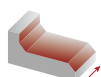


# High performance on face milling operations



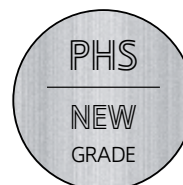
Facing



Slanted Shoulder  
& Chamfer

**palbit**  
TOOLING SOLUTIONS EXPERTS

PLUS  
90845 | 90945 | 91245



PDF

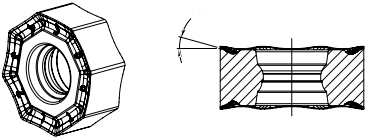


SINCE 1916

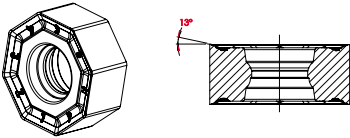
P M K S

INSERT SIZE  
05 ON...  
0505

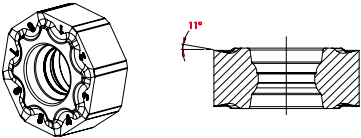
ONHX-LP  
ONKX-LP



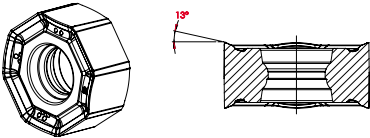
ONHX-MP  
ONKX-MP



ONHX-MK  
ONKX-MK



ONHX-W



ONHX-LP  
ONKX-LP



ONHX-MP  
ONKX-MP



ONHX-MK  
ONKX-MK



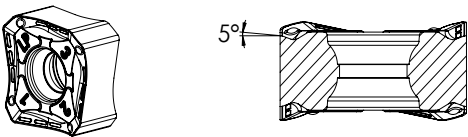
ONHX-W



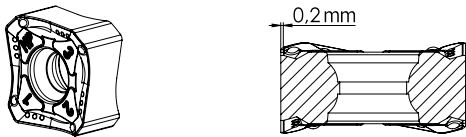
P M K N S

INSERT SIZE  
12 SN...  
1206

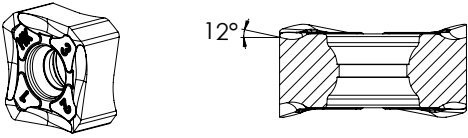
SNHX-LP



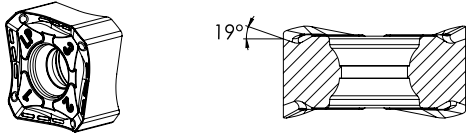
SNHX-MP  
SNKX-MP



SNHX-MK  
SNKX-MK



SNHX-LN



SNHX-LP



SNHX-MP  
SNKX-MP



SNHX-MK  
SNKX-MK



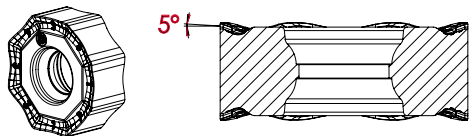
SNHX-LN



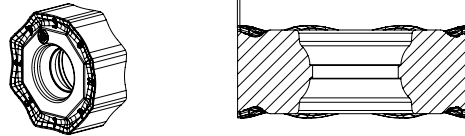
SNHX-W



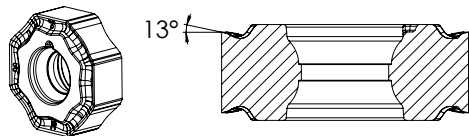
ONHX-LP  
ONKX-LP



ONHX-MP  
ONKX-MP



ONHX-W



INSERT SIZE  
**06** ON...  
0606

ONHX-LP  
ONKX-LP



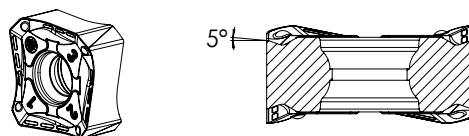
ONHX-MP  
ONKX-MP



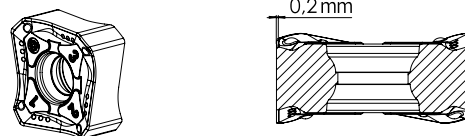
ONHX-W



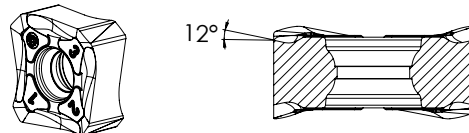
SNHX-LP



SNHX-MP  
SNKX-MP



SNHX-MK  
SNKX-MK



INSERT SIZE  
**16** SN...  
1606

SNHX-LP



SNHX-MP  
SNKX-MP

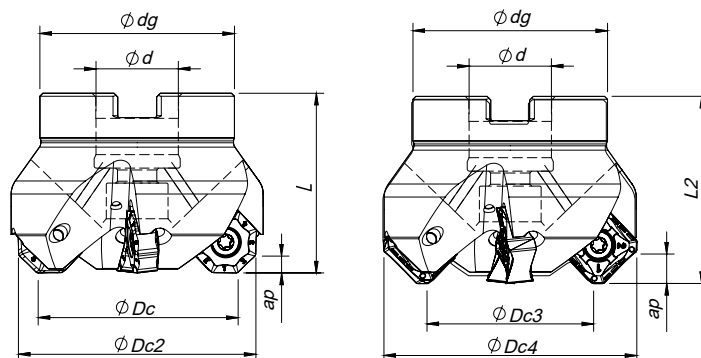


SNHX-MK  
SNKX-MK



## CHIP BREAKERS | Quebra-aparas | Rompevirutas

| Chip Breaker                        | Features   Características   Características                                                          |
|-------------------------------------|-------------------------------------------------------------------------------------------------------|
| Geometry <b>LP</b><br>Light machine | Positive top rake angle to promote a good chip flow and reduce power consumption on low alloy steels. |
| Geometry <b>MP</b><br>Light machine | Chip-breaker with a reinforced chamfer for general applications on steel and cast iron.               |
| Geometry <b>MK</b><br>Light machine | Angles optimized for greater stability and durability of the edge in the machine of cast iron.        |
| Geometry <b>LN</b><br>Light machine | High positive chip-breaker, polished for applications of non ferrous materials (aluminum).            |
| Geometry <b>W</b><br>Light machine  | Chip-breaker wiper for the best finishing solutions.                                                  |



## Arbor Mounting

$\kappa_r = 45^\circ$  |  $\gamma_p = -6^\circ$

| Order code<br>Código | Reference<br>Referência<br>Referencia |    | Dimensions   Dimensões   Dimensiones (mm) |            |            |            |          |           |    |      | Kg     | Specifications |           | Insert<br>Pastilha<br>Inserto | Stock |
|----------------------|---------------------------------------|----|-------------------------------------------|------------|------------|------------|----------|-----------|----|------|--------|----------------|-----------|-------------------------------|-------|
|                      |                                       |    | $\phi Dc$                                 | $\phi Dc2$ | $\phi Dc3$ | $\phi Dc4$ | $\phi d$ | $\phi dg$ | L  | L2   |        | Arbor Type     | Ap (mm)   |                               |       |
| 181111400            | 050A90845-04-06-022040                | 4  | 50                                        | 57,6       | 47,1       | 62         | 22       | 48        | 40 | 41,5 | 0,383  | A              | 3,5   6,0 | ON...05   SN...12             |       |
| 181117400            | 050A90845-06-06-022040                | 6  | 50                                        | 57,6       | 47,1       | 62         | 22       | 48        | 40 | 41,5 | 0,374  | A              | 3,5   6,0 | ON...05   SN...12             |       |
| 181117500            | 063A90845-06-06-022040                | 6  | 63                                        | 70,6       | 60,1       | 75         | 22       | 52        | 40 | 41,5 | 0,525  | A              | 3,5   6,0 | ON...05   SN...12             |       |
| 181117600            | 063A90845-08-06-022040                | 8  | 6                                         | 13,6       | 3,1        | 18         | 22       | 52        | 40 | 41,5 | 0,517  | A              | 3,5   6,0 | ON...05   SN...12             |       |
| 181117700            | 080A90845-07-06-027050                | 7  | 80                                        | 87,6       | 77,1       | 92         | 27       | 60        | 50 | 51,5 | 0,846  | B              | 3,5   6,0 | ON...05   SN...12             |       |
| 181117800            | 080A90845-10-06-027050                | 10 | 80                                        | 87,6       | 77,1       | 92         | 27       | 60        | 50 | 51,5 | 0,842  | B              | 3,5   6,0 | ON...05   SN...12             |       |
| 181117900            | 100A90845-08-06-032050                | 8  | 100                                       | 107,6      | 97,1       | 112        | 32       | 80        | 50 | 51,5 | 1,559  | B              | 3,5   6,0 | ON...05   SN...12             |       |
| 181120900            | 100A90845-12-06-032050                | 12 | 100                                       | 107,6      | 97,1       | 112        | 32       | 80        | 50 | 51,5 | 1,540  | B              | 3,5   6,0 | ON...05   SN...12             |       |
| 181121000            | 125A90845-10-06-040063                | 10 | 125                                       | 132,6      | 122,1      | 137        | 40       | 90        | 63 | 64,5 | 2,890  | B              | 3,5   6,0 | ON...05   SN...12             |       |
| 181121100            | 160A90845-12-06-U040063               | 12 | 160                                       | 167,6      | 157,1      | 172        | 40       | 110       | 63 | 64,5 | 4,360  | C              | 3,5   6,0 | ON...05   SN...12             |       |
| 181121200            | 200A90845-14-06-U060063               | 14 | 200                                       | 207,6      | 197,1      | 212        | 60       | 172       | 63 | 64,5 | 8,890  | C              | 3,5   6,0 | ON...05   SN...12             |       |
| 181121300            | 250A90845-16-06-U060063               | 16 | 250                                       | 257,6      | 247,1      | 262        | 60       | 172       | 63 | 64,5 | 11,490 | C              | 3,5   6,0 | ON...05   SN...12             |       |

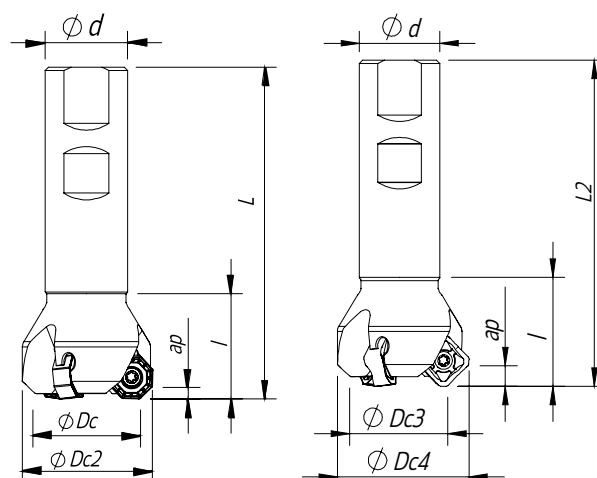
Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta



## Weldon Shank

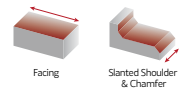
$\kappa_r = 45^\circ$  |  $\gamma_p = -6^\circ$



| Order code<br>Código | Reference<br>Referência<br>Referencia |  | Dimensions   Dimensões   Dimensiones (mm) |      |      |      |    |     |       | Kg    | Specifications | Insert<br>Pastilha<br>Inserto | Stock                                                                                 |
|----------------------|---------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------|------|------|------|----|-----|-------|-------|----------------|-------------------------------|---------------------------------------------------------------------------------------|
|                      |                                       |                                                                                     | ØDc                                       | ØDc2 | ØDc3 | ØDc4 | Ød | L   | L2    |       | Ap (mm)        |                               |                                                                                       |
| 181118000            | 032W90845-03-06-025100                | 3                                                                                   | 32                                        | 39,6 | 29,1 | 44   | 25 | 100 | 101,5 | 0,375 | 3,5   6,0      | ON...05   SN...12             |  |
| 181118100            | 040W90845-04-06-032110                | 4                                                                                   | 40                                        | 47,6 | 37,1 | 52   | 32 | 110 | 111,5 | 0,653 | 3,5   6,0      | ON...05   SN...12             |  |

Stock item | Produto de stock | Itens de stock

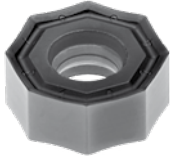
Available under request | Disponível sobre consulta | Disponible bajo consulta



# ONH(K)X 05 | SNH(K)X 12 | Inserts | Pastilhas | Plaquetas

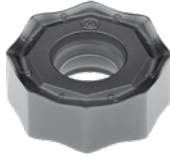
ONH(K)X-LP  
(PHS grade)

NEW

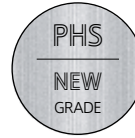


ONH(K)X-MP  
(PHS grade)

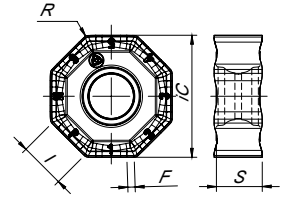
NEW



ONH(K)X-MK



ONH(K)X-LP | MP | MK



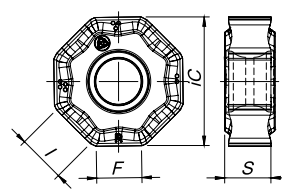
ONHX-W  
8 Cutting Edges (8R)



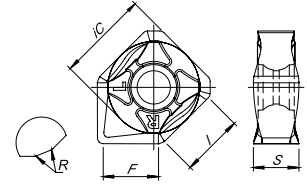
SNHX-W  
4 Cutting edges (2R + 2L)



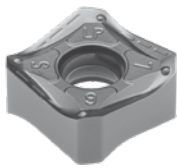
ONHX-W



SNHX-W

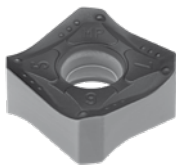


SNH(K)X-LP

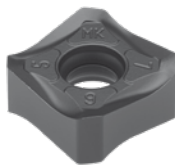


SNH(K)X-MP  
(PHS grade)

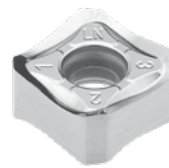
NEW



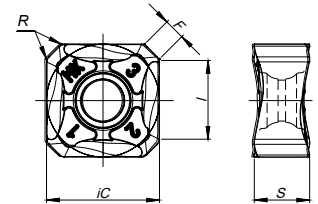
SNH(K)X-MK



SNHX-LN



SNH(K)X-LP | MP | MK | LN



|                         |                     | P                   |        |        |        |        |        | M      |        |        | K      |        |        |        |        |        | N      |        | S      |        | H      | Dimensions<br>Dimensões<br>Dimensiones<br>(mm) |      |      |      |      |
|-------------------------|---------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------------------------------------|------|------|------|------|
|                         |                     | CVD                 | PVD    |        |        |        |        | CVD    | PVD    |        | CVD    |        |        | PVD    |        |        | UNC    | PCD    | PVD    |        | PVD    |                                                |      |      |      |      |
|                         |                     | (2) Grade code      | T9     | P7     | G1     | G4     | P3     | G6     | R1     | P3     | G6     | L5     | L6     | L9     | G1     | G4     | G6     | 10     | D6     | P3     | G6     |                                                |      |      |      |      |
| (1)<br>Geometry<br>code | ISO<br>Reference    | PHS740              | PH7603 | PH7910 | PH7920 | PH7930 | PH7740 | PHM740 | PH7930 | PH7740 | PHS705 | PH5320 | PH5740 | PH7910 | PH7920 | PH7740 | PH0910 | PDP410 | PH7930 | PH7740 | PH7603 | iC                                             | S    | I    | R    | F    |
| 1112302                 | ONHX 050505 ANEN-LP |                     |        |        | ⊗      | ⊗      | ⊗      |        | ⊗      | ⊗      |        |        |        |        |        |        |        |        | ⊗      | ⊗      |        | 12,70                                          | 5,20 | 5,30 | 0,50 | -    |
| 1112304                 | ONHX 050505 ANSN-MP |                     |        |        | ○      | ○      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12,70                                          | 5,20 | 5,30 | 0,50 | -    |
| 1112306                 | ONHX 050500 ANEN-MK |                     |        |        |        |        |        |        |        |        |        | ○      | ○      |        |        |        |        |        |        |        |        | 12,70                                          | 5,20 | 5,30 | -    | -    |
| NEW                     | 1112301             | ONKX 050505 ANEN-LP | ⊗      |        | ⊗      | ⊗      |        |        | ⊗      |        |        |        |        |        |        |        |        |        | ⊗      |        |        | 12,70                                          | 5,20 | 5,30 | 0,50 | -    |
|                         | 1112303             | ONKX 050505 ANSN-MP | ⊗      |        | ⊗      | ⊗      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12,70                                          | 5,20 | 5,30 | 0,50 | -    |
|                         | 1112305             | ONKX 050500 ANEN-MK |        |        |        |        |        |        |        |        |        | ⊗      | ⊗      |        |        |        |        |        |        |        |        | 12,70                                          | 5,20 | 5,30 | -    | -    |
|                         | 1112307             | ONHX 050500 ANER-W  |        |        | ⊗      |        |        |        |        |        | ⊗      |        |        |        |        |        |        |        |        |        |        | 12,70                                          | 5,20 | 5,30 | -    | 4,30 |
|                         | 1111452             | SNHX 1206 ANEN-LP   |        |        | ⊗      | ⊗      |        |        | ⊗      |        |        |        |        |        |        |        |        |        | ⊗      |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
| NEW                     | 1111502             | SNHX 1206 ANSN-MP   | ⊗      |        | ⊗      | ⊗      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
|                         | 1111503             | SNHX 1206 ANEN-MK   |        |        |        |        |        |        |        |        | ⊗      |        | ⊗      | ⊗      | ⊗      |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
|                         | 1111504             | SNHX 1206 ANFN-LN   |        |        |        |        |        |        |        |        |        |        |        |        |        |        | ⊗      |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
| NEW                     | 1112293             | SNKX 1206 ANSN-MP   | ⊗      |        | ⊗      |        | ⊗      |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
|                         | 1112249             | SNKX 1206 ANEN-MK   |        |        |        |        |        |        |        |        | ⊗      | ⊗      | ⊗      |        |        |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
|                         | 1111899             | SNHX 1206 ANFN-W*   |        |        | ⊗      | ⊗      |        |        |        |        |        |        |        | ⊗      | ⊗      |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,40 | 7,60 |

First choice | Primeira opção | 1ª opción

Stock item | Produto de stock | Itens de stock

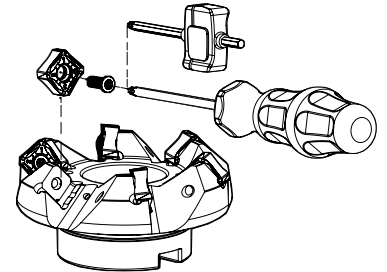
Available under request | Disponível sobre consulta  
Disponível bajo consulta

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

\* Wiper insert with 2 rights and 2 left-hand cutting edges.

## SPARE PARTS | Complementos | Repuestos

| Cutter<br>ØDc      | Insert Screw | Key (Torx) | Order separately   |              | Order separately |                 |
|--------------------|--------------|------------|--------------------|--------------|------------------|-----------------|
|                    |              |            | Key<br>(Torx - Nm) | Torque Value | Screw            | DIN 6368 Wrench |
| A90845 - 50 - 63   | P0401200     | XT15       | DT1530             | 3,0          | -                | -               |
| A90845 - 80        | P0401200     | XT15       | DT1530             | 3,0          | J0123510         | SD6368-12       |
| A90845 - 100       | P0401200     | PT15       | DT1530             | 3,0          | J0164110         | SD6368-16       |
| A90845 - 125       | P0401200     | PT15       | DT1530             | 3,0          | J0204610         | SD6368-20       |
| A90845 - 160 - 250 | P0401200     | PT15       | DT1530             | 3,0          | -                | -               |
| W90845 - 32 - 40   | P0401200     | XT15       | DT1530             | 3,0          | -                | -               |



## GRADES SELECTION GUIDE | Guia para selecção de graus | Tabla para selección de calidades

| ISO | PSM | Material                          | HB<br>(Brinell) | Grades                                                                                        |                                                                                               |                                                                                               |                                                                                               |                                                                                               |                                                                                                 |                                                                                                 |                                                                                                 |                                                                                                 |
|-----|-----|-----------------------------------|-----------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
|     |     |                                   |                 | ← Wear Resistance                                                                             |                                                                                               |                                                                                               |                                                                                               |                                                                                               |                                                                                                 | Toughness →                                                                                     |                                                                                                 |                                                                                                 |
|     |     |                                   |                 | PH0910<br> | PH5705<br> | PH5320<br> | PH7910<br> | PH7920<br> | PH7930<br> | PH5740<br> | PHS740<br> | PH7740<br> |
| 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                   | 200-330         |                                                                                               |                                                                                               |                                                                                               |                                                                                               |                                                                                               | ✓                                                                                               |                                                                                                 |                                                                                                 | ✓                                                                                               |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         |                                                                                               |                                                                                               |                                                                                               |                                                                                               |                                                                                               | ✓                                                                                               |                                                                                                 |                                                                                                 | ✓                                                                                               |
| K   | 7   | Malleable Cast Iron               | 130-230         |                                                                                               | ✓                                                                                             | ✓                                                                                             | ✓                                                                                             | ✓                                                                                             |                                                                                                 | ✓                                                                                               |                                                                                                 |                                                                                                 |
|     | 8   | Grey Cast Iron                    | 180-245         |                                                                                               | ✓                                                                                             | ✓                                                                                             | ✓                                                                                             | ✓                                                                                             |                                                                                                 | ✓                                                                                               |                                                                                                 |                                                                                                 |
|     | 9   | Nodular Cast iron                 | 160-250         |                                                                                               | ✓                                                                                             | ✓                                                                                             | ✓                                                                                             | ✓                                                                                             |                                                                                                 | ✓                                                                                               |                                                                                                 |                                                                                                 |
| N   | 10  | Aluminium and Non Ferrous         | 30-130          | ✓                                                                                             |                                                                                               |                                                                                               |                                                                                               |                                                                                               |                                                                                                 |                                                                                                 |                                                                                                 |                                                                                                 |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         |                                                                                               |                                                                                               |                                                                                               |                                                                                               |                                                                                               | ✓                                                                                               |                                                                                                 |                                                                                                 | ✓                                                                                               |

● Good Conditions

● Average Conditions

● Difficult Conditions

## RECOMMENDED CUTTING CONDITIONS | Condições de corte recomendadas | Condiciones de corte recomendables

| ISO | PSM | Material                          | HB<br>(Brinell) | Vc (m/min)        |         |         |             |         |
|-----|-----|-----------------------------------|-----------------|-------------------|---------|---------|-------------|---------|
|     |     |                                   |                 | ← Wear Resistance |         |         | Toughness → |         |
|     |     |                                   |                 | PH0910            | PH5705  | PH5320  | PH7910      | PH7920  |
| P   | 1   | Unalloyed Steel                   | 125-220         | -                 | -       | -       | 190-280     | 180-250 |
|     | 2   | Low-Alloyed Steel                 | 220-280         | -                 | -       | -       | 180-240     | 170-210 |
|     | 3   | High-Alloyed Steel                | 280-380         | -                 | -       | -       | 170-220     | 160-200 |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | -                 | -       | -       | -           | -       |
|     | 5   | SS - Austenitic                   | 200-330         | -                 | -       | -       | -           | -       |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | -                 | -       | -       | -           | -       |
| K   | 7   | Malleable Cast Iron               | 130-230         | -                 | 190-340 | 180-320 | 180-320     | 170-300 |
|     | 8   | Grey Cast Iron                    | 180-245         | -                 | 180-300 | 170-280 | 170-280     | 150-250 |
|     | 9   | Nodular Cast iron                 | 160-250         | -                 | 140-250 | 130-250 | 100-240     | 90-210  |
| N   | 10  | Aluminium and Non Ferrous         | 30-130          | 350-1200          | -       | -       | -           | -       |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | -                 | -       | -       | -           | -       |

| ISO | PSM | Material                          | HB<br>(Brinell) | Vc (m/min)        |         |             |         | Feed fz (mm/t) |               |
|-----|-----|-----------------------------------|-----------------|-------------------|---------|-------------|---------|----------------|---------------|
|     |     |                                   |                 | ← Wear Resistance |         | Toughness → |         | SNH(K)X 12...  | ONH(K)X 05... |
|     |     |                                   |                 | PH7930            | PH5740  | PHS740      | PH7740  |                |               |
| P   | 1   | Unalloyed Steel                   | 125-220         | 160-220           | -       | 140-170     | 140-170 | 0,10-0,35      | 0,10-0,35     |
|     | 2   | Low-Alloyed Steel                 | 220-280         | 150-180           | -       | 130-160     | 130-160 | 0,10-0,35      | 0,10-0,35     |
|     | 3   | High-Alloyed Steel                | 280-380         | 130-160           | -       | 110-140     | 110-140 | 0,10-0,30      | 0,10-0,30     |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | 120-180           | -       | -           | -       | 0,10-0,30      | 0,10-0,30     |
|     | 5   | SS - Austenitic                   | 200-330         | 100-160           | -       | -           | -       | 0,10-0,30      | 0,10-0,30     |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | 70-140            | -       | -           | -       | 0,10-0,25      | 0,10-0,25     |
| K   | 7   | Malleable Cast Iron               | 130-230         | 160-280           | 170-300 | -           | 130-250 | 0,10-0,35      | 0,10-0,35     |
|     | 8   | Grey Cast Iron                    | 180-245         | 140-240           | 150-260 | -           | 110-220 | 0,10-0,35      | 0,10-0,35     |
|     | 9   | Nodular Cast iron                 | 160-250         | 90-200            | 130-220 | -           | 80-170  | 0,10-0,30      | 0,10-0,30     |
| N   | 10  | Aluminium and Non Ferrous         | 30-130          | -                 | -       | -           | -       | 0,10-0,35      | -             |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | 30-75             | -       | -           | -       | 0,07-0,20      | 0,07-0,18     |

(Note 1) Cutting conditions  $a_p/D_c=70\%$ .

(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.

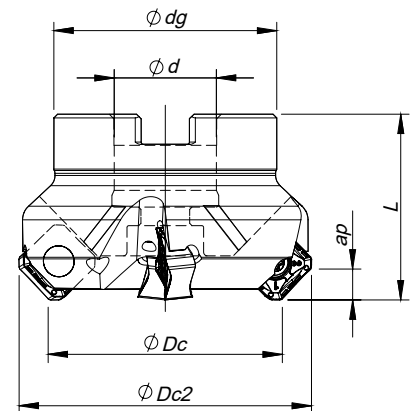
(Note 3) PH5... and PHS... can be used wet or dry. PH7... use only air.

## CHIP-BREAKER SELECTION GUIDE | Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

| ISO | PSM | Material                          | HB<br>(Brinell) | Chip-Breaker Application |                      |
|-----|-----|-----------------------------------|-----------------|--------------------------|----------------------|
|     |     |                                   |                 | 1st choice               | Difficult Operations |
| P   | 1   | Unalloyed Steel                   | 125-220         | LP                       | MP                   |
|     | 2   | Low-Alloyed Steel                 | 220-280         | LP                       | MP                   |
|     | 3   | High-Alloyed Steel                | 280-380         | MP                       | -                    |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | LP                       | MP                   |
|     | 5   | SS - Austenitic                   | 200-330         | LP                       | -                    |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | LP                       | -                    |
| K   | 7   | Malleable Cast Iron               | 130-230         | MK                       | -                    |
|     | 8   | Grey Cast Iron                    | 180-245         | MK                       | -                    |
|     | 9   | Nodular Cast iron                 | 160-250         | MK                       | -                    |
| N   | 10  | Aluminium and Non Ferrous         | 30-130          | LN                       | -                    |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | LP                       | -                    |



**Arbor Mounting**  
 $K_r = 45^\circ$  |  $\gamma_p = -6^\circ$



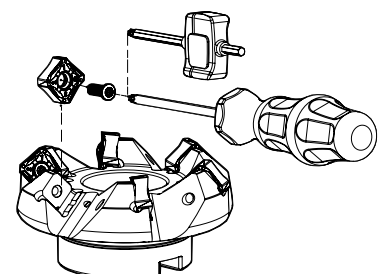
| Order code<br>Código | Reference<br>Referência<br>Referencia |    | Dimensions   Dimensões   Dimensiones (mm) |            |          |           |    | Kg     | Specifications |                | Insert<br>Pastilha<br>Inserto | Stock |
|----------------------|---------------------------------------|----|-------------------------------------------|------------|----------|-----------|----|--------|----------------|----------------|-------------------------------|-------|
|                      |                                       |    | $\phi Dc$                                 | $\phi Dc2$ | $\phi d$ | $\phi dg$ | L  |        | Arbor<br>Type  | Ap max<br>(mm) |                               |       |
| 181048200            | 050A90945-04-06-022040                | 4  | 50                                        | 63         | 22       | 48        | 40 | 0,424  | A              | 6,0            | SN... 1206                    |       |
| 181067000            | 050A90945-06-06-022040                | 6  | 50                                        | 63         | 22       | 48        | 40 | 0,415  | A              | 6,0            | SN... 1206                    |       |
| 181048300            | 063A90945-06-06-022040                | 6  | 63                                        | 76         | 22       | 52        | 40 | 0,575  | A              | 6,0            | SN... 1206                    |       |
| 181067100            | 063A90945-08-06-022040                | 8  | 63                                        | 76         | 22       | 52        | 40 | 0,577  | A              | 6,0            | SN... 1206                    |       |
| 181048400            | 080A90945-07-06-027050                | 7  | 80                                        | 93         | 27       | 60        | 50 | 0,966  | B              | 6,0            | SN... 1206                    |       |
| 181067200            | 080A90945-10-06-027050                | 10 | 80                                        | 93         | 27       | 60        | 50 | 0,950  | B              | 6,0            | SN... 1206                    |       |
| 181048500            | 100A90945-08-06-032050                | 8  | 100                                       | 113        | 32       | 80        | 50 | 1,667  | B              | 6,0            | SN... 1206                    |       |
| 181067300            | 100A90945-12-06-032050                | 12 | 100                                       | 113        | 32       | 80        | 50 | 1,650  | B              | 6,0            | SN... 1206                    |       |
| 181048600            | 125A90945-10-06-040063                | 10 | 125                                       | 138        | 40       | 90        | 63 | 2,890  | B              | 6,0            | SN... 1206                    |       |
| 181048700            | 160A90945-12-06-U040063               | 12 | 160                                       | 173        | 40       | 110       | 63 | 4,360  | C              | 6,0            | SN... 1206                    |       |
| 181052800            | 200A90945-14-06-U060063               | 14 | 200                                       | 213        | 60       | 172       | 63 | 8,890  | C              | 6,0            | SN... 1206                    |       |
| 181064700            | 250A90945-16-06-U060063               | 16 | 250                                       | 263        | 60       | 172       | 63 | 11,490 | C              | 6,0            | SN... 1206                    |       |

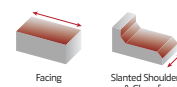
Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

## SPARE PARTS | Complementos | Repuestos

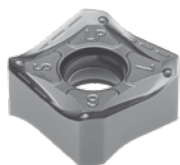
| Cutter<br>$\phi Dc$ | Order separately |            |                    |              | Order separately |                 |
|---------------------|------------------|------------|--------------------|--------------|------------------|-----------------|
|                     | Insert Screw     | Key (Torx) | Key<br>(Torx - Nm) | Torque Value | Screw            | DIN 6368 Wrench |
| A90945 - 50 - 63    | P0401200         | XT15       | DT1530             | 3,0          | -                | -               |
| A90945 - 80         | P0401200         | XT15       | DT1530             | 3,0          | J0123510         | SD6368-12       |
| A90945 - 100        | P0401200         | PT15       | DT1530             | 3,0          | J0164110         | SD6368-16       |
| A90945 - 125        | P0401200         | PT15       | DT1530             | 3,0          | J0204610         | SD6368-20       |
| A90945 - 160 - 250  | P0401200         | PT15       | DT1530             | 3,0          | -                | -               |





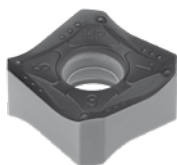
## SNH(K)X 1206 | Inserts | Pastilhas | Plaquetas

SNH(K)X-LP

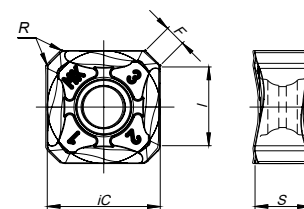


SNH(K)X-MP  
(PHS grade)

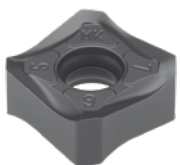
NEW



SNH(K)X-LP | MP | MK | LN



SNH(K)X-MK

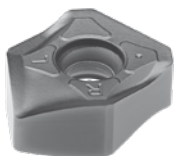


SNHX-LN

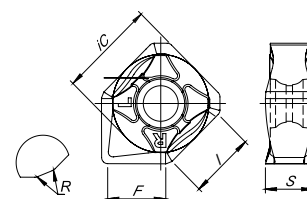


SNHX-W

4 Cutting edges (2R + 2L)



SNHX-W



|                         |                   | P      |        |        |        |        |        | M      |        |        |        | K      |        |        |        |        |        | N      |        | S      |        | H      | Dimensions<br>Dimensões<br>Dimensiones<br>(mm) |      |      |      |      |
|-------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------------------------------------|------|------|------|------|
|                         |                   | CVD    |        | PVD    |        |        |        | CVD    |        | PVD    |        | CVD    |        | PVD    |        | UNC    |        | PCD    | PVD    |        | PVD    |        |                                                |      |      |      |      |
|                         |                   | T9     | P7     | G1     | G4     | P3     | G6     | R1     | G4     | P3     | G6     | L5     | L6     | L9     | G1     | G4     | P3     | 10     | D6     | P3     | G6     | P7     |                                                |      |      |      |      |
| (1)<br>Geometry<br>code | ISO<br>Reference  | PH5740 | PH7603 | PH7910 | PH7920 | PH7930 | PH7740 | PHM740 | PH7920 | PH7930 | PH7740 | PH5705 | PH5320 | PH5740 | PH7910 | PH7920 | PH7930 | PH0910 | PDP410 | PH7930 | PH7740 | PH7603 |                                                |      |      |      |      |
| NEW 1112293             | SNKX 1206 ANSN-MP | ⊗      |        |        | ⊗      |        | ⊗      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | iC                                             | S    | I    | R    | F    |
| 1112249                 | SNKX 1206 ANEN-MK |        |        |        |        |        |        |        |        |        |        | ⊗      | ⊗      | ⊗      |        |        |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
| 1111452                 | SNHX 1206 ANEN-LP |        |        |        | ⊗      | ⊗      |        |        |        | ⊗      |        |        |        |        |        | ⊗      | ⊗      |        |        | ⊗      |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
| NEW 1111502             | SNHX 1206 ANSN-MP | ⊗      |        | ⊗      | ⊗      | ⊗      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
| 1111503                 | SNHX 1206 ANEN-MK |        |        |        |        |        |        |        |        |        |        | ⊗      |        | ⊗      | ⊗      | ⊗      |        |        |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
| 1111504                 | SNHX 1206 ANFN-LN |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | ⊗      |        |        |        |        | 12,70                                          | 6,35 | 9,30 | 0,80 | 2,00 |
| 1111899                 | SNHX 1206 ANFN-W* |        |        | ⊗      | ⊗      |        |        |        |        |        |        |        |        |        | ⊗      | ⊗      |        |        |        |        |        |        | 12,70                                          | 6,30 | 9,30 | 0,40 | 7,60 |

⊗ 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

\* Wiper insert with 2 rights and 2 left-hand cutting edges.

## RECOMMENDED CUTTING CONDITIONS | Condições de corte recomendadas | Condiciones de corte recomendables

| ISO | PSM | Material                          | HB<br>(Brinell) | Vc (m/min)        |         |         |         |         |
|-----|-----|-----------------------------------|-----------------|-------------------|---------|---------|---------|---------|
|     |     |                                   |                 | ← Wear Resistance |         |         |         |         |
|     |     |                                   |                 | PH0910            | PH5705  | PH7910  | PH7920  | PH7930  |
| P   | 1   | Unalloyed Steel                   | 125-220         | -                 | -       | 190-280 | 180-250 | 160-220 |
|     | 2   | Low-Alloyed Steel                 | 220-280         | -                 | -       | 180-240 | 170-210 | 150-180 |
|     | 3   | High-Alloyed Steel                | 280-380         | -                 | -       | 170-220 | 160-200 | 130-160 |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | -                 | -       | -       | -       | 120-180 |
|     | 5   | SS - Austenitic                   | 200-330         | -                 | -       | -       | -       | 100-160 |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | -                 | -       | -       | -       | 70-140  |
| K   | 7   | Malleable Cast Iron               | 130-230         | -                 | 190-340 | 180-320 | 170-300 | 160-280 |
|     | 8   | Grey Cast Iron                    | 180-245         | -                 | 180-300 | 170-280 | 150-250 | 140-240 |
|     | 9   | Nodular Cast iron                 | 160-250         | -                 | 140-250 | 100-240 | 90-210  | 90-200  |
| N   | 10  | Aluminium and Non Ferrous         | 30-130          | 350-1200          | -       | -       | -       | -       |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | -                 | -       | -       | -       | 30-75   |

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

(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.

(Note 3) PH5... and PH5... can be used wet or dry. PH7... use only air.

## GRADES SELECTION GUIDE | Guia para selecção de graus | Tabla para selección de calidades

| ISO | PSM | Material                          | HB<br>(Brinell) | Grades                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
|-----|-----|-----------------------------------|-----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|     |     |                                   |                 | ← Wear Resistance                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                      | Toughness →                                                                           |                                                                                       |                                                                                       |
|     |     |                                   |                 | PH0910                                                                              | PH5705                                                                              | PH7910                                                                              | PH7920                                                                              | PH7930                                                                               | PH5740                                                                                | PH5740                                                                                | 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                   | 200-330         |                                                                                     |                                                                                     |                                                                                     |                                                                                     | ✓                                                                                    |                                                                                       |                                                                                       |                                                                                       |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         |                                                                                     |                                                                                     |                                                                                     |                                                                                     | ✓                                                                                    |                                                                                       |                                                                                       |                                                                                       |
| K   | 7   | Malleable Cast Iron               | 130-230         |                                                                                     | ✓                                                                                   |                                                                                     | ✓                                                                                   |                                                                                      | ✓                                                                                     |                                                                                       |                                                                                       |
|     | 8   | Grey Cast Iron                    | 180-245         |                                                                                     | ✓                                                                                   |                                                                                     | ✓                                                                                   |                                                                                      | ✓                                                                                     |                                                                                       |                                                                                       |
|     | 9   | Nodular Cast iron                 | 160-250         |                                                                                     | ✓                                                                                   |                                                                                     | ✓                                                                                   |                                                                                      | ✓                                                                                     |                                                                                       |                                                                                       |
| N   | 10  | Aluminium and Non Ferrous         | 30-130          | ✓                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         |                                                                                     |                                                                                     |                                                                                     |                                                                                     | ✓                                                                                    |                                                                                       |                                                                                       |                                                                                       |

-  Good Conditions
-  Average Conditions
-  Difficult Conditions

## CHIP-BREAKER SELECTION GUIDE | Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

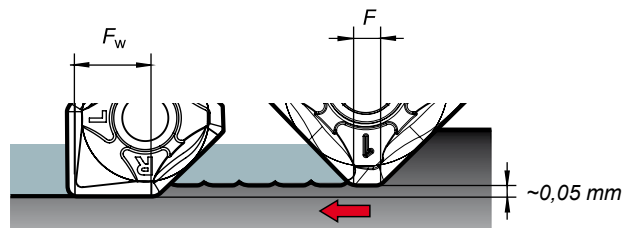
| ISO | PSM | Material                          | HB<br>(Brinell) | Chip-Breaker Application |                      |
|-----|-----|-----------------------------------|-----------------|--------------------------|----------------------|
|     |     |                                   |                 | 1st choice               | Difficult Operations |
| P   | 1   | Unalloyed Steel                   | 125-220         | SNHX 12... LP            | SNH(K)X 12... MP     |
|     | 2   | Low-Alloyed Steel                 | 220-280         | SNHX 12... LP            | SNH(K)X 12... MP     |
|     | 3   | High-Alloyed Steel                | 280-380         | SNH(K)X 12... MP         | -                    |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | SNHX 12... LP            | -                    |
|     | 5   | SS - Austenitic                   | 200-330         | SNHX 12... LP            | -                    |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | SNHX 12... LP            | -                    |
| K   | 7   | Malleable Cast Iron               | 130-230         | SNH(K)X 12... MK         | -                    |
|     | 8   | Grey Cast Iron                    | 180-245         | SNH(K)X 12... MK         | -                    |
|     | 9   | Nodular Cast iron                 | 160-250         | SNH(K)X 12... MK         | -                    |
| N   | 10  | Aluminium and Non Ferrous         | 30-130          | SNHX 12... LN            | -                    |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | SNHX 12... LP            | -                    |

| Vc (m/min)  |         |         | Feed fz (mm/t) |                  |                  |               |              |
|-------------|---------|---------|----------------|------------------|------------------|---------------|--------------|
| Toughness → |         |         |                |                  |                  |               |              |
| PH5740      | PHS740  | PH7740  | SNHX 12... LP  | SNH(k)X 12... MP | SNH(k)X 12... MK | SNHX 12... LN | SNHX 12... W |
| -           | 140-170 | 140-170 | 0,10-0,35      | 0,10-0,35        | -                | -             | 0,10-0,35    |
| -           | 130-160 | 130-160 | 0,10-0,35      | 0,10-0,35        | -                | -             | 0,10-0,35    |
| -           | 110-140 | 110-140 | 0,10-0,30      | 0,10-0,30        | -                | -             | 0,10-0,30    |
| -           | -       | -       | 0,10-0,30      | -                | -                | -             | -            |
| -           | -       | -       | 0,10-0,30      | -                | -                | -             | -            |
| -           | -       | -       | 0,10-0,25      | -                | -                | -             | -            |
| 170-300     | -       | 130-250 | 0,10-0,35      | -                | 0,10-0,35        | -             | 0,10-0,40    |
| 150-260     | -       | 110-220 | 0,10-0,35      | -                | 0,10-0,35        | -             | 0,10-0,40    |
| 130-220     | -       | 80-170  | 0,10-0,30      | -                | 0,10-0,30        | -             | 0,10-0,40    |
| -           | -       | -       | -              | -                | -                | 0,10-0,35     | -            |
| -           | -       | -       | 0,07-0,20      | -                | -                | -             | -            |

## WIPER INSERTS

Recommended Cutting Conditions:

- $f_z$  should be equal to  $0,8 \times F_w / Z$
- Axial depth of cut is 0,5 to 0,8mm.



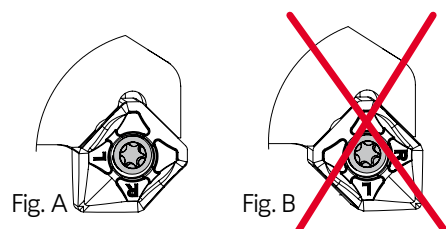
Example:

- The width of the parallel land ( $F$ ) of the insert is 2mm.
- To obtain a good surface finishing, the feed per revolution should be a maximum of 80% of 2mm = 1,6mm.
- The wiper insert will have a parallel land ( $F_w$ ) with a width of 7,6mm.
- Result: Feed per revolution ( $f_r$ ) could be increased from 1,6mm to 6,1mm (80% of 7,6mm).

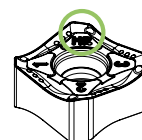
Note: Other limitations, such as machine power, must be taken into consideration.

How to use a wiper insert:

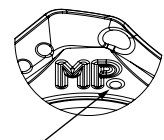
- Since wiper is one corner use to standard cutters, please attach the insert with the parallel land down to the workspace cutting surface.



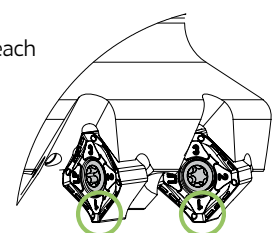
When using wiper insert, install the insert as shown on Fig. A if the insert is installed as shown on Fig. B breakage of the insert is inevitable and normal surface finish can not be obtained.

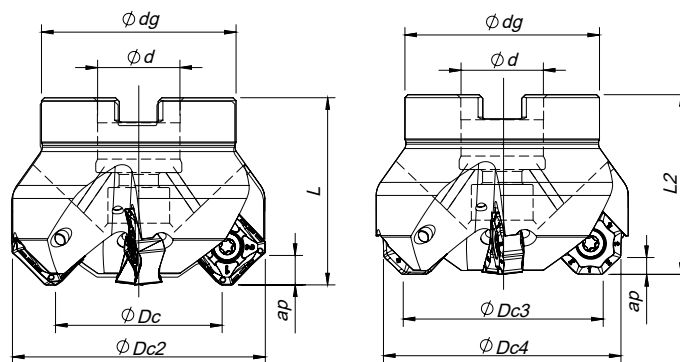


This point shows the SNKX insert difference to SNHX



Put the same side of insert in each pocket for best radial and axial runout when using SNKX.





## Arbor Mounting

$K_r = 45^\circ$  |  $\gamma_p = -6^\circ$

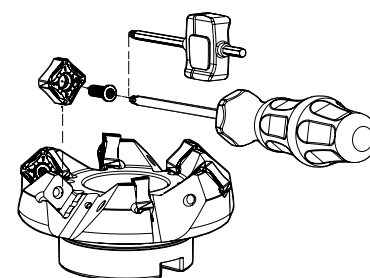
| Order code<br>Código | Reference<br>Referência<br>Referencia |    | Dimensions   Dimensões   Dimensiones (mm) |            |            |            |          |           |    |    | Kg    | Specifications |           | Insert<br>Pastilha<br>Inserto | Stock |
|----------------------|---------------------------------------|----|-------------------------------------------|------------|------------|------------|----------|-----------|----|----|-------|----------------|-----------|-------------------------------|-------|
|                      |                                       |    | $\phi Dc$                                 | $\phi Dc2$ | $\phi Dc3$ | $\phi Dc4$ | $\phi d$ | $\phi dg$ | L  | L2 |       | Arbor Type     | Ap (mm)   |                               |       |
| 181088900            | 063A91245-05-06-022050                | 5  | 63                                        | 80,1       | 66,6       | 76,0       | 22       | 52        | 50 | 48 | 0,81  | A              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089000            | 080A91245-06-06-027050                | 6  | 80                                        | 97,1       | 83,6       | 93,0       | 27       | 60        | 50 | 48 | 1,06  | B              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089100            | 080A91245-08-06-027050                | 8  | 80                                        | 97,1       | 83,6       | 93,0       | 27       | 60        | 50 | 48 | 1,09  | B              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089200            | 100A91245-07-06-032063                | 7  | 100                                       | 117,1      | 103,6      | 113,0      | 32       | 80        | 63 | 61 | 2,24  | B              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089300            | 100A91245-10-06-032063                | 10 | 100                                       | 117,1      | 103,6      | 113,0      | 32       | 80        | 63 | 61 | 2,28  | B              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089400            | 125A91245-08-06-040063                | 8  | 125                                       | 142,1      | 128,6      | 138,0      | 40       | 90        | 63 | 61 | 3,04  | B              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089500            | 160A91245-10-06-U040063               | 10 | 160                                       | 177,1      | 163,6      | 173,0      | 40       | 110       | 63 | 61 | 4,40  | C              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089600            | 200A91245-12-06-U060063               | 12 | 200                                       | 217,1      | 203,6      | 213,0      | 60       | 172       | 63 | 61 | 9,12  | C              | 3,8   8,5 | ON...06   SN...16             |       |
| 181089700            | 250A91245-14-06-U060063               | 14 | 250                                       | 267,1      | 253,6      | 263,0      | 60       | 172       | 63 | 61 | 11,93 | C              | 3,8   8,5 | ON...06   SN...16             |       |

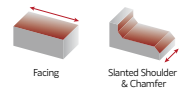
Stock item | Produto de stock | Itens de stock

Available under request (Depende de pedido) | Disponible bajo consulta (consulta a página A-6) | Disponible bajo consulta (mire pagina A-6)

## SPARE PARTS | Complementos | Repuestos

| Cutter<br>$\phi Dc$ | Order separately |            |                 |              | Order separately |                 |
|---------------------|------------------|------------|-----------------|--------------|------------------|-----------------|
|                     | Insert Screw     | Key (Torx) | Key (Torx - Nm) | Torque Value | Screw            | DIN 6368 Wrench |
| A91245 - 63         | P0451400         | XT20       | DT2050          | 5,0          | -                | -               |
| A91245 - 80         | P0451400         | XT20       | DT2050          | 5,0          | J0123510         | SD6368-12       |
| A91245 -100         | P0451400         | PT20       | DT2050          | 5,0          | J0164110         | SD6368-16       |
| A91245 -125         | P0451400         | PT20       | DT2050          | 5,0          | J0204610         | SD6368-20       |
| A91245 - 160-250    | P0451400         | PT20       | DT2050          | 5,0          | -                | -               |



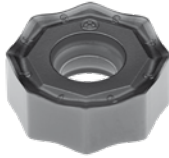


## ONH(K)X 0606 | SNH(K)X 1606 | Inserts | Pastilhas | Plaquetas

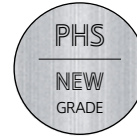
ONH(K)X-LP



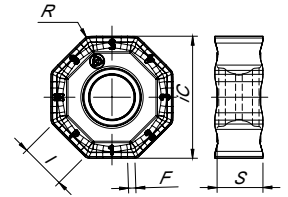
ONH(K)X-MP  
(PHS grade)



ONH(K)X-MK



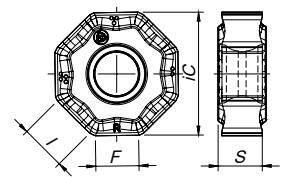
ONH(K)X-LP | MP | MK



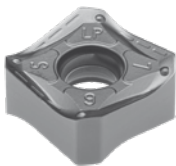
ONHX-W  
(8 Cutting edges (4R + 4L))



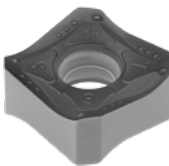
ONHX-W



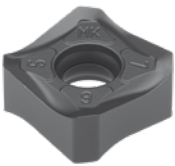
SNH(K)X-LP



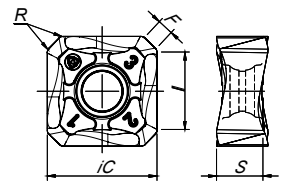
SNH(K)X-MP  
(PHS grade)



SNH(K)X-MK



SNH(K)X-LP | MP | MK



|                         |                                    | P      |        |        |        |        | M      |        |        |        |        | K      |        |        |        |        | N      |        | S      |        | H      |        | Dimensions<br>Dimensões<br>Dimensiones<br>(mm) |      |       |      |      |
|-------------------------|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------------------------------------|------|-------|------|------|
|                         |                                    | CVD    |        | PVD    |        |        | CVD    |        | PVD    |        |        | CVD    |        | PVD    |        |        | UNC    | PCD    | PVD    |        | PVD    | PVD    |                                                |      |       |      |      |
|                         |                                    | T9     | G1     | G4     | P3     | G6     | R1     | G4     | P3     | G6     | L5     | L6     | L9     | G1     | G4     | P3     | G6     | 10     | D6     | P3     | G6     | P7     |                                                |      |       |      |      |
| (1)<br>Geometry<br>code | (2) Grade code<br>ISO<br>Reference | PH5740 | PH7910 | PH7920 | PH7930 | PH7740 | PHM740 | PH7920 | PH7930 | PH7740 | PH5705 | PH5320 | PH5740 | PH7910 | PH7920 | PH7930 | PH7740 | PH0910 | PDP410 | PH7930 | PH7740 | PH7603 | iC                                             | S    | I     | R    | F    |
| 1111954                 | ONHX 0606 ANEN-LP                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 6,20  | 0,80 | 1,00 |
| 1111955                 | ONHX 0606 ANEN-MP                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 6,20  | 0,80 | 1,00 |
| 1111956                 | ONHX 0606 ANEN-MK                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 6,20  | 0,80 | 1,00 |
| 1112053                 | ONHX 0606 ANEN-W*                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 6,20  | -    | 6,00 |
| 1112284                 | ONKX 0606 ANEN-LP                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 6,20  | 0,80 | 1,00 |
| NEW 1112287             | ONKX 0606 ANEN-MP                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 6,20  | 0,80 | 1,00 |
| 1112291                 | ONKX 0606 ANEN-MK                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 6,20  | 0,80 | 1,00 |
| 1111951                 | SNHX 1606 ANER-LP                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 12,50 | 0,80 | 2,20 |
| NEW 1111952             | SNHX 1606 ANER-MP                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 12,50 | 0,80 | 2,20 |
| 1111953                 | SNHX 1606 ANER-MK                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 12,50 | 0,80 | 2,20 |
| NEW 1112281             | SNKX 1606 ANER-MP                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 12,50 | 0,80 | 2,20 |
| 1112282                 | SNKX 1606 ANER-MK                  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 16,50                                          | 6,35 | 12,50 | 0,80 | 2,20 |

First choice | Primeira opção | 1ª opción

Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta  
Disponível bajo consulta

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

\* Wiper insert with 4 rights and 4 left-hand cutting edges.

# GRADES SELECTION GUIDE | Guia para selecção de graus | Tabla para selección de calidades

| ISO | PSM | Material                          | HB<br>(Brinell) | Grades                                                                            |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|-----|-----|-----------------------------------|-----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|     |     |                                   |                 | ← Wear Resistance                                                                 |                                                                                   |                                                                                   | Toughness →                                                                        |                                                                                     |                                                                                     |
|     |     |                                   |                 | PH5705                                                                            | PH7920                                                                            | PH7930                                                                            | PH5740                                                                             | PHS740                                                                              | 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                   | 200-330         |                                                                                   |                                                                                   | ✓                                                                                 |                                                                                    |                                                                                     | ✓                                                                                   |
|     | 6   | SS - Austenitic-ferritic (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 | Condições de corte recomendadas | Condiciones de corte recomendables

| ISO | PSM | Material                          | HB<br>(Brinell) | Vc (m/min)           |                      |                      |
|-----|-----|-----------------------------------|-----------------|----------------------|----------------------|----------------------|
|     |     |                                   |                 | ← Wear Resistance    |                      | Toughness →          |
|     |     |                                   |                 | PH5705               | PH7920               | PH7930               |
| P   | 1   | Unalloyed Steel                   | 125-220         | -                    | 180 <b>(260)</b> 320 | -                    |
|     | 2   | Low-Alloyed Steel                 | 220-280         | -                    | 150 <b>(200)</b> 240 | -                    |
|     | 3   | High-Alloyed Steel                | 280-380         | -                    | 140 <b>(180)</b> 200 | -                    |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | -                    | -                    | 120 <b>(180)</b> 200 |
|     | 5   | SS - Austenitic                   | 200-330         | -                    | -                    | 100 <b>(140)</b> 180 |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | -                    | -                    | 90 <b>(110)</b> 140  |
| K   | 7   | Malleable Cast Iron               | 130-230         | 170 <b>(190)</b> 305 | -                    | -                    |
|     | 8   | Grey Cast Iron                    | 180-245         | 180 <b>(280)</b> 350 | -                    | -                    |
|     | 9   | Nodular Cast iron                 | 160-250         | 130 <b>(160)</b> 210 | -                    | -                    |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | -                    | -                    | 35 <b>(50)</b> 75    |

| ISO | PSM | Material                          | HB<br>(Brinell) | Vc (m/min)           |                      |                      | Feed fz (mm/t)         |
|-----|-----|-----------------------------------|-----------------|----------------------|----------------------|----------------------|------------------------|
|     |     |                                   |                 | ← Wear Resistance    |                      | Toughness →          |                        |
|     |     |                                   |                 | PH5740               | PHS740               | PH7740               |                        |
| P   | 1   | Unalloyed Steel                   | 125-220         | -                    | 160 <b>(200)</b> 240 | 160 <b>(200)</b> 240 | 0,15 <b>(0,25)</b> 0,4 |
|     | 2   | Low-Alloyed Steel                 | 220-280         | -                    | 140 <b>(160)</b> 200 | 140 <b>(160)</b> 200 | 0,15 <b>(0,25)</b> 0,4 |
|     | 3   | High-Alloyed Steel                | 280-380         | -                    | 120 <b>(140)</b> 170 | 120 <b>(140)</b> 170 | 0,15 <b>(0,25)</b> 0,4 |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | -                    | -                    | 110 <b>(140)</b> 160 | 0,1 <b>(0,20)</b> 0,3  |
|     | 5   | SS - Austenitic                   | 200-330         | -                    | -                    | 90 <b>(120)</b> 140  | 0,1 <b>(0,20)</b> 0,3  |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | -                    | -                    | 80 <b>(100)</b> 120  | 0,1 <b>(0,20)</b> 0,3  |
| K   | 7   | Malleable Cast Iron               | 130-230         | 150 <b>(170)</b> 260 | -                    | -                    | 0,15 <b>(0,25)</b> 0,4 |
|     | 8   | Grey Cast Iron                    | 180-245         | 155 <b>(190)</b> 290 | -                    | -                    | 0,14 <b>(0,25)</b> 0,4 |
|     | 9   | Nodular Cast iron                 | 160-250         | 115 <b>(140)</b> 180 | -                    | -                    | 0,14 <b>(0,25)</b> 0,4 |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | -                    | -                    | 20 <b>(40)</b> 55    | 0,1 <b>(0,15)</b> 0,17 |

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

(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.

(Note 3) PH5... and PHS... can be used wet or dry. PH7... use only air.

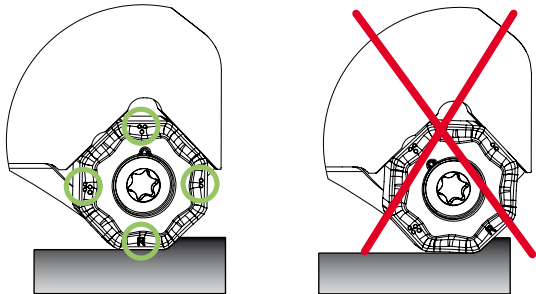
### Selection Example:

| ISO | PSM | Material            | HB<br>(Brinell) | Vc (m/min)                      |                                 | Feed fz (mm/t)                     |
|-----|-----|---------------------|-----------------|---------------------------------|---------------------------------|------------------------------------|
|     |     |                     |                 | ← Wear Resistance               | Toughness →                     |                                    |
|     |     |                     |                 | PH5705                          | PH5740                          |                                    |
| K   | 7   | Malleable cast iron | 130-230         | 170 <b>(190)</b> 305            | 150 <b>(170)</b> 260            | 0,15 <b>(0,25)</b> 0,40            |
|     | 8   | Grey cast iron      | 180-245         | 180 <b>(280)</b> 350            | 155 <b>(190)</b> 290            | 0,14 <b>(0,25)</b> 0,40            |
|     | 9   | Nodular cast iron   | 160-250         | <del>130 <b>(160)</b> 210</del> | <del>115 <b>(140)</b> 180</del> | <del>0,14 <b>(0,25)</b> 0,40</del> |

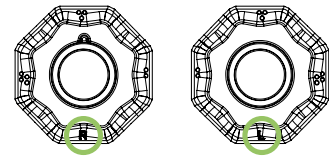
This example shows the recommended starting cutting conditions, indicated in Bold type.

# CHIP-BREAKER SELECTION GUIDE | Guia para aplicações do quebra-afaras | Guía para aplicación del rompevirutas

| ISO | PSM | Material                          | HB (Brinell) | Chip-Breaker Application |             |
|-----|-----|-----------------------------------|--------------|--------------------------|-------------|
|     |     |                                   |              | 1 <sup>st</sup> choice   | Alternative |
| P   | 1   | Unalloyed Steel                   | 125-220      | LP                       | MP          |
|     | 2   | Low-Alloyed Steel                 | 220-280      | LP                       | MP          |
|     | 3   | High-Alloyed Steel                | 280-380      | MP                       | -           |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330      | LP                       | -           |
|     | 5   | SS - Austenitic                   | 200-330      | LP                       | -           |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260      | LP                       | -           |
| K   | 7   | Malleable Cast Iron               | 130-230      | MK                       | -           |
|     | 8   | Grey Cast Iron                    | 180-245      | MK                       | -           |
|     | 9   | Nodular Cast iron                 | 160-250      | MK                       | LP          |
| S   | 11  | Heat Resistant Super Alloys       | 200-320      | LP                       | -           |



The points and letter (R or L) on the insert indicates the side that should be parallel to the workspace material.

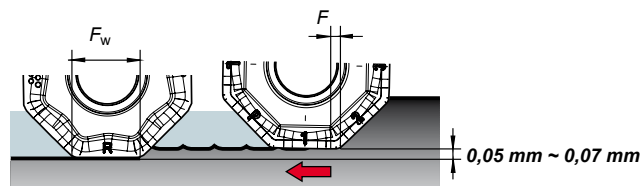


Wiper insert with 4 Right and 4 Left-hand cutting edges. The side work of the insert it's indicated by the letter R (Right) & L (Left).

## WIPER INSERTS

Recommended Cutting Conditions:

- $f_z$  should be equal to  $0,8 \times F_w / Z$
- Axial depth of cut is 0,5 to 0,8mm.



Example:

- The width of the parallel land (F) of the insert is 1mm.
- To obtain a good surface finishing, the feed per revolution should be a maximum of 80% of 1mm = 0,8mm.
- The wiper insert will have a parallel land ( $F_w$ ) with a width of 6,0mm.
- Result: Feed per revolution ( $f_r$ ) could be increased from 0,8mm to 4,8mm (80% of 6,0mm).

Note: Other limitations, such as machine power, must be taken into consideration.

How to use a wiper insert:

- Since wiper is one corner use to standard cutters, please attach the insert with the parallel land down to the workspace cutting surface.
- The points and the letter (R or L) on the insert indicates the side that should be parallel to the workspace material.
- The side work of the insert it's indicated by the letter (R - Right & L - Left).



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