New products for machining technicians

**NEW MonoClamp – Radial Monoholder SX-DC**
DirectCooling – dual cooling of the grooving insert via the rake face and flank. For grooving and parting off up to a diameter of 80 mm.

**NEW MonoClamp – Radial Monoholder SX**
Proven single-edged grooving and turning system with a completely updated design. Elastic insert clamping with assembly key.

**NEW MonoClamp – Axial Monoholder AX**
For axial grooves from a diameter of 10 mm. Suitable for 0° and 90° versions with groove depths up to 15 mm.
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The premium quality tools from the CERATIZIT Performance product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Advantages of the DirectCooling blade

▲ The best machining results, even with reduced pump output
   Highest flow volume of all thro’ coolant blades on the market

▲ User friendly
   Reinforced blades without sealing screw

▲ Process-secure spare part for easy handling and a long service life
   Single-piece sealing screw made from steel (for standard blades)

Symbol explanation

- Grooving
- Main Application
- Turning
- Extended application
- Face turning
- Repeatability
- Axial grooving
- Smooth cut
- Irregular cutting depth
- Interrupted cut
- CTCP325
- Carbide Grade
- HCR1325

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The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.

Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) through coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.

A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.

Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX 09, GX 16 and GX 24. Available as a Modular or Mono system.

Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.

Single edged system for extreme applications starting from a cutting width of 8.0 mm. The LX system is for use in stable conditions. Available as a Modular or Mono system.

Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (5 mm, 10 mm and 15 mm) stable tools are available for each application.

Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.

Five-edged grooving system for grooving and parting.
Toolfinder – External Machining

Modular Clamp

GX 09

Circlip grooves
Cutting width CW = 0.5 – 3.15 mm (H13)

Radius grooves
Standard CRE = 0.8 – 1.2 mm

GX 16

Circlip grooves
Cutting width CW = 0.5 – 5.15 mm (H13)

Radius grooves
Standard CRE = 0.8 – 3.0 mm

Deep Radial Grooving, Parting and Turning

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

Cutting width CW = 2.0 – 6.0 mm

MonoClamp

GX 09


GX 16


GX 24

Cutting width CW = 2.0 – 3.5 mm

Cutting width CW = 2.0 – 6.0 mm

Cutting width CW = 1.5 – 4.0 mm
**Parting, Grooving and Turning**

- **Type F2**
  - Parting and Grooving
  - Cutting width \(CW = 2.0-6.0 \text{ mm}\)

- **Type M1**
  - Grooving and copy turning
  - \(CRE = 1.5-3.0 \text{ mm}\)

- **Type M2**
  - \(-27\text{P}\)
  - Cutting width \(CW = 8.0-10.0 \text{ mm}\)

- **Type R2**
  - \(-27\text{P}\)
  - Cutting width \(CW = 2.2-9.7 \text{ mm}\)

**Deep Parting and Grooving**

- **Type F1**
  - \(-27\text{P}\)

**Thread Turning**

- **Full profile**
  - \(60^\circ\)
  - \(55^\circ\)

- **Partial profile**
  - \(60^\circ\)
  - \(55^\circ\)

**Axial Grooving and Turning**

- \(-F50\)
  - Groove width \(CW = 3.0 \text{ mm}\)

**Parting and Grooving**

- \(-F3\)
  - \(-F2\)
  - \(5 \text{ mm}\)

- \(-F2\)
  - \(-F3\)
  - \(10 \text{ mm}\)

- \(-F2\)
  - \(-F3\)
  - \(10 \text{ mm}\)

**Cutting width** \(CW = 1.0-2.5 \text{ mm}\)

These articles can be found in → Chapter 16
Toolfinder – Internal Machining

**Modular Clamp**
- **GX 09**
- **GX 16**
- Circlet grooves
  - Cutting width: CW = 0.5 - 3.15 mm (H13)
- Radius grooves
  - Standard: CRE = 0.8 - 1.2 mm
- Grooving and Turning
  - Standard: M40
  - F2

**Mono Clamp**
- **GX 09**
- **GX 16**
- Circlet grooves
  - Cutting width: CW = 2.0 - 6.0 mm
- Radius grooves
  - Standard: M40
  - M1
  - -27P
- Grooving and Turning
  - Standard: M40
  - F2
  - -27P

**Cutting width**
- CW = 0.5 - 3.15 mm (H13)
- CW = 2.0 - 6.0 mm

**Depth**
- 1.5xD

**Dimensions**
- 96
Radial, axial and deep axial grooving and parting, face turning and turning

- M1 48
- M40 49
- E 47
- F2 46
- 27P 51

Cutting width CW = 2.0–6.0 mm

Thread turning

- Partial profile 60° 50
- Full profile 60° 52
- Full profile 55° 54
- Partial profile 55° 56

Parting

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Circlip Grooving

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For corner relief

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Fine and copy turning

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Axial grooving

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Cutting Tools

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Fine and copy turning

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Grooving Tools

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Toolfinder
Insert SX

▲ High Precision polished geometry

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Steel ● ● ● ●
Stainless steel ○ ○ ● ●
Cast iron ● ● ● ●
Non ferrous metals ○ ○
Heat resistant alloys ○ ●
hardened materials ○

Internal machining

External machining

→ 13 → 14-19 → 20+21

Page 101
Application recommendation on page 107

cuttingtools.ceratizit.com
**Insert SX**

- Specially developed geometry with negative edge-chamfers available in right, left and neutral types

### Designation

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**Steel**
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

**Internal machining**

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Note: reduce feed rate by 20–50 % with R/L version!
Insert SX

- All purpose geometry for parting, grooving & turning.

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Steel ● ● ● ●
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Cast iron ● ● ● ●
Non ferrous metals ○
Heat resistant alloys ○
hardened materials ○

Internal machining | External machining

- Application recommendation on page 107

→ Application recommendation on page 107

Steel ○ ○ ○ ○
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Cast iron ● ● ● ●
Non ferrous metals ○
Heat resistant alloys ○
hardened materials ○

→ 13 → 14–19 → 20+21
**Insert SX**

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Specialist for aluminum and other soft long-chipping non-ferrous metals

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### Designation

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### Application recommendation on page 107
Radius Grooving Insert SX

- For grooving and copy turning
- Very good chip control

### Designation

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- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

### Application recommendation on page 101

- Internal machining
  - → Page 13
- External machining
  - → Page 14–19
  - → Page 20+21
ModularClamp MSS – Radial grooving module SX
▲ For parting, grooving and finish turning

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Please order SX assembly key separately if required.
**MonoClamp – Radial Blade SX-DC Standard**

![Diagram of MonoClamp](image)

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MonoClamp – Radial Blade SX Standard

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Spare parts

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Please order SX assembly key separately if required.
MonoClamp – Radial Blade SX-DC reinforced

Illustrations show right-hand versions

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Spare parts

for grooving inserts

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Correct Tool Selection

Right hand tools

Standard version

Contra version

Left hand tool

Insert

→ 8–12

→ Chapter 16

→ Chapter 16

Please order SX assembly key separately if required.
MonoClamp – Radial Blade SX reinforced

Illustrations show right-hand versions

Designation | CW | H | B | OAL | CODX | CDX | for grooving inserts | R/L/N |
--- | --- | --- | --- | --- | --- | --- | --- | --- |
XLCF L 2608-SX2 | 2 | 26 | 1.5 | 110 | 8 | 44 | 22 | SX 2.. | L | 123.18 | 213 |
XLCF L 2608-SX3 | 3 | 32 | 2.5 | 110 | 8 | 66 | 33 | SX 3.. | L | 123.18 | 213 |
XLCF L 3208-SX2 | 2 | 26 | 1.5 | 110 | 8 | 44 | 22 | SX 2.. | L | 115.82 | 203 |
XLCF L 3208-SX3 | 3 | 32 | 2.5 | 110 | 8 | 66 | 33 | SX 3.. | L | 115.82 | 204 |
XLCF R 2608-SX2 | 2 | 26 | 1.5 | 110 | 8 | 44 | 22 | SX 2.. | R | 123.18 | 012 |
XLCF R 2608-SX3 | 3 | 32 | 2.5 | 110 | 8 | 66 | 33 | SX 3.. | R | 123.18 | 013 |
XLCF R 3208-SX3 | 3 | 32 | 2.5 | 110 | 8 | 66 | 33 | SX 3.. | R | 115.82 | 003 |
XLCF R 3208-SX4 | 4 | 32 | 3.4 | 110 | 8 | 66 | 33 | SX 4.. | R | 115.82 | 004 |

1) can be used in both directions

Spare parts

for grooving inserts

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Please order SX assembly key separately if required.
MonoClamp – SX-DC reinforced Contra radial blade

Illustrations show right-hand versions

### Correct Tool Selection

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MonoClamp – SX reinforced Contra radial blade

Illustrations show right-hand versions

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Spare parts

for grooving inserts

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MonoClamp – Radial Monoholder SX-DC

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Please order SX assembly key separately if required.
MonoClamp – Radial Monoholder SX

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Spare parts

for grooving inserts

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| SX .3.. | SX 2-3 | 24.17 | 836 |
| SX .4.. | SX 4-6 | 24.66 | 837 |
| SX .5.. | SX 4-6 | 24.66 | 837 |
| SX .6.. | SX 4-6 | 24.66 | 837 |

Please order SX assembly key separately if required.
Insert FX

- Excellent cutting geometry with low cutting forces
- Very good swarf control also with low feed rates
- Reduced built-up edge

Designation | IH | CW, d1 | RE, r | PSIR | for tool holder
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Steel_Stainless steel_Cast iron_Non ferrous metals_Heat resistant alloys_hardened materials

**Note:** reduce feed rate by 20–50% with R/L version!

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Internal machining  | External machining  | Page 101
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Insert FX

▲ Narrow version

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- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

Note: reduce feed rate by 20–50% with R/L version!

Internal machining

External machining

→ 27
→ 29
→ 28

Application recommendation on page 109

Page 101
## Insert FX

▲ Wide version

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### Steel

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### Note:
Reduce feed rate by 20–50% with R/L version!
Insert FX

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Reduced built-up edge

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Steel
- Stainless steel
- Cast iron
- Non-ferrous metals
- Heat resistant alloys
- Hardened materials

Internal machining
- Grooving Tools

External machining
- System FX

Application recommendation on page 109
Insert FX
- Insert with excellent swarf control for a wide range of feed rates
- Very stable cutting edge

**Designation** | **IH** | **CW ±t** | **RE ±vₐₘₜ** | **for tool holder** | **1A/15** | **1A/15** | **1A/15**
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FX 4.1 N 0.50-R2 | N | 4.1 | 0.5 | -FX 4.1 | 13.43 | 908 | 13.43 | 858 | 13.43 | 658

Steel ● ○ ● ○
Stainless steel ○ ● ● ○
Cast iron ● ● ● ○
Non ferrous metals ○ ● ○ ○
Heat resistant alloys ○ ● ● ○
hardened materials ○ ○ ● ○

Internal machining | External machining

→ Page 101
→ v, Page 101
→ Application recommendation on page 109

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→ 27 | → 29 | → 28
ModularClamp MSS – Radial grooving module FX short/long

For parting and grooving

Illustrations show right-hand versions

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Spare parts

for grooving inserts

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Ejector

cuttingtools.ceratizit.com

\[22-26\] \[93-95\] \[Chapter 16\]

→ 22–26 → 93–95 → Chapter 16
MonoClamp – Radial Monoholder FX

Scope of supply:
Blade and ejector

Illustrations show right-hand versions

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Spare parts

for grooving inserts

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Grooving Tools

System FX
MonoClamp – Radial Blade FX

Scope of supply:
Blade and ejector

Designation | H | B | OAL | CW | CDX for grooving inserts
---|---|---|---|---|---
XLCEN 2602 J 22 FX | 26 | 1.65 | 110 | 2.2 | 25 FX 2.2
XLCFN 2603 J 31 FX | 26 | 2.40 | 110 | 3.1 | 35 FX 3.1
XLCFN 2604 J 41 FX | 26 | 3.20 | 110 | 4.1 | 40 FX 4.1
XLCEN 3202 M 22 FX | 32 | 1.65 | 150 | 2.2 | 30 FX 2.2
XLCFN 3203 M 31 FX | 32 | 2.40 | 150 | 3.1 | 50 FX 3.1
XLCFN 3204 M 41 FX | 32 | 3.20 | 150 | 4.1 | 50 FX 4.1
XLCFN 3205 M 51 FX | 32 | 4.00 | 150 | 5.1 | 55 FX 5.1
XLCFN 3206 M 65 FX | 32 | 5.20 | 150 | 6.5 | 55 FX 6.5
XLCEN 4608 S 82 FX | 46 | 6.80 | 250 | 8.2 | 80 FX 8.2
XLCEN 4609 S 97 FX | 46 | 8.00 | 250 | 9.7 | 80 FX 9.7

Spare parts
for grooving inserts

| FX | £ | Article no. | 70 832...
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FX 3.1 | 3.95 | 376
FX 4.1 | 3.95 | 376
FX 5.1 | 3.95 | 376
FX 6.5 | 3.95 | 376
FX 8.2 | 4.95 | 377
FX 9.7 | 4.95 | 377

→ 22–26 → 98+99
Insert GX 09/16

- Insert with ground periphery
- Suitable also for parting off tubes and thin-walled workpieces

![Insert GX 09/16 Diagram]

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- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

Internal machining

- External machining

→ Application recommendation on page 103
Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces

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Stainless steel ○ ○ ●
Cast iron ● ● ●
Non ferrous metals ○
Heat resistant alloys ●
hardened materials ○

Internal machining ➞ 40+41 ➞ 44+45 ➞ 38+39 ➞ 42+43

External machining

Steel ● ● ●
Stainless steel ○ ○ ●
Cast iron ● ● ●
Non ferrous metals ○
Heat resistant alloys ●
hardened materials ○

➔ Page 101
➔ Application recommendation on page 103
**Insert GX 09/16**

- **Very good swarf control**

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**Steel**

- **Stainless steel**
- **Cast iron**
- **Non ferrous metals**
- **Heat resistant alloys**
- **Hardened materials**

---

**Internal machining**

| → 40+41 | → 44+45 | → 38+39 | → 42+43 |

---

**External machining**

| → 40+41 | → 44+45 | → 38+39 | → 42+43 |

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**References**

- Application recommendation on page 103
- Page 101
Insert GX 16

Very good swarf control

![Diagram of Insert GX 16]

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Steel

Stainless steel

Cast iron

Non ferrous metals

Heat resistant alloys

Hardened materials

Internal machining

External machining

![Internal machining diagram]

![External machining diagram]

→ Application recommendation on page 101
**Insert GX 16**

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Ground periphery

![Insert GX 16 Diagram]

### Designation

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### Steel

- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

### Application recommendation

- Page 101
- Application recommendation on page 103

**Steel**

- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

**Internal machining**

- Page 40-41

**External machining**

- Page 45

- Page 38-39

- Page 43
Circlip groove insert GX 09/16 – Standard

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Steel ● ●
Stainless steel ● ●
Cast iron ● ●
Non-ferrous metals ○ ○
Heat resistant alloys ○ ○
hardened materials

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining

External machining

→ Application recommendation on page 104

Steel

Stainless steel

Cast iron

Non-ferrous metals

Heat resistant alloys

hardened materials

→ Page 101
Radius groove insert GX 09/16

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Steel ● ● ●
Stainless steel ○ ○ ●
Cast iron ● ● ●
Non ferrous metals ○ ○
Heat resistant alloys ● ●
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Left-hand insert → right-hand module or monobloc boring bar

Internal machining
External machining

→ 40+41 → 44+45 → 38+39 → 42+43

cuttingtools.ceratizit.com
Radius groove insert GX 16

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Ground periphery

Designation | INSL | CW | CRE | PDPT | for tool holder
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GX 16-2 R1.50 N | 16 | 3 | 1.5 | 1.5 | GX 16-2 | 21.88 | 674
GX 16-3 R2.00 N | 16 | 4 | 2.0 | 2.0 | GX 16-3 | 23.65 | 678
GX 16-3 R2.50 N | 16 | 5 | 2.5 | 2.5 | GX 16-3 | 23.65 | 682

Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

Internal machining | External machining
---|---

Application recommendation on page 104
Modular Clamp MSS – Radial grooving module GX 09/16

▲ For circlip grooves = 2.75 mm
▲ For radius grooves up to = 1.2 mm
▲ For external recessing

Illustrations show right-hand versions

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→ 30–37 → 93–95 → Chapter 16
Modular Clamp MSS – Radial grooving module GX 09/16

- For grooving and turning
- For circlip grooves = 5.25 mm
- For radius grooves up to = 2.5 mm
- For external recessing

Illustrations show right-hand versions

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Modular Clamp MSS – Radial Grooving module GX 09/16 for Internal machining

- For circlip grooves = 2.75 mm
- For radius grooves up to = 1.2 mm

**Illustrations show right-hand versions**

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**Right hand module → left hand insert only**

**Left hand module → right hand insert only**

---

For circlip grooves = 2.75 mm
For radius grooves up to = 1.2 mm

Illustrations show right-hand versions
ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

- For circlip grooves = 5.25 mm
- For radius grooves up to = 2.5 mm

Illustrations show right-hand versions

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MonoClamp – Radial Monoholder GX 09

Illustrations show right-hand versions

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When using “R” or “L” tools the tool must be modified at the end face to ensure cutting clearance.

Spare parts

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→ 30–36
MonoClamp – Radial Monoholder GX 16

Illustrations show right-hand versions

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<td>16</td>
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When using „R“ or „L“ tools the tool must be modified at the end face to ensure cutting clearance.

**Spare parts for grooving inserts**

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<tr>
<th>Tool</th>
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<td>GX 16-3</td>
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→ 30–37
MonoClamp – Radial Mono-boring bars GX 09

Illustrations show right-hand versions

<table>
<thead>
<tr>
<th>Designation</th>
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Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.

Spare parts for grooving inserts

<table>
<thead>
<tr>
<th>Article no.</th>
<th>Article no.</th>
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→ 30–36
MonoClamp – Radial Mono-boring bars GX 16

**Illustrations show right-hand versions**

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<th>DMIN</th>
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**Right hand boring bar → left hand insert only**

**Left-hand**

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**Right-hand**

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**Spare parts**

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**When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.**

---

**Key D Clamping screw**

Y7

2A/28

Clamping screw

---

30–37
Insert GX 24

- Insert with ground periphery
- Suitable also for parting off tubes and thin-walled workpieces

### Designation

<table>
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<tr>
<th>Description</th>
<th>INSL</th>
<th>CW ±0.01</th>
<th>RE ±0.02</th>
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### Application

- Internal machining
- External machining

### Materials

- Stainless steel (●)
- Cast iron (●)
- Non ferrous metals (○)
- Heat resistant alloys (●)
- Hardened materials (○)

**Internal machining**

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→ v, Page 101

→ Application recommendation on page 103
Insert GX 24 -E

Designation | INSL | CW | RE | PDPT | for tool holder |
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Steel
Stainless steel

Cast iron

Non ferrous metals

Heat resistant alloys

hardened materials

Internal machining

External machining

> Application recommendation on page 103
Insert GX 24

▲ Very good swarf control

<table>
<thead>
<tr>
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- Steel: ●
- Stainless steel: ○
- Cast iron: ●
- Non ferrous metals: ○
- Heat resistant alloys: ○
- Hardened materials: ○

Internal machining: 54
External machining: 59-56, 57, 58, 60

→ v. Page 101
→ Application recommendation on page 104
Insert GX 24

Very good swarf control

Designation | INSL | CW | RE | PDPT | for tool holder |
--- | --- | --- | --- | --- | --- |
| GX 24-2 E3.00 N 0.30 | 24 | 3 | 0.3 | 3.5 | GX 24-2 | 16.61 | 900 | 16.61 | 800 | 16.61 | 600 |
| GX 24-3 E4.00 N 0.40 | 24 | 4 | 0.4 | 4.0 | GX 24-3 | 18.17 | 902 | 18.17 | 802 | 18.17 | 602 |
| GX 24-3 E5.00 N 0.40 | 24 | 5 | 0.4 | 4.0 | GX 24-3 | 19.82 | 904 | 19.82 | 804 | 19.82 | 604 |
| GX 24-4 E6.00 N 0.50 | 24 | 6 | 0.5 | 4.0 | GX 24-4 | 21.78 | 906 | 21.78 | 806 | 21.78 | 606 |

Steel
Stainless steel
Cast iron
Non ferrous metals
Heat resistant alloys
Hardened materials

Internal machining | External machining
--- | ---

Steel
Stainless steel
Cast iron
Non ferrous metals
Heat resistant alloys
Hardened materials

11
Radius groove insert GX 24

Designation | INSL | CW &/cc | CRE | PDPT for tool holder | Article no. 70 354 | Article no. 70 354 |
-------------|------|--------|-----|----------------------|-------------------|-------------------|
GX 24-2 R1.50 N | 24.4 | 3 | 1.5 | 1.5 | GX 24-2 | 22.09 | 952 |
GX 24-3 R2.00 N | 24.4 | 4 | 2.0 | 2.5 | GX 24-3 | 23.85 | 954 |
GX 24-3 R2.50 N | 24.4 | 5 | 2.5 | 3.0 | GX 24-3 | 24.67 | 956 |
GX 24-4 R3.00 N | 24.4 | 6 | 3.0 | 4.0 | GX 24-4 | 26.53 | 958 |

Steel
Stainless steel ○ ○
Cast iron ● ●
Non ferrous metals
Heat resistant alloys ○
hardened materials

Internal machining | External machining

Application recommendation on page 104
Insert GX 24

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Ground periphery

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**Steel**

- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

**Internal machining**

- Page 101

**External machining**

- Page 103
Radius grooving insert GX 24

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Ground periphery

![Diagram of Radius grooving insert GX 24]

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Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

→ Application recommendation on page 104
Modular Clamp MSS – Radial grooving module GX 24

- For deep radial parting and grooving
- For turning

Illustrations show right-hand versions

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→ 46–52 → 93–95 → Chapter 16
Modular Clamp MSS – Radial Grooving module GX 24 for Internal machining

- For grooving and turning

### Grooving Tools

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**Article no.**

| 70 880 ... |

Neutral

→ 46–52 → 96
### Modular Clamp MSS – Axial Grooving Module GX 24 Short

- For axial grooving
- For face turning

#### Illustrations show right-hand versions

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→ 46–52 → 93–95 → Chapter 16
Modular Clamp MSS – Axial grooving module GX 24 long

- For axial grooving
- For face turning

Illustrations show right-hand versions

Axial modules version „GX 24 long” can be clamped on both sides.

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Key D

Clamping screw

→ 46–52
→ 93–95
→ Chapter 16
MonoClamp – Radial Blade GX 24

Scope of supply:
Blade incl. clamping screw and tightening wrench

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2A/25

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2A/28

Y7

Key D

Clamping screw

→ 46–52 → 98–99 → Chapter 16
MonoClamp – Radial Monoholder GX 24

Illustrations show right-hand versions

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→ 46–52

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Key D

Clamping screw

Y7

80 950 114

M4x18

204

4.33

204
### MonoClamp – Radial Mono-boring bars GX 24

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MonoClamp – Axial Monoholder GX24

Illustrations show right-hand versions

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→ 46–52
TX Insert for parting
- Cutting depth 5.0 mm
- Cutting width 1.99–2.79 mm

Illustrations show right-hand versions

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Grooving depth
- Full material
- Pipe

max. 10 mm
D ≥ 50 mm: Wall thickness B = approx. 5 mm
D ≤ 50 mm: Wall thickness B = approx. 4 mm

Internal machining

External machining

→ 66–70
TX insert for circlip grooves

For circlip grooves according to DIN 471 / 472

Designation | CW | RE | RA | for tool holder
--- | --- | --- | --- | ---
TX N 0050.00.1 | 0.50 | 0.57 | 0.1 | 0.07 | R/L...
TX N 0060.00.1 | 0.60 | 0.67 | 0.1 | 0.07 | R/L...
TX N 0070.00.1 | 0.70 | 0.77 | 0.1 | 0.08 | R/L...
TX N 0080.00.1 | 0.80 | 0.87 | 0.1 | 0.08 | R/L...
TX N 0090.00.1 | 0.90 | 0.97 | 0.1 | 0.08 | R/L...
TX N 0100.00.1 | 1.00 | 1.07 | 0.1 | 0.09 | R/L...
TX N 0110.00.1 | 1.10 | 1.24 | 0.1 | 0.15 | R/L...
TX N 0130.00.1 | 1.30 | 1.44 | 0.1 | 0.15 | R/L...
TX N 0160.00.1 | 1.60 | 1.74 | 0.1 | 0.20 | R/L...
TX N 0185.00.1 | 1.85 | 1.99 | 0.1 | 0.20 | R/L...
TX N 0215.00.2 | 2.15 | 2.29 | 0.1 | 0.20 | R/L...
TX N 0265.00.2 | 2.65 | 2.79 | 0.1 | 0.20 | R/L...
TX N 0315.00.3 | 3.15 | 3.29 | 0.1 | 0.20 | R/L...
TX N 0415.00.4 | 4.15 | 4.29 | 0.1 | 0.20 | R/L...
TX N 0515.00.4 | 5.15 | 5.29 | 0.1 | 0.20 | R/L...

Internal machining

External machining
Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm

Internal machining

External machining

→ 70

→ 66–69

Designation | CRE | CW | PDPT | for tool holder | Article no.
---|---|---|---|---|---
TX N 0002.05.1 | 0.25 | 0.5 | 0.20 | R/L ... | 44.55 212
TX N 0005.10.1 | 0.50 | 1.0 | 0.35 | R/L ... | 44.55 214
TX N 0006.12.1 | 0.60 | 1.2 | 0.40 | R/L ... | 44.55 216
TX N 0008.16.1 | 0.80 | 1.6 | 0.55 | R/L ... | 44.55 218
TX N 0010.20.2 | 1.00 | 2.0 | 0.70 | R/L ... | 46.49 204
TX N 0012.25.2 | 1.25 | 2.5 | 0.85 | R/L ... | 51.53 220
TX N 0015.30.3 | 1.50 | 3.0 | 1.00 | R/L ... | 49.15 206
TX N 0020.40.4 | 2.00 | 4.0 | 1.20 | R/L ... | 48.81 208
TX N 0025.50.4 | 2.50 | 5.0 | 1.50 | R/L ... | 49.63 210

Neutral

→ v, Page 102
TX insert for fine and copy turning

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Internal machining

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Neutral
TX insert for axial grooving

- Up to cutting depth 3.5 mm
- Cutting width 1.5–5.0 mm
- Groove-Ø external D_a ≥ 20 mm

Illustrations show right-hand versions

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Internal machining

External machining

→ Page 102
**MonoClamp – Radial/Axial TX Grooving Holder 0°, 6 mm cutting depth**

- For radial and axial grooving
- Cutting width 0.5–6.3 mm

Illustrations show right-hand versions

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### Spare parts

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Key to Illustrations:
- 2A/28: Right-hand versions
- Y6: Left-hand versions
- Y6: Right-hand versions

Spare parts Table:
- Key I
- Clamping screw
- Guide pin

For more information, visit cuttingtools.ceratizit.com
MonoClamp – Radial TX Grooving holder 0°, 8 mm cutting depth

- For radial parting and grooving
- Cutting width 1.9–6.3 mm

Illustrations show right-hand versions

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</table>

→ 61–63
MonoClamp – Radial TX Grooving holder 90°, 6 mm cutting depth

- For radial grooving
- Cutting width 0.5–6.3 mm

Illustrations show right-hand versions

<table>
<thead>
<tr>
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<th>OAL</th>
<th>LH</th>
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Spare parts for grooving inserts

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Clamping screw
Guide pin

→ 62–64
MonoClamp – Tool holder TX 45°

▲ For recessing
▲ Cutting width 1.9–6.3 mm

Illustrations show right-hand versions

Designation | H | B +/- 0,1 | OAL | LH | for grooving inserts
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Spare parts

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→ 62+63
MonoClamp – Radial Boring bar TX
▲ For radial internal grooving
▲ Cutting width 0,5–6,3 mm

Illustrations show right-hand versions

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Insert LX
- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards

![Diagram of Insert LX]

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Steel ● ● ●
Stainless steel ○ ○ ●
Cast iron ● ● ●
Non ferrous metals ○ ○ ●
Heat resistant alloys ● ● ●
Hardened materials ○ ○ ●

Internal machining ➔ 73
External machining ➔ 73 ➔ 74

> Application recommendation on page 108

---

Insert LX
Grooving Tools
System LX

[cuttingtools.ceratizit.com]
Radial Grooving Insert LX

- Grooving width 8 mm
- Axial grooving from Ø 500 mm
- Internal grooving and turning, from Ø 200 mm

---

**Designation** | **INSL** | **CW** | **CRE** | **PDPT** | **for tool holder**  
---|---|---|---|---|--- 
LXR 4.00N-M3 | 19 | 8 | 4 | 5 | E32 N ..LX

**Steel**: ● ● ●  
**Stainless steel**: ○ ○ ●  
**Cast iron**: ● ● ●  
**Non ferrous metals**: ○  
**Heat resistant alloys**: ●  
**Hardened materials**: ○

---

**Internal machining**  
**External machining**

---

→ 73  
→ 73  
→ 74
Modular Clamp MSS – Axial and radial grooving module LX

- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards

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Radial grooving

Axial grooving

Internal grooving

Spare parts for grooving inserts

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→ 71+72 → 93–95
MonoClamp – Blade LX

Scope of supply:
Blade incl. clamping screw and tightening wrench

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Spare parts
for grooving inserts

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→ 71+72 → 98+99 → Chapter 16
Grooving insert AX

- Very good chip control
- DAXN minimum groove diameter refers to the outside diameter

![Diagram of Grooving Insert AX](image)

### Designation

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**Steel**
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

**Article no.**
- 70 327...

**£**
- 24.99 005
- 25.92 010
- 27.25 015

### Application recommendation
- Application recommendation on page 109

Internal machining

External machining

- Page 76
- Page 77
- Page 78
Modular Clamp MSS – Axial grooving module AX

For axial grooving and turning

Illustrations show right-hand versions

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Key D

Clamping screw

→ 75 → 93–95 → Chapter 16
MonoClamp – Axial AX Grooving Holder 0°, up to 15 mm groove depth

Illustrations show right-hand versions

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£ 2C/71  2C/71

Spare parts

for Article no.

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MonoClamp – Axial AX Grooving Holder 90°, up to 15 mm groove depth

Illustrations show right-hand versions

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Threading inserts TC full profile – External thread 60°

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---|---|---|---|---|---|---|---|---|---|---|
TC 16-1 E 0.5 ISO | TC 16-1 | 0.50 | 16 | 0.32 | 1.05 | 0.08 | E/R/L TC 16-1 | 70 357 010 | 19.82 110 | 16.00 610 |
TC 16-1 E 0.75 ISO | TC 16-1 | 0.75 | 16 | 0.48 | 1.05 | 0.09 | E/R/L TC 16-1 | 70 357 012 | 19.82 112 | 16.00 612 |
TC 16-1 E 1.0 ISO | TC 16-1 | 1.00 | 16 | 0.64 | 1.05 | 0.12 | E/R/L TC 16-1 | 70 357 014 | 19.82 114 | 16.00 614 |
TC 16-1 E 1.25 ISO | TC 16-1 | 1.25 | 16 | 0.80 | 1.05 | 0.15 | E/R/L TC 16-1 | 70 357 016 | 19.82 116 | 16.00 616 |
TC 16-1 E 1.5 ISO | TC 16-1 | 1.50 | 16 | 0.95 | 1.05 | 0.18 | E/R/L TC 16-1 | 70 357 018 | 19.82 118 | 16.00 618 |
TC 16-2 E 1.75 ISO | TC 16-2 | 1.75 | 16 | 1.10 | 2.15 | 0.22 | E/R/L/N TC 16-2 | 70 357 030 | 19.82 130 | 16.00 630 |
TC 16-2 E 2.0 ISO | TC 16-2 | 2.00 | 16 | 1.26 | 2.15 | 0.25 | E/R/L/N TC 16-2 | 70 357 032 | 19.82 132 | 16.00 632 |
TC 16-2 E 2.5 ISO | TC 16-2 | 2.50 | 16 | 1.58 | 2.15 | 0.32 | E/R/L/N TC 16-2 | 70 357 034 | 19.82 134 | 16.00 634 |
TC 16-2 E 3.0 ISO | TC 16-2 | 3.00 | 16 | 1.89 | 2.15 | 0.38 | E/R/L/N TC 16-2 | 70 357 036 | 19.82 136 | 16.00 636 |
TC 16-3 E 3.5 ISO | TC 16-3 | 3.50 | 16 | 2.21 | 3.10 | 0.44 | E25 N TC 16-3 | 70 357 050 | 19.82 150 | |
TC 16-3 E 4.0 ISO | TC 16-3 | 4.00 | 16 | 2.53 | 3.10 | 0.50 | E25 N TC 16-3 | 70 357 052 | 19.82 152 | |
TC 16-3 E 5.0 ISO | TC 16-3 | 5.00 | 16 | 3.16 | 3.10 | 0.63 | E25 N TC 16-3 | 70 357 056 | 19.82 156 | |

Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

Internal machining

External machining

Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials
Threading inserts TC full profile – Internal thread 60°

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Stainless steel ● ● ●
Cast iron ● ● ●
Non ferrous metals ○ ○ ●
Heat resistant alloys ● ○ ●
hardened materials ● ○ ●

Internal machining

External machining

→ Application recommendation on page 110

Grooving Tools
System TC
### Threading inserts TC partial profile 60°

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### Application recommendation on page 110

- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

### Internal machining

![Internal machining](image)

→ 86

### External machining

![External machining](image)

→ 87

→ 84

→ 85
Threading inserts TC full profile 55°

- **Designation**
- **Size**
  - TC 16-1 EI 28 W
  - TC 16-1 EI 20 W
  - TC 16-1 EI 19 W
  - TC 16-1 EI 16 W
  - TC 16-2 EI 14 W
  - TC 16-2 EI 12 W
  - TC 16-2 EI 11 W

- **TPI**
- **INSL**
- **PDPT**
- **PDX**
- **CRE**

- **for tool holder**
- **Article no.**
  - 70 359...

- **1C/84**

- **Steel**
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

- Application recommendation on page 110

Internal machining

External machining

→ 86

→ 87

→ 84

→ 85
### Threading inserts TC partial profile 55°

![Threading inserts TC partial profile 55°](image)

**Designation** | **Size** | **TPI** | **INSL** | **PDPT** | **PDX** | **CRE** | **for tool holder** | **Article no.** | **Article no.**
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---
TC 16-1 EI A 55 | 1" | 28 - 16 | 16 | 1.39 | 1.05 | 0.12 | E/L. R/L TC 16-1 | 70356110 | 70356011 | 19.82 | 19.82 | 100
TC 16-2 EI AG 55 | 1" | 28 - 8 | 16 | 2.91 | 2.15 | 0.12 | E/L. R/L/N TC 16-2 | 70356132 | 70356032 | 19.82 | 19.82 | 130
TC 16-3 EI N 55 | 1" | 14 - 8 | 16 | 2.78 | 2.15 | 0.23 | E/L. R/L/N TC 16-2 | 70356150 | 70356050 | 19.82 | 19.82 | 150
TC 16-3 EI N 55 | 1" | 7 - 5 | 16 | 4.34 | 3.10 | 0.46 | E/L. N TC 16-3 | 70356170 | 70356070 | 19.82 | 19.82 | 170

**Steel**
- ●

**Stainless steel**
- ●

**Cast iron**
- ●

**Non ferrous metals**
- ○

**Heat resistant alloys**
- ○

**Hardened materials**
- ●

---

**Internal machining**

- → 86

**External machining**

- → 87, 84, 85

---

> Grooving Tools
> System TC

> → V, Page 101

> Application recommendation on page 110
Modular Clamp MSS – Threading module TC for external threads

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→ 79–83 → 93–95 → Chapter 16
MonoClamp – Monobloc tool TC for external thread cutting

Illustrations show right-hand versions

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Spare parts for grooving inserts

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→ 79–83
Modular Clamp MSS – Threading module TC for internal threads

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→ 79–83 → 96
MonoClamp – Monobloc Boring bar TC for internal thread cutting

Illustrations show right-hand versions

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-> 79–83
MaxiClick – Insert – Cutting depth 5 mm
▲ 5 cutting edges

Designation | IH | CW | RE | PSIR | INSL | CDX | for tool holder | Article no. |
---|---|---|---|---|---|---|---|---|
MC 05-5-1.00 L 07-F2 | L | 1.0 | 0.1 | 7° | 59.2 | 5 | MC 05 R/L | 31.64 250 |
MC 05-5-1.50 L 07-F2 | L | 1.5 | 0.1 | 7° | 59.2 | 5 | MC 05 R/L | 31.64 260 |
MC 05-5-1.00 N 0.10-F2 | N | 1.0 | 0.1 | 59.2 | 0.5 | 5 | MC 05 R/L | 31.64 210 |
MC 05-5-1.50 N 0.10-F2 | N | 1.5 | 0.1 | 59.2 | 1.0 | 5 | MC 05 R/L | 31.64 220 |
MC 05-5-1.00 R 07-F2 | R | 1.0 | 0.1 | 7° | 59.2 | 5 | MC 05 R/L | 31.64 230 |
MC 05-5-1.50 R 07-F2 | R | 1.5 | 0.1 | 7° | 59.2 | 5 | MC 05 R/L | 31.64 240 |

Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

Internal machining

External machining

→ v, Page 106

→ 91
MaxiClick insert – Cutting depth 10 mm
▲ 4 cutting edges

---

### Designation

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- **Steel**
- **Stainless steel**
- **Cast iron**
- **Non ferrous metals**
- **Heat resistant alloys**
- **Hardened materials**

---

**Steel**

**Stainless steel**

**Cast iron**

**Non ferrous metals**

**Heat resistant alloys**

**Hardened materials**

---

**Internal machining**

**External machining**

---

**Internal machining**

**External machining**

---

**Internal machining**

**External machining**

---

**Internal machining**

**External machining**
MaxiClick insert – Cutting depth 10 mm

▲ 4 cutting edges

Designation | IH | CW | RE | PSIR | INSL | CDX | for tool holder | Article no. |
-------------|----|----|----|------|------|-----|----------------|------------|
            | mm | mm | mm | mm   | mm   | mm  |                  |            |
MC 10-4-1.50 L 12-F3 | L | 1.5 | 0.1 | 12° | 59.2 | 10  | MC 10 R/L       | 26.04 270 |
MC 10-4-2.00 L 12-F3 | L | 2.0 | 0.1 | 12° | 59.2 | 10  | MC 10 R/L       | 26.04 280 |
MC 10-4-2.50 L 12-F3 | L | 2.5 | 0.1 | 12° | 59.2 | 10  | MC 10 R/L       | 26.04 290 |
MC 10-4-1.50 R 12-F3 | R | 1.5 | 0.1 | 12° | 59.2 | 10  | MC 10 R/L       | 26.04 240 |
MC 10-4-2.00 R 12-F3 | R | 2.0 | 0.1 | 12° | 59.2 | 10  | MC 10 R/L       | 26.04 250 |
MC 10-4-2.50 R 12-F3 | R | 2.5 | 0.1 | 12° | 59.2 | 10  | MC 10 R/L       | 26.04 260 |

Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- Hardened materials

Internal machining

External machining

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MaxiClick – Toolholder – Cutting depth 5 mm

Illustrations show right-hand versions

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| → 88 |
MaxiClick – Toolholder – Cutting depth 10 mm

![MaxiClick Toolholder Diagram]

Illustrations show right-hand versions

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1) -S = strengthened variant

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Spare parts

for grooving inserts

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Modular Clamp MSS – Tool holder 0°

Illustrations show right-hand versions

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1) see view A-A

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Module Overview

→ 4+5

Modular Clamp Holder with HSK-T interface can be found in → Chapter 16.
ModularClamp MSS – Tool holder 45°

Illustrations show right-hand versions

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For right hand holder → left hand module only
For left hand holder → right hand module only

Spare parts

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Module Overview

→ 4+5
ModularClamp MSS – Tool holder 90°

Illustrations show right-hand versions

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Left-hand | Right-hand

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For right hand holder → left hand module only
For left hand holder → right hand module only

Spare parts

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Module Overview

For Grooving Tools ModularClamp Holder with HSK-T interface can be found in → Chapter 16.
ModularClamp MSS – Boring bars GX / TC

With internal coolant supply

![Diagram](image)

Illustrations show right-hand versions

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1) with 2 clamping surfaces

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Module Overview

Modular Clamp Holder with HSK-T interface can be found in → Chapter 16.
**Split clamping block for blades DC**

**Scope of supply:**
Complete clamping block, but without blade

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**Coolant screw plug**

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**D-Ring**

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Clamping block for blades GX/LX/FX/SX

**Scope of supply:**
Clamping block complete, but without blade and coolant set

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**Spare parts**

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*Clamping Block for Blades with HSK-T interface can be found in → Chapter 16.*
Split clamping block for blades GX/LX/FX/SX

Scope of supply:
Clamping block complete, but without blade and coolant set

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Spare parts for blades

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**Clamping Block for Blades with HSK-T interface can be found in → Chapter 16.**
## Material examples referring to the cutting data tables

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<th>Index</th>
<th>Material</th>
<th>Strength N/mm² / HB / HRC</th>
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## Cutting data

**Grooving Tools**

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**CERATIZIT \ Performance**

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**cuttingtools.ceratizit.com**

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**11|100**
Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC/MaxiClick

<table>
<thead>
<tr>
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# Cutting data values for TX grooving inserts

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### GX-M40

<table>
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<th>3,5</th>
<th>4,0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting width in mm</td>
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<tr>
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<tr>
<td>GX-M40</td>
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<td></td>
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<tr>
<td>GX-M40</td>
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### GX-27P

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<tr>
<td>GX-27P</td>
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<tr>
<td>GX-27P</td>
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<tr>
<td>GX-27P</td>
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When axial grooving reduce feed by 40%.
### GX – Depths of cut and feed rates

**GX-M3**

<table>
<thead>
<tr>
<th>Depth of Cut (a_p) in mm</th>
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<th>3,0</th>
<th>3,5</th>
<th>4,0</th>
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<tbody>
<tr>
<td>Radius (R_E) in mm</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
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<td>0,15–0,30</td>
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</tr>
<tr>
<td>2</td>
<td>0,15–0,40</td>
<td>0,15–0,40</td>
<td>0,15–0,40</td>
<td>0,15–0,30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,5</td>
<td>0,15–0,50</td>
<td>0,15–0,50</td>
<td>0,15–0,50</td>
<td>0,15–0,40</td>
<td>0,15–0,35</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>0,20–0,70</td>
<td>0,20–0,70</td>
<td>0,20–0,70</td>
<td>0,20–0,60</td>
<td>0,20–0,50</td>
<td>0,20–0,40</td>
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**GX-27P Full Radius**

<table>
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<th>1,5</th>
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<th>2,5</th>
<th>3,0</th>
<th>3,5</th>
<th>4,0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radius (R_E) in mm</td>
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<td></td>
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<td></td>
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<td>0,10–0,45</td>
<td>0,05–0,45</td>
<td>0,05–0,40</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0,15–0,50</td>
<td>0,10–0,50</td>
<td>0,10–0,50</td>
<td>0,10–0,40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,5</td>
<td>0,15–0,60</td>
<td>0,10–0,60</td>
<td>0,10–0,60</td>
<td>0,10–0,50</td>
<td>0,10–0,45</td>
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</tr>
<tr>
<td>3</td>
<td>0,25–0,70</td>
<td>0,20–0,70</td>
<td>0,15–0,70</td>
<td>0,15–0,70</td>
<td>0,15–0,65</td>
<td>0,15–0,60</td>
<td>0,15–0,55</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0,25–0,80</td>
<td>0,20–0,80</td>
<td>0,15–0,80</td>
<td>0,15–0,80</td>
<td>0,15–0,80</td>
<td>0,15–0,75</td>
<td>0,15–0,70</td>
<td>0,15–0,35</td>
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**GX-M1**

<table>
<thead>
<tr>
<th>Cutting width in mm</th>
<th>0,05–0,15</th>
<th>0,05–0,10</th>
<th>0,05–0,10</th>
<th>0,02–0,09</th>
<th>0,05–0,10</th>
<th>0,05–0,10</th>
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</thead>
</table>

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**GX Radius grooving inserts**

<table>
<thead>
<tr>
<th>GX Radius grooving insert</th>
<th>(R_E) in mm</th>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,80</td>
<td>0,05–0,10</td>
<td></td>
</tr>
<tr>
<td>1,00</td>
<td>0,05–0,15</td>
<td></td>
</tr>
<tr>
<td>1,20</td>
<td>0,05–0,15</td>
<td></td>
</tr>
</tbody>
</table>

**GX circlip grooves**

<table>
<thead>
<tr>
<th>GX circlip grooves</th>
<th>Cutting width in mm</th>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,60–1,70</td>
<td>0,02–0,09</td>
<td></td>
</tr>
<tr>
<td>1,95–2,25</td>
<td>0,05–0,10</td>
<td></td>
</tr>
<tr>
<td>2,75–3,25</td>
<td>0,05–0,12</td>
<td></td>
</tr>
</tbody>
</table>
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

<table>
<thead>
<tr>
<th>Designation</th>
<th>f in mm/rev.</th>
<th>f in mm/rev.</th>
<th>a_max mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>GX 24-2 E 3.00 ..</td>
<td>0.05–0.15</td>
<td>0.05–0.20</td>
<td>2.5</td>
</tr>
<tr>
<td>GX 24-3 E 4.00 ..</td>
<td>0.05–0.15</td>
<td>0.05–0.25</td>
<td>3.0</td>
</tr>
<tr>
<td>GX 24-3 E 5.00 ..</td>
<td>0.05–0.15</td>
<td>0.10–0.25</td>
<td>3.0</td>
</tr>
<tr>
<td>GX 24-4 E 6.00 ..</td>
<td>0.05–0.20</td>
<td>0.10–0.30</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Axial grooving

Axial grooving – Groove widening

Axial grooving and face turning

It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50–70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.

Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.

Correct Axial mono holder

Incorrect Axial mono holder
MaxiClick – Depths of cut and feed rates

**MaxiClick 05**

<table>
<thead>
<tr>
<th>Depth of Cut (a_p) in mm</th>
<th>MaxiClick 05</th>
<th>MaxiClick 05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting width in mm</td>
<td>0,25</td>
<td>0,50</td>
</tr>
<tr>
<td>1</td>
<td>0,02–0,15</td>
<td>0,02–0,10</td>
</tr>
<tr>
<td>1,5</td>
<td>0,02–0,20</td>
<td>0,02–0,20</td>
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</tbody>
</table>

**MaxiClick 10**

<table>
<thead>
<tr>
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<th>MaxiClick 10</th>
<th>MaxiClick 10</th>
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</thead>
<tbody>
<tr>
<td>Cutting width in mm</td>
<td>0,50</td>
<td>0,75</td>
</tr>
<tr>
<td>1,5</td>
<td>0,02–0,20</td>
<td>0,02–0,15</td>
</tr>
<tr>
<td>2</td>
<td>0,02–0,20</td>
<td>0,02–0,20</td>
</tr>
<tr>
<td>2,5</td>
<td>0,02–0,20</td>
<td>0,02–0,20</td>
</tr>
</tbody>
</table>

**MaxiClick – System function**

- **Correct Insert Location in the Seat**
- **Worn-Out Cutting Edge is Broken Off Towards the Left or Right Side**
- **Withdraw Cutting Insert**
- **Magnets Prevent the Cutting Insert from Falling Out of the Tool Holder During Positioning**
# SX – Depths of cut and feed rates

## SX-F2

### Turning

<table>
<thead>
<tr>
<th>Depth of Cut $a_p$ in mm</th>
<th>SX-F2</th>
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</thead>
<tbody>
<tr>
<td>0.50</td>
<td>0.75</td>
</tr>
<tr>
<td>1.00</td>
<td>1.25</td>
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<tr>
<td>1.50</td>
<td>1.75</td>
</tr>
<tr>
<td>2.00</td>
<td>2.25</td>
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<tr>
<td>2.50</td>
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### Parting / Grooving

<table>
<thead>
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<th>Cutting width in mm</th>
<th>Feed rate $f$ in mm/rev.</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>0.03–0.15 0.03–0.15 0.03–0.15 0.03–0.10</td>
</tr>
<tr>
<td>3</td>
<td>0.04–0.17 0.04–0.17 0.04–0.17 0.04–0.15 0.04–0.13 0.04–0.12</td>
</tr>
<tr>
<td>4</td>
<td>0.05–0.20 0.05–0.20 0.05–0.20 0.05–0.20 0.05–0.17 0.05–0.15</td>
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## SX-M2

### Turning

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<tbody>
<tr>
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<td>1.0</td>
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### Parting / Grooving

<table>
<thead>
<tr>
<th>Cutting width in mm</th>
<th>Feed rate $f$ in mm/rev.</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>0.05–0.17 0.05–0.13 0.05–0.10</td>
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<tr>
<td>3</td>
<td>0.07–0.20 0.07–0.20 0.07–0.18 0.07–0.15</td>
</tr>
<tr>
<td>4</td>
<td>0.10–0.25 0.10–0.25 0.10–0.25 0.10–0.22 0.10–0.18</td>
</tr>
<tr>
<td>5</td>
<td>0.12–0.27 0.12–0.27 0.12–0.27 0.12–0.25 0.12–0.22</td>
</tr>
<tr>
<td>6</td>
<td>0.15–0.30 0.15–0.30 0.15–0.30 0.15–0.30 0.15–0.25 0.15–0.20</td>
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</table>

## SX-27P

### Turning

<table>
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</tr>
</thead>
<tbody>
<tr>
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### Parting / Grooving

<table>
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<tr>
<th>Cutting width in mm</th>
<th>Feed rate $f$ in mm/rev.</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>0.05–0.23 0.05–0.23 0.05–0.23 0.05–0.20</td>
</tr>
<tr>
<td>3</td>
<td>0.05–0.25 0.05–0.25 0.05–0.25 0.05–0.25 0.05–0.20</td>
</tr>
<tr>
<td>4</td>
<td>0.10–0.30 0.10–0.30 0.10–0.30 0.10–0.30 0.10–0.30 0.10–0.25</td>
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</table>
## SX/LX – Depths of cut and feed rates

### SX-M1

<table>
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<th>Feed rate f in mm/rev.</th>
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<td>3</td>
<td>0,10–0,20</td>
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<tr>
<td></td>
<td>4</td>
<td>0,10–0,25</td>
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### SX-M3

#### Turning

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<td>0,15–0,35</td>
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<td>0,15–0,40</td>
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<tr>
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<td>0,20–0,70</td>
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#### Parting / Grooving

<table>
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</tr>
<tr>
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<td>2</td>
<td>0,15–0,40 0,15–0,40 0,15–0,40 0,15–0,30</td>
</tr>
<tr>
<td></td>
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<td>3</td>
<td>0,20–0,70 0,20–0,70 0,20–0,70 0,20–0,60 0,20–0,50 0,20–0,40</td>
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### LX-M2

#### Turning

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<th>Feed rate f in mm/rev.</th>
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<td>0,17–0,45</td>
</tr>
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<td>0,17–0,45</td>
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<tr>
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<td>1,5</td>
<td>0,17–0,45</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0,17–0,45</td>
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</tr>
<tr>
<td></td>
<td>3</td>
<td>0,20–0,50</td>
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</table>

#### Parting / Grooving

<table>
<thead>
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<th>Feed rate f in mm/rev.</th>
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</tr>
<tr>
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<td>10</td>
<td>0,20–0,50</td>
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### LX-M3

#### Turning

<table>
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<th>Depth of Cut a_p in mm</th>
<th>Feed rate f in mm/rev.</th>
</tr>
</thead>
<tbody>
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<td>0,25–0,80</td>
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<tr>
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<td>1,0</td>
<td>0,25–0,80</td>
</tr>
<tr>
<td></td>
<td>1,5</td>
<td>0,25–0,80</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0,25–0,80</td>
</tr>
<tr>
<td></td>
<td>2,5</td>
<td>0,25–0,80</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0,25–0,70</td>
</tr>
</tbody>
</table>

#### Parting / Grooving

<table>
<thead>
<tr>
<th>LX-M3</th>
<th>Radius in mm</th>
<th>Feed rate f in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>0,25–0,80 0,25–0,80 0,25–0,80 0,25–0,80 0,25–0,70 0,25–0,60 0,25–0,50 0,15–0,35</td>
</tr>
</tbody>
</table>
AX/FX – Depths of cut and feed rates

**AX-F50**

<table>
<thead>
<tr>
<th>Depth of Cut (a_p) in mm</th>
<th>AX-F50</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,5</td>
<td>1,0</td>
</tr>
<tr>
<td>1,0</td>
<td>1,5</td>
</tr>
<tr>
<td>1,5</td>
<td>2,3</td>
</tr>
</tbody>
</table>

*Size*  
AX 05  
AX 10  
AX 15  

<table>
<thead>
<tr>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AX 05 0,03–0,10 0,03–0,10</td>
</tr>
<tr>
<td>AX 10 0,03–0,13 0,03–0,13 0,03–0,135</td>
</tr>
<tr>
<td>AX 15 0,03–0,15 0,03–0,15 0,03–0,15 0,03–0,15</td>
</tr>
</tbody>
</table>

**FX-F1**  
Parting / Grooving

<table>
<thead>
<tr>
<th>Cutting width in mm</th>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2</td>
<td>0,025–0,10</td>
</tr>
<tr>
<td>3,1</td>
<td>0,05–0,15</td>
</tr>
<tr>
<td>4,1</td>
<td>0,05–0,20</td>
</tr>
</tbody>
</table>

**FX-M1**  
Parting / Grooving

<table>
<thead>
<tr>
<th>Cutting width in mm</th>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2</td>
<td>0,05–0,15</td>
</tr>
<tr>
<td>3,1</td>
<td>0,08–0,18</td>
</tr>
<tr>
<td>4,1</td>
<td>0,10–0,20</td>
</tr>
<tr>
<td>5,1</td>
<td>0,15–0,28</td>
</tr>
<tr>
<td>6,5</td>
<td>0,15–0,33</td>
</tr>
<tr>
<td>8,2</td>
<td>0,20–0,40</td>
</tr>
<tr>
<td>9,7</td>
<td>0,20–0,40</td>
</tr>
</tbody>
</table>

**FX-27P**  
Parting / Grooving

<table>
<thead>
<tr>
<th>Cutting width in mm</th>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2</td>
<td>0,01–0,10</td>
</tr>
<tr>
<td>3,1</td>
<td>0,015–0,125</td>
</tr>
<tr>
<td>4,1</td>
<td>0,05–0,15</td>
</tr>
</tbody>
</table>

**FX-R2**  
Grooving

<table>
<thead>
<tr>
<th>Cutting width in mm</th>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,1</td>
<td>0,10–0,275</td>
</tr>
<tr>
<td>4,1</td>
<td>0,15–0,35</td>
</tr>
</tbody>
</table>

**1. Plunging**

<table>
<thead>
<tr>
<th>Feed rate (f) in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AX 05 0,025–0,080 0,025–0,20</td>
</tr>
<tr>
<td>AX 10 0,025–0,065 0,05–0,25</td>
</tr>
<tr>
<td>AX 15 0,025–0,050 0,05–0,30</td>
</tr>
</tbody>
</table>

**Cutting data**

Grooving Tools
### Metric ISO 60° external thread

<table>
<thead>
<tr>
<th>Pitch in mm</th>
<th>0.5</th>
<th>0.75</th>
<th>1.0</th>
<th>1.25</th>
<th>1.5</th>
<th>1.75</th>
<th>2.0</th>
<th>2.5</th>
<th>3.0</th>
<th>3.5</th>
<th>4.0</th>
<th>4.5</th>
<th>5.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number/cuts</td>
<td>4-6</td>
<td>4-7</td>
<td>4-8</td>
<td>5-9</td>
<td>6-10</td>
<td>7-11</td>
<td>8-12</td>
<td>9-14</td>
<td>10-18</td>
<td>10-18</td>
<td>12-20</td>
<td>12-20</td>
<td>12-20</td>
</tr>
<tr>
<td>Thread profile depth in mm</td>
<td>0.32</td>
<td>0.48</td>
<td>0.64</td>
<td>0.8</td>
<td>0.95</td>
<td>1.10</td>
<td>1.26</td>
<td>1.58</td>
<td>1.89</td>
<td>2.21</td>
<td>2.53</td>
<td>2.84</td>
<td>3.16</td>
</tr>
</tbody>
</table>

### Metric ISO 60° internal thread

<table>
<thead>
<tr>
<th>Pitch in mm</th>
<th>0.5</th>
<th>0.75</th>
<th>1.0</th>
<th>1.25</th>
<th>1.5</th>
<th>1.75</th>
<th>2.0</th>
<th>2.5</th>
<th>3.0</th>
<th>3.5</th>
<th>4.0</th>
<th>4.5</th>
<th>5.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number/cuts</td>
<td>4-6</td>
<td>4-7</td>
<td>4-8</td>
<td>5-9</td>
<td>6-10</td>
<td>7-11</td>
<td>8-12</td>
<td>9-14</td>
<td>10-18</td>
<td>10-18</td>
<td>12-20</td>
<td>12-20</td>
<td>12-20</td>
</tr>
<tr>
<td>Thread profile depth in mm</td>
<td>0.30</td>
<td>0.45</td>
<td>0.59</td>
<td>0.74</td>
<td>0.89</td>
<td>1.02</td>
<td>1.17</td>
<td>1.46</td>
<td>1.76</td>
<td>2.02</td>
<td>2.35</td>
<td>2.64</td>
<td>2.93</td>
</tr>
</tbody>
</table>

### Whitworth 55° external and internal thread

<table>
<thead>
<tr>
<th>TPI</th>
<th>28</th>
<th>26</th>
<th>24</th>
<th>20</th>
<th>19</th>
<th>18</th>
<th>16</th>
<th>14</th>
<th>12</th>
<th>11</th>
<th>10</th>
<th>9</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number/cuts</td>
<td>5-8</td>
<td>5-8</td>
<td>5-9</td>
<td>6-9</td>
<td>6-10</td>
<td>7-11</td>
<td>8-12</td>
<td>8-14</td>
<td>9-16</td>
<td>10-16</td>
<td>11-18</td>
<td>12-20</td>
<td>12-20</td>
</tr>
<tr>
<td>Thread profile depth in mm</td>
<td>0.60</td>
<td>0.65</td>
<td>0.70</td>
<td>0.84</td>
<td>0.88</td>
<td>0.93</td>
<td>1.05</td>
<td>1.20</td>
<td>1.40</td>
<td>1.53</td>
<td>1.68</td>
<td>1.87</td>
<td>2.11</td>
</tr>
</tbody>
</table>

### Partial profile 60° external and internal thread

#### External

<table>
<thead>
<tr>
<th>TC 16–2EI–AG60</th>
<th>TC 16–2EI–G60</th>
<th>TC 16–3EI–N60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch in mm</td>
<td>0.5/0.75/1.0</td>
<td>1.25/1.5/1.75</td>
</tr>
<tr>
<td>Number/cuts</td>
<td>4–6/4–7/4–8</td>
<td>5–9/6–10/7–11</td>
</tr>
<tr>
<td>Thread profile depth in mm</td>
<td>0.33</td>
<td>0.52</td>
</tr>
</tbody>
</table>

#### Internal

<table>
<thead>
<tr>
<th>TC 16–2EI–AG60</th>
<th>TC 16–2EI–G60</th>
<th>TC 16–3EI–N60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch in mm</td>
<td>0.5/0.75/1.0</td>
<td>1.25/1.5/1.75</td>
</tr>
<tr>
<td>Number/cuts</td>
<td>4–6/4–7/4–8</td>
<td>5–9/6–10/7–11</td>
</tr>
<tr>
<td>Thread profile depth in mm</td>
<td>0.27</td>
<td>0.44</td>
</tr>
</tbody>
</table>

### Partial profile 55° external and internal thread

#### External

<table>
<thead>
<tr>
<th>TC 16–2EI–AG55</th>
<th>TC 16–3EI–N55</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPI</td>
<td>28</td>
</tr>
<tr>
<td>Number/cuts</td>
<td>5–8</td>
</tr>
<tr>
<td>Thread profile depth in mm</td>
<td>0.66</td>
</tr>
</tbody>
</table>

#### Internal

<table>
<thead>
<tr>
<th>TC 16–2EI–G55</th>
<th>TC 16–3EI–N55</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPI</td>
<td>14</td>
</tr>
<tr>
<td>Thread profile depth in mm</td>
<td>1.22</td>
</tr>
</tbody>
</table>
Comparison threading system with TC and conventional

TC

▲ Neutral configuration of insert makes operation in both directions possible
▲ Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
▲ Reduced stock holding
▲ Good chip formation due to chip breaker with rake angle + 10°

Greater efficiency through:
▲ Shorter operating time
▲ Less tool changing
▲ High stability with small overhang
▲ Material saving
▲ Thread turning between shoulders
▲ Fewer tools and indexable inserts

▲ Very good access to workpiece, therefore use of tailstock also possible with small thread diameters

Conventional

▲ Right-hand and left-hand version of indexable insert, therefore operation only in one direction
▲ For every pitch 4 threading inserts are necessary (right – left, internal – external)

▲ For this machining method 2 tools are required
▲ Additional material and stability loss with large overhang

▲ Poor accessibility
▲ Collision danger

▲ With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
▲ Can only be operated in one direction

R = Right hand tools
L = Left hand tool

}\}
The Modular Clamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension “a”. The extent of reduction can be determined with the following table.

CDX maximum plunge depth in mm  
CDOX maximum workpiece Ø with full penetration depth in mm  
a Reduction amount in mm

\[ T_{\text{red}} = \text{CDX} - a \]

<table>
<thead>
<tr>
<th>Size</th>
<th>0.5</th>
<th>1.0</th>
<th>1.5</th>
<th>2.0</th>
<th>2.5</th>
<th>3.0</th>
<th>3.5</th>
<th>4.0</th>
<th>4.5</th>
<th>5.0</th>
<th>5.5</th>
<th>6.0</th>
<th>6.5</th>
<th>7.0</th>
<th>7.5</th>
<th>8.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>E12</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>60</td>
<td>75</td>
<td>115</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
<td>270</td>
<td>300</td>
<td>330</td>
<td>360</td>
<td>390</td>
<td>420</td>
</tr>
<tr>
<td>E16</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>100</td>
<td>130</td>
<td>160</td>
<td>190</td>
<td>220</td>
<td>250</td>
<td>280</td>
<td>310</td>
<td>340</td>
<td>370</td>
<td>400</td>
</tr>
<tr>
<td>E20</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>95</td>
<td>110</td>
<td>130</td>
<td>150</td>
<td>170</td>
<td>190</td>
<td>210</td>
<td>230</td>
<td>250</td>
<td>270</td>
<td>290</td>
</tr>
<tr>
<td>E25</td>
<td>75</td>
<td>80</td>
<td>85</td>
<td>90</td>
<td>100</td>
<td>110</td>
<td>125</td>
<td>140</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>220</td>
<td>240</td>
<td>260</td>
<td>280</td>
<td>300</td>
</tr>
<tr>
<td>E32</td>
<td>95</td>
<td>100</td>
<td>105</td>
<td>110</td>
<td>120</td>
<td>125</td>
<td>135</td>
<td>145</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>220</td>
<td>240</td>
<td>260</td>
<td>280</td>
<td>300</td>
</tr>
</tbody>
</table>

Calculation example:

\[ D = \varnothing 100 \text{ mm} \]
\[ \text{CDX} = 21 \text{ mm, } \varnothing 75 \text{ mm} \]
\[ \text{CDX}-a = T_{\text{red}} \]
\[ 21-2 = 19 \text{ mm} \]
Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CDOX. If the workpiece diameter is larger than the CDOX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

<table>
<thead>
<tr>
<th>CDX</th>
<th>CDOX</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>max plunge depth in mm</td>
<td>max workpiece Ø with full penetration depth in mm</td>
<td>Reduction amount in mm</td>
</tr>
</tbody>
</table>

\[ T_{\text{red}} = CDX - a \]

**Grooving depth reduction**

<table>
<thead>
<tr>
<th>Shank</th>
<th>Reduction a (mm) of the maximum grooving depth (CDX)</th>
<th>D WORKPIECE DIAMETER (MM)</th>
<th>E25R/L0033...</th>
<th>80 155 175 200 230 275 340 450 675 &gt;1350</th>
</tr>
</thead>
<tbody>
<tr>
<td>E25R/L0026...</td>
<td>52 140 160 190 235 310 465 &gt;930</td>
<td>200</td>
<td>275</td>
<td>340</td>
</tr>
<tr>
<td>E25R/L0033...</td>
<td>66 155 175 200 230 275 340 450 675 &gt;1350</td>
<td>66</td>
<td>175</td>
<td>200</td>
</tr>
<tr>
<td>E25R/L0040...</td>
<td>80 155 175 200 230 275 340 450 675 &gt;1350</td>
<td>80</td>
<td>155</td>
<td>175</td>
</tr>
<tr>
<td>E20R/L0033...</td>
<td>66 110 125 140 160 195 240 320 475 &gt;950</td>
<td>66</td>
<td>110</td>
<td>125</td>
</tr>
<tr>
<td>E20R/L0026...</td>
<td>52 110 125 140 160 195 240 320 475 &gt;950</td>
<td>52</td>
<td>110</td>
<td>125</td>
</tr>
<tr>
<td>E16R/L0026...</td>
<td>52 90 105 125 155 210 305 &gt;600</td>
<td>52</td>
<td>90</td>
<td>105</td>
</tr>
<tr>
<td>E12R/L0022...</td>
<td>44 70 80 95 115 150 225 &gt;450</td>
<td>44</td>
<td>70</td>
<td>80</td>
</tr>
</tbody>
</table>

**Calculation example:**

For E25R0033...

CDX = 33 mm, Ø 66 mm

\[ D = \phi 200 \text{ mm} \]

\[ \text{CDX} - a = T_{\text{red}} \]

33 - 1,5 = 31,5 mm
Clamping Method – SX-System

System function – inserting and removing the cutting inserts

Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its ‘elastic limit’.

With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1. Locate wrench into blade with pins located in two holes
2. Movement of the fitting key in the direction of the insert seat opens the tool.
3. Load the grooving insert into position and press against the seat.
4. Moving the key forward causes the insert seat to close and clamp the insert.

When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.

Maximum blade projection when turning

<table>
<thead>
<tr>
<th>Blade</th>
<th>max. overhang</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX 2 – SX 3</td>
<td>25 mm</td>
</tr>
<tr>
<td>SX 4 – SX 5</td>
<td>30 mm</td>
</tr>
<tr>
<td>SX 6</td>
<td>35 mm</td>
</tr>
</tbody>
</table>
Clamping function – ModularClamp-Module

Module unclamped

▲ Gap between module and support face for axial clamping

Module clamped

▲ Gap between module and support face for axial clamping
▲ Connection free from play, therefore maximum stability

Active insert clamping

Clamping screws 1, 2 and 3 are used to clamp the modules. The insert is clamped in the module via the additional screw 4.

Self clamping of the insert

Clamping screws 1, 2 and 3 are used for clamping the module. The insert is self-clamping.

Active insert clamping

Clamping screws 1 and 2 are used for clamping the module. Important: first tighten clamp screws 1 and 2. Then clamp the insert with screw 3.
Torque Moment Modular Clamp Module Screws

Modular Clamp – Tool holder

<table>
<thead>
<tr>
<th>Modular Clamp – Tool holder</th>
<th>Screw</th>
<th>Torx</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>E12..</td>
<td>M2.5x10</td>
<td>T08</td>
<td>1.2</td>
</tr>
<tr>
<td>E16..</td>
<td>M3.5x12.5</td>
<td>T15</td>
<td>3.2</td>
</tr>
<tr>
<td>E20..</td>
<td>M4x14</td>
<td>T15</td>
<td>4.0</td>
</tr>
<tr>
<td>E25..</td>
<td>M5x18</td>
<td>T20</td>
<td>5.0</td>
</tr>
<tr>
<td>E32..</td>
<td>M6x20</td>
<td>T25</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Order for the pre-and tightening of the screws!

Modular Clamp – Boring bar

<table>
<thead>
<tr>
<th>Modular Clamp – Boring bar</th>
<th>Screw</th>
<th>Torx</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>I16..</td>
<td>M2.5x10</td>
<td>T08</td>
<td>1.2</td>
</tr>
<tr>
<td>I20..</td>
<td>M3x11</td>
<td>T10</td>
<td>2.0</td>
</tr>
<tr>
<td>I25..</td>
<td>M3.5x12.5</td>
<td>T15</td>
<td>3.2</td>
</tr>
<tr>
<td>I32..</td>
<td>M4.5x17</td>
<td>T20</td>
<td>4.0</td>
</tr>
<tr>
<td>I40..</td>
<td>M5x18</td>
<td>T20</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Order for the pre-and tightening of the screws!

Tightening torque for the insert clamping

Recommended tightening torque

<table>
<thead>
<tr>
<th>Grooving systems</th>
<th>Screw</th>
<th>Torx</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>GX / AX / LX</td>
<td>M3.5</td>
<td>T15</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>M4.0</td>
<td>T15/T20</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>M5.0</td>
<td>T20</td>
<td>5.0</td>
</tr>
</tbody>
</table>
General references

Tool position

![Diagram of tool position]

As a rule of thumb: Overhang $l_o$ should not be greater than 8$x$s (Groove width).

Tool overhang

![Diagram of tool overhang]

References for Parting off

From Ø 5 mm on, reduce feed “f” by approx. 50 %. No parting across centre (risk of breakage).

For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

In order to prevent ring formation, use R or L inserts. Reduce feed “f” because of lateral deflection by approx. 20–50 %.

References for grooving

When grooving with an axial displacement the width “$a$” should amount to at least 70 % of the grooving width “$s$”.

When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.
## Trouble shooting guide for grooving FX/SX/GX/LX

<table>
<thead>
<tr>
<th>Type of problem</th>
<th>Type of wear</th>
<th>Work piece problems</th>
<th>Swarf control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge breakage</td>
<td>Built-up edge</td>
<td>Wear on clearance face</td>
<td>Plastic deformation</td>
</tr>
<tr>
<td></td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
</tbody>
</table>

### Cutting speed
- Increase
- Reduce

### Feed rate
- Increase
- Decrease

### Feed rate at centre
- Increase
- Decrease

### Chip groove
- Increase
- Decrease

### R/L execution
- Use larger corner radius
- Use smaller corner radius

### Corner radius
- Use material with higher wear resistance
- Use material with higher toughness

### Tap Material
- Use material with higher wear resistance
- Use material with higher toughness

### Groove width
- Increase
- Decrease

### Tool clamping
- Increase
- Decrease

### Work piece clamping
- Increase
- Decrease

### Overhang
- Increase
- Decrease

### Tip height
- Increase
- Decrease

### Cooling lubricant
- Check, optimise
- Use

**Key:**
- Large influence: Raise, increase
- Small influence: Raise, increase
- Large influence: Avoid, reduce
- Small influence: Avoid, reduce
# Trouble shooting guide for TC threading

<table>
<thead>
<tr>
<th>Type of problem</th>
<th>Type of wear</th>
<th>Workpiece</th>
<th>Swarf control</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear on clearance face</td>
<td>Breakout cut</td>
<td>Plastic deformation</td>
<td>Built-up edge</td>
<td>Form at the external thread Ø</td>
</tr>
<tr>
<td>Wear on clearance face</td>
<td>Profile</td>
<td>Surface quality</td>
<td>Chatter marks, vibrations</td>
<td>Chip too thick</td>
</tr>
</tbody>
</table>

### Cutting data

- **Cutting speed**
  - a – over the flanks
  - b – Alternating flanks

- **Feed**
  - a –
  - b – Alternating flanks

- **Feed (Cutting depth)**

- **Number of passes**

- **Spring cut (Air cut)**

- **Chip groove**

- **Tap Material**
  - wear resistance
  - toughness

- **Full profile**

- **Partial profile**

- **Stable tool holder / insert**

- **Stable workpiece**

- **Overhang**

- **Tip height**

- **Cooling lubricant**

---

- raise, increase large influence
- raise, increase small influence
- avoid, reduce large influence
- avoid, reduce small influence
- check, optimise
- use
## Wear causes

### Wear on clearance face

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting speed too high</td>
<td>Reduce the cutting speed</td>
</tr>
<tr>
<td>Grade with too low wear resistance</td>
<td>Select a more wear resistant grade</td>
</tr>
<tr>
<td>Insufficient coolant</td>
<td>Improve/check coolant feed</td>
</tr>
</tbody>
</table>

### Edge chipping

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too hard grade</td>
<td>Use tougher grade</td>
</tr>
<tr>
<td>Vibration</td>
<td>Use negative geometry with chip breaker</td>
</tr>
<tr>
<td>Too high feed and depth of cut</td>
<td>Reduce overhang, check center height</td>
</tr>
<tr>
<td>Chip impact</td>
<td>Stabilize the cutting edge</td>
</tr>
</tbody>
</table>

### Cratering

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too high cutting speed, feed, or both</td>
<td>Reduce cutting speed and/or feed</td>
</tr>
<tr>
<td>Too low rake angle</td>
<td>Check coolant flow and/or increase pressure</td>
</tr>
<tr>
<td>Grade with too low wear resistance</td>
<td>Use harder grade</td>
</tr>
<tr>
<td>Incorrectly supplied cooling</td>
<td></td>
</tr>
</tbody>
</table>

### Plastic deformation

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too high operating temperature, thus softening the base material</td>
<td>Reduce the cutting speed</td>
</tr>
<tr>
<td>Unsuitable grade</td>
<td>Select a more wear resistant grade</td>
</tr>
<tr>
<td>Inadequate coolant supply</td>
<td>Use coolant</td>
</tr>
</tbody>
</table>

### Built-up edge

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too low cutting speed</td>
<td>Increase the cutting speed</td>
</tr>
<tr>
<td>Too low rake angle</td>
<td>Increase rake angle</td>
</tr>
<tr>
<td>Incorrect grade</td>
<td>Use TiN coating</td>
</tr>
<tr>
<td>Lack of cooling/lubrication</td>
<td>Increase coolant strength</td>
</tr>
</tbody>
</table>

### Notch wear

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidation at the cutting edge</td>
<td>Use different cutting depths</td>
</tr>
<tr>
<td>Too high a temperature at the edge</td>
<td>Reduce cutting speed</td>
</tr>
<tr>
<td>Improve/check coolant feed</td>
<td></td>
</tr>
</tbody>
</table>
### Chip breakers / Applications

**System GX**

<table>
<thead>
<tr>
<th>Smooth cut</th>
<th>Irregular cut</th>
<th>Interrupted cut</th>
<th>Model</th>
<th>$f$ in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
<td>0.05–0.15</td>
</tr>
</tbody>
</table>

**-F2**
- Very positive geometry
- Honed cutting edge
- Low feed rates
- Low cutting forces
- First choice for stainless materials

<table>
<thead>
<tr>
<th>CTP325 (HCR1325)</th>
<th>CTP1340 (CCN1340)</th>
<th>CTPP345 (HCN1345)</th>
<th>0.05–0.15</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTP325 (HCR1325)</td>
<td>CTP1340/CTPP345 (CCN1340/HCN1345)</td>
<td>CTPP345 (HCN1345)</td>
<td>0.05–0.15</td>
</tr>
<tr>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340 (CCN1340)</td>
<td>CTPP345 (HCN1345)</td>
<td>0.05–0.15</td>
</tr>
</tbody>
</table>

**-Standard / -E**
- Positive geometry
- Low-medium feed rates
- Low cutting forces
- Universal application
- First choice for axial grooving

<table>
<thead>
<tr>
<th>CTP325 (HCR1325)</th>
<th>CTP335/CTP1340 (HCR1325/CCN1340)</th>
<th>CTPP345 (HCN1345)</th>
<th>0.05–0.17</th>
</tr>
</thead>
<tbody>
<tr>
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<td>CTP1340/CTPP345 (CCN1340/HCN1345)</td>
<td>CTP1340 (CCN1340)</td>
<td>0.05–0.17</td>
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<tr>
<td>CTP1340/CTPP345 (CCN1340)</td>
<td>CTP1340/CTPP345 (CCN1340/HCN1345)</td>
<td>CTP1340 (CCN1340)</td>
<td>0.05–0.17</td>
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</table>

**-M40**
- Stable geometry
- Universal application
- Good chip control

<table>
<thead>
<tr>
<th>CTP325 (HCR1325)</th>
<th>CTP1340 (CCN1340)</th>
<th>CTPP345 (HCN1345)</th>
<th>0.075–0.20</th>
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<tbody>
<tr>
<td>CTP325 (HCR1325)</td>
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<td>0.075–0.20</td>
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<tr>
<td>CTP1340 (CCN1340)</td>
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<td>CTPP345 (HCN1345)</td>
<td>0.075–0.20</td>
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</table>

**-M1**
- Very stable cutting edge
- Medium-high feed rates
- For interrupted cut
- For high tensile materials
- First choice for parting off

<table>
<thead>
<tr>
<th>CTP325 (HCR1325)</th>
<th>CTP1340 (CCN1340)</th>
<th>CTPP345 (HCN1345)</th>
<th>0.1–0.20</th>
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<tbody>
<tr>
<td>CTP325 (HCR1325)</td>
<td>CTP1340/CTPP345 (CCN1340/HCN1345)</td>
<td>CTP1340 (CCN1340)</td>
<td>0.1–0.20</td>
</tr>
<tr>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340 (CCN1340)</td>
<td>CTPP345 (HCN1345)</td>
<td>0.1–0.20</td>
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</tbody>
</table>

**-27P**
- Very positive geometry
- Ground periphery
- Sharp cutting edge
- Polished chip breaker
- First choice for non-ferrous metals

<table>
<thead>
<tr>
<th>CTP325 (HCR1325)</th>
<th>CTP1340 (CCN1340)</th>
<th>CTPP345 (HCN1345)</th>
<th>0.05–0.25</th>
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<tbody>
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<td>CTP1340 (CCN1340)</td>
<td>CTPP345 (HCN1345)</td>
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# Chip breakers / Applications

## System GX

<table>
<thead>
<tr>
<th>Smooth Cut</th>
<th>Irregular Cut</th>
<th>Interrupted Cut</th>
<th>Model</th>
<th>f in mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard – Radius</strong></td>
<td></td>
<td></td>
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<tr>
<td>▲ positive geometry</td>
<td>▲ honed cutting edge</td>
<td>▲ low-medium feed rates</td>
<td>▲ low cutting forces</td>
<td>▲ Radius grooving/copy turning</td>
</tr>
<tr>
<td>CTCP325 (HCR1325)</td>
<td>CTCP325/CTP1340 (HCR1325/CCN1340)</td>
<td>CTP1340 (CCN1340)</td>
<td>0.05–0.20</td>
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<tr>
<td><strong>-M3 – Radius</strong></td>
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<td></td>
</tr>
<tr>
<td>▲ stable geometry</td>
<td>▲ medium-high feed rates</td>
<td>▲ high surface quality</td>
<td>▲ Radius grooving/copy turning</td>
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</tr>
<tr>
<td>CTCP325 (HCR1325)</td>
<td>CTCP325/CTP335 (HCR1325/HR1335)</td>
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<td><strong>-27P – Radius</strong></td>
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</tr>
<tr>
<td>▲ very positive geometry</td>
<td>▲ ground periphery</td>
<td>▲ sharp cutting edge</td>
<td>▲ polished chip breaker</td>
<td>▲ first choice for non-ferrous metals</td>
</tr>
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<td>CTCP325 (HCR1325)</td>
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</table>

## Circlip grooveing

<table>
<thead>
<tr>
<th>Standard</th>
<th>Circlip grooves</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>▲ positive geometry</td>
<td>▲ honed cutting edge</td>
<td>▲ low feed rates</td>
<td>▲ small corner radius</td>
<td>▲ Circlip grooves</td>
</tr>
<tr>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340 (CCN1340)</td>
<td>0.05–0.30</td>
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## System AX

<table>
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</thead>
<tbody>
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<td>▲ low feed rates</td>
<td>▲ small corner radius</td>
<td>▲ Circlip grooves</td>
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<tr>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340 (CCN1340)</td>
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<td>0.025–0.125</td>
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</table>
# Chip breakers / Applications

## System SX

<table>
<thead>
<tr>
<th>Smooth cut</th>
<th>Irregular cut</th>
<th>Interrupted cut</th>
<th>Model</th>
<th>Fin mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="smooth_cut.png" alt="Image" /></td>
<td><img src="irregular_cut.png" alt="Image" /></td>
<td><img src="interrupted_cut.png" alt="Image" /></td>
<td>CTP1340 (CCN1340)</td>
<td>0.05 – 0.15</td>
</tr>
<tr>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340/CCTP345 (CCN1340/HCN1345)</td>
<td>CTPP345 (HCN1345)</td>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340/CCTP345 (CCN1340/HCN1345)</td>
</tr>
</tbody>
</table>

### -F2
- ▲ very positive geometry
- ▲ honed cutting edge
- ▲ low feed rates
- ▲ low cutting forces
- ▲ first choice for stainless materials

### -M1
- ▲ very stable cutting edge
- ▲ medium-high feed rates
- ▲ for interrupted cut
- ▲ for high tensile materials
- ▲ first choice for parting off

### -M2
- ▲ stable geometry
- ▲ medium feed rates
- ▲ universal application
- ▲ good chip control

### -27P
- ▲ very positive geometry
- ▲ ground peripheral
- ▲ sharp cutting edge
- ▲ polished chip breaker
- ▲ first choice for non-ferrous metals

### -M3 – Radius
- ▲ stable geometry
- ▲ medium-high feed rates
- ▲ high surface quality
- ▲ Radius grooving / Copy turning

## System LX

<table>
<thead>
<tr>
<th>Smooth cut</th>
<th>Irregular cut</th>
<th>Interrupted cut</th>
<th>Model</th>
<th>Fin mm/rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="smooth_cut.png" alt="Image" /></td>
<td><img src="irregular_cut.png" alt="Image" /></td>
<td><img src="interrupted_cut.png" alt="Image" /></td>
<td>CTP1340 (CCN1340)</td>
<td>0.20 – 0.50</td>
</tr>
<tr>
<td>CTP1340 (CCN1340)</td>
<td>CTP1340/CCTP345 (CCN1340/HCN1345)</td>
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<td>CTP1340 (CCN1340)</td>
<td>CTP1340/CCTP345 (CCN1340/HCN1345)</td>
</tr>
</tbody>
</table>

### -M2
- ▲ stable geometry
- ▲ medium feed rates
- ▲ universal application
- ▲ good chip control

### -M3 – Radius
- ▲ stable geometry
- ▲ medium-high feed rates
- ▲ high surface quality
- ▲ Radius grooving/copy turning

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Chip breakers / Applications

System FX

<table>
<thead>
<tr>
<th>smooth cut</th>
<th>irregular cut</th>
<th>interrupted cut</th>
<th>Model</th>
<th>fin mm/rev.</th>
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<tbody>
<tr>
<td>CTCP325 (HCR1325)</td>
<td>CTP1340 (CCN1340)</td>
<td>CTPP345 (HCN1345)</td>
<td>0,05–0,15</td>
<td></td>
</tr>
<tr>
<td>▲ very positive geometry</td>
<td>▲ low cutting forces</td>
<td>▲ good chip control</td>
<td>▲ low cutting edge build up</td>
<td></td>
</tr>
</tbody>
</table>

-M1

| CTCP325 (HCR1325) | CTCP325/CTP1340 (HCR1325/CCN1340) | CTPP345 (HCN1345) | 0,08–0,20 |
| CTCP335 (HCR1335) | CTP1340 (CCN1340) | CTPP345 (HCN1345) | |
| ▲ very stable cutting edge | ▲ medium-high feed rates | ▲ for interrupted cut | ▲ first choice for parting off |

-R2

| CTCP325 (HCR1325) | CTP1340 (CCN1340) | CTPP345 (HCN1345) | 0,10–0,27 |
| CTCP325 (HCR1325) | CTP325 (HCR1325) | CTPP345 (HCN1345) | |
| ▲ very stable cutting edge | ▲ high feed rates | ▲ good chip control | |

-27P

| CTCP325 (HCR1325) | CTP1340 (CCN1340) | CTPP345 (HCN1345) | 0,03–0,13 |
| CTCP325 (HCR1325) | CTCP325/CTP1340 (HCR1325/CCN1340) | CTPP345 (HCN1345) | |
| ▲ very positive geometry | ▲ ground periphery | ▲ sharp cutting edge | ▲ polished chip breaker |
| ▲ first choice for non-ferrous metals | |

System MC

-F2

| CTCP325 (HCR1325) | CTP1340 (CCN1340) | CTPP345 (HCN1345) | 0,05–0,10 |
| CTCP325 (HCR1325) | CTCP325/CTP1340 (HCR1325/CCN1340) | CTPP345 (HCN1345) | |
| ▲ very positive geometry | ▲ honed cutting edge | ▲ low cutting forces | ▲ first choice for stainless materials |

-F3

| CTCP325 (HCR1325) | CTP1340 (CCN1340) | CTPP345 (HCN1345) | 0,02–0,06 |
| CTCP325 (HCR1325) | CTCP325/CTP1340 (HCR1325/CCN1340) | CTPP345 (HCN1345) | |
| ▲ very positive geometry | ▲ honed cutting edge | ▲ low cutting forces | ▲ reduced burrs / edge build up |
### Example of Coding Grooving Tools

**Grooving insert**

<table>
<thead>
<tr>
<th>GX</th>
<th>16</th>
<th>2</th>
<th>E</th>
<th>3.00</th>
<th>N</th>
<th>0.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing system (GX)</td>
<td>Insert length (16 mm)</td>
<td>Width class of the holder/module or support surface (2 mm)</td>
<td>Type of insert, application</td>
<td>Groove width (3.0 mm)</td>
<td>Insert seat N = Neutral L = Left Handed R = Right Handed</td>
<td>Corner radius size (0.5 mm)</td>
</tr>
</tbody>
</table>

**Module**

<table>
<thead>
<tr>
<th>E</th>
<th>25</th>
<th>R</th>
<th>12</th>
<th>GX</th>
<th>16</th>
<th>2</th>
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<tbody>
<tr>
<td>Application E = external I = internal</td>
<td>Size (25 mm)</td>
<td>Module version R = Right Handed L = Left Handed</td>
<td>Maximum groove depth (12 mm)</td>
<td>Grooving system (GX)</td>
<td>Insert size (16 mm)</td>
<td>Width class 2</td>
</tr>
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**Basic holder**

<table>
<thead>
<tr>
<th>E</th>
<th>25</th>
<th>R</th>
<th>00</th>
<th>2525</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application E = external I = internal</td>
<td>Size (25 mm)</td>
<td>Holder version R = Right Handed L = Left Handed</td>
<td>Approach angle 0°</td>
<td>Shank type 25x25 mm</td>
<td>Shank length L = (sh. ISO)</td>
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</table>

**Monobloc tool holder**

<table>
<thead>
<tr>
<th>E</th>
<th>25</th>
<th>R</th>
<th>00</th>
<th>33</th>
<th>2525</th>
<th>M</th>
<th>K</th>
<th>DC</th>
<th>SX3</th>
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<tbody>
<tr>
<td>Application E = external I = internal</td>
<td>Size (25 mm)</td>
<td>Holder version R = Right Handed L = Left Handed</td>
<td>Approach angle 0°</td>
<td>Groove depth (33 mm)</td>
<td>Shank type 25x25 mm</td>
<td>Shank length M = (sh. ISO)</td>
<td>Insert clamping K = Key</td>
<td>Cooling system DC = Direct Cooling</td>
<td>Grooving system/width SX3</td>
</tr>
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</table>

**Compilation**

- **Basic holder** E25 R 00 - 2525L
- **Module** E25 R 12 - GX 16-2
- **Grooving insert** GX 16-2 E3.00 N 0.50
# Grades Overview

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>ISO Code</th>
<th>P20</th>
<th>M15</th>
<th>K25</th>
<th>N25</th>
<th>S25</th>
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<tbody>
<tr>
<td>CTCP325</td>
<td>Carbide, TiCN-Al2O3-coated</td>
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<tr>
<td>HCR1325</td>
<td>The wear-resistant solution for steel and cast iron materials at high cutting speeds</td>
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<td>CTCP335</td>
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<td>HCR1335</td>
<td>The reliable choice for machining steel and cast iron materials</td>
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<tr>
<td>HCN1345</td>
<td>The reliable solution for steel materials and austenitic steels under unstable conditions</td>
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<tr>
<td>CCN1340</td>
<td>The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys</td>
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<tr>
<td>DPX1520</td>
<td>The wear-resistant grade for wet machining of steels</td>
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<td>CTPP535</td>
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<td>M30</td>
<td>S30</td>
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<tr>
<td>DPX1535</td>
<td>The tough thread turning grade for universal application</td>
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<tr>
<td>H216T</td>
<td>Carbide, uncoated</td>
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<td>N15</td>
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<tr>
<td>CKW26</td>
<td>The uncoated carbide grade for machining aluminium and other non-ferrous metals</td>
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<td>The universal carbide grade for almost all materials</td>
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# Application

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<td>Grooving Tools</td>
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<table>
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<tr>
<th>wear-resistant $V_c^+$</th>
<th>$V_c^-$</th>
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<td>●</td>
<td>○</td>
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- ● : Main Application
- ○ : Extended Application
- $V_c^+$ : wear-resistant
- $V_c^-$ : tough