

Product information PI 25.3

Crown-type tool turret

0.5.170.1xx

2015-03-17

See price list P57

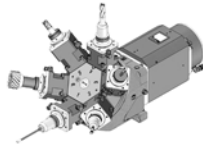

SAUTER





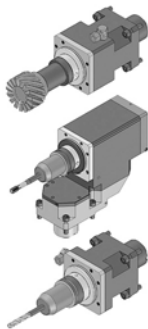
Table of Contents

Tool turret



| | |
|------------------------------------|----|
| Description | 6 |
| Technical data | 8 |
| Dimensions | 12 |
| Precision/type of protection | 13 |
| Installation positions | 14 |
| Drive motors | 16 |
| Drives (examples) | 18 |
| Radial drive shaft load | 20 |
| Processing (examples) | 21 |

Driven tools



| | |
|----------------------------------|----|
| Specifications | 23 |
| Driven tools 0° Selection | 24 |
| Admissible loads | 26 |
| Driven tools 90° Selection | 28 |
| Precision | 30 |

Ordering details

| | |
|-------------------------------------|----|
| SAUTER-Crown-type tool turret | 31 |
| SAUTER-driven tools | 32 |

Note:

The information contained in this Product Information is in conformity with knowledge at the point of printing. We reserve the right to perform modifications within the framework of continuous further development.

Crown-type tool turret

series 170

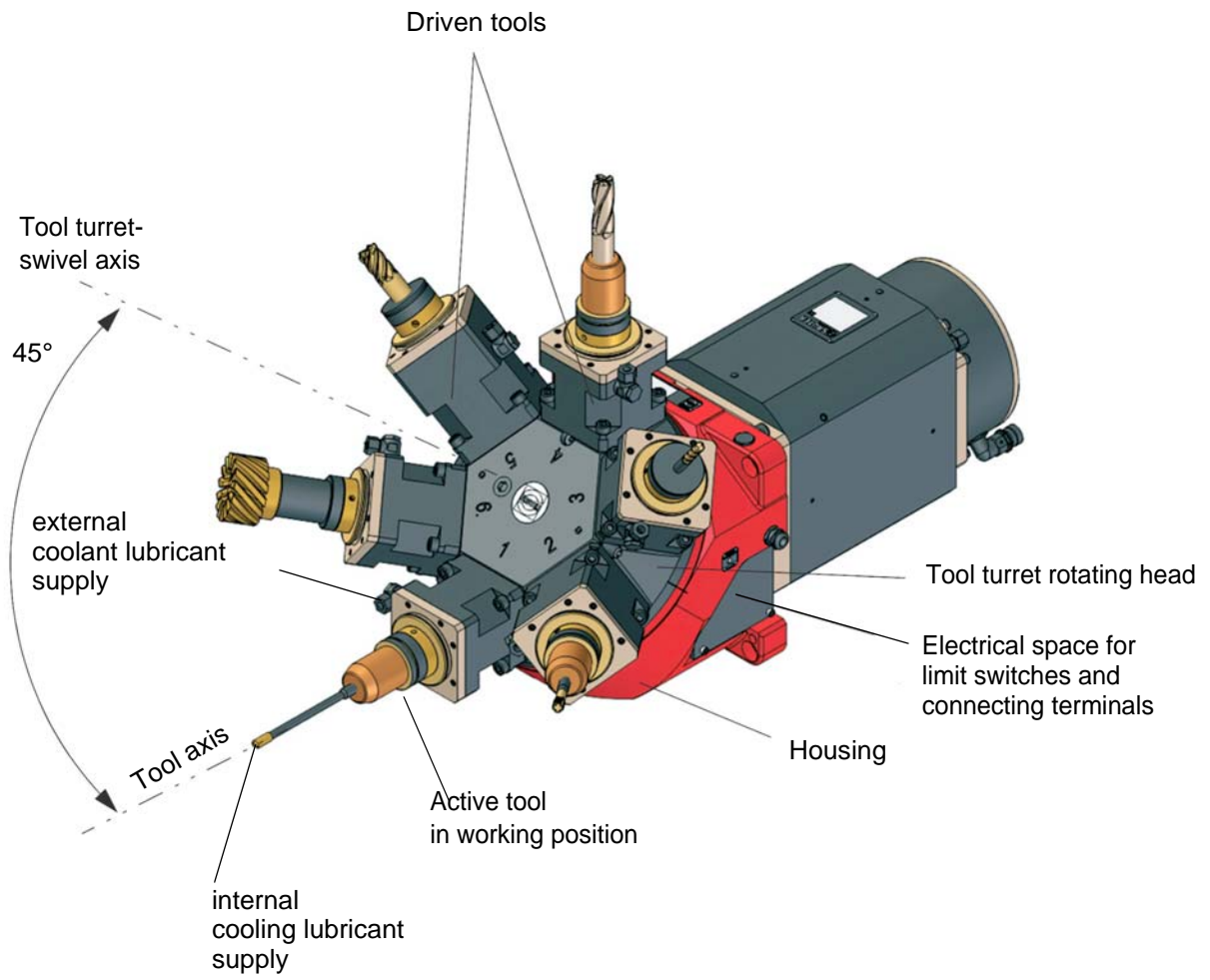
Short description

Crown-type tool turrets are particularly suitable for

- Processing stations of transfer lines and revolving phased machine tools.
- High-speed processing with tool speeds of 15 000 rpm and higher.
- Machining sequences with very short times between machining.

Specifications

- **Single Motor Technology**
The indexing drive and the tool drive share one integrated motor
- SAUTER high-performance synchronous motors or commercially available spindle motors can be employed as drive units.
- Only the tool in working position is driven. Thus causing only a minimum power loss.
- High torque especially when processing with multi-spindle drill heads.
- Tool turret slewing axle at 45° to the tool axis - great freedom of movement to neighbouring tools.
- Secure locking of the rotating head with hydraulically activated triple Hirth toothed wheel work.
- All tool spindles protected against cuttings and cooling lubricant by means of supported by sealing air labyrinth seals.
- **Cooling lubricant supply**
 - ⇨ externally
or
 - ⇨ internally through the tool spindle
 - KSS till 100 bar (Cooling lubricant) → Standard
 - MQL (minimal quantity lubrication)) → Option
- Housing shape to the RIGHT or LEFT for free access to the electrics.
- Flange or foot mounting.



Technical data

| | | |
|--|-------------------------|-------------------------|
| Series | | |
| Crown-type tool turret 0.5.170.1xx | | |
| Number of indexing positions | | |
| Adm. mass moment of inertia of the tooling (driven tools and tools) | Standard ¹⁾ | kgm ² |
| | High load ²⁾ | |
| Adm. weight of the tooling | Standard ¹⁾ | kg |
| | High load ²⁾ | |
| Adm. out-of-balance due to the centre of gravity | | Nm |
| Adm. tangential load (tool turret locked) | | kNm |
| Indexing time³⁾ | | |
| Rotate tool turret rotating head: | | |
| • inkl. acceleration and breaking | per sub-step | Standard ¹⁾ |
| | | High load ²⁾ |
| • without acceleration and breaking | | per additional sub-step |
| Locking or unlocking tool turret | | s |
| Operating pressure | | |
| Hydraulics | | bar |
| Sealing air | | bar |
| Cooling lubricant | | |
| Note: Pressure switch-off on swivelling ⁴⁾ | | |
| • with external supply through the driven tool housing | | bar |
| • with internal supply through the tool spindle (Standard) | | bar |
| • with minimal quantity lubrication (Option) | | bar |
| Hydraulic fluid absorption volumes⁵⁾ | | |
| Locking or unlocking tool turret | | cm ³ |
| Oil flow necessary | | cm ³ /s |
| Mass | | |
| Tool turret (excluding motor and driven tools) ca. | | kg |
| Adm. ambient temperature | | °C |
| Mounting configuration | | |

- 1) Corresponds to tooling with 6 driven tools 0° with common tool size and length.
- 2) High load possible with corresponding motor control with increased indexing times
- 3) Indexing times of the tool turret rotating head are closely dependent on the motor used and the tooling/ gearing.
Calculation of the total switching time according to Project Planning Guide PA 25.3.
- 4) On swivelling, the coolant/lubricant supply must be switched off internally/externally.
- 5) For the layout of the hydraulic fluid supply, please observe the Project Planning Guide PA 25.3.

| Dimension | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|
| 12 | | 20 | | | 32 | | | 50 | | |
| 4 | 6 | 4 | 6 | 8 | 4 | 6 | 8 | 4 | 6 | 8 |
| 0,5 | | 1,25 | | | 3,2 | | | 12,5 | | |
| 1,0 | | 2,5 | | | 6,3 | | | 25 | | |
| 32 | | 63 | | | 125 | | | 250 | | |
| 50 | | 100 | | | 200 | | | 400 | | |
| 3 | | 6 | | | 12 | | | 25 | | |
| 1 | | 3,2 | | | 6,3 | | | 12,5 | | |
| 0,23 | 0,19 | 0,35 | 0,29 | 0,32 | 0,39 | 0,32 | 0,29 | 0,49 | 0,40 | 0,36 |
| 0,26 | 0,21 | 0,39 | 0,31 | 0,34 | 0,43 | 0,35 | 0,31 | 0,56 | 0,46 | 0,39 |
| 0,18 | 0,12 | 0,18 | 0,12 | 0,08 | 0,18 | 0,12 | 0,08 | 0,25 | 0,18 | 0,12 |
| 0,20 | | 0,25 | | | 0,30 | | | 0,40 | | |
| 30 (filtering $\leq 20 \mu\text{m}$) | | | | | | | | | | |
| 0,5 (filtering $\leq 5 \mu\text{m}$) | | | | | | | | | | |
| ≤ 25 (filtering $\leq 100 \mu\text{m}$)f | | | | | | | | | | |
| ≤ 100 (filtering $\leq 50 \mu\text{m}$) | | | | | | | | | | |
| on request | | | | | | | | | | |
| 25 | | 48 | | | 70 | | | 110 | | |
| 125 | | 200 | | | 240 | | | 280 | | |
| 42 | | 90 | | 110 | 170 | | 210 | 390 | | 485 |
| +10 ... +40 | | | | | | | | | | |
| See „Installation positions“ page 14 | | | | | | | | | | |

| | |
|---|----------------------------|
| Series | |
| Crown-type tool turret 0.5.170.1xx | |
| Number of indexing positions | |
| Swiveling operation ¹⁾ | |
| Rated speed at the drive shaft | rpm |
| Adm. torque at the drive shaft when accelerating and breaking | Nm |
| Transmission ratio Drive shaft / tool turret rotating head | $i_{Rev} = n_A/n_D$ |
| Mass moment of inertia of rotating and tool turret gear (relating to the drive shaft) | 10-4kgm ² |
| Cutting operation | |
| Max. adm. drive speed ²⁾ | rpm |
| Max. adm. drive torque ³⁾ | Nm |
| Max. adm. drive performance | kW |
| Transmission ratio drive shaft / tool coupling | $i_W = n_A/n_W$ |
| Mass moment of inertia of the drive spindle | 10-4kgm ² |
| Coupling profile | DIN 5480 |
| SAUTER driven tools for this purpose | 0.5.934.1xx 0.5.934.2xx |

1) Please observe information on control the Project Planning Guide PA 25.3.

2) Higher speeds on request.

3) M_{zul} is the permitted peak loading for the gearbox..



The torque must be reduced to the specified value at the motor inverter. The gearbox ratio must be taken into account.

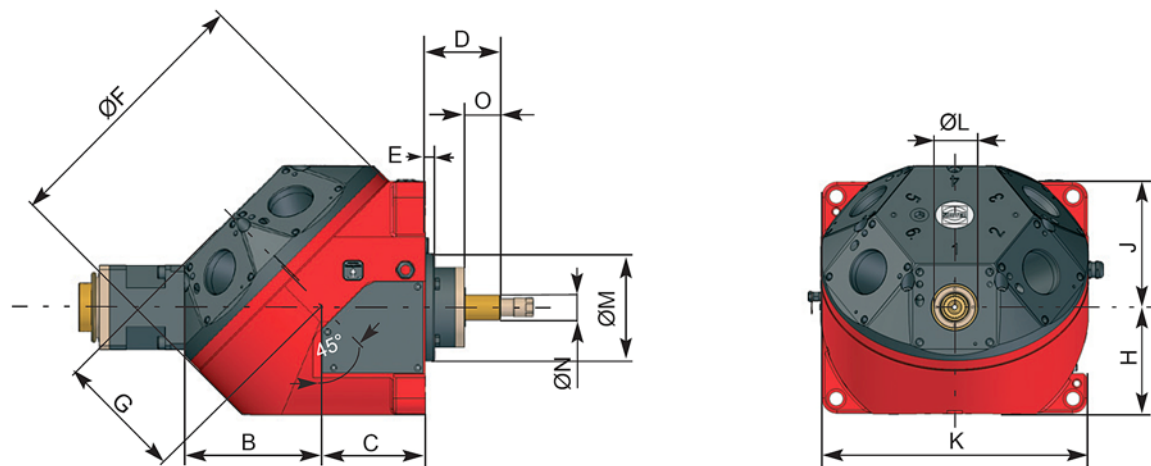
The usable power data depend on the power curve of the motor type used.

The permitted torque can be used with jolt-free machining.

For machining operations where severe jolting occurs, for example with knife-head milling cutters, etc., greatly reduced drive torque must be used to avoid overloading the gearbox.

| Dimension | | | | | | | | | | |
|-----------|----------|----|----|-----------|-----|-----|-----------|----|---|---|
| 12 | | 20 | | | 32 | | | 50 | | |
| 4 | 6 | 4 | 6 | 8 | 4 | 6 | 8 | 4 | 6 | 8 |
| 1000 | 1000 | | | 1000 | | | 720 | | | |
| 12 | 20 | 15 | 35 | | | 70 | | | | |
| 12 | 12 | 16 | 12 | 16 | 12 | 16 | 12 | 16 | | |
| 4,5 | 20 | 32 | 62 | 86 | 220 | 320 | | | | |
| 15000 | 12000 | | | 12000 | | | 9000 | | | |
| 40 | 80 | | | 150 | | | 300 | | | |
| 6 | 10 | | | 16 | | | 25 | | | |
| 1 | 1 | | | 1 | | | 1 | | | |
| 1 | 2,5 | | | 12 | | | 38 | | | |
| 16 x 0,8 | 20 x 0,8 | | | 30 x 1,25 | | | 37 x 1,25 | | | |
| .. 03 | .. 04 | | | .. 06 | | | .. 08 | | | |

Dimension



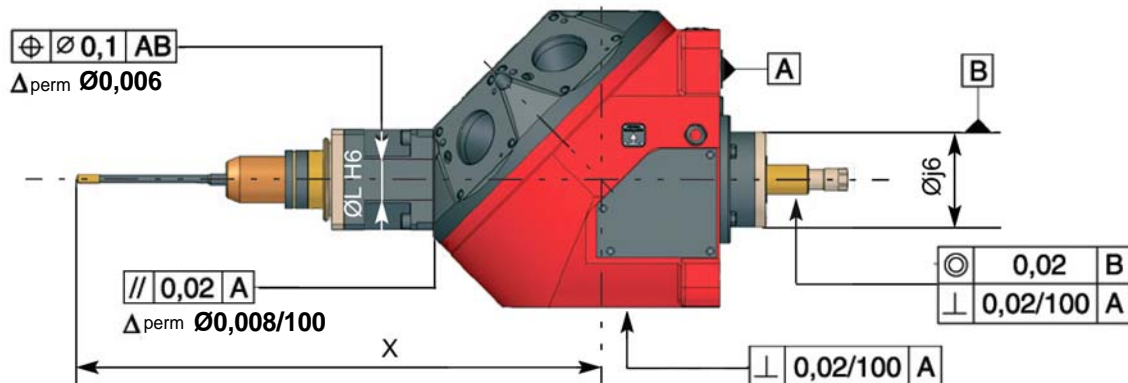
Diagrammed: RIGHT version.

The dimensions are unitary for both the RIGHT and LEFT versions

| Series | Dimension | | | | | | | | | | | |
|------------------------------|-----------|---|------|-----|-----|-----|-----|-------|-----|---|---|--|
| | 12 | | 20 | | | 32 | | 50 | | | | |
| Number of indexing positions | 4 | 6 | 4 | 6 | 8 | 4 | 6 | 8 | 4 | 6 | 8 | |
| B | 105 | | 152 | 194 | 185 | 236 | 240 | | 306 | | | |
| C | 95 | | 108 | | | 130 | | 170 | | | | |
| D | 65 | | 79,3 | | | 98 | | 130,5 | | | | |
| E | 8 | | 10 | | | 12 | | 16,5 | | | | |
| ø F | 210 | | 285 | 345 | 350 | 425 | 460 | | 550 | | | |
| G | 105 | | 141 | 171 | 171 | 207 | 222 | | 269 | | | |
| H | 90 | | 120 | | | 140 | | 180 | | | | |
| J | 93 | | 134 | | | 165 | | 216 | | | | |
| K | 210 | | 280 | | | 350 | | 460 | | | | |
| ø L | 35 | | 45 | | | 60 | | 80 | | | | |
| ø M | 90 | | 120 | | | 140 | | 190 | | | | |
| ø N | 25 | | 28 | | | 32 | | 40 | | | | |
| O | 30 | | 35 | | | 46 | | 50 | | | | |

Dimensions in mm

Precision - Tool Turret



1 Repeat accuracy

(multiple activation of one indexing position from the same direction)

$$\boxed{\pm X \text{ [mm]}/100 \text{ [mm]}} \mu\text{m}$$

2 Position exactness

(activation of any indexing position from different directions)

- driven tool location bores

- Position exactness

$$\boxed{\pm 0,006}$$

- Bore tolerance

$$\varnothing L^{H6}$$

- driven tool bearing surfaces

$$\boxed{// 0,008/100}$$

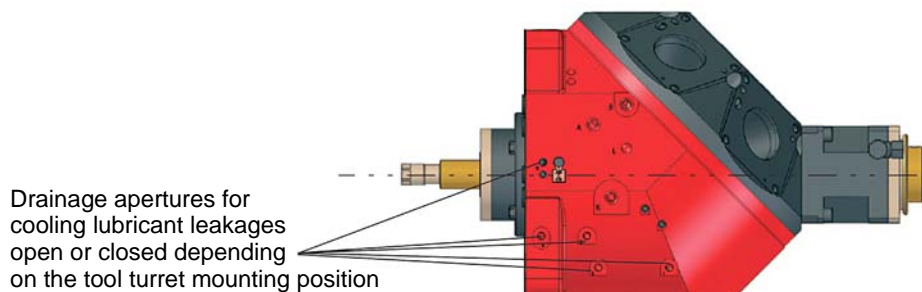
- Tool turret hysteresis

$$\boxed{\pm 0,03 \cdot X \text{ [mm]}/100 \text{ [mm]}}$$

For the determination of the indexing position of all tool tips, the respective precisions of the driven tools and the tools must be taken into consideration.

Degree of protection

→ to IEC 529: IP 64



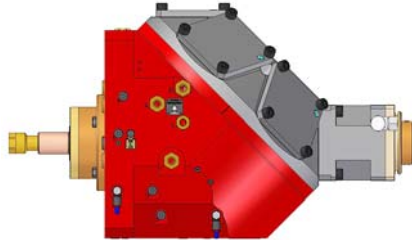
Drainage apertures for cooling lubricant leakages open or closed depending on the tool turret mounting position

➤ Please state the required mounting position when ordering tool turrets so that they can be delivered ready to be installed.

→ See "Ordering Details for Crown-type Tool Turrets".

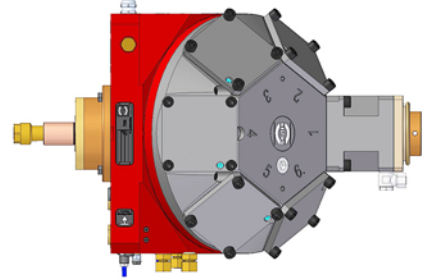
Installation positions

Installation position 1



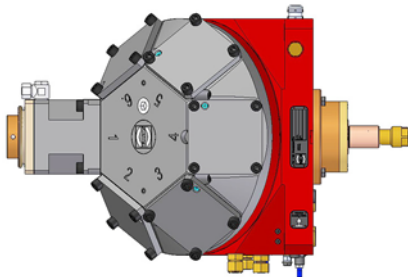
Installation position 2

only *right* version

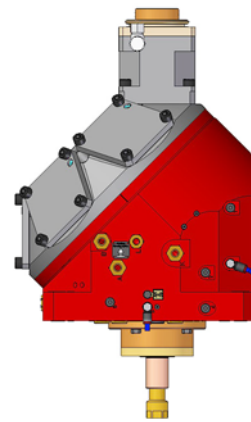


Installation position 3

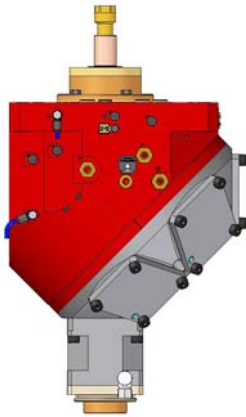
only *left* version



Installation position 4



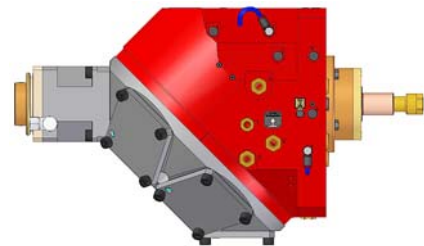
Installation position 5



Installation position 6

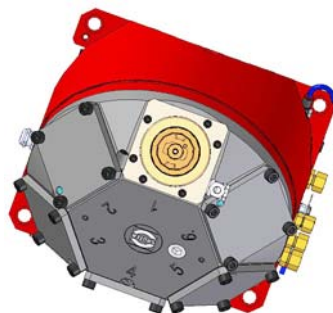
only for size 20 + 32

For size 12 with reworking of housing



Installation position 7

only for size 32



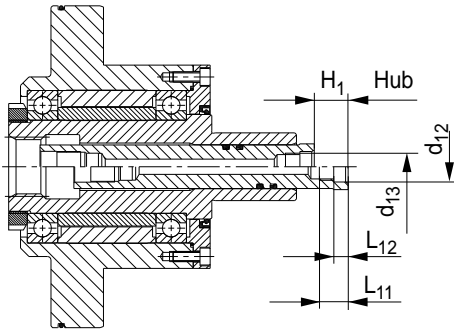
Installation position 8

only for size 32

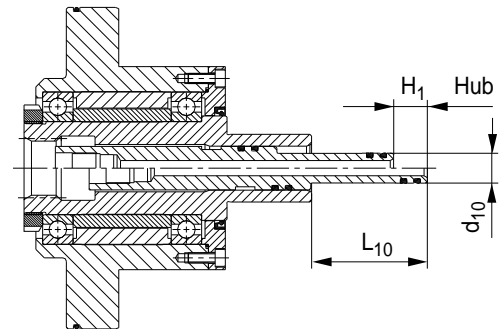


Tool turret - group drive

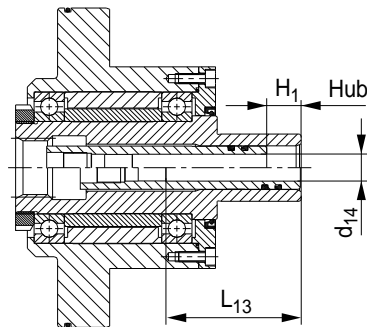
- Variante 1**
- for mounting a cooling lubricant rotary transmission lead through (SAUTER belt drive / motor mounting axially displaced)



- Variante 2**
- or cooling lubricant feed through the hollow motor shaft (purchased motor with hollow shaft hub external)



- Variante 3**
- or cooling lubricant feed through the hollow motor shaft (purchased motor with hollow shaft hub internal)



| Series | Size | | | |
|---|-----------------|-----------|-----------|-----------|
| Crown-type tool turret 0.5.170.1xx | 12 | 20 | 32 | 50 |
| d ₁₀ H8 | ø12 | ø14 | ø16 | ø18 |
| H ₁ | 11,5 | 12 | 15 | 20 |
| L ₁₀ | 52 | 72,7 | 62 | 68,5 |
| d _{12-0,005} | ø18 | | | |
| d ₁₃ | M16 x 1,5 links | | | |
| L ₁₁ | 17 | | | |
| L ₁₂ | 8,5 | | | |
| d ₁₄ H7 | ø10 | ø10 | ø16 | ø16 |
| L ₁₃ | 17 | 18 | 62,5 | 80 |

Dimensions in mm

Drive motors

Recommended drive motors (selection)

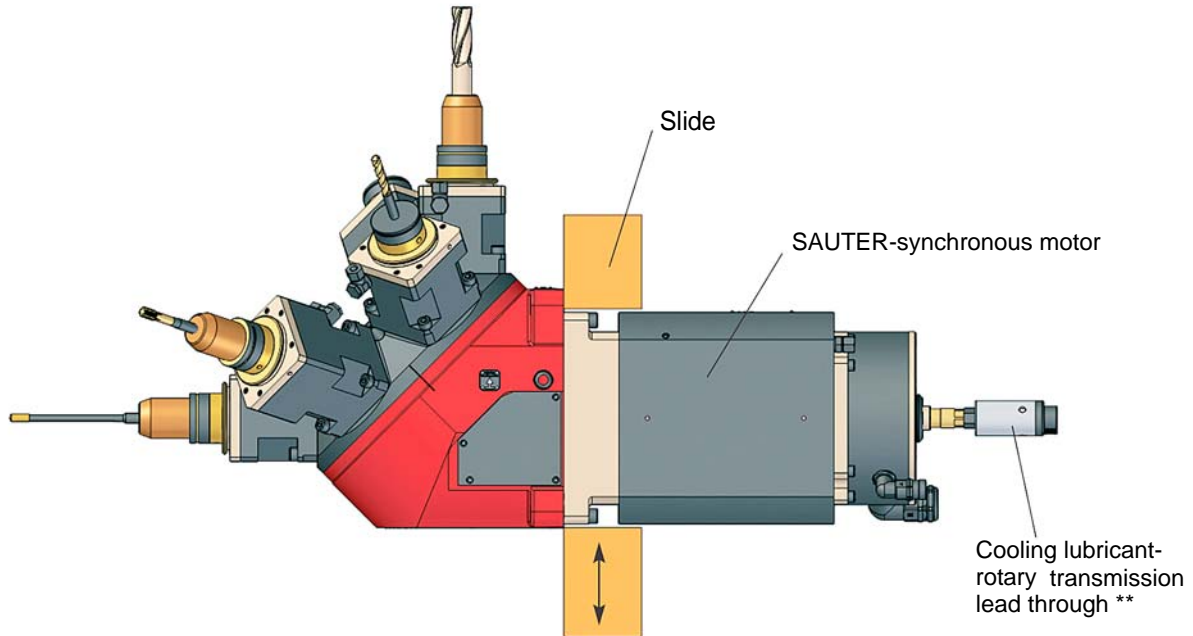
| Series | | | |
|---|---|--------------------|-----------------------|
| Crown-type tool turret 0.5.170.1xx | | | |
| Motors for direct mounting (with hollow | SAUTER synchronous motor 0.8.100.0xx | | |
| | Speed | n_{\max} | rpm |
| | Performance | P_{\max} 60% DC | kW |
| | Torque | M_{\max} 60% DC | Nm |
| | Mass moment of inertia | I_{rotor} | 10^{-4}kgm^2 |
| Motors with solid shaft | Siemens spindle motr 1 PH7 .. | | |
| | Speed | n_{\max} | rpm |
| | Performance | P_{\max} 60% DC | kW |
| | Torque | M_{\max} 60% DC | Nm |
| | Mass moment of inertia | I_{rotor} | 10^{-4}kgm^2 |
| | Rexroth IndraDynA MAD .. | | |
| | Speed | n_{\max} | rpm |
| | Performance | P_{\max} 60% DC | kW |
| | Torque | M_{\max} 60% DC | Nm |
| | Massenträgheitsmoment | I_{rotor} | 10^{-4}kgm^2 |
| | Fanuc spindle motor α i serie (HV) | | |
| | Speed | n_{\max} | rpm |
| | Performance | P_{\max} 60% DC | kW |
| | Torque | M_{\max} 60% DC | Nm |
| | Mass moment of inertia | I_{rotor} | 10^{-4}kgm^2 |
| Motors with solid shaft | Siemens asynchronous motor 1PH8 ... | | |
| | Speed | n_{\max} | min^{-1} |
| | Performance | P_N | kW |
| | Torque | M_N | Nm |
| | Mass moment of inertia | I_{Rotor} | 10^{-4}kgm^2 |
| | Fanuc spindle motor with coil reversing α i serie (HV) | | |
| | Speed | n_{\max} | rpm |
| | Performance | P_{\max} 60% DC | kW |
| | Torque | M_{\max} 60% DC | Nm |
| | Mass moment of inertia | I_{rotor} | 10^{-4}kgm^2 |

DC = Duty cycle

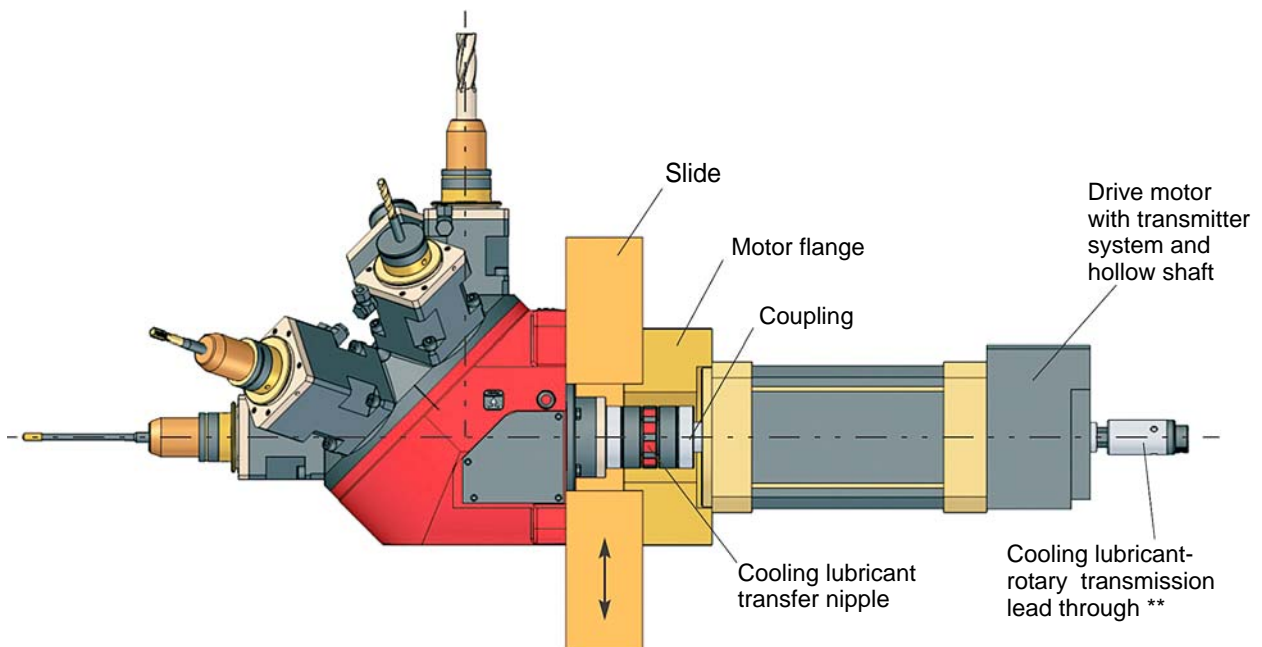
| Size | | | | | |
|-------------------|-------------------|------------|-------------------|------------|--------------------|
| 12 | 20 | | 32 | | 50 |
| .. 12-141323 | .. 20-125526 | | .. 32-118139 | | .. 50-118159 |
| 10000 | 10000 | | 12000 | | 9000 |
| 13 | 16 | | 26 | | 52 |
| 32 | 40 | | 75 | | 150 |
| 13 | 21 | | 270 | | 477 |
| .. 101 | .. 103 | | .. 107 | | ..133 |
| 9000 | 9000 | | 9000 | | 8000 |
| 4,5 | 8,5 | | 11 | | 15 |
| 28,5 | 40,5 | | 70 | | 145 |
| 170 | 170 | | 290 | | 760 |
| .100 B | .100 C | | .100 D | | .130 B |
| 9000 | 9000 | | 9000 | | 7500 |
| 5,2 | 9,0 | | 11 | | 22 |
| 33 | 57 | | 90 | | 140 |
| 190 | 284 | | 378 | | 1150 |
| $\alpha 2$ | $\alpha 3$ | $\alpha 6$ | $\alpha 6$ | $\alpha 8$ | $\alpha 15$ |
| 8000 | 8000 | 8000 | 8000 | 6000 | 6000 |
| 3,7 | 5,5 | 7,5 | 7,5 | 11 | 18 |
| 23 | 35 | 48 | 48 | 70 | 120 |
| 78 | 148 | 215 | 215 | 275 | 900 |
| ... 101 | ... 103 | | ... 107 | | ... 133 |
| 9000 | 9000 | | 9000 | | 8000 |
| 4,3 | 4,7 | | 7,2 | | 13,5 |
| 23 | 33 | | 60 | | 112 |
| 138 | 172 | | 289 | | 760 |
| $\alpha T2/15000$ | $\alpha T6/12000$ | | $\alpha T6/12000$ | | $\alpha T15/10000$ |
| 15000 | 12000 | | 12000 | | 9000 |
| 4,0 | 7,5 | | 7,5 | | 18,5 |
| 12,5 | 48 | | 48 | | 110 |
| 78 | 179 | | 179 | | 550 |

Direct drive (example)

Direct drive with SAUTER-synchronous motor



Coaxial drive with flange motor and coupling

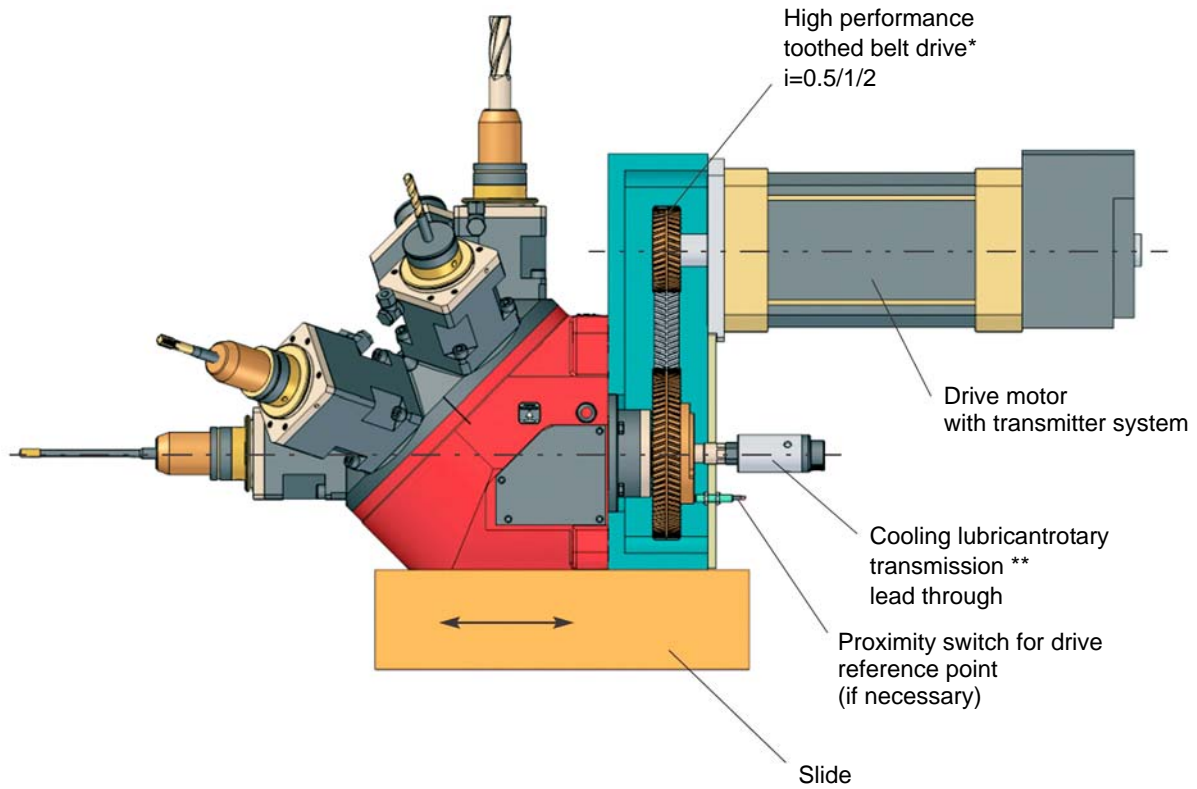


NOTE:

In the case of direct drive, please observe the admissible deviation of position of the motor shaft to the tool turret drive shaft for the coupling!

Drive with toothed belt gearing

Only available in size 12

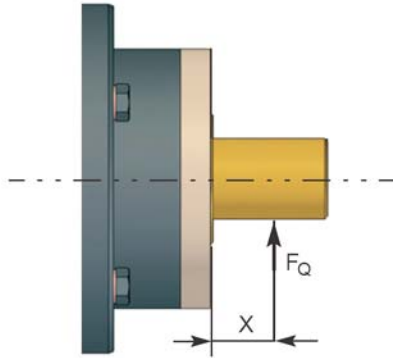


* e.g. Goodyear-Eagle, u.a.

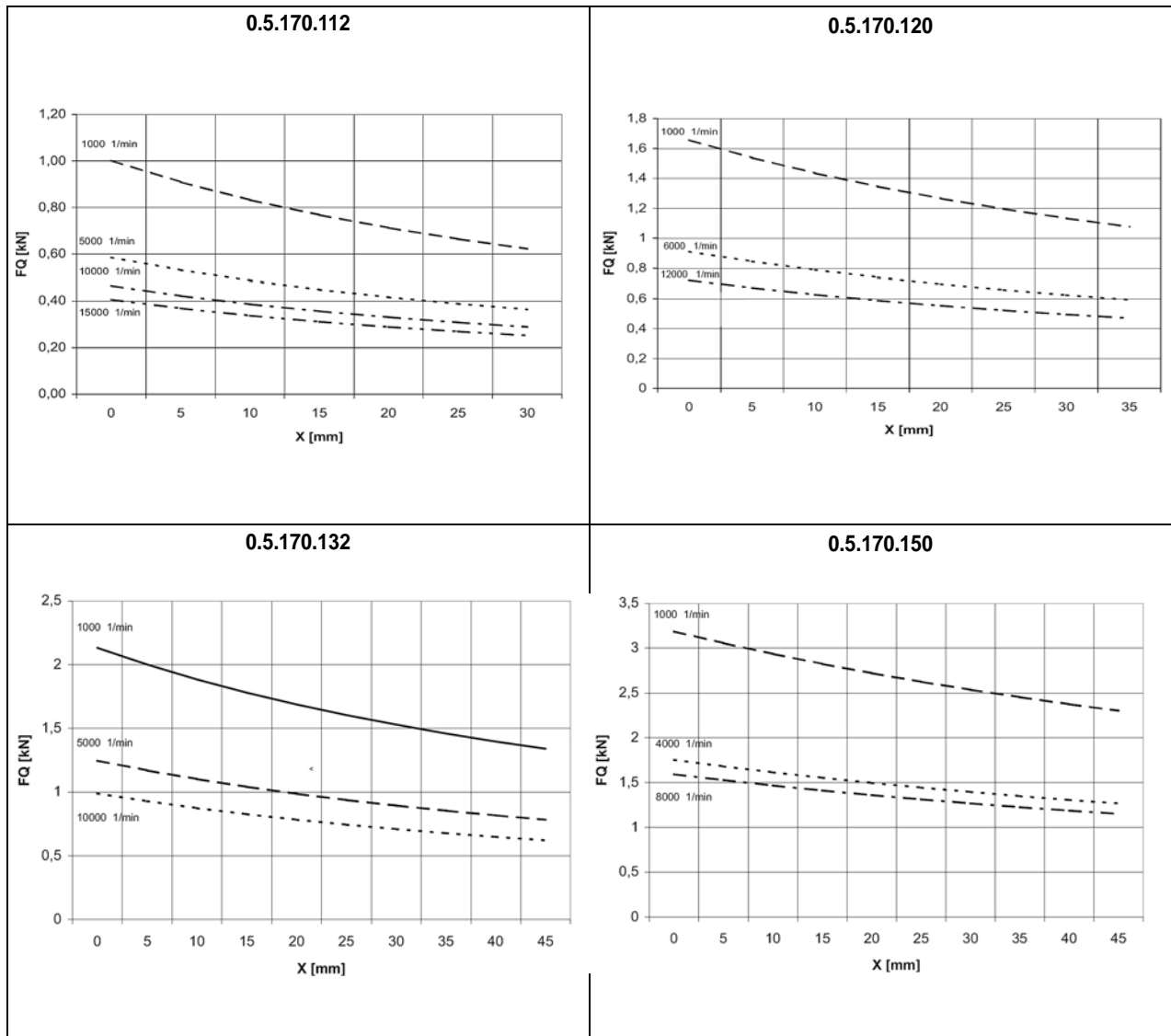
** e.g. Make Deublin, GAT, or similar

Radial load

Admissible radial load of the standard drive shaft through toothed belt lateral force



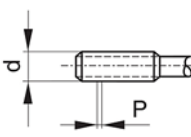
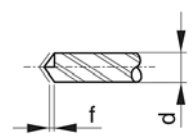
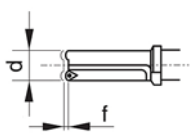
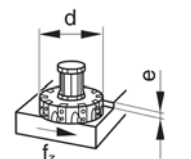
Nominal bearing service life (h₁₀)
= 20 000 h



Processing (examples)

- The efficiency of the tool turrets during cutting are most of all limited by the following factors:
 - Performance of the selected driving motor
 - Degree of uniformity of the cutting forces
 - Tool length
 - Bearing of the tool spindles
 - Size of the tool holding fixture

- The cutting values listed below are possible maximum loads at approx. 40% DC within a load group with different performance requirements.

| Processing (examples) | | | |
|---|---|--|---|
|  |  |  |  |
| Tapping | Boring HSS-twist drills | Boring Hard alloy short hole drills | Face milling |
| d x P [mm] x [mm] | d x f [mm] x [mm/rotation] | d x f [mm] x [mm/rotation] | d x e x f _z [mm] x [mm] x [mm/tooth] |

| Tool turret dimension | 0.5.170..1xx | 12 | 20 | 32 | 50 |
|--|------------------------|-----------------|-----------------------------|----------------------------|------------------------------|
| Motor used Siemens | 1 PH7 ... | .. 101 | .. 103 | .. 107 | .. 133 |
| m _{max} 40 % DC | Nm | 35 | 50 | 85 | 180 |
| Materiel of the work piece: ST 60, tensile strength R_m ≤ 600 N/mm² | | | | | |
| Tapping | d x P | M 10 x 1,5 | M 12 x 1,75 | M 16 x 2 | M 24 x 3 |
| Drilling with twist drill | d x f | 12 x 0,2 | 20 x ,02 ¹⁾ | 25 x 0,2 ¹⁾ | 32 x 0,3 ¹⁾ |
| Drilling with HM short hole drill | d x f | 25 x 0,1 | 32 x 0,12 ¹⁾ | 40 x 0,16 ¹⁾ | 45 x 0,2 ¹⁾ |
| Milling with milling head | d x e x f _z | 40 x 2,5 x 0,16 | 50 x 3 x 0,16 ¹⁾ | 63 x 3 x 0,2 ¹⁾ | 100 x 3 x 0,25 ¹⁾ |
| Materiel of the work piece: Aluminium tensile strength R_m ≤ 380 N/mm² | | | | | |
| Tapping | d x P | M 20 x 2,5 | M 27 x 3 | M 33 x 3,5 | M 42 x 4,5 |
| Drilling with twist drill | d x f | 25 x 0,16 | 40 x 0,16 ¹⁾ | 40 x 0,25 ¹⁾ | 50 x 0,25 ¹⁾ |
| Milling with milling head ²⁾ | d x e x f _z | 40 x 2,5 x 0,25 | 50 x 5 x 0,25 ¹⁾ | 63 x 6 x 0,3 ¹⁾ | 100 x 8 x 0,3 ¹⁾ |

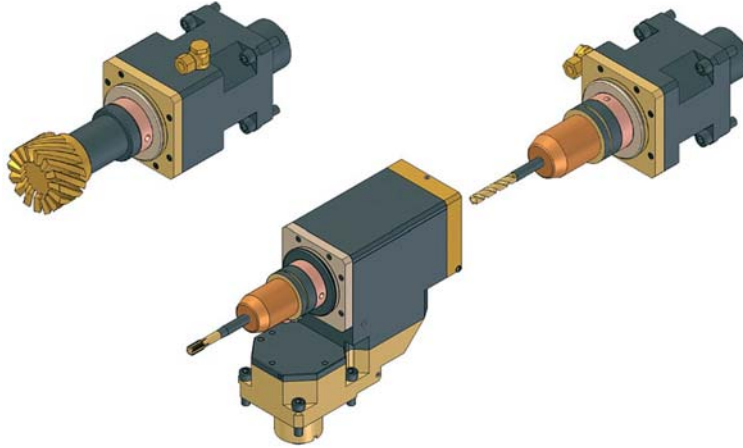
1) driven tool bearing: tandem <<0>, distance "long"
 2) Tool length: "short"

Take care in the case of processing involving shock loads. Possible great reduction (50% or more!) of the max. possible cutting values required!
 When milling use hob cutters with as many teeth as possible for uniform cutting forces.

Driven tools

Series 0.5.934.xxx

driven tools of series 0.5.934.xxx are primarily intended for use on SAUTER crown-type tool turrets of series 0.5.170.1...

**Specification**

- Bearing in precision spindle bearings in -O- or tandem-O-arrangement medium initial tension
- Permanent grease lubrication
- Non-wearing labyrinth seal with sealing air support
- Cooling lubricant supply
 - ⇨ externally through the driven tool housing or
 - ⇨ internally through the tool spindle
 - KSS till 100 bar (Cooling lubricant) → Standard
 - MQL (minimal quantity lubrication) → Option
- Spindle twisting safety device (pat.) in uncoupled state
- Very good true running accuracy and balancing quality
- Tool holding fixture in the spindle:
- for HSK Mapal clamping system

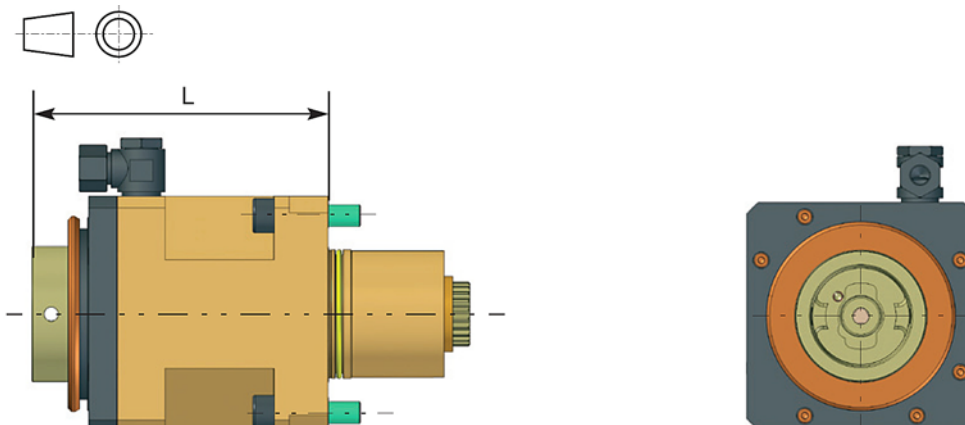
Options

- Special tool locations
- Spindle bearings (selection):
 - ⇨ for high speed running
 - ⇨ for high load
 - ⇨ for special requirements
- Further options on request:
 - ⇨ driven tools with ratio ± 1
 - ⇨ Multi-spindle drilling heads

Driven tool 0°

Selection

| Dimension Crown-type tool turret | Tool holding fixture ¹⁾ | Bearing arrangement | Order-No. |
|----------------------------------|------------------------------------|---------------------|---------------------|
| 170.112 | HSK 32-C | < 0 > | 0.5.934.103 -107900 |
| | HSK 40-C | < 0 > | 0.5.934.103 -108400 |
| | HSK 40-C | << 0 > | 0.5.934.103 -117264 |
| 170.120 | HSK 40-C | < 0 > | 0.5.934.104 -103691 |
| | HSK 40-C | << 0 > | 0.5.934.104 -103803 |
| | HSK 50-C | < 0 > | 0.5.934.104 -103692 |
| | HSK 50-C | << 0 > | 0.5.934.104 -104090 |
| | HSK 50-C | << 0 > | 0.5.934.104 -103804 |
| 170.132 | HSK 50-C | < 0 > | 0.5.934.106 -103960 |
| | HSK 63-C | < 0 > | 0.5.934.106 -131990 |
| | HSK 63-C | << 0 > | 0.5.934.106 -103832 |
| | HSK 63-C | << 0 > | 0.5.934.106 -103840 |
| 170.150 | HSK 63-C | < 0 > | 0.5.934.108 -109077 |
| | HSK 63-C | << 0 > | 0.5.934.108 -109154 |
| | HSK 80-C | < 0 > | 0.5.934.108 -104696 |
| | HSK 80-C | << 0 > | 0.5.934.108 -104360 |
| | HSK 100-C | < 0 > | 0.5.934.108 -109091 |
| | HSK 100-C | << 0 > | 0.5.934.108 -123032 |



| Speed | Mass moment of inertia | | Wight of driven tool | Dimensions |
|----------------------|--------------------------------------|---------------------------|----------------------|------------|
| | Spindle | driven tool ³⁾ | | |
| $n_{zul}^{2)}$ | | | m | L |
| [min ⁻¹] | [10 ⁻⁴ kgm ²] | [kgm ²] | [kg] | [mm] |
| 15000 | 2,6 | 0,05 | 3 | 100 |
| 15000 | 2,8 | 0,05 | 3 | 100 |
| 10000 | 2,5 | 0,05 | 3 | 100 |
| 12000 | 8,0 | 0,15 | 6,5 | 125 |
| 10000 | 10,0 | 0,21 | 8,5 | 155 |
| 12000 | 8,5 | 0,15 | 6,5 | 125 |
| 10000 | 8,5 | 0,15 | 6,5 | 125 |
| 10000 | 10,5 | 0,21 | 8,5 | 155 |
| 10000 | 24,0 | 0,34 | 10,5 | 138 |
| 10000 | 26,0 | 0,34 | 10,5 | 138 |
| 8000 | 26,0 | 0,34 | 10,5 | 138 |
| 8000 | 34,0 | 0,5 | 13,5 | 180 |
| 8500 | 80 | 1,34 | 25 | 190 |
| 7000 | 80 | 1,34 | 25 | 190 |
| 8500 | 82 | 1,34 | 25 | 190 |
| 7000 | 82 | 1,34 | 25 | 190 |
| 8500 | 104 | 1,34 | 25 | 200 |
| 7000 | 104 | 1,34 | 25 | 200 |

Application recommendation

Bearing arrangement << 0 > - at higher loads

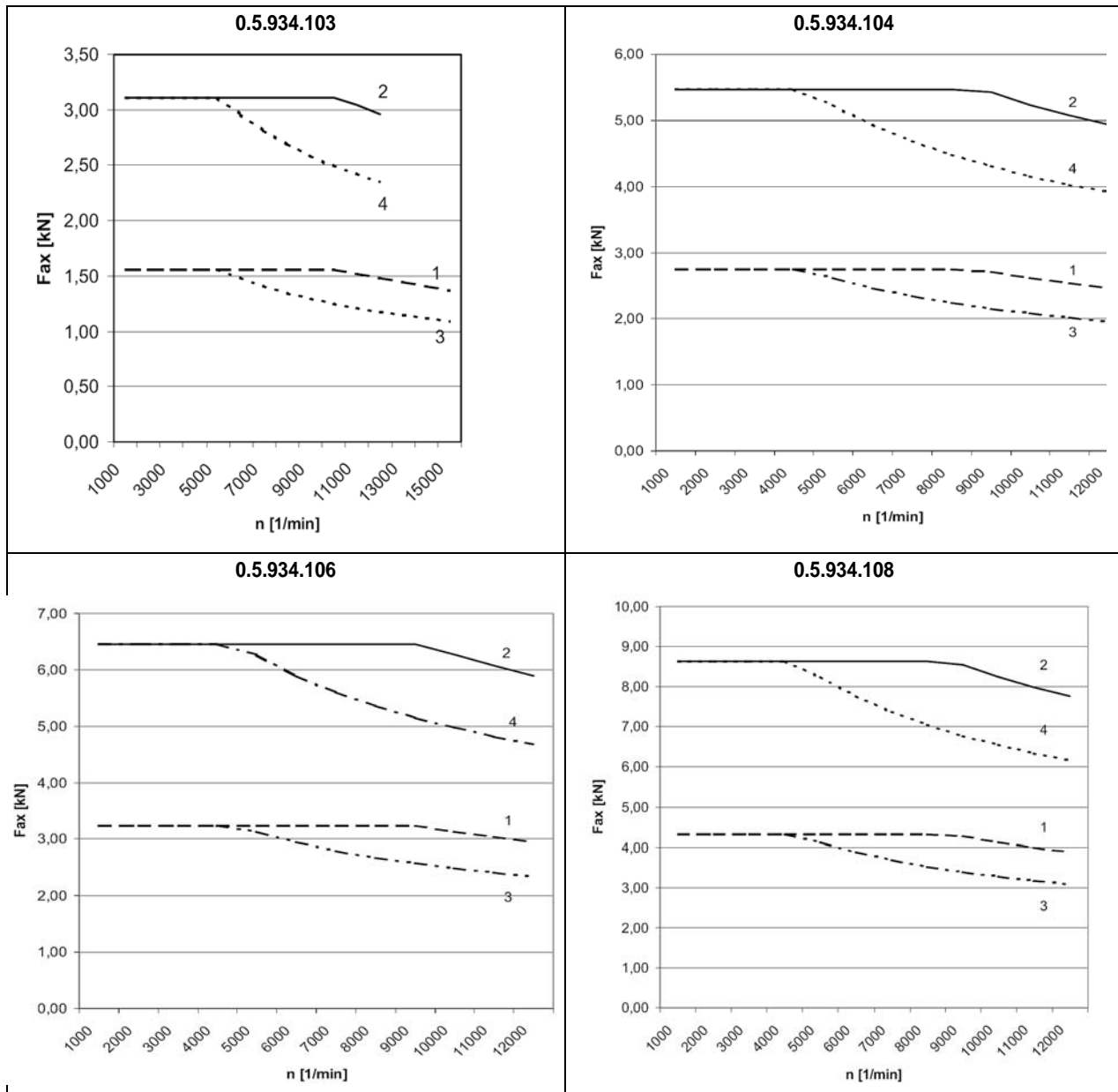
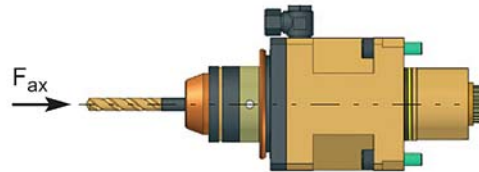
- 1) With Mapal, type KS..-07 clamping units
- 2) High speed only for short term operation ($\leq 10\%$ DC - 5 min.)
- 3) Relating to tool turret slewing axis

→ Other versions of tool holder system, bearing types etc. on request

Admissible load

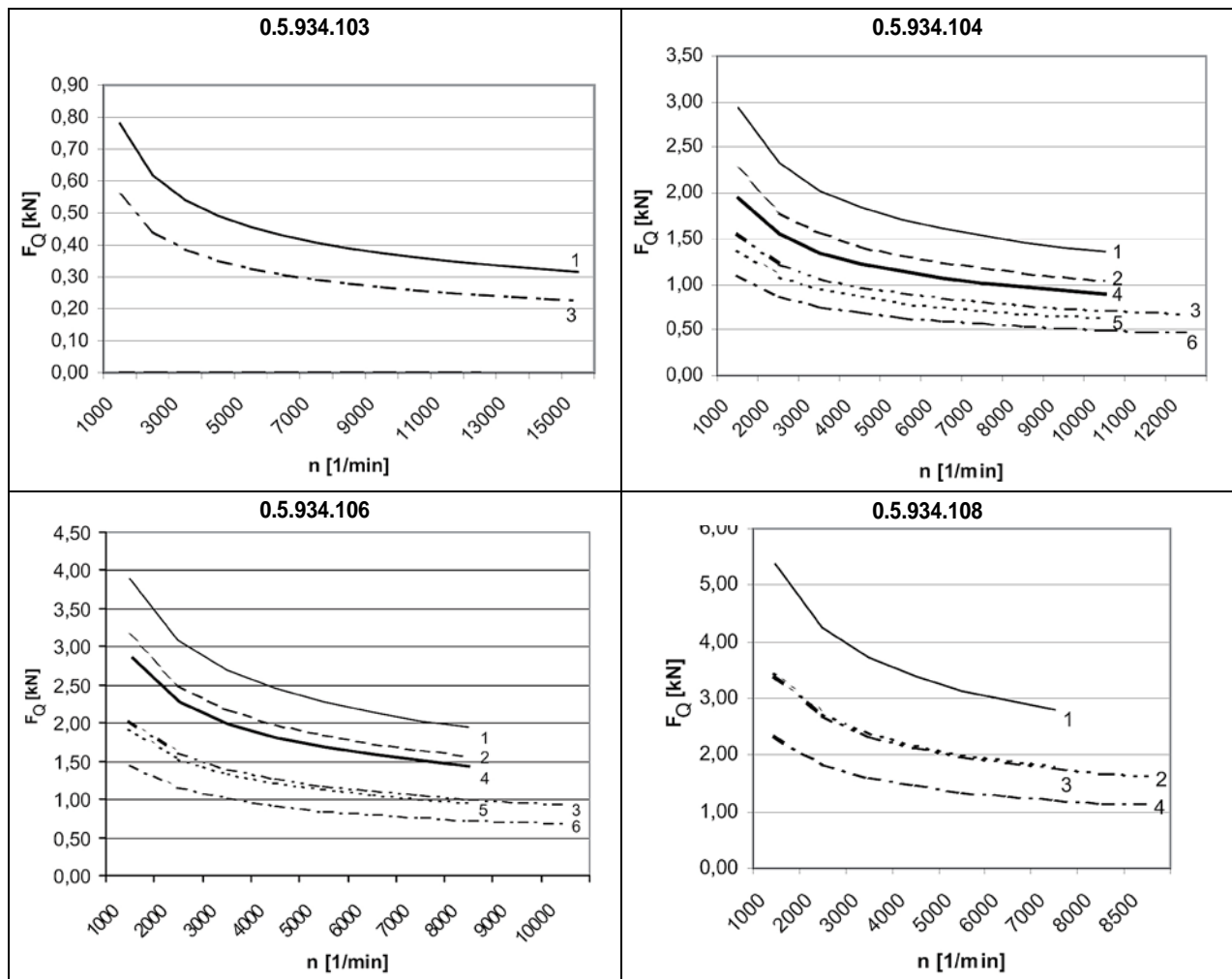
Admissible axial force when boring

| Characteristic line no. | Bearing arrangement | Nominal bearing life L_h [h] |
|-------------------------|---------------------|--------------------------------|
| 1 | Standard | 4000 |
| 2 | Tandem | 4000 |
| 3 | Standard | 8000 |
| 4 | Tandem | 8000 |



Admissible lateral force during milling

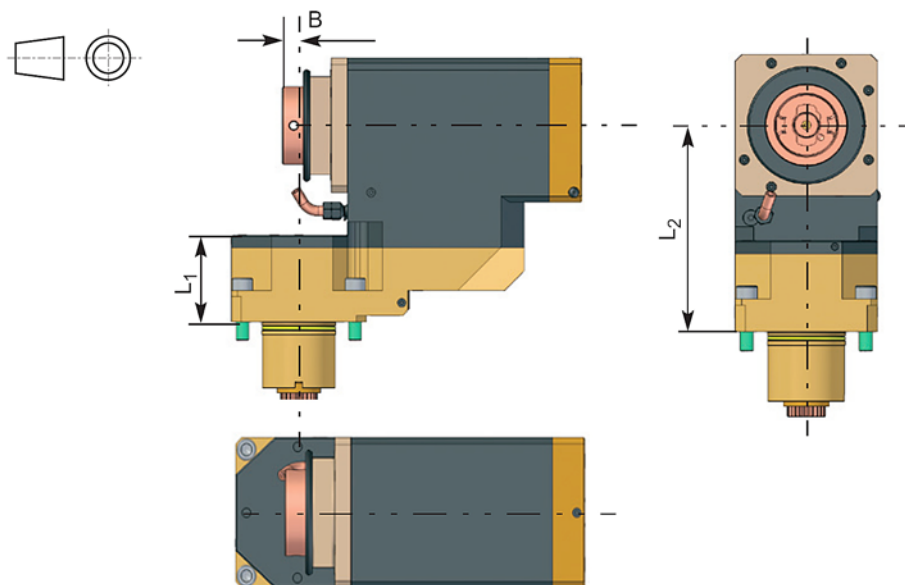
| Characteristic line no. | Bearing arrangement | Bearing distance | L [mm] | | | |
|-------------------------|---------------------|------------------|-------------|-----|-----|-----|
| | | | 0.5.934.xxx | | | |
| | | | 103 | 104 | 106 | 108 |
| 1 | Tandem | Long | 60 | 80 | 80 | 80 |
| 2 | Tandem | Standard | | | | |
| 3 | Standard | Standard | | | | |
| 4 | Tandem | Long | 120 | 160 | 160 | 200 |
| 5 | Tandem | Standard | | | | |
| 6 | Standard | Standard | | | | |



Driven tools 90°

Selection

| Dimensions Crown-type tool turret | Tool holding fixture | Bearing arrangement | Order-Nr. |
|---|------------------------------|------------------------|--------------------|
| 170.112 | for collet chuck DIN 6499-25 | < 0 > | 0.5.934.203-118339 |
| | for collet chuck DIN 6499-25 | < 0 > | 0.5.934.203-113476 |
| | HSK 40-C ^{1) 2)} | < 0 > | 0.5.934.203-130961 |
| 170.120 | for collet chuck DIN 6499-32 | < 0 > | 0.5.934.204-111237 |
| | for collet chuck DIN 6499-32 | < 0 > | 0.5.934.204-111238 |
| | HSK 50-C ^{1) 2)} | < 0 > | 0.5.934.204-111239 |
| | HSK 50-C ^{1) 2)} | < 0 > | 0.5.934.204-111240 |
| 170.132 | for collet chuck DIN 6499-40 | << 0 > | 0.5.934.206-138476 |
| | for collet chuck DIN 6499-40 | << 0 > | 0.5.934.206-111235 |
| | HSK 63-C ^{1) 2)} | << 0 > | 0.5.934.206-111234 |
| | HSK 63-C ^{1) 2)} | << 0 > | 0.5.934.206-111236 |
| 170.150 | for collet chuck DIN 6499-50 | << 0 > | 0.5.934.208-111252 |
| | for collet chuck DIN 6499-50 | << 0 > | 0.5.934.208-111248 |
| | HSK 80-C ^{1) 2)} | << 0 > | 0.5.934.208-111243 |
| | HSK 80-C ^{1) 2)} | << 0 > | 0.5.934.208-111249 |



| Speed | Mass moment of inertia | | Weight of driven tool | Dimensions | | |
|----------------------|--------------------------------------|---------------------------|-----------------------|----------------|----------------|-----|
| | Spindle | driven tool ⁴⁾ | | L ₁ | L ₂ | B |
| $n_{perm}^{3)}$ | | | m | L ₁ | L ₂ | B |
| [min ⁻¹] | [10 ⁻⁴ kgm ²] | [kgm ²] | [kg] | [mm] | mm | mm |
| 6000 | 0,9 | 0,12 | 8,1 | 54 | 185 | -5 |
| 8000 | 0,9 | 0,22 | 8 | 54 | 185 | -5 |
| 8000 | 0,9 | 0,08 | 5,4 | 16,5 | 100 | 76 |
| 8000 | 12 | 0,5 | 14 | — | 125 | 95 |
| 8000 | 12 | 0,92 | 18,5 | — | 200 | 95 |
| 8000 | 12 | 0,27 | 15 | 60 | 125 | 0 |
| 8000 | 12 | 0,58 | 21 | 60 | 200 | 0 |
| 8000 | 39 | 1,51 | 43,6 | 70 | 250 | 0 |
| 8000 | 39 | 2,66 | 34,5 | — | 250 | 118 |
| 8000 | 39 | 0,78 | 31,8 | 70 | 160 | 0 |
| 8000 | 39 | 1,42 | 43,6 | 70 | 250 | 0 |
| 6000 | 50 | 4,16 | 48 | — | 200 | 171 |
| 6000 | 50 | 7,71 | 64 | — | 320 | 171 |
| 6000 | 50 | 2,57 | 56 | 85 | 200 | 0 |
| 6000 | 50 | 5,09 | 73 | 85 | 320 | 0 |

Operating pressure for cooling lubricant with internal and external feed: $p_{max} = 25$ bar

Suitable for IK dry running

- 1) With Mapal, type KS...07 clamping units
- 2) Minimum distance of the same driven tools on the tool turret: 90°
- 3) High speed only for short term operation (. 10 % ED - 5 min.)
- 4) Relating to tool turret slewing axis

→ Other versions of tool holder system, bearing types etc. on request

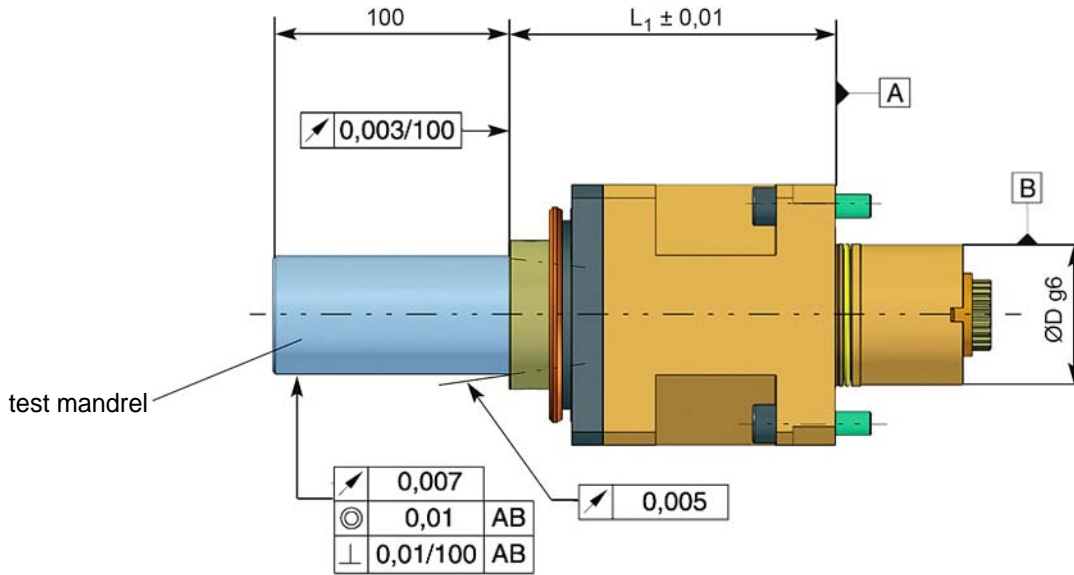
Note:

| | | | |
|--|---|---|---|
| Number of indexing positions of the crown-type tool turret | 4 | 6 | 8 |
| Max. number of the loading with driven tools 90° | 4 | 3 | 4 |

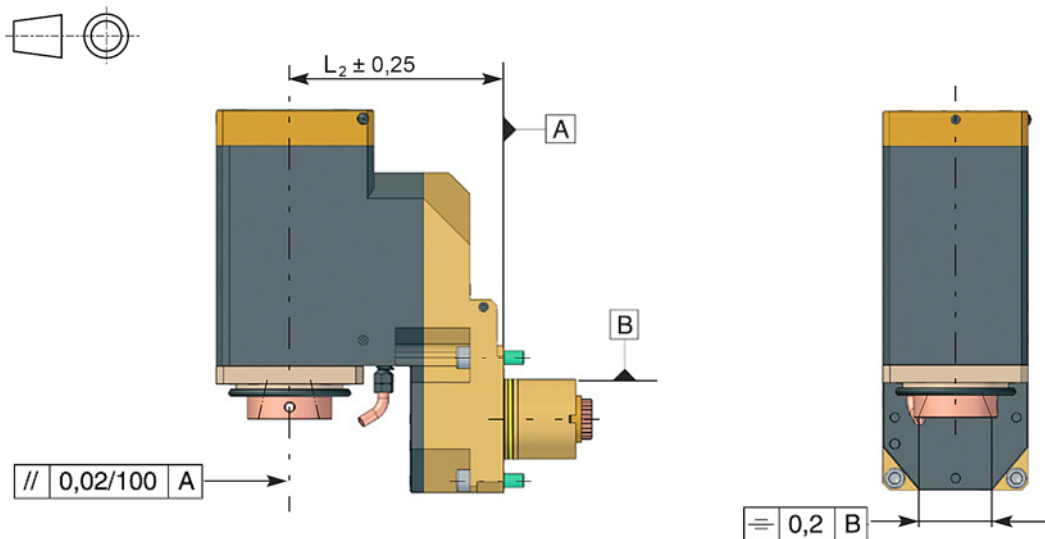
Precision

Spindle with HSK tool holding fixture
bearing quality P2 $\hat{=}$ ABEC 9

Driven tool 0°



Driven tool 90°



Dimensions in mm

Ordering Information

SAUTER-Crown-type tool



++49 (0) 7123-926-190



++49 (0) 7123-926-0



info@sauter-feinmechanik.com



Sauter Feinmechanik GmbH
Postfach 1551
D-72545 Metzingen
Germany

Company: _____


Street: _____

Postcode/Town: _____

Contact's name: _____

Phone: _____

Fax: _____

| SAUTER-Crown-type tool 0.5.170.1xx | | | |
|---|---|--|---|
| Ordering information | Possible versions | Your selection | |
| Size: | 12/20/32/50 | 12 <input type="checkbox"/> | 20 <input type="checkbox"/> 32 <input type="checkbox"/> 50 <input type="checkbox"/> |
| Version: | left/rigth | | |
| Number of indexing positions: | 4/6/8 | 4 <input type="checkbox"/> | 6 <input type="checkbox"/> 8 <input type="checkbox"/> |
| | special | | |
| Internal cooling lubricant supply: | KSS / MMS | KSS Standard <input type="checkbox"/> | MMS Option <input type="checkbox"/> |
| Drive: | Drive see page 15 | SAUTER Synchronmotor <input type="checkbox"/> | Variant 1 <input type="checkbox"/> |
| | | Variant 2 <input type="checkbox"/> | Variant 3 <input type="checkbox"/> |
| | | belt gear only in BG 12 Transmission ratio i = <input type="checkbox"/> 0,5 <input type="checkbox"/> 1,0 <input type="checkbox"/> 2,0 | |
| Installation position: | Installation positions → page 14 | position 1 <input type="checkbox"/> | position 2 <input type="checkbox"/> |
| | | position 3 <input type="checkbox"/> | position 4 <input type="checkbox"/> |
| | | position 5 <input type="checkbox"/> | position 6 <input type="checkbox"/> |
| | | position 7 <input type="checkbox"/> | position 8 <input type="checkbox"/> |
| | Sketch enclosed | ja <input type="checkbox"/> | nein <input type="checkbox"/> |
| Drive motor used: | → see pages 16/17 | | |
| Special requirements:  | | | |
| | | | |
| | | | |
| Number: | | | |

Ordering details

SAUTER-driven tools



++49 (0) 7123-926-190



++49 (0) 7123-926-0



info@sauter-feinmechanik.com



Sauter Feinmechanik GmbH
Postfach 1551
D-72545 Metzingen
Germany

Company: _____


Street: _____

Postcode/Town: _____

Contact's name: _____

Phone: _____

Fax: _____

| SAUTER-driven tools 0.5.934.1xx | | | |
|---|----------------------------------|------------------------------|---|
| Ordering details | Possible versions | Your selection | |
| Size: | 03/04/06/08 | 03 <input type="checkbox"/> | 04 <input type="checkbox"/> 06 <input type="checkbox"/> 08 <input type="checkbox"/> |
| Tool holder: | HSK 32 | <input type="checkbox"/> | — — — |
| | HSK 40 | <input type="checkbox"/> | <input type="checkbox"/> — — |
| | HSK 50 | | <input type="checkbox"/> <input type="checkbox"/> — |
| | HSK 63 | — | — <input type="checkbox"/> <input type="checkbox"/> |
| | HSK 80 | — | — — <input type="checkbox"/> |
| | incl. Mapal clamping unit | special | <input type="checkbox"/> |
| Bearing distance / bearing arrangement | Standard <0> | <input type="checkbox"/> | |
| | Standard/Tandem <0> | <input type="checkbox"/> | |
| | Standard/Special | <input type="checkbox"/> | |
| | Long/Tandem | <input type="checkbox"/> | — |
| | Long/Special | <input type="checkbox"/> | — |
| Operation properties: | Boring <input type="checkbox"/> | $n_{max} = \dots\dots\dots$ | |
| | Milling <input type="checkbox"/> | $M_d = \dots\dots\dots$ | |
| | other <input type="checkbox"/> | $\dots\dots\dots$ | |
| Special requirements:  | Sketch enclosed | yes <input type="checkbox"/> | no <input type="checkbox"/> |
| Number: | | | |

 **Notizen**
