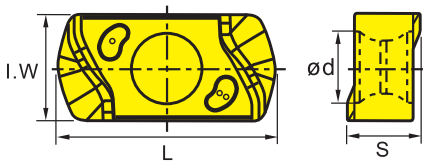


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| ENMX | L | S | d |
|---|---|---|---|
| **12** 06 | 12 | 3 | 2.88 |




| EN** milling insert | | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | l.W | $a_p$ max | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ENMX120608-GM** | 0.8 | 6 | 3 | | | | | | | | | | | | | | | | | ● | | | | | | | | |
| | **ENMX1206R30-GM** | 3 | 6 | 2.8 | | | | | | | | | | | | | | | | | ● | | | | | | | | |
|  | **ENMX1206XR-GM** | 0.6 | 6 | 0.6 | | | | | | | | | | | | | | | | | ● | | | | | | | | |

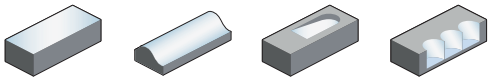
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

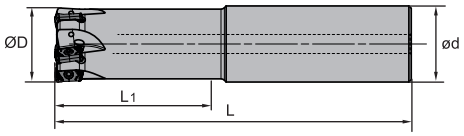
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## High feed milling

**XMR12** Kr: 18°








| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | | | |
| **XMR12-017-G16-EN12-02C** | ✻ | ● | 17 | 16 | 30 | 100 | 2 | 0.13 | |
| **XMR12-018-G16-EN12-02C** | ✻ | ● | 18 | 16 | 30 | 100 | 2 | 0.13 | |
| **XMR12-022-G20-EN12-03C** | ✻ | ● | 22 | 20 | 50 | 130 | 3 | 0.25 | ENMX1206** |
| **XMR12-028-G25-EN12-04C** | ✻ | ○ | 28 | 25 | 60 | 140 | 4 | 0.44 | |
| **XMR12-035-G32-EN12-05C** | ✻ | ● | 35 | 32 | 35 | 150 | 5 | 0.86 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **ENMX1206**** |
|---|---|---|
| | **ØD** | **12-45** |
| | Screw | I60M2.5×7.4 (1.0 Nm) |
| | Wrench | WT07IP |

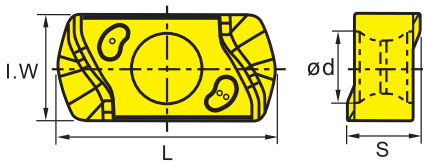


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| ENMX | L | S | d |
|---|---|---|---|
| **12** 06 | 12 | 3 | 2.88 |




| | ISO | r | I.W | $a_p$ max | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ENMX120608-GM** | 0.8 | 6 | 3 | | | | | | | | | | | | | | | | ● | | | | | | | | |
| | **ENMX1206R30-GM** | 3 | 6 | 2.8 | | | | | | | | | | | | | | | | ● | | | | | | | | |
|  | **ENMX1206XR-GM** | 0.6 | 6 | 0.6 | | | | | | | | | | | | | | | | ● | | | | | | | | |

● Ex stock ○ On demand

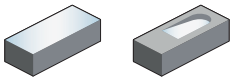
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

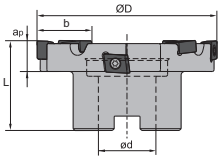
## Notes

## Bore milling

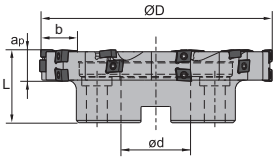
**XMP01** Kr: 90°



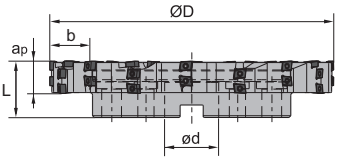





B




C




D

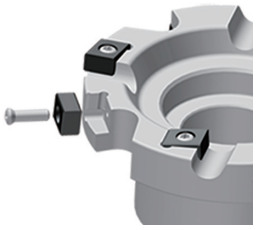
| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | Coupling | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | b | $a_p$ | L | | | | |
| **XMP01-080*18-B27-CNE1210-08** | | ● | 80 | 27 | 18 | 15 | 50 | 8 | B | 0.67 | CNE12 |
| **XMP01-100*18-B32-CNE1210-08** | | ● | 100 | 32 | 18 | 20 | 50 | 8 | B | 0.99 | |
| **XMP01-125*27-B40-CNE1210-15** | | ● | 125 | 40 | 27 | 22.5 | 63 | 15 | B | 2.46 | |
| **XMP01-160*27-C40-CNE1210-18** | | ● | 160 | 40 | 27 | 25 | 63 | 18 | C | 3.7 | |
| **XMP01-200*27-C60-CNE1210-21** | | ● | 200 | 60 | 27 | 31.5 | 63 | 21 | C | 5.46 | |
| **XMP01-250*36-C60-CNE1210-32** | | ● | 250 | 40 | 36 | 56.5 | 63 | 32 | C | 9.79 | |
| **XMP01-315*36-D60-CNE1210-42** | | ● | 315 | 60 | 36 | 47.5 | 63 | 42 | D | 17.65 | |
| **XMP01-400*36-D60-CNE1210-52** | | ● | 400 | 60 | 36 | 36 | 63 | 52 | D | 27.36 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **CNE12** |
|---|---|---|
| | **ØD** | **80-400** |
| | Screw (insert) | l60M4×12 (3.4 Nm) |
| | Wrench (insert) | WT15IP |

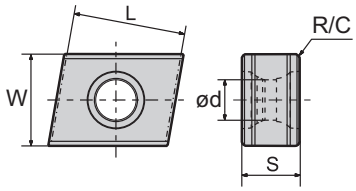


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| CNE | L | S | d |
|---|---|---|---|
| **12** | 12.8 | 6.35 | 4.4 |

## Milling inserts




| CN** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R/C | W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **CNE121006A** | 0.4 | 10 | | | | ● | | | | | | | | | | | | | | | | | | | | | |
|  | **CNE121006B** | 0.6 | 10 | | | | ○ | | | ● | | | | | | | | | | | | | | | | | | |

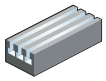
● Ex stock ○ On demand

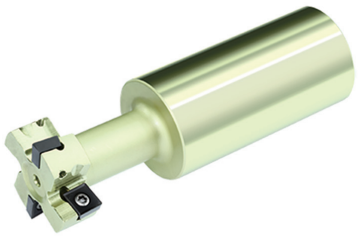
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

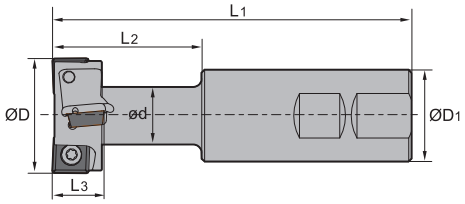

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## T-slot milling

### TMP01 Kr: 90°








Weldon shank

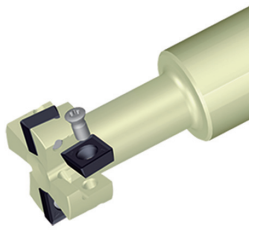
| Article | ✻ | Stock | Dimensions [mm] | | | | | | Teeth | No. of inserts | T-slot specification | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | ød | $L_1$ | $L_2$ | $L_3$ | | | | |
| **TMP01-021-XP25-MP06-01** | | ● | 21 | 25 | 10 | 100 | 32 | 9 | 1 | 2 | 12 | MPHT0603 |
| **TMP01-025-XP25-MP06-01** | | ● | 25 | 25 | 12 | 100 | 35 | 11 | 1 | 2 | 14 | |
| **TMP01-032-XP32-MP08-02** | | ● | 32 | 32 | 15 | 110 | 45 | 14 | 2 | 4 | 18 | MPHT0803 |
| **TMP01-040-XP32-MP12-02C** | ✻ | ● | 40 | 32 | 19 | 125 | 55 | 18 | 2 | 4 | 22 | MPHT1204 |
| **TMP01-050-XP40-MP12-02C** | ✻ | ● | 50 | 40 | 25 | 140 | 65 | 22 | 2 | 4 | 28 | |
| **TMP01-060-XP50-MP12-02** | | ● | 60 | 50 | 32 | 160 | 80 | 28 | 2 | 6 | 36 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | MPHT0603 | MPHT0803 | MPHT1204 |
|---|---|---|---|---|
| | ØD | 21-25 | 32 | 40-60 |
| | Screw (insert) | I60M2.5×5.5 (1.0 Nm) | I60M3×7 (1.8 Nm) | I60M5×10 (6.7 Nm) |
| | Wrench (insert) | WT07IP | WT09IP | |
| | Wrench (insert) | | | WT20IT |

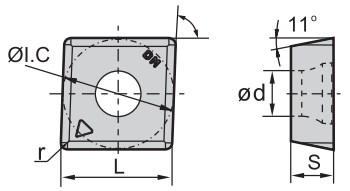


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| MPHT | L | I.C | S | d |
|---|---|---|---|---|
| **06** 03 | 6.35 | 6.35 | 3.18 | 2.8 |
| **08** 03 | 8.3 | 8.3 | 3.18 | 3.4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.56 |




| MP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **MPHT060304-DM** | 0.4 | ● | | | | ○ | | | | | | | | | | | | | | ● | | | | | | |
| | **MPHT080305-DM** | 0.5 | ● | | | | ○ | | | | | | | | | | | | | | ● | | | | | | |
| | **MPHT120408-DM** | 0.8 | ● | | | | ○ | | ● | | | | | | | | | | | ○ | ● | | | | | | |
| | **MPHT060304-LH** | 0.4 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |

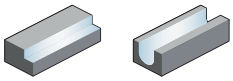
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

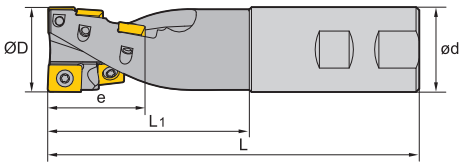

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Helical milling

### HMP01 Kr: 90°







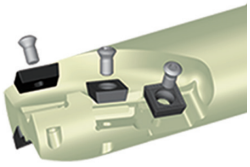

Weldon shank

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth row | Teeth | | Shank type | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | ød | $L_1$ | L | | APKT | SPMT | |  |
| **HMP01-040x55-XP40-SP12-02** | | ○ | 40 | 55 | 40 | 85 | 175 | 2 | 1 | 5 | Weldon | APKT1504 & SPMT1204 |
| **HMP01-050x55-XP40-SP12-04** | | ○ | 50 | 55 | 40 | 95 | 175 | 4 | 2 | 10 | Weldon | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

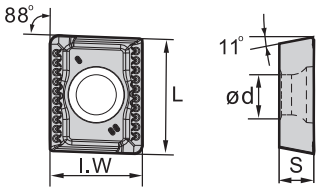
| | Insert | APKT1504 & SPMT1204 | APKT1504 & SPMT1204 | |
|---|---|---|---|---|
| | ØD | 40 | 50 | |
|  | Screw (insert) | l60M5×10 (6.7 Nm) | l60M5×13 (6.7 Nm) |  |
|  | Wrench (insert) | WT20T | WT20T | |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **15** 04 | 16.33 | 4.76 | 5.4 |

| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | | r | l.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **APKT150412-PM** | | 1.2 | 12.7 | | | | ● | | | | | | | | | | | | | | ● | | | | | | |

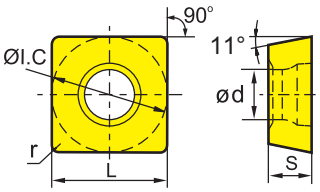
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |

| SP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPMT120408-PM** | | 0.8 | | | | ● | | | | | | | | | | | | | | | ● | | | | | | |

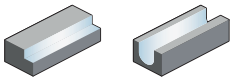
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

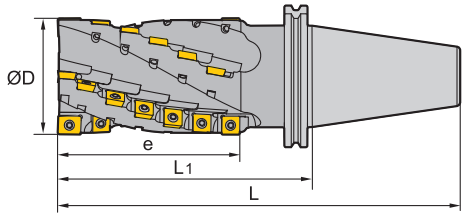

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Helical milling

### HMP01 Kr: 90°








| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth row | Teeth | | Shank type | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | $L_1$ | L | | APKT | SPMT | |  |
| **HMP01-050x84-BT50-SP12-04** | | ○ | 50 | 84 | 145 | 246.8 | 4 | 2 | 16 | BT | APKT1504 & SPMT1204 |
| **HMP01-050x84-JT50-SP12-04** | | ○ | 50 | 84 | 145 | 246.75 | 4 | 2 | 16 | JT | |
| **HMP01-063x74-JT50-SP12-04** | | ○ | 63 | 74 | 135 | 236.75 | 4 | 2 | 14 | JT | |
| **HMP01-063x104-BT50-SP12-04** | | ○ | 63 | 104 | 165 | 266.8 | 4 | 2 | 20 | BT | |
| **HMP01-063x104-JT50-SP12-04** | | ○ | 63 | 104 | 165 | 266.75 | 4 | 2 | 20 | JT | |
| **HMP01-063x134-BT50-SP12-04** | | ○ | 63 | 134 | 195 | 296.8 | 4 | 2 | 26 | BT | |
| **HMP01-063x134-JT50-SP12-04** | | ○ | 63 | 134 | 195 | 296.75 | 4 | 2 | 26 | JT | |
| **HMP01-080x104-BT50-SP12-04** | | ○ | 80 | 104 | 165 | 266.8 | 4 | 2 | 20 | BT | |
| **HMP01-080x104-JT50-SP12-04** | | ○ | 80 | 104 | 165 | 266.75 | 4 | 2 | 20 | JT | |
| **HMP01-080x144-BT50-SP12-04** | | ○ | 80 | 144 | 205 | 306.8 | 4 | 2 | 28 | BT | |
| **HMP01-080x144-JT50-SP12-04** | | ○ | 80 | 144 | 205 | 306.75 | 4 | 2 | 28 | JT | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **APKT1504 & SPMT1204** |
|---|---|---|
| | **ØD** | **50-80** |
|  | Screw (insert) | I60M5×10 (6.7 Nm) |
|  | Wrench (insert) | WT20IS |

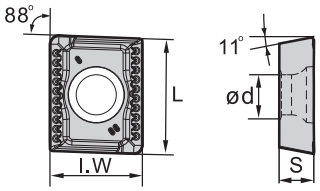


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **15** 04 | 16.33 | 4.76 | 5.4 |

| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **APKT150412-PM** | 1.2 | 12.7 | | | | ● | | | | | | | | | | | | | | | ● | | | | | | |

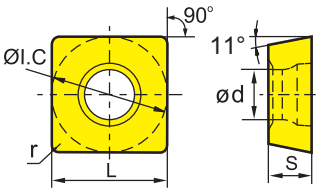
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |

| SP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPMT120408-PM** | 0.8 | | | | | ● | | | | | | | | | | | | | | | ● | | | | | | |

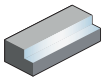
● Ex stock ○ On demand

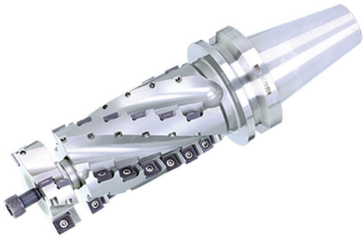
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

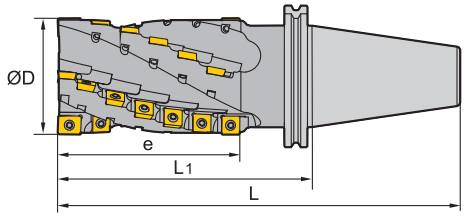

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Helical milling

### HMP01 EC Kr: 90°







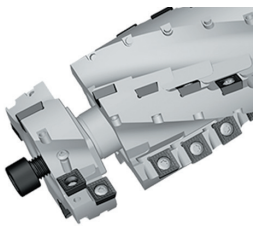

| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth row | Teeth | | Shank type | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | e | $L_1$ | L | | APKT | SPMT | |  |
| **HMP01-050x84EC-JT50-SP12-04** | | ○ | 50 | 84 | 145 | 246.75 | 4 | 2 | 16 | JT | APKT1504 & SPMT1204 |
| **HMP01-063x74EC-JT50-SP12-04** | | ○ | 63 | 74 | 135 | 236.75 | 4 | 2 | 14 | JT | |
| **HMP01-063x104EC-BT50-SP12-04** | | ○ | 63 | 104 | 165 | 266.8 | 4 | 2 | 20 | BT | |
| **HMP01-063x104EC-JT50-SP12-04** | | ○ | 63 | 104 | 165 | 266.75 | 4 | 2 | 20 | JT | |
| **HMP01-063x134EC-BT50-SP12-04** | | ○ | 63 | 134 | 195 | 296.8 | 4 | 2 | 26 | BT | |
| **HMP01-063x134EC-JT50-SP12-04** | | ○ | 63 | 134 | 195 | 296.75 | 4 | 2 | 26 | JT | |
| **HMP01-080x104EC-BT50-SP12-04** | | ○ | 80 | 104 | 165 | 266.8 | 4 | 2 | 20 | BT | |
| **HMP01-080x104EC-JT50-SP12-04** | | ○ | 80 | 104 | 165 | 266.75 | 4 | 2 | 20 | JT | |
| **HMP01-080x144EC-BT50-SP12-04** | | ○ | 80 | 144 | 205 | 306.8 | 4 | 2 | 28 | BT | |
| **HMP01-080x144EC-JT50-SP12-04** | | ○ | 80 | 144 | 205 | 306.75 | 4 | 2 | 28 | JT | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | APKT1504 & SPMT1204 | APKT1504 & SPMT1204 | APKT1504 & SPMT1204 |
|---|---|---|---|---|
| | **ØD** | **50** | **63** | **80** |
|  | Indexable head | 050EC | 063EC | 080EC |
|  | Screw (head) | M10×50 (16.6 Nm) | M10×50 (16.6 Nm) | M12×55 (25.2 Nm) |
|  | Screw (insert) | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) | I60M5×13 (6.7 Nm) |
|  | Wrench (head) | WH80L | WH80L | WH100L |
|  | Wrench (insert) | WT20IS | WT20IS | WT20IS |



System code B32 Grade selection B31 Technical info B617 Cutting data B312

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

| APKT | L | S | d |
|---|---|---|---|
| **15** 04 | 16.33 | 4.76 | 5.4 |

## Milling inserts

| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | l.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **APKT150412-PM** | 1.2 | 12.7 | | | | ● | | | | | | | | | | | | | | | ● | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |

## Milling inserts

| SP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPMT120408-PM** | 0.8 | | | | | ● | | | | | | | | | | | | | | | ● | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Chamfer milling

**CMZ01** Kr: 30°








Straight shank

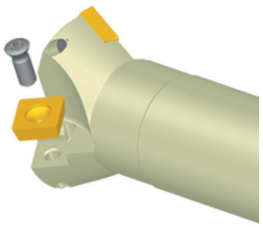
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | | | |
| **CMZ01-012-G20-SP12-01** | | ● | 12 | 20 | 40 | 100 | 1 | 0.2 | SPMT1204 |
| **CMZ01-025-G25-SP12-02** | | ● | 25 | 25 | 40 | 120 | 2 | 0.8 | |
| **CMZ01-032-G32-SP12-03** | | ● | 32 | 32 | 40 | 180 | 3 | 1.1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SPMT1204** |
|---|---|---|
| | **ØD** | **12-32** |
|  | Screw (insert) | I43M5×11 (6.7 Nm) |
|  | Wrench (insert) | WT20IS |

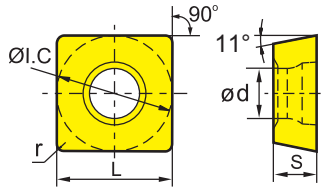


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |




| SP** milling insert | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | | | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |
| M | | | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |
| K | | | | | | | | ○ | ○ | ○ | | | | | | | | | | | ○ | | |
| N | | | | | | | | | | | ○ | | | | | | | | | | | | ○ ○ |
| S | | | | | ○ | | ○ | | | | | ○ | ○ | | ○ | ○ | | ○ | | ○ | | | | |
| H | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| ISO | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| SPMT120408-HT-1 | 0.8 | | | | | | | | | | | | | | ○ | | | | | | | | | | |
| SPMT120408 | 0.8 | ○ | ● | ○ | | ● | ○ | | | | | | | | | | | ● | | ○ | | | | | |

● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide


System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Chamfer milling

**CMZ01** Kr: 30°








Weldon shank

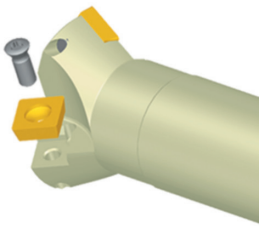
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | | | |
| **CMZ01-012-XP20-SP12-01** | | ● | 12 | 20 | 40 | 100 | 1 | 0.2 | SPMT1204 |
| **CMZ01-025-XP25-SP12-02** | | ● | 25 | 25 | 40 | 120 | 2 | 0.6 | |
| **CMZ01-032-XP32-SP12-03** | | ● | 32 | 32 | 40 | 180 | 3 | 1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SPMT1204** |
|---|---|---|
| | **ØD** | **12-32** |
|  | Screw (insert) | I43M5×11 (6.7 Nm) |
|  | Wrench (insert) | WT20IS |

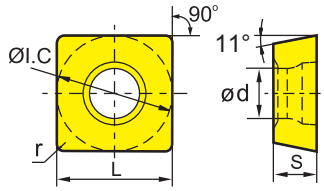


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |

| SP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPMT120408-HT-1** | 0.8 | | | | | | | | | | | | | | ○ | | | | | | | | | | |
|  | **SPMT120408** | 0.8 | ○ | ● | ○ | | ● | ○ | | | | | | | | | | | ● | | ○ | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Chamfer milling

### CMA01 Kr: 45°








Straight shank

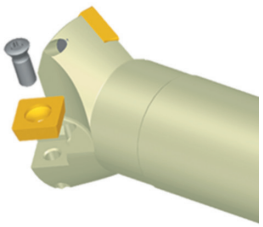
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | | | |
| **CMA01-012-G20-SP12-01** | | ● | 12 | 20 | 40 | 100 | 1 | 0.2 | SPMT1204 |
| **CMA01-025-G25-SP12-02** | | ● | 25 | 25 | 40 | 120 | 2 | 0.8 | |
| **CMA01-032-G32-SP12-03** | | ● | 32 | 32 | 40 | 180 | 3 | 1.1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SPMT1204** |
|---|---|---|
| | **ØD** | **12-32** |
|  | Screw (insert) | I43M5×11 (6.7 Nm) |
|  | Wrench (insert) | WT20IS |

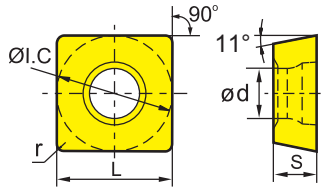


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |




| SP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **SPMT120408-HT-1** | 0.8 | | | | | | | | | | | | | | ○ | | | | | | | | | | |
| | **SPMT120408** | 0.8 | ○ | ● | ○ | | ● | ○ | | | | | | | | | | | ● | | ○ | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Chamfer milling

### CMA01 Kr: 45°








Weldon shank

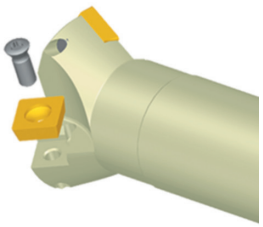
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | | | |
| **CMA01-012-XP20-SP12-01** | | ● | 12 | 20 | 40 | 100 | 1 | 0.2 | SPMT1204 |
| **CMA01-025-XP25-SP12-02** | | ● | 25 | 25 | 40 | 120 | 2 | 0.6 | |
| **CMA01-032-XP32-SP12-03** | | ● | 32 | 32 | 40 | 180 | 3 | 1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SPMT1204** |
|---|---|---|
| | **ØD** | **12-32** |
|  | Screw (insert) | I43M5×11 (6.7 Nm) |
|  | Wrench (insert) | WT20IS |

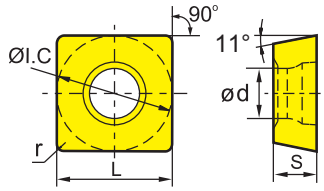


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |




| SP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | | | | | | | | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| SPMT120408-HT-1 | 0.8 | | | | | | | | | | | | | | ○ | | | | | | | | | | |
| SPMT120408 | 0.8 | ○ | ● | ○ | | ● | ○ | | | | | | | | | | | ● | | ○ | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

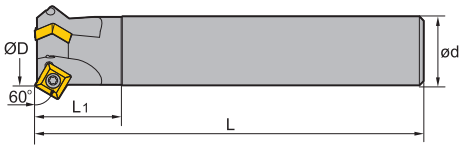

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Chamfer milling

### CMD01 Kr: 60°








Straight shank

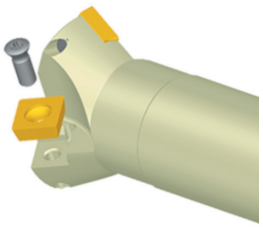
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | | | |
| **CMD01-012-G20-SP12-01** | | ● | 12 | 20 | 40 | 100 | 1 | 0.2 | SPMT1204 |
| **CMD01-025-G25-SP12-02** | | ● | 25 | 25 | 40 | 120 | 2 | 0.8 | |
| **CMD01-036-G32-SP12-03** | | ● | 36 | 32 | 40 | 180 | 3 | 1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SPMT1204** |
|---|---|---|
| | **ØD** | **12-36** |
| | Screw (insert) | I43M5×11 (6.7 Nm) |
| | Wrench (insert) | WT20IS |

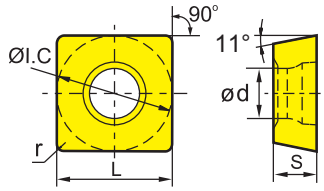


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |




| SP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ● | ● | ● | | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | | |
| K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ● | | | | |
| N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | | ◉ | | ◉ | | | | ◉ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | |
| H | | | | | | | | | | ○ | | | | | | ◉ | | | | | | | |
| ISO | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  SPMT120408-HT-1 | 0.8 | | | | | | | | | | | | | | ○ | | | | | | | | | | |
|  SPMT120408 | 0.8 | ○ | ● | ○ | | ● | ○ | | | | | | | | | | | ● | | ○ | | | | | |

● Ex stock ○ On demand

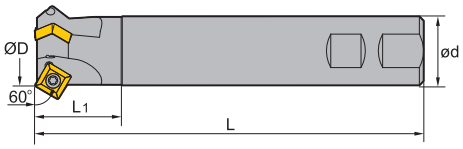
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Chamfer milling

**CMD01** Kr: 60°






Weldon shank

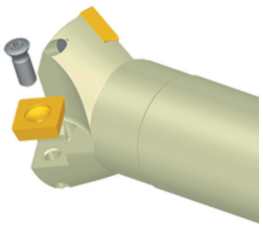
| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | $L_1$ | L | | | |
| **CMD01-012-XP20-SP12-01** | | ● | 12 | 20 | 40 | 100 | 1 | 0.2 | SPMT1204 |
| **CMD01-025-XP25-SP12-02** | | ● | 25 | 25 | 40 | 120 | 2 | 0.6 | |
| **CMD01-036-XP32-SP12-03** | | ● | 36 | 32 | 40 | 180 | 3 | 1 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **SPMT1204** |
|---|---|---|
| | **ØD** | **12-36** |
| | Screw (insert) | I43M5×11 (6.7 Nm) |
| | Wrench (insert) | WT20IS |

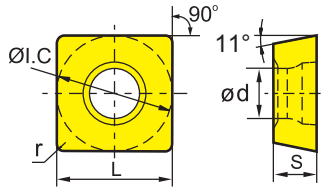


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |

| SP** milling insert | | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPMT120408-HT-1** | 0.8 | | | | | | | | | | | | | | ○ | | | | | | | | | | | |
|  | **SPMT120408** | 0.8 | ○ | ● | ○ | | ● | ○ | | | | | | | | | | | ● | | ○ | | | | | | |

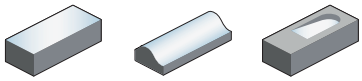
● Ex stock ○ On demand

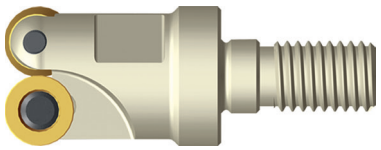
HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

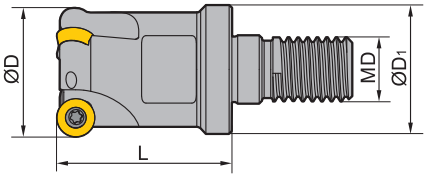

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## QCH series

### QCH - RD







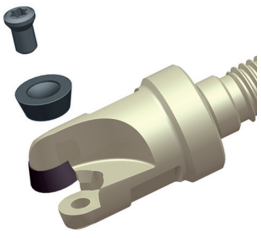

| Article | ✲ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | L | MD | | | |
| **QCH-16-RD07-M8-02** | ✲ | ● | 16 | 15 | 25 | 8 | 2 | 0.027 | RDKW0702 |
| **QCH-20-RD07-M10-03** | ✲ | ○ | 20 | 18 | 30 | 10 | 3 | 0.058 | |
| **QCH-20-RD10-M10-02** | ✲ | ○ | 20 | 19 | 30 | 10 | 2 | 0.054 | RDKW10T3 |
| **QCH-25-RD10-M12-02** | ✲ | ○ | 25 | 24 | 35 | 12 | 2 | 0.097 | |
| **QCH-32-RD10-M16-03** | ✲ | ○ | 32 | 30 | 45 | 16 | 3 | 0.183 | |
| **QCH-32-RD10-M16-04** | ✲ | ● | 32 | 30 | 45 | 16 | 4 | 0.22 | |
| **QCH-32-RD16-M16-02** | ✲ | ○ | 32 | 30 | 45 | 16 | 2 | 0.156 | RDKW1605 |
| **QCH-40-RD16-M16-03** | ✲ | ● | 40 | 17 | 45 | 16 | 3 | 0.23 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | **Insert** | **RDKW0702** | **RDKW10T3** | **RDKW1605** |
|---|---|---|---|---|
| | **ØD** | **16-25** | **20-32** | **30-42** |
| | Screw (clamp) | | | I60M5×13 (6.7 Nm) |
| | Screw (insert) | I60M2.5×5.0 (1.0 Nm) | I60M4×8 (3.4 Nm) | I60M5×13 (6.7 Nm) |
| | Wrench (insert) | WT08IP | WT15IP | |
| | Wrench (insert) | | | WT20IT |

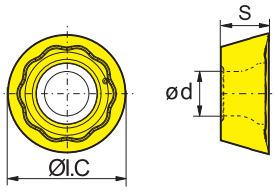


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| RDKT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 3.85 |

## Milling inserts

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | ● | ● | ● | | | | | | | | | | ● | | | | |
| | N | | | | | | | | | ● | | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | ● | ● | | ● | ● | | ● | | ● | | | | |
| | H | | | | | | | | | ○ | | | | | | ● | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **RDKT10T3MO-MM** | | | | | | | | | | | | | | | ○ | | | | | ○ | | | | | |
|  | **RDKT10T3MO-NM** | | | | | | | | | | | | | | | ○ | | | | | ○ | | | | | |

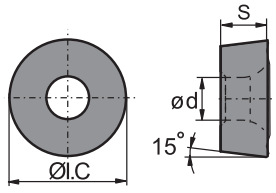
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

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

| RDKW | I.C | S | d |
|---|---|---|---|
| **07** 02 | 7 | 2.38 | 2.7 |
| **10** T3 | 10 | 3.97 | 4.4 |
| **16** 05 | 16 | 5.56 | 5.5 |

## Milling inserts

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | | |
| | K | | | | | | ● | ● | ● | | | | | | | | | | ● | | | | |
| | N | | | | | | | | | ● | | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | ● | ● | | ● | ● | | ● | | ● | | | | |
| | H | | | | | | | | | ○ | | | | | | ● | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **RDKW10T3MO** | ● | | | | | | | | | | ○ | ○ | | | | | | | ○ | | | | | | |
| | **RDKW1605MO** | | | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
|  | **RDKW0702MO-1** | | | | | | ● | | | | | | ○ | | | ● | ○ | | | | | | | | | |
| | **RDKW0702MO-2** | | | | | | | | | | | ● | | | | | | | | | | | | | | |

● Ex stock ○ On demand

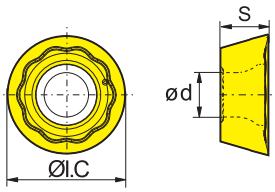
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| RDMT | l.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |

## Milling inserts

| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDMT10T3MO-M | | | | | | | ● | | | | | | | | | | ● | | | ● | | | | | |
|  | RDMT10T3MO-MM | | | | | | | | | | | | | | | | | ● | | | ● | | | | | |

● Ex stock ○ On demand

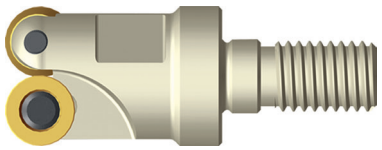
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

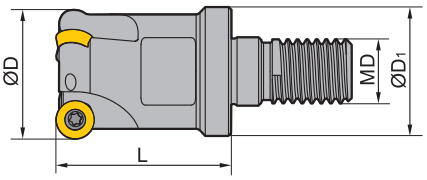
A Turning
B Milling
C Drilling
D Technical Information
E Index

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## QCH series

### QCH - RD






| Article | ✲ | Stock | Dimensions [mm] | | | | Teeth | Inserts |
|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | |
| QCH-15-RDKW0702-M8-02 | ✲ | ● | 15 | 12.5 | 23 | 8 | 2 | RDKW0702 |
| QCH-15-RDKW0702-M8-03 | ✲ | ● | 15 | 12.5 | 23 | 8 | 3 | |
| QCH-20-RDKW0702-M10-04 | ✲ | ● | 20 | 18 | 30 | 10 | 4 | |
| QCH-25-RDKW0702-M12-05 | ✲ | ● | 25 | 21 | 35 | 12 | 5 | |
| QCH-20-RDKW1003-M10-02 | ✲ | ● | 20 | 18 | 30 | 10 | 2 | RDKW1003 |
| QCH-25-RDKW1003-M12-02 | ✲ | ● | 25 | 21 | 35 | 12 | 2 | |
| QCH-25-RDKW1003-M12-03 | ✲ | ● | 25 | 21 | 35 | 12 | 3 | |
| QCH-30-RDKW1003-M16-04 | ✲ | ● | 30 | 29 | 43 | 16 | 4 | |
| QCH-35-RDKW1003-M16-04 | ✲ | ● | 35 | 29 | 43 | 16 | 4 | |
| QCH-42-RDKW1003-M16-05 | ✲ | ● | 42 | 29 | 43 | 16 | 5 | |
| QCH-24-RDKW12T3-M12-02 | ✲ | ● | 24 | 21 | 35 | 12 | 2 | RDKW12T3 |
| QCH-35-RDKW12T3-M16-03 | ✲ | ● | 35 | 29 | 43 | 16 | 3 | |
| QCH-42-RDKW12T3-M16-04 | ✲ | ● | 42 | 29 | 43 | 16 | 4 | |
| QCH-32-RDKW1604-M16-02 | ✲ | ● | 32 | 29 | 43 | 16 | 2 | RDKW1604 |

● Ex stock ○ On demand

✲ With internal cooling

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

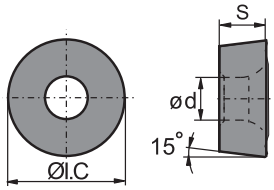
Spare parts

| | Insert | RDKW0702 | RDKW1003 | RDKW12T3 | RDKW1604 |
|---|---|---|---|---|---|
| | ØD | 15-25 | 20-42 | 24-42 | 32 |
|  | Clamp | | | | WX16N |
|  | Screw (clamp) | | | | I60M4.5×10 (5.0 Nm) |
|  | Screw (clamp) | | | LOM3.5×7.1 | |
|  | Screw (insert) | I60M2.5×5.0 (1.0 Nm) | | I60M3.5×7.7 (2.7 Nm) | I60M4.5×10 (5.0 Nm) |
|  | Screw (insert) | | I60M3.5×6.5TT (2.7 Nm) | | |
|  | Wrench (insert) | | WT10IP | | |
|  | Wrench (insert) | WT07P | | WT15P | |
|  | Wrench (insert) | | | | WT20T |

| RDKW | I.C | S | d |
|---|---|---|---|
| **07** 02 | 7 | 2.38 | 2.7 |
| **10** 03 | 10 | 3.18 | 3.9 |
| **12** T3 | 12 | 3.97 | 3.9 |
| **16** 04 | 16 | 4.76 | 5.2 |

## Milling inserts

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




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDKW0702MO-1 | | | | | | ● | | | | | | | ○ | | | ● | ○ | | | | | | | | |
| | RDKW0702MO-2 | | | | | | | | | | | | ● | | | | | | | | | | | | | |
| | RDKW1003MO-1 | | | | | | ○ | | | | | | | ○ | | | ● | ● | ● | | | | | | | |
| | RDKW1003MO-2 | | | | | | | | | | | | ○ | | | | | | | | | | | | | |
| | RDKW1003MO-3 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | RDKW12T3MO-1 | | | | | | ● | | | | | | | ○ | | | ○ | ● | ● | | | | | | | |
| | RDKW12T3MO-2 | | | | | | | | | | | | ● | | | | ○ | | | | | | | | | |
| | RDKW12T3MO-3 | | | | ● | | | | ● | | | | | | | | ● | | | | | | | | | |
| | RDKW1604MO-1 | | | | | | ○ | | | | | | | ○ | | | ● | ● | ● | ○ | | | | | | |
| | RDKW1604MO-2 | | | | | | | | | | | | ○ | | | | | | | | | | | | | |
| | RDKW1604MO-3 | ○ | | | ○ | | | | ● | | | | | | | | ● | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

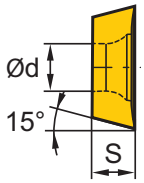
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| RDHT | L | I.C | S | d |
|---|---|---|---|---|
| **07** 02 | | 7 | 2.38 | 2.7 |
| **10** 03 | | 10 | 3.18 | 3.9 |
| **12** T3 | | 12 | 3.97 | 3.9 |
| **16** 04 | | 16 | 4.76 | 5.2 |

## Milling inserts




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ● | ● | ● | | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | | | |
| K | | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | ● | | | | |
| N | | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | | ◉ | | ◉ | | | | ◉ | ◉ | | | ◉ | ◉ | | ◉ | | ◉ | | | | |
| H | | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **RDHT0702MO-LH** | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **RDHT1003MO-LH** | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **RDHT12T3MO-LH** | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | **RDHT1604MO-LH** | | | | | | | | | | | | | | | | | | | | | | | ● | |

● Ex stock ○ On demand

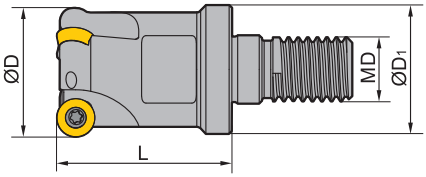
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## QCH series

### QCH-RD-FMR11



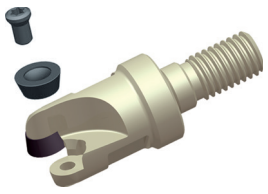



| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | | |
| **QCH-20-RD10-M10-02-FMR11** | ✻ | ○ | 20 | 18 | 30 | 10 | 2 | 0.058 | RD**10T3 |
| **QCH-25-RD10-M12-03-FMR11** | ✻ | ● | 25 | 21 | 35 | 12 | 3 | 0.089 | |
| **QCH-32-RD10-M16-03-FMR11** | ✻ | ● | 32 | 30 | 45 | 16 | 3 | 0.211 | |
| **QCH-42-RD10-M16-05-FMR11** | ✻ | ● | 42 | 40 | 45 | 16 | 5 | 0.297 | |
| **QCH-25-RD12-M12-02-FMR11** | ✻ | ● | 25 | 21 | 35 | 12 | 2 | 0.1 | RD**1204 |
| **QCH-32-RD12-M16-03-FMR11** | ✻ | ● | 32 | 30 | 45 | 16 | 3 | 0.205 | |
| **QCH-42-RD12-M16-05-FMR11** | ✻ | ● | 42 | 40 | 45 | 16 | 5 | 0.279 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

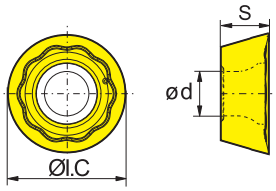
| | **Insert** | **RD**10T3** | **RD**1204** | |
|---|---|---|---|---|
| | **ØD** | **20-78** | **20-78** | |
|  | Screw (insert) | I60M3.5×8 (2.7 Nm) | I60M3.5×8 (2.7 Nm) |  |
|  | Wrench (insert) | WT15IP | WT15IP | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RDMT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDMT10T3MO-M | | | | | | | | ● | | | | | | | | ● | | | | ● | | | | | |
| | RDMT1204MO-M | | | | | | | | ● | | | | | | | ○ | ● | | | | ● | | | | | |
|  | RDMT10T3MO-MM | | | | | | | | | | | | | | | | ● | | | | ● | | | | | |
| | RDMT1204MO-MM | | | | | | | | | | | | | | | ○ | ● | | | | ● | | | | | |

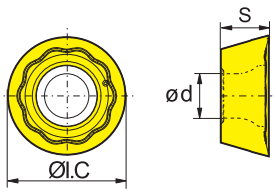
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| RDMW | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDMW10T3MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |
| | RDMW1204MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |

● Ex stock ○ On demand

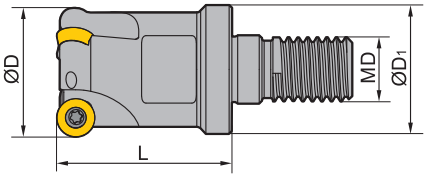
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## QCH series

### QCH-RP-FMR11



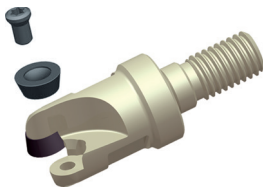



| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | | |
| **QCH-20-RP10-M10-02-FMR11** | ✻ | ○ | 20 | 18 | 30 | 10 | 2 | 0.058 | RP**10T3 |
| **QCH-25-RP10-M12-03-FMR11** | ✻ | ○ | 25 | 21 | 35 | 12 | 3 | 0.16 | |
| **QCH-32-RP10-M16-03-FMR11** | ✻ | ○ | 32 | 30 | 45 | 16 | 3 | 0.21 | |
| **QCH-42-RP10-M16-05-FMR11** | ✻ | ○ | 42 | 40 | 45 | 16 | 5 | 0.29 | |
| **QCH-25-RP12-M12-02-FMR11** | ✻ | ○ | 25 | 21 | 35 | 12 | 2 | 0.097 | RP**1204 |
| **QCH-32-RP12-M16-03-FMR11** | ✻ | ○ | 32 | 30 | 45 | 16 | 3 | 0.21 | |
| **QCH-42-RP12-M16-05-FMR11** | ✻ | ○ | 42 | 40 | 45 | 16 | 5 | 0.27 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

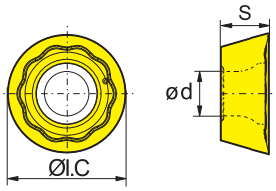
| | **Insert** | **RP**10T3** | **RP**1204** | |
|---|---|---|---|---|
| | **ØD** | **20-78** | **20-78** | |
|  | Screw (insert) | I60M3.5×8 (2.7 Nm) | I60M3.5×8 (2.7 Nm) |  |
|  | Wrench (insert) | WT15IP | WT15IP | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RPMT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPMT10T3MO-M | | | | | | | | ● | | | | | | | | ● | | | | ● | | | | | |
| | RPMT1204MO-M | | | | | | | | ● | | | | | | | | ● | | | | ● | | | | | |
|  | RPMT10T3MO-MM | | | | | | | | | | | | | | | | ● | | | | ○ | | | | | |
| | RPMT1204MO-MM | | | | | | | | | | | | | | | | ● | | | | ○ | | | | | |

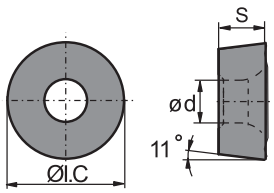
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

## Milling inserts

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

| RPMW | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPMW10T3MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |
| | RPMW1204MO-H | | | | | | | | ● | | | | | | | | | ● | | | | | | | | |

● Ex stock ○ On demand

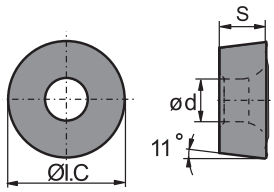
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| RPKT | I.C | S | d |
|---|---|---|---|
| **10** T3 | 10 | 3.97 | 4.1 |
| **12** 04 | 12 | 4.76 | 4.4 |




| RP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ● | ● | ● | ● | ● | ● | | ● | ● | | | | | ● | ● | | | ● | ● | ● | ● | ● | ● | | |
| | M | | ● | ● | ● | ● | ● | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| | K | | | | | | | ● | ● | ● | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| | S | | | | ● | | ● | | | | | ● | ● | | ● | ● | | | ● | | ● | | | | | | |
| | H | | | | | | | | | ○ | | | | | | | | ● | | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RPKT10T3MO-MM | | | | | | | | | | | | | | | | | | | | ○ | | | | | |
| | RPKT1204MO-MM | | | | | | | | | | | | | | | | | | | | ○ | | | | | |

● Ex stock ○ On demand

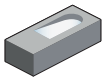
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

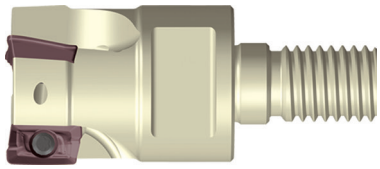
A Turning
B Milling
C Drilling
D Technical Information
E Index

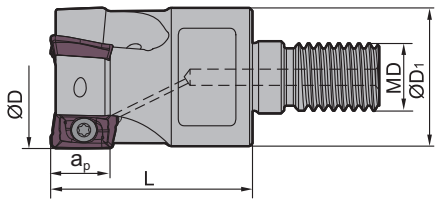
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## QCH series

### QCH - APKT Kr: 90°





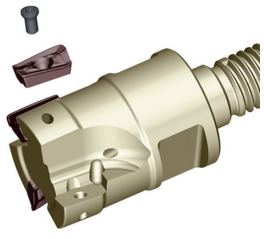



| Article | ✻ | Stock | Dimensions [mm] ØD | ØD1 | ap | L | MD | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| QCH-16-APKT07-M8-03 | ✻ | ● | 16 | 16 | 6.4 | 25 | 8 | 3 | 0.03 | APKT0702 |
| QCH-16-APKT11-M8-02 | ✻ | ● | 16 | 12.5 | 10.5 | 25 | 8 | 2 | 0.028 | |
| QCH-18-APKT11-M8-02 | ✻ | ● | 18 | 15 | 10.5 | 30 | 8 | 2 | 0.085 | |
| QCH-20-APKT11-M10-03 | ✻ | ● | 20 | 18 | 10.5 | 30 | 10 | 3 | 0.059 | APKT11T3 |
| QCH-25-APKT11-M12-04 | ✻ | ● | 25 | 21 | 10.5 | 35 | 12 | 4 | 0.104 | |
| QCH-32-APKT11-M16-05 | ✻ | ● | 32 | 29 | 10.5 | 43 | 16 | 5 | 0.26 | |
| QCH-40-APKT11-M16-06 | ✻ | ● | 40 | 29 | 10.5 | 43 | 16 | 6 | | |
| QCH-25-APKT16-M12-02 | ✻ | ○ | 25 | 21 | 15.5 | 38 | 12 | 2 | 0.09 | |
| QCH-32-APKT16-M16-02 | ✻ | ● | 32 | 29 | 15.5 | 46 | 16 | 2 | 0.23 | |
| QCH-32-APKT16-M16-03 | ✻ | ● | 32 | 29 | 15.5 | 46 | 16 | 3 | 0.23 | APKT1604 |
| QCH-40-APKT16-M16-03 | ✻ | ● | 40 | 29 | 15.5 | 46 | 16 | 3 | 0.28 | |
| QCH-40-APKT16-M16-04 | ✻ | ○ | 40 | 29 | 15.5 | 46 | 16 | 4 | 0.28 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

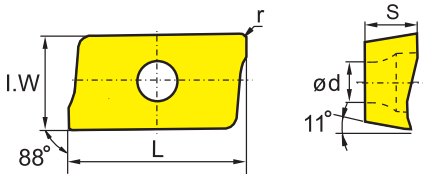
| | Insert | APKT0702 | APKT11T3 | APKT1604 | |
|---|---|---|---|---|---|
| | ØD | 15-25 | 16-40 | 25-40 | |
| | Screw (insert) | I60M1.8x4 (0.5 Nm) | | I60M4×8.4 (3.4 Nm) |  |
| | Screw (insert) | | I60M2.5×6.5T (1.0 Nm) | | |
| | Wrench (insert) | WT05IP | WT08IP | WT15IP | |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |




| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | APKT11T304-ALH | 0.4 | 6.5 | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| | APKT11T308-ALH | 0.8 | 6.5 | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ● |
| | APKT160404-ALH | 0.4 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | APKT160408-ALH | 0.8 | 9.33 | | | | | | | | | | ● | | | | | | | | | | | | | | ● | ○ |
|  | APKT070204-APF | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APF | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APF | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160408-APF | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | ● | ● | ○ | ○ | | | | | |
|  | APKT11T304-APL | 0.4 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT11T308-APL | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT160408-APL | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT160420-APL | 2 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ● | | | | | |
|  | APKT070204-APM | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APM | 0.4 | 6.5 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APM | 0.8 | 6.5 | | | | ● | | ● | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT11T312-APM | 1.2 | 6.5 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T316-APM | 1.6 | 6.5 | | | | ● | | | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT11T320-APM | 2 | 6.5 | | | | ● | | ● | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT160408-APM | 0.8 | 9.33 | | | | ● | | ● | ● | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160416-APM | 1.6 | 9.33 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT160420-APM | 2 | 9.33 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT160424-APM | 2.4 | 9.33 | | | | ● | | ● | | | | | | | | | | | | ● | | | | | | | |
| | APKT160430-APM | 3 | 9.33 | | | ○ | ● | | | | | | | | | | | | | | ● | | | | | | | |
|  | APKT11T304-LH | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-LH | 0.8 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
| | APKT160408-LH | 0.8 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
|  | APKT11T308-NM | 0.8 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T312-NM | 1.2 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
|  | APKT11T304-PF | 0.4 | 6.5 | | ○ | | | | | | | | | ○ | ○ | | | | | | | ○ | | | | | | |
| | APKT11T316-PF | 1.6 | 6.5 | | | | | | | | | | | | ○ | | | | | | | | | | | | | |
| | APKT160408-PF | 0.8 | 9.33 | | | | | | ○ | | | | | | | | | | | | | | | | | | | |
| | APKT160430-PF | 3 | 9.33 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

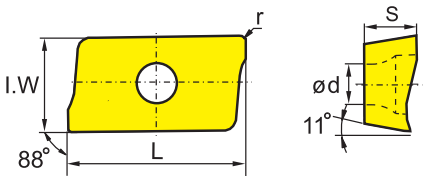
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |




| AP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ● | ○ | ○ | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ○ | ○ | ○ | |
| K | | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | ● | | | |
| N | | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | | ◉ | | ◉ | | | | | ○ | ◉ | | | ◉ | ◉ | | ◉ | | ◉ | | | |
| H | | | | | | | | | | ○ | | | | | | | | ◉ | | | | | | |
| ISO | r | l.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| APKT11T304-PM | 0.4 | 6.5 | ○ | ○ | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| APKT11T308-PM | 0.8 | 6.5 | ○ | | | ○ | | ● | ○ | ○ | | | | ○ | ○ | | | ○ | | | ○ | | | | | | |
| APKT11T312-PM | 1.2 | 6.5 | | | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| APKT11T316-PM | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| APKT160408-PM | 0.8 | 9.33 | ○ | ○ | ○ | ● | | ● | ○ | ○ | | | | ○ | ○ | ○ | | ○ | | | ● | | | | | | |
| APKT160416-PM | 1.6 | 9.33 | ○ | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| APKT11T304-PR | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| APKT11T316-PR | 1.6 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| APKT0702-XR | | 6.91 | | | | | | | | | | | | | | | | | ● | ● | | | | | | | |
| APKT11T3-XR | | 6.5 | | | | | | | | ● | | | | | | | | | ● | ● | | | | | | | |

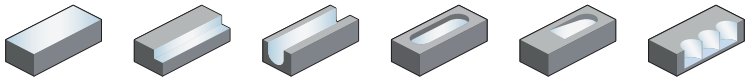
● Ex stock ○ On demand

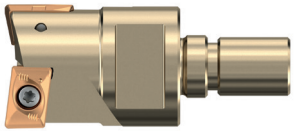
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

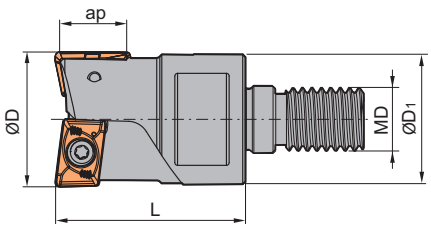

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## QCH series

### QCH-ADKT Kr: 90°







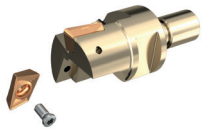

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | $a_p$ | L | MD | | | |
| **QCH-16-AD08-M08-C** | ✻ | ○ | 16 | 15 | 8.5 | 28 | 8 | 1 | 0.027 | ADKT-GM |
| **QCH-17-AD08-M08-C** | ✻ | ○ | 17 | 15 | 8.5 | 28 | 8 | 1 | 0.029 | |
| **QCH-20-AD10-M10-C** | ✻ | ○ | 20 | 19 | 9.5 | 30 | 10 | 1 | 0.053 | |
| **QCH-21-AD10-M10-C** | ✻ | ○ | 21 | 19 | 9.5 | 30 | 10 | 1 | 0.055 | |
| **QCH-26-AD12-M12-C** | ✻ | ○ | 26 | 12.5 | 12.5 | 35 | 12 | 1 | 0.095 | |
| **QCH-32-AD15-M16-C** | ✻ | ○ | 32 | 17 | 14.5 | 43 | 16 | 1 | 0.19 | |
| **QCH-33-AD15-M16-C** | ✻ | ○ | 33 | 17 | 14.5 | 43 | 16 | 1 | 0.2 | |
| **QCH-40-AD12-M16-C** | ✻ | ○ | 40 | 17 | 12.5 | 45 | 16 | 3 | 0.25 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | ADKT-GM | ADKT-GM | ADKT-GM | ADKT-GM | ADKT-GM |
|---|---|---|---|---|---|---|
| | ØD | 40 | 16-17 | 20-21 | 25-26 | 32-33 |
| | Screw (insert) | I60M4×7 (3.4 Nm) | I60M2.2×5.5 (0.8 Nm) | | I60M4×7 (3.4 Nm) | I43M4×8 (3.4 Nm) |
| | Screw (insert) | | | I60M2.5×6.5T (1.0 Nm) | | |
| | Wrench (insert) | WT09IP | WT07IP | WT08IP | WT09IP | |
| | Wrench (insert) | | | | | WT15S |

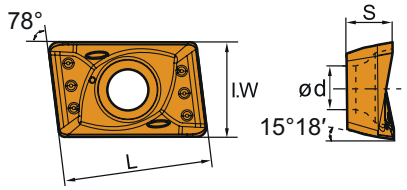


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| ADKT | L | S | d |
|---|---|---|---|
| **08** 03 | 7.96 | 3 | 2.4 |
| **10** 03 | 10 | 3.2 | 2.8 |
| **12** T3 | 12.44 | 3.9 | 3.5 |
| **16** 05 | 16 | 5 | 4.4 |

## Milling inserts




| AD** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ADKT080308L-GM** | 5.33 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT100308L-GM** | 6.44 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT12T308L-GM** | 8 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT160508L-GM** | 9.62 | | | | | | | | | | | | | | | | | | ● | | | | | | | |

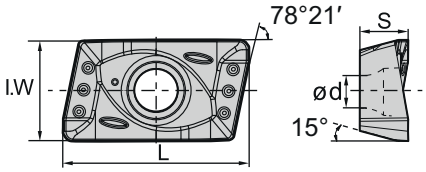
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| ADKT | L | S | d |
|---|---|---|---|
| **09** 03 | 10 | 2.8 | 2.4 |
| **10** 03 | 11.65 | 3.5 | 2.8 |
| **12** T3 | 15 | 3.9 | 3.54 |
| **15** 05 | 17.05 | 4.95 | 4.5 |

## Milling inserts




| AD** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ADKT090308R-GM** | 5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT100308R-GM** | 6.04 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT12T308R-GM** | 8.16 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | **ADKT150508R-GM** | 8.81 | | | | | | | | | | | | | | | | | | ● | | | | | | | |

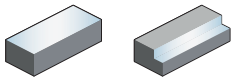
● Ex stock ○ On demand

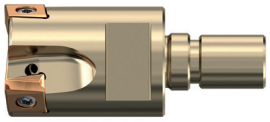
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

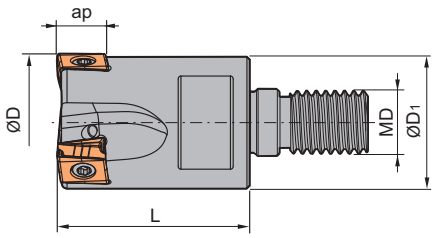

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## QCH series

### QCH-LNKT Kr: 90°





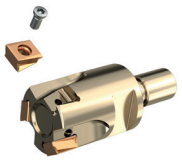



| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ød | L | $a_{p\,max}$ | MD | | | |
| **QCH-20-LN08-M10-02** | | ● | 20 | 20 | 30 | 8 | 10 | 2 | 0.067 | LNKT080404PNR-GM |
| **QCH-20-LN08-M10-03** | | ○ | 20 | 20 | 30 | 8 | 10 | 3 | 0.052 | |
| **QCH-25-LN08-M12-03** | | ○ | 25 | 25 | 35 | 8 | 12 | 3 | 0.118 | |
| **QCH-25-LN08-M12-04** | | ○ | 25 | 25 | 35 | 8 | 12 | 4 | 0.088 | |
| **QCH-32-LN08-M16-04** | | ● | 32 | 32 | 45 | 8 | 16 | 4 | 0.248 | |
| **QCH-32-LN08-M16-05** | | ● | 32 | 32 | 45 | 8 | 16 | 5 | 0.246 | |
| **QCH-40-LN08-M16-05** | | ● | 40 | 40 | 45 | 8 | 16 | 5 | 0.327 | |
| **QCH-40-LN08-M16-06** | | ● | 40 | 40 | 45 | 8 | 16 | 6 | 0.321 | |
| **QCH-32-LN12-M16-02** | | ● | 32 | 32 | 45 | 11.5 | 16 | 2 | 0.238 | LNKT1206PNR-GM |
| **QCH-32-LN12-M16-03** | | ● | 32 | 32 | 45 | 11.5 | 16 | 3 | 0.234 | |
| **QCH-40-LN12-M16-03** | | ● | 40 | 40 | 45 | 11.5 | 16 | 3 | 0.299 | |
| **QCH-40-LN12-M16-04** | | ● | 40 | 40 | 45 | 11.5 | 16 | 4 | 0.298 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

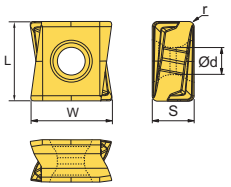
| | Insert | LNKT080404PNR-GM | LNKT1206PNR-GM | |
|---|---|---|---|---|
| | ØD | 16-40 | 25-40 | |
|  | Screw (insert) | I60M3×7 (1.8 Nm) | I60M4×12 (3.4 Nm) |  |
|  | Wrench (insert) | WT09IP | WT15IP | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| LNKT | L | S | d |
|---|---|---|---|
| **08** 04 | 8.75 | 4.45 | 3.4 |
| **12** 06 | 12.7 | 6.75 | 4.4 |




| LN** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | | |
| K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | ● | | | |
| N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | | ◉ | | ◉ | | | | ● | ◉ | ◉ | | ◉ | ◉ | | ◉ | | | | | |
| H | | | | | | | | | | ○ | | | | | | | ◉ | | | | | | |
| ISO | | W | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | LNKT080404PNR-GL | 8.5 | 0.4 | | | | | | | | ● | | | | | | | | | ● | ● | | ● | | | | | |
| | LNKT120608PNR-GL | 13 | 0.8 | | | | | | | | ● | | | | | | | | | ● | ● | | ● | | | | | |
|  | LNKT080404PNR-GM | 8.5 | 0.4 | | | | ● | | | | ● | | | | | | | | | ● | ● | | ○ | | | | | |
| | LNKT080408PNR-GM | 8.5 | 0.8 | ○ | | | | | | | ○ | | | | | | | | | ● | ● | | | | | | | |
| | LNKT080412PNR-GM | 8.5 | 1.2 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| | LNKT080415PNR-GM | 8.5 | 1.5 | | | | | | | | | | | | | | | | | ○ | | | | | | | | |
| | LNKT120608PNR-GM | 13 | 0.8 | | | | ● | | | ○ | ● | | | | | | | | | ● | ● | | ○ | | | | | |
| | LNKT120612PNR-GM | 13 | 1.2 | ○ | | | ○ | | | | ● | | | | | | | | | | ○ | | | | | | | |
| | LNKT120616PNR-GM | 13 | 1.6 | ○ | | | ○ | | | | ○ | | | | | | | | | | ○ | | | | | | | |
| | LNKT120624PNR-GM | 13 | 2.4 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | LNKT120632PNR-GM | 13 | 3.2 | | | | ○ | | | | ● | | | | | | | | | | ● | | | | | | | |

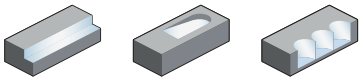
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

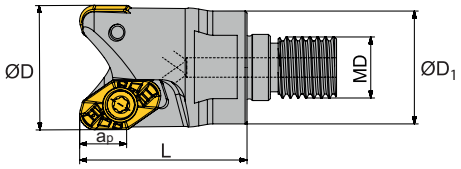

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## QCH series

### QCH-VP Kr: 90°







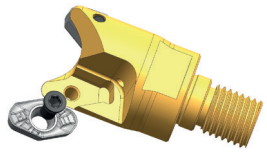

| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | L | $a_{p\,max}$ | MD | | | |
| **QCH-32-VP22-M16-02C** | ✻ | ● | 32 | 30 | 43 | 10 | 16 | 2 | 0.18 | |
| **QCH-32-VP22-M16-02CA** | ✻ | ● | 32 | 30 | 43 | 10 | 16 | 2 | 0.18 | VPGT2205 |
| **QCH-42-VP22-M16-03CA** | ✻ | ○ | 42 | 29.5 | 60 | 10 | 16 | 3 | 0.319 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **VPGT2205** |
|---|---|---|
| | **ØD** | **25-40** |
| | Screw (insert) | I60M5×11 (6.7 Nm) |
| | Wrench (insert) | WT20IT |

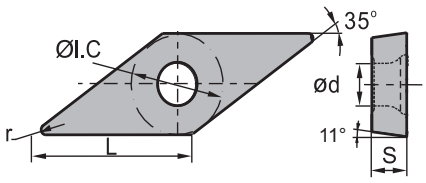


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| VPGT | L | I.C | S | d |
|---|---|---|---|---|
| **22** 05 | 9 | 12.7 | 5.56 | 5.5 |

## Milling inserts




| VP** positive insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | |
| K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | ◉ | | | |
| N | | | | | | | | | | ◉ | | | | | | | | | | | | ◉ | ◉ |
| S | | | | ◉ | | ◉ | | | | | ◉ | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | |
| H | | | | | | | | | | ○ | | | | | | ◉ | | | | | | | |
| ISO | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| VPGT220502-LP | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| VPGT220505-LP | 0.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| VPGT220508-LP | 0.8 | | | | | | | | | | | | | | | | | ○ | | | | | | | ● | |
| VPGT220510-LP | 1 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| VPGT220515-LP | 1.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| VPGT220520-LP | 2 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| VPGT220525-LP | 2.5 | | | | | | | | | | | | | | | | | ○ | | | | | | | ● | |
| VPGT220530-LP | 3 | | | | | | | | | | | | | | | | | ○ | | | | | | | ● | |
| VPGT220532-LP | 3.2 | | | | | | | | | | | | | | | | | ○ | | | | | | | ● | |
| VPGT220540-LP | 4 | | | | | | | | | | | | | | | | | ○ | | | | | | | ● | |
| VPGT220550-LP | 5 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| VPGT220560-LP | 6 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |
| VPGT220564-LP | 6.4 | | | | | | | | | | | | | | | | | | | | | | | | ○ | |

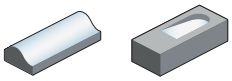
● Ex stock ○ On demand

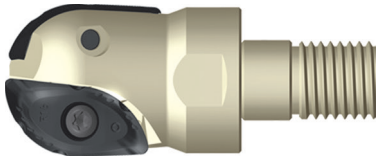
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

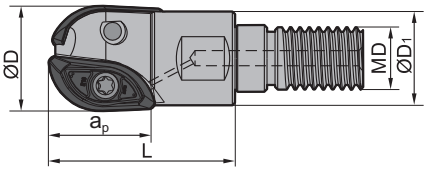

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Profile milling

### QCH - XPHT







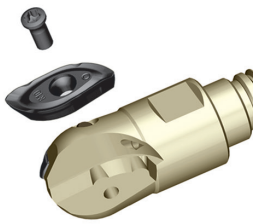

| Article | ✲ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | $a_p$ | L | MD | | | |
| **QCH-16-XPHT16-M10** | ✲ | ● | 16 | 17 | 16 | 28 | 10 | 2 | 0.036 | XPHT16 |
| **QCH-20-XPHT20-M10** | ✲ | ● | 20 | 10.5 | 20 | 30 | 10 | | 0.048 | XPHT20 |
| **QCH-20-XPHT20-M12** | ✲ | ○ | 20 | 19 | 20 | 30 | 12 | 2 | 0.051 | |
| **QCH-25-XPHT25-M12** | ✲ | ● | 25 | 24 | 25 | 35 | 12 | 2 | 0.071 | XPHT25 |
| **QCH-30-XPHT30-M16** | ✲ | ● | 30 | 29 | 30 | 45 | 16 | 2 | 0.14 | XPHT30 |
| **QCH-32-XPHT32-M16** | ✲ | ● | 32 | 30 | 32 | 45 | 16 | 2 | 0.162 | XPHT32 |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | Insert | XPHT16 | XPHT20 | XPHT25 | XPHT30 | XPHT32 |
|---|---|---|---|---|---|---|
| | ØD | 16 | 20 | 25 | 30 | 32 |
| | Screw (insert) | I60M2.5×6.5 (1.0 Nm) | | I60M4×10 (3.4 Nm) | I60M5×13.2 (6.7 Nm) | I60M5×13.2 (6.7 Nm) |
| | Screw (insert) | | I60M3.5×08TT (2.7 Nm) | | | |
| | Wrench (insert) | | WT10IP | | | |
| | Wrench (insert) | | | | WT20IT | WT20IT |
| | Wrench (insert) | WT07P | | | | |
| | Wrench (insert) | | | WT15S | | |

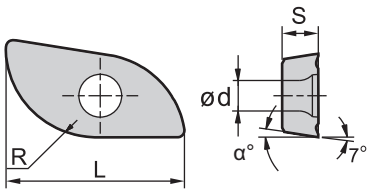


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| XPHT | L | S | d |
|---|---|---|---|
| **16** | 16 | 3.18 | 3.1 |
| **20** | 20 | 3.97 | 4 |
| **25** | 25 | 4.76 | 4.7 |
| **30** | 30 | 6.35 | 5.8 |
| **32** | 32 | 6.35 | 5.8 |

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

## Milling inserts




| XP** milling insert | | R | α | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| P | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | ● | | | |
| M | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | ● | | | |
| K | | | | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | | ● | | | | |
| N | | | | | | | | | | | | | | ◉ | | | | | | | | | | | | | ◉ | ◉ |
| S | | | | | | | ◉ | | ◉ | | | | | | ● | ◉ | | ◉ | ◉ | | ◉ | | ◉ | | | | | |
| H | | | | | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | | |
| ISO | | R | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **XPHT16R0803-GM** | 8 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT20R10T3-GM** | 10 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT25R1204-GM** | 12.5 | 9 | | | | | | | | | | | | | | | | ○ | | | ● | | | | | | |
| | **XPHT30R1506-GM** | 15 | 11 | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| | **XPHT32R1606-GM** | 16 | 9 | | | | | | | | | | | | | | | | | | | ● | | | | | | |

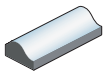
● Ex stock ○ On demand

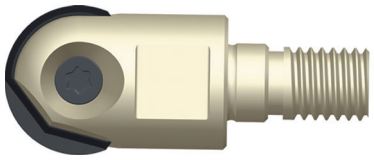
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

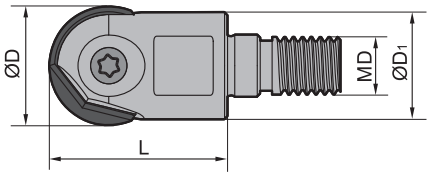

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## QCH series

### QCH - ZOHX





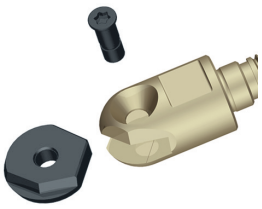



| Article | ✲ | Stock | Dimensions [mm] | | | | kg | Inserts |
|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | |
| **QCH-16-ZOHX16-M8** | | ● | 16 | 15 | 28 | 8 | 0.029 | ZOHX16 |
| **QCH-20-ZOHX20-M10** | | ● | 20 | 19 | 30 | 10 | 0.048 | ZOHX20 |
| **QCH-25-ZOHX25-M12** | | ● | 25 | 24 | 35 | 12 | 0.087 | ZOHX25 |
| **QCH-32-ZOHX32-M16** | | ● | 32 | 30 | 45 | 16 | 0.18 | ZOHX32 |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

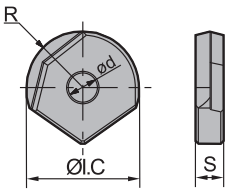
| | **Insert** | **ZOHX16** | **ZOHX20** | **ZOHX25** | **ZOHX32** | |
|---|---|---|---|---|---|---|
| | **ØD** | **16** | **20** | **25** | **32** | |
| | Screw (insert) | I70M5×12TT (6.7 Nm) | I70M5×16TT (6.7 Nm) | I70M6×20TT (9.1 Nm) | I70M8×25TT (16.2 Nm) |  |
| | Wrench (insert) | WT20IP | WT20IP | WT20IP | | |
| | Wrench (insert) | | | | WT30IT | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| ZOHX | I.C | S | d |
|---|---|---|---|
| **16** | 16 | 4 | 5 |
| **20** | 20 | 5 | 5 |
| **25** | 25 | 6 | 6 |
| **32** | 32 | 7 | 8 |

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

## Milling inserts




| ZO** milling insert | | | HC[1] (CVD) | | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 | |
|  | ZOHX1604-GF | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
| | ZOHX2005-GF | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
| | ZOHX2506-GF | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | | |
| | ZOHX3207-GF | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
|  | ZOHX1604-GM | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
| | ZOHX2005-GM | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
| | ZOHX2506-GM | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | | |
| | ZOHX3207-GM | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
|  | ZOHX1604-HM | 8 | | | | | | | | | | ○ | | | | | | | | | | | | | | | | |
| | ZOHX2005-HM | 10 | | | | | | | | | | ○ | | | | | | | | | | | | | | | | |
| | ZOHX2506-HM | 12.5 | | | | | | | | | | ○ | | | | | | | | | | | | | | | | |
| | ZOHX3207-HM | 16 | | | | | | | | | | ○ | | | | | | | | | | | | | | | | |

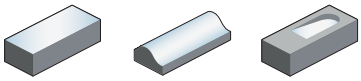
● Ex stock ○ On demand

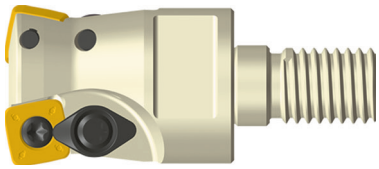
HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

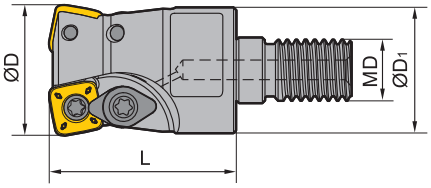

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## High-feed mills

### QCH - SDMT Kr: 15°








| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | | |
| QCH-16-SDMT06-M08-02 | ✻ | ○ | 16 | 8.5 | 17 | 8 | 2 | 0.068 | SDMT06T2 |
| QCH-20-SDMT06-M10-03 | ✻ | ● | 20 | 19 | 30 | 10 | 3 | 0.058 | |
| QCH-25-SDMT06-M12-04 | ✻ | ● | 25 | 24 | 35 | 12 | 4 | 0.097 | |
| QCH-32-SDMT06-M16-05 | ✻ | ○ | 32 | 30 | 45 | 16 | 5 | 0.183 | |
| QCH-32-SDMT06-M16-06 | ✻ | ● | 32 | 29 | 45 | 16 | 6 | 0.267 | |
| QCH-35-SDMT06-M16-05 | ✻ | ○ | 35 | 30 | 45 | 16 | 5 | 0.242 | |
| QCH-25-SDMT09-M12-02 | ✻ | ○ | 25 | 24 | 35 | 12 | 2 | 0.088 | SDMT09T3 |
| QCH-25-SDMT09-M16-02 | ✻ | ○ | 25 | 24 | 35 | 16 | 2 | 0.199 | |
| QCH-30-SDMT09-M16-03 | ✻ | ● | 30 | 29 | 45 | 16 | 3 | 0.176 | |
| QCH-32-SDMT09-M16-03 | ✻ | ● | 32 | 30 | 45 | 16 | 3 | 0.187 | |
| QCH-32-SDMT09-M16-04 | ✻ | ○ | 32 | 30 | 45 | 16 | 4 | 0.187 | |
| QCH-35-SDMT09-M16-03 | ✻ | ○ | 35 | 30 | 45 | 16 | 3 | 0.216 | |
| QCH-35-SDMT09-M16-04 | ✻ | ● | 35 | 30 | 45 | 16 | 4 | 0.2 | |
| QCH-35-SDMT09-M16-05 | ✻ | ● | 35 | 30 | 45 | 16 | 5 | 0.195 | |
| QCH-40-SDMT09-M16-04 | ✻ | ○ | 40 | 30 | 45 | 16 | 4 | 0.29 | |
| QCH-32-SDMT12-M16-02 | ✻ | ● | 32 | 30 | 45 | 16 | 2 | 0.175 | SDMT1204 |
| QCH-35-SDMT12-M16-02 | ✻ | ○ | 35 | 30 | 45 | 16 | 2 | 0.2 | |
| QCH-35-SDMT12-M16-03 | ✻ | ○ | 35 | 30 | 45 | 16 | 3 | 0.2 | |
| QCH-40-SDMT12-M16-03 | ✻ | ○ | 40 | 30 | 45 | 16 | 3 | 0.3 | |

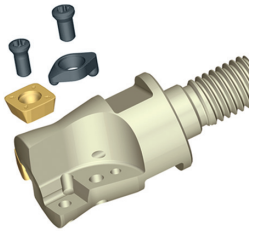
● Ex stock ○ On demand

✻ With internal cooling

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

Spare parts

| | Insert | SDMT06T2 | SDMT09T3 | SDMT1204 |
|---|---|---|---|---|
| | ØD | 15-35 | 20-40 | 32-40 |
| | Clamp | | WD-204 | WD-204 |
| | Screw (clamp) | | | I60M4×8.4 (3.4 Nm) |
| | Screw (clamp) | | I60M3.5×08TT (2.7 Nm) | |
| | Screw (insert) | I60M2.2×5.5 (0.8 Nm) | I60M4×8.4 (3.4 Nm) | I60M4×8.4 (3.4 Nm) |
| | Wrench (clamp) | | WT10IP | WT15IP |
| | Wrench (insert) | WT07IP | WT15IP | WT15IP |

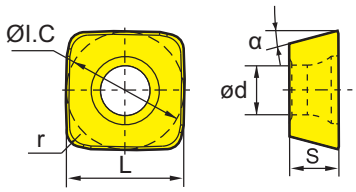


## Milling inserts

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

| SDMT | L | I.C | S | d |
|---|---|---|---|---|
| **06** T2 | 6.35 | 6.35 | 2.58 | 2.5 |
| **09** T3 | 9.525 | 9.525 | 3.97 | 4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 4.4 |

SD** milling insert




| | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | ◎ | ◎ | | | ◎ | ◎ | | ◎ | ◎ | ◎ | ◎ | | ○ | ○ | | |
| M | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | |
| K | | | | | | ◎ | ◎ | ◎ | | | | | | | | | | | ● | | | | |
| N | | | | | | | | | | ◎ | | | | | | | | | | | | ◎ | ◎ |
| S | | | | ◎ | | ◎ | | | | | ○ | ◎ | | ◎ | ◎ | | ◎ | | ◎ | | | | |
| H | | | | | | | | | ○ | | | | | | | ◎ | | | | | | | |

| ISO | | r | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SDMT06T208-DM | 0.8 | 15 | | | | | | ○ | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | SDMT09T312-DM | 1.2 | 15 | ● | | | | | ● | | ○ | | | | | ○ | | | | ● | ● | ● | | | | | | |
| | SDMT120412-DM | 1.2 | 15 | ● | | | | | ● | | ● | | | | | | ○ | | | ● | ● | | | | | | | |
| | SDMT06T208-NM | 0.8 | 15 | | | | | | | | | | | | | | ○ | | | ● | | | ● | | | | | |
| | SDMT09T312-NM | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | ● | ● | | ● | | | | | |
| | SDMT120412-NM | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | ○ | ● | | ● | | | | | |
| | SDMT06T208-PM | 0.8 | 15 | ● | | | ● | | | | ● | | | | | | | ○ | ● | ● | | | ○ | | | | | |
| | SDMT09T312-PM | 1.2 | 15 | | | | ● | | | | ○ | | | | | ○ | | | ● | ● | | | | | | | | |
| | SDMT120412-PM | 1.2 | 15 | | | | ● | | | | | | | | | | | | ● | ● | | | | | | | | |

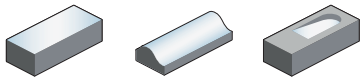
● Ex stock ○ On demand

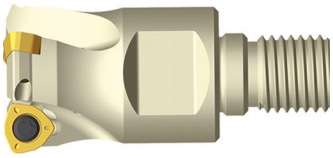
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

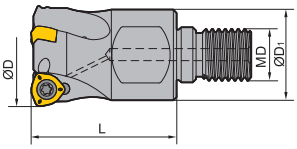

System code B32 Grade selection B31 Technical info B617 Cutting data B312

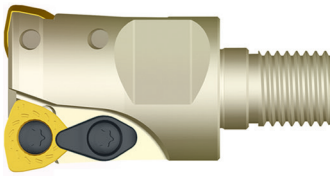
## High-feed mills

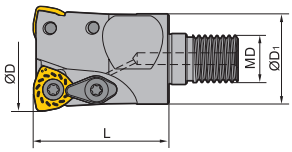
### QCH - WPGT Kr: 11°-22°










| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | L | MD | | | |
| **QCH-20-WPGT05-M10-02** | ✻ | ○ | 20 | 18 | 30 | 10 | 2 | 0.056 | WPGT0503 |
| **QCH-25-WPGT05-M12-03** | ✻ | ● | 25 | 24 | 35 | 12 | | 0.113 | |
| **QCH-25-WPGT06-M12-02** | ✻ | ○ | 25 | 21 | 35 | 12 | 2 | 0.097 | WPGT0604 |
| **QCH-30-WPGT06-M16-03** | ✻ | ● | 30 | 30 | 45 | 16 | | 0.2002 | |
| **QCH-32-WPGT06-M16-03** | ✻ | ● | 32 | 29 | 43 | 16 | 3 | 0.185 | |
| **QCH-40-WPGT06-M16-04** | ✻ | ● | 40 | 30 | 45 | 16 | | 0.252 | |
| **QCH-42-WPGT06-M16-04** | ✻ | ○ | 42 | 29 | 43 | 16 | 4 | 0.23 | |
| **QCH-32-WPGT08-M16-02** | ✻ | ● | 32 | 30 | 45 | 16 | | 0.221 | WPGT0806 |
| **QCH-40-WPGT08-M16-03** | ✻ | ● | 40 | 30 | 45 | 16 | | 0.268 | |

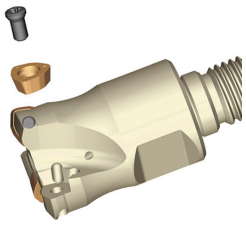
● Ex stock ○ On demand

✻ With internal cooling

Variable lead angle (lead angle ist hier dependent on size of inserts)
lead angle: WPGT05: 16°; WPGT06: 22°; WPGT08: 11°; WPGT09: 21°

Spare parts

| | Insert | WPGT0503 | WPGT0604 | WPGT0806 | |
|---|---|---|---|---|---|
| | ØD | 16-32 | 25-42 | 25-42 | |
| | Clamp | | | WD-208 | |
| | Screw (clamp) | | | I60M5×13 (6.7 Nm) | |
| | Screw (insert) | | I60M4×8.4 (3.4 Nm) | I60M5×13 (6.7 Nm) | |
| | Screw (insert) | I60M3.5×6.5TT (2.7 Nm) | | | |
| | Wrench (clamp) | | | WT20IT | |
| | Wrench (insert) | | | WT20IT | |
| | Wrench (insert) | WT10P | WT15P | | |

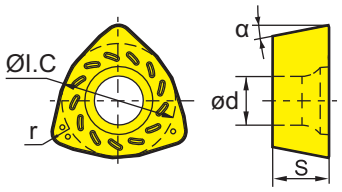


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| WPGT | I.C | S | d |
|---|---|---|---|
| **05** 03 | 7.94 | 3.5 | 4 |
| **06** 04 | 9.525 | 4.2 | 4.4 |
| **08** 06 | 12.85 | 6.35 | 5.5 |

| WP** positive insert | | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|   | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **WPGT050315ZSR-PM** | 1.5 | ○ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | | |
| | **WPGT060415ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
| | **WPGT080615ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
|  | **WPGT050315ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | | | | | | | | | | |
| | **WPGT060415ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | | | | | | | | | |
| | **WPGT080615ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | ● | ○ | | | | | | | |

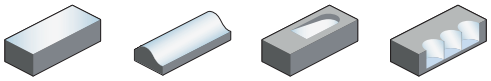
● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

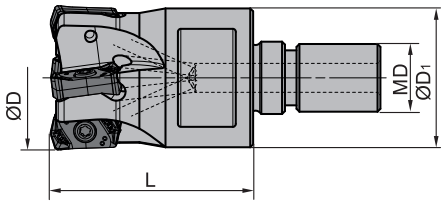

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## QCH series

### QCH-EN Kr: 18





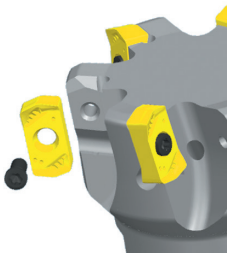



| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | L | MD | | | |
| **QCH-16-EN12-M8-02-XMR12** | ✻ | ● | 16 | 13 | 28 | 8 | 2 | 0.025 | ENMX1206** |
| **QCH-17-EN12-M8-02-XMR12** | ✻ | ● | 17 | 15 | 28 | 8 | 2 | 0.027 | |
| **QCH-18-EN12-M8-02-XMR12** | ✻ | ● | 18 | 15 | 28 | 8 | 2 | 0.033 | |
| **QCH-20-EN12-M10-03-XMR12** | ✻ | ● | 20 | 17 | 30 | 10 | 3 | 0.046 | |
| **QCH-22-EN12-M10-03-XMR12** | ✻ | ● | 22 | 19 | 30 | 10 | 3 | 0.057 | |
| **QCH-25-EN12-M12-04-XMR12** | ✻ | ● | 25 | 21.6 | 35 | 12 | 4 | 0.09 | |
| **QCH-28-EN12-M12-04-XMR12** | ✻ | ● | 28 | 21.6 | 35 | 12 | 4 | 0.104 | |
| **QCH-32-EN12-M16-05-XMR12** | ✻ | ● | 32 | 28 | 43 | 16 | 5 | 0.199 | |
| **QCH-33-EN12-M16-05-XMR12** | ✻ | ● | 33 | 28 | 43 | 16 | 5 | 0.02 | |
| **QCH-40-EN12-M16-06-XMR12** | ✻ | ● | 40 | 29 | 40 | 16 | 6 | 0.024 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

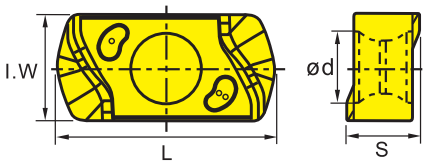
| | **Insert** | **ENMX1206**** | |
|---|---|---|---|
| | **ØD** | **16-45** | |
|  | Screw | I60M2.5×7.4 (1.0 Nm) |  |
|  | Wrench | WT07IP | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

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

| ENMX | L | S | d |
|---|---|---|---|
| **12** 06 | 12 | 3 | 2.88 |

## Milling inserts




| EN** milling insert | | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | l.W | $a_p$ max | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ENMX120608-GM** | 0.8 | 6 | 3 | | | | | | | | | | | | | | | | | ● | | | | | | | | |
| | **ENMX1206R30-GM** | 3 | 6 | 2.8 | | | | | | | | | | | | | | | | | ● | | | | | | | | |
|  | **ENMX1206XR-GM** | 0.6 | 6 | 0.6 | | | | | | | | | | | | | | | | | ● | | | | | | | | |

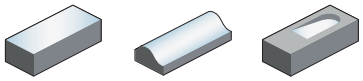
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

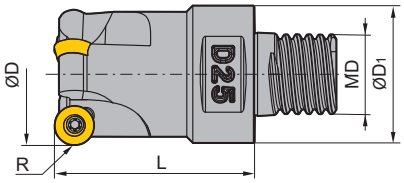

System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## QCH series

### QCH-RD-Q






| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD$_1$ | L | MD | | | |
| **QCH-20-RD07-Q12-03** | ✻ | ● | 13 | 11.9 | 30 | 12 | 3 | 0.1 | RDKW0702 |
| **QCH-25-RD07-Q14-03** | ✻ | ● | 18 | 13.9 | 35 | 14 | 3 | 0.141 | |
| **QCH-20-RD10-Q12-02** | ✻ | ● | 10 | 11.9 | 30 | 12 | 2 | 0.101 | RDKW10T3 |
| **QCH-25-RD10-Q14-02** | ✻ | ● | 15 | 13.9 | 35 | 10 | 2 | 0.145 | |
| **QCH-32-RD10-Q18-03** | ✻ | ● | 22 | 17.9 | 45 | 18 | 3 | 0.206 | |
| **QCH-32-RD16-Q18-02** | ✻ | ● | 16 | 17.9 | 45 | 18 | 2 | 0.19 | RDKW1605 |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | **Insert** | **RDKW0702** | **RDKW10T3** | **RDKW1605** |
|---|---|---|---|---|
| | **ØD** | **16-25** | **20-40** | **30-42** |
| | Screw (insert) | I60M2.5×5.0 (1.0 Nm) | I60M4×8 (3.4 Nm) | I60M5×13 (6.7 Nm) |
| | Wrench (insert) | WT08IP | WT15IP | |
| | Wrench (insert) | | | WT20IT |

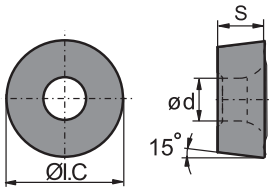


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| RDKW | I.C | S | d |
|---|---|---|---|
| **07** 02 | 7 | 2.38 | 2.7 |
| **10** T3 | 10 | 3.97 | 4.4 |
| **16** 05 | 16 | 5.56 | 5.5 |




| RD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | | ◉ | ◉ | | | ◉ | ◉ | | ◉ | ◉ | ◉ | ◉ | | ● | ● | | |
| M | | | ◉ | ◉ | ◉ | ◉ | ◉ | | | | | | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ◉ | ● | ● | | |
| K | | | | | | | ◉ | ◉ | ◉ | | | | | | | | | | | | ● | | | |
| N | | | | | | | | | | | ◉ | | | | | | | | | | | | | ◉ ◉ |
| S | | | | | ◉ | | ◉ | | | | ● | ◉ | | | ◉ | ◉ | | ◉ | | ◉ | | | | |
| H | | | | | | | | | | ○ | | | | | | | ◉ | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | RDKW10T3MO | ● | | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | RDKW1605MO | | | | | | ○ | | | | | | | ○ | ○ | | | | | ○ | | | | | | |
|  | RDKW0702MO-1 | | | | | | ● | | | | | | | ○ | | | | | | | | | | | | |
| | RDKW0702MO-2 | | | | | | | | | | | | ● | | | | | | | | | | | | | |

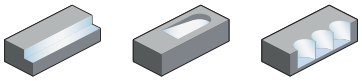
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

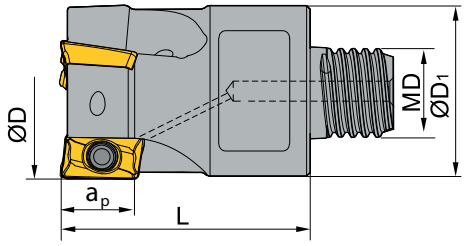

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## QCH series

### QCH-APKT-Q Kr: 90°





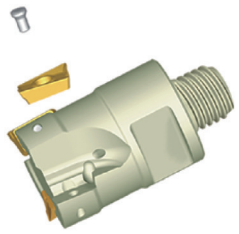



| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | ap | L | MD | | | |
| **QCH-16-APKT07-Q10-02** | ✻ | ○ | 16 | 16 | 6.4 | 25 | 10 | 2 | 0.036 | APKT0702 |
| **QCH-16-APKT11-Q10-02** | ✻ | ● | 16 | 15.2 | 10.5 | 28 | 10 | 2 | 0.028 | |
| **QCH-20-APKT11-Q12-02** | ✻ | ○ | 20 | 19 | 10.5 | 30 | 12 | 2 | 0.059 | APKT11T3 |
| **QCH-25-APKT11-Q14-03** | ✻ | ● | 25 | 24 | 10.5 | 35 | 14 | 3 | 0.104 | |
| **QCH-25-APKT16-Q14-02** | ✻ | ● | 25 | 13.9 | 15.5 | 35 | 14 | 2 | 0.13 | |
| **QCH-30-APKT16-Q18-03** | ✻ | ● | 30 | 29 | 15.5 | 45 | 18 | 3 | 0.171 | APKT1604 |
| **QCH-32-APKT16-Q18-03** | ✻ | ● | 32 | 17.9 | 15.5 | 45 | 18 | 3 | 0.24 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

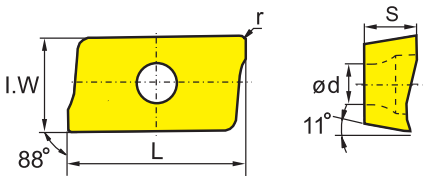
| | Insert | APKT0702 | APKT11T3 | APKT1604 | |
|---|---|---|---|---|---|
| | ØD | 15-25 | 16-25 | 20-40 | |
| | Screw (insert) | I60M1.8x4 (0.5 Nm) | I60M2.5×5.5 (1.0 Nm) | I60M4×8.4 (3.4 Nm) |  |
| | Wrench (insert) | ( Nm) | | | |
| | Wrench (insert) | | WT07IP | WT15IP | |

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |




| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ISO | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | APKT11T304-ALH | 0.4 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | APKT11T308-ALH | 0.8 | 6.5 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ● |
| | APKT160404-ALH | 0.4 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ● | |
| | APKT160408-ALH | 0.8 | 9.33 | | | | | | | | | | | ● | | | | | | | | | | | | | ● | ○ |
|  | APKT070204-APF | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APF | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APF | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160408-APF | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | ● | ● | ○ | ○ | | | | | |
|  | APKT11T304-APL | 0.4 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT11T308-APL | 0.8 | 6.5 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT160408-APL | 0.8 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ○ | | | | | |
| | APKT160420-APL | 2 | 9.33 | | | | | | | | | | | | | | | ○ | | | ● | | ● | | | | | |
|  | APKT070204-APM | 0.4 | 6.91 | | | | | | | | ● | | | | | | | | | | ● | | | | | | | |
| | APKT11T304-APM | 0.4 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T308-APM | 0.8 | 6.5 | | | | ● | | | ● | | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT11T312-APM | 1.2 | 6.5 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT11T316-APM | 1.6 | 6.5 | | | | ● | | | | | | | | | | | | | ● | ● | | | | | | | |
| | APKT11T320-APM | 2 | 6.5 | | | | ● | | | ● | | | | | | | | | | ● | ● | | | | | | | |
| | APKT160408-APM | 0.8 | 9.33 | | | | ● | | | ● | ● | | | | | | | ○ | | ● | ● | | ○ | | | | | |
| | APKT160416-APM | 1.6 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160420-APM | 2 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160424-APM | 2.4 | 9.33 | | | | ● | | | ● | | | | | | | | | | | ● | | | | | | | |
| | APKT160430-APM | 3 | 9.33 | | | ○ | ● | | | | | | | | | | | | | | ● | | | | | | | |
|  | APKT11T304-LH | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
| | APKT11T308-LH | 0.8 | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | ● | ○ |
| | APKT160408-LH | 0.8 | 9.33 | | | | | | | | | | | | | | | | | | | | | | | | ○ | ○ |
|  | APKT11T308-NM | 0.8 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | APKT11T312-NM | 1.2 | 6.5 | | | | | | | | | | | | | | | ● | | | | | ● | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | APKT11T304-PF | 0.4 | 6.5 | | ○ | | | | | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | APKT11T316-PF | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | APKT160408-PF | 0.8 | 9.33 | | | | | | ○ | | | | | | | | | | | | | | | | | | | |
| | APKT160430-PF | 3 | 9.33 | ○ | | | | | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

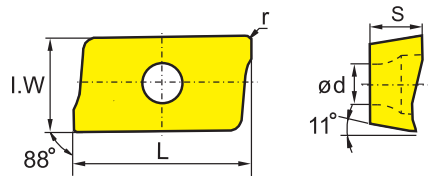
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| APKT | L | S | d |
|---|---|---|---|
| **07** 02 | 4.26 | 2.38 | 2 |
| **11** T3 | 12.24 | 3.6 | 2.8 |
| **16** 04 | 17.877 | 5.76 | 4.4 |




| AP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | I.W | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **APKT11T304-PM** | 0.4 | 6.5 | ○ | ○ | | | | ○ | | | | | | ○ | ○ | | | | | | ○ | | | | | | |
| | **APKT11T308-PM** | 0.8 | 6.5 | ○ | | | ○ | | ● | ○ | ○ | | | | ○ | ○ | | | ○ | | | ○ | | | | | | |
| | **APKT11T312-PM** | 1.2 | 6.5 | | | | | | | | | | | | ○ | | | | | | | ○ | | | | | | |
| | **APKT11T316-PM** | 1.6 | 6.5 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | **APKT160408-PM** | 0.8 | 9.33 | ○ | ○ | ○ | ● | | ● | ○ | ○ | | | | ○ | ○ | ○ | | ○ | | | ● | | | | | | |
| | **APKT160416-PM** | 1.6 | 9.33 | ○ | | | | | | | | | | | | ○ | | | | | | | | | | | | |
|  | **APKT11T304-PR** | 0.4 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
| | **APKT11T316-PR** | 1.6 | 6.5 | | | | | | | | | | | | | | | | | | | ○ | | | | | | |
|  | **APKT0702-XR** | | 6.91 | | | | | | | | | | | | | | | | | ● | ● | | | | | | | |
| | **APKT11T3-XR** | | 6.5 | | | | | | | | ● | | | | | | | | | ● | ● | | | | | | | |

● Ex stock ○ On demand

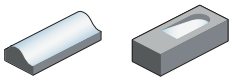
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

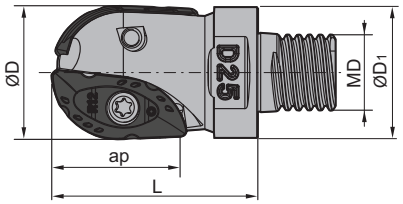
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## QCH series

### QCH-XPHT-Q








| Article | ✻ | Stock | Dimensions [mm] | | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | $a_p$ | L | MD | | | |
| **QCH-16-XPHT16-Q10** | ✻ | ● | 16 | 9.9 | 16 | 28 | 10 | 2 | 0.09 | XPHT16 |
| **QCH-20-XPHT20-Q12** | ✻ | ● | 20 | 11.9 | 20 | 30 | 12 | 2 | 0.049 | XPHT20 |
| **QCH-25-XPHT25-Q14** | ✻ | ● | 25 | 13.9 | 25 | 38 | 14 | 2 | 0.182 | XPHT25 |
| **QCH-30-XPHT30-Q18** | ✻ | ● | 30 | 29 | 30 | 45 | 18 | 2 | 0.2 | XPHT30 |
| **QCH-32-XPHT32-Q18** | ✻ | ● | 32 | 17.9 | 32 | 45 | 18 | 2 | 0.22 | XPHT32 |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | XPHT16 | XPHT20 | XPHT25 | XPHT30 | XPHT32 | |
|---|---|---|---|---|---|---|---|
| | ØD | 16 | 20 | 25 | 30 | 32 | |
| | Screw (insert) | I60M2.5×6.5 (1.0 Nm) | | I60M4×10 (3.4 Nm) | I60M5×13.2 (6.7 Nm) | I60M5×13.2 (6.7 Nm) | |
| | Screw (insert) | | I60M3.5×08TT (2.7 Nm) | | | | |
| | Wrench (insert) | | WT10IP | | | | |
| | Wrench (insert) | | | | WT20IT | WT20IT | |
| | Wrench (insert) | WT07P | | | | | |
| | Wrench (insert) | | | WT15S | | | |

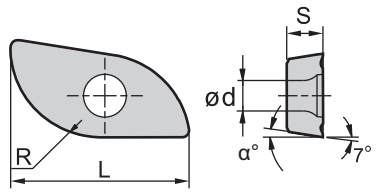
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| XPHT | L | S | d |
|---|---|---|---|
| **16** | 16 | 3.18 | 3.1 |
| **20** | 20 | 3.97 | 4 |
| **25** | 25 | 4.76 | 4.7 |
| **30** | 30 | 6.35 | 5.8 |
| **32** | 32 | 6.35 | 5.8 |

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

XP** milling insert




| | | ISO | R | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | HC¹ (CVD) | | | | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
| P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | **XPHT16R0803-GM** | 8 | 9 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | | **XPHT20R10T3-GM** | 10 | 9 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | | **XPHT25R1204-GM** | 12.5 | 9 | | | | | | | | | | | | | | | | ○ | | ● | | | | | | | |
| | | **XPHT30R1506-GM** | 15 | 11 | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| | | **XPHT32R1606-GM** | 16 | 9 | | | | | | | | | | | | | | | | | | ● | | | | | | | |

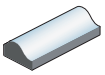
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

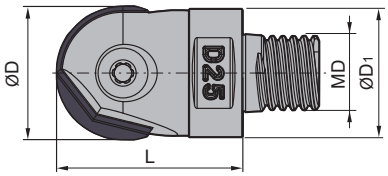
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## QCH series

### QCH-ZOHX-Q






| Article | ✻ | Stock | Dimensions [mm] | | | | kg | Inserts |
|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | |
| **QCH-16-ZOHX16-Q10** | | ● | 16 | 15 | 28 | 8 | 0.085 | ZOHX16 |
| **QCH-20-ZOHX20-Q12** | | ● | 20 | 11.9 | 30 | 12 | 0.1 | ZOHX20 |
| **QCH-25-ZOHX25-Q14** | | ● | 25 | 13.9 | 35 | 14 | 0.16 | ZOHX25 |
| **QCH-30-ZOHX30-Q18** | | ● | 30 | 29 | 45 | 18 | 0.24 | ZOHX30 |
| **QCH-32-ZOHX32-Q18** | | ● | 32 | 17.9 | 45 | 18 | 0.24 | ZOHX32 |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

| | Insert | ZOHX16 | ZOHX20 | ZOHX25 | ZOHX30 | ZOHX32 | |
|---|---|---|---|---|---|---|---|
| | ØD | 16 | 20 | 25 | 30 | 32 | |
| | Screw (insert) | I70M5×12TT (6.7 Nm) | I70M5×16TT (6.7 Nm) | I70M6×20TT (9.1 Nm) | I70M8×25TT (16.2 Nm) | I70M8×25TT (16.2 Nm) | |
| | Wrench (insert) | WT20IP | WT20IP | WT20IP | | | |
| | Wrench (insert) | | | | WT30IT | WT30IT | |

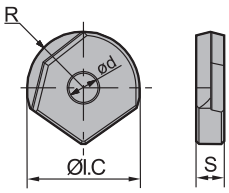


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

| ZOHX | I.C | S | d |
|---|---|---|---|
| **16** | 16 | 4 | 5 |
| **20** | 20 | 5 | 5 |
| **25** | 25 | 6 | 6 |
| **30** | 30 | 7 | 8 |
| **32** | 32 | 7 | 8 |

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions




| ZO** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | R | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **ZOHX1604-GF** | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2005-GF** | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2506-GF** | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | |
| | **ZOHX3007-GF** | 15 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX3207-GF** | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
|  | **ZOHX1604-GM** | 8 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2005-GM** | 10 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX2506-GM** | 12.5 | | | | | | | | | | | | | | | | | | | | | ○ | | | | |
| | **ZOHX3007-GM** | 15 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| | **ZOHX3207-GM** | 16 | | | | | | | | | | | | | | | | | | | | | ● | | | | |
|  | **ZOHX1604-HM** | 8 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX2005-HM** | 10 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX2506-HM** | 12.5 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX3007-HM** | 15 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |
| | **ZOHX3207-HM** | 16 | | | | | | | | | | ○ | | | | | | | | | | | | | | | |

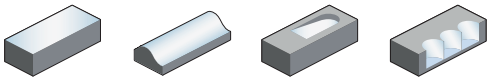
● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

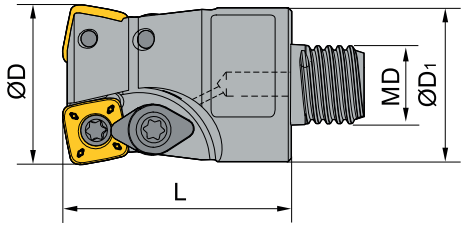
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## QCH series

### QCH-SDMT-Q






| Article | ✲ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | | |
| QCH-25-SDMT09-Q14-02 | ✲ | ○ | 25 | 24 | 35 | 14 | 2 | 0.088 | SDMT09T3 |
| QCH-30-SDMT09-Q18-03 | ✲ | ● | 30 | 29 | 45 | 18 | 3 | 0.21 | |
| QCH-32-SDMT12-Q18-02 | ✲ | ● | 32 | 30 | 45 | 18 | 2 | 0.23 | SDMT1204 |
| QCH-35-SDMT12-Q18-02 | ✲ | ● | 35 | 30 | 45 | 18 | 2 | 0.245 | |

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

| | Insert | SDMT09T3 | SDMT1204 |
|---|---|---|---|
| | ØD | 25-35 | 25-40 |
| | Clamp | WD-204 | WD-204 |
| | Screw (clamp) | | I60M4×8.4 (3.4 Nm) |
| | Screw (clamp) | I60M3.5×08TT (2.7 Nm) | |
| | Screw (insert) | I60M4×8.4 (3.4 Nm) | I60M4×8.4 (3.4 Nm) |
| | Wrench (clamp) | WT10IP | WT15IP |
| | Wrench (insert) | WT15IP | WT15IP |

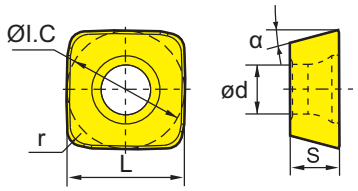


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SDMT | L | I.C | S | d |
|---|---|---|---|---|
| **09** T3 | 9.525 | 9.525 | 3.97 | 4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 4.4 |




| SD** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | ◎ | ◎ | | | ◎ | ◎ | | ◎ | ◎ | ◎ | ◎ | | ◎ | ◎ | | |
| | M | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | ◎ | | |
| | K | | | | | | | ◎ | ◎ | | | | | | | | | | | ◎ | | | | | |
| | N | | | | | | | | | ◎ | | | | | | | | | | | | | | ◎ | ◎ |
| | S | | | | ◎ | | ◎ | | | | ◎ | ◎ | | | ◎ | ◎ | | ◎ | | ◎ | | | | | |
| | H | | | | | | | | | ○ | | | | | | ◎ | | | | | | | | | |

| | ISO | r | α | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **SDMT09T312-DM** | 1.2 | 15 | ● | | | | | ● | | ○ | | | | | ○ | | | | ● | ● | ● | | | | | | |
| | **SDMT120412-DM** | 1.2 | 15 | ● | | | | | ● | | ● | | | | | | ○ | | | | | | | | | | | |
|  | **SDMT09T312-NM** | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | ● | ● | | ● | | | | | |
| | **SDMT120412-NM** | 1.2 | 15 | | | | ● | | | | | | | | | | ○ | ● | | | ● | | ● | | | | | |
|  | **SDMT09T312-PM** | 1.2 | 15 | | | | ● | | | | ○ | | | | | ○ | | | ● | ● | | | | | | | | |
| | **SDMT120412-PM** | 1.2 | 15 | | | | ● | | | | | | | | | | | | ● | | | | | | | | | |

● Ex stock ○ On demand

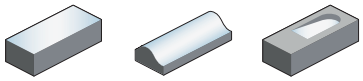
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

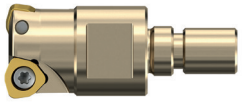
A Turning
B Milling
C Drilling
D Technical Information
E Index

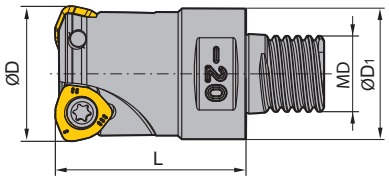
System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## QCH series

### QCH-WPGT-Q Kr: 11°-22°








| Article | ✲ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | $ØD_1$ | L | MD | | | |
| QCH-20-WPGT05-Q12-02 | ✲ | ● | 20 | 11.9 | 30 | 12 | 2 | 0.1 | WPGT0503 |
| QCH-25-WPGT06-Q14-02 | ✲ | ● | 25 | 13.9 | 35 | 14 | 2 | 0.141 | WPGT0604 |
| QCH-32-WPGT06-Q18-03 | ✲ | ● | 32 | 17.9 | 45 | 18 | 3 | 0.228 | |
| QCH-35-WPGT08-Q18-02 | ✲ | ● | 35 | 17.9 | 45 | 18 | 2 | 0.245 | |
| QCH-35-WPGT06-Q18-03 | ✲ | ● | 35 | 17.9 | 45 | 18 | 3 | 0.26 | |

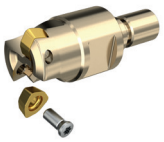
● Ex stock ○ On demand

✲ With internal cooling

Variable lead angle (lead angle ist hier dependent on size of inserts)
lead angle: WPGT05: 16°; WPGT06: 22°; WPGT08: 11°; WPGT09: 21°

Spare parts

| | Insert | WPGT0503 | WPGT0604 |
|---|---|---|---|
| | ØD | 16-32 | 20-42 |
| | Clamp | | WD-208 |
| | Screw (clamp) | | I60M5×13 (6.7 Nm) |
| | Screw (insert) | | I60M4×8.4 (3.4 Nm) |
| | Screw (insert) | I60M3.5×6.5TT (2.7 Nm) | |
| | Wrench (clamp) | | WT20IT |
| | Wrench (insert) | WT10IP | WT15IP |

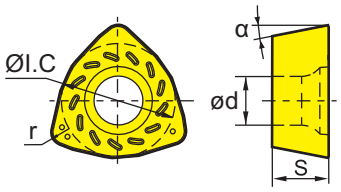


System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| WPGT | I.C | S | d |
|---|---|---|---|
| **05** 03 | 7.94 | 3.5 | 4 |
| **06** 04 | 9.525 | 4.2 | 4.4 |
| **08** 06 | 12.85 | 6.35 | 5.5 |




| WP** positive insert | | | HC[1] (CVD) | | | | | | | | HC[1] (PVD) | | | | | | | | | | | HT | HC[2] | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **WPGT050315ZSR-PM** | 1.5 | ○ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | | |
| | **WPGT060415ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
| | **WPGT080615ZSR-PM** | 1.5 | ● | | | | | | | | | | | | | | ● | ● | ● | | | ● | | | | | |
| | **WPGT050315ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | | | | | | | | | | |
| | **WPGT060415ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | | | | | | | | | |
| | **WPGT080615ZSR** | 1.5 | ● | | | | | ● | | | | | | | | ● | | ● | ● | ○ | | | | | | | |

● Ex stock ○ On demand

HC[1] Coated carbide
HT Uncoated cermet
HC[2] Coated cermet
HW Uncoated carbide

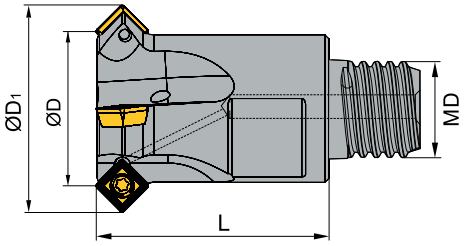
A Turning
B Milling
C Drilling
D Technical Information
E Index

System code > B32 | Grade selection > B31 | Technical info > B617 | Cutting data > B312

## QCH series

### QCH-SPGT-Q






| Article | ✻ | Stock | Dimensions [mm] | | | | Teeth | kg | Inserts |
|---|---|---|---|---|---|---|---|---|---|
| | | | ØD | ØD1 | L | MD | | | |
| QCH-16-SPGT05-Q10-45-03 | ✻ | ○ | 16 | 22.6 | 25 | 10 | 3 | 0.032 | SPGT0502 |
| QCH-20-SPGT05-Q12-45-04 | ✻ | ○ | 20 | 26.6 | 30 | 12 | 4 | 0.644 | |

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

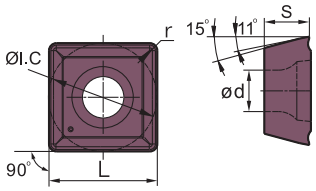
| | Insert | SPGT0502 |
|---|---|---|
| | ØD | 16-20 |
| | Screw (insert) | I60M2×4.3 (0.5 Nm) |
| | Wrench (insert) | WT06IP |

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SPGT | L | S | d |
|---|---|---|---|
| **05** 02 | 5 | 2,38 | 2,2 |




| SP** positive insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **SPGT050204-EM** | 0,4 | | | | | | | | | | | | | | ○ | | ○ | | | | | | | | | |
| | **SPGT050204-PM** | 0,4 | | | | | | | | | | | | | | ○ | | ○ | | | | | | | | | |

● Ex stock ○ On demand

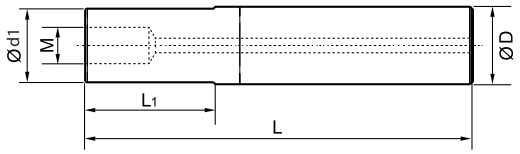
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

A Turning
B Milling
C Drilling
D Technical Information
E Index

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

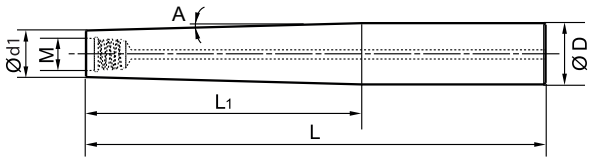
## Indexable heads shanks

### Solid carbide shank, stepped, Q thread




| Article | Dimensions [mm] | | | | Thread (M) | Stock |
|---|---|---|---|---|---|---|
| | D | d1 | L | L1 | | |
| G12-QCH-Q08-80C | 12 | 11,5 | 80 | 30 | Q8 | ● |
| G12-QCH-Q08-100C | 12 | 11,5 | 100 | 50 | Q8 | ● |
| G12-QCH-Q08-120C | 12 | 11,5 | 120 | 70 | Q8 | ● |
| G16-QCH-Q10-90C | 16 | 15,2 | 90 | 40 | Q10 | ● |
| G16-QCH-Q10-120C | 16 | 15,2 | 120 | 70 | Q10 | ● |
| G16-QCH-Q10-150C | 16 | 15,2 | 150 | 100 | Q10 | ● |
| G20-QCH-Q12-100C | 20 | 19 | 100 | 40 | Q12 | ● |
| G20-QCH-Q12-140C | 20 | 19 | 140 | 80 | Q12 | ● |
| G20-QCH-Q12-180C | 20 | 19 | 180 | 120 | Q12 | ● |
| G25-QCH-Q14-120C | 25 | 24 | 120 | 50 | Q14 | ● |
| G25-QCH-Q14-170C | 25 | 24 | 170 | 100 | Q14 | ● |
| G25-QCH-Q14-220C | 25 | 24 | 220 | 150 | Q14 | ● |
| G32-QCH-Q18-140C | 32 | 30 | 140 | 70 | Q18 | ● |
| G32-QCH-Q18-200C | 32 | 30 | 200 | 130 | Q18 | ● |
| G32-QCH-Q18-260C | 32 | 30 | 260 | 190 | Q18 | ● |
| G32-QCH-Q18-320C | 32 | 30 | 320 | 250 | Q18 | ● |

### Solid carbide shank, tapered, Q thread



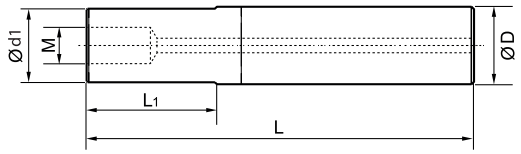

| Article | Dimensions [mm] | | | | Thread (M) | Angle (A) | Stock |
|---|---|---|---|---|---|---|---|
| | D | d1 | L | L1 | | | |
| G16-QCH-Q08-140C-ZJ90 | 16 | 11,5 | 140 | 90 | Q8 | 1,0 | ● |
| G20-QCH-Q10-200C-ZJ140 | 20 | 15,2 | 200 | 140 | Q8 | 0,8 | ● |
| G25-QCH-Q12-250C-ZJ180 | 25 | 19 | 250 | 180 | Q8 | 0,8 | ● |
| G32-QCH-Q14-270C-ZJ200 | 32 | 30 | 270 | 200 | Q10 | 0,8 | ● |

Spare parts

| | Thread | Q8 / Q10 | Q12 / Q14 | Q18 |
|---|---|---|---|---|
|  | Wrench | QCH-10×13 | QCH-16×20 | QCH-26 |

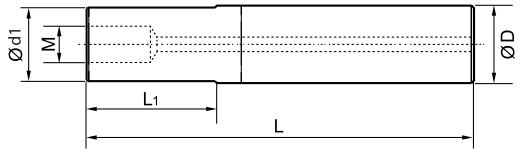
## Indexable heads shanks

### Steel shank, stepped, Q thread




| Article | Dimensions [mm] | | | | Thread (M) | Stock |
|---|---|---|---|---|---|---|
| | D | d1 | L | L1 | | |
| G12-QCH-Q08-65S | 12 | 11,5 | 65 | 19 | Q08 | ● |
| G16-QCH-Q10-100S | 16 | 15,2 | 100 | 42 | Q10 | ● |
| G20-QCH-Q12-110S | 20 | 19 | 110 | 54 | Q12 | ● |

### Solid carbide shank, stepped, metric thread

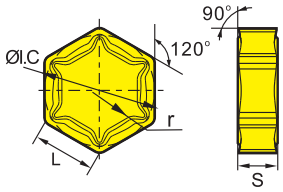



| Article | Dimensions [mm] | | | | Thread (M) | Stock |
|---|---|---|---|---|---|---|
| | D | d1 | L | L1 | | |
| G16-QCH-M8-90C-125 | 16 | 12,5 | 90 | 35 | M8 | ○ |
| G16-QCH-M8-110C-125 | 16 | 12,5 | 110 | 55 | M8 | ○ |
| G16-QCH-M8-130C-125 | 16 | 12,5 | 130 | 75 | M8 | ○ |
| G16-QCH-M8-90C | 16 | 15 | 90 | 35 | M8 | ○ |
| G16-QCH-M8-110C | 16 | 15 | 110 | 55 | M8 | ○ |
| G16-QCH-M8-130C | 16 | 15 | 130 | 75 | M8 | ○ |
| G16-QCH-M8-170C | 16 | 15 | 170 | 115 | M8 | ○ |
| G16-QCH-M8-200C | 16 | 15 | 200 | 145 | M8 | ○ |
| G20-QCH-M10-87C | 20 | 18,5 | 87 | 30 | M10 | ○ |
| G20-QCH-M10-107C | 20 | 18,5 | 107 | 50 | M10 | ○ |
| G20-QCH-M10-127C | 20 | 18,5 | 127 | 70 | M10 | ○ |
| G20-QCH-M10-167C | 20 | 18,5 | 167 | 110 | M10 | ○ |
| G20-QCH-M10-197C | 20 | 18,5 | 197 | 140 | M10 | ○ |
| G25-QCH-M12-128C | 25 | 23 | 128 | 65 | M12 | ○ |
| G25-QCH-M12-148C | 25 | 23 | 148 | 85 | M12 | ○ |
| G25-QCH-M12-168C | 25 | 23 | 168 | 105 | M12 | ○ |
| G25-QCH-M12-198C | 25 | 23 | 198 | 135 | M12 | ○ |
| G25-QCH-M12-228C | 25 | 23 | 228 | 165 | M12 | ○ |
| G32-QCH-M16-161C | 32 | 29 | 161 | 95 | M16 | ○ |
| G32-QCH-M16-211C | 32 | 29 | 211 | 145 | M16 | ○ |
| G32-QCH-M16-281C | 32 | 29 | 281 | 215 | M16 | ○ |
| G32-QCH-M16-311C | 32 | 29 | 311 | 245 | M16 | ○ |
| G32-QCH-M16-361C | 32 | 29 | 361 | 295 | M16 | ○ |

## Milling inserts

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

| HNGX | L | I.C | S |
|---|---|---|---|
| **09** 05 | 9.16 | 15.875 | 5.56 |




| HN** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| HDR | **HNGX090530-HDR** | 3 | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | |
| MR | **HNGX090516-MR** | 1.6 | | | | | | | ● | | | | | | | | | | | | | | | | | | |
| | **HNGX090520-MR** | 2 | | | | | | | ● | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

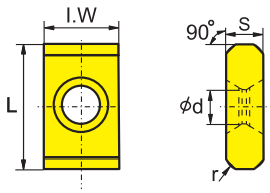
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

| LNE3 | L | I.W | S |
|---|---|---|---|
| **2.** 53 | 15.875 | 4.76 | 9.525 |

## Milling inserts

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

| LN** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **LNE32.534** | 1.6 | | | | | | ○ | ○ | ○ | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

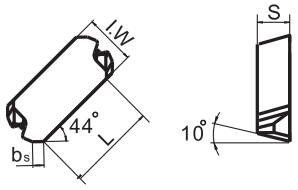
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| LNCX | I.W | L | S |
|---|---|---|---|
| **18** 06 | 10 | 24 | 6.4 |




| LN** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **LNCX1806AZT11L** | 1.2 | | | | | | | | ○ | | | | | | | | | | | | | | | | | |
| | **LNCX1806AZT11R** | 1.2 | | | | | | | | ○ | | | | | | | | | | | | | | | | | |
| | **LNCX1806AZT22R** | 1.8 | | | | | | | | ○ | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

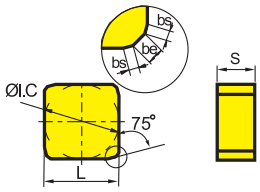
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SNKN | L | I.C | S |
|---|---|---|---|
| **12** 04 | 12.7 | 12.7 | 4.76 |
| **15** 04 | 15.875 | 15.875 | 4.76 |




| SN** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | | ◐ | ◐ | | | ◐ | ◐ | | ◐ | ◐ | ◐ | ◐ | | ● | ● | | |
| M | | | ◐ | ◐ | ◐ | ◐ | ◐ | | | | | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ● | ● | | |
| K | | | | | | | | ◐ | ◐ | ◐ | | | | | | | | | | | ● | | | |
| N | | | | | | | | | | | ◐ | | | | | | | | | | | | ◐ | ◐ |
| S | | | | | ◐ | | ◐ | | | | | ● | ◐ | | ◐ | ◐ | | ◐ | | ◐ | | | | | |
| H | | | | | | | | | | ● | | | | | | | ◐ | | | | | | | |
| ISO | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **SNKN1204ENN** | bs 1.5 | be 0.9 | | ● | | | ● | ● | | | | | | | | | | | | | | | | | |
| | **SNKN1504ENN** | bs 1.5 | be 0.9 | | ○ | | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

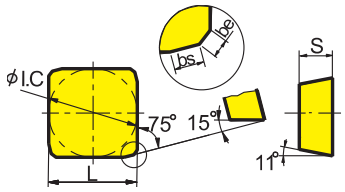
A Turning
B Milling
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D Technical Information
E Index

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SPCN | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 1.4 |
| **15** 04 | 15.875 | 15.875 | 1.4 |

| SP** milling insert | | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | be | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
|  | **SPCN1203EDSKR** | 3.2 | 1.0 | ● | | | | | | | | | | | | | | | | | | | | | | | |
| | **SPCN1504EDSKR** | 4.8 | 1.0 | ● | | | | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

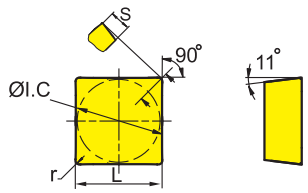
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| SPMR | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 3.18 |




| SP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **SPMR120304** | 0.4 | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **SPMR120308** | 0.8 | | | | | ● | ○ | | | | | | | | | | | | | | | | | | | |
| | **SPMR120312** | 1.2 | | | | | | ○ | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

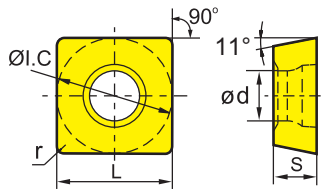
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| SPMT | L | I.C | S | d |
|---|---|---|---|---|
| **06** 03 | 6.35 | 6.35 | 3.18 | 2.8 |
| **09** T3 | 9.525 | 9.525 | 3.97 | 4.4 |
| **12** 04 | 12.7 | 12.7 | 4.76 | 5.5 |

| SP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | P | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| HT-1 | **SPMT120408-HT-1** | 0.8 | | | | | | | | | | | | | | ○ | | | | | | | | | | |
| HT | **SPMT09T308-HT** | 0.8 | | | | | ● | | ● | | | | | | ○ | | | | | | | | | | | |
| KT | **SPMT060304-KT** | 0.4 | | ○ | | | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

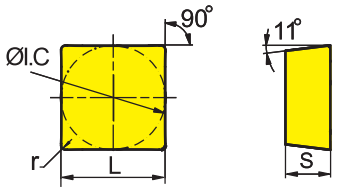
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide


System code > B32 Grade selection > B31 Technical info > B617 Cutting data > B312

## Milling inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

| SP** | L | I.C | S |
|---|---|---|---|
| **12** 03 | 12.7 | 12.7 | 3.18 |
| **15** 04 | 15.875 | 15.875 | 4.76 |




| SP** milling insert | | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | | | | | | | | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | | | | | | | | | | | | |
| | | K | | | | | | | | | | | | | | | | | | | | | | | |
| | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | S | | | | | | | | | | | | | | | | | | | | | | | |
| | | H | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **SPGN120304** | 0.4 | | | | | | | | | | | | | ○ | | | | | | | | | | | | ○ |
| | **SPGN120308** | 0.8 | | | | | | | | | | | | | ○ | | | | | | | | | | | | |
| | **SPUN120308** | 0.8 | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | | ○ |
| | **SPUN150412** | 1.2 | | | | | | | | | | | | | | | | | | | | | | | | | ○ |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

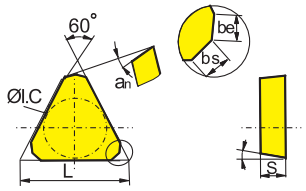
A Turning
B Milling
C Drilling
D Technical Information
E Index

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Milling inserts

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

| TPKN | L | I.C | S |
|---|---|---|---|
| **16** 03 | 16.5 | 9.525 | 3.18 |




| TP** milling insert | | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | M | | | | | | | | | | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO | | bs | be | an | | | | | | | | | | | | | | | | | | | | | |
| | **TPKN1603PDSKR** | 1.0 | 1.2 | 11 | | ● | ○ | | | | ○ | | | | ○ | | | | | ● | | | | | | |
| | **TPKN1603PDTKR** | 1.0 | 1.2 | 11 | | | | | | | | | | | | | | | | | | | | | ○ | |
| | **TPKN1603PPER** | 1.0 | 1.2 | 11 | | ● | | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

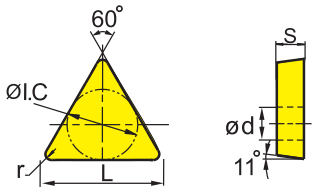

System code B32 Grade selection B31 Technical info B617 Cutting data B312

## Milling inserts

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

| TP** | L | I.C | S |
|---|---|---|---|
| **11** 03 | 11 | 6.35 | 3.18 |
| **16** 03 | 16.5 | 9.525 | 3.18 |
| **22** 04 | 22 | 12.7 | 4.76 |

TP** milling insert




| | ISO | r | HC¹ (CVD) | | | | | | | | HC¹ (PVD) | | | | | | | | | | | | HT | HC² | HW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBD203 | YBH053 | YBG101 | YBG102 | YBG202 | YBG212 | YBS203 | YBG205 | YBG205H | YB9320 | YBG302 | YBS303 | YBG252 | YNG151 | YNG151C | YD101 | YD201 |
| | **TPMR110304** | 0.4 | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **TPMR110308** | 0.8 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **TPMR160304** | 0.4 | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **TPMR160308** | 0.8 | | | | | ● | ● | ● | | | | | | | | | | | | | | | | | | |
| | **TPMR160312** | 1.2 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **TPMR220412** | 1.2 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **TPUN110304** | 0.4 | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| | **TPUN160304** | 0.4 | | | | | ● | | | | | | | | | | | | | | | | | | | ○ | |
| | **TPUN160308** | 0.8 | | | | | ● | ○ | | | | | | | | | | ○ | | | | | | | | ○ | |
| | **TPUN160312** | 1.2 | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **TPUN220408** | 0.8 | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| | **TPUN220412** | 1.2 | | | | | | ○ | | | | | | | | | | | | | | | | | | | |

● Ex stock ○ On demand

HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

System code B32 | Grade selection B31 | Technical info B617 | Cutting data B312

## Guide for recommended cutting data – indexable milling

### Indexable milling – group 1 (FMA07/11/12, FMD02, EMP09/13)

| | Material group | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed v$_c$ [m/min] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HC (CVD) | | | | | | | |
| | | | | | | YBC302 | | YBC401 | | YBD152 | | YBD252 | |
| | | | | | | a$_e$ / D | | a$_e$ / D | | a$_e$ / D | | a$_e$ / D | |
| | | | | | | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 |
| P | Unalloyed steel | ca. 0,15 % C | annealed | 125 | 1 | 260 | 300 | 225 | 260 | | | | |
| | | ca. 0,45 % C | annealed | 190 | 2 | 225 | 255 | 195 | 225 | | | | |
| | | ca. 0,45 % C | tempered | 250 | 3 | 210 | 240 | 180 | 210 | | | | |
| | | ca. 0,75 % C | annealed | 270 | 4 | 185 | 210 | 160 | 185 | | | | |
| | | ca. 0,75 % C | tempered | 300 | 5 | 170 | 195 | 150 | 170 | | | | |
| | Low-alloyed steel | | annealed | 180 | 6 | 225 | 255 | 195 | 225 | | | | |
| | | | tempered | 275 | 7 | 185 | 210 | 160 | 185 | | | | |
| | | | tempered | 300 | 8 | 170 | 195 | 150 | 170 | | | | |
| | | | tempered | 350 | 9 | 145 | 165 | 125 | 145 | | | | |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 130 | 150 | 115 | 130 | | | | |
| | | | hardened ard tempered | 325 | 11 | 95 | 105 | 80 | 95 | | | | |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | | | | | |
| | | martensitic | tempered | 240 | 13 | | | | | | | | |
| | | austenitic | quench harcened | 180 | 14 | | | | | | | | |
| | | austenitic-ferritic | | 230 | 15 | | | | | | | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | | 370 | 430 | 320 | 370 |
| | | perlitic (martensitic) | | 260 | 17 | | | | | 220 | 255 | 190 | 220 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | | 255 | 295 | 220 | 255 |
| | | perlitic | | 250 | 19 | | | | | 170 | 200 | 145 | 170 |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | | 305 | 355 | 265 | 305 |
| | | perlitic | | 230 | 21 | | | | | 205 | 240 | 175 | 205 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | | | |
| | | | hardened | 280 | 31 | | | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | | | |
| | | | hardened | 350 | 33 | | | | | | | | |
| | | | cast | 320 | 34 | | | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | | | |
| | | Graphite | | | 45 | | | | | | | | |
| | | Wood | | | 46 | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B248
For examples of material for cutting tool groups view page D22.

## Recommend feed rate

### Indexable milling – group1 (FMA07/11/12, FMD02, EMP09/13)

5

6

| | Material group | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EMP09 | | | EMP13 | | | EMP13 | | | FMA07 | | | FMA07 | | | FMA11 | | |
| | | LNKT12 | | | ANGX11 | | | ANGX15 | | | ONHU06 | | | ONHU08 | | | SNEG12 | | |
| | | Application | | | | | | | | | | | | | | | | | |
| | | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R |
| P | Unalloyed steel | | 0,25 | 0,50 | | 0,23 | | | 0,25 | | 0,19 | 0,23 | | 0,19 | 0,23 | | | 0,20 | 0,23 |
| P | Low-alloyed steel | | 0,23 | 0,47 | | 0,22 | | | 0,23 | | 0,17 | 0,22 | | 0,17 | 0,22 | | | 0,19 | 0,21 |
| P | High-alloyed steel and high-alloyed tool steel | | 0,22 | 0,44 | | 0,20 | | | 0,22 | | 0,16 | 0,20 | | 0,16 | 0,20 | | | 0,18 | 0,20 |
| M | Stainless steel | | 0,18 | 0,35 | | | | | | | | | | | | | | 0,14 | 0,16 |
| K | Grey cast iron | | 0,28 | 0,55 | | 0,26 | | | 0,28 | | 0,20 | 0,26 | | 0,20 | 0,26 | | | 0,22 | 0,25 |
| K | Cast iron with spheroidal graphite | | 0,25 | 0,50 | | 0,23 | | | 0,25 | | 0,19 | 0,23 | | 0,19 | 0,23 | | | 0,20 | 0,23 |
| K | Malleable cast iron | | 0,25 | 0,50 | | 0,23 | | | 0,25 | | 0,19 | 0,23 | | 0,19 | 0,23 | | | 0,20 | 0,23 |
| N | Aluminium wrought alloys | | | | | 0,20 | | | 0,21 | | | | | | | | | | |
| N | Aluminium-Gusslegierungen | | | | | 0,20 | | | 0,21 | | | | | | | | | | |
| N | Copper and copper alloys(bronze/brass) | | | | | 0,18 | | | 0,19 | | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | | | | | | | | | | |
| H | Hardened steel | | | | | | | | | | | | | | | | | | |
| H | Hard cast iron | | | | | | | | | | | | | | | | | | |
| H | Hardened cast iron | | | | | | | | | | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | | | | | | | | | | |

1. Select the appropriate product family/cutting data group.
2. Select the used grade.
3. Determine the immersion.
4. Select the used material and read the cutting speed.
5. Please have a look at the detached feed rate recommendations.
6. Select the used tool, the machining mode and the used material.

## Indexable milling – group 1 (FMA07/11/12/17, FMP12/17, FMD02, EMP09/13)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HC (CVD) | | | | | | | |
| | | | | | | YBC302 | | YBC401 | | YBD152 | | YBD252 | |
| | | | | | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | |
| | | | | | | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 |
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 260 | 300 | 225 | 260 | | | | |
| | | approx. 0,45 % C | annealed | 190 | 2 | 225 | 255 | 195 | 225 | | | | |
| | | approx. 0,45 % C | tempered | 250 | 3 | 210 | 240 | 180 | 210 | | | | |
| | | approx. 0,75 % C | annealed | 270 | 4 | 185 | 210 | 160 | 185 | | | | |
| | | approx. 0,75 % C | tempered | 300 | 5 | 170 | 195 | 150 | 170 | | | | |
| | Low-alloyed steel | | annealed | 180 | 6 | 225 | 255 | 195 | 225 | | | | |
| | | | tempered | 275 | 7 | 185 | 210 | 160 | 185 | | | | |
| | | | tempered | 300 | 8 | 170 | 195 | 150 | 170 | | | | |
| | | | tempered | 350 | 9 | 145 | 165 | 125 | 145 | | | | |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 130 | 150 | 115 | 130 | | | | |
| | | | hardened and tempered | 325 | 11 | 95 | 105 | 80 | 95 | | | | |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | | | | | |
| | | martensitic | tempered | 240 | 13 | | | | | | | | |
| | | austenitic | quench hardened | 180 | 14 | | | | | | | | |
| | | austenitic-ferritic | | 230 | 15 | | | | | | | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | | 370 | 430 | 320 | 370 |
| | | perlitic (martensitic) | | 260 | 17 | | | | | 220 | 255 | 190 | 220 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | | 255 | 295 | 220 | 255 |
| | | perlitic | | 250 | 19 | | | | | 170 | 200 | 145 | 170 |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | | 305 | 355 | 265 | 305 |
| | | perlitic | | 230 | 21 | | | | | 205 | 240 | 175 | 205 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | | | |
| | | | hardened | 280 | 31 | | | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | | | |
| | | | hardened | 350 | 33 | | | | | | | | |
| | | | cast | 320 | 34 | | | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | | | |
| | | Graphite | | | 45 | | | | | | | | |
| | | Wood | | | 46 | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| | Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC (CVD) | | HC (PVD) | | | | | | | | | | | | | | HW | | | | |
| | YBM253 | | YBG102 | | YB9320 | | YBG205 | | YBG205H | | YBG252 | | YBG302 | | YBS303 | | YD101 | | YD201 | | |
| | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | |
| | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | |
| | 260 | 300 | 270 | 315 | 245 | 285 | 235 | 275 | 235 | 275 | 230 | 265 | 225 | 260 | | | | | | | |
| | 225 | 255 | 230 | 270 | 210 | 245 | 200 | 235 | 200 | 235 | 200 | 230 | 195 | 225 | | | | | | | |
| | 210 | 240 | 220 | 255 | 200 | 230 | 190 | 220 | 190 | 220 | 185 | 215 | 180 | 210 | | | | | | | |
| | 185 | 210 | 190 | 225 | 175 | 200 | 165 | 195 | 165 | 195 | 165 | 190 | 160 | 185 | | | | | | | |
| | 170 | 195 | 180 | 205 | 160 | 190 | 155 | 180 | 155 | 180 | 150 | 175 | 150 | 170 | | | | | | | |
| | 225 | 255 | 230 | 270 | 210 | 245 | 200 | 235 | 200 | 235 | 200 | 230 | 195 | 225 | | | | | | | |
| | 185 | 210 | 190 | 225 | 175 | 200 | 165 | 195 | 165 | 195 | 165 | 190 | 160 | 185 | | | | | | | |
| | 170 | 195 | 180 | 205 | 160 | 190 | 155 | 180 | 155 | 180 | 150 | 175 | 150 | 170 | | | | | | | |
| | 145 | 165 | 150 | 175 | 135 | 160 | 130 | 155 | 130 | 155 | 130 | 150 | 125 | 145 | | | | | | | |
| | 130 | 150 | 135 | 160 | 125 | 145 | 120 | 140 | 120 | 140 | 115 | 135 | 115 | 130 | | | | | | | |
| | 95 | 105 | 95 | 115 | 90 | 100 | 85 | 100 | 85 | 100 | 85 | 95 | 80 | 95 | | | | | | | |
| | 130 | 150 | 135 | 160 | 125 | 145 | 120 | 140 | | | 115 | 135 | 115 | 130 | 140 | 185 | | | | | |
| | 110 | 130 | 115 | 135 | 105 | 120 | 100 | 120 | | | 100 | 115 | 95 | 110 | 120 | 155 | | | | | |
| | 140 | 160 | 145 | 170 | 130 | 155 | 125 | 150 | | | 125 | 145 | 120 | 140 | 150 | 195 | | | | | |
| | 110 | 130 | 115 | 135 | 105 | 120 | 100 | 120 | | | 100 | 115 | 95 | 110 | 120 | 155 | | | | | |
| | | | 300 | 345 | 270 | 315 | 260 | 300 | 270 | 315 | 255 | 295 | 250 | 290 | | | | | | | |
| | | | 180 | 205 | 160 | 190 | 155 | 180 | 160 | 190 | 150 | 175 | 150 | 170 | | | | | | | |
| | | | 205 | 240 | 185 | 215 | 180 | 210 | 185 | 215 | 175 | 200 | 170 | 195 | | | | | | | |
| | | | 135 | 160 | 125 | 145 | 120 | 140 | 125 | 145 | 115 | 135 | 115 | 130 | | | | | | | |
| | | | 245 | 285 | 225 | 260 | 215 | 250 | 225 | 260 | 210 | 240 | 205 | 235 | | | | | | | |
| | | | 165 | 190 | 150 | 175 | 145 | 165 | 150 | 175 | 140 | 160 | 135 | 160 | | | | | | | |
| | | | | | | | | | | | | | | | | | 1505 | 1735 | 1450 | 1670 | |
| | | | | | | | | | | | | | | | | | 1225 | 1420 | 1180 | 1370 | |
| | | | | | | | | | | | | | | | | | 540 | 620 | 515 | 600 | |
| | | | | | | | | | | | | | | | | | 435 | 505 | 420 | 485 | |
| | | | | | | | | | | | | | | | | | 220 | 255 | 215 | 250 | |
| | | | | | | | | | | | | | | | | | 170 | 195 | 160 | 190 | |
| | | | | | | | | | | | | | | | | | 210 | 245 | 205 | 235 | |
| | | | | | | | | | | | | | | | | | 385 | 445 | 370 | 430 | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 90 | 150 | | | | | | | | | | | |
| | | | | | | | | | 80 | 120 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 90 | 120 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 2 (FMA01/02/03/04, FME01/02, FMP01/02, EMP01/02/03/04)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HC (CVD) | | | | | | | |
| | | | | | | YBC302 | | YBC401 | | YBD152 | | YBD252 | |
| | | | | | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | |
| | | | | | | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 |
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 245 | 285 | 210 | 245 | | | | |
| | | approx. 0,45 % C | annealed | 190 | 2 | 210 | 245 | 180 | 210 | | | | |
| | | approx. 0,45 % C | tempered | 250 | 3 | 200 | 230 | 170 | 200 | | | | |
| | | approx. 0,75 % C | annealed | 270 | 4 | 175 | 200 | 150 | 175 | | | | |
| | | approx. 0,75 % C | tempered | 300 | 5 | 160 | 190 | 140 | 160 | | | | |
| | Low-alloyed steel | | annealed | 180 | 6 | 210 | 245 | 180 | 210 | | | | |
| | | | tempered | 275 | 7 | 175 | 200 | 150 | 175 | | | | |
| | | | tempered | 300 | 8 | 160 | 190 | 140 | 160 | | | | |
| | | | tempered | 350 | 9 | 135 | 160 | 120 | 135 | | | | |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 125 | 145 | 105 | 125 | | | | |
| | | | hardened and tempered | 325 | 11 | 90 | 100 | 75 | 90 | | | | |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | | | | | |
| | | martensitic | tempered | 240 | 13 | | | | | | | | |
| | | austenitic | quench hardened | 180 | 14 | | | | | | | | |
| | | austenitic-ferritic | | 230 | 15 | | | | | | | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | | 315 | 365 | 270 | 315 |
| | | perlitic (martensitic) | | 260 | 17 | | | | | 185 | 215 | 160 | 190 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | | 215 | 250 | 185 | 215 |
| | | perlitic | | 250 | 19 | | | | | 145 | 170 | 125 | 145 |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | | 260 | 300 | 225 | 260 |
| | | perlitic | | 230 | 21 | | | | | 175 | 205 | 150 | 175 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | | | |
| | | | hardened | 280 | 31 | | | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | | | |
| | | | hardened | 350 | 33 | | | | | | | | |
| | | | cast | 320 | 34 | | | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | | | |
| | | Graphite | | | 45 | | | | | | | | |
| | | Wood | | | 46 | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

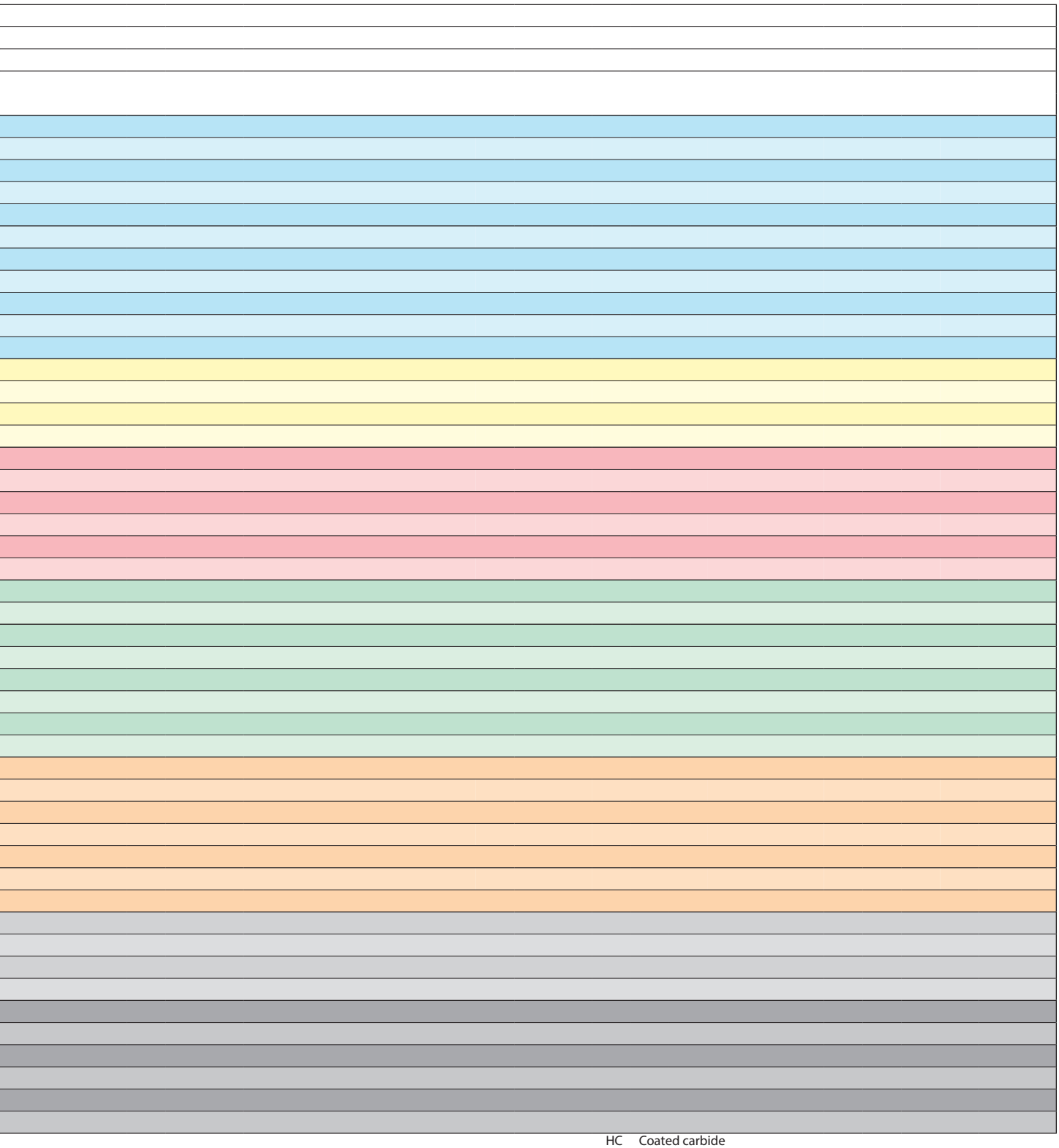
| | Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC (CVD) | | HC (PVD) | | | | | | | | | | | | | | HW | | | | HT | | | |
| | YBM253 | | YBG101 | | YBG102 | | YBG152 | | YB9320 | | YBG205(H) | | YBG252 | | YBG302 | | YD101 | | YD201 | | YNG151 | | | |
| | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | | |
| | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | |
| | 245 | 285 | | | 255 | 295 | 240 | 280 | 230 | 265 | 220 | 255 | 215 | 250 | 210 | 245 | | | | | 270 | 315 | | |
| | 210 | 245 | | | 220 | 255 | 205 | 240 | 200 | 230 | 190 | 220 | 185 | 215 | 180 | 210 | | | | | 235 | 270 | | |
| | 200 | 230 | | | 205 | 240 | 195 | 225 | 185 | 215 | 180 | 205 | 175 | 200 | 170 | 200 | | | | | 220 | 255 | | |
| | 175 | 200 | | | 180 | 210 | 170 | 200 | 165 | 190 | 155 | 180 | 155 | 175 | 150 | 175 | | | | | 195 | 220 | | |
| | 160 | 190 | | | 170 | 195 | 160 | 185 | 150 | 175 | 145 | 170 | 140 | 165 | 140 | 160 | | | | | 180 | 210 | | |
| | 210 | 245 | | | 220 | 255 | 205 | 240 | 200 | 230 | 190 | 220 | 185 | 215 | 180 | 210 | | | | | 235 | 270 | | |
| | 175 | 200 | | | 180 | 210 | 170 | 200 | 165 | 190 | 155 | 180 | 155 | 175 | 150 | 175 | | | | | 195 | 220 | | |
| | 160 | 190 | | | 170 | 195 | 160 | 185 | 150 | 175 | 145 | 170 | 140 | 165 | 140 | 160 | | | | | 180 | 210 | | |
| | 135 | 160 | | | 145 | 165 | 135 | 155 | 130 | 150 | 125 | 145 | 120 | 140 | 120 | 135 | | | | | 150 | 180 | | |
| | 125 | 145 | | | 130 | 150 | 120 | 140 | 115 | 135 | 110 | 130 | 110 | 125 | 105 | 125 | | | | | 140 | 160 | | |
| | 90 | 100 | | | 90 | 105 | 85 | 100 | 85 | 95 | 80 | 90 | 80 | 90 | 75 | 90 | | | | | 100 | 110 | | |
| | 125 | 145 | | | 130 | 150 | 120 | 140 | 115 | 135 | 110 | 130 | 110 | 125 | 105 | 125 | | | | | 135 | 160 | | |
| | 105 | 120 | | | 110 | 125 | 105 | 120 | 100 | 115 | 95 | 110 | 95 | 105 | 90 | 105 | | | | | 115 | 135 | | |
| | 130 | 155 | | | 140 | 160 | 130 | 150 | 125 | 145 | 120 | 140 | 115 | 135 | 115 | 130 | | | | | 145 | 170 | | |
| | 105 | 120 | | | 110 | 125 | 105 | 120 | 100 | 115 | 95 | 110 | 95 | 105 | 90 | 105 | | | | | 115 | 135 | | |
| | | | | | 285 | 330 | 265 | 305 | 255 | 295 | 245 | 285 | 240 | 280 | 235 | 275 | | | | | | | | |
| | | | | | 170 | 195 | 160 | 185 | 150 | 175 | 145 | 170 | 140 | 165 | 140 | 160 | | | | | | | | |
| | | | | | 195 | 225 | 180 | 210 | 175 | 200 | 165 | 195 | 165 | 190 | 160 | 185 | | | | | | | | |
| | | | | | 130 | 150 | 120 | 140 | 115 | 135 | 110 | 130 | 110 | 125 | 105 | 125 | | | | | | | | |
| | | | | | 230 | 270 | 220 | 255 | 210 | 240 | 200 | 230 | 195 | 225 | 190 | 225 | | | | | | | | |
| | | | | | 155 | 180 | 145 | 170 | 140 | 160 | 135 | 155 | 130 | 150 | 130 | 150 | | | | | | | | |
| | | | 1505 | 1735 | | | | | | | | | | | | | 1205 | 1390 | 1040 | 1200 | | | | |
| | | | 1225 | 1420 | | | | | | | | | | | | | 980 | 1140 | 850 | 980 | | | | |
| | | | 540 | 620 | | | | | | | | | | | | | 435 | 500 | 375 | 435 | | | | |
| | | | 435 | 505 | | | | | | | | | | | | | 350 | 405 | 300 | 350 | | | | |
| | | | 220 | 255 | | | | | | | | | | | | | 180 | 205 | 155 | 180 | | | | |
| | | | 170 | 195 | | | | | | | | | | | | | 140 | 160 | 120 | 140 | | | | |
| | | | 210 | 245 | | | | | | | | | | | | | 170 | 200 | 150 | 170 | | | | |
| | | | 385 | 445 | | | | | | | | | | | | | 310 | 360 | 265 | 310 | | | | |
| | | | | | 75 | 85 | 70 | 80 | 65 | 75 | 65 | 75 | 65 | 75 | 60 | 70 | | | | | | | | |
| | | | | | 50 | 55 | 50 | 55 | 45 | 50 | 45 | 50 | 45 | 50 | 40 | 45 | | | | | | | | |
| | | | | | 60 | 70 | 55 | 65 | 55 | 65 | 50 | 55 | 50 | 55 | 50 | 55 | | | | | | | | |
| | | | | | 35 | 40 | 35 | 40 | 30 | 35 | 30 | 35 | 30 | 35 | 30 | 35 | | | | | | | | |
| | | | | | 45 | 50 | 45 | 50 | 40 | 45 | 40 | 45 | 40 | 45 | 40 | 45 | | | | | | | | |
| | | | | | 75 | 85 | 70 | 80 | 65 | 75 | 65 | 75 | 65 | 75 | 60 | 70 | | | | | | | | |
| | | | | | 75 | 85 | 70 | 80 | 65 | 75 | 65 | 75 | 65 | 75 | 60 | 70 | | | | | | | | |

HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 2 (FMA01/02/03/04, FME01/02, FMP01/02, EMP01/02/03/04)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed vc [m/min] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $HC_1$ | | | |
| | | | | | | YNG151C | | | |
| | | | | | | $a_e$ / D | | | |
| | | | | | | 1/1 \| 3/4 | 1/5 | | |
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 285 | 335 | | |
| | | approx. 0,45 % C | annealed | 190 | 2 | 250 | 285 | | |
| | | approx. 0,45 % C | tempered | 250 | 3 | 235 | 270 | | |
| | | approx. 0,75 % C | annealed | 270 | 4 | 205 | 235 | | |
| | | approx. 0,75 % C | tempered | 300 | 5 | 190 | 225 | | |
| | Low-alloyed steel | | annealed | 180 | 6 | 250 | 285 | | |
| | | | tempered | 275 | 7 | 205 | 235 | | |
| | | | tempered | 300 | 8 | 190 | 225 | | |
| | | | tempered | 350 | 9 | 160 | 190 | | |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 150 | 170 | | |
| | | | hardened and tempered | 325 | 11 | 105 | 120 | | |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | 145 | 170 | | |
| | | martensitic | tempered | 240 | 13 | 120 | 145 | | |
| | | austenitic | quench hardened | 180 | 14 | 155 | 180 | | |
| | | austenitic-ferritic | | 230 | 15 | 120 | 145 | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | |
| | | perlitic (martensitic) | | 260 | 17 | | | | |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | |
| | | perlitic | | 250 | 19 | | | | |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | |
| | | perlitic | | 230 | 21 | | | | |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | |
| | | hardenable | hardened | 100 | 23 | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | |
| | | | hardened | 280 | 31 | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | |
| | | | hardened | 350 | 33 | | | | |
| | | | cast | 320 | 34 | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | |
| | | Thermosetting plastics | | | 42 | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | |
| | | Graphite | | | 45 | | | | |
| | | Wood | | | 46 | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.



HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 3 (FMR01/02/03/04)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] HC (CVD) YBC302 $a_e$ / D 1/1 \| 3/4 | YBC302 $a_e$ / D 1/5 | YBC302 $a_e$ / D 1/20 | YBC401 $a_e$ / D 1/1 \| 3/4 | YBC401 $a_e$ / D 1/5 | YBC401 $a_e$ / D 1/20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 260 | 300 | 390 | 225 | 260 | 340 |
| | | approx. 0,45 % C | annealed | 190 | 2 | 225 | 255 | 335 | 195 | 225 | 295 |
| | | approx. 0,45 % C | tempered | 250 | 3 | 210 | 240 | 315 | 180 | 210 | 275 |
| | | approx. 0,75 % C | annealed | 270 | 4 | 185 | 210 | 275 | 160 | 185 | 245 |
| | | approx. 0,75 % C | tempered | 300 | 5 | 170 | 195 | 255 | 150 | 170 | 225 |
| | Low-alloyed steel | | annealed | 180 | 6 | 225 | 255 | 335 | 195 | 225 | 295 |
| | | | tempered | 275 | 7 | 185 | 210 | 275 | 160 | 185 | 245 |
| | | | tempered | 300 | 8 | 170 | 195 | 255 | 150 | 170 | 225 |
| | | | tempered | 350 | 9 | 145 | 165 | 215 | 125 | 145 | 190 |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 130 | 150 | 195 | 115 | 130 | 170 |
| | | | hardened and tempered | 325 | 11 | 95 | 105 | 140 | 80 | 95 | 125 |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | | | |
| | | martensitic | tempered | 240 | 13 | | | | | | |
| | | austenitic | quench hardened | 180 | 14 | | | | | | |
| | | austenitic-ferritic | | 230 | 15 | | | | | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | | | |
| | | perlitic (martensitic) | | 260 | 17 | | | | | | |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | | | |
| | | perlitic | | 250 | 19 | | | | | | |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | | | |
| | | perlitic | | 230 | 21 | | | | | | |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | |
| | | | hardened | 280 | 31 | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | |
| | | | hardened | 350 | 33 | | | | | | |
| | | | cast | 320 | 34 | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | |
| | | Graphite | | | 45 | | | | | | |
| | | Wood | | | 46 | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| | Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC (CVD) | | | | | | | | | HC (PVD) | | | | | | | | | | | | |
| | YBD152 | | | YBD252 | | | YBM253 | | | YBG102 | | | YBG152 | | | YB9320 | | | YBG205 | | |
| | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | |
| | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 |
| | | | | | | | 260 | 300 | 390 | 270 | 315 | 410 | 255 | 295 | 385 | 245 | 285 | 375 | 235 | 275 | 360 |
| | | | | | | | 225 | 255 | 335 | 230 | 270 | 355 | 220 | 255 | 335 | 210 | 245 | 320 | 200 | 235 | 310 |
| | | | | | | | 210 | 240 | 315 | 220 | 255 | 335 | 205 | 240 | 315 | 200 | 230 | 300 | 190 | 220 | 290 |
| | | | | | | | 185 | 210 | 275 | 190 | 225 | 295 | 180 | 210 | 275 | 175 | 200 | 260 | 165 | 195 | 255 |
| | | | | | | | 170 | 195 | 255 | 180 | 205 | 270 | 170 | 195 | 255 | 160 | 190 | 250 | 155 | 180 | 235 |
| | | | | | | | 225 | 255 | 335 | 230 | 270 | 355 | 220 | 255 | 335 | 210 | 245 | 320 | 200 | 235 | 310 |
| | | | | | | | 185 | 210 | 275 | 190 | 225 | 295 | 180 | 210 | 275 | 175 | 200 | 260 | 165 | 195 | 255 |
| | | | | | | | 170 | 195 | 255 | 180 | 205 | 270 | 170 | 195 | 255 | 160 | 190 | 250 | 155 | 180 | 235 |
| | | | | | | | 145 | 165 | 215 | 150 | 175 | 230 | 145 | 165 | 215 | 135 | 160 | 210 | 130 | 155 | 205 |
| | | | | | | | 130 | 150 | 195 | 135 | 160 | 210 | 130 | 150 | 195 | 125 | 145 | 190 | 120 | 140 | 185 |
| | | | | | | | 95 | 105 | 140 | 95 | 115 | 150 | 90 | 105 | 140 | 90 | 100 | 130 | 85 | 100 | 130 |
| | | | | | | | 130 | 150 | 195 | 135 | 160 | 205 | 130 | 150 | 195 | 125 | 145 | 190 | 120 | 140 | 180 |
| | | | | | | | 110 | 130 | 165 | 115 | 135 | 175 | 110 | 125 | 165 | 105 | 120 | 160 | 100 | 120 | 155 |
| | | | | | | | 140 | 160 | 210 | 145 | 170 | 220 | 140 | 160 | 205 | 130 | 155 | 200 | 125 | 150 | 195 |
| | | | | | | | 110 | 130 | 165 | 115 | 135 | 175 | 110 | 125 | 165 | 105 | 120 | 160 | 100 | 120 | 155 |
| | 345 | 400 | 520 | 300 | 345 | 450 | | | | 300 | 345 | 450 | 285 | 330 | 430 | 270 | 315 | 410 | 260 | 300 | 390 |
| | 210 | 245 | 320 | 180 | 205 | 270 | | | | 180 | 205 | 270 | 170 | 195 | 255 | 160 | 190 | 250 | 155 | 180 | 235 |
| | 240 | 280 | 365 | 205 | 240 | 315 | | | | 205 | 240 | 315 | 195 | 225 | 295 | 185 | 215 | 280 | 180 | 210 | 275 |
| | 160 | 185 | 245 | 135 | 160 | 210 | | | | 135 | 160 | 210 | 130 | 150 | 195 | 125 | 145 | 190 | 120 | 140 | 185 |
| | 285 | 330 | 430 | 245 | 285 | 375 | | | | 245 | 285 | 375 | 230 | 270 | 355 | 225 | 260 | 340 | 215 | 250 | 325 |
| | 190 | 220 | 290 | 165 | 190 | 250 | | | | 165 | 190 | 250 | 155 | 180 | 235 | 150 | 175 | 230 | 145 | 165 | 215 |
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HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 3 (FMR01/02/03/04/11)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] HC (PVD) YBG205H $a_e$ / D 1/1 \| 3/4 | YBG205H $a_e$ / D 1/5 | YBG205H $a_e$ / D 1/20 | YBG212 $a_e$ / D 1/1 \| 3/4 | YBG212 $a_e$ / D 1/5 | YBG212 $a_e$ / D 1/20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 235 | 275 | | 240 | 280 | 365 |
| | | approx. 0,45 % C | annealed | 190 | 2 | 200 | 235 | | 205 | 240 | 315 |
| | | approx. 0,45 % C | tempered | 250 | 3 | 190 | 220 | | 195 | 225 | 295 |
| | | approx. 0,75 % C | annealed | 270 | 4 | 165 | 195 | | 170 | 200 | 260 |
| | | approx. 0,75 % C | tempered | 300 | 5 | 155 | 180 | | 160 | 185 | 245 |
| | Low-alloyed steel | | annealed | 180 | 6 | 200 | 235 | | 205 | 240 | 315 |
| | | | tempered | 275 | 7 | 165 | 195 | | 170 | 200 | 260 |
| | | | tempered | 300 | 8 | 155 | 180 | | 160 | 185 | 245 |
| | | | tempered | 350 | 9 | 130 | 155 | | 135 | 155 | 205 |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 120 | 140 | | 120 | 140 | 185 |
| | | | hardened and tempered | 325 | 11 | 85 | 100 | | 85 | 100 | 130 |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | 120 | 140 | 185 |
| | | martensitic | tempered | 240 | 13 | | | | 105 | 120 | 155 |
| | | austenitic | quench hardened | 180 | 14 | | | | 130 | 150 | 195 |
| | | austenitic-ferritic | | 230 | 15 | | | | 105 | 120 | 155 |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | 270 | 315 | | 265 | 305 | 400 |
| | | perlitic (martensitic) | | 260 | 17 | 160 | 190 | | 160 | 185 | 245 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | 185 | 215 | | 180 | 210 | 275 |
| | | perlitic | | 250 | 19 | 125 | 145 | | 120 | 140 | 185 |
| | Malleable cast iron | ferritic | | 130 | 20 | 225 | 260 | | 220 | 255 | 335 |
| | | perlitic | | 230 | 21 | 150 | 175 | | 145 | 170 | 225 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | |
| | | | hardened | 280 | 31 | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | |
| | | | hardened | 350 | 33 | | | | | | |
| | | | cast | 320 | 34 | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | 90 | 150 | | | | |
| | | | hardened and tempered | 60 HRC | 38 | 80 | 120 | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | 90 | 120 | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | |
| | | Graphite | | | 45 | | | | | | |
| | | Wood | | | 46 | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC (PVD) | | | | | | | | | HW | | | | |
| | YBG252 | | | YBG302 | | | YBS303 | | | YD101 | | YD201 | | |
| | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | $a_e$ / D | | |
| | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | |
| | 230 | 265 | 345 | 225 | 260 | 340 | | | | | | | | |
| | 200 | 230 | 300 | 195 | 225 | 295 | | | | | | | | |
| | 185 | 215 | 280 | 180 | 210 | 275 | | | | | | | | |
| | 165 | 190 | 250 | 160 | 185 | 245 | | | | | | | | |
| | 150 | 175 | 230 | 150 | 170 | 225 | | | | | | | | |
| | 200 | 230 | 300 | 195 | 225 | 295 | | | | | | | | |
| | 165 | 190 | 250 | 160 | 185 | 245 | | | | | | | | |
| | 150 | 175 | 230 | 150 | 170 | 225 | | | | | | | | |
| | 130 | 150 | 195 | 125 | 145 | 190 | | | | | | | | |
| | 115 | 135 | 180 | 115 | 130 | 170 | | | | | | | | |
| | 85 | 95 | 125 | 80 | 95 | 125 | | | | | | | | |
| | 115 | 135 | 175 | 115 | 130 | 170 | 140 | 185 | | | | | | |
| | 100 | 115 | 145 | 95 | 110 | 145 | 120 | 155 | | | | | | |
| | 125 | 145 | 185 | 120 | 140 | 185 | 150 | 195 | | | | | | |
| | 100 | 115 | 145 | 95 | 110 | 145 | 120 | 155 | | | | | | |
| | 255 | 295 | 385 | 250 | 290 | 380 | | | | | | | | |
| | 150 | 175 | 230 | 150 | 170 | 225 | | | | | | | | |
| | 175 | 200 | 260 | 170 | 195 | 255 | | | | | | | | |
| | 115 | 135 | 180 | 115 | 130 | 170 | | | | | | | | |
| | 210 | 240 | 315 | 205 | 235 | 310 | | | | | | | | |
| | 140 | 160 | 210 | 135 | 160 | 210 | | | | | | | | |
| | | | | | | | | | | 1505 | 1735 | 1450 | 1670 | |
| | | | | | | | | | | 1225 | 1420 | 1180 | 1370 | |
| | | | | | | | | | | 540 | 620 | 515 | 600 | |
| | | | | | | | | | | 435 | 505 | 420 | 485 | |
| | | | | | | | | | | 220 | 255 | 215 | 250 | |
| | | | | | | | | | | 170 | 195 | 160 | 190 | |
| | | | | | | | | | | 210 | 245 | 205 | 235 | |
| | | | | | | | | | | 385 | 445 | 370 | 430 | |
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HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 4 (BMR01/02/03/04, TMP01, CMZ01, CMA01, CMD01)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] HC (CVD) YBC302 $a_e$ / D 1/1 \| 3/4 | YBC302 $a_e$ / D 1/5 | YBC302 $a_e$ / D 1/20 | YBC401 $a_e$ / D 1/1 \| 3/4 | YBC401 $a_e$ / D 1/5 | YBC401 $a_e$ / D 1/20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 235 | 275 | 360 | 200 | 230 | 300 |
| | | approx. 0,45 % C | annealed | 190 | 2 | 200 | 235 | 310 | 170 | 200 | 260 |
| | | approx. 0,45 % C | tempered | 250 | 3 | 190 | 220 | 290 | 160 | 185 | 245 |
| | | approx. 0,75 % C | annealed | 270 | 4 | 165 | 195 | 255 | 140 | 165 | 215 |
| | | approx. 0,75 % C | tempered | 300 | 5 | 155 | 180 | 235 | 130 | 150 | 195 |
| | Low-alloyed steel | | annealed | 180 | 6 | 200 | 235 | 310 | 170 | 200 | 260 |
| | | | tempered | 275 | 7 | 165 | 195 | 255 | 140 | 165 | 215 |
| | | | tempered | 300 | 8 | 155 | 180 | 235 | 130 | 150 | 195 |
| | | | tempered | 350 | 9 | 130 | 155 | 205 | 110 | 130 | 170 |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 120 | 140 | 185 | 100 | 115 | 150 |
| | | | hardened and tempered | 325 | 11 | 85 | 100 | 130 | 70 | 85 | 115 |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | | | |
| | | martensitic | tempered | 240 | 13 | | | | | | |
| | | austenitic | quench hardened | 180 | 14 | | | | | | |
| | | austenitic-ferritic | | 230 | 15 | | | | | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | | | |
| | | perlitic (martensitic) | | 260 | 17 | | | | | | |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | | | |
| | | perlitic | | 250 | 19 | | | | | | |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | | | |
| | | perlitic | | 230 | 21 | | | | | | |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | |
| | | | hardened | 280 | 31 | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | |
| | | | hardened | 350 | 33 | | | | | | |
| | | | cast | 320 | 34 | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | |
| | | Graphite | | | 45 | | | | | | |
| | | Wood | | | 46 | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| | Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC (CVD) | | | | | | | | | HC (PVD) | | | | | | | | | | | | |
| | YBD152 | | | YBD252 | | | YBM253 | | | YBG102 | | | YBG152 | | | YB9320 | | | YBG205 | | |
| | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | |
| | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 |
| | | | | | | | 235 | 275 | 360 | 245 | 285 | 375 | 230 | 265 | 345 | 220 | 255 | 335 | 210 | 245 | 320 |
| | | | | | | | 200 | 235 | 310 | 210 | 245 | 320 | 200 | 230 | 300 | 190 | 220 | 290 | 180 | 210 | 275 |
| | | | | | | | 190 | 220 | 290 | 200 | 230 | 300 | 185 | 215 | 280 | 180 | 205 | 270 | 170 | 200 | 260 |
| | | | | | | | 165 | 195 | 255 | 175 | 200 | 260 | 165 | 190 | 250 | 155 | 180 | 235 | 150 | 175 | 230 |
| | | | | | | | 155 | 180 | 235 | 160 | 190 | 250 | 150 | 175 | 230 | 145 | 170 | 225 | 140 | 160 | 210 |
| | | | | | | | 200 | 235 | 310 | 210 | 245 | 320 | 200 | 230 | 300 | 190 | 220 | 290 | 180 | 210 | 275 |
| | | | | | | | 165 | 195 | 255 | 175 | 200 | 260 | 165 | 190 | 250 | 155 | 180 | 235 | 150 | 175 | 230 |
| | | | | | | | 155 | 180 | 235 | 160 | 190 | 250 | 150 | 175 | 230 | 145 | 170 | 225 | 140 | 160 | 210 |
| | | | | | | | 130 | 155 | 205 | 135 | 160 | 210 | 130 | 150 | 195 | 125 | 145 | 190 | 120 | 135 | 180 |
| | | | | | | | 120 | 140 | 185 | 125 | 145 | 190 | 115 | 135 | 180 | 110 | 130 | 170 | 105 | 125 | 165 |
| | | | | | | | 85 | 100 | 130 | 90 | 100 | 130 | 85 | 95 | 125 | 80 | 90 | 120 | 75 | 90 | 120 |
| | | | | | | | 120 | 140 | 180 | 125 | 145 | 190 | 115 | 135 | 175 | 110 | 130 | 170 | 105 | 125 | 160 |
| | | | | | | | 100 | 120 | 155 | 105 | 120 | 160 | 100 | 115 | 145 | 95 | 110 | 145 | 90 | 105 | 135 |
| | | | | | | | 125 | 150 | 195 | 130 | 155 | 200 | 125 | 145 | 185 | 120 | 140 | 180 | 115 | 130 | 170 |
| | | | | | | | 100 | 120 | 155 | 105 | 120 | 160 | 100 | 115 | 145 | 95 | 110 | 145 | 90 | 105 | 135 |
| | 300 | 345 | 450 | 260 | 300 | 390 | | | | 270 | 315 | 410 | 255 | 295 | 385 | 245 | 285 | 375 | 235 | 275 | 360 |
| | 180 | 210 | 275 | 155 | 180 | 235 | | | | 160 | 190 | 250 | 150 | 175 | 230 | 145 | 170 | 225 | 140 | 160 | 210 |
| | 210 | 245 | 320 | 180 | 210 | 275 | | | | 185 | 215 | 280 | 175 | 200 | 260 | 165 | 195 | 255 | 160 | 185 | 245 |
| | 140 | 165 | 215 | 120 | 140 | 185 | | | | 125 | 145 | 190 | 115 | 135 | 180 | 110 | 130 | 170 | 105 | 125 | 165 |
| | 250 | 290 | 380 | 215 | 250 | 325 | | | | 225 | 260 | 340 | 210 | 240 | 315 | 200 | 230 | 300 | 190 | 225 | 295 |
| | 170 | 200 | 260 | 145 | 165 | 215 | | | | 150 | 175 | 230 | 140 | 160 | 210 | 135 | 155 | 205 | 130 | 150 | 195 |
| | | | | | | | | | | | | | | | | | | | | | |
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HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 4 (BMR01/02/03/04, TMP01, CMZ01, CMA01, CMD01)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] HC (PVD) YBG212 $a_e$ / D 1/1 \| 3/4 | YBG212 $a_e$ / D 1/5 | YBG212 $a_e$ / D 1/20 | YBG252 $a_e$ / D 1/1 \| 3/4 | YBG252 $a_e$ / D 1/5 | YBG252 $a_e$ / D 1/20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 215 | 250 | 325 | 205 | 240 | 315 |
| | | approx. 0,45 % C | annealed | 190 | 2 | 185 | 215 | 280 | 175 | 205 | 270 |
| | | approx. 0,45 % C | tempered | 250 | 3 | 175 | 200 | 260 | 165 | 195 | 255 |
| | | approx. 0,75 % C | annealed | 270 | 4 | 155 | 175 | 230 | 145 | 170 | 225 |
| | | approx. 0,75 % C | tempered | 300 | 5 | 140 | 165 | 215 | 135 | 160 | 210 |
| | Low-alloyed steel | | annealed | 180 | 6 | 185 | 215 | 280 | 175 | 205 | 270 |
| | | | tempered | 275 | 7 | 155 | 175 | 230 | 145 | 170 | 225 |
| | | | tempered | 300 | 8 | 140 | 165 | 215 | 135 | 160 | 210 |
| | | | tempered | 350 | 9 | 120 | 140 | 185 | 115 | 135 | 180 |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 110 | 125 | 165 | 105 | 120 | 160 |
| | | | hardened and tempered | 325 | 11 | 80 | 90 | 120 | 75 | 85 | 115 |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | 110 | 125 | 165 | 105 | 120 | 160 |
| | | martensitic | tempered | 240 | 13 | 95 | 105 | 140 | 90 | 105 | 135 |
| | | austenitic | quench hardened | 180 | 14 | 115 | 135 | 175 | 110 | 130 | 170 |
| | | austenitic-ferritic | | 230 | 15 | 95 | 105 | 140 | 90 | 105 | 135 |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | 240 | 280 | 365 | 230 | 265 | 345 |
| | | perlitic (martensitic) | | 260 | 17 | 140 | 165 | 215 | 135 | 160 | 210 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | 165 | 190 | 250 | 155 | 180 | 235 |
| | | perlitic | | 250 | 19 | 110 | 125 | 165 | 105 | 120 | 160 |
| | Malleable cast iron | ferritic | | 130 | 20 | 195 | 225 | 295 | 185 | 220 | 290 |
| | | perlitic | | 230 | 21 | 130 | 150 | 195 | 125 | 145 | 190 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | |
| | | | hardened | 280 | 31 | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | |
| | | | hardened | 350 | 33 | | | | | | |
| | | | cast | 320 | 34 | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | |
| | | Graphite | | | 45 | | | | | | |
| | | Wood | | | 46 | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| | Starting values for cutting speed $v_c$ [m/min] | | | |
|---|---|---|---|---|
| | HC (PVD) | | | |
| | YBG302 | | | |
| | $a_e$ / D | | | |
| | 1/1 \| 3/4 | 1/5 | 1/20 | |
| | 200 | 230 | 300 | |
| | 170 | 200 | 260 | |
| | 160 | 185 | 245 | |
| | 140 | 165 | 215 | |
| | 130 | 150 | 195 | |
| | 170 | 200 | 260 | |
| | 140 | 165 | 215 | |
| | 130 | 150 | 195 | |
| | 110 | 130 | 170 | |
| | 100 | 115 | 150 | |
| | 70 | 85 | 115 | |
| | 100 | 115 | 150 | |
| | 85 | 100 | 130 | |
| | 110 | 125 | 160 | |
| | 85 | 100 | 130 | |
| | 220 | 255 | 335 | |
| | 130 | 150 | 195 | |
| | 150 | 175 | 230 | |
| | 100 | 115 | 150 | |
| | 180 | 210 | 275 | |
| | 120 | 140 | 185 | |
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HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 5 (SMP01/03/05)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HC (CVD) | | HC (PVD) | |
| | | | | | | YBC302 | YBM253 | YBG101 | YB9320 |
| | | | | | | $a_e$ / D 1/4 | $a_e$ / D 1/4 | $a_e$ / D 1/4 | $a_e$ / D 1/4 |
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 165 | 180 | 190 | 175 |
| | | approx. 0,45 % C | annealed | 190 | 2 | 145 | 155 | 165 | 150 |
| | | approx. 0,45 % C | tempered | 250 | 3 | 135 | 145 | 155 | 140 |
| | | approx. 0,75 % C | annealed | 270 | 4 | 120 | 130 | 135 | 125 |
| | | approx. 0,75 % C | tempered | 300 | 5 | 110 | 120 | 125 | 115 |
| | Low-alloyed steel | | annealed | 180 | 6 | 145 | 155 | 165 | 150 |
| | | | tempered | 275 | 7 | 120 | 130 | 135 | 125 |
| | | | tempered | 300 | 8 | 110 | 120 | 125 | 115 |
| | | | tempered | 350 | 9 | 95 | 100 | 105 | 100 |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 85 | 90 | 95 | 90 |
| | | | hardened and tempered | 325 | 11 | 60 | 65 | 70 | 65 |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | 90 | 95 | 90 |
| | | martensitic | tempered | 240 | 13 | | 80 | 80 | 75 |
| | | austenitic | quench hardened | 180 | 14 | | 100 | 105 | 95 |
| | | austenitic-ferritic | | 230 | 15 | | 80 | 80 | 75 |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | 215 | 190 |
| | | perlitic (martensitic) | | 260 | 17 | | | 125 | 115 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | 145 | 135 |
| | | perlitic | | 250 | 19 | | | 95 | 90 |
| | Malleable cast iron | ferritic | | 130 | 20 | | | 175 | 160 |
| | | perlitic | | 230 | 21 | | | 115 | 105 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | |
| | | hardenable | hardened | 100 | 23 | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | |
| | | | hardened | 280 | 31 | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | |
| | | | hardened | 350 | 33 | | | | |
| | | | cast | 320 | 34 | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | |
| | | Thermosetting plastics | | | 42 | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | |
| | | Graphite | | | 45 | | | | |
| | | Wood | | | 46 | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| | Starting values for cutting speed $v_c$ [m/min] | | |
|---|---|---|---|
| | HC (PVD) | | |
| | YBG205 | YBG302 | |
| | $a_e$ / D | $a_e$ / D | |
| | 1/4 | 1/4 | |
| | 170 | 160 | |
| | 145 | 140 | |
| | 140 | 130 | |
| | 120 | 115 | |
| | 115 | 105 | |
| | 145 | 140 | |
| | 120 | 115 | |
| | 115 | 105 | |
| | 95 | 90 | |
| | 85 | 80 | |
| | 60 | 60 | |
| | 85 | 80 | |
| | 75 | 70 | |
| | 95 | 85 | |
| | 75 | 70 | |
| | 185 | 175 | |
| | 115 | 105 | |
| | 130 | 120 | |
| | 85 | 80 | |
| | 155 | 145 | |
| | 105 | 100 | |
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HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 6 (FMD03, FME04, FMP03, HMP01)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HC (CVD) | | | | | | | |
| | | | | | | YBC302 | | YBC401 | | YBD152 | | YBD252 | |
| | | | | | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | |
| | | | | | | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 |
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 200 | 230 | 170 | 200 | | | | |
| | | approx. 0,45 % C | annealed | 190 | 2 | 170 | 200 | 145 | 170 | | | | |
| | | approx. 0,45 % C | tempered | 250 | 3 | 160 | 185 | 140 | 160 | | | | |
| | | approx. 0,75 % C | annealed | 270 | 4 | 140 | 165 | 120 | 140 | | | | |
| | | approx. 0,75 % C | tempered | 300 | 5 | 130 | 150 | 115 | 130 | | | | |
| | Low-alloyed steel | | annealed | 180 | 6 | 170 | 200 | 145 | 170 | | | | |
| | | | tempered | 275 | 7 | 140 | 165 | 120 | 140 | | | | |
| | | | tempered | 300 | 8 | 130 | 150 | 115 | 130 | | | | |
| | | | tempered | 350 | 9 | 110 | 130 | 95 | 110 | | | | |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 100 | 115 | 85 | 100 | | | | |
| | | | hardened and tempered | 325 | 11 | 70 | 85 | 60 | 70 | | | | |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | | | | | |
| | | martensitic | tempered | 240 | 13 | | | | | | | | |
| | | austenitic | quench hardened | 180 | 14 | | | | | | | | |
| | | austenitic-ferritic | | 230 | 15 | | | | | | | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | | 255 | 295 | 220 | 255 |
| | | perlitic (martensitic) | | 260 | 17 | | | | | 150 | 175 | 130 | 150 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | | 175 | 205 | 150 | 175 |
| | | perlitic | | 250 | 19 | | | | | 115 | 135 | 100 | 115 |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | | 210 | 245 | 180 | 210 |
| | | perlitic | | 230 | 21 | | | | | 140 | 165 | 120 | 140 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | | | |
| | | | hardened | 280 | 31 | | | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | | | |
| | | | hardened | 350 | 33 | | | | | | | | |
| | | | cast | 320 | 34 | | | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | | | |
| | | Graphite | | | 45 | | | | | | | | |
| | | Wood | | | 46 | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| | Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC (CVD) | | HC (PVD) | | | | | | | | | | | | | |
| | YBM253 | | YBG102 | | YBG152 | | YB9320 | | YBG205 | | YBG212 | | YBG252 | | YBG302 | |
| | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | |
| | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 |
| | 200 | 230 | 205 | 240 | 195 | 225 | 190 | 220 | 185 | 215 | 185 | 215 | 180 | 210 | 175 | 205 |
| | 170 | 200 | 175 | 205 | 170 | 195 | 165 | 190 | 160 | 185 | 160 | 185 | 155 | 180 | 150 | 175 |
| | 160 | 185 | 165 | 195 | 160 | 180 | 155 | 180 | 150 | 175 | 150 | 175 | 145 | 170 | 140 | 165 |
| | 140 | 165 | 145 | 170 | 140 | 160 | 135 | 155 | 130 | 155 | 130 | 155 | 130 | 150 | 125 | 145 |
| | 130 | 150 | 135 | 160 | 130 | 150 | 125 | 145 | 125 | 140 | 125 | 140 | 120 | 140 | 115 | 135 |
| | 170 | 200 | 175 | 205 | 170 | 195 | 165 | 190 | 160 | 185 | 160 | 185 | 155 | 180 | 150 | 175 |
| | 140 | 165 | 145 | 170 | 140 | 160 | 135 | 155 | 130 | 155 | 130 | 155 | 130 | 150 | 125 | 145 |
| | 130 | 150 | 135 | 160 | 130 | 150 | 125 | 145 | 125 | 140 | 125 | 140 | 120 | 140 | 115 | 135 |
| | 110 | 130 | 115 | 135 | 110 | 125 | 105 | 125 | 105 | 120 | 105 | 120 | 100 | 120 | 100 | 115 |
| | 100 | 115 | 105 | 120 | 100 | 115 | 95 | 110 | 95 | 110 | 95 | 110 | 90 | 105 | 90 | 105 |
| | 70 | 85 | 75 | 85 | 70 | 80 | 70 | 80 | 65 | 80 | 65 | 80 | 65 | 75 | 65 | 75 |
| | 100 | 115 | 105 | 120 | 100 | 115 | 95 | 110 | 95 | 110 | 95 | 110 | 90 | 105 | 90 | 105 |
| | 85 | 100 | 90 | 105 | 85 | 95 | 80 | 95 | 80 | 95 | 80 | 95 | 80 | 90 | 75 | 90 |
| | 110 | 125 | 110 | 130 | 105 | 120 | 105 | 120 | 100 | 115 | 100 | 115 | 100 | 115 | 95 | 110 |
| | 85 | 100 | 90 | 105 | 85 | 95 | 80 | 95 | 80 | 95 | 80 | 95 | 80 | 90 | 75 | 90 |
| | | | 230 | 265 | 215 | 250 | 210 | 245 | 205 | 240 | 205 | 240 | 200 | 230 | 195 | 225 |
| | | | 135 | 160 | 130 | 150 | 125 | 145 | 125 | 140 | 125 | 140 | 120 | 140 | 115 | 135 |
| | | | 155 | 180 | 150 | 170 | 145 | 165 | 140 | 165 | 140 | 165 | 135 | 160 | 135 | 155 |
| | | | 105 | 120 | 100 | 115 | 95 | 110 | 95 | 110 | 95 | 110 | 90 | 105 | 90 | 105 |
| | | | 185 | 220 | 180 | 205 | 175 | 200 | 170 | 195 | 170 | 195 | 165 | 190 | 160 | 185 |
| | | | 125 | 145 | 120 | 135 | 115 | 135 | 115 | 130 | 115 | 130 | 110 | 130 | 105 | 125 |
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HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 7 (XMR01, XMP01)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] HC (CVD) YBC302 $a_e$ / D 1/1 \| 3/4 | YBC302 $a_e$ / D 1/5 | YBC302 $a_e$ / D 1/20 | YBD152 $a_e$ / D 1/1 \| 3/4 | YBD152 $a_e$ / D 1/5 | YBD152 $a_e$ / D 1/20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 260 | 300 | 390 | | | |
| | | approx. 0,45 % C | annealed | 190 | 2 | 225 | 255 | 335 | | | |
| | | approx. 0,45 % C | tempered | 250 | 3 | 210 | 240 | 315 | | | |
| | | approx. 0,75 % C | annealed | 270 | 4 | 185 | 210 | 275 | | | |
| | | approx. 0,75 % C | tempered | 300 | 5 | 170 | 195 | 255 | | | |
| | Low-alloyed steel | | annealed | 180 | 6 | 225 | 255 | 335 | | | |
| | | | tempered | 275 | 7 | 185 | 210 | 275 | | | |
| | | | tempered | 300 | 8 | 170 | 195 | 255 | | | |
| | | | tempered | 350 | 9 | 145 | 165 | 215 | | | |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 130 | 150 | 195 | | | |
| | | | hardened and tempered | 325 | 11 | 95 | 105 | 140 | | | |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | | | | | | |
| | | martensitic | tempered | 240 | 13 | | | | | | |
| | | austenitic | quench hardened | 180 | 14 | | | | | | |
| | | austenitic-ferritic | | 230 | 15 | | | | | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | | 335 | 390 | 510 |
| | | perlitic (martensitic) | | 260 | 17 | | | | 200 | 230 | 300 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | | 225 | 260 | 340 |
| | | perlitic | | 250 | 19 | | | | 150 | 175 | 230 |
| | Malleable cast iron | ferritic | | 130 | 20 | | | | 275 | 320 | 420 |
| | | perlitic | | 230 | 21 | | | | 185 | 215 | 280 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | |
| | | | hardened | 280 | 31 | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | |
| | | | hardened | 350 | 33 | | | | | | |
| | | | cast | 320 | 34 | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | |
| | | Graphite | | | 45 | | | | | | |
| | | Wood | | | 46 | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

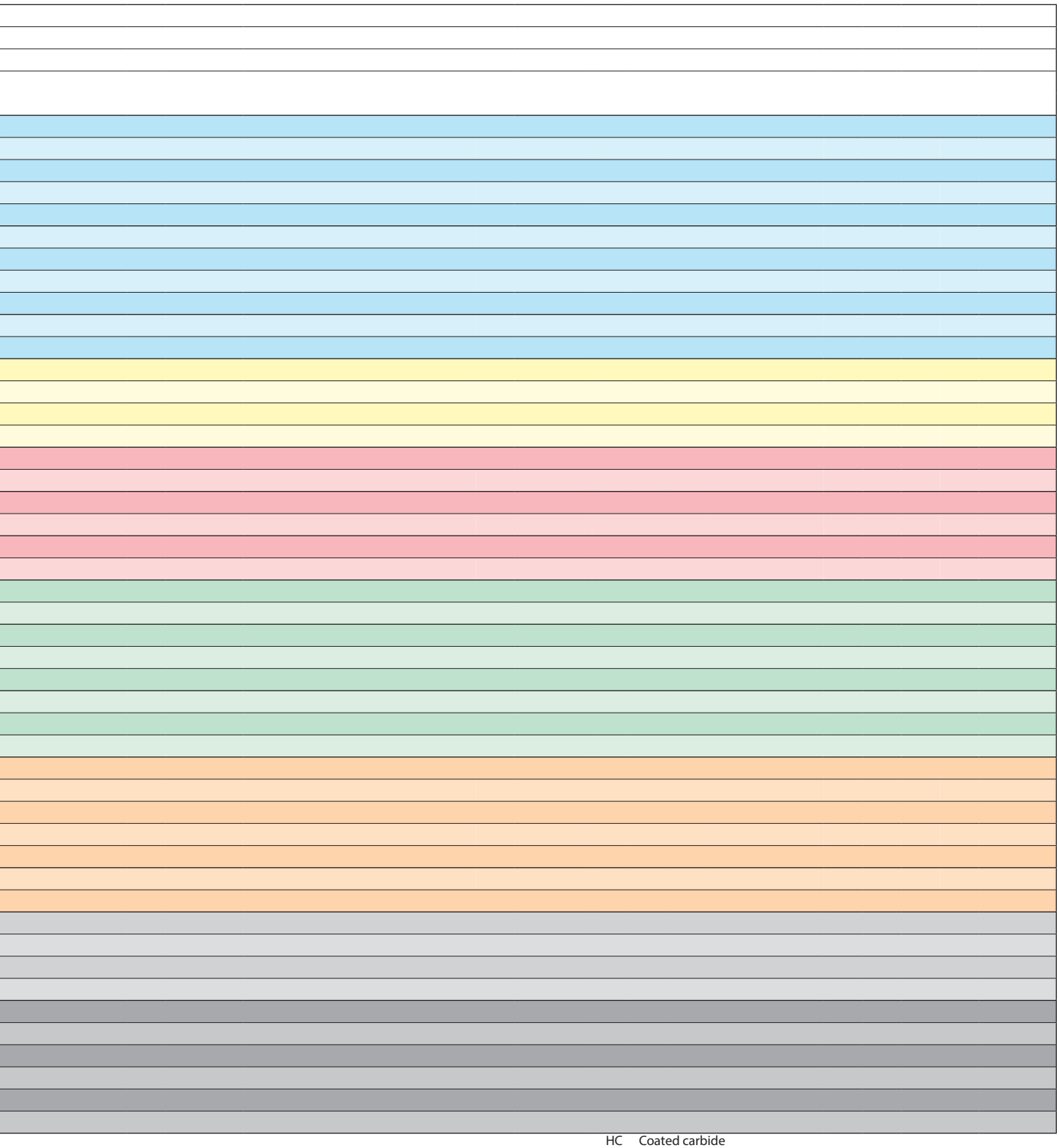
| | Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC (CVD) | | | | | | HC (PVD) | | | | | | | | | | | | | | |
| | YBD252 | | | YBM253 | | | YBG102 | | | YBG152 | | | YB9320 | | | YBG205 | | | YBG212 | | |
| | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | | $a_e$ / D | | |
| | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 | 1/1 \| 3/4 | 1/5 | 1/20 |
| | | | | 260 | 300 | 390 | 270 | 315 | 410 | 255 | 295 | 385 | 245 | 285 | 375 | 235 | 275 | 360 | 240 | 280 | 365 |
| | | | | 225 | 255 | 335 | 230 | 270 | 355 | 220 | 255 | 335 | 210 | 245 | 320 | 200 | 235 | 310 | 205 | 240 | 315 |
| | | | | 210 | 240 | 315 | 220 | 255 | 335 | 205 | 240 | 315 | 200 | 230 | 300 | 190 | 220 | 290 | 195 | 225 | 295 |
| | | | | 185 | 210 | 275 | 190 | 225 | 295 | 180 | 210 | 275 | 175 | 200 | 260 | 165 | 195 | 255 | 170 | 200 | 260 |
| | | | | 170 | 195 | 255 | 180 | 205 | 270 | 170 | 195 | 255 | 160 | 190 | 250 | 155 | 180 | 235 | 160 | 185 | 245 |
| | | | | 225 | 255 | 335 | 230 | 270 | 355 | 220 | 255 | 335 | 210 | 245 | 320 | 200 | 235 | 310 | 205 | 240 | 315 |
| | | | | 185 | 210 | 275 | 190 | 225 | 295 | 180 | 210 | 275 | 175 | 200 | 260 | 165 | 195 | 255 | 170 | 200 | 260 |
| | | | | 170 | 195 | 255 | 180 | 205 | 270 | 170 | 195 | 255 | 160 | 190 | 250 | 155 | 180 | 235 | 160 | 185 | 245 |
| | | | | 145 | 165 | 215 | 150 | 175 | 230 | 145 | 165 | 215 | 135 | 160 | 210 | 130 | 155 | 205 | 135 | 155 | 205 |
| | | | | 130 | 150 | 195 | 135 | 160 | 210 | 130 | 150 | 195 | 125 | 145 | 190 | 120 | 140 | 185 | 120 | 140 | 185 |
| | | | | 95 | 105 | 140 | 95 | 115 | 150 | 90 | 105 | 140 | 90 | 100 | 130 | 85 | 100 | 130 | 85 | 100 | 130 |
| | | | | 130 | 150 | 195 | 135 | 160 | 205 | 130 | 150 | 195 | 125 | 145 | 190 | 120 | 140 | 180 | 120 | 140 | 185 |
| | | | | 110 | 130 | 165 | 115 | 135 | 175 | 110 | 125 | 165 | 105 | 120 | 160 | 100 | 120 | 155 | 105 | 120 | 155 |
| | | | | 140 | 160 | 210 | 145 | 170 | 220 | 140 | 160 | 205 | 130 | 155 | 200 | 125 | 150 | 195 | 130 | 150 | 195 |
| | | | | 110 | 130 | 165 | 115 | 135 | 175 | 110 | 125 | 165 | 105 | 120 | 160 | 100 | 120 | 155 | 105 | 120 | 155 |
| | 290 | 335 | 440 | | | | 300 | 345 | 450 | 285 | 330 | 430 | 270 | 315 | 410 | 260 | 300 | 390 | 265 | 305 | 400 |
| | 170 | 195 | 255 | | | | 180 | 205 | 270 | 170 | 195 | 255 | 160 | 190 | 250 | 155 | 180 | 235 | 160 | 185 | 245 |
| | 195 | 225 | 295 | | | | 205 | 240 | 315 | 195 | 225 | 295 | 185 | 215 | 280 | 180 | 210 | 275 | 180 | 210 | 275 |
| | 130 | 150 | 195 | | | | 135 | 160 | 210 | 130 | 150 | 195 | 125 | 145 | 190 | 120 | 140 | 185 | 120 | 140 | 185 |
| | 235 | 270 | 355 | | | | 245 | 285 | 375 | 230 | 270 | 355 | 225 | 260 | 340 | 215 | 250 | 325 | 220 | 255 | 335 |
| | 160 | 180 | 235 | | | | 165 | 190 | 250 | 155 | 180 | 235 | 150 | 175 | 230 | 145 | 165 | 215 | 145 | 170 | 225 |

HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 7 (XMR01, XMP01)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] HC (PVD) YBG252 $a_e$ / D 1/1 \| 3/4 | YBG252 $a_e$ / D 1/5 | YBG252 $a_e$ / D 1/20 | YBG302 $a_e$ / D 1/1 \| 3/4 | YBG302 $a_e$ / D 1/5 | YBG302 $a_e$ / D 1/20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 230 | 265 | 345 | 225 | 260 | 340 |
| | | approx. 0,45 % C | annealed | 190 | 2 | 200 | 230 | 300 | 195 | 225 | 295 |
| | | approx. 0,45 % C | tempered | 250 | 3 | 185 | 215 | 280 | 180 | 210 | 275 |
| | | approx. 0,75 % C | annealed | 270 | 4 | 165 | 190 | 250 | 160 | 185 | 245 |
| | | approx. 0,75 % C | tempered | 300 | 5 | 150 | 175 | 230 | 150 | 170 | 225 |
| | Low-alloyed steel | | annealed | 180 | 6 | 200 | 230 | 300 | 195 | 225 | 295 |
| | | | tempered | 275 | 7 | 165 | 190 | 250 | 160 | 185 | 245 |
| | | | tempered | 300 | 8 | 150 | 175 | 230 | 150 | 170 | 225 |
| | | | tempered | 350 | 9 | 130 | 150 | 195 | 125 | 145 | 190 |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 115 | 135 | 180 | 115 | 130 | 170 |
| | | | hardened and tempered | 325 | 11 | 85 | 95 | 125 | 80 | 95 | 125 |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | 115 | 135 | 175 | 115 | 130 | 170 |
| | | martensitic | tempered | 240 | 13 | 100 | 115 | 145 | 95 | 110 | 145 |
| | | austenitic | quench hardened | 180 | 14 | 125 | 145 | 185 | 120 | 140 | 185 |
| | | austenitic-ferritic | | 230 | 15 | 100 | 115 | 145 | 95 | 110 | 145 |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | 255 | 295 | 385 | 250 | 290 | 380 |
| | | perlitic (martensitic) | | 260 | 17 | 150 | 175 | 230 | 150 | 170 | 225 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | 175 | 200 | 260 | 170 | 195 | 255 |
| | | perlitic | | 250 | 19 | 115 | 135 | 180 | 115 | 130 | 170 |
| | Malleable cast iron | ferritic | | 130 | 20 | 210 | 240 | 315 | 205 | 235 | 310 |
| | | perlitic | | 230 | 21 | 140 | 160 | 210 | 135 | 160 | 210 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | |
| | | | hardened | 280 | 31 | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | |
| | | | hardened | 350 | 33 | | | | | | |
| | | | cast | 320 | 34 | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | |
| | | Graphite | | | 45 | | | | | | |
| | | Wood | | | 46 | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.



HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Indexable milling – group 8 (FMP06, FMR06)

| Material group | | Composition / structure / heat treatment | | Brinell hardness HB | Machining group | Starting values for cutting speed $v_c$ [m/min] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HC (CVD) | | | | HC (PVD) | | BH | |
| | | | | | | YBM253 | | YBD252 | | YB9320 | | YZB223 | |
| | | | | | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | |
| | | | | | | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 |
| P | Unalloyed steel | approx. 0,15 % C | annealed | 125 | 1 | 260 | 300 | 280 | 360 | 245 | 285 | | |
| | | approx. 0,45 % C | annealed | 190 | 2 | 225 | 255 | 280 | 320 | 210 | 245 | | |
| | | approx. 0,45 % C | tempered | 250 | 3 | 210 | 240 | 260 | 300 | 200 | 230 | | |
| | | approx. 0,75 % C | annealed | 270 | 4 | 185 | 210 | 220 | 280 | 175 | 200 | | |
| | | approx. 0,75 % C | tempered | 300 | 5 | 170 | 195 | 220 | 280 | 160 | 190 | | |
| | Low-alloyed steel | | annealed | 180 | 6 | 225 | 255 | 280 | 320 | 210 | 245 | | |
| | | | tempered | 275 | 7 | 185 | 210 | 240 | 280 | 175 | 200 | | |
| | | | tempered | 300 | 8 | 170 | 195 | 240 | 280 | 160 | 190 | | |
| | | | tempered | 350 | 9 | 145 | 165 | 220 | 240 | 135 | 160 | | |
| | High-alloyed steel and high-alloyed tool steel | | annealed | 200 | 10 | 130 | 150 | 200 | 260 | 125 | 145 | | |
| | | | hardened and tempered | 325 | 11 | 95 | 105 | 200 | 220 | 90 | 100 | | |
| M | Stainless steel | ferritic/martensitic | annealed | 200 | 12 | 130 | 150 | | | 125 | 145 | | |
| | | martensitic | tempered | 240 | 13 | 11 | 130 | | | 105 | 120 | | |
| | | austenitic | quench hardened | 180 | 14 | 140 | 160 | | | 130 | 155 | | |
| | | austenitic-ferritic | | 230 | 15 | 110 | 130 | | | 105 | 120 | | |
| K | Grey cast iron | perlitic/ferritic | | 180 | 16 | | | 320 | 370 | 270 | 315 | 1000 | 1200 |
| | | perlitic (martensitic) | | 260 | 17 | | | 220 | 260 | 160 | 190 | 700 | 900 |
| | Cast iron with spheroidal graphite | ferritic | | 160 | 18 | | | 240 | 280 | 185 | 215 | – | – |
| | | perlitic | | 250 | 19 | | | 220 | 260 | 125 | 145 | 300 | 400 |
| | Malleable cast iron | ferritic | | 130 | 20 | | | 280 | 305 | 225 | 260 | – | – |
| | | perlitic | | 230 | 21 | | | 180 | 220 | 150 | 175 | 300 | 400 |
| N | Aluminium wrought alloys | cannot be hardened | | 60 | 22 | | | | | | | | |
| | | hardenable | hardened | 100 | 23 | | | | | | | | |
| | Cast aluminium alloys | ≤ 12 % Si, cannot be hardened | | 75 | 24 | | | | | | | | |
| | | ≤ 12 % Si, hardenable | hardened | 90 | 25 | | | | | | | | |
| | | > 12 % Si, cannot be hardened | | 130 | 26 | | | | | | | | |
| | Copper and copper alloys (bronze/brass) | machining steel, PB> 1% | | 110 | 27 | | | | | | | | |
| | | CuZn, CuSnZn | | 90 | 28 | | | | | | | | |
| | | CuSn, Pb-free copper, electrolytic copper | | 100 | 29 | | | | | | | | |
| S | Heat-resistant alloys | Fe-based alloys | annealed | 200 | 30 | | | | | | | | |
| | | | hardened | 280 | 31 | | | | | | | | |
| | | Ni or Co bass | annealed | 250 | 32 | | | | | | | | |
| | | | hardened | 350 | 33 | | | | | | | | |
| | | | cast | 320 | 34 | | | | | | | | |
| | Titanium alloys | pure titanium | | $R_m$ 400 | 35 | | | | | | | | |
| | | α and β alloys | hardened | $R_m$ 1050 | 36 | | | | | | | | |
| H | Hardened steel | | hardened and tempered | 55 HRC | 37 | | | | | | | | |
| | | | hardened and tempered | 60 HRC | 38 | | | | | | | | |
| | Hard cast iron | | cast | 400 | 39 | | | | | | | | |
| | Hardened cast iron | | hardened and tempered | 55 HRC | 40 | | | | | | | | |
| X | Non-metallic materials | Thermoplasts | | | 41 | | | | | | | | |
| | | Thermosetting plastics | | | 42 | | | | | | | | |
| | | Plastic, glass-fibre reinforced GFRP | | | 43 | | | | | | | | |
| | | Plastic, carbon fibre reinforced CFRP | | | 44 | | | | | | | | |
| | | Graphite | | | 45 | | | | | | | | |
| | | Wood | | | 46 | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B338.
For examples of material for cutting tool groups view page D11.

| Starting values for cutting speed $v_c$ [m/min] | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CM | | | | | CR | | | | CN | | | | | | | | | | | | | | | |
| CA1000 | | CM1000 | | | CW1400 | | CW1800 | | CN1000 | | CS1000 | | CSX1000 | | | | | | | | | | | |
| $a_e$ / D | | $a_e$ / D | | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | $a_e$ / D | | | | | | | | | | | |
| 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | 1/1 \| 3/4 | 1/5 | | | | | | | | | |
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| | | | | | | | | | 600 | 800 | | | | | | | | | | | | | | |
| | | | | | | | | | 450 | 600 | | | | | | | | | | | | | | |
| | | | | | | | | | 600 | 800 | | | | | | | | | | | | | | |
| | | | | | | | | | 450 | 600 | | | | | | | | | | | | | | |
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| | | | | | 150 | 360 | – | – | | | – | – | – | – | | | | | | | | | | |
| | | | | | 150 | 360 | – | – | | | – | – | – | – | | | | | | | | | | |
| | | | | | – | – | 150 | 400 | | | 700 | 900 | 700 | 900 | | | | | | | | | | |
| | | | | | – | – | 150 | 400 | | | 600 | 800 | 600 | 800 | | | | | | | | | | |
| | | | | | – | – | 150 | 400 | | | 600 | 800 | 600 | 800 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 140 | 200 | 140 | 200 | | | | | | | | | | | | | | | | | | | | | |
| 120 | 180 | 120 | 180 | | | | | | | | | | | | | | | | | | | | | |
| – | – | – | – | | | | | | | | | | | | | | | | | | | | | |
| 120 | 180 | 120 | 180 | | | | | | | | | | | | | | | | | | | | | |
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HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
$HC_1$ Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide ($Al_2O_3$), reinforced
DP Polycrystalline diamond

## Recommended feed rate

### Indexable milling – group1 (FMA07/11/12, FMD02, EMP09/13)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EMP09 | | | EMP09 | | | EMP13 | | | EMP13 | | | FMA11 | | | FMA11 | | |
| | | LNKT08/12 | | | LNKT16 | | | ANGX11 | | | ANGX15 | | | SNEG12 | | | SNEG15 | | |
| | | Application | | | | | | | | | | | | | | | | | |
| | | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R |
| P | Unalloyed steel | | 0,25 | 0,50 | | 0,28 | 0,55 | | 0,23 | | | 0,25 | | | 0,20 | 0,23 | | 0,22 | 0,25 |
| | Low-alloyed steel | | 0,23 | 0,47 | | 0,26 | 0,51 | | 0,22 | | | 0,23 | | | 0,19 | 0,21 | | 0,20 | 0,24 |
| | High-alloyed steel and high-alloyed tool steel | | 0,22 | 0,44 | | 0,24 | 0,48 | | 0,20 | | | 0,22 | | | 0,18 | 0,20 | | 0,19 | 0,22 |
| M | Stainless steel | | 0,18 | 0,35 | | 0,19 | 0,39 | | 0,16 | | | 0,18 | | | 0,14 | 0,16 | | 0,15 | 0,18 |
| K | Grey cast iron | | 0,28 | 0,55 | | 0,30 | 0,61 | | 0,26 | | | 0,28 | | | 0,22 | 0,25 | | 0,24 | 0,28 |
| | Cast iron with spheroidal graphite | | 0,25 | 0,50 | | 0,28 | 0,55 | | 0,23 | | | 0,25 | | | 0,20 | 0,23 | | 0,22 | 0,25 |
| | Malleable cast iron | | 0,25 | 0,50 | | 0,28 | 0,55 | | 0,23 | | | 0,25 | | | 0,20 | 0,23 | | 0,22 | 0,25 |
| N | Aluminum wrought alloys | | | | | | | | 0,20 | | | 0,21 | | | | | | | |
| | Aluminum cast alloys | | | | | | | | 0,20 | | | 0,21 | | | | | | | |
| | Copper and copper alloys (bronze/brass) | | | | | | | | 0,18 | | | 0,19 | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | | | | | | | | | | |
| | Titanium alloys | | | | | | | | | | | | | | | | | | |
| H | Hardened steel | | | | | | | | | | | | | | | | | | |
| | Hard cast iron | | | | | | | | | | | | | | | | | | |
| | Hardened cast iron | | | | | | | | | | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

### Indexable milling – group 2 (FMA01/02/03/04, FME01/02, FMP01/02, EMP01/02/03/04)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FMA01 \| FMA02 | | | FMA03 | | | FMA03 | | | FMA04 | | | FMA04 | | | FMA04 | | |
| | | SEET12 | | | SEKN12 | | | SEKN15 | | | OFKT05 | | | OFKR07 | | | ODHT06 | | |
| | | Application | | | | | | | | | | | | | | | | | |
| | | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R |
| P | Unalloyed steel | 0,15 | 0,20 | 0,25 | | 0,18 | | | 0,20 | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,20 | 0,25 | |
| | Low-alloyed steel | 0,14 | 0,19 | 0,23 | | 0,17 | | | 0,19 | | 0,19 | 0,23 | | 0,19 | 0,23 | | 0,19 | 0,23 | |
| | High-alloyed steel and high-alloyed tool steel | 0,13 | 0,18 | 0,22 | | 0,16 | | | 0,18 | | 0,18 | 0,22 | | 0,18 | 0,22 | | 0,18 | 0,22 | |
| M | Stainless steel | 0,11 | 0,14 | 0,18 | | 0,13 | | | 0,14 | | 0,14 | 0,18 | | 0,14 | 0,18 | | 0,14 | 0,18 | |
| K | Grey cast iron | 0,17 | 0,22 | 0,28 | | 0,20 | | | 0,22 | | 0,22 | 0,28 | | 0,22 | 0,28 | | 0,22 | 0,28 | |
| | Cast iron with spheroidal graphite | 0,15 | 0,20 | 0,25 | | 0,18 | | | 0,20 | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,20 | 0,25 | |
| | Malleable cast iron | 0,15 | 0,20 | 0,25 | | 0,18 | | | 0,20 | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,20 | 0,25 | |
| N | Aluminium wrought alloys | 0,13 | 0,17 | 0,21 | | | | | | | 0,17 | 0,21 | | 0,17 | 0,21 | | 0,17 | 0,21 | |
| | Aluminum cast alloys | 0,13 | 0,17 | 0,21 | | | | | | | 0,17 | 0,21 | | 0,17 | 0,21 | | 0,17 | 0,21 | |
| | Copper and copper alloys (bronze/brass) | 0,11 | 0,15 | 0,19 | | | | | | | 0,15 | 0,19 | | 0,15 | 0,19 | | 0,15 | 0,19 | |
| S | Heat-resistant alloys | 0,11 | 0,14 | 0,18 | | | | | | | 0,14 | 0,18 | | 0,14 | 0,18 | | 0,14 | 0,18 | |
| | Titanium alloys | 0,11 | 0,14 | 0,18 | | | | | | | 0,14 | 0,18 | | 0,14 | 0,18 | | 0,14 | 0,18 | |
| H | Hardened steel | | | | | | | | | | | | | | | | | | |
| | Hard cast iron | | | | | | | | | | | | | | | | | | |
| | Hardened cast iron | | | | | | | | | | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

| | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FMA11 | | | FMA12 | | | FMA12 | | | FMD02 | | | FMD02 | | | FMP12 | | | FMP12 | | | FMA17 \| FMP17 | | |
| | SNEG19 | | | ONHU06 | | | ONHU09 | | | PNEG11 | | | HNEX09 | | | WNHU06 | | | WNHU08 | | | SNGX12 | | |
| | Application | | | | | | | | | | | | | | | | | | | | | | | |
| | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R |
| | | | 0,29 | 0,19 | 0,23 | | | 0,23 | | 0,15 | 0,20 | 0,30 | | | | | 0,23 | | | 0,25 | | | 0,23 | |
| | | | 0,27 | 0,17 | 0,22 | | | 0,22 | | 0,14 | 0,19 | 0,28 | | | | | 0,22 | | | 0,23 | | | 0,22 | |
| | | | 0,26 | 0,16 | 0,20 | | | 0,20 | | 0,13 | 0,18 | 0,26 | | | | | 0,20 | | | 0,22 | | | 0,20 | |
| | | | 0,20 | | | | | 0,16 | | | | | | | | | 0,16 | | | 0,18 | | | 0,16 | |
| | | | 0,32 | 0,20 | 0,26 | | | 0,26 | | 0,17 | 0,22 | 0,33 | 0,17 | 0,22 | 0,33 | | 0,26 | | | 0,28 | | | 0,26 | |
| | | | 0,29 | 0,19 | 0,23 | | | 0,23 | | 0,15 | 0,20 | 0,30 | 0,15 | 0,20 | 0,30 | | 0,23 | | | 0,25 | | | 0,23 | |
| | | | 0,29 | 0,19 | 0,23 | | | 0,23 | | 0,15 | 0,20 | 0,30 | 0,15 | 0,20 | 0,30 | | 0,23 | | | 0,25 | | | 0,23 | |
| | | | | | | | | | | | | | | | | | | | | | | | 0,20 | |
| | | | | | | | | | | | | | | | | | | | | | | | 0,20 | |
| | | | | | | | | | | | | | | | | | | | | | | | 0,18 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
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F Finishing
M Medium machining
R Roughing

| | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FME02 | | | FME03 | | | FME03 | | | FME17 | | | FMP01 | | | FMP02 | | | EMP01 \| EMP02 | | | EMP01 \| EMP02 | | |
| | SPK*12 | | | SPK*12 | | | SPK*15 | | | SNGX1205ENN** | | | TPKN22 | | | SEET12 | | | APKT11 | | | APKT16 | | |
| | Application | | | | | | | | | | | | | | | | | | | | | | | |
| | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R |
| | | 0,20 | | | 0,19 | | | 0,20 | | 0,20 | 0,25 | | | 0,20 | | 0,15 | 0,20 | 0,25 | 0,10 | 0,15 | 0,20 | 0,12 | 0,17 | 0,23 |
| | | 0,19 | | | 0,17 | | | 0,19 | | 0,19 | 0,23 | | | 0,19 | | 0,14 | 0,19 | 0,23 | 0,09 | 0,14 | 0,19 | 0,11 | 0,16 | 0,21 |
| | | 0,18 | | | 0,16 | | | 0,18 | | 0,18 | 0,22 | | | 0,18 | | 0,13 | 0,18 | 0,22 | 0,09 | 0,13 | 0,18 | 0,10 | 0,15 | 0,20 |
| | | 0,14 | | | 0,13 | | | 0,14 | | 0,14 | 0,18 | | | 0,14 | | 0,11 | 0,14 | 0,18 | 0,07 | 0,11 | 0,14 | 0,08 | 0,12 | 0,16 |
| | | 0,22 | | | 0,20 | | | 0,22 | | 0,22 | 0,28 | | | 0,22 | | 0,17 | 0,22 | 0,28 | 0,11 | 0,17 | 0,22 | 0,13 | 0,19 | 0,25 |
| | | 0,20 | | | 0,19 | | | 0,20 | | 0,20 | 0,25 | | | 0,20 | | 0,15 | 0,20 | 0,25 | 0,10 | 0,15 | 0,20 | 0,12 | 0,17 | 0,23 |
| | | 0,20 | | | 0,19 | | | 0,20 | | 0,20 | 0,25 | | | 0,20 | | 0,15 | 0,20 | 0,25 | 0,10 | 0,15 | 0,20 | 0,12 | 0,17 | 0,23 |
| | | | | | | | | | | 0,17 | 0,21 | | | | | 0,13 | 0,17 | 0,21 | 0,09 | 0,13 | 0,17 | 0,10 | 0,15 | 0,20 |
| | | | | | | | | | | 0,17 | 0,21 | | | | | 0,13 | 0,17 | 0,21 | 0,09 | 0,13 | 0,17 | 0,10 | 0,15 | 0,20 |
| | | | | | | | | | | 0,15 | 0,19 | | | | | 0,11 | 0,15 | 0,19 | 0,08 | 0,11 | 0,15 | 0,09 | 0,13 | 0,18 |
| | | | | | | | | | | 0,14 | 0,18 | | | | | | | | | | | | | |
| | | | | | | | | | | 0,14 | 0,18 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
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F Finishing
M Medium machining
R Roughing

## Recommended feed rate

### Indexable milling – group 2 (FMA01/02/03/04, FME01/02, FMP01/02, EMP01/02/03/04)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EMP03 \| EMP04 APKT11 | | | EMP05 ADKT** | | | EMP14 VPGT22 | | | | | | | | | | | | |
| | | Application | | | | | | | | | | | | | | | | | | |
| | | F | M | R | F | M | R | F | M | R | | | | | | | | | | |
| P | Unalloyed steel | 0,12 | 0,17 | 0,23 | 0,10 | 0,15 | 0,20 | | | | | | | | | | | | | |
| P | Low-alloyed steel | 0,11 | 0,16 | 0,21 | 0,09 | 0,14 | 0,19 | | | | | | | | | | | | | |
| P | High-alloyed steel and high-alloyed tool steel | 0,10 | 0,15 | 0,20 | 0,09 | 0,13 | 0,18 | | | | | | | | | | | | | |
| M | Stainless steel | 0,08 | 0,12 | 0,16 | 0,07 | 0,11 | 0,14 | | | | | | | | | | | | | |
| K | Grey cast iron | 0,13 | 0,19 | 0,25 | 0,11 | 0,17 | 0,22 | | | | | | | | | | | | | |
| K | Cast iron with spheroidal graphite | 0,12 | 0,17 | 0,23 | 0,10 | 0,15 | 0,20 | | | | | | | | | | | | | |
| K | Malleable cast iron | 0,12 | 0,17 | 0,23 | 0,10 | 0,15 | 0,20 | | | | | | | | | | | | | |
| N | Aluminium wrought alloys | 0,10 | 0,15 | 0,20 | 0,09 | 0,13 | 0,17 | 0,05 | 0,2 | 0,3 | | | | | | | | | | |
| N | Aluminum cast alloys | 0,10 | 0,15 | 0,20 | 0,09 | 0,13 | 0,17 | 0,05 | 0,2 | 0,3 | | | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | 0,09 | 0,13 | 0,18 | 0,08 | 0,11 | 0,15 | 0,05 | 0,2 | 0,3 | | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | | | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | | | | | | | | | | | |
| H | Hardened steel | | | | | | | | | | | | | | | | | | | |
| H | Hard cast iron | | | | | | | | | | | | | | | | | | | |
| H | Hardened cast iron | | | | | | | | | | | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | | | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

### Indexable milling – group 3 (FMR01/02/03/04) Face milling

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FMR01 RCKT10 | | | FMR01 RC*12 | | | FMR02 RC*12 | | | FMR02 RCKT16 | | | FMR02 RCKT20 | | | FMR03 RDKW07 | | |
| | | Application | | | | | | | | | | | | | | | | | | |
| | | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | |
| P | Unalloyed steel | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,23 | 0,29 | | 0,26 | 0,33 | | 0,17 | | |
| P | Low-alloyed steel | | 0,19 | 0,23 | | 0,19 | 0,23 | | 0,19 | 0,23 | | 0,21 | 0,27 | | 0,25 | 0,31 | | 0,16 | | |
| P | High-alloyed steel and high-alloyed tool steel | | 0,18 | 0,22 | | 0,18 | 0,22 | | 0,18 | 0,22 | | 0,20 | 0,25 | | 0,23 | 0,29 | | 0,15 | | |
| M | Stainless steel | | 0,14 | 0,18 | | 0,14 | 0,18 | | 0,14 | 0,18 | | 0,16 | 0,20 | | 0,19 | 0,23 | | 0,12 | | |
| K | Grey cast iron | | 0,22 | 0,28 | | 0,22 | 0,28 | | 0,22 | 0,28 | | 0,25 | 0,32 | | 0,29 | 0,36 | | 0,19 | | |
| K | Cast iron with spheroidal graphite | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,23 | 0,29 | | 0,26 | 0,33 | | 0,17 | | |
| K | Malleable cast iron | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,20 | 0,25 | | 0,23 | 0,29 | | 0,26 | 0,33 | | 0,17 | | |
| N | Aluminum wrought alloys | | | | | 0,17 | 0,21 | | 0,17 | 0,21 | | | | | | | | | | |
| N | Aluminum cast alloys | | | | | 0,17 | 0,21 | | 0,17 | 0,21 | | | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | | | | | 0,15 | 0,19 | | 0,15 | 0,19 | | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | | | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | | | | | | | | | | | |
| H | Hardened steel | | | | | | | | | | | | | | | | | | | |
| H | Hard cast iron | | | | | | | | | | | | | | | | | | | |
| H | Hardened cast iron | | | | | | | | | | | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | | | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

F Finishing
M Medium machining
R Roughing

| | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FMR03 | | | FMR03 | | | FMR04 | | | FMR04 | | | FMR04 | | | |
| | RDKW08 | | | RD*10 | | | RD*12 | | | RDKW16 | | | RDKW20 | | | |
| | Application | | | | | | | | | | | | | | | |
| | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | |
| | | 0,17 | | | 0,20 | | 0,15 | 0,20 | 0,25 | 0,17 | 0,23 | 0,29 | 0,2 | 0,26 | 0,33 | |
| | | 0,16 | | | 0,19 | | 0,14 | 0,19 | 0,23 | 0,16 | 0,21 | 0,27 | 0,19 | 0,25 | 0,31 | |
| | | 0,15 | | | 0,18 | | 0,13 | 0,18 | 0,22 | 0,15 | 0,20 | 0,25 | 0,18 | 0,23 | 0,29 | |
| | | 0,12 | | | 0,14 | | 0,11 | 0,14 | 0,18 | 0,12 | 0,16 | 0,20 | 0,14 | 0,19 | 0,23 | |
| | | 0,19 | | | 0,22 | | 0,17 | 0,22 | 0,28 | 0,19 | 0,25 | 0,32 | 0,22 | 0,29 | 0,36 | |
| | | 0,17 | | | 0,20 | | 0,15 | 0,20 | 0,25 | 0,17 | 0,23 | 0,29 | 0,20 | 0,26 | 0,33 | |
| | | 0,17 | | | 0,20 | | 0,15 | 0,20 | 0,25 | 0,17 | 0,23 | 0,29 | 0,20 | 0,26 | 0,33 | |
| | | | | | 0,17 | | 0,13 | 0,17 | 0,21 | | | | | | | |
| | | | | | 0,17 | | 0,13 | 0,17 | 0,21 | | | | | | | |
| | | | | | 0,15 | | 0,11 | 0,15 | 0,19 | | | | | | | |
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F Finishing
M Medium machining
R Roughing

## Recommended feed rate

### Indexable milling – group 3 (FMR01/02/03/04) Circular milling

| Material group | | Feed rate per cutting edge [mm] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | FMR01 | FMR01 | FMR02 | FMR02 | | FMR02 | | FMR03 |
| | | RCKT10 | RC*12 | RC*12 | RCKT16 | | RCKT20 | | RDKW07 |
| | | Tool diameter [mm] | | | | | | | |
| | | 25-32 | 40-50 | 50-100 | 63-125 | 160-200 | 80-125 | 160-250 | 15 |
| P | Unalloyed steel | 0,12 | 0,16 | 0,18 | 0,24 | 0,32 | 0,26 | 0,35 | 0,07 |
| P | Low-alloyed steel | 0,11 | 0,14 | 0,16 | 0,21 | 0,28 | 0,23 | 0,31 | 0,06 |
| P | High-alloyed steel and high-alloyed tool steel | 0,10 | 0,13 | 0,14 | 0,19 | 0,26 | 0,21 | 0,28 | 0,06 |
| M | Stainless steel | 0,07 | 0,09 | 0,10 | 0,14 | 0,18 | 0,15 | 0,20 | 0,04 |
| K | Grey cast iron | 0,11 | 0,14 | 0,16 | 0,22 | 0,29 | 0,23 | 0,32 | 0,06 |
| K | Cast iron with spheroidal graphite | 0,10 | 0,13 | 0,14 | 0,19 | 0,26 | 0,21 | 0,28 | 0,06 |
| K | Malleable cast iron | 0,10 | 0,13 | 0,14 | 0,19 | 0,26 | 0,21 | 0,28 | 0,06 |
| N | Aluminium wrought alloys | | | | | | | | |
| N | Aluminum cast alloys | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | |
| S | Titanium alloys | | | | | | | | |
| H | Hardened steel | | | | | | | | |
| H | Hard cast iron | | | | | | | | |
| H | Hardened cast iron | | | | | | | | |
| X | Non-metallic materials | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

### Indexable milling – group 4 (BMR01/02/03/04, TMP01, CMZ01, CMA01, CMD01)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BMR01 | BMR01 | BMR01 | BMR01 | BMR02 | BMR02 | BMR02 | BMR03 | BMR03 |
| | | ZD*08 / SP*06 | ZD*11 / SP*06 | ZD*13 / SP*09 | ZP*22 / SP*12 | ROHX12 | ROHX16 | ROHX20 | – | – |
| | | Tool diameter [mm] | | | | | | | | |
| | | 20 | 25 | 32 | 40–63 | 12 | 16 | 20 | 16 | 20 |
| P | Unalloyed steel | 0,14 | 0,21 | 0,26 | 0,32 | 0,10 | 0,13 | 0,14 | 0,13 | 0,14 |
| P | Low-alloyed steel | 0,10 | 0,15 | 0,18 | 0,22 | 0,07 | 0,09 | 0,10 | 0,09 | 0,10 |
| P | High-alloyed steel and high-alloyed tool steel | 0,09 | 0,14 | 0,17 | 0,21 | 0,07 | 0,08 | 0,09 | 0,08 | 0,09 |
| M | Stainless steel | 0,08 | 0,12 | 0,14 | 0,18 | 0,06 | 0,07 | 0,08 | 0,07 | 0,08 |
| K | Grey cast iron | 0,18 | 0,27 | 0,34 | 0,42 | 0,13 | 0,17 | 0,18 | 0,17 | 0,18 |
| K | Cast iron with spheroidal graphite | 0,13 | 0,20 | 0,25 | 0,30 | 0,10 | 0,12 | 0,13 | 0,12 | 0,13 |
| K | Malleable cast iron | 0,14 | 0,21 | 0,26 | 0,32 | 0,10 | 0,13 | 0,14 | 0,13 | 0,14 |
| N | Aluminum wrought alloys | | | | | | | | | |
| N | Aluminum cast alloys | | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | |
| H | Hardened steel | | | | | | | | | |
| H | Hard cast iron | | | | | | | | | |
| H | Hardened cast iron | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

| | Feed rate per cutting edge [mm] | | | | | |
|---|---|---|---|---|---|---|
| | FMR03 | FMR03 | FMR04 | FMR04 | FMR04 | |
| | RDKW08 | RD*10 | RD*12 | RDKW16 | RDKW20 | |
| | Tool diameter [mm] | | | | | |
| | 16-25 | 32 | 50-63 | 80-100 | 125-160 | |
| | 0,07 | 0,12 | 0,17 | 0,24 | 0,30 | |
| | 0,06 | 0,11 | 0,15 | 0,21 | 0,26 | |
| | 0,06 | 0,10 | 0,14 | 0,19 | 0,24 | |
| | 0,04 | 0,07 | 0,10 | 0,14 | 0,17 | |
| | 0,06 | 0,11 | 0,15 | 0,22 | 0,27 | |
| | 0,06 | 0,10 | 0,14 | 0,19 | 0,24 | |
| | 0,06 | 0,10 | 0,14 | 0,19 | 0,24 | |
| | | 0,10 | 0,11 | | | |
| | | 0,10 | 0,11 | | | |
| | | 0,10 | 0,11 | | | |
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| | Feed rate per cutting edge [mm] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BMR03 | BMR03 | BMR03 | BMR04 | BMR04 | BMR04 | BMR04 | BMR04 | CMZ01 | CMA01 | CMD01 | |
| | – | – | – | ZOHX12 | ZOHX16 | ZOHX20 | ZOHX25 | ZOHX30 | SPMT12 | SPMT12 | SPMT12 | |
| | Tool diameter [mm] | | | | | | | | | | | |
| | 25 | 30–32 | 40–50 | 12 | 16 | 20 | 25 | 30 | 12–32 | 12–32 | 12–36 | |
| | 0,21 | 0,26 | 0,30 | 0,10 | 0,13 | 0,14 | 0,16 | 0,17 | 0,23 | 0,23 | 0,23 | |
| | 0,15 | 0,18 | 0,21 | 0,07 | 0,09 | 0,10 | 0,11 | 0,12 | 0,16 | 0,16 | 0,16 | |
| | 0,14 | 0,17 | 0,20 | 0,07 | 0,08 | 0,09 | 0,10 | 0,11 | 0,15 | 0,15 | 0,15 | |
| | 0,12 | 0,14 | 0,17 | 0,06 | 0,07 | 0,08 | 0,09 | 0,09 | 0,13 | 0,13 | 0,13 | |
| | 0,27 | 0,34 | 0,39 | 0,13 | 0,17 | 0,18 | 0,21 | 0,22 | 0,30 | 0,30 | 0,30 | |
| | 0,20 | 0,25 | 0,29 | 0,10 | 0,12 | 0,13 | 0,15 | 0,16 | 0,22 | 0,22 | 0,22 | |
| | 0,21 | 0,26 | 0,30 | 0,10 | 0,13 | 0,14 | 0,16 | 0,17 | 0,23 | 0,23 | 0,23 | |
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## Recommended feed rate

### Indexable milling – group 5 (SMP01/03/05)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | SMP01 | SMP01 | SMP01 | SMP01 | SMP01 | SMP03 | SMP03 | SMP03 | SMP05 |
| | | XSEQ1202 | XSEQ1203 | XSEQ12T3 | XSEQ1204 | XSEQ12T4 | MPHT06 | MPHT08 | MPHT12 | QC16 |
| | | Tool diameter [mm] | | | | | | | | |
| | | 63–100 | 63–100 | 63–160 | 63–160 | 63–160 | 80–125 | 125–200 | 120–200 | 25–39 |
| P | Unalloyed steel | 0,12 | 0,12 | 0,13 | 0,13 | 0,14 | 0,14 | 0,15 | 0,16 | 0,08 |
| P | Low-alloyed steel | 0,11 | 0,11 | 0,12 | 0,12 | 0,13 | 0,13 | 0,14 | 0,15 | 0,08 |
| P | High-alloyed steel and high-alloyed tool steel | 0,10 | 0,10 | 0,11 | 0,11 | 0,12 | 0,12 | 0,13 | 0,14 | 0,07 |
| M | Stainless steel | 0,10 | 0,10 | 0,11 | 0,11 | 0,12 | 0,12 | 0,13 | 0,14 | 0,07 |
| K | Grey cast iron | 0,11 | 0,11 | 0,12 | 0,12 | 0,13 | 0,13 | 0,14 | 0,15 | 0,08 |
| K | Cast iron with spheroidal graphite | 0,11 | 0,11 | 0,12 | 0,12 | 0,13 | 0,13 | 0,14 | 0,15 | 0,07 |
| K | Malleable cast iron | 0,11 | 0,11 | 0,12 | 0,12 | 0,13 | 0,13 | 0,14 | 0,15 | 0,07 |
| N | Aluminium wrought alloys | | | | | | | | | |
| N | Aluminum cast alloys | | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | |
| H | Hardened steel | | | | | | | | | |
| H | Hard cast iron | | | | | | | | | |
| H | Hardened cast iron | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

### Indexable milling – group 6 (FMD03, FME04, FMP03, HMP01)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FMD03 | | | FMD03 | | | FME04 | | | FMP03 | | | FMP03 | | | FMP03 | | |
| | | LNKT20 | | | LNKT25 | | | LNKT15 | | | LNKT12 | | | LNKT15 | | | LNKT20 | | |
| | | Application | | | | | | | | | | | | | | | | | |
| | | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R |
| P | Unalloyed steel | | | 0,50 | | | 0,50 | | | 0,45 | | | 0,45 | | | 0,45 | | | 0,50 |
| P | Low-alloyed steel | | | 0,47 | | | 0,47 | | | 0,42 | | | 0,42 | | | 0,42 | | | 0,47 |
| P | High-alloyed steel and high-alloyed tool steel | | | 0,44 | | | 0,44 | | | 0,40 | | | 0,40 | | | 0,40 | | | 0,44 |
| M | Stainless steel | | | 0,45 | | | 0,45 | | | 0,40 | | | 0,40 | | | 0,40 | | | 0,45 |
| K | Grey cast iron | | | 0,55 | | | 0,55 | | | 0,50 | | | 0,50 | | | 0,50 | | | 0,55 |
| K | Cast iron with spheroidal graphite | | | 0,50 | | | 0,50 | | | 0,45 | | | 0,45 | | | 0,45 | | | 0,50 |
| K | Malleable cast iron | | | 0,50 | | | 0,50 | | | 0,45 | | | 0,45 | | | 0,45 | | | 0,50 |
| N | Aluminum wrought alloys | | | | | | | | | | | | | | | | | | |
| N | Aluminum cast alloys | | | | | | | | | | | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | | | | | | | | | | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | | | | | | | | | | |
| H | Hardened steel | | | | | | | | | | | | | | | | | | |
| H | Hard cast iron | | | | | | | | | | | | | | | | | | |
| H | Hardened cast iron | | | | | | | | | | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

| | Feed rate per cutting edge [mm] | | | | |
|---|---|---|---|---|---|
| | SMP05 | SMP09 | SMP09 | SMP09 | |
| | QC22 | LNGX0804 | LNGX1005 | LNGX1407 | |
| | Tool diameter [mm] | | | | |
| | 44 | – | – | – | |
| | 0,08 | 0,14 | 0,15 | 0,16 | |
| | 0,08 | 0,13 | 0,14 | 0,15 | |
| | 0,07 | 0,12 | 0,13 | 0,13 | |
| | 0,07 | 0,12 | 0,13 | 0,14 | |
| | 0,08 | 0,13 | 0,14 | 0,15 | |
| | 0,07 | 0,13 | 0,14 | 0,15 | |
| | 0,07 | 0,10 | 0,11 | 0,12 | |
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| | Feed rate per cutting edge [mm] | | | | | | |
|---|---|---|---|---|---|---|---|
| | FMP03 | | | HMP01 | | | |
| | LNKT25 | | | SPMT-APKT | | | |
| | Application | | | | | | |
| | F | M | R | F | M | R | |
| | | | 0,55 | | 0,25 | | |
| | | | 0,51 | | 0,23 | | |
| | | | 0,48 | | 0,22 | | |
| | | | 0,47 | | 0,15 | | |
| | | | 0,61 | | 0,28 | | |
| | | | 0,55 | | 0,25 | | |
| | | | 0,55 | | 0,25 | | |
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F Finishing
M Medium machining
R Roughing

## Recommended feed rate

### Indexable milling – group7 (XMR01, XMP01, QCH)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | XMR01 face milling | | | XMR01 plunge milling | | | XMR01 circular milling | | |
| | | SDMT/WPGT | | | SDMT/WPGT | | | SDMT/WPGT | | |
| | | Tool diameter [mm] | | | | | | | | |
| | | 20–25 | 30–50 | 63–160 | 20–25 | 30–50 | 63–160 | 20–25 | 30–50 | 63–160 |
| P | Unalloyed steel | 1,00 | 1,20 | 2,00 | 0,20 | 0,25 | 0,30 | 0,80 | 0,96 | 1,40 |
| P | Low-alloyed steel | 0,93 | 1,12 | 1,86 | 0,19 | 0,23 | 0,28 | 0,74 | 0,89 | 1,30 |
| P | High-alloyed steel and high-alloyed tool steel | 0,70 | 0,84 | 1,40 | 0,18 | 0,22 | 0,26 | 0,70 | 0,84 | 1,23 |
| M | Stainless steel | 0,50 | 0,60 | 1,00 | 0,14 | 0,18 | 0,21 | 0,56 | 0,67 | 0,98 |
| K | Grey cast iron | 0,90 | 1,08 | 1,80 | 0,22 | 0,28 | 0,33 | 0,88 | 1,06 | 1,54 |
| K | Cast iron with spheroidal graphite | 0,90 | 1,08 | 1,80 | 0,20 | 0,25 | 0,30 | 0,80 | 0,96 | 1,40 |
| K | Malleable cast iron | 1,00 | 1,20 | 2,00 | 0,20 | 0,25 | 0,30 | 0,80 | 0,96 | 1,40 |
| N | Aluminium wrought alloys | | | | | | | | | |
| N | Aluminum cast alloys | | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | |
| H | Hardened steel | | | | | | | | | |
| H | Hard cast iron | | | | | | | | | |
| H | Hardened cast iron | | | | | | | | | |
| X | Non-metallic materials | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

### Indexable milling – group 8 (FMP06, FMR06)

| Material group | | Feed rate per cutting edge [mm] | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FMP06 | | | FMP06 | | | FMP06 | | | FMR06 | | | FMR06 | | | | | | |
| | | SNCU12 (HC) | | | SNGN12 (CN) | | | SNGN12 (CM) | | | RNGN* (CN) | | | RNGN* (CM) | | | | | | |
| | | Application | | | | | | | | | | | | | | | | | | |
| | | F | M | R | F | M | R | F | M | R | F | M | R | F | M | R | | | | |
| P | Unalloyed steel | | 0,23 | | | | | | | | | | | | | | | | | |
| P | Low-alloyed steel | | 0,22 | | | | | | | | | | | | | | | | | |
| P | High-alloyed steel and high-alloyed tool steel | | 0,20 | | | | | | | | | | | | | | | | | |
| M | Stainless steel | | 0,16 | | | | | | | | | | | | | | | | | |
| K | Grey cast iron | | 0,26 | | | 0,10 | 0,25 | | | | | 0,10 | 0,25 | | | | | | | |
| K | Cast iron with spheroidal graphite | | 0,23 | | | 0,10 | 0,25 | | | | | 0,10 | 0,25 | | | | | | | |
| K | Malleable cast iron | | 0,23 | | | 0,10 | 0,25 | | | | | 0,10 | 0,25 | | | | | | | |
| N | Aluminum wrought alloys | | | | | | | | | | | | | | | | | | | |
| N | Aluminum cast alloys | | | | | | | | | | | | | | | | | | | |
| N | Copper and copper alloys (bronze/brass) | | | | | | | | | | | | | | | | | | | |
| S | Heat-resistant alloys | | | | | | | | | | | | | | | | | | | |
| S | Titanium alloys | | | | | | | | | | | | | | | | | | | |
| H | Hardened steel | | | | | | | | 0,05 | 0,10 | | | | | 0,05 | 0,10 | | | | |
| H | Hard cast iron | | | | | | | | – | – | | | | | – | – | | | | |
| H | Hardened cast iron | | | | | | | | 0,05 | 0,10 | | | | | 0,05 | 0,10 | | | | |
| X | Non-metallic materials | | | | | | | | | | | | | | | | | | | |

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

| | Feed rate per cutting edge [mm] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | XMP01 | QCH | QCH | QCH | QCH | QCH | QCH | |
| | CNE | ZOHX | RD* | APKT | WPGT | SDMT | XPHT | |
| | Tool diameter [mm] | | | | | | | |
| | 80–400 | 16–32 | 15–32 | 16–40 | 20–42 | 20–40 | 16–32 | |
| | 0,20 | 0,20 | 0,20 | 0,15 | 1,00 | 1,00 | 0,20 | |
| | 0,20 | 0,19 | 0,19 | 0,14 | 0,93 | 0,93 | 0,19 | |
| | 0,20 | 0,18 | 0,18 | 0,13 | 0,70 | 0,70 | 0,18 | |
| | 0,20 | 0,14 | 0,14 | 0,11 | 0,50 | 0,50 | 0,14 | |
| | 0,20 | 0,22 | 0,22 | 0,17 | 0,90 | 0,90 | 0,22 | |
| | 0,20 | 0,20 | 0,20 | 0,15 | 0,90 | 0,90 | 0,20 | |
| | 0,20 | 0,20 | 0,20 | 0,15 | 1,00 | 1,00 | 0,20 | |
| | | | | 0,13 | | | | |
| | | | | 0,13 | | | | |
| | | | | 0,11 | | | | |
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| | | | | | | | | |

HC Coated carbide
CN Si3N4 ceramic
CM Mixed ceramic

F Finishing
M Medium machining
R Roughing

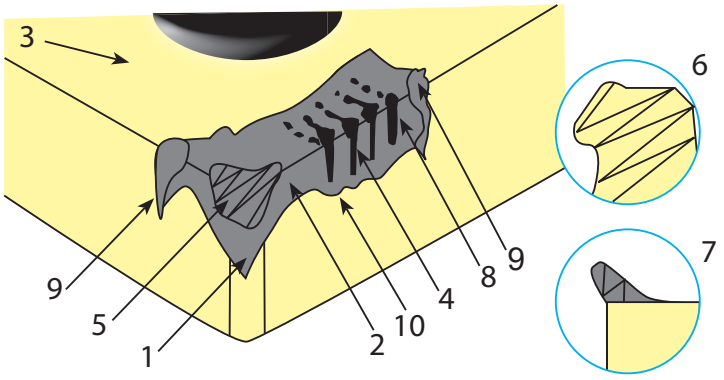
# Technical information


| | |
|---|---|
| Trouble shooting – milling | **B618** |
| Technical information – milling | **B619-B632** |
| Special tools – milling | **B633** |


B

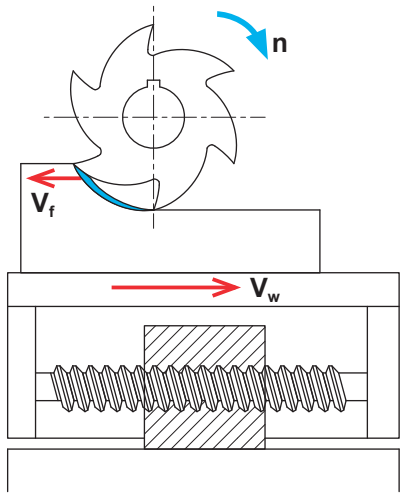
## Trouble shooting – indexable milling

| Fig. | Type of wear | Effects | Reason | Countermeasure |
|---|---|---|---|---|
| 1+2 | Flank wear | – Bad surface quality and dimensional stability<br>– Increase of cutting force | – Grade not wear-resistant enough<br>– Cutting speed too high<br>– Clearance angle too small<br>– Feed rate too low | – Grade with higher wear-resistance<br>– Reduce cutting speed<br>– Increase clearance angle<br>– Reduce feed rate |
| 3 | Crater wear | – Bad surface quality and chip control | – Grade not wear-resistant enough<br>– Cutting speed too high<br>– Feed rate too low | – Grade with higher wear-resistance<br>– Reduce cutting speed<br>– Reduce feed rate |
| 4 | Chipping | – Unstable tool life<br>– Sudden breakage of cutting edge | – Grade too hard<br>– Feed rate too high<br>– Cutting edge not stable enough<br>– Stability of the holder or tension insufficient | – Grade with higher toughness<br>– Reduce feed rate<br>– Change honing of cutting edge<br>– Use a more stable tool holder |
| 5 | Breakage | – Increase of cutting force<br>– Bad surface quality and dimensional stability | – Grade too hard<br>– Feed rate too high<br>– Cutting edge not stable enough<br>– Stability of the holder or tension insufficient | – Grade with higher toughness<br>– Reduce feed rate<br>– Change honing of cutting edge<br>– Use a more stable tool holder |
| 6 | Plastic deformation | – Bad dimensional stability<br>– Damage to cutting edge | – Grade not wear-resistant enough<br>– Cutting speed too high<br>– Cutting depth and/or feed rate too high<br>– Temperature on the cutting edge too high | – Grade with higher toughness<br>– Reduce cutting speed<br>– Reduce cutting depth and feed rate<br>– Grade with higher heat-resistance |
| 7 | Welding | – Increase of cutting force<br>– Bad surface quality | – Cutting speed too low<br>– Cutting edge not sharp enough<br>– Grade not suitable | – Increase cutting speed<br>– Increase rake angle<br>– Use a more suitable grade |
| 8 | Thermal cracks | – Breakage due to thermal interaction, often caused when cutting is interrupted (milling) | – Temperature fluctuation when machining<br>– Grade too hard | – Dry machining<br>– Grade with higher toughness |
| 9 | Notch wear | – Burr formation<br>– Increase of cutting force | – Damage through chips (jagged edges)<br>– Feed rate and cutting speed too high | – Grade with higher wear-resistance<br>– Increase rake angle to get a sharper cutting edge<br>– Reduce cutting speed |
| 10 | Flaking (coating) | – Often appears when machining hardened materials or caused by vibration | – Cutting edge adhesion and chipping<br>– Bad chip removal | – Increase rake angle to get a sharper cutting edge<br>– Chip breaker with bigger chip space |

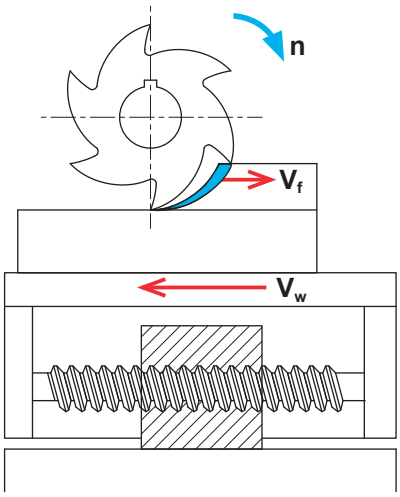


## Indexable milling

Difference between up-milling and down-milling




Up-milling




Down-milling

$V_f$ Feed rate tool
$V_w$ Feed rate work piece
n Rotation

Up-milling: the feed direction of the work piece is opposite to that of the milling rotation at the connecting position.

Down-milling: the feed direction of the work piece is the same as that of the milling rotation at the connecting position.

### Advantages and disadvantages

| Direction | Advantages | Disadvantages |
|---|---|---|
| Up-milling | – Prevents hooking of tool<br>– More smooth cut | – Bigger stress on cutting edge<br>– Shorter tool life |
| Down-milling | – Higher tool life<br>– Less thermal stress | – Hooking of tool possible |

## Indexable milling

### Pitch selection

The pitch is the distance between one point on one cutting edge and the same point on the next edge.
Milling cutters are mainly classified into wide, normal and fine pitches.

| Operational stability | | |
|---|---|---|
| L (low) | M (medium) | H (high) |
| Wide pitch | Normal pitch | Fine pitch |
|  |  |  |
| When the milling width is equal to the diameter of the cutter, the machining system is stable and main power of machine is sufficient, selecting a wide pitch can achieve high productive efficiency. | General milling function and multiple mixed productions. | When the milling width is less than the diameter of cutter, cutting by maximum edges can achieve high productive efficiency. |

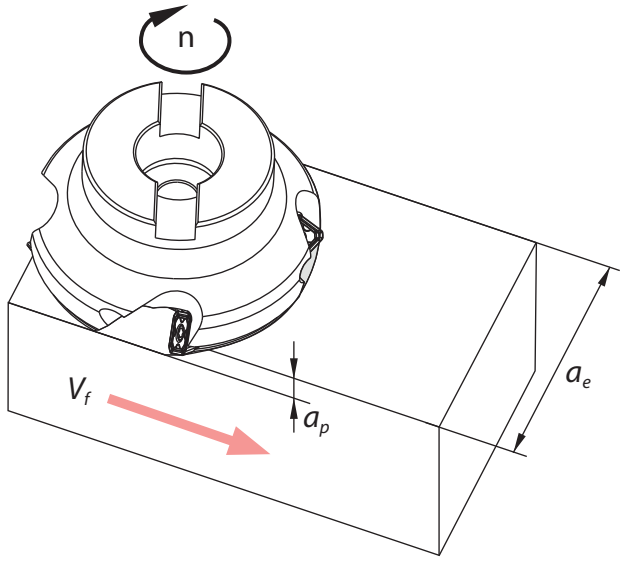
### Approach angle

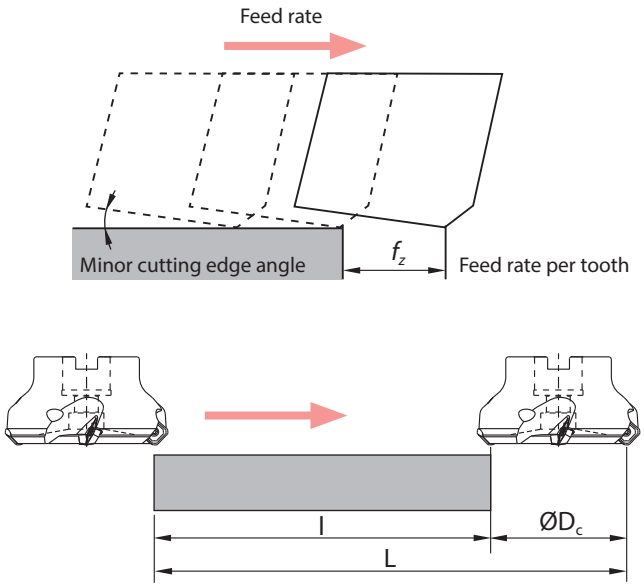
The approach angle is composed by insert. Tool body, chip thickness, cutting forces and tool life are affected especially by the approach angle. Decreasing the approach angle reduces chip thickness and spreads the cutting area between cutting edge and work piece for a given feed rate.
A smaller approach angle also guarantees stable entering or exiting the work piece, to protect the cutting edge and extend tool life. However this will increase higher axial cutting forces on the work piece, thus it is not suitable for machining thin work piecees such as thin plates.

| Approach angle | Feed rate per tooth | Max. cutting depth |
|---|---|---|
| 90° | $f_z$ | $h_{ex} = f_z \times sin_{kr}$ |
| 75° | | $h_{ex} = 0{,}96 \times f_z$ |
| 60° | | $h_{ex} = 0{,}86 \times f_z$ |
| 45° | | $h_{ex} = 0{,}707 \times f_z$ |
| Round | | $h_{ex} = \frac{\sqrt{iC^2 \times (iC - 2a_p)^2}}{iC} \times f_z$ |

## Indexable milling

### General formulas



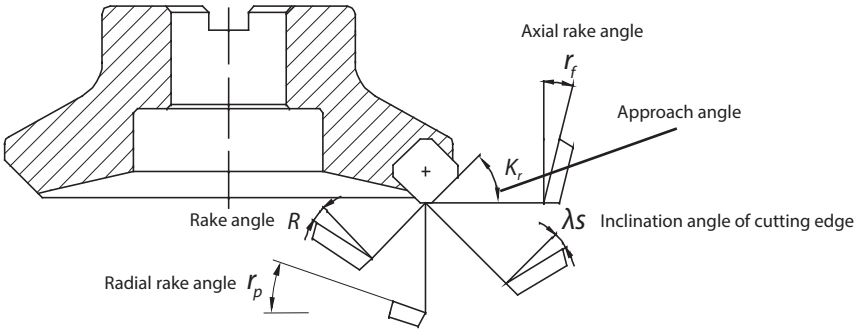

$V_c$: Feed rate [m/min]
$D_c$: Nominal diameter of milling tool [mm]
$n$: Spindle speed [u/min]
$z_n$: Number of teeth
$Q$: Metal removal rate [cm$^3$/min]

$V_f$: Feed rate of worktable (feed speed) [mm/min]
$f_z$: Feed rate per tooth [mm/z]
$\pi$: ~3,14
$T_c$: Machining time [min]
$f_n$: Feed rate per revolution [mm/u]

| | |
|---|---|
| Cutting speed | $V_c = \frac{\pi \times D_c \times n}{1000}$ [m/min] |
| Spindle speed | $n = \frac{1000 \times V_c}{\pi \times D_c}$ [rev/min] |
| Feed rate of work table | $V_f = f_z \times n \times z_n$ [mm/min] |
| Feed rate per tooth | $f_z = \frac{V_f}{n \times Z_n}$ [mm/z] |
| Feed rate per revolution | $f_n = \frac{V_f}{n}$ [mm/rev] |
| Machining time | $T_c = \frac{1000 \times V_c}{\pi \times D_c}$ [min] |
| Metal removal rate | $Q = \frac{a_p \times a_e \times V_f}{1000}$ [cm$^3$/min] |

## Indexable milling

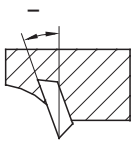
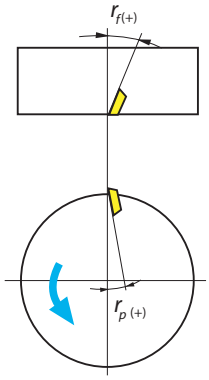
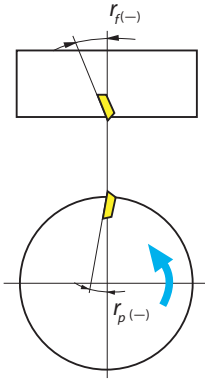
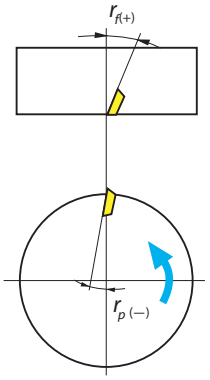
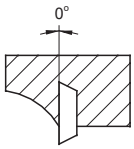
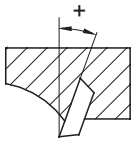
### Function of angles when face milling




### Main angles

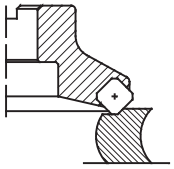
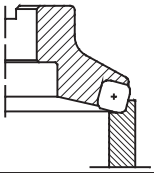
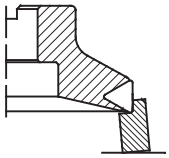
| Angle | Feature | Effet | | |
|---|---|---|---|---|
| Axial rake angle $r_f$ | Influences chip direction | Negative angle, good chip removal | | |
| Radial rake angle $r_p$ | Influences cutting edge sharpness | Positive angle, good cutting performance | | |
| Approach angle ***Kr*** | Influences chip thickness | Kr↑, chip thickness↑, Kr↓, chip thickness↓; | | |
| Rake angle ***R*** | Influences cutting force | Poor cutting performance, stable cutting edge | (−)←0→(+) | Good cutting performance, unstable cutting edge |
| Inclination angle ***λs*** | Influences chip flow direction | Poor cutting performance, stable cutting edge | (−)←0→(+) | Good cutting performance, unstable cutting edge |

### Combination of different rake angles

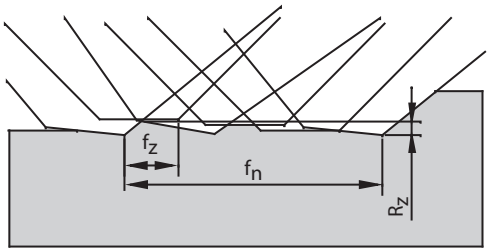
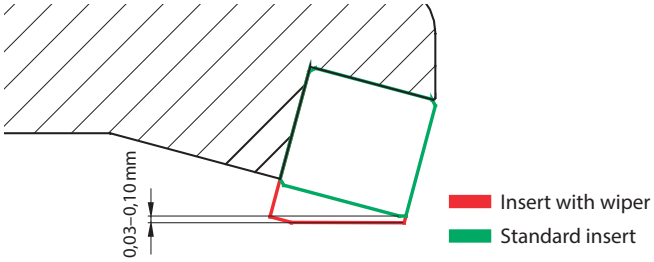
| | | Double positive | Double negative | Positive/Negative |
|---|---|---|---|---|
| **Negative rake angle** |  |  |  |  |
| **Neutral angle** |  | | | |
| **Positive angle** |  | | | |
| **Axial rake angle $r_f$** | | + | − | + |
| **Radial rake angle $r_p$** | | + | − | − |
| **Application field** | **P** | √ | | √ |
| | **M** | √ | | √ |
| | **K** | | √ | √ |
| | **N** | √ | | |
| | **S** | √ | | √ |

## Indexable milling

### Cutting performances of different approach angles

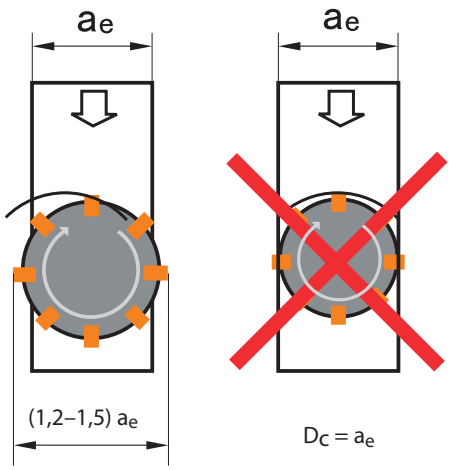
| Approach angle | Depiction | Explanation |
|---|---|---|
| 45° |  | Axial force is largest. It will bend when machining thin-wall work piece, and reduces the precision of work piece. It is benefit to avoid fringe breakage of work piece when machining cast iron. |
| 75° |  | The main purpose is to resolve the radial cutting force, it is often used for general face milling. |
| 90° |  | The axial force is zero in theory, suitable for milling thin plate workpiece. |

### Inserts with wiper

| Using standard inserts | Using inserts with wiper |
|---|---|
|   |   |
| Normal surface quality | High surface quality |

The wiper insert must protrude below the other inserts by 0.03–0.10 mm at axial direction, only that the wiping function can take into effect. Generally speaking, a cutter can assemble only one wiper insert. If the diameter of cutter is much bigger or cutter's feed rate per revolution is bigger than the length of wiper edge, 2 to 3 wiper inserts can be assembled.

### Cutting width




Generally speaking, the relation between cutting width and tool cutting diameter is $D_c = (1.2–1.5)\ a_e$.

In the machining practice, it needs to avoid coincidence of tool center and workpiece center as much as possible.

$D_c$: Tool diameter
$a_e$: Lateral infeed

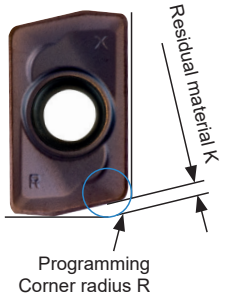
## Indexable milling

### Plunging and circular milling with insert APKT

**Approx. programmed radius**

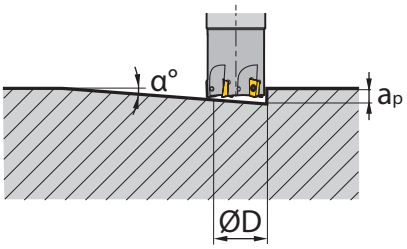
| Insert | approx. R [mm] | Residual material K [mm] | $a_p$ [mm] | $f_z$ / mm |
|---|---|---|---|---|
| APKT0702-XR | 0,8 | 0,291 | 0,2–0,5 | 0,25–0,7 |
| APKT0702-XR | 1,0 | 0,257 | 0,2–0,5 | 0,25–0,7 |
| APKT11T3-XR | 1,0 | 0,689 | 0,3–1,1 | 0,4–1,5 |
| APKT11T3-XR | 1,5 | 0,594 | 0,3–1,1 | 0,4–1,5 |
| APKT11T3-XR | 2,0 | 0,499 | 0,3–1,1 | 0,4–1,5 |

**APKT**




**Insert APKT**

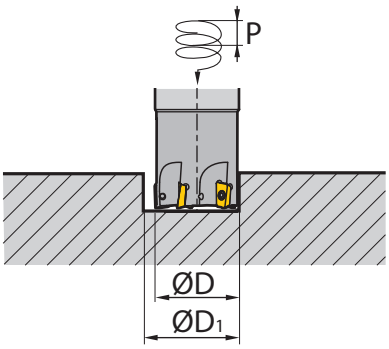
Plunging




$$L_m = \frac{a_p}{\tan_\alpha}$$

α : Plunge angle

Circular milling




$$P = \tan_\alpha \times \pi \times D_1$$

α : Helix angle

| Insert | Diameter ØD [mm] | Max. cutting depth $a_p$ [mm] | Max. plunge angle α° | Min. diameter $ØD_1$ [mm] | Max. diameter [mm] |
|---|---|---|---|---|---|
| AP**0702** | 10 | 6 | 6 | 12 | 18 |
| | 12 | 6 | 4 | 15 | 22 |
| | 14 | 6 | 3 | 18 | 26 |
| | 16 | 6 | 2,5 | 21 | 30 |
| AP**11** | 16 | 10 | 10 | 20 | 30 |
| | 20 | 10 | 5 | 28 | 38 |
| | 25 | 10 | 4 | 40 | 48 |
| | 32 | 10 | 3 | 56 | 60 |
| | 40 | 10 | 2 | 70 | 76 |
| AP**1604** | 25 | 15 | 6 | 32 | 48 |
| | 30 | 15 | 5 | 40 | 58 |
| | 32 | 15 | 4,5 | 45 | 62 |
| | 40 | 15 | 2,5 | 60 | 78 |
| | 50 | 15 | 1,5 | 80 | 98 |
| | 63 | 15 | 1 | 105 | 124 |

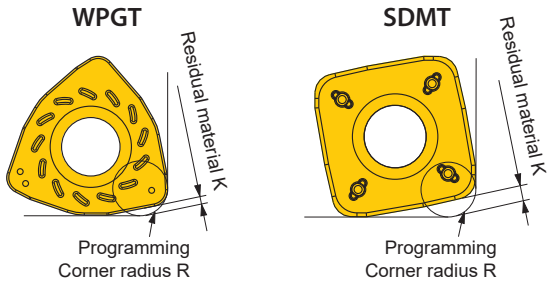
Reduce the feed rate when plunging and circular milling.
For drilling operations (axial) set the feed rate under 0.2 mm.
„Attention" – drilling can form long chips.

## Indexable milling

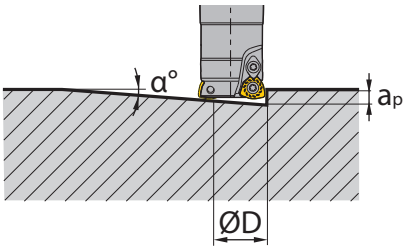
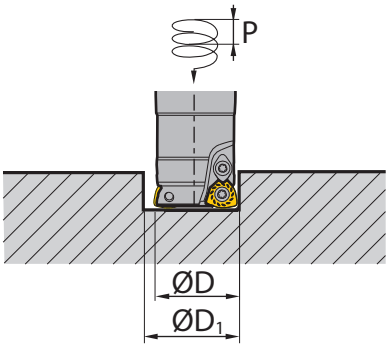
### Plunging and circular milling with insert WPGT and SDMT

**Approx. programmed radius**

| Insert | approx. R [mm] | Residual material K [mm] |
|---|---|---|
| WPGT050315ZSR | 2,0 | 0,5 |
| WPGT060415ZSR | 2,5 | 0,7 |
| WPGT080615ZSR | 2,5 | 0,7 |
| WPGT090725ZSR | 4,5 | 1,2 |
| SDMT06T208 | 1,6 | 0,5 |
| SDMT09T312 | 2,5 | 0,87 |
| SDMT120412 | 4,0 | 0,93 |
| SDMT150620 | 4,0 | 1,38 |



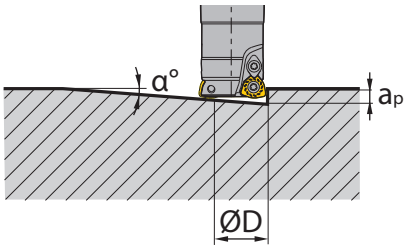
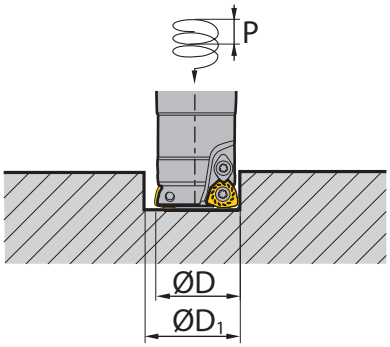

**Insert WPGT**

| | | Plunging | | Circular milling | |
|---|---|---|---|---|---|
| | |   $L_m = \frac{a_p}{\tan_\alpha}$ α : Plunge angle | |   $P = \tan_\alpha \times \pi \times D_1$ α : Helix angle | |
| Insert | Diameter ØD [mm] | Max. cutting depth $a_p$ [mm] | Max. plunge angle α° | Min. diameter $ØD_1$ [mm] | Max. diameter [mm] |
| WP**05** | 20 | 1,5 | 12 | 24 | 37 |
| WP**06** | 25 | 1,5 | 8,8 | 31 | 47 |
| | 32 | 1,5 | 5 | 45 | 61 |
| | 40 | 1,5 | 3,2 | 61 | 77 |
| | 50 | 1,5 | 2,8 | 81 | 97 |
| WP**08** | 40 | 1,5 | 9 | 52 | 77 |
| | 50 | 1,5 | 5,4 | 71 | 97 |
| | 63 | 1,5 | 4,3 | 97 | 123 |
| | 80 | 1,5 | 2,9 | 131 | 157 |
| | 100 | 1,5 | 2,1 | 171 | 197 |
| | 125 | 1,5 | 1,3 | 221 | 247 |
| | 160 | 1,5 | 1,1 | 291 | 317 |
| WP**09** | 50 | 3,0 | 7,2 | 70 | 96 |
| | 63 | 3,0 | 4,5 | 96 | 122 |
| | 80 | 3,0 | 2,8 | 130 | 156 |
| | 100 | 3,0 | 2,2 | 170 | 196 |
| | 125 | 3,0 | 1,6 | 220 | 246 |
| | 160 | 3,0 | 1,2 | 290 | 316 |

Reduce the feed rate when plunging and circular milling.
For drilling operations (axial) set the feed rate under 0.2 mm.
„Attention" – drilling can form long chips.

## Indexable milling

### Insert SDMT

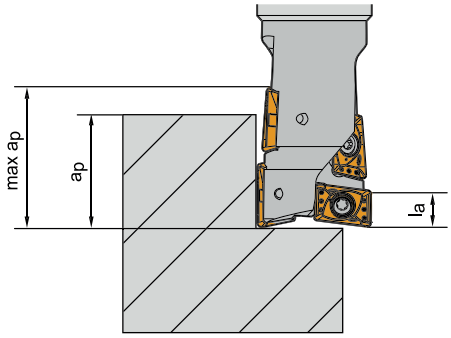
| | | Plunging | | Circular milling | |
|---|---|---|---|---|---|
| | |  | |  | |
| | | $L_m = \frac{a_p}{\tan_\alpha}$<br>α: Plunge angle | | $P = \tan_\alpha x \pi x D_1$<br>α: Helix angle | |
| Insert | Diameter ØD (mm) | Max. cutting depth $a_p$ [mm] | Max. plunge angle α° | Min. diameter $ØD_1$ [mm] | Max. diameter [mm] |
| SD**06** | 20 | 0,8 | 3,6 | 30 | 38 |
| | 25 | 0,8 | 2,8 | 40 | 48 |
| | 32 | 0,8 | 1,6 | 52 | 60 |
| | 40 | 0,8 | 1,1 | 70 | 78 |
| | 50 | 0,8 | 0,8 | 90 | 98 |
| | 63 | 0,8 | 0,7 | 114 | 122 |
| SD**09** | 25 | 1,4 | 6,5 | 34 | 48 |
| | 32 | 1,4 | 4,5 | 48 | 62 |
| | 35 | 1,4 | 3,6 | 54 | 68 |
| | 50 | 1,4 | 1,8 | 84 | 98 |
| | 63 | 1,4 | 1,3 | 110 | 124 |
| SD**12** | 32 | 1,8 | 10,4 | 44 | 60 |
| | 40 | 1,8 | 5,7 | 60 | 76 |
| | 50 | 1,8 | 3,5 | 80 | 96 |
| | 63 | 1,8 | 2,5 | 106 | 122 |
| | 80 | 1,8 | 1,6 | 140 | 156 |
| | 100 | 1,8 | 1,2 | 180 | 196 |
| SD**15** | 40 | 2,2 | 7,3 | 54 | 76 |
| | 80 | 2,2 | 1,4 | 134 | 156 |
| | 100 | 2,2 | 1,0 | 174 | 196 |
| | 125 | 2,2 | 0,9 | 234 | 246 |
| | 160 | 2,2 | 0,6 | 304 | 316 |

Reduce the feed rate when plunging and circular milling.
For drilling operations (axial) set the feed rate under 0.2 mm.
„Attention“ – drilling can form long chips.

## Indexable milling cutters

### EMP05 milling strategies

#### Shoulder milling



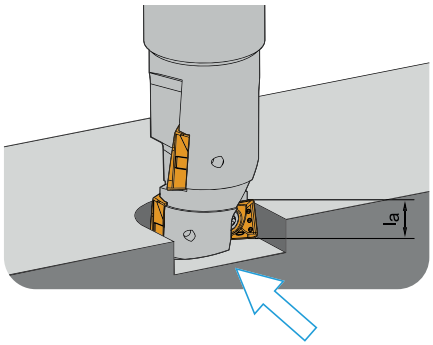

– If the cutting depth is less than $l_a$, the left and right cutting edges are both active in the cutting operation.

– If the cutting depth is greater than $l_a$, the right cutting edge is active in the cutting operation.

– If cutting depth $a_p$ increases, the cutting speed and feed rate must be reduced.

– The longer the milling cutter's overhang, the greater the likelihood that vibrations will occur during machining. If you experience any vibrations, reduce the machining parameters until no significant vibrations occur.

#### Groove milling

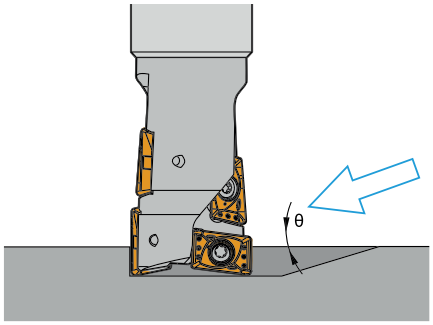



– It is recommended that the cutting depth in groove milling operations not exceed $l_a$.

– It is recommended that the feed rate in slot milling operations not exceed 70 per cent of the feed rate for shoulder milling.

– The longer the milling cutter's overhang, the greater the likelihood that vibrations will occur during machining. If you experience any vibrations, reduce the machining parameters until no significant vibrations occur.

#### Ramping




– It is recommended that the ramp angle not exceed 3° when ramp milling standard P materials.

– It is recommended that the feed rate in ramp milling operations not exceed 70 per cent of the feed rate for shoulder milling applications with the identical parameters.

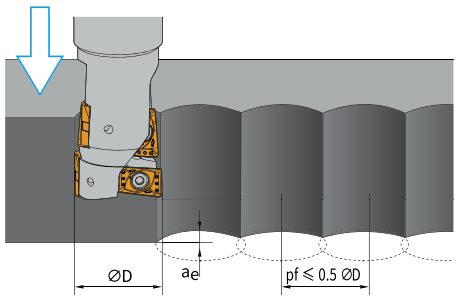
– It is recommended that the ramp angle for P materials with a hardness greater than HRC45 not exceed 1°.

– The longer the milling cutter's overhang, the greater the likelihood that vibrations will occur during machining. If you experience any vibrations, reduce the machining parameters until no significant vibrations occur.

## Indexable milling cutters

### EMP05 milling strategies

#### Plunge milling

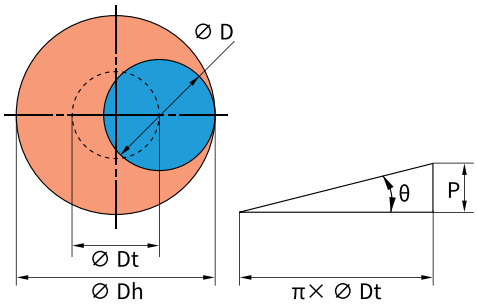



– If you select the 'Plunge Milling' strategy, the feed rate should be 1.5 to 1.8 times higher than the feed rate in the 'Bore Milling' strategy.

– If the stepover is ≤ 0.5 ΦD, the radial cutting width ae refers to the following table:

| ØD | Ø16 | Ø20 | Ø25 | Ø32 | Ø40 | Ø50 |
|---|---|---|---|---|---|---|
| ae | 4,5 | 6 | 7,5 | 8,5 | 7,5 | 8,5 |

#### Helical interpolation milling




– The cutting parameters relate to the shoulder milling strategy; the feed rate is roughly 70 per cent of the feed rate for the shoulder milling strategy.

– The outer diameter of the helical cutter is 1.2 to 1.8 times larger than the diameter of the cutter.

– The angle of inclination refers to the angle range of the ramp milling strategy.

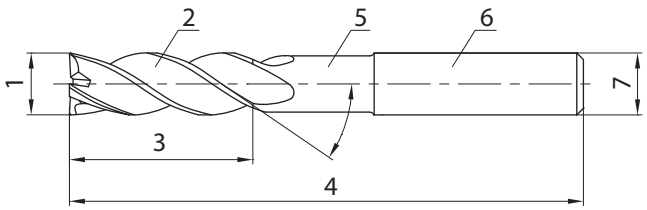
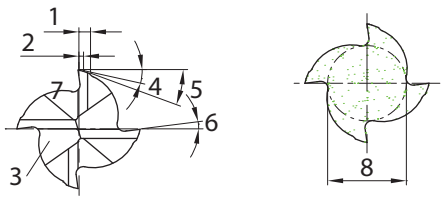
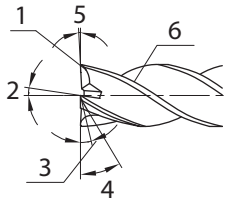
– Use compressed air to remove chips from the machined hole.

– The tool's central path is calculated as follows: ΦDt=ΦDh-ΦDc
Tool spiral = 1x rotation (feed rate + ramp angle)

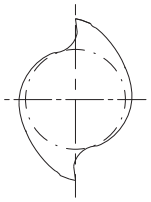
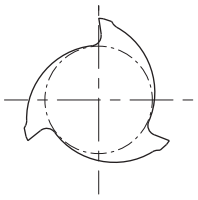
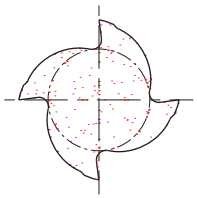
– The depth of the hole increases once the tool has completed one helical rotation.

## Solid carbide mills

### Terminology

| | | |
|---|---|---|
| **A** |  | 1. Cutting edge diameter<br>2. Chip pocket<br>3. Length of cutting edge<br>4. Total length<br>5. Neck<br>6. Shank<br>7. Shank diameter |
| **B** |  | 1. Chamfer width, main cutting edge<br>2. Chamfer width, diameter<br>3. Neck, front side<br>4. Primary radial clearance angle<br>5. Secondary radial clearance angle<br>6. Radial rake angle<br>7. Axial main cutting edge<br>8. Core diameter |
| **C** |  | 1. Cutting edge<br>2. Axial rake angle<br>3. Primary axial clearance angle<br>4. Secondary axial clearance angle<br>5. Inclination angle<br>6. Radial cutting edge |

### Teeth, chip pocket and tool rigidity

| Teeth | 2 flutes | 3 flutes | 4 flutes |
|---|---|---|---|
| Cross section |  |  |  |
| Cutting edge ratio | 54 % | 56 % | 60 % |
| Advantages | – Large chip pocket<br>– Good chip removal | – Good chip removal<br>– Good surface quality | – Good rigidity<br>– Good surface |
| Application | – Slot milling<br>– Square shoulder milling<br>– Drilling | – Slot milling<br>– Square shoulder milling<br>– Finishing | – Slot milling (flat)<br>– Square shoulder milling<br>– Finishing |

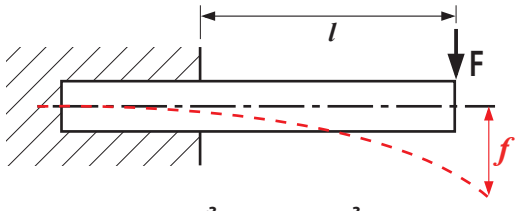
### Length of cutting edge (overhang) and cutting diameter

The shorter the overhang, the stronger the rigidity. This isn't easy to generate. Bend and vibration in the cutting process may occur.

Length (overhang) increases by 1 time, the deflection degree (f) will be 8 times of the former one.

***Reduce the overhang by 20 %***
***the deflection degree (f) will decrease by 50 %***

***Increase the diameter by 20 %***
***the deflection degree (f) will decrease by 50 %***

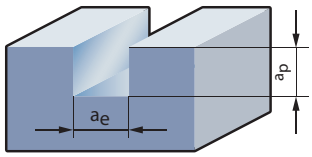



$$f = \frac{F \times l^3}{3 \times E \times I} = \frac{F \times l^3 \times 64}{3 \times E \times I}$$

## Solid carbide mills

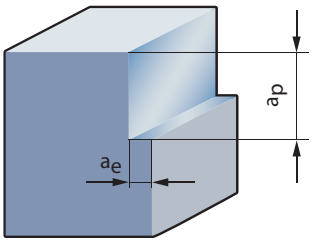
### Machining strategy – HPC/UM (HSC) milling cutters

**HPC = High Performance Cutting**
Machining with significantly increased metal removal rate through higher cutting speeds and feed rates compared with conventional machine cutting processes.

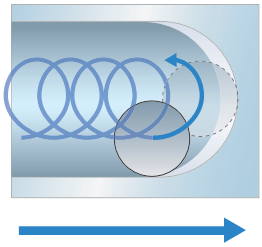



Full-slot milling

**HSC (UM) = High Speed Cutting**
High cutting speeds and feed rates in combination with low cutting depths lead to lower chip thickness as in normal machining.

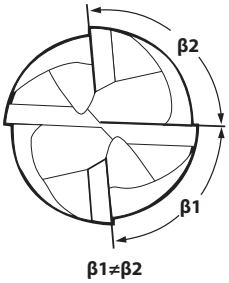


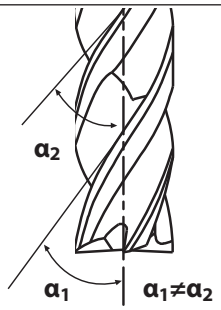

Profiling



Trochoidal milling

**The UM milling cutter is specifically optimised for HSC machining.**



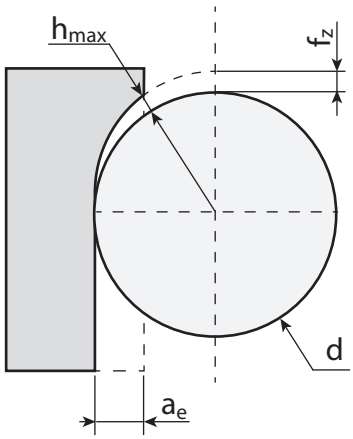




High metal removal rates can be realised with this tool.
Especially on highly dynamic machines with optimised tool paths this milling cutter shows its full potential.

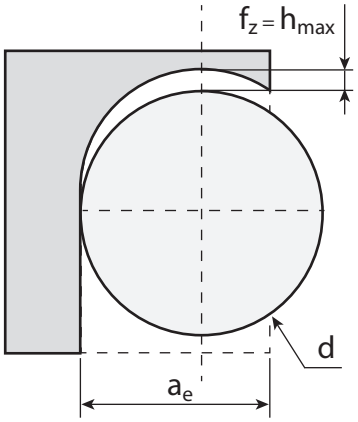
## Solid carbide mills

### HSC strategy

It's important to use the right strategy. When programming make sure the width of cut is kept. The width of cut is usually not higher than 15 %. Regarding the depth of cut, the total length of the cutting edge can be used.




$a_e < d/2 \quad h_{max} < f_z$

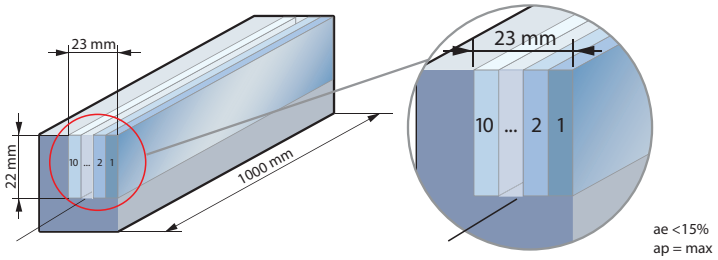



$a_e \geq d/2 \quad h_{max} = f_z$

$$h_{max} = 2f_z\sqrt{\frac{a_e}{d}\left(1-\frac{a_e}{d}\right)}$$

When changing the width of cut the cutting data needs to be adjusted.
As calculating size applies a chip thickness from approx. 0.15 –0.2 mm on basis of the usual steel types.

**Example**

| Tool | Machining |
|---|---|
|  |   |
| UM-4E-D20.0-W KMG405 | HSC strategy |

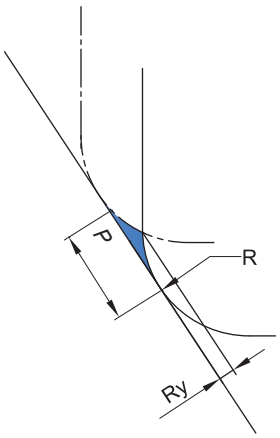
| Workpiece material |
|---|
| 16MnCr5 (1.7131) ca. 700 N/mm³ |

| Cutting data | |
|---|---|
| $V_c$ | 550 m/min |
| n | 8750 1/min |
| $f_z$ | 0,3 mm (**$h_{max}$ = 0,19 mm**) |
| $V_f$ | 10500 mm/min |
| $a_p$ | 22 mm |
| $a_e$ | 2,3 mm |

| Result |
|---|
| Chip removal rate **530 cm³/min**! Machining time 58 seconds! The maximum chip thickness is 0.19 mm. |

## Solid carbide mills

**Feed rate selecting table for profile machining with ball nose cutters and torus mills**




$$Ry = R \times \{1-\cos [\arcsin(fr/2R)]\}$$

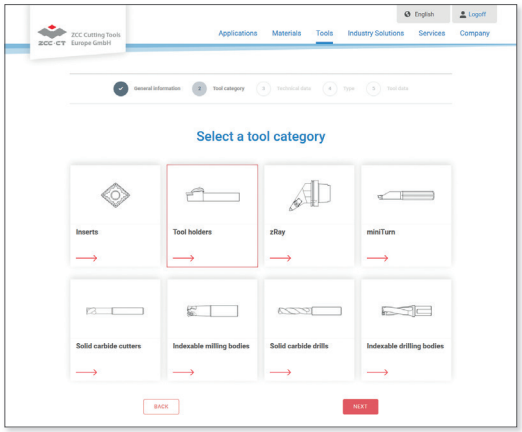
Ry: Theoretical values of surface quality
P: Feed rate
R: Radius of the ball nose cutter or torus mill

| R \ Ry | Feed rate | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0,1 | 0,2 | 0,3 | 0,4 | 0,5 | 0,6 | 0,7 | 0,8 | 0,9 | 1,0 |
| 0,5 | 0,003 | 0,010 | 0,023 | 0,042 | 0,067 | 0,100 | | | | |
| 1,0 | 0,001 | 0,005 | 0,011 | 0,020 | 0,032 | 0,046 | 0,063 | 0,083 | 0,107 | |
| 1,5 | 0,001 | 0,003 | 0,008 | 0,013 | 0,021 | 0,030 | 0,041 | 0,054 | 0,069 | 0,086 |
| 2,0 | 0,001 | 0,003 | 0,006 | 0,010 | 0,015 | 0,023 | 0,031 | 0,040 | 0,051 | 0,064 |
| 2,5 | 0,001 | 0,002 | 0,005 | 0,008 | 0,013 | 0,018 | 0,025 | 0,032 | 0,041 | 0,051 |
| 3,0 | | 0,001 | 0,004 | 0,007 | 0,010 | 0,015 | 0,020 | 0,027 | 0,034 | 0,042 |
| 4,0 | | 0,001 | 0,003 | 0,005 | 0,008 | 0,011 | 0,015 | 0,020 | 0,025 | 0,031 |
| 5,0 | | 0,001 | 0,002 | 0,004 | 0,006 | 0,009 | 0,012 | 0,016 | 0,020 | 0,025 |
| 6,0 | | | 0,002 | 0,003 | 0,005 | 0,008 | 0,010 | 0,013 | 0,017 | 0,021 |
| 8,0 | | | 0,001 | 0,003 | 0,004 | 0,006 | 0,008 | 0,010 | 0,013 | 0,016 |
| 10,0 | | | 0,001 | 0,002 | 0,003 | 0,005 | 0,006 | 0,008 | 0,010 | 0,013 |
| 12,5 | | | 0,001 | 0,002 | 0,003 | 0,004 | 0,005 | 0,006 | 0,008 | 0,010 |

| R \ Ry | Feed rate | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1,1 | 1,2 | 1,3 | 1,4 | 1,5 | 1,6 | 1,7 | 1,8 | 1,9 | 2,0 |
| **0,5** | | | | | | | | | | |
| **1,0** | | | | | | | | | | |
| **1,5** | 0,104 | | | | | | | | | |
| **2,0** | 0,077 | 0,092 | 0,109 | | | | | | | |
| **2,5** | 0,061 | 0,073 | 0,086 | 0,100 | | | | | | |
| **3,0** | 0,051 | 0,061 | 0,071 | 0,083 | 0,095 | 0,109 | | | | |
| **4,0** | 0,038 | 0,045 | 0,053 | 0,062 | 0,071 | 0,081 | 0,091 | 0,103 | | |
| **5,0** | 0,030 | 0,036 | 0,042 | 0,049 | 0,057 | 0,064 | 0,073 | 0,082 | 0,091 | 0,101 |
| **6,0** | 0,025 | 0,030 | 0,035 | 0,041 | 0,047 | 0,054 | 0,061 | 0,068 | 0,076 | 0,084 |
| **8,0** | 0,019 | 0,023 | 0,026 | 0,031 | 0,035 | 0,040 | 0,045 | 0,051 | 0,057 | 0,063 |
| **10,0** | 0,015 | 0,018 | 0,021 | 0,025 | 0,028 | 0,032 | 0,036 | 0,041 | 0,045 | 0,050 |
| **12,5** | 0,012 | 0,014 | 0,017 | 0,020 | 0,023 | 0,026 | 0,029 | 0,032 | 0,036 | 0,040 |

# Go directly to the special tool tailored for your milling applications

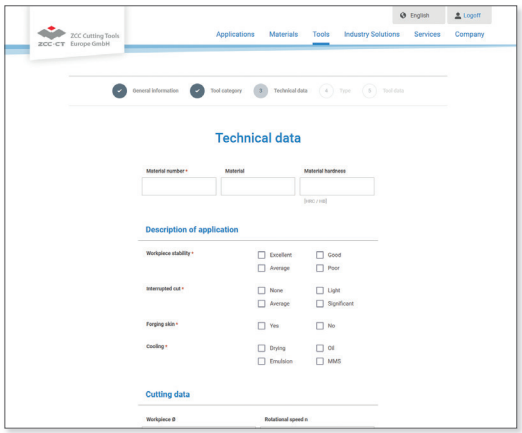
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