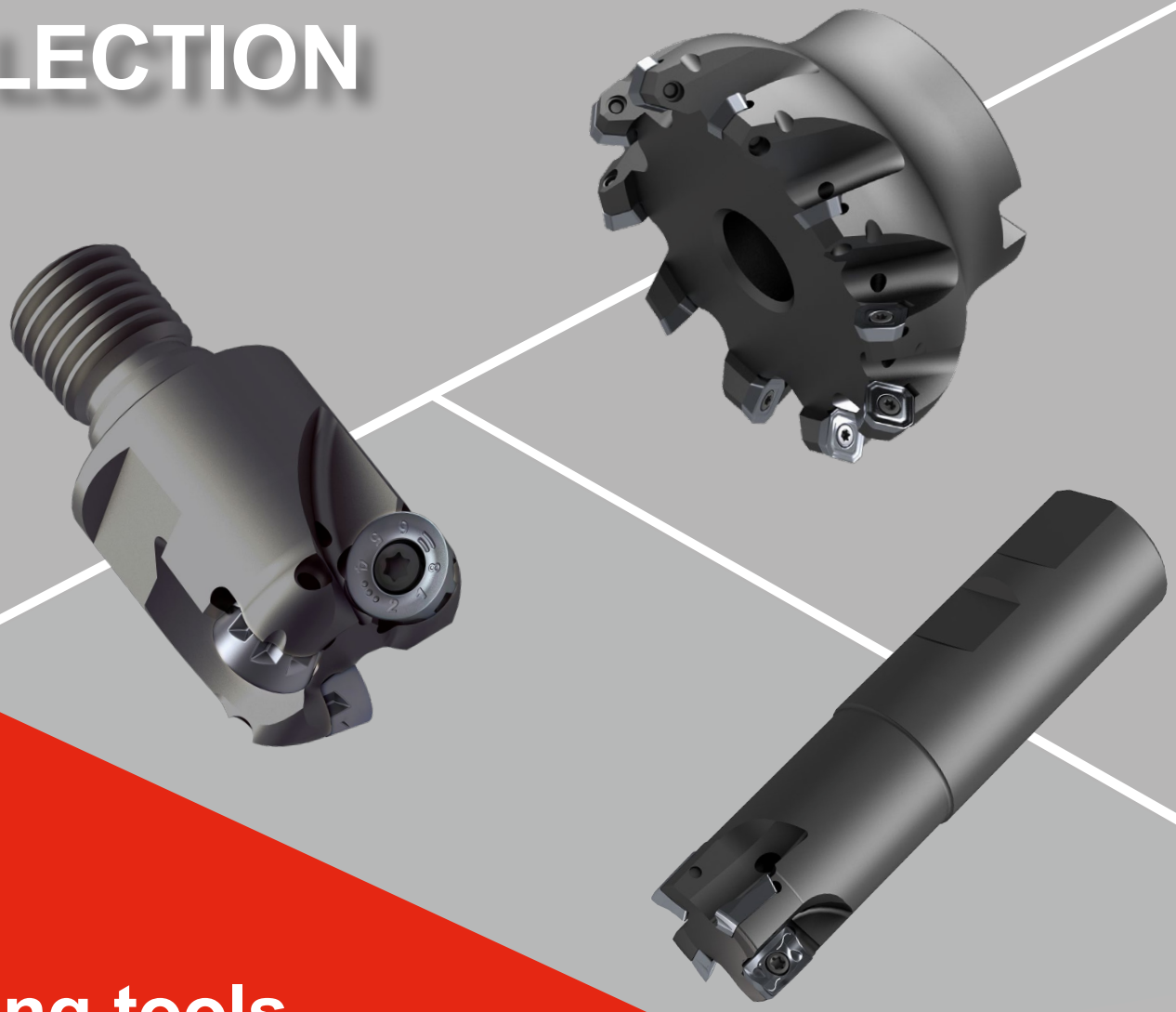
# SELECTION



# Milling tools with indexable inserts for general applications

## from the CERATIZIT CoreLine

CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

**Tooling a Sustainable Future**

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CERATIZIT GROUP

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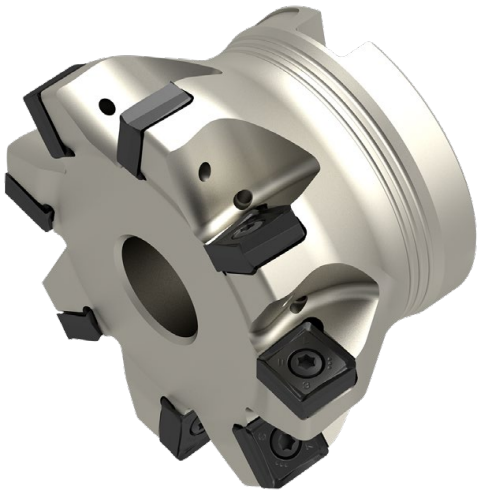
# Symbol explanation


central internal coolant


lateral internal coolant

κ = 43° Cutting edge angle



ZNF = Number of flutes

● = **Main Application**

○ = Extended application

## Application symbols


Face milling


Angled ramping


Helical plunging


Axial ramping


plunge milling


Slot milling


Shoulder milling


Slot milling (45°)

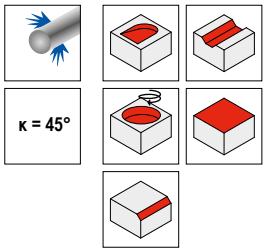

Chamfer milling

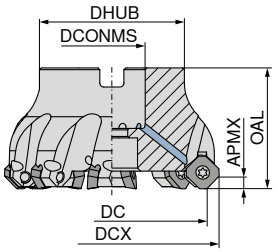

Free form milling

# Overview

| System | Inserts | Cutting edges per insert | $a_{p\,max.}$ mm | Ø-range mm | | Steel | Stainless steel | Cast iron | Non-ferrous metals | Heat-resistant | Tempered steel | Non-metal materials | Page No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Face milling** | | | | | | | | | | | | | |
| **CoreLine** 270 | **SDNT** 09.. | 4 | 4 | |  Ø 40–100 | ● | ○ | ○ | | | | | 4 |
| **Shoulder milling** | | | | | | | | | | | | | |
| **CoreLine** 210 | **APKT** 1003.. | 4 | 7 |  Ø 20–32 |  Ø 40–80 | ● | ○ | ○ | | | | | 5+6 |
| **Form milling** | | | | | | | | | | | | | |
| **CoreLine** 251 | **RPNX** 10T3.. | 8 | 4,5 |  Ø 15–22 |  Ø 30–40 | ● | ○ | ○ | | | | | 7+8 |

# **CoreLine** – Shell mill – 270-09



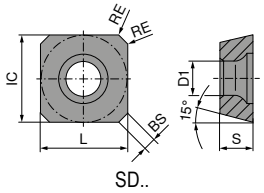




**51 702 ...**

| Designation | DC mm | DCX mm | ZNF | APMX mm | OAL mm | DHUB mm | DCONMS H6 mm | torque moment Nm | Insert | EUR CX | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **A270.40.R.03-09.N** | 40 | 48,4 | 3 | 4 | 40 | 38 | 16 | 1,2 | SD.. 0903.. | 186,00 | **04003** |
| **A270.50.R.05-09.N** | 50 | 58,4 | 5 | 4 | 40 | 43 | 22 | 1,2 | SD.. 0903.. | 237,90 | **05005** |
| **A270.63.R.06-09.N** | 63 | 71,4 | 6 | 4 | 40 | 48 | 22 | 1,2 | SD.. 0903.. | 294,30 | **06306** |
| **A270.80.R.07-09.N** | 80 | 88,4 | 7 | 4 | 50 | 58 | 27 | 1,2 | SD.. 0903.. | 344,40 | **08007** |
| **A270.100.R.08-09.N** | 100 | 108,4 | 8 | 4 | 50 | 78 | 32 | 1,2 | SD.. 0903.. | 442,10 | **10008** |

## SDNT

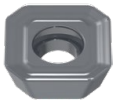
| Designation | IC mm | D1 mm | L mm | BS mm | S mm |
|---|---|---|---|---|---|
| **SDNT 0903..** | 9,52 | 3,4 | 9,52 | 1,68 | 3,18 |



SD..

## SDNT

**-29**
CT-P30

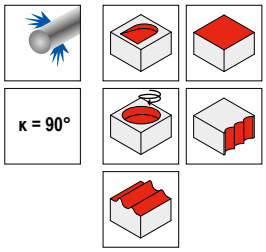

SDNT

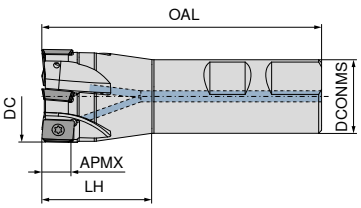
**51 294 ...**

| ISO | RE mm | EUR CX | |
|---|---|---|---|
| **0903AESN** | 1 | 6,89 | **22006** |

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ○ |
| N | |
| S | |
| H | |
| O | |

# **CoreLine** – End milling cutter – 210-10

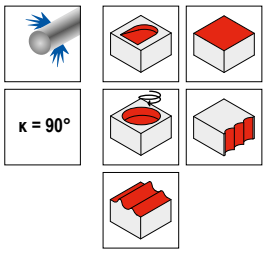


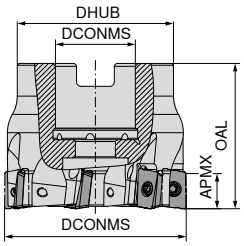




**51 700 ...**

| Designation | DC mm | ZNF | APMX mm | OAL mm | LH mm | DCONMS mm | RPMX 1/min. | torque moment Nm | Insert | EUR CX | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **C210.20.R.02-10.N** | 20 | 2 | 9 | 90 | 40 | 20 | 19000 | 1,2 | AP.. 1003.. | 144,00 | **02002** |
| **C210.25.R.03-10.N** | 25 | 3 | 9 | 100 | 44 | 25 | 18000 | 1,2 | AP.. 1003.. | 166,00 | **02503** |
| **C210.32.R.04-10.N** | 32 | 4 | 9 | 95 | 38 | 25 | 14000 | 1,2 | AP.. 1003.. | 191,20 | **03204** |

# **CoreLine** – Shell mill – 210-10



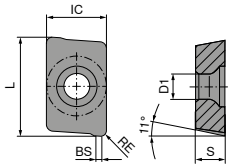




**51 701 ...**

| Designation | DC mm | ZNF | APMX mm | OAL mm | DCONMS $_{H6}$ mm | DHUB mm | RPMX 1/min. | torque moment Nm | Insert | EUR CX | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **A210.40.R.05-10.N** | 40 | 5 | 9 | 40 | 22 | 38 | 12000 | 1,2 | AP.. 1003.. | 220,20 | **04005** |
| **A210.50.R.07-10.N** | 50 | 7 | 9 | 40 | 22 | 43 | 11000 | 1,2 | AP.. 1003.. | 275,90 | **05007** |
| **A210.63.R.08-10.N** | 63 | 8 | 9 | 40 | 22 | 48 | 9000 | 1,2 | AP.. 1003.. | 302,80 | **06308** |
| **A210.80.R.10-10.N** | 80 | 10 | 9 | 50 | 27 | 58 | 8000 | 1,2 | AP.. 1003.. | 383,10 | **08010** |

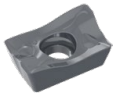
# APKT

| Designation | IC | D1 | L | BS | S |
|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm |
| **APKT 1003..** | 6,65 | 2,8 | 10,8 | 1,1 | 3,5 |




# APKT

**-29M**
CT-P30



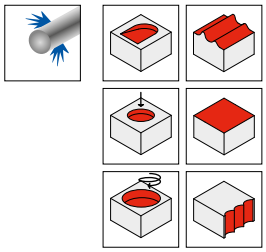
**M**
APKT

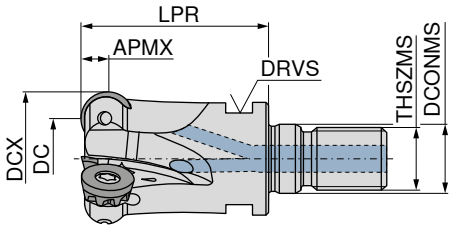
**51 293 ...**

| ISO | RE | EUR | CX |
|---|---|---|---|
| | mm | | |
| **1003PDSR** | 0,5 | 7,62 | **22006** |

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ○ |
| N | |
| S | |
| H | |
| O | |

# **CoreLine** – Screw in cutter – 251-10



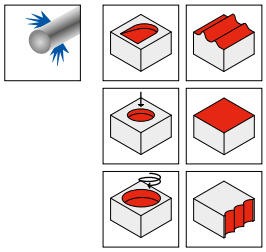


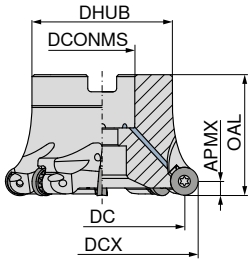

right

**51 703 ...**

| Designation | DC mm | DCX mm | ZNF | APMX mm | DCONMS mm | LPR mm | THSZMS | DRVS mm | RPMX 1/min. | torque moment Nm | Insert | EUR CX | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **G251.25.R.02-10.N** | 15 | 25 | 2 | 5 | 12,5 | 35 | M12 | 17 | 25000 | 2 | RP.X 10T3.. | 199,20 | **01502** |
| **G251.32.R.03-10.N** | 22 | 32 | 3 | 5 | 17,0 | 35 | M16 | 24 | 21000 | 2 | RP.X 10T3.. | 205,60 | **02203** |

# **CoreLine** – Shell mill – 251-10





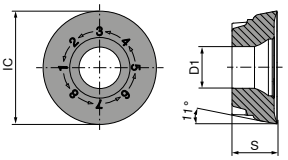

right

**51 704 ...**

| Designation | DC mm | DCX mm | ZNF | APMX mm | OAL mm | DHUB mm | DCONMS $_{H6}$ mm | RPMX 1/min. | torque moment Nm | Insert | EUR CX | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A251.40.R.03-10.N** | 30 | 40 | 3 | 5 | 40 | 38 | 16 | 14000 | 2 | RP.X 10T3.. | 209,00 | **03003** |
| **A251.50.R.04-10.N** | 40 | 50 | 4 | 5 | 40 | 43 | 22 | 12000 | 2 | RP.X 10T3.. | 221,70 | **04004** |

# RPNX

| Designation | IC<br>mm | D1<br>mm | S<br>mm |
|---|---|---|---|
| **RPNX 10T3..** | 10 | 3,4 | 3,97 |
| **RPNX 1204..** | 12 | 4,4 | 4,76 |




RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..

# RPNX

**-M50**
CT-P30

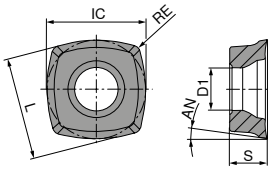
RPNX

**51 295 ...**

| ISO | EUR<br>CX | |
|---|---|---|
| **10T3M8SN** | 7,91 | **22006** |
| **1204M8SN** | 8,92 | **22506** |
| P | | ● |
| M | | ○ |
| K | | ○ |
| N | | |
| S | | |
| H | | |
| O | | |

# XDLX

| Designation | IC | D1 | L | BS | S | AN |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | ° |
| **XDLX 09T3..** | 9,52 | 4,4 | 9 | 1,9 | 3,97 | 15 |




# XDLX

**-M50**
CT-P30

XDLX

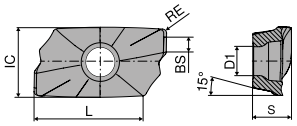
**51 296 ...**

| ISO | RE | EUR | CX | |
|---|---|---|---|---|
| | mm | | | |
| **09T308SR** | 0,8 | | 7,62 | **20806** |

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ○ |
| N | |
| S | |
| H | |
| O | |

# XDKT

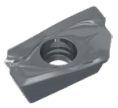
| Designation | IC<br>mm | D1<br>mm | L<br>mm | BS<br>mm | S<br>mm |
|---|---|---|---|---|---|
| **XDKT 11T3..** | 6,8 | 2,8 | 10,6 | 1,8 | 3,8 |
| **XDKT 11T3..** | 6,8 | 2,8 | 10,6 | 1,4 | 3,8 |



XDKT

# XDKT

**-M50**
CT-P30



**M**
XDKT

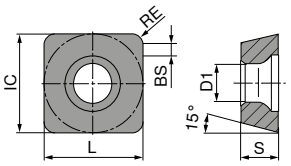
**51 297 ...**

| ISO | RE<br>mm | | EUR<br>CX | |
|---|---|---|---|---|
| **11T304SR** | 0,4 | | 8,05 | **20406** |
| **11T308SR** | 0,8 | | 8,05 | **20806** |
| **11T312SR** | 1,2 | | 8,05 | **21206** |

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ○ |
| N | |
| S | |
| H | |
| O | |

# SDNT

| Designation | IC | D1 | L | BS | S |
|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm |
| **SDNT 09T3..** | 9,52 | 4,4 | 9,52 | 2,5 | 3,97 |




# SDNT

**-29**
CT-P30

SDNT

**51 294 ...**

| ISO | RE | EUR | CX | |
|---|---|---|---|---|
| | mm | | | |
| **09T308SR** | 0,8 | | 6,89 | **20806** |

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ○ |
| N | |
| S | |
| H | |
| O | |

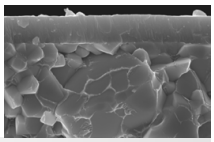
# Cutting data standard values

| | Material sub-group | Index | Tensile strength N/mm²* / HB / HRC | CT-P30 | |
|---|---|---|---|---|---|
| | | | | Cutting Material **hard** ($v_c$↑) → **tough** ($v_c$↓) | |
| | | | | $v_c$ (m/min) | |
| P | Unalloyed steel | P.1.1 | 420 N/mm² / 125 HB | 197 | 110 |
| | | P.1.2 | 640 N/mm² / 190 HB | 166 | 97 |
| | | P.1.3 | 840 N/mm² / 250 HB | 138 | 85 |
| | | P.1.4 | 910 N/mm² / 270 HB | 128 | 81 |
| | | P.1.5 | 1010 N/mm² / 300 HB | 114 | 75 |
| | Low-alloy steel | P.2.1 | 610 N/mm² / 180 HB | 171 | 98 |
| | | P.2.2 | 930 N/mm² / 275 HB | 126 | 80 |
| | | P.2.3 | 1010 N/mm² / 300 HB | 114 | 75 |
| | | P.2.4 | 1200 N/mm² / 375 HB | 78 | 61 |
| | High-alloy steel and high-alloy tool steel | P.3.1 | 680 N/mm² / 200 HB | 97 | 78 |
| | | P.3.2 | 1100 N/mm² / 300 HB | 86 | 66 |
| | | P.3.3 | 1300 N/mm² / 400 HB | 77 | 55 |
| | Stainless steel | P.4.1 | 680 N/mm² / 200 HB | 97 | 78 |
| | | P.4.2 | 1010 N/mm² / 300 HB | 91 | 72 |
| M | Stainless steel | M.1.1 | 610 N/mm² / 180 HB | 97 | 78 |
| | | M.2.1 | 300 HB | 86 | 66 |
| | | M.3.1 | 780 N/mm² / 230 HB | 94 | 74 |
| K | Grey cast iron | K.1.1 | 350 N/mm² / 180 HB | 128 | 88 |
| | | K.1.2 | 500 N/mm² / 260 HB | 120 | 88 |
| | Spherulitic graphite cast iron | K.2.1 | 540 N/mm² / 160 HB | 120 | 88 |
| | | K.2.2 | 845 N/mm² / 250 HB | 120 | 88 |
| | Malleable iron | K.3.1 | 440 N/mm² / 130 HB | | |
| | | K.3.2 | 780 N/mm² / 230 HB | | |
| N | Aluminium wrought alloy | N.1.1 | 60 HB | | |
| | | N.1.2 | 340 N/mm² / 100 HB | | |
| | Cast aluminium alloy | N.2.1 | 250 N/mm² / 75 HB | | |
| | | N.2.2 | 300 N/mm² / 90 HB | | |
| | | N.2.3 | 440 N/mm² / 130 HB | | |
| | Copper and copper alloys (bronze/brass) | N.3.1 | 375 N/mm² / 110 HB | | |
| | | N.3.2 | 300 N/mm² / 90 HB | | |
| | | N.3.3 | 340 N/mm² / 100 HB | | |
| | Magnesium alloys | N.4.1 | 70 HB | | |
| S | Heat-resistant alloys | S.1.1 | 680 N/mm² / 200 HB | | |
| | | S.1.2 | 950 N/mm² / 280 HB | | |
| | | S.2.1 | 840 N/mm² / 250 HB | | |
| | | S.2.2 | 1180 N/mm² / 350 HB | | |
| | | S.2.3 | 1080 N/mm² / 320 HB | | |
| | Titanium alloys | S.3.1 | 400 N/mm² | | |
| | | S.3.2 | 1050 N/mm² / 320 HB | | |
| | | S.3.3 | 1400 N/mm² / 410 HB | | |
| H | Hardened steel | H.1.1 | 46–55 HRC | | |
| | | H.1.2 | 56–60 HRC | | |
| | | H.1.3 | 61–65 HRC | | |
| | | H.1.4 | 66–70 HRC | | |
| | Chilled iron | H.2.1 | 400 HB | | |
| | Hardened cast iron | H.3.1 | 55 HRC | | |
| O | Non-metal materials | O.1.1 | ≤ 150 N/mm² | | |
| | | O.1.2 | ≤ 100 N/mm² | | |
| | | O.2.1 | ≤ 1000 N/mm² | | |
| | | O.2.2 | ≤ 1000 N/mm² | | |
| | | O.3.1 | | | |

*** Tensile strength**

# Grade description

**CT-P30**



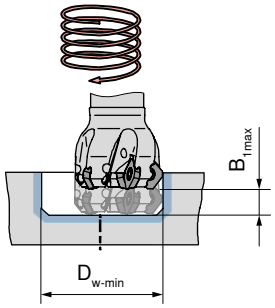
- ▲ Carbide, coated
- ▲ ISO | **P30** | M25 | K25
- ▲ Standard steel grade for universal steel machining

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

# System 270-09

## Machining strategy

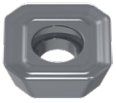
### Helical plunging



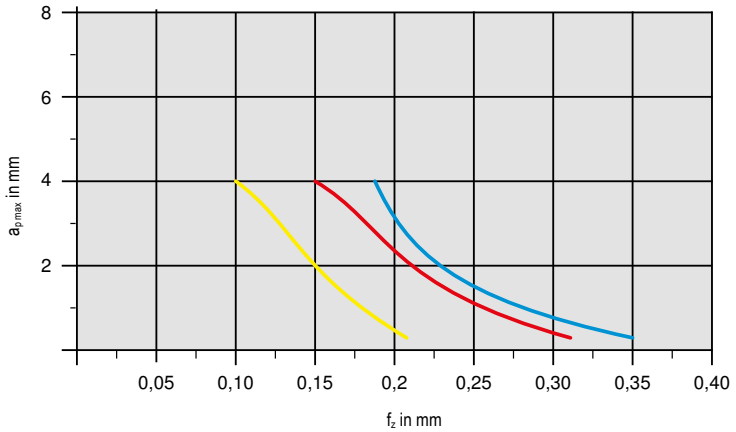

A 270-09

| DC mm | $D_{min}$ mm | $B_{1\ max}$ mm | $D_{max}$ mm | $B_{2\ max}$ mm |
|---|---|---|---|---|
| 40 | 84,5 | 1,5 | 87 | 1,5 |
| 50 | 104,5 | 1,5 | 107 | 1,5 |
| 63 | 130,5 | 1,5 | 133 | 1,5 |
| 80 | 164,5 | 1,5 | 167 | 1,5 |
| 100 | 204,5 | 1,5 | 207 | 1,5 |

## Starting Parameter



SDNT 09



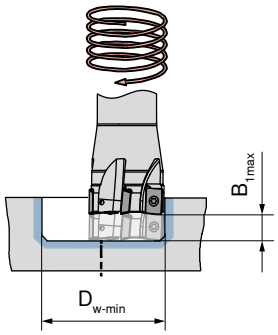

| Material | | | Inserts | | $v_c$ in m/min | Cooling |
|---|---|---|---|---|---|---|
| Steel | **P.2.2** | 40CrMnMoS 8-6 | **SDNT0903AESN-29.N** | **CT-P30** | 126 | Dry |
| Stainless steel | **M.1.1** | X6CrNiMoTi 1712 2 | **SDNT0903AESN-29.N** | **CT-P30** | 97 | Dry |
| Cast iron | **K.1.1** | EN-GJL-250 (GG25) | **SDNT0903AESN-29.N** | **CT-P30** | 128 | Dry |

**Detailed information on cutting speed for each grade can be found on → page 12**
From $v_c$ > 400 m/min, the tool must be balanced!

# System 210-10

## Machining strategy

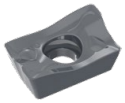
### Helical plunging



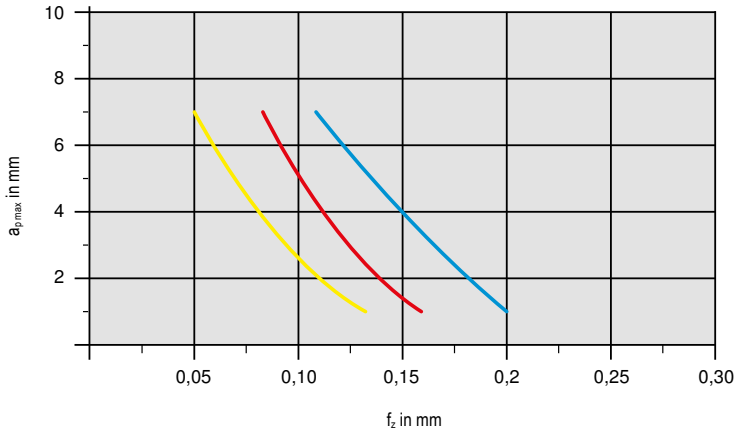

### A 210-10 / C 210-10

| DC mm | $D_{min}$ mm | $B_{1\,max}$ mm | $D_{max}$ mm | $B_{2\,max}$ mm | $\alpha_R$ ° |
|---|---|---|---|---|---|
| 20 | 30 | 1,4 | 38 | 2,6 | 2,7 |
| 25 | 40 | 1,5 | 48 | 2,3 | 1,9 |
| 32 | 54 | 1,6 | 62 | 2,2 | 1,3 |
| 40 | 70 | 1,7 | 78 | 2,1 | 1 |
| 50 | 90 | 1,6 | 98 | 1,9 | 0,7 |
| 63 | 116 | 1,6 | 124 | 1,8 | 0,5 |
| 80 | 150 | 1,5 | 158 | 1,8 | 0,4 |

## Starting Parameter



APKT 10

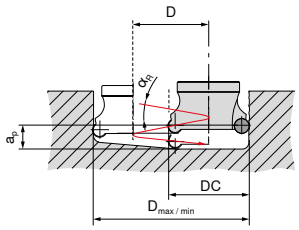



| Material | | | Inserts | | $v_c$ in m/min | Cooling |
|---|---|---|---|---|---|---|
| Steel | **P.2.2** | 40CrMnMoS 8-6 | **AKPT1003PDSR-29M.N** | **CT-P30** | 126 | Dry |
| Stainless steel | **M.1.1** | X6CrNiMoTi 1712 2 | **AKPT1003PDSR-29M.N** | **CT-P30** | 97 | Dry |
| Cast iron | **K.1.1** | EN-GJL-250 (GG25) | **AKPT1003PDSR-29M.N** | **CT-P30** | 128 | Dry |

**Detailed information on cutting speed for each grade can be found on → page 12**
From $v_c$ > 400 m/min, the tool must be balanced!

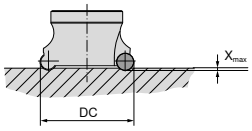
# System 251-10

## Machining strategy



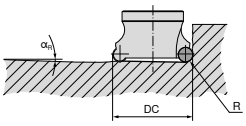

### Helical plunging

| DC mm | $D_{min.}$ mm | $D_{max.}$ mm | $\alpha_R$ ° |
|---|---|---|---|
| **25** | 37 | 40 | 1,8 |
| **32** | 50 | 54 | 1,5 |
| **40** | 64 | 70 | 1,1 |
| **50** | 84 | 90 | 0,9 |




### Axial ramping

| DC mm | $X_{max}$ mm |
|---|---|
| **25** | 0,4 |
| **32** | 50 |
| **40** | 64 |
| **50** | 84 |

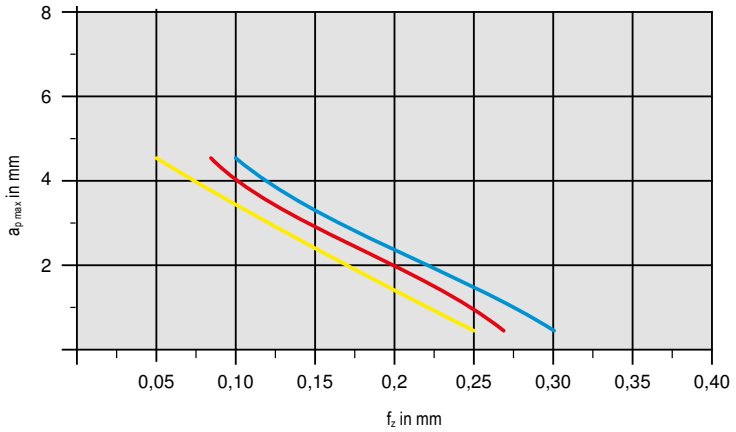



### Angled ramping

| DC mm | $\alpha_R$ ° |
|---|---|
| **25** | 2 |
| **32** | 3 |
| **40** | 3,3 |
| **50** | 2,4 |

## Starting Parameter

RPNX 10




| Material | | | Inserts | | $v_c$ in m/min | Cooling |
|---|---|---|---|---|---|---|
| Steel | **P.2.2** | 40CrMnMoS 8-6 | **RPNX10T3M8SN-M50.N** | **CT-P30** | 126 | Dry |
| Stainless steel | **M.1.1** | X6CrNiMoTi 1712 2 | **RPNX10T3M8SN-M50.N** | **CT-P30** | 97 | Dry |
| Cast iron | **K.1.1** | EN-GJL-250 (GG25) | **RPNX10T3M8SN-M50.N** | **CT-P30** | 128 | Dry |

**Detailed information on cutting speed for each grade can be found on → page 12**
From $v_c$ > 400 m/min, the tool must be balanced!

We reserve the right to make technical changes and product improvements.

CERATIZIT GROUP

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