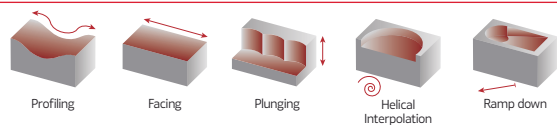


# Penta Hifeed milling line



**palbit**  
HARDMETAL TOOLS SOLUTIONS

PENTA HIFEED  
06320

NEW



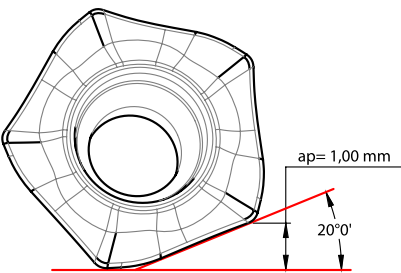
**100**  
YEARS  
SINCE 1916

MAIN FEATURES



Line 06320 is a high-feed milling concept with five cutting edges for roughing to semi-finishing. It offers excellent performance in many materials.

5 cutting edges:



Benefits

- High productivity in applications requiring light cutting action;
- Specially developed for machining difficult-to-cut materials;
- Strong and robust inserts for reliable machining and long tool life;
- Low power consumption.

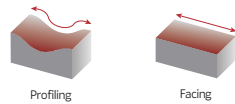
Features

- Five cutting edges per insert;
- Wide range of grades;
- Internal coolant on all cutters enables efficient wet machining as well as compressed air cooling;
- Reduced axial forces with a 20 degree lead angle and a positive axial inclination angle.

Application

- Face milling and profile milling, including ramping and helical interpolation;
- Suitable for most applications and industry segments;
- Machining of components requiring long overhangs.

Main operations:

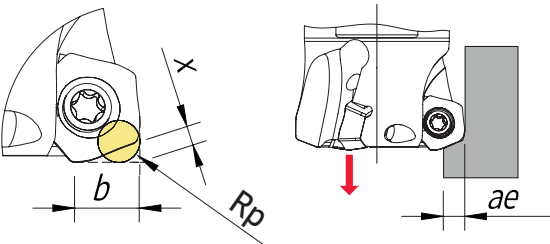


Working materials:



PROGRAMMING DATA

| Insert       | Programming Data |     |     |     |
|--------------|------------------|-----|-----|-----|
|              | Rp               | X   | b   | ae  |
| POKT 0403... | 2,5              | 1,2 | 4,3 | 4,0 |



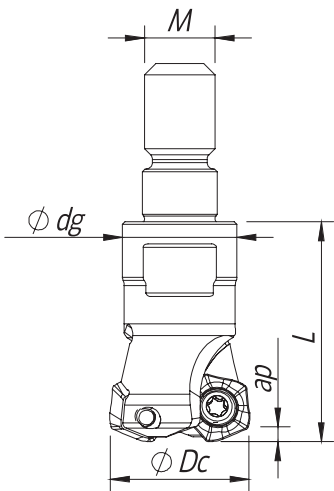
PENTA HIFEED 06320



Proprietary milling line



Threaded Coupling  
 $K_r=20^\circ$  |  $\gamma_p=14^\circ$  |  $R_p=2,5$

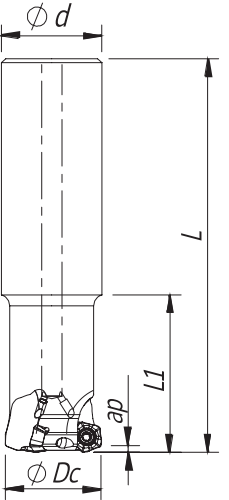


| Order code<br>Código | Reference<br>Referência<br>Referencia |   | Dimensions   Dimensões   Dimensiones (mm) |      |     |    |    | Kg   | Specifications |            | Insert       | Stock |
|----------------------|---------------------------------------|---|-------------------------------------------|------|-----|----|----|------|----------------|------------|--------------|-------|
|                      |                                       |   | ØDc                                       | Ød/M | Ødg | L  | L1 |      | Ap max (mm)    | Arbor Type |              |       |
| 181113500            | 016R06320-02-14-M08025                | 2 | 16                                        | M08  | 13  | 25 | -  | 0,02 | 1,0            | -          | POKT 0403... |       |
| 181113600            | 020R06320-02-14-M10025                | 2 | 20                                        | M10  | 18  | 25 | -  | 0,05 | 1,0            | -          | POKT 0403... |       |
| 181113700            | 025R06320-03-14-M12028                | 3 | 25                                        | M12  | 21  | 28 | -  | 0,07 | 1,0            | -          | POKT 0403... |       |
| 181129100            | 032R06320-05-14-M16035                | 5 | 32                                        | M16  | 29  | 35 | -  | 0,17 | 1,0            | -          | POKT 0403... |       |
| 181129200            | 035R06320-05-14-M16035                | 5 | 35                                        | M16  | 29  | 35 | -  | 0,19 | 1,0            | -          | POKT 0403... |       |
| 181130900            | 042R06320-05-14-M16035                | 5 | 42                                        | M16  | 29  | 35 | -  | 0,23 | 1,0            | -          | POKT 0403... |       |

Stock item | Produto de stock | Itens de stock      Available under request | Disponível sobre consulta | Disponible bajo consulta

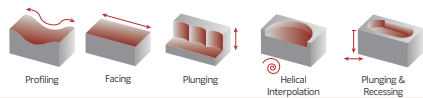


Cylindrical Shank  
 $K_r=20^\circ$  |  $\gamma_p=14^\circ$  |  $R_p=2,5$

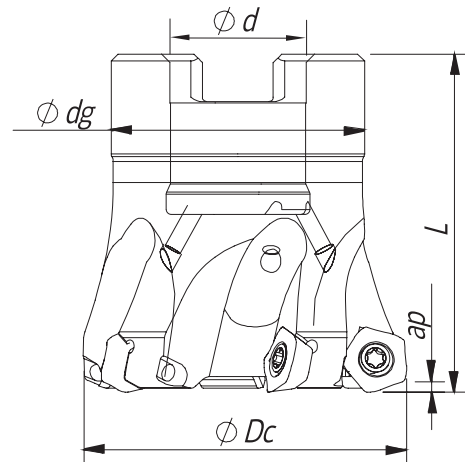


| Order code<br>Código | Reference<br>Referência<br>Referencia |   | Dimensions   Dimensões   Dimensiones (mm) |      |     |     |    | Kg   | Specifications |            | Insert       | Stock |
|----------------------|---------------------------------------|---|-------------------------------------------|------|-----|-----|----|------|----------------|------------|--------------|-------|
|                      |                                       |   | ØDc                                       | Ød/M | Ødg | L   | L1 |      | Ap max (mm)    | Arbor Type |              |       |
| 181131000            | 025E06320-03-14-025150                | 3 | 25                                        | 25   | -   | 150 | 40 | 0,41 | 1,0            | -          | POKT 0403... |       |
| 181131100            | 032E06320-05-14-032180                | 5 | 32                                        | 32   | -   | 180 | 50 | 0,56 | 1,0            | -          | POKT 0403... |       |
| 181131200            | 040E06320-05-14-032180                | 5 | 40                                        | 32   | -   | 180 | 50 | 0,70 | 1,0            | -          | POKT 0403... |       |

Stock item | Produto de stock | Itens de stock      Available under request | Disponível sobre consulta | Disponible bajo consulta



Arbor Mounting  
 $K_r=20^\circ$  |  $\gamma_p=14^\circ$  |  $R_p=2,5$



| Order code<br>Código | Reference<br>Referência<br>Referencia |  | Dimensions   Dimensões   Dimensiones (mm) |            |           |    |    | Kg   | Specifications |            | Insert       | Stock |
|----------------------|---------------------------------------|--|-------------------------------------------|------------|-----------|----|----|------|----------------|------------|--------------|-------|
|                      |                                       |  | $\phi Dc$                                 | $\phi d/M$ | $\phi dg$ | L  | L1 |      | $A_p$ max (mm) | Arbor Type |              |       |
| 181129300            | 040A06320-05-14-016040                |  | 40                                        | 16         | 30        | 40 | -  | 0,15 | 1,0            | -          | POKT 0403... |       |
| 181129400            | 050A06320-06-14-022045                |  | 50                                        | 22         | 40        | 45 | -  | 0,19 | 1,0            | -          | POKT 0403... |       |
| 181129500            | 052A06320-06-14-022045                |  | 52                                        | 22         | 40        | 45 | -  | 0,29 | 1,0            | -          | POKT 0403... |       |
| 181129600            | 063A06320-07-14-027050                |  | 63                                        | 27         | 48        | 50 | -  | 0,50 | 1,0            | -          | POKT 0403... |       |
| 181131300            | 066A06320-07-14-027050                |  | 66                                        | 27         | 48        | 50 | -  | 0,55 | 1,0            | -          | POKT 0403... |       |

Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

## POKT 0403 | Inserts | Pastilhas | Plaquitas



|                                    |                     | P      |        |        |        |        | M      |        |        |        | K      |        |        |        |        |        | N      | S      |        | H      | Dimensions<br>(mm) |        |      |      |   |      |     |  |
|------------------------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|--------|------|------|---|------|-----|--|
|                                    |                     | PVD    |        |        |        |        | CVD    | PVD    |        |        |        | CVD    |        | PVD    |        |        |        | UNC    | PCD    | PVD    |                    |        |      |      |   | PVD  | CBN |  |
|                                    |                     | P7     | G1     | G4     | P3     | G6     | R1     | G4     | P3     | G6     | L5     | L6     | G1     | G4     | P3     | G6     | 10     | D6     | P3     | G6     |                    |        |      |      |   | M6   | D4  |  |
| <sup>(1)</sup><br>Geometry<br>code | ISO<br>Reference    | PH7603 | PH7910 | PH7920 | PH7930 | PH7740 | PHM740 | PH7920 | PH7930 | PH7740 | PH5705 | PH5320 | PH7910 | PH7920 | PH7930 | PH7740 | PH0910 | PDP410 | PH7930 | PH7740 | PH6103             | PHH910 | iC   | S    | I | R    | F   |  |
| 1112365                            | POKT 040305 ZDSR-MP |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                    |        | 7,00 | 3,00 | - | 0,50 | -   |  |

First choice | Primeira opção | 1ª opción

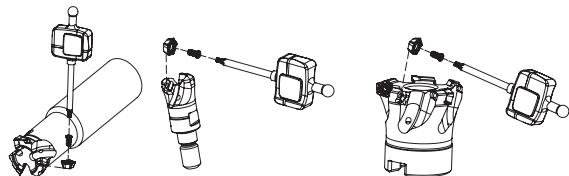
Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert order code = (1) Geometry Code + (2) Grade Code

## SPARE PARTS Complementos | Complementos

| Cutter<br>$\phi Dc$ | Insert Screw | Key (Torx) | Torque Value | Screw | DIN 6368 Wrench |
|---------------------|--------------|------------|--------------|-------|-----------------|
| R06320 - 16-42      | P0250503     | XT08       | 1,20         | -     | -               |
| E06320 - 25-40      | P0250503     | XT08       | 1,20         | -     | -               |
| A06320 - 40-60      | P0250503     | XT08       | 1,20         | -     | -               |



## GRADES SELECTION GUIDE

| ISO | PSM | Material                    | HB (Brinell) | Grades            |        |             |        |
|-----|-----|-----------------------------|--------------|-------------------|--------|-------------|--------|
|     |     |                             |              | ← Wear Resistance |        | Toughness → |        |
|     |     |                             |              | PH7910            | PH7920 | PH7930      | PH7740 |
| P   | 1   | Unalloyed Steel             | 125-220      |                   |        |             |        |
|     | 2   | Low-Alloyed Steel           | 220-280      |                   |        |             |        |
|     | 3   | High-Alloyed Steel          | 280-380      |                   |        |             |        |
| M   | 4   | SS - Ferritic / Martensitic | 200-330      |                   |        |             |        |
|     | 5   | SS - Austenitic / Duplex    | 200-330      |                   |        |             |        |
|     | 6   | SS - Duplex                 | 230-260      |                   |        |             |        |
| K   | 7   | Malleable Cast Iron         | 130-230      |                   |        |             |        |
|     | 8   | Grey Cast Iron              | 180-245      |                   |        |             |        |
|     | 9   | Nodular Cast iron           | 160-250      |                   |        |             |        |
| S   | 11  | Heat Resistant Super Alloys | 200-320      |                   |        |             |        |

Good Conditions

Average Conditions

Difficult Conditions

## RECOMMENDED CUTTING CONDITIONS

| ISO | PSM | Material                    | HB<br>(Brinell) | Vc (m/min)        |         |             |         | Feed fz (mm/t) |
|-----|-----|-----------------------------|-----------------|-------------------|---------|-------------|---------|----------------|
|     |     |                             |                 | ← Wear Resistance |         | Toughness → |         |                |
|     |     |                             |                 | PH7910            | PH7920  | PH7930      | PH7740  |                |
| P   | 1   | Unalloyed Steel             | 125-220         | 190-280           | 180-250 |             |         | 0,50-1,50      |
|     | 2   | Low-Alloyed Steel           | 220-280         | 180-240           | 170-210 |             |         | 0,50-1,50      |
|     | 3   | High-Alloyed Steel          | 280-380         | 170-220           | 160-200 |             |         | 0,50-1,50      |
| M   | 4   | SS - Ferritic / Martensitic | 200-330         | -                 | -       | 130-170     | 120-180 | 0,50-1,40      |
|     | 5   | SS - Austenitic / Duplex    | 200-330         | -                 | -       | 100-160     | 100-150 | 0,50-1,40      |
|     | 6   | SS - Duplex                 | 230-260         | -                 | -       | 80-140      | 70-130  | 0,50-1,40      |
| K   | 7   | Malleable Cast Iron         | 130-230         | 180-320           | 170-300 | -           | -       | 0,50-1,50      |
|     | 8   | Grey Cast Iron              | 180-245         | 170-280           | 150-250 | -           | -       | 0,50-1,50      |
|     | 9   | Nodular Cast iron           | 160-250         | 100-240           | 90-210  | -           | -       | 0,50-1,50      |
| S   | 11  | Heat Resistant Super Alloys | 200-320         | -                 | -       | 30-75       | 30-70   | 0,50-1,30      |

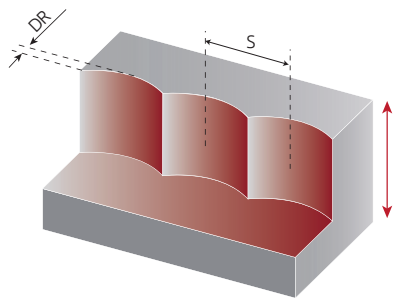
(Note 1) Cutting conditions  $a_e/Dc=70\%$ .

(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

## PLUNGING

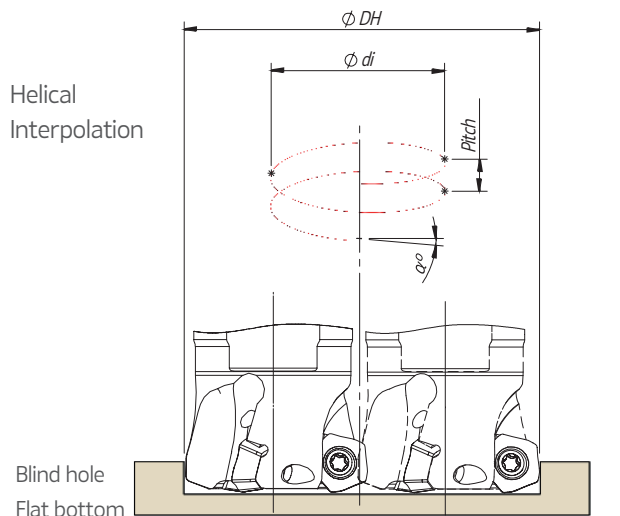
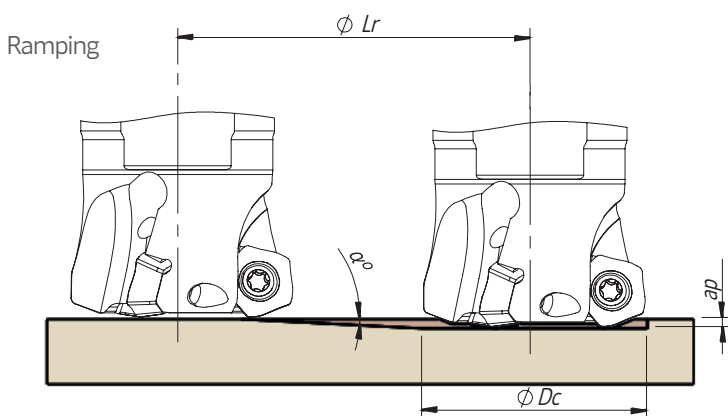
| L≤3Dc     | L>3Dc       | S max.                                    |
|-----------|-------------|-------------------------------------------|
| fz (mm/t) |             |                                           |
| 0,08-0,15 | 0,05 - 0,10 | $S_{max} = \sqrt{DC \cdot Dr \cdot Dr^2}$ |



| S max and DR corresponding cutting diameter Dc (mm) |                    |     |     |      |      |      |      |      |      |      |      |
|-----------------------------------------------------|--------------------|-----|-----|------|------|------|------|------|------|------|------|
| DR (mm)                                             | Dc (mm) POKT 04... |     |     |      |      |      |      |      |      |      |      |
|                                                     | 16                 | 20  | 25  | 32   | 35   | 40   | 42   | 50   | 52   | 63   | 66   |
| 1,0                                                 | 3,9                | 4,4 | 4,9 | 5,7  | 5,8  | 6,2  | 6,4  | 7,0  | 7,1  | 7,9  | 8,1  |
| 2,0                                                 | 5,3                | 6,0 | 6,8 | 2,7  | 8,1  | 8,7  | 8,9  | 9,8  | 10,0 | 11,0 | 11,3 |
| 3,0                                                 | 6,2                | 7,1 | 8,1 | 9,3  | 9,8  | 10,5 | 10,8 | 11,9 | 12,1 | 13,4 | 13,7 |
| 4,0                                                 | 6,9                | 8,0 | 9,2 | 10,6 | 11,1 | 12,0 | 12,3 | 13,6 | 13,9 | 15,4 | 15,7 |

Note: Recommended for  $L \leq 4 Dc$  for extra long tool this step and side cut must be reduced.

## RAMPING AND HELICAL INTERPOLATION



$$\varnothing di = \varnothing DH - \varnothing Dc$$

| $\varnothing Dc$ | Ramping            |           |           | Helical Interpolation  |                        |     |     |     |     |                |
|------------------|--------------------|-----------|-----------|------------------------|------------------------|-----|-----|-----|-----|----------------|
|                  | Max Ramp $a^\circ$ | Max $a_p$ | Min $L_r$ | $\varnothing DH_{min}$ | $\varnothing DH_{max}$ | RP  | x   | b   | ae  | Max Pitch/Rev. |
| 16               | 15                 | 1,0       | 3,7       | 23,4<br>-              | -<br>30,0              | 2,5 | 1,2 | 4,3 | 4,0 | 6<br>11        |
| 20               | 9,0                | 1,0       | 6,3       | 31,4<br>-              | -<br>38,0              |     |     |     |     | 5<br>8         |
| 25               | 5,0                | 1,0       | 11,4      | 41,4<br>-              | -<br>48,0              |     |     |     |     | 4<br>6         |
| 32               | 3,4                | 1,0       | 16,8      | 55,4<br>-              | -<br>62,0              |     |     |     |     | 4<br>5         |
| 35               | 3,0                | 1,0       | 19,1      | 61,4<br>-              | -<br>68,0              |     |     |     |     | 4<br>5         |
| 40               | 2,0                | 1,0       | 28,6      | 71,4<br>-              | -<br>78,0              |     |     |     |     | 3<br>4         |
| 42               | 2,0                | 1,0       | 28,6      | 84,0<br>-              | -<br>82,0              |     |     |     |     | 4<br>4         |
| 50               | 2,0                | 1,0       | 28,6      | 91,4<br>-              | -<br>98,0              |     |     |     |     | 4<br>5         |
| 52               | 2,0                | 1,0       | 28,6      | 95,4<br>-              | -<br>102,0             |     |     |     |     | 4<br>5         |
| 63               | 2,0                | 1,0       | 28,6      | 117,4<br>-             | -<br>124,0             |     |     |     |     | 5<br>6         |
| 66               | 1,8                | 1,0       | 31,8      | 123,4<br>-             | -<br>130,0             |     |     |     |     | 5<br>6         |

Note: During helical interpolation do not exceed max Pitch.

Cofinanciado por:

