



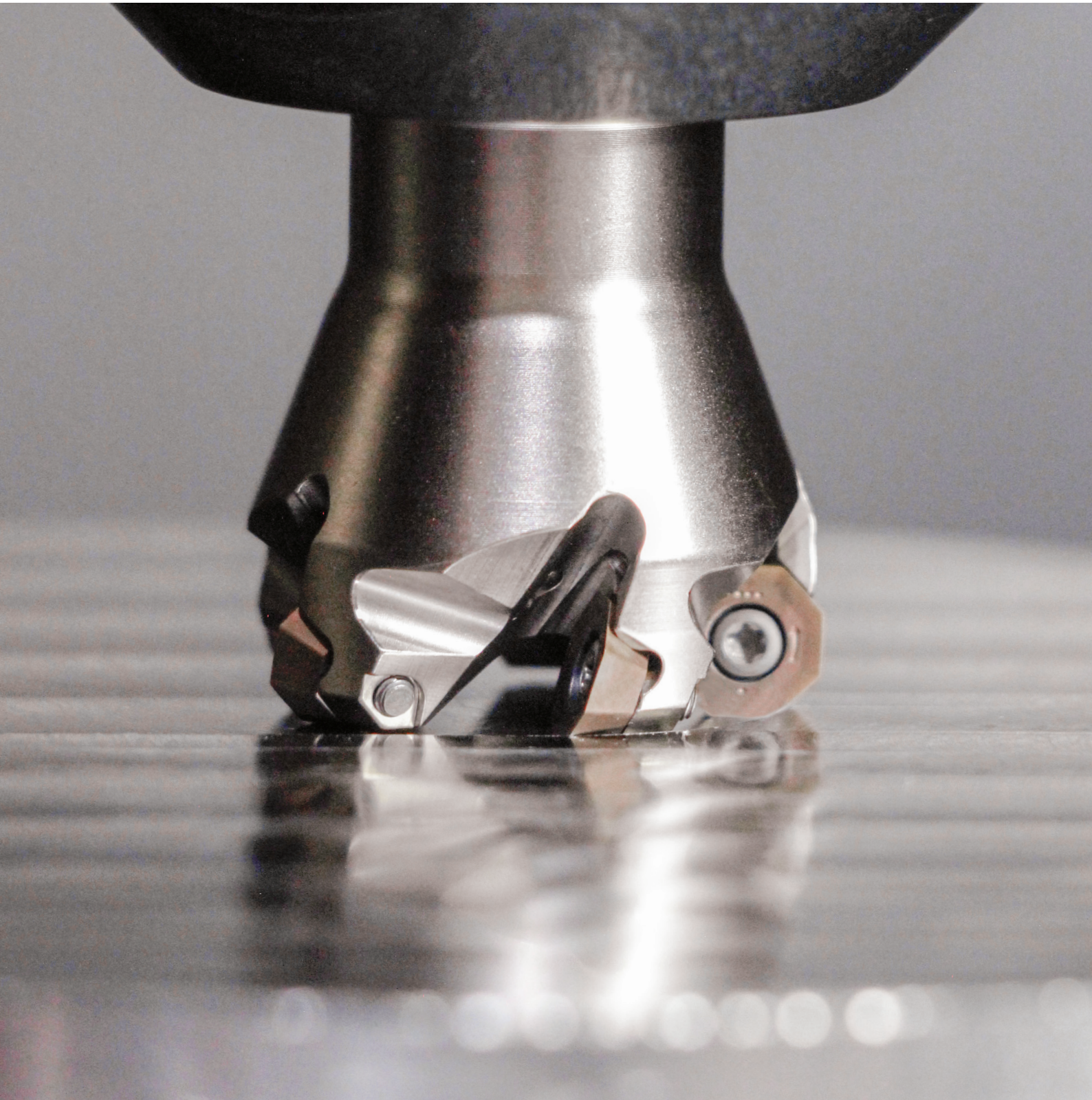
57045

# LINEPRO

**Positive Cuts,** Effortless Machining

## MILLING

Facing | Slanted Shoulder



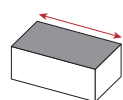
The new **LINEPRO 57045** is engineered for high-performance face milling of stainless steel and HRSA materials. Designed for low force machining, it features both normal and fine pitch options, along with a highly positive insert position that reduces cutting forces and ensures excellent surface finishes.

The multi-insert pocket design that can accommodate both SFHX and OFHX insert geometries, providing exceptional flexibility in face milling applications. The OFHX insert is specifically designed for shallow depth of cut applications, offering stable performance and excellent efficiency. The SFHX insert supports slightly deeper cuts, offering improved chip control and greater durability in more demanding machining conditions.

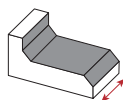
## Features & Benefits

- High positive rake angle provides a smooth cut resulting in minimised cutting forces and vibration
- Low force machining ensures effective machining of low rigidity parts on machines with lower cutting force requirements
- Toolholder compatibility with OFHX 0403 and SFHX 1004 inserts enhances adaptability to different machining needs
- Synergistic grade and geometry design ensures optimum cutting performance, maximising tool life and stability in high temperature alloy applications
- Fine pitch provides increased linear feed rates, increasing productivity
- Available cermet inserts where superior surface finish is required

## Operations



Facing



Slanted Shoulder & Chamfer

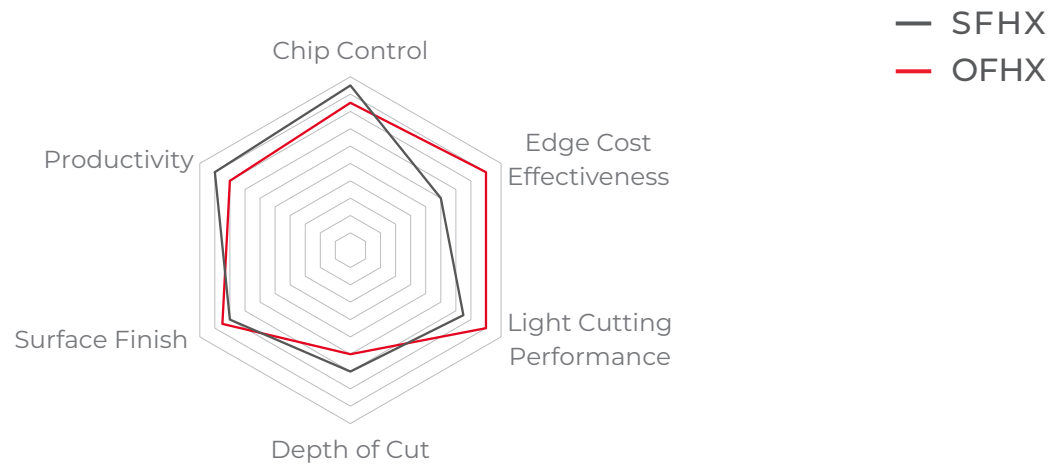
This dual insert capability ensures versatility and responsiveness to varying cutting parameters, leading to consistent, high-quality results across a wide range of applications in face milling operations.



### SFHX insert:

- **High depth of cut:** Engineered for deeper cuts
- **Good chip control:** Positive helix angle on chipbreaker

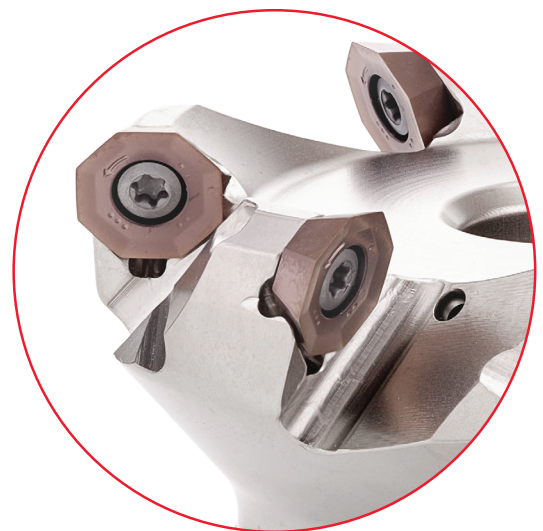
Best suited for more aggressive conditions where chip control is needed.



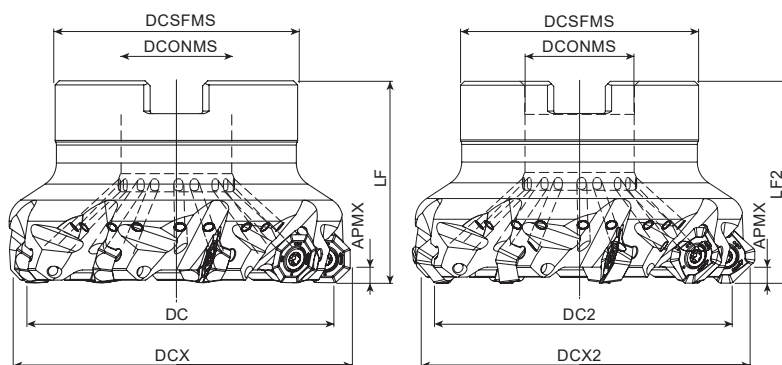
### OFHX insert:

- **Lower depth of cut:** Suitable for shallow cuts
- **Economical design:** Lower cost per cutting edge

Best suited for finishing or semi-finishing operations where surface quality and efficiency are a priority.



LINEPRO 57045 offers a blend of efficiency, versatility, and high performance!



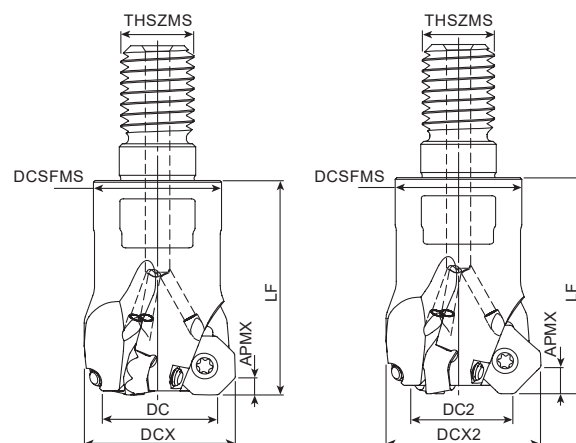
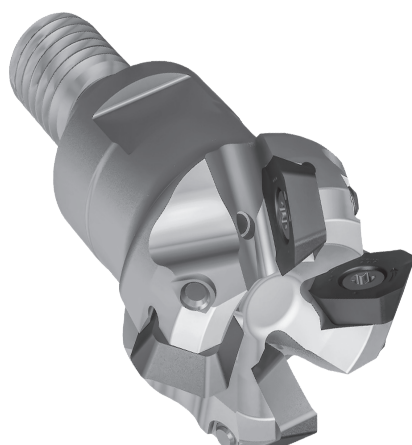
## Arbor Mounting

KAPR=45° | GAMP=+18°

| Order code<br>Código | Reference<br>Referência<br>Referencia | CICT | Dimensions   Dimensões   Dimensiones (mm) |       |       |       |        |        |    |      | WT    | Specifications |              | Insert<br>Pastilha<br>Inserto | Stock |
|----------------------|---------------------------------------|------|-------------------------------------------|-------|-------|-------|--------|--------|----|------|-------|----------------|--------------|-------------------------------|-------|
|                      |                                       |      | DC                                        | DCX   | DC2   | DCX2  | DCONMS | DCSFMS | LF | LF2  |       | Arbor<br>Type  | APMX<br>(mm) |                               |       |
| 181164100            | 040A57045-04-18-016040                | 4    | 40                                        | 45,8  | 38,4  | 47,7  | 16     | 38     | 40 | 40,7 | 0,150 | A              | 3,5   2,5    | SF..10   OF..04               | ○     |
| 181164200            | 040A57045-06-18-016040                | 6    | 40                                        | 45,8  | 38,4  | 47,7  | 16     | 38     | 40 | 40,7 | 0,180 | A              | 3,5   2,5    | SF..10   OF..04               | ⊗     |
| 181164300            | 050A57045-05-18-022040                | 5    | 50                                        | 55,8  | 48,4  | 57,7  | 22     | 48     | 40 | 40,7 | 0,330 | A              | 3,5   2,5    | SF..10   OF..04               | ○     |
| 181164400            | 050A57045-07-18-022040                | 7    | 50                                        | 55,8  | 48,4  | 57,7  | 22     | 48     | 40 | 40,7 | 0,315 | A              | 3,5   2,5    | SF..10   OF..04               | ⊗     |
| 181164500            | 063A57045-06-18-022040                | 6    | 63                                        | 68,8  | 61,4  | 70,7  | 22     | 48     | 40 | 40,7 | 0,505 | A              | 3,5   2,5    | SF..10   OF..04               | ⊗     |
| 181164600            | 063A57045-09-18-022040                | 9    | 63                                        | 68,8  | 61,4  | 70,7  | 22     | 48     | 40 | 40,7 | 0,495 | A              | 3,5   2,5    | SF..10   OF..04               | ○     |
| 181164700            | 080A57045-07-18-027050                | 7    | 80                                        | 85,8  | 78,4  | 87,7  | 27     | 58     | 50 | 50,7 | 1,150 | B              | 3,5   2,5    | SF..10   OF..04               | ○     |
| 181164800            | 080A57045-11-18-027050                | 11   | 80                                        | 85,8  | 78,4  | 87,7  | 27     | 58     | 50 | 50,7 | 1,000 | B              | 3,5   2,5    | SF..10   OF..04               | ○     |
| 181164900            | 100A57045-09-18-032050                | 9    | 100                                       | 105,8 | 98,4  | 107,7 | 32     | 78     | 50 | 50,7 | 1,650 | B              | 3,5   2,5    | SF..10   OF..04               | ○     |
| 181165000            | 100A57045-13-18-032050                | 13   | 100                                       | 105,8 | 98,4  | 107,7 | 32     | 78     | 50 | 50,7 | 1,550 | B              | 3,5   2,5    | SF..10   OF..04               | ○     |
| 181165100            | 125A57045-12-18-040063                | 12   | 125                                       | 130,8 | 123,4 | 132,7 | 40     | 88     | 63 | 63,7 | 2,700 | B              | 3,5   2,5    | SF..10   OF..04               | ○     |

⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta



## Threaded Coupling

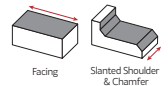
KAPR=45° | GAMP=+18°

| Order code<br>Código | Reference<br>Referência<br>Referencia | CICT | Dimensions   Dimensões   Dimensiones (mm) |      |      |      |        |        |    |      | WT    | Specifications | Insert<br>Pastilha<br>Inserto | Stock |
|----------------------|---------------------------------------|------|-------------------------------------------|------|------|------|--------|--------|----|------|-------|----------------|-------------------------------|-------|
|                      |                                       |      | DC                                        | DCX  | DC2  | DCX2 | THSZMS | DCSFSM | LF | LF2  |       | APMX (mm)      |                               |       |
| 181163800            | 020R57045-03-18-M12035                | 3    | 20                                        | 25,6 | 18,6 | 27,4 | M12    | 21     | 35 | 35,7 | 0,100 | 3,5   2,5      | SF..10   OF..04               | ○     |
| 181163900            | 025R57045-04-18-M12035                | 4    | 25                                        | 30,7 | 23,3 | 32,6 | M12    | 21     | 35 | 35,7 | 0,190 | 3,5   2,5      | SF..10   OF..04               | ○     |
| 181164000            | 032R57045-05-18-M16035                | 5    | 32                                        | 37,8 | 30,4 | 39,7 | M16    | 29     | 35 | 35,7 | 0,310 | 3,5   2,5      | SF..10   OF..04               | ○     |

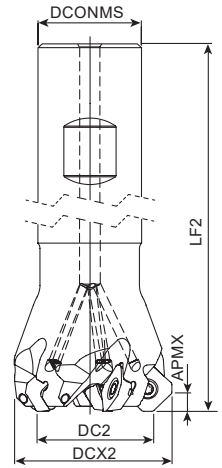
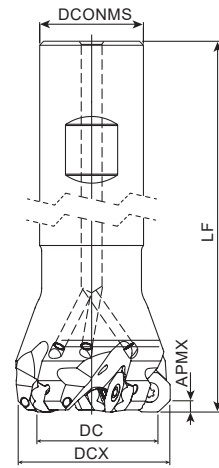
⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

**LINEPRO 57045**  
OFHX 04 | SFHX 10



**Weldon Shank**  
KAPR=45° | GAMP=+18°



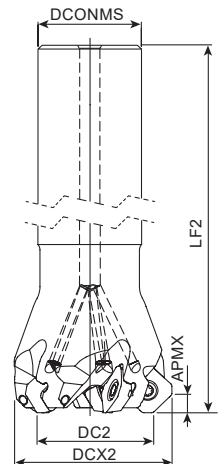
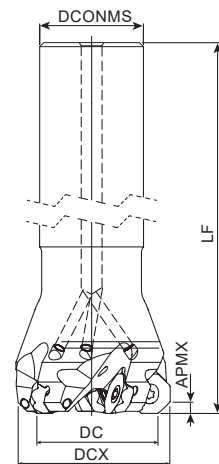
| Order code<br>Código | Reference<br>Referência<br>Referencia | CICT | Dimensions   Dimensões   Dimensiones (mm) |      |      |      |        |     |       | WT    | Specifications | Insert<br>Pastilha<br>Inserto | Stock |
|----------------------|---------------------------------------|------|-------------------------------------------|------|------|------|--------|-----|-------|-------|----------------|-------------------------------|-------|
|                      |                                       |      | DC                                        | DCX  | DC2  | DCX2 | DCONMS | LF  | LF2   |       | APMX (mm)      |                               |       |
| 181165900            | 020W57045-03-18-020080                | 3    | 20                                        | 25,6 | 18,6 | 27,7 | 20     | 80  | 80,7  | 0,180 | 3,5   2,5      | SF..10   OF..04               | ⊗     |
| 181166000            | 025W57045-04-18-020085                | 4    | 25                                        | 30,7 | 23,6 | 32,7 | 20     | 85  | 85,7  | 0,240 | 3,5   2,5      | SF..10   OF..04               | ⊗     |
| 181166100            | 032W57045-05-18-025100                | 5    | 32                                        | 37,8 | 30,6 | 39,7 | 25     | 100 | 100,7 | 0,375 | 3,5   2,5      | SF..10   OF..04               | ⊗     |

⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta



**Cilindrical Shank**  
KAPR=45° | GAMP=+18°



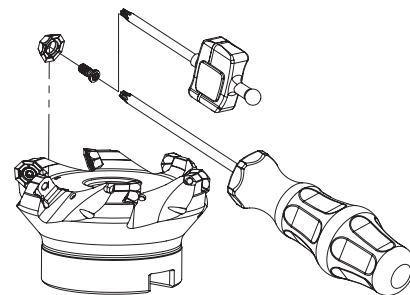
| Order code<br>Código | Reference<br>Referência<br>Referencia | CICT | Dimensions   Dimensões   Dimensiones (mm) |      |      |      |        |     |       | WT    | Specifications | Insert<br>Pastilha<br>Inserto | Stock |
|----------------------|---------------------------------------|------|-------------------------------------------|------|------|------|--------|-----|-------|-------|----------------|-------------------------------|-------|
|                      |                                       |      | DC                                        | DCX  | DC2  | DCX2 | DCONMS | LF  | LF2   |       | APMX (mm)      |                               |       |
| 181165200            | 020E57045-03-18-020080                | 3    | 20                                        | 25,6 | 18,6 | 27,7 | 20     | 80  | 80,7  | 0,180 | 3,5   2,5      | SF..10   OF..04               | ⊗     |
| 181165300            | 025E57045-04-18-020085                | 4    | 25                                        | 30,7 | 23,6 | 32,7 | 20     | 85  | 85,7  | 0,240 | 3,5   2,5      | SF..10   OF..04               | ⊗     |
| 181146500            | 032E57045-05-18-025100                | 5    | 32                                        | 37,8 | 30,6 | 39,7 | 25     | 100 | 100,7 | 0,375 | 3,5   2,5      | SF..10   OF..04               | ⊗     |

⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

## SPARE PARTS Acessórios | Repuestos

| Cutter<br>DC   | Insert Screw | Key (Torx) | Order separately |     | Torque Value | Screw     | DIN 6368 Wrench |
|----------------|--------------|------------|------------------|-----|--------------|-----------|-----------------|
|                |              |            | Key (Torx - Nm)  |     |              |           |                 |
| A57045 - 40-80 | P0300800     | XT09       | DT0914           | 1,4 | -            | -         | -               |
| A57045 - 100   | P0300800     | XT09       | DT0914           | 1,4 | J0164110     | SD6368-16 | -               |
| A57045 - 125   | P0300800     | XT09       | DT0914           | 1,4 | J0204610     | SD6368-20 | -               |
| R57045 - 20-32 | P0300800     | XT09       | DT0914           | 1,4 | -            | -         | -               |
| W57045 - 20-32 | P0300800     | XT09       | DT0914           | 1,4 | -            | -         | -               |
| E57045 - 20-32 | P0300800     | XT09       | DT0914           | 1,4 | -            | -         | -               |



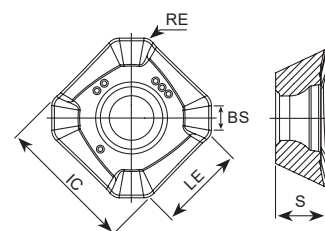
## SFHX 100410 | OFHX 040305 Inserts | Pastilhas | Plaquetas



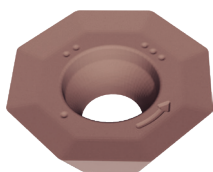
SFHX-LS



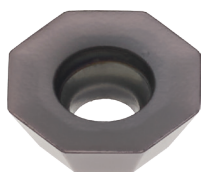
SFHX-LP



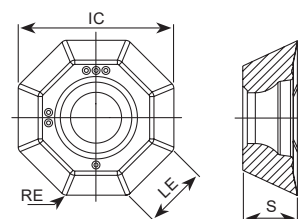
SFHX-LS | LP



OFHX-LS



OFHX-LP



OFHX-LS | LP

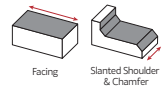
|                                 |                     | P                                                                                   |                                                                                     |                                                                                     | M                                                                                   |                                                                                     |                                                                                     | K                                                                                   |                                                                                     | S                                                                                   |                                                                                     |                                                                                     | Dimensions<br>Dimensões<br>Dimensiones<br>(mm) |      |      |      |      |
|---------------------------------|---------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------|------|------|------|------|
|                                 |                     | PVD                                                                                 |                                                                                     | CERMET                                                                              | PVD                                                                                 |                                                                                     |                                                                                     | PVD                                                                                 |                                                                                     | PVD                                                                                 |                                                                                     |                                                                                     |                                                |      |      |      |      |
|                                 |                     | T1                                                                                  | P4                                                                                  | 5I                                                                                  | X9                                                                                  | Z3                                                                                  | 4H                                                                                  | T1                                                                                  | P4                                                                                  | X9                                                                                  | Z3                                                                                  | 4H                                                                                  |                                                |      |      |      |      |
| <sup>(1)</sup><br>Geometry code | ISO<br>Reference    | PHP920                                                                              | PHP930                                                                              | PTP120                                                                              | PHH930                                                                              | PHH530                                                                              | PHF530                                                                              | PHP920                                                                              | PHP930                                                                              | PHH930                                                                              | PHH530                                                                              | PHF530                                                                              | IC                                             | S    | LE   | RE   | BS   |
| 1112738                         | SFHX 100410 AFER-LS |                                                                                     |                                                                                     |                                                                                     |  |  |  |                                                                                     |                                                                                     |  |  |  | 10,10                                          | 3,72 | 6,50 | 1,00 | 2,50 |
| 1113485                         | SFHX 100410 AFSR-LP |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 10,10                                          | 3,72 | 6,50 | 1,00 | 2,50 |
| 1112737                         | OFHX 040305 AFEN-LS |                                                                                     |                                                                                     |                                                                                     |  |  |  |                                                                                     |                                                                                     |  |  |  | 10,00                                          | 3,45 | 4,10 | 0,50 | -    |
| 1112739                         | OFHX 040305 AFSN-LP |  |  |  |                                                                                     |                                                                                     |                                                                                     |  |  |                                                                                     |                                                                                     |                                                                                     | 10,00                                          | 3,45 | 4,10 | 0,50 | -    |

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



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

| ISO | PSM | Material                          | HB<br>(Brinell) | Grades            |        |             |        |        | CERMET |
|-----|-----|-----------------------------------|-----------------|-------------------|--------|-------------|--------|--------|--------|
|     |     |                                   |                 | ← Wear Resistance |        | Toughness → |        |        |        |
|     |     |                                   |                 | PHP920            | PHP930 | PHH930      | PHH530 | PHF530 | PTP120 |
| P   | 1   | Unalloyed steel                   | 125-220         | ✓                 | ✓      |             |        | ✓      | ✓      |
|     | 2   | Low-alloyed steel                 | 220-280         | ✓                 | ✓      |             |        | ✓      | ✓      |
|     | 3   | High-alloy 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)        |         |             |         |         | CERMET  | Feed fz (mm/t) |           |
|-----|-----|-----------------------------------|-----------------|-------------------|---------|-------------|---------|---------|---------|----------------|-----------|
|     |     |                                   |                 | ← Wear Resistance |         | Toughness → |         |         |         |                |           |
|     |     |                                   |                 | PHP920            | PHP930  | PHH930      | PHH530  | PHF530  | PTP120  | OFHX 04..      | SFHX 10.. |
| P   | 1   | Unalloyed steel                   | 125-220         | 180-250           | 160-220 | -           | -       | -       | 250-400 | 0,10-0,30      | 0,10-0,30 |
|     | 2   | Low-alloyed steel                 | 220-280         | 170-210           | 150-180 | -           | -       | -       | 250-400 | 0,10-0,30      | 0,10-0,30 |
|     | 3   | High-alloy steel                  | 280-380         | 160-200           | 130-160 | -           | -       | -       | 250-350 | 0,15-0,25      | 0,15-0,20 |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | -                 | -       | 100-160     | 120-180 | 120-180 | -       | 0,10-0,25      | 0,10-0,20 |
|     | 5   | SS - Austenitic                   | 200-330         | -                 | -       | 90-150      | 100-160 | 100-160 | -       | 0,10-0,25      | 0,10-0,20 |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | -                 | -       | 60-130      | 70-140  | 70-140  | -       | 0,10-0,20      | 0,10-0,20 |
| K   | 7   | Malleable cast iron               | 130-230         | 170-300           | 160-280 | -           | -       | -       | -       | 0,10-0,30      | 0,10-0,30 |
|     | 8   | Grey cast iron                    | 180-245         | 150-250           | 140-240 | -           | -       | -       | -       | 0,10-0,30      | 0,10-0,30 |
|     | 9   | Nodular cast iron                 | 160-250         | 90-210            | 90-200  | -           | -       | -       | -       | 0,15-0,25      | 0,15-0,20 |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | -                 | -       | 25-70       | 30-75   | 70-140  | -       | 0,07-0,18      | 0,07-0,18 |

(Note 1) Cutting conditions ae/DC=70%

(Note 2) Cutting conditions should be adjusted according to the machine and work rigidity.

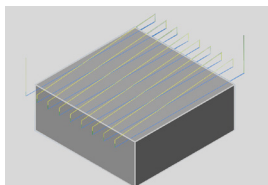
(Note 3) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per tooth.

## 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                       | -                    |
|     | 2   | Low-Alloyed Steel                 | 220-280         | LP                       | -                    |
|     | 3   | High-Alloyed Steel                | 280-380         | LP                       | -                    |
| M   | 4   | SS - Ferritic / Martensitic       | 200-330         | LS                       | -                    |
|     | 5   | SS - Austenitic                   | 200-330         | LS                       | -                    |
|     | 6   | SS - Austenitic-ferritic (Duplex) | 230-260         | LS                       | -                    |
| K   | 7   | Malleable Cast Iron               | 130-230         | LP                       | -                    |
|     | 8   | Grey Cast Iron                    | 180-245         | LP                       | -                    |
|     | 9   | Nodular Cast iron                 | 160-250         | LP                       | -                    |
| S   | 11  | Heat Resistant Super Alloys       | 200-320         | LS                       | -                    |

## TEST REPORT: SFHX VS OFHX INSERTS

The LINEPRO 57045 toolholder accommodates interchangeable SFHX and OFHX insert geometries, providing application-specific optimization within a single tooling system.



Workpiece CAM program

**Workpiece Material:** Titanium Alloy (Ti-6Al-4V)

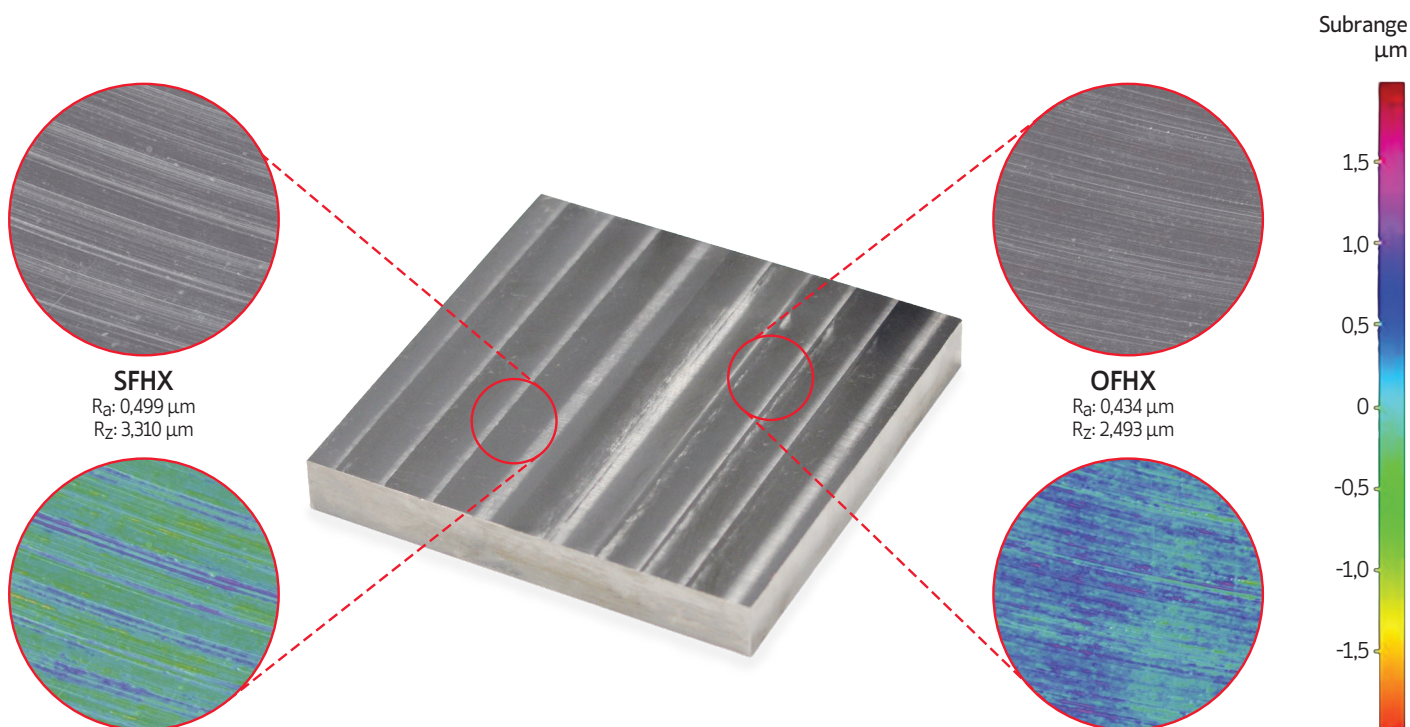
**Operation:** Face milling

**Coolant:** Air

|                    |                 |
|--------------------|-----------------|
| Cutting speed: Vc  | 50 m/min        |
| Feed per tooth: fz | 0,10 mm/t       |
| Depth of cut: ap   | 1,0 mm          |
| Stepover : ae      | 19,2 mm (60%DC) |

|            | SFHX                       | OFHX                       |
|------------|----------------------------|----------------------------|
| Toolholder | 032E57045-05-18-025100     | 032E57045-05-18-025100     |
| Insert     | SFHX 100410 AFER-LS PHH530 | OFHX 040305-AFEN-LS PHH530 |

### ■ SURFACE FINISHING

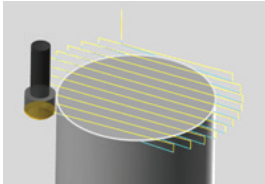


OFHX is optimal for shallow depth-of-cut applications, whereas SFHX excels in deeper cutting scenarios.

OFHX's refined edge geometry contributes to a slight improvement in surface finish.

## TEST REPORT: SFHX VS SNHX INSERTS

The high positive geometry of the SFHX insert allows low force machining and minimises cutting vibration during stainless steel facing operations. This optimisation results in improved surface finish and overall machining efficiency, improving product quality.



Workpiece CAM program

**Workpiece Material:** Stainless steel 316L (25 HRC)

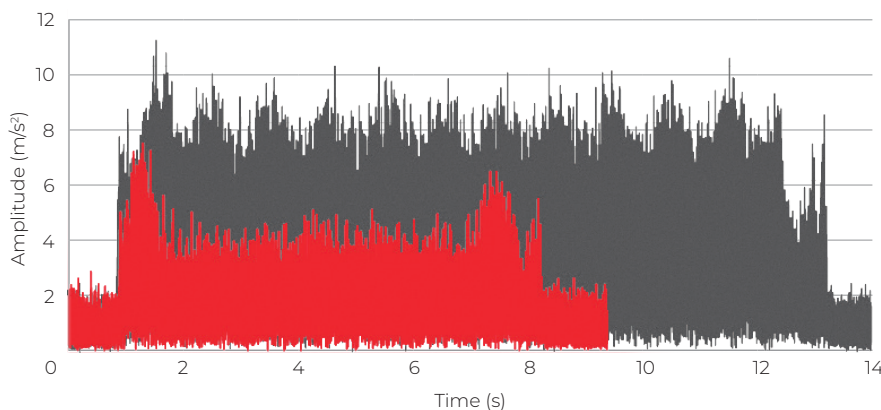
**Operation:** Face milling

**Coolant:** Air

|                    |                 |
|--------------------|-----------------|
| Cutting speed: Vc  | 160 m/min       |
| Feed per tooth: fz | 0,20 mm/t       |
| Depth of cut: ap   | 2,0 mm          |
| Stepover : ae      | 19,2 mm (60%DC) |

|                  | Positive solution          | Negative solution        |
|------------------|----------------------------|--------------------------|
| Toolholder       | 032E57045-05-18-025100     | 032W90845-03-06-025100   |
| Insert           | SFHX 100410 AFER-LS PHH530 | SNHX 1206 ANER-LS PHH530 |
| Cutting Diameter | 32 mm                      | 32 mm                    |
| Number of teeth  | 5                          | 3                        |

### VIBRATION RESULTS



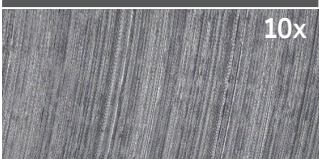
Positive solution  
SFHX | RMS = 1,99

Negative solution  
SNHX | RMS = 3,57

**-33%**  
Vibration

Under stable cutting conditions, machining with SFHX demonstrates a 33% reduction in vibration levels compared to SNHX insert.

### SURFACE FINISHING

|                     | SFHX                                                                                    | SNHX                                                                                    |
|---------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|                     |  10x |  10x |
| R <sub>a</sub> (μm) | 1,03                                                                                    | 1,45                                                                                    |
| S <sub>a</sub> (μm) | 1,37                                                                                    | 1,84                                                                                    |

**-29%**  
Roughness

The positive cutting angle reduces tool vibration, leading to a smoother cut and improved surface finish quality of the workpiece.

57045

# LINEPRO

**Positive Cuts,** Effortless Machining



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