

AHB

TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

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MAS⁺

Tools



PEOPLE

Cooperate in fair partnership



AMBITION

Question yesterday to provide new solutions for today and tomorrow



SYNERGY

Share our strength

Corporate philosophy

PEOPLE – AMBITION – SYNERGY

These 3 components are the foundation for the success of MAS GmbH.

Trust the experts with more than 40 years of experience in cutting technologies. The specialists with the most modern equipment for the development, design and manufacture of tools. The partners who discover synergies between man and technology and who are able to harness them for your success.

The utmost objective of every project is our customers' and partners' success. Our own success goes hand in hand.

This is and will remain our guide for the future!

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POLY[©]turn

Polygon turning





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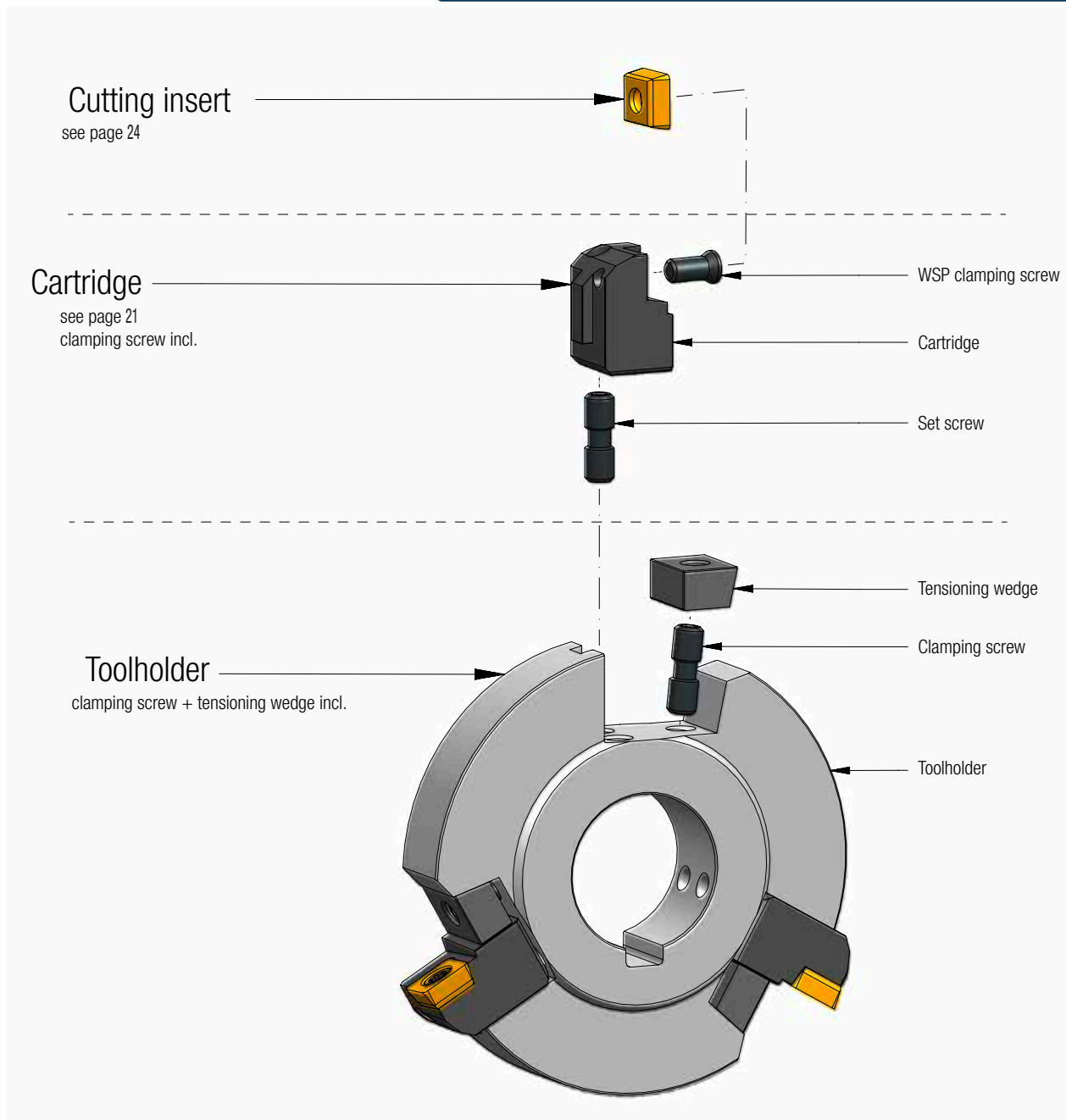


POLY[®]turn

Benefits and Features

- Polygon turning method to produce two-, four-, six-, and eight-sided wrench flats on turned parts.
- For use on single-spindle or multiple-spindle lathes in plain turning or in grooving with driven tools.
- Modular tool concept.
- The base bodies are made of heavy metal, and reduce stress on the machine drive by a large flywheel mass and vibration dampening.
- Adjustable cartridge types for different indexable insert geometries and shapes.
- Base bodies are designed for left-hand and right-hand cartridge types. The cartridge diameter is adjustable for producing precise wrench flats.
- Compatible with ISO indexable inserts. Cartridges can be fitted with either MAS-SPHT inserts (preferable) or with ISO indexable inserts, thus offering a large selection of types.
- Can be used in steels, stainless steel grades or non-ferrous metals.
- Shorter cycle times at improved surface finishes and prolonged tool service life.

Schematic structure



POLY[®]turn base bodies

Overview

Machine	Type	Order number	Tool holding fixture / hole	Z	Material	Adapter	Stock	P.
Universal	-----	PT27-D90H-Z2	ø27	2	Heavy metal	-	●	10
		PT27-D90H-Z3	ø27	3	Heavy metal	-	●	10
		PT27-D90H-Z4	ø27	4	Heavy metal	-	●	10
		PT27-D90S-Z2	ø27	2	Steel	-	●	10
		PT27-D90S-Z3	ø27	3	Steel	-	●	10
		PT27-D90S-Z4	ø27	4	Steel	-	○	10
		PT22-D90H-Z2	ø22	2	Heavy metal	-	○	10
		PT22-D90H-Z3	ø22	3	Heavy metal	-	●	10
PT22-D90H-Z4	ø22	4	Heavy metal	-	○	10		
Universal / GND	-----	PT27-D90S-Z3-GND-3	ø27	3	Steel	-	●	12
		PT27-D90S-Z3-GND-4	ø27	3	Steel	-	●	12
		PT27-D90S-Z3-GND-5	ø27	3	Steel	-	●	12
Index	MS25	PT16-D70H-Z3	ø16	3	Heavy metal	-	○	10
		PT16-D70S-Z3	ø16	3	Steel	-	○	10
	MS16	PTIX-D70S-Z2-KK32	KK32	2	Steel	-	●	14
		PTIX-D70S-Z3-KK32	KK32	3	Steel	-	●	14
	MS18/22/32/40	PTIX-D90H-Z2-KK32	KK32	2	Heavy metal	-	●	14
		PTIX-D90H-Z3-KK32	KK32	3	Heavy metal	-	●	14
		PTIX-D90H-Z4-KK32	KK32	4	Heavy metal	-	●	14
		PTIX-D90S-Z4-KK32	KK32	4	Steel	-	○	14
	MS52	PTIX-D90H-Z2-D32	ø32	2	Heavy metal	✓	●	13
		PTIX-D90H-Z3-D32	ø32	3	Heavy metal	✓	●	13
PTIX-D90H-Z4-D32		ø32	4	Heavy metal	✓	●	13	
Schütte	SG18 SF26,-S,-L SE18 AF26,32	PTSC-D98H-Z2L	α 5°42'38"	2	Heavy metal	-	●	18
		PTSC-D98H-Z3L	α 5°42'38"	3	Heavy metal	-	●	18
		PTSC-D98H-Z4L	α 5°42'38"	4	Heavy metal	-	○	18
		PTSC-D98S-Z2L	α 5°42'38"	2	Steel	-	○	18
		PTSC-D98S-Z3L	α 5°42'38"	3	Steel	-	●	18
		PTSC-D98S-Z4L	α 5°42'38"	4	Steel	-	○	18
		PTSC-D98H-Z6L	α 5°42'38"	6	Heavy metal	-	○	18
	SCx-32, SCx-46 S36PC, A36PC S51PC, SF26SD SF32-/42-/51-/67 AF42, S36PC	PTSC-D118H-Z2L	α 5°42'38"	2	Heavy metal	-	●	18
		PTSC-D118H-Z3L	α 5°42'38"	3	Heavy metal	-	●	18
		PTSC-D118H-Z4L	α 5°42'38"	4	Heavy metal	-	●	18
PTSC-D118S-Z3L	α 5°42'38"	3	Steel	-	○	18		
Gildemeister	GM35-6 GM35-8 GM42-6 GMC35	PTGI-D98H-Z2L	α 8°32'	2	Heavy metal	-	○	17
		PTGI-D98H-Z3L	α 8°32'	3	Heavy metal	-	●	17
		PTGI-D98H-Z4L	α 8°32'	4	Heavy metal	-	○	17
		PTGI-D98S-Z2L	α 8°32'	2	Steel	-	○	17
		PTGI-D98S-Z3L	α 8°32'	3	Steel	-	●	19
		PTGI-D98S-Z4L	α 8°32'	4	Steel	-	○	19
		PTTO-D86S-Z2L	α 8°16'33"	2	Steel	-	○	19
		PTTO-D86S-Z3L	α 8°16'33"	3	Steel	-	●	19
		PTTO-D86S-Z4L	α 8°16'33"	4	Steel	-	●	19
		Tornos	MultiDeco Multisigma 8/24 Multisigma 8/28	PTTO-D86H-Z2L	α 8°16'33"	2	Heavy metal	-
PTTO-D86H-Z3L	α 8°16'33"			3	Heavy metal	-	●	20
PTTO-D86H-Z4L	α 8°16'33"			4	Heavy metal	-	○	20
PTTO-D86S-Z2L	α 8°16'33"			2	Steel	-	○	20
PTTO-D86S-Z3L	α 8°16'33"			3	Steel	-	●	20
PTTO-D86S-Z4L	α 8°16'33"			4	Steel	-	●	20

NEW

● On request also available for other machine manufacturers.

● in stock ○ on request

POLY[®]turn adapters

Universal to INDEX

Machine	Type	Order number	Tool holding fixture / hole	Shank	Material	Stock	Page
Index	MS18/22/32/40	PTIX-A-KK32-D22	KK32	ø22	Steel	●	15
		PTIX-A-KK32-D27		ø27		●	15
	MS52	PTIX-A-C3-D27	Capto C3	ø27		●	16
		PTIX-A-C3-D32		ø32		●	17

● in stock ○ on request

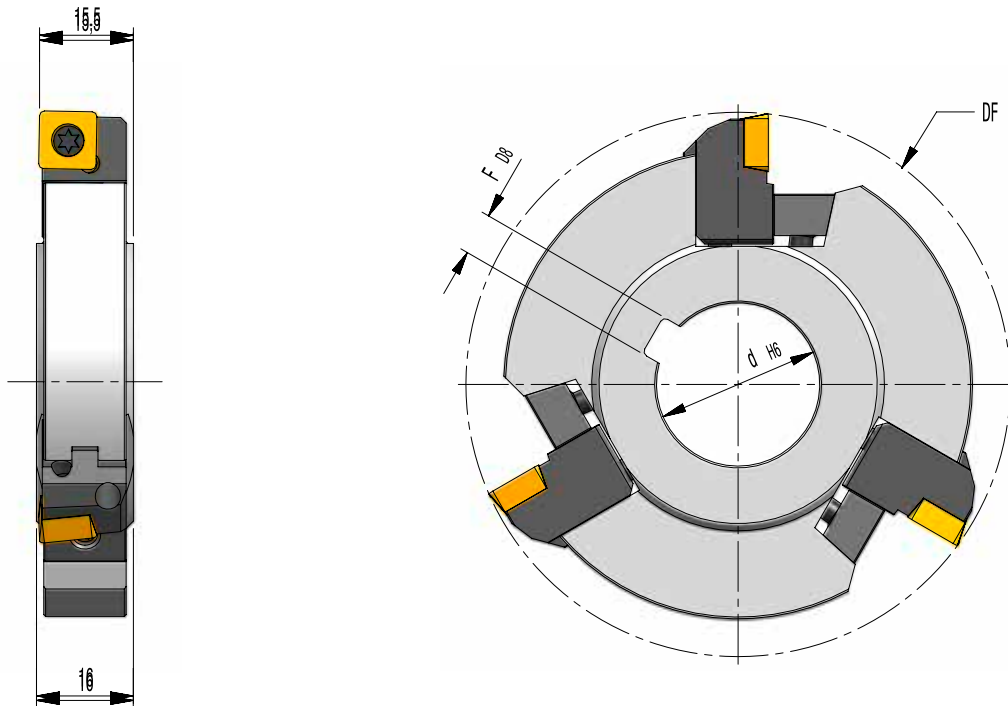
POLY[®]turn



POLY[®]turn base bodies

Universal

With cylindrical locating hole



Cartridges are shown for illustration only and not included in the scope of supply.

Order number	D_F	d_{H6}	F_{D8}	Edge number	Machine type	Stock
PT16-D70H-Z3	70	16	4	3	INDEX MS25	○
PT16-D70S-Z3	70	16	4	3	Universal	○
PT22-D90H-Z2	90	22	6	2	INDEX MS22/32/40/42/ABC	○
PT22-D90H-Z3	90	22	6	3	Universal	●
PT22-D90H-Z4	90	22	6	4		○
PT27-D90H-Z2	90	27	7	2	INDEX MS22/32/40/42/ABC Universal	●
PT27-D90H-Z3	90	27	7	3		●
PT27-D90H-Z4	90	27	7	4		●
PT27-D90S-Z2	90	27	7	2		●
PT27-D90S-Z3	90	27	7	3		●
PT27-D90S-Z4	90	27	7	4		●

● in stock ○ on request

Order number	Spare parts
100-203	Clamping screw
3-20-0754-202	Clamping wedge

- Dimensions in mm
- Other dimensions on request
- Cartridge types on page 21
- Cartridges not included in scope of supply

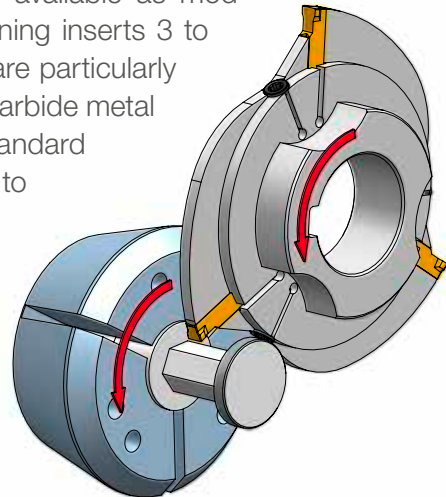
POLY[®]turn base bodies

Universal

Explanation of the GND grooving system

Economic POLY[®]turn turning tools with standard grooving and turning inserts

From now on our POLY[®]turn polygon turning tools are available as models with diameter 90 mm with standard grooving and turning inserts 3 to 5 mm wide from the Sumitomo GND series. These tools are particularly economical thanks to the two useful cutting edges of the carbide metal cutting inserts. They are especially suitable for grooving standard hexagons (common spanner sizes) at grooving depths up to 12 mm. In addition they are of universal usability for plain and copy turning of different polygons and for machining behind a collar. That way a broad scope of carbide metal grades and cutting geometries is available in the Sumitomo standard program in a cost-efficient way and within the shortest possible time.



POLY[®]turn

Insert selection: Sumitomo grooving and turning inserts

Insert type GCM

Grooving/Turning	Series/Shape	Designation	Coated carbide metal				Dimensions (mm)					Pcs./Pack.
			AC830P	AC425K	AC520U	AC530K	W		r _e	ℓ	S	
							Grooving width	Tolerance				
	MG General Type	GCM N3004 MG	●	●	○	●	3.0	±0.03	0.4	21.1	3.8	5
		GCM N4008 MG	●	●	○	●	4.0	±0.03	0.8	26.4	4.0	
		GCM N5008 MG	●	●	○	●	5.0	±0.03	0.8	26.4	4.1	
	ML Low Feed Type	GCM N3002 ML	●	●	○	●	3.0	±0.03	0.2	21.1	3.8	5
		GCM N4004 ML	●	●	○	●	4.0	±0.03	0.4	26.4	4.0	
		GCM N5004 ML	●	●	○	●	5.0	±0.03	0.4	26.4	4.1	

● Euro stock ○ Japan stock

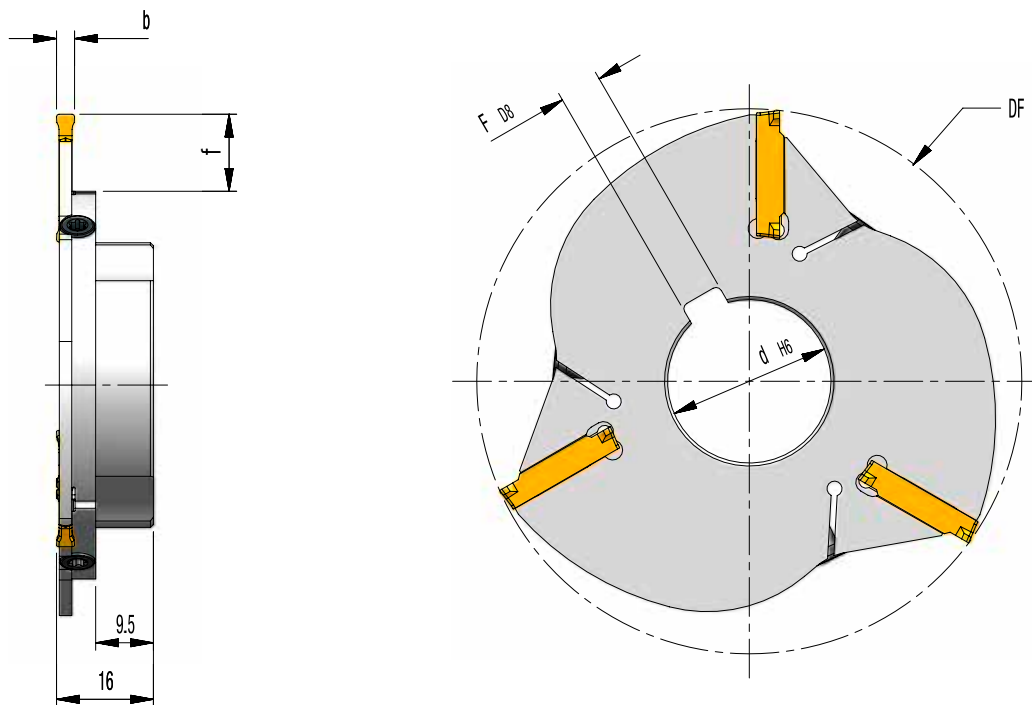
- For further grooving inserts, please refer to the Sumitomo general catalog
- Please get into contact with MAS regarding these tools and check of tolerance

POLY[®]turn base bodies

Universal/ GND grooving

NEW

With cylindrical locating hole



Order number	b	f	D _F	d _{H6}	F _{DB}	Edge number	Machine type	Stock
PT27-D90S-Z3-GND-3	3	12	90	27	7	3	INDEX MS22/	●
PT27-D90S-Z3-GND-4	4	12	90	27	7	3	32/40/42/ABC	●
PT27-D90S-Z3-GND-5	5	12	90	27	7	3	Universal	●

● in stock ○ on request

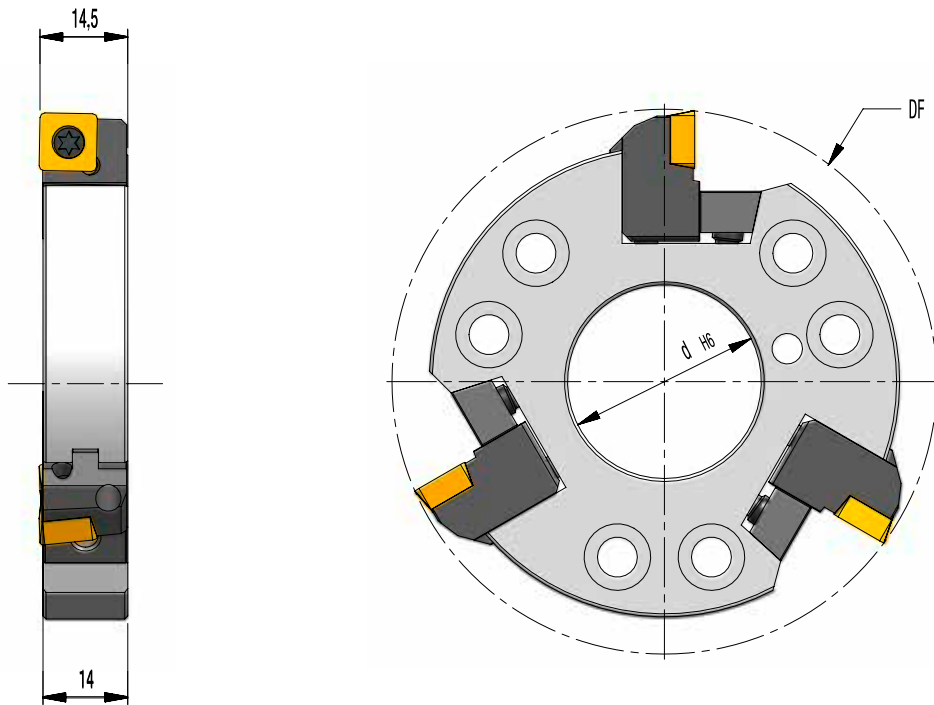
Order number	Spare parts
24444/ M4x10 Tx 15/3.5 Nm	Indexable insert clamping screw

- Dimensions in mm
- Other dimensions on request

POLY[®]turn base bodies

INDEX

For MS 52 with CAPTO C3 drive



POLY[®]turn



Cartridges are shown for illustration only and not included in the scope of supply.

Order number	DF	d _{H6}	Edge number	Machine type	Stock
PTIX-D90H-Z2-D32	90	32	2	MS52	●
PTIX-D90H-Z3-D32	90	32	3		●
PTIX-D90H-Z4-D32	90	32	4		●

● in stock ○ on request

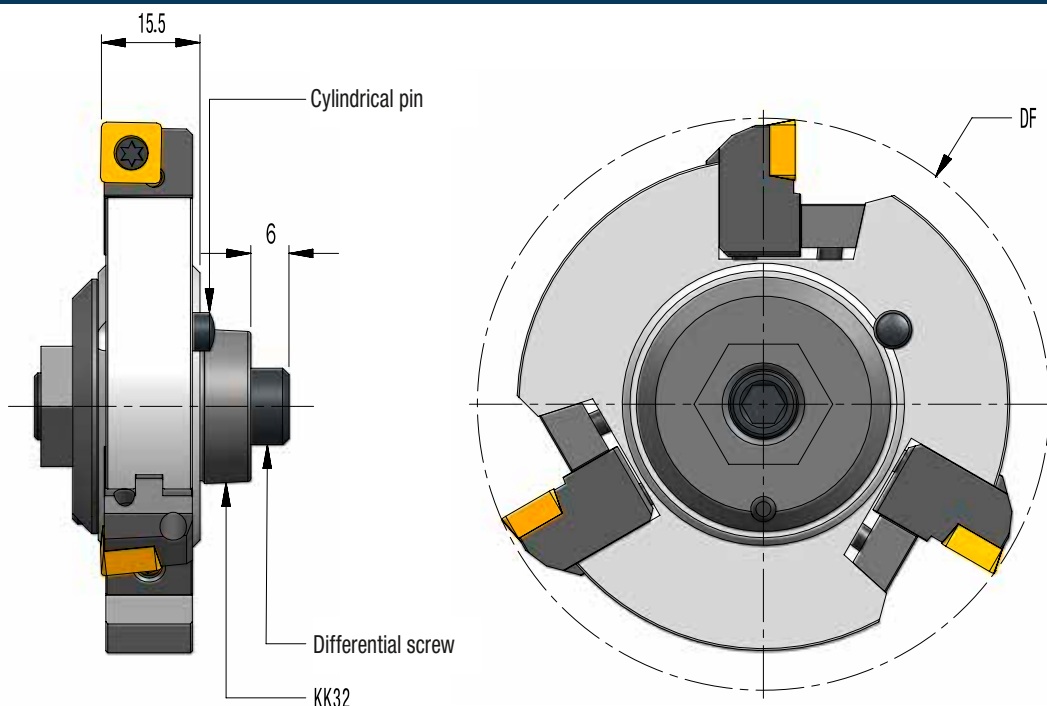
Order number	Spare parts
100-203	Clamping screw
3-20-0754-202	Clamping wedge

- Dimensions in mm
- Other dimensions on request
- Capto adapter on page 16 and 17
- Cartridge types on page 21
- Cartridges not included in scope of supply

POLY[®]turn base bodies

INDEX

With short-taper holder



Anti clockwise rotation!



Cartridges are shown for illustration only and not included in the scope of supply.

Order number	DF	d _{H6}	Edge number	Machine type	Stock
PTIX-D70S-Z2-KK32	70	KK32	2	MS16	●
PTIX-D70S-Z3-KK32	70	KK32	3		●
PTIX-D90H-Z2-KK32	90	KK32	2	MS18,22,32,40	●
PTIX-D90H-Z3-KK32	90	KK32	3		●
PTIX-D90H-Z4-KK32	90	KK32	4		●
PTIX-D90S-Z4-KK32	90	KK32	4		○

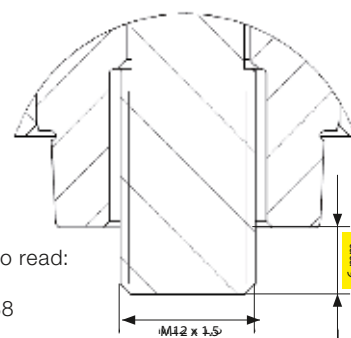
● in stock ○ on request

Order number	Spare parts for ø 70	Order number	Spare parts for ø 90
100-203	Clamping screw	100-203	Clamping screw
3-20-0754-202	Clamping wedge	3-20-0754-202	Clamping wedge
E5735 M12 x1-M12 x1,5	Differential screw	F21939 M12 x1-M12 x1,5	Differential screw

- Dimensions in mm
- Other dimensions on request
- Cartridge types see page 21
- Cartridges not included in scope of supply



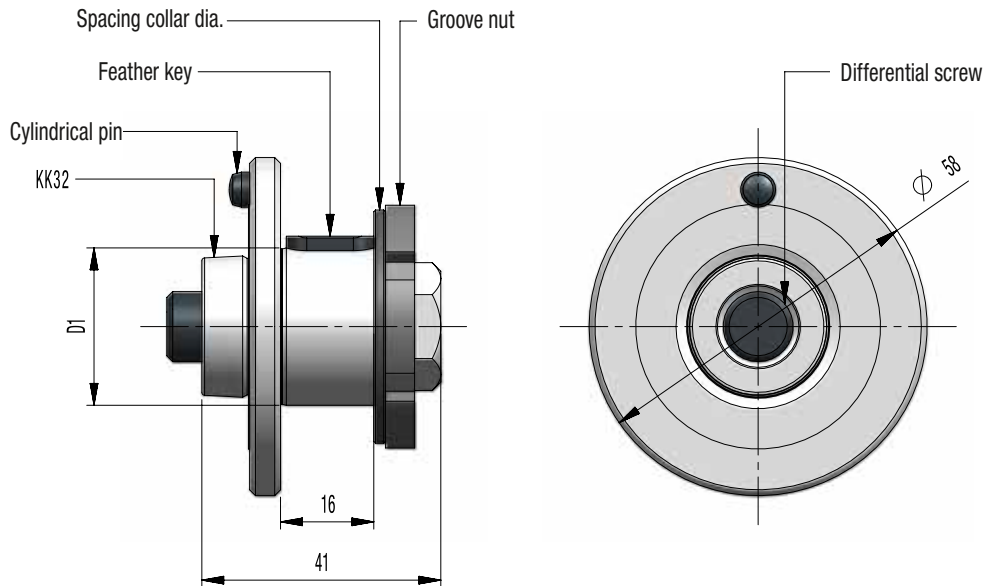
Please be sure to read:
Mounting instructions S588



Short-taper adapter

INDEX

For cylindrical fixture $\varnothing 22$ and $\varnothing 27$



POLY[®]turn

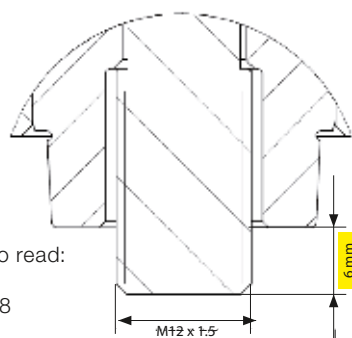
Adapter	Cylindrical fixture D1	Machine type	Stock
PTIX-A-KK32-D22	$\varnothing 22$ h6	MS 18, 22, 32, 40	●
PTIX-A-KK32-D27	$\varnothing 27$ h6		●

● in stock ○ on request

Order number	Spare parts $\varnothing 22$	Order number	Spare parts $\varnothing 27$
5-40-04167-202	Dowel pin	5-40-04167-202	Dowel pin
F21939M12x1-M12x1,5	Differential screw	F21939 M12 x1-M12 x1,5	Differential screw
S00001591	Milling arbor ring $\varnothing 22 \times 2$	S00001086	Milling arbor ring $\varnothing 27 \times 2$
NTM-M20x1-DIN981	Grooved nut	NTM-M24x1-DIN981	Grooved nut
PSF-S1496	Parallel key	S00001037	Parallel key



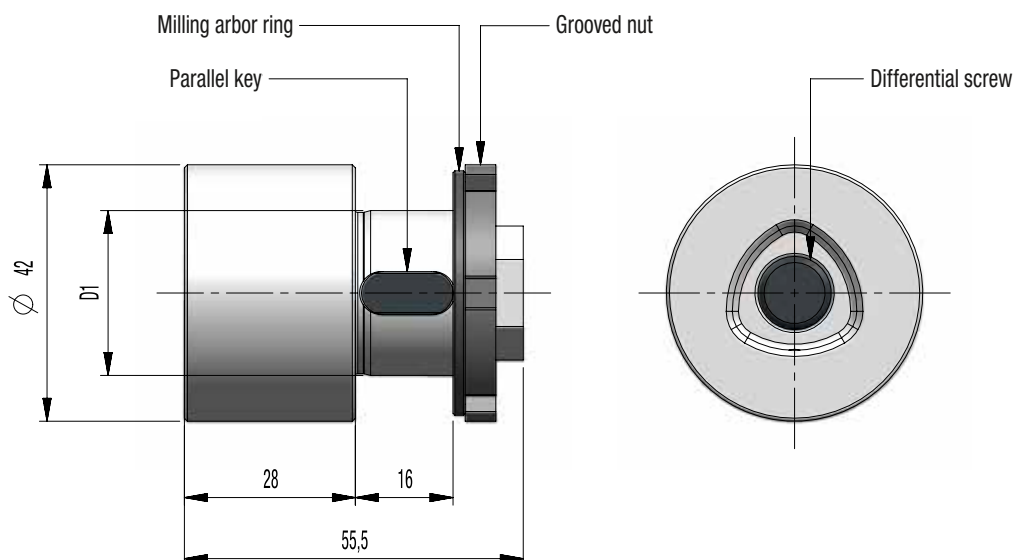
Please be sure to read:
Mounting
instructions S588



CAPTO C3 adapter

INDEX

For cylindrical fixture $\varnothing 27$



Adapter	Cylindrical fixture D1	Machine type	Stock
PTIX-A-C3-D27	$\varnothing 27$ h6	MS52	<input checked="" type="radio"/>

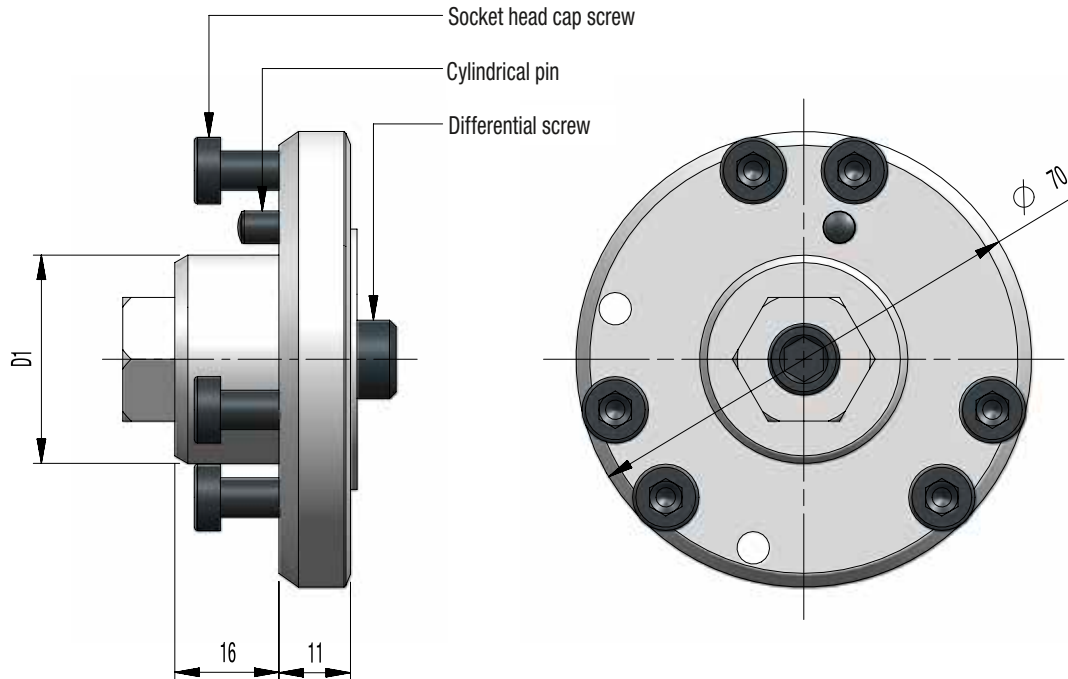
in stock on request

Order number	Spare parts
S00001084	Differential screw
S00001037	Parallel key
S00001086	Milling arbor ring $\varnothing 27 \times 2$
NTM-M24x1-DIN981	Grooved nut

CAPTO C3 adapter

INDEX

For cylindrical fixture $\varnothing 32$



POLY[®]turn

Adapter	Cylindrical fixture D1	Machine type	Stock
PTIX-A-C3-D32	$\varnothing 32$ h6	MS52	<input checked="" type="radio"/>

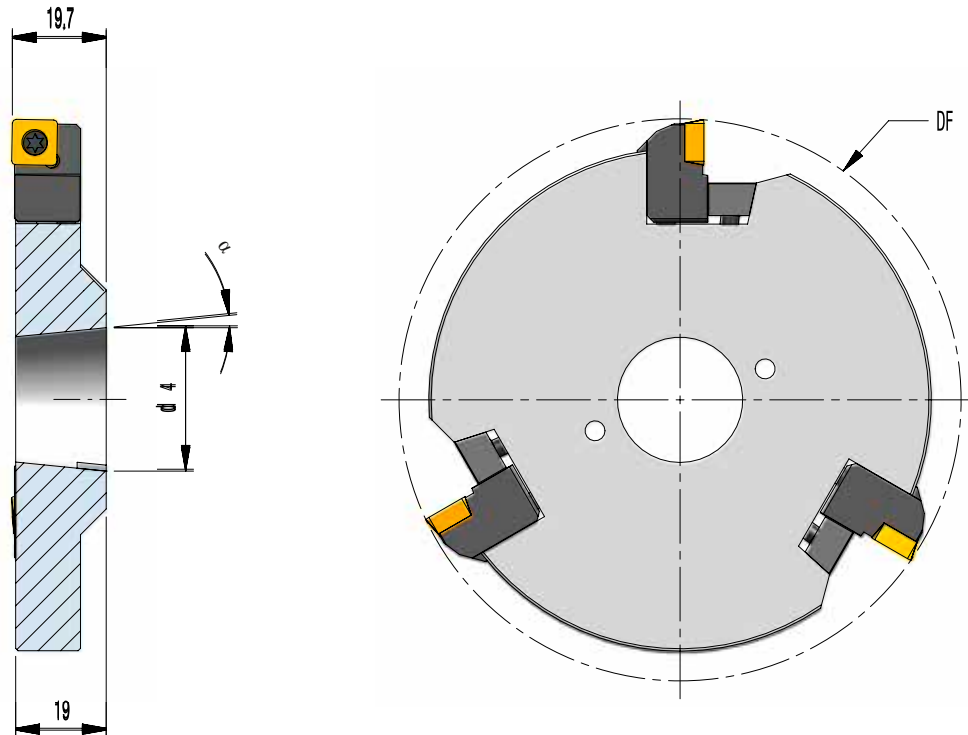
in stock on request

Order number	Spare parts
S00001084	Differential screw
5M6x12 Dowel pin DIN6325	Dowel pin
M6x20 Socket head bolt DIN6912	Socket head bolt

POLY[®]turn base bodies

SCHÜTTE

With taper holder



Anti-clockwise rotation!
 ⚠ Cartridges are shown for illustration only and not included in the scope of supply.

Order number	DF	d4	α	Edge number	Machine type	Stock
PTSC-D98H-Z2L	98	30.1	5°42'38"	2	SG18 S36PC SF26,-S,-L SE18 AF26-/32	●
PTSC-D98H-Z3L	98	30.1	5°42'38"	3		●
PTSC-D98H-Z4L	98	30.1	5°42'38"	4		○
PTSC-D98H-Z6L	98	30.1	5°42'38"	6		○
PTSC-D98S-Z2L	98	30.1	5°42'38"	2		○
PTSC-D98S-Z3L	98	30.1	5°42'38"	3		●
PTSC-D98S-Z4L	98	30.1	5°42'38"	4		○
PTSC-D118H-Z2L	118	30.1	5°42'38"	2	SF32-/42-/51-/67, AF42, S36PC	●
PTSC-D118H-Z3L	118	30.1	5°42'38"	3		●
PTSC-D118H-Z4L	118	30.1	5°42'38"	4		●
PTSC-D118S-Z3L	118	30.1	5°42'38"	3		●

● in stock ○ on request

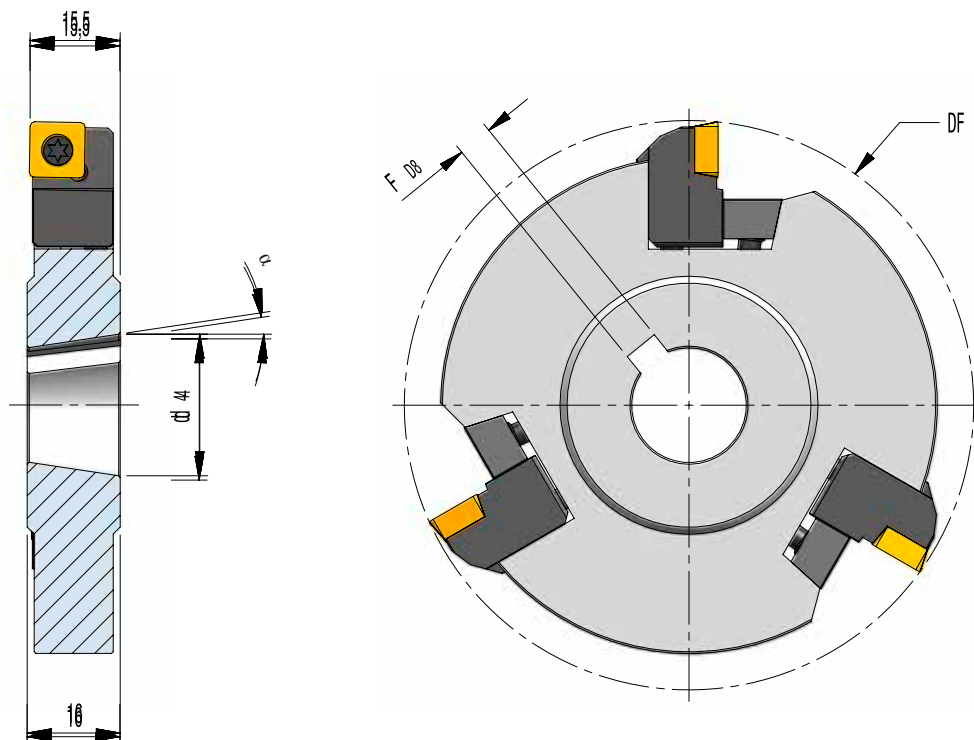
Order number	Spare parts
100-203	Clamping screw
3-20-0754-202	Clamping wedge

- Dimensions in mm
- Other dimensions on request
- Cartridge types on page 21
- Cartridges not included in scope of supply

POLY[®]turn base bodies

GILDEMEISTER

With taper holder



POLY[®]turn

Anti-clockwise rotation



Cartridges are shown for illustration only and not included in the scope of supply.

Order number	DF	F ₀₈	d4	α	Edge number	Machine type	Stock
PTGI-D98H-Z2L	98	6	24.1	8°32'	2	GMC35, GM35-6 GM35-8, GM42-6 GM20-6	○
PTGI-D98H-Z3L	98	6	24.1	8°32'	3		●
PTGI-D98H-Z4L	98	6	24.1	8°32'	4		○
PTGI-D98S-Z2L	98	6	24.1	8°32'	2		○
PTGI-D98S-Z3L	98	6	24.1	8°32'	3		●
PTGI-D98S-Z4L	98	6	24.1	8°32'	4		○
PTTO-D86S-Z2	86	6	24.1	8°16'33"	2	GM-/20-6/35-8/35	○
PTTO-D86S-Z3	86	6	24.1	8°16'33"	3		●
PTTO-D86S-Z4	86	6	24.1	8°16'33"	4		●

● in stock ○ on request

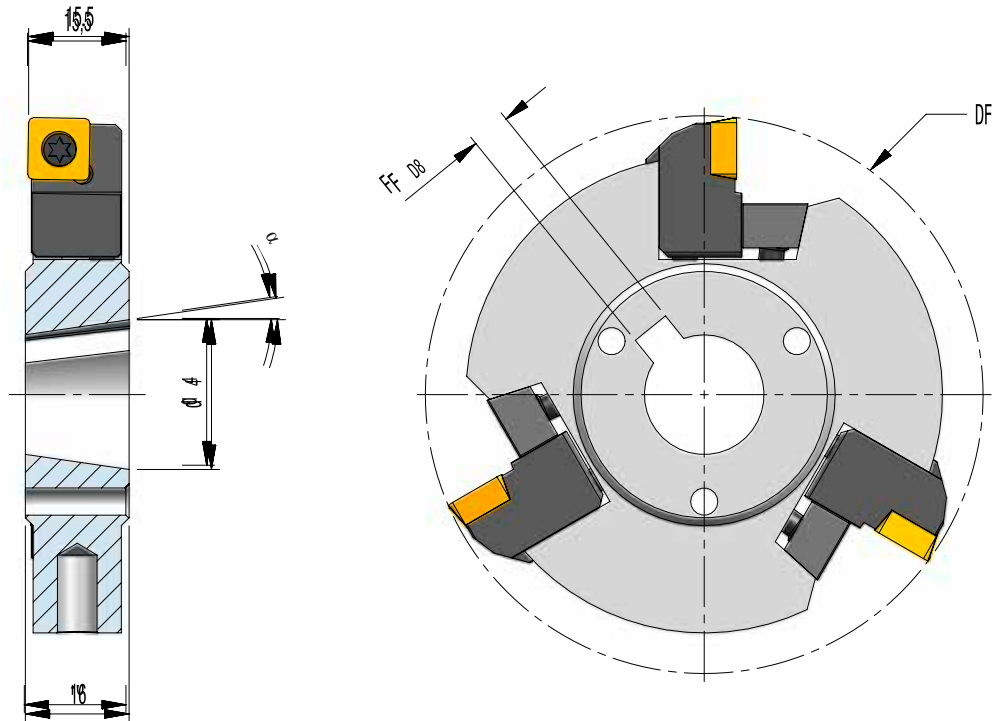
Order number	Spare parts
100-203	Clamping screw
3-20-0754-202	Clamping wedge

- Dimensions in mm
- Other dimensions on request
- Cartridge types on page 21
- Cartridges not included in scope of supply

POLY[®]turn base bodies

TORNOS

With taper holder



Anti-clockwise rotation



Cartridges are shown for illustration only and not included in the scope of supply.

Order number	DF	F ₀₈	α	Edge number	Machine type	Stock
PTTO-D86H-Z2L	86	6	8°16'33"	2	Tornos Multi-Deco Multisigma 8/24 + 8/28	○
PTTO-D86H-Z3L	86	6	8°16'33"	3		●
PTTO-D86H-Z4L	86	6	8°16'33"	4		○
PTTO-D86S-Z2L	86	6	8°16'33"	2		○
PTTO-D86S-Z3L	86	6	8°16'33"	3		●
PTTO-D86S-Z4L	86	6	8°16'33"	4		●

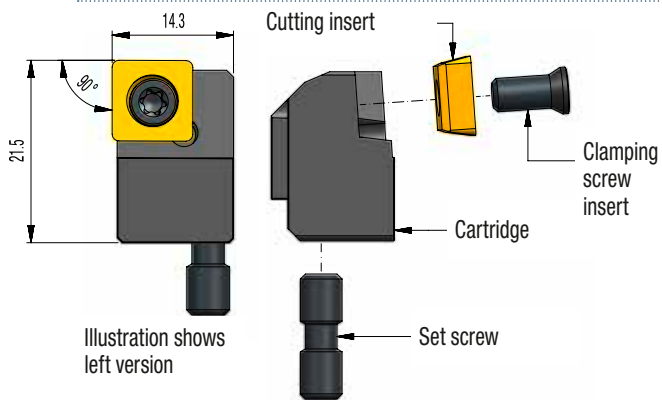
● in stock ○ on request

Order number	Spare parts
100-203	Clamping screw
3-20-0754-202	Clamping wedge

- Dimensions in mm
- Other dimensions on request
- Cartridge types on page 21
- Cartridges not included in scope of supply

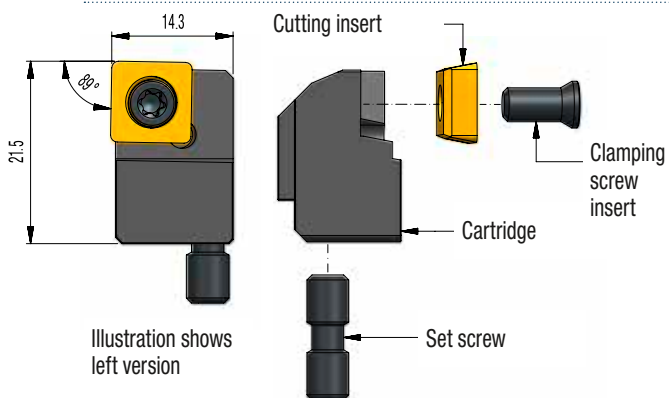
Accessories and information

POLY[®]turn cartridge types

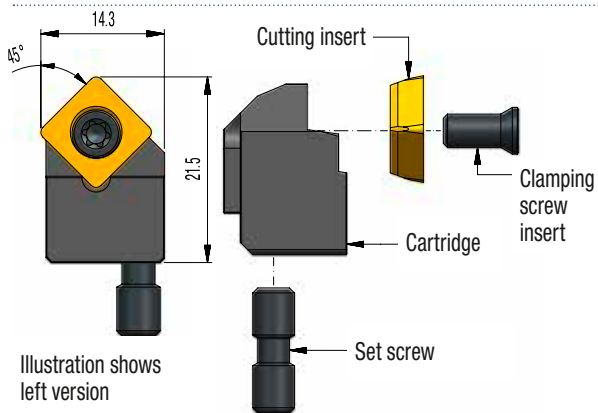


L-23 / R-23	
Order number	L-23 / R-23
Indexable insert	SPHT09T3...
Adjusting screw	100-203
Indexable insert clamping screw	(24444) Torx15/3.5 Nm M4x10

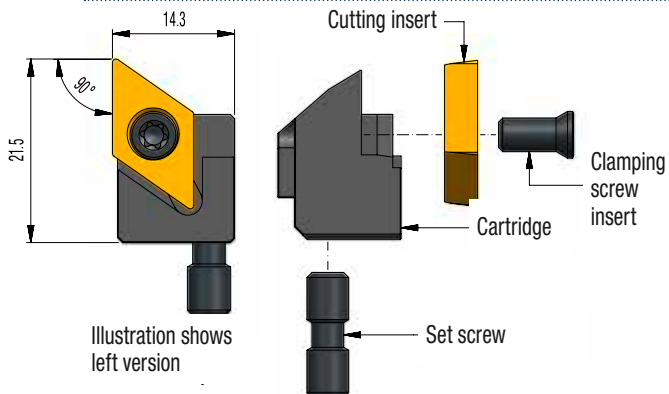
POLY[®]turn



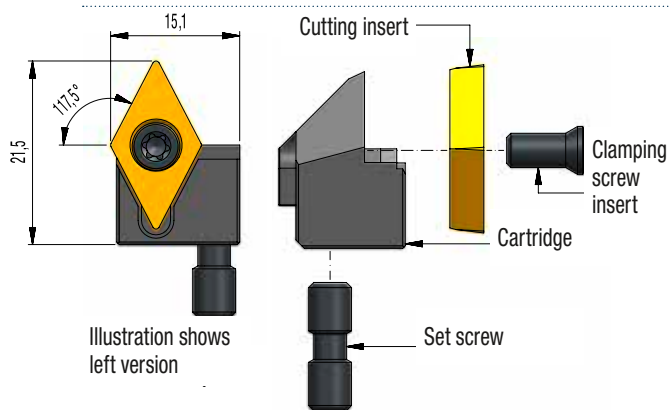
L-21 / R-21	
Order number	L-21 / R-21
Indexable insert	SPHT09T3...
Adjusting screw	100-203
Indexable insert clamping screw	(24444) Torx15/3.5 Nm M4x10



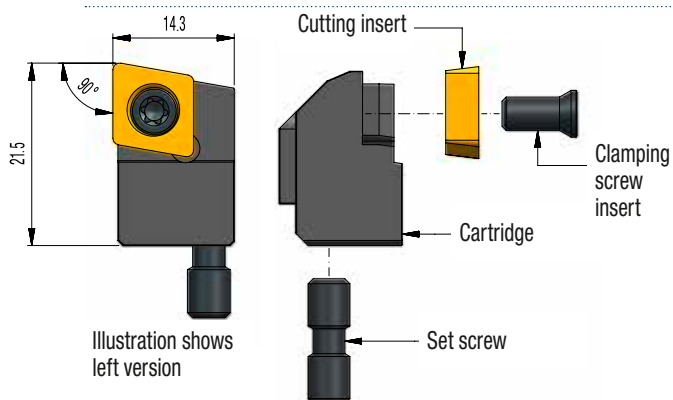
L-05	
Order number	L-05
Indexable insert	SPHT09T3...
Adjusting screw	100-203
Indexable insert clamping screw	(24444) Torx15/3.5 Nm M4x10



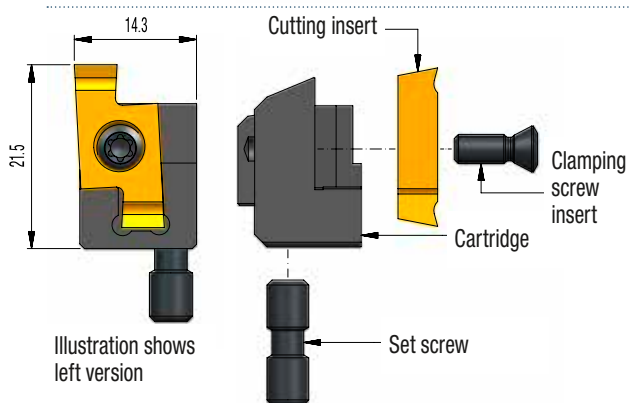
L-01 / R-01	
Order number	L-01 / R-01
Indexable insert	DC..11T3...
Adjusting screw	100-203
Indexable insert clamping screw	(24444) Torx15/3.5 Nm M4x10



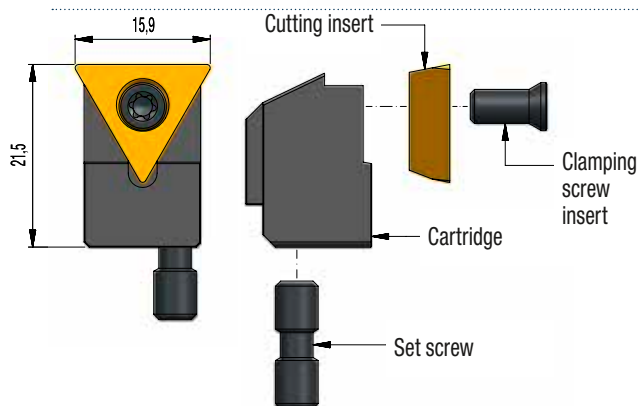
L-12 / R-12	
Order number	L-12 / R-12
Indexable insert	DC..11T3...
Adjusting screw	100-203
Indexable insert clamping screw	(24444) Torx15/3.5 Nm M4x10



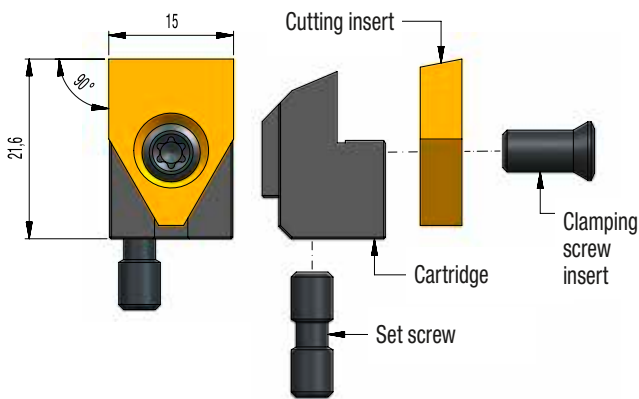
L-06 / R-06	
Order number	L-06 / R-06
Indexable insert	CC...09T3...
Adjusting screw	100-203
Indexable insert clamping screw	(24444) Torx15/3.5 Nm M4x10



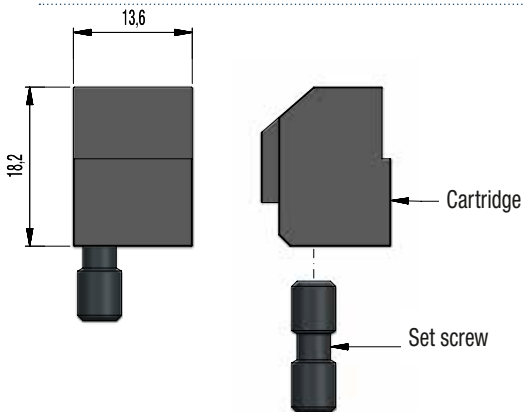
L-02 / R-02	
Order number	L-02 / R-02
Indexable insert for L-02:	LAEX1904E 5.0 R
Indexable insert for R-02:	LAEX1904E 5.0 L
Adjusting screw	100-203
Indexable insert clamping screw	KT00003-M035010 Torx15/3.5 Nm M3.5x10



N-03	
Order number	N-03
Indexable insert	TPGW160404HM20-P-E17723
Adjusting screw	100-203
Indexable insert clamping screw	(24444) Torx15/3.5 Nm M4x10



N-10	
Order number	N-10
Indexable insert	113070B15K20M
Adjusting screw	100-203
Indexable insert clamping screw	BFTX0511N

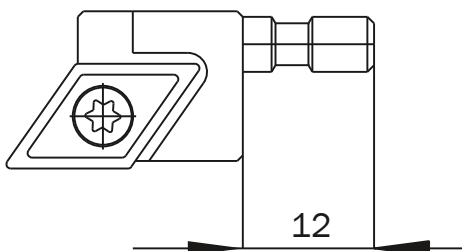


B-01 dummy cartridge	
(for balancing)	
Order number	B-01
Adjusting screw	100-203

• Other cartridge types on request



When mounting the cartridges, the adjusting screw has to be preset to the length of 12 mm. This ensures correct positioning in the base body.



Please see our video tutorial on YouTube:
www.youtube.com/watch?v=SKbuJdCZc44



Accessories and information

POLY[®]turn cutting inserts

Order number	r	Carbide metal coated					ZX-coated		TiAlN-coated		HM
		ACP200 P	ACP300 P	ACZ330 M	ACM300 M	ACZ310 K	AC530U P/M	C38 P	C38 M	N	
SPHT 09T3 0401	0.4	●	●		●	●	●	●			
SPHT 09T3 0801	0.8	●	●	●	●	●	●	●			
DCGT 11T30 2 MNSC	0.2						●	●			
DCGT 11T30 4 MNSC	0.4						●	●			
DCGT 11T30 8 MNSC	0.8						●	●			
DCMT 11T30 2 NSU	0.2						●	●			
DCMT 11T30 4 NSU	0.4						●	●			
DCMT 11T30 8 NSU	0.8						●	●			
CCGT 09T30 2 MNSC	0.2						●	●			
CCGT 09T30 4 MNSC	0.4						●	●			
CCGT 09T30 8 MNSC	0.8						●	●			
CCMT 09T30 2 NSU	0.2						●	●			
CCMT 09T30 4 NSU	0.4						●	●			
CCMT 09T30 8 NSU	0.8						●	●			
LAEX 1904 E5.0L C38	0.0								●	●	
LAEX 1904 E5.0R C38	0.0								●	●	
LAEX 1904 04E5.0L C38	0.4								●	●	
LAEX 1904 04E5.0R C38	0.4								●	●	
LAEX 1904 E5.0L	0.0										●
LAEX 1904 E5.0R	0.0										●

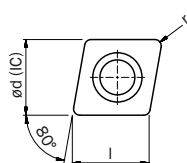
● For further indexable inserts, please refer to the Sumitomo general catalog 2018/2019

P Steel **M** Stainless Steel **K** Gray cast iron **N** Non-ferrous metals

● preferable

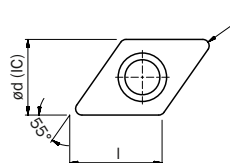
● in stock

○ on request



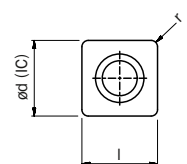
CC_T Dimensions (mm)				
CC..	l	ød (IC)	S	d1
09T3--	9.7	9.525	3.97	4.4

- 80° rhomboid shape
- 7° clearance angle
- Hole mounting



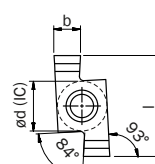
DC_T Dimensions (mm)				
DC..	l	ød (IC)	S	d1
11T3--	11.6	9.525	3.97	4.4

- 55° rhomboid shape
- 7° clearance angle
- Hole mounting



SPHT Dimensions (mm)				
SPHT	l	ød (IC)	S	d1
0603	6.35	6.35	3.18	2.8
09T3	9.525	9.525	3.97	4.4

- 90° square shape
- 11° clearance angle
- Hole mounting
- H tolerance



LAEX Dimensions (mm)					
LAEX	l	ød (IC)	S	d1	b
1904	19.05	9.52	4.76	4.2	5.0

- Special shape
- 11° clearance angle
- Hole mounting

Accessories and information

Cutting data

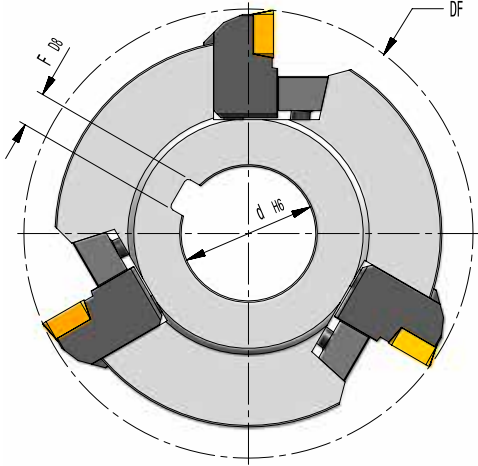
Recommended indexable inserts Maximum widths across flats Recommended cutting data	Non-ferrous metals	Low-strength steels (9SMnPb28K)	High-strength steels (42CrMoS4V)
Vc in m/min	500 – 1000	200 – 500	150 – 250
Rate of feed f in mm per rev. ⁽²⁾	0.08 – 0.2	0.08 – 0.2	0.08 – 0.15
Recommended indexable insert for adapter L-23/R-23	SPHT09T30401 AC530U	SPHT09T30401 AC530U	SPHT09T30401 AC530U
Recommended indexable insert for adapter L-02/R-02	LAEX 1904 E 5.0 R/L K20 ⁽²⁾	LAEX 1904 E 5.0 R/L K20	LAEX 1904 E 5.0 R/L K20TiAlN
Recommended indexable insert for adapter N-03	TPGW 160404 G10E ⁽²⁾	Unsuitable for parting and grooving	Unsuitable for parting and grooving
Maximum width across flats with POLY©turn ø90mm	Hexagon; A/F 36 Square; A/F 20	Hexagon; A/F 36 Square; A/F 20	Hexagon; A/F 36 Square; A/F 20
Maximum width across flats with L-02/R-02 and POLY©turn ø90mm	Hexagon; A/F 60 Square; A/F 32	Hexagon; A/F 60 Square; A/F 32	Hexagon; A/F 60 Square; A/F 32 ⁽¹⁾

- ⁽¹⁾ Due to the large change of angle at the indexable insert in combination with high-strength steels, the width across flats is reduced, since otherwise the tool life of the indexable inserts and the quality of the workpieces would be impaired.
- ⁽²⁾ For groove turning of polygons, the rate of feed should be reduced by about 50% as a function of the width of the flats.

POLY©turn

User example

Example	
Component: flange	A/F30x9.5 - hexagon
Machine	Index MS32C
Material	16MnCr5
Tensile strength	960-1100 N/mm ²
Tool	PT27-D90H-Z3
Cartridge	L-23
Indexable insert	SPHT09T30801AC530U
Cutting velocity	vc = 237 m/min
Workpiece speed	n1 = 360 rpm
Tool speed	n2 = 720 rpm
Feed rate	f = 0.5 mm per rev.



Benefits

by using indexable insert SPHT instead of DCMT

- + 60 % tool life

- - 10 % machining time

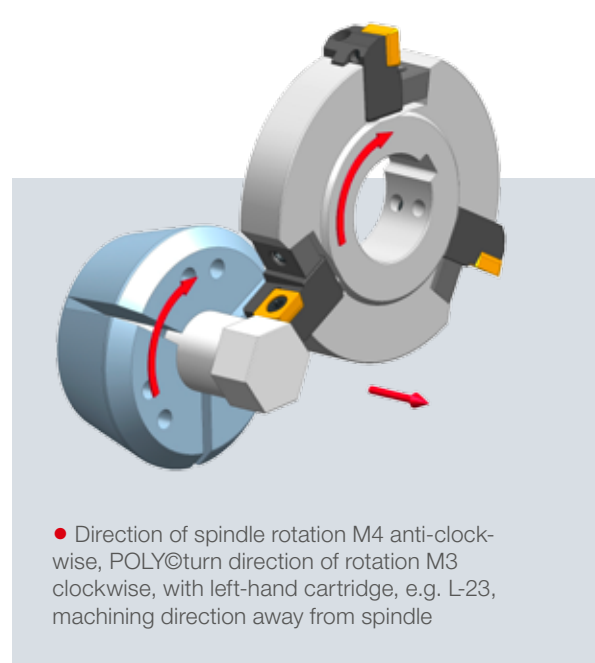
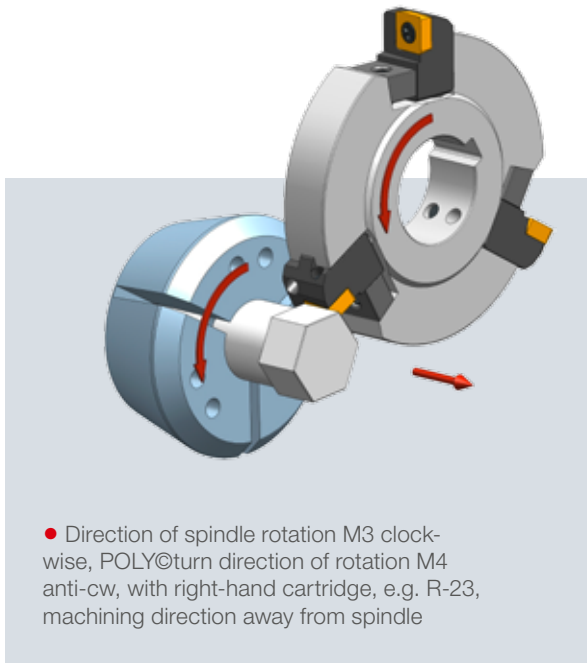
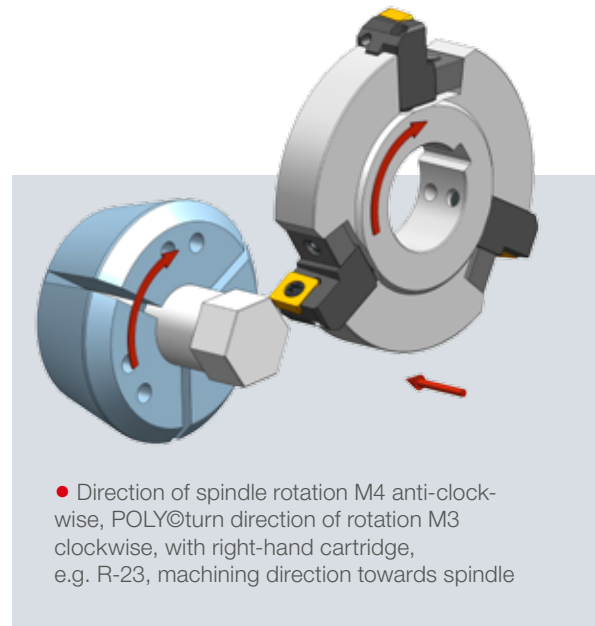
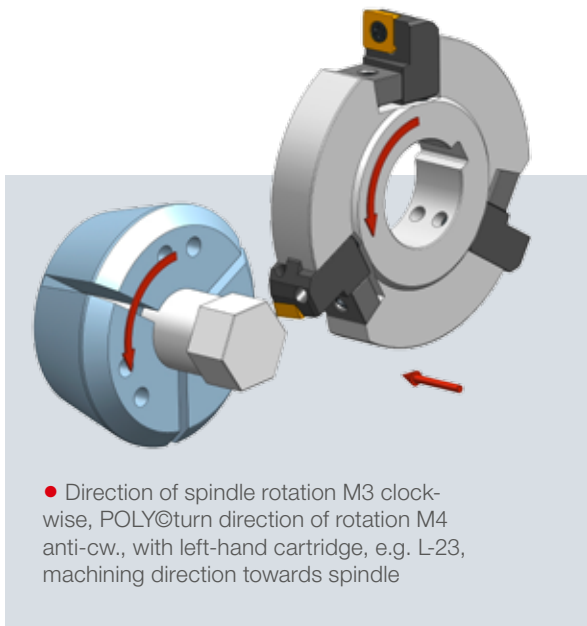
- Surface finish improved from Rz36 to Rz8

- Gentler cutting and less stress on drive

Accessories and information

Guide for selection

POLY[®]turn

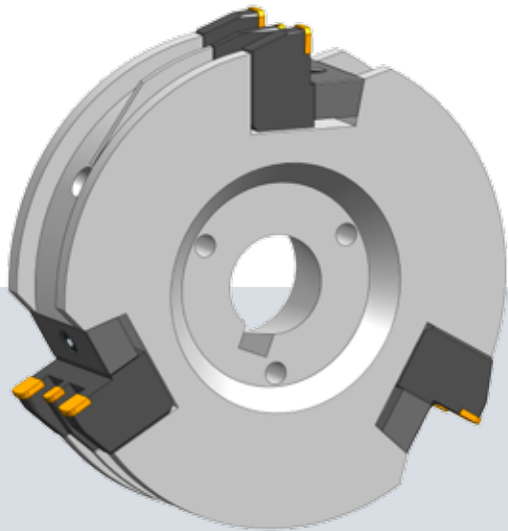


Example of calculation to determine the drive speed

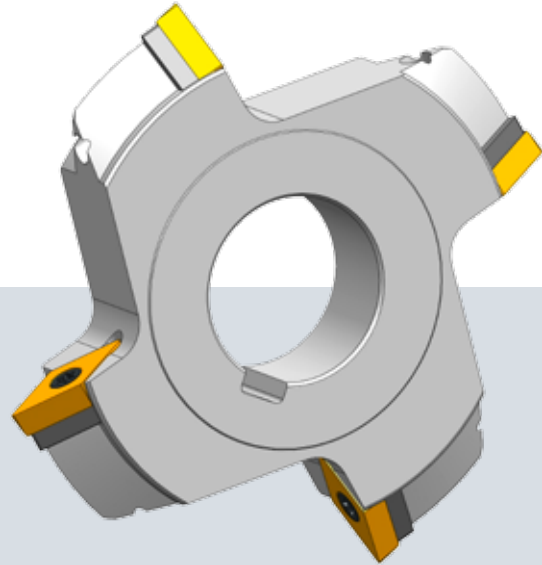
POLY [®] turn diameter [MD]	90 mm
Width across flats [A/F]	30 mm
Cutting velocity [Vc]	237 m/min
Workpiece rotational speed [n1] HS to be calculated	360 rpm
360 cutter head speed [n2] to be calculated n1 x2	720 rpm
Formulas for speed calculation	Formulas for cutting speed calculation
$n1 = \frac{Vc \cdot 1000}{(MD \cdot 2 + A/F) \cdot \pi}$	$vc = \frac{n1 \cdot (A/F + MD \cdot 2) \cdot \pi}{1000}$
$n1 = \frac{237 \cdot 1000}{(90 \cdot 2 + 30) \cdot \pi} = 360 \text{ rpm}$	$vc = \frac{360 \cdot (30 + 90 \cdot 2) \cdot \pi}{1000} = 237 \text{ m/min}$

Accessories and information

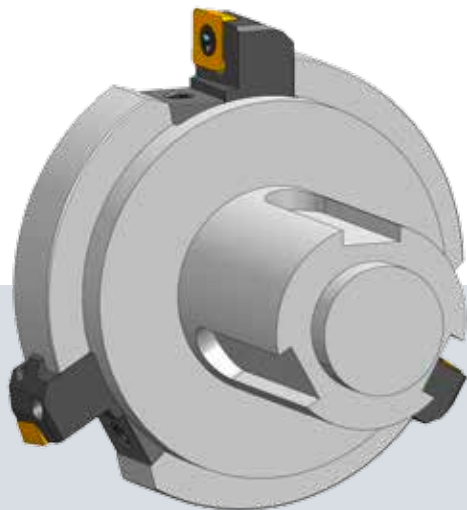
POLY[®]turn special solutions



- POLY[®]turn for inside radius cutting with PCD inserts (replaceable), for Mori-Say ZPS machine.

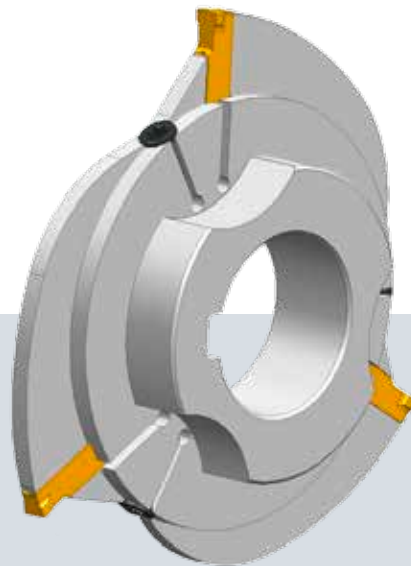


- POLY[®]turn monobloc with cylindrical fixture Z4 for inserts DCGT11T304 with carbide metal support.



- PTVX4-D90S-Z3
EWS Varia VX4

EWS
Tool Technologies

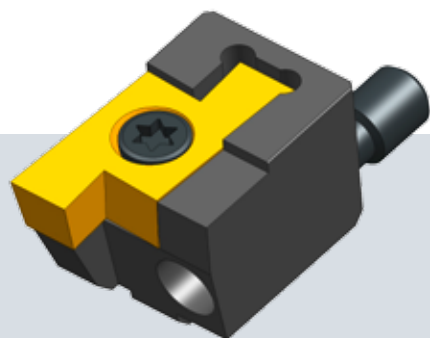


- Other grooving widths and grooving depths available.
- Grooving available.

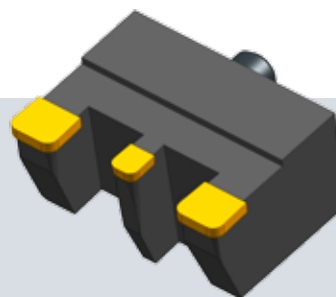
- Other special solutions available on request.

Accessories and information

POLY[®]turn special cartridges and special inserts



- R-02 S422 cartridge
- LAEX indexable insert

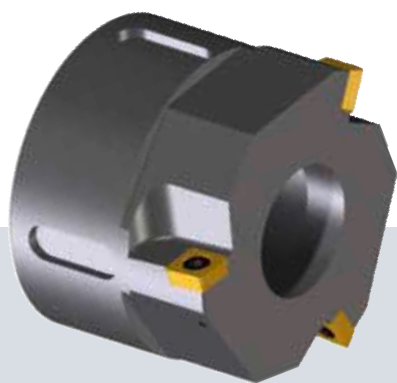
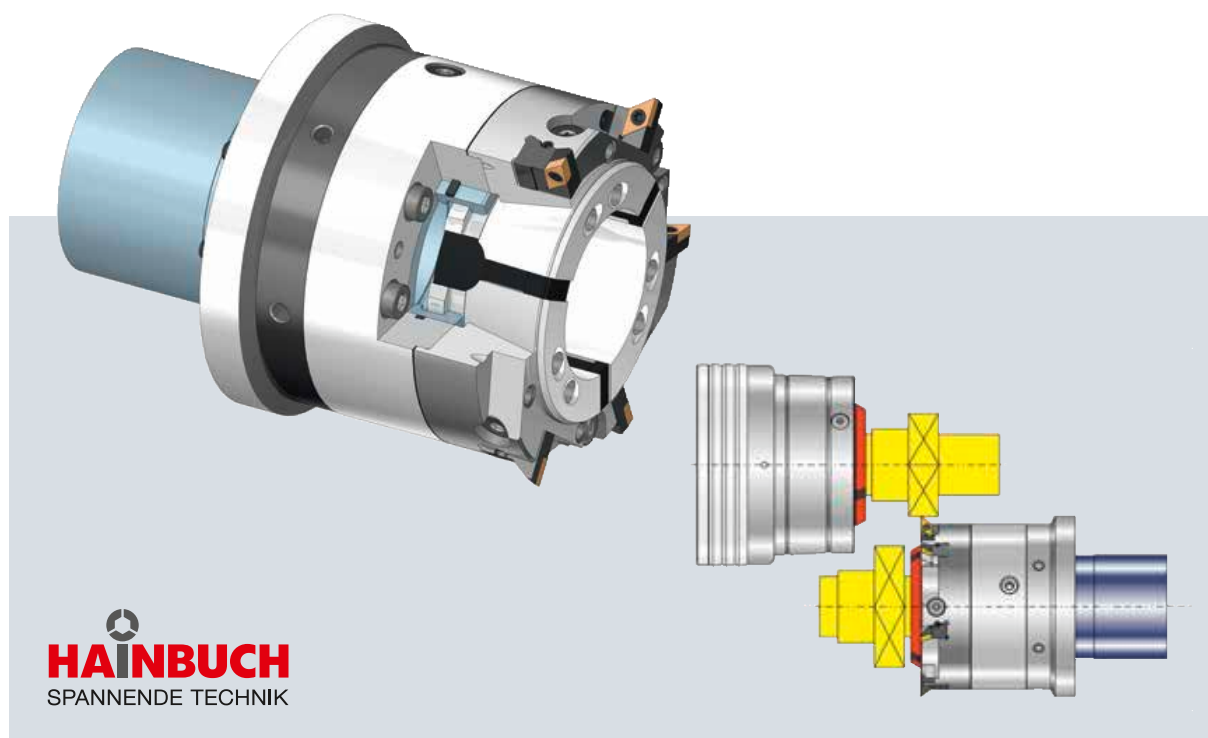


- PCD cartridge

POLY[®]turn

- Other special solutions available on request.


POLY[®]turn special chucks



CITIZEN

- CitizenTools: PTM55-D70S-Z3
- Cutting insert: SPHT09T3..
- Machine: Citizen A20
- Tool holding fixture: M 55 x 1.5 (opposing spindle)

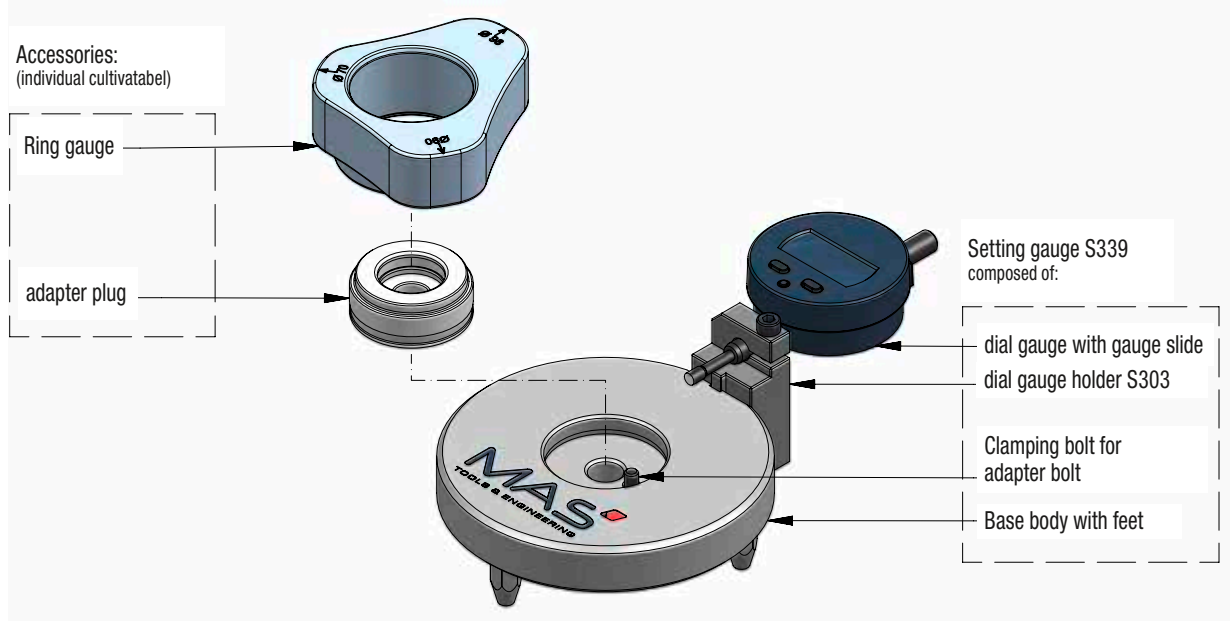
Fixed insert pockets integrated in clamping nut, triple-blade for hexagon

 Only for use with right-hand turning (M3) (subspindle)

Accessories and information

Setting gauge

Schematic structure



POLY[®]turn

- Adjusting ring and adapter plug are **not** included in the scope of delivery.
- Analog dial gauge included in the scope of delivery.

Order number	Mounting parts		Stock
S339	Setting gauge	—	●
S304	Adapter plug PSK 3	Index	●
S305	Adapter plug cyl. Ø 32	Universal	●
S306	Adapter plug cyl. Ø 27	Universal	●
S307	Adapter plug cyl. Ø 22	Universal	●
S308	Adapter plug KK32	Index	●
PT44-D98-90-70	Adjusting ring ø98 / ø90 / ø70	Universal	●
S371	Adapter plug 5°42'38"	Schütte	●
S593	Adapter plug 8°16'30"	Tornos	●
S594	Adapter plug cyl. Ø 13	Citizen	●

● in stock ○ on request

- Other inserts available on request.

POLY[®]turn polygon turning – Operating principle

In polygon turning on lathes and multi-spindle machines, peripheral surfaces (shell surfaces) are produced with a fly cutter on the parts to be turned. The workpiece (on main spindle) and the tool (rotating) have to run at an absolutely synchronous transmission ratio.

 **Polygon turning is done by up-cut milling only.**

The number of surfaces produced on the workpiece is a function of the transmission ratio between the workpiece and the tool, and of the number of cutting edges on the tool. With a transmission ratio of 2:1, a slightly convex surface is produced. This slight deviation of shape is acceptable for second-order surfaces (wrench flats). With a transmission ratio of 1:1, strongly convex surfaces result, which are not advisable for wrench flats. With a transmission ratio of 3:1, strongly concave surfaces result, which are also not advisable for wrench flats. Consequently, in most cases the transmission ratio of 2:1 is used. Fly cutters with $Z=2$ produce 4 surfaces on the workpiece. The following factors are important for calculating the convexity of the surfaces produced:

- Cutting circle diameter of fly cutter
- Width across flats to be produced
- Cutting circle diameter of pre-turned workpiece diameter
- Number of flats
- Workpiece-to-tool transmission ratio

The flats can be produced either by grooving or by plain turning. This can also be used for copying a chamfer (deburring of surface).

- For the precise calculation of camber, please contact our MAS technicians.
- Due to the complexity of this subject, please submit your component drawing of the workpiece to our MAS technicians.
- Applications for a POLY[®]turn range from standard CNC lathes and multiple-spindle lathes with driven tools to sophisticated turn-mill centers.

FOCUS ON TOOLS

Multi-Sided Cylindrical and Groove Turning

Mature, modular turning tool allows for precise and cost-effective multi-sided machining

For machining two, four and six-sided tools (wrench flats) on turning centers without a Y-axis and without vertical milling units, we offer our POLYturn turning tool. It allows for the fast and reliable cutting of multiple sides using cylindrical and groove turning methods, and only requires a powered tool station in the direction of the turning machine's main axis.

A particular advantage of these tools is the base unit made of heavy metal, which offers a level of inertia and maximum shock absorption. When producing multi-sided workpieces in several cuts, this reduces the load on the controllers of the directly powered tool stations, which usually only offer little in the way of torque. This minimizes the decline in machine speed and the resultant drop in cutting speed, allowing the multi-sided tool POLYturn to also work reliably and cost-effectively on low-performance, low-torque powered tool stations.

The tools are available as standard in double-blade and triple-blade versions, optionally also in four-blade versions. Cost savings are achieved with the use of standardized groove turning inserts or round, square, triangular and rhombic standard indexable inserts. The user can choose the best design for their machining application in terms of cutting geometry, cutting material and coating from a wide range of low-cost indexable inserts. Another advantage is the use of cassettes to hold the inserts, allowing the inserts to be adjusted quickly and easily to non-changing blade diameters, ensuring that all flats have exactly the same dimensions with four and six-sided tools. The cassettes are stably and reliably locked in place with a wedge and a clamping screw.

The standard multi-sized tool with a diameter of 90 mm can be used to produce four-sided tools with a width across flats of up to 20 mm and six-sided tools with a width across flats of up to 36 mm in non-ferrous and light metals, but also in higher-strength steels. On request, our tool experts will also produce application-specific multi-sided tools with adapted dimensions and cut surfaces.



POLY[®]turn

A fast and cost-effective turning solution for large-scale serial production of multi-sided tools – the POLYturn multi-sided turning tools with cassette support for standard indexable inserts are suitable for groove turning and cylindrical turning

MODUL[®] turn

modular boring bar system
with internal cooling





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MODUL[©]turn



Benefits and Features

- Joints with various diameters Ø 20 / 25 / 32 / 40 / 60
- Cutter head available as right-hand/left-hand version
- Vibration-absorbing shank available
- Safety mounting system - non interchangeable, engaging components
- MEX[©]turn compatible with Ø 20
- Suitable for machining of soft and hard materials
- Special-purpose cutting head und special shank lengths available
- Standard version with internal cooling
- Modular boring bar system

System of order numbers

Examples

Cylindrical shank

MODUL©turn	1	2	3
MT	-Z	-D25	-90A

Cutter head

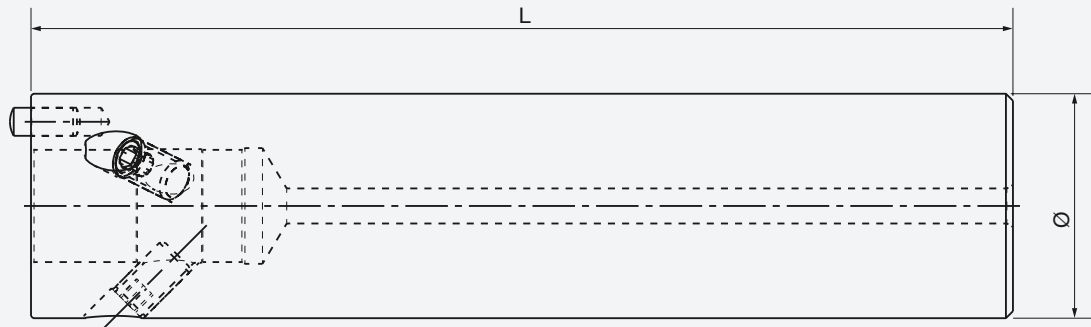
MODUL©turn	1	2	3
MT	-K	-D25	-SCLCR-11025-09

Designation system

1	<p>Z Cylindrical shank</p> <p>C... Shank with PSK joint and version (e.g. C5)</p> <p>H... Shank with HSK joint and version (e.g. HSKA63)</p> <p>V VDI shank (e.g. VDI25)</p> <p>K Cutter head</p> <p>A Positioning head</p> <p>E Extension</p>
2	D: Joint diameter Ø
3	<p>For shanks: Length and material A=steel / E= carbide metal / I= heavy metal</p> <p>For cutting heads: Insert type; clamping; mounting position; dimensions F and L; insert size</p>
X	Code for special product

MODUL©turn

Shank versions



- Versions in steel / heavy metal / carbide metal
- Cylindrical shank series without clamping surface
- Special lengths available on request
- Polygonal taper shank (PSK) and HSK available on request
- Shortening of the standard shaft length*
- Clamping surface* can be mounted on request (see page 39) → but not recommended

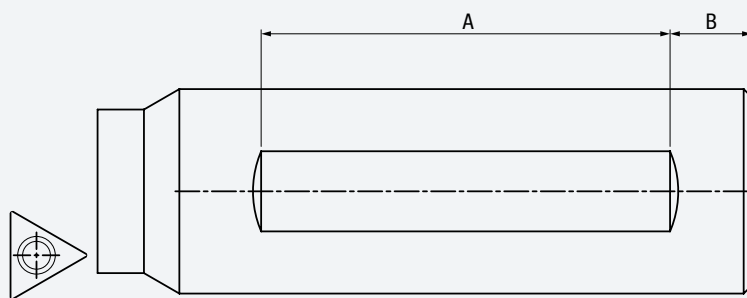
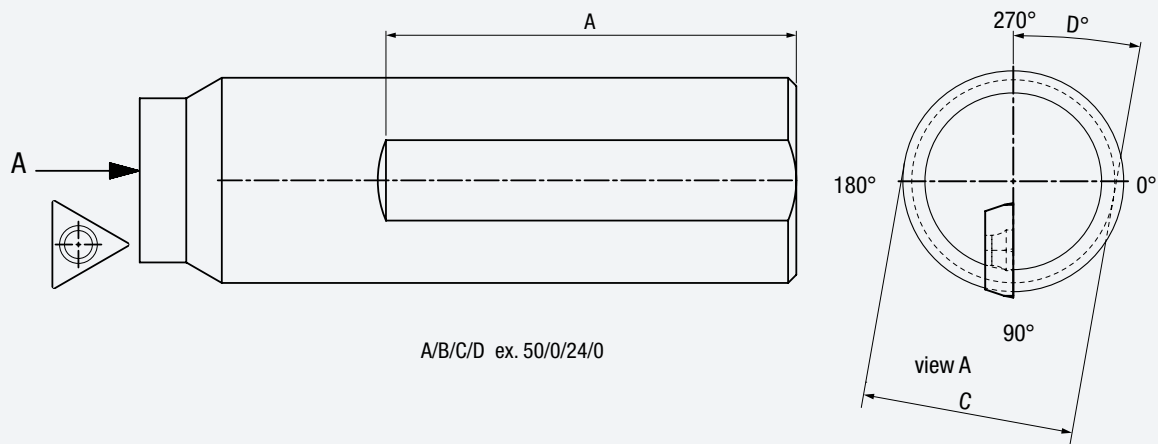
*surcharge

Ø	Order number steel	Order number Heavy metal	Order number Carbide metal	Setscrew	Cutting blade pin
20	MT-Z-D20-90A MT-Z-D20-140A MT-Z-D20-180A	MT-Z-D20-90I MT-Z-D20-140I MT-Z-D20-180I	MT-Z-D20-180E	M5 x 0.5 x 6 3.0 Nm	3M6 x 8
25	MT-Z-D25-90A MT-Z-D25-140A	MT-Z-D25-90I MT-Z-D25-140I	MT-Z-D25-220E	M5 x 0.5 x 8 3.0 Nm	3M6 x 8
32	MT-Z-D32-90A MT-Z-D32-140A MT-Z-D32-200A	MT-Z-D32-90I MT-Z-D32-140I MT-Z-D32-200I	MT-Z-D32-260E	M6 x 10 5.0 Nm	4M6 x 10

- Positioning head, see page 45

MAS clamping surface standard

MODUL[®]turn



Cutter head

SCLC series

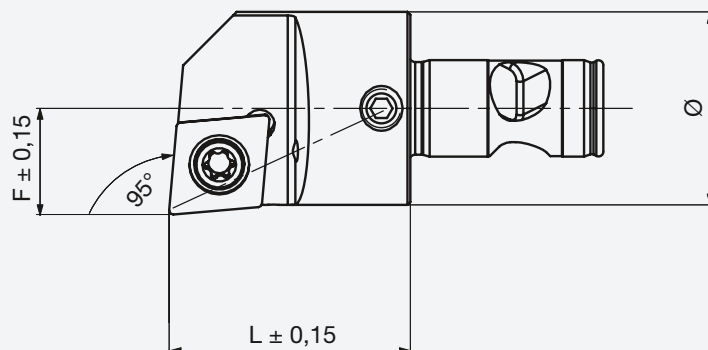


Illustration shows the right-hand version.

Ø	F	L	D _{min}	Indexable insert	Order number	Screw
20	11	25	21	CC...09T3	MT-K-D20-SCLCR/L-11025-09	BFTX03588
25	17	25	30	CC...09T3	MT-K-D25-SCLCR/L-17025-09	BFTX03588
32	22	25	38	CC...09T3	MT-K-D32-SCLCR/L-22025-09	BFTX03588

- Positioning head, see page 45

SDUC series

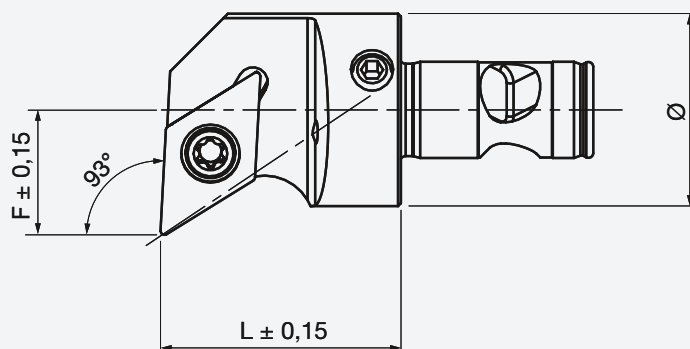


Illustration shows the right-hand version.

Ø	F	L	D _{min}	Indexable insert	Order number	Screw
20	13	25	23	DC...11T3	MT-K-D20-SDUCR/L-13025-11	BFTX03588
25	17	25	30	DC...11T3	MT-K-D25-SDUCR/L-17025-11	BFTX03588
32	22	25	38	DC...11T3	MT-K-D32-SDUCR/L-22025-11	BFTX03588

- Positioning head, see page 45

Cutter head

SDQC series

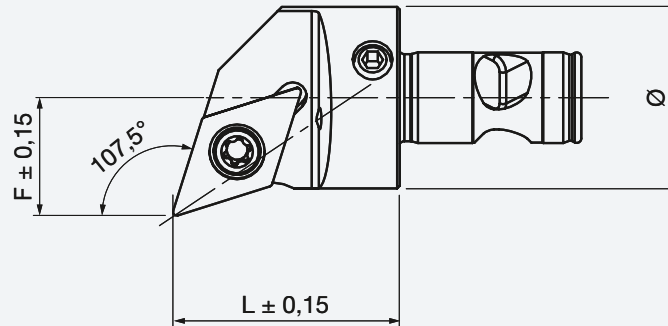


Illustration shows the right-hand version.

MODUL[®]turn

Ø	F	L	D _{min}	Indexable insert	Order number	Screw
20	13	25	23	DC...11T3	MT-K-D20-SDQCR/L-13025-11	BFTX03588
25	17	25	30	DC...11T3	MT-K-D25-SDQCR/L-17025-11	BFTX03588
32	22	25	38	DC...11T3	MT-K-D32-SDQCR/L-22025-11	BFTX03588

- Positioning head, see page 45

DCLN series

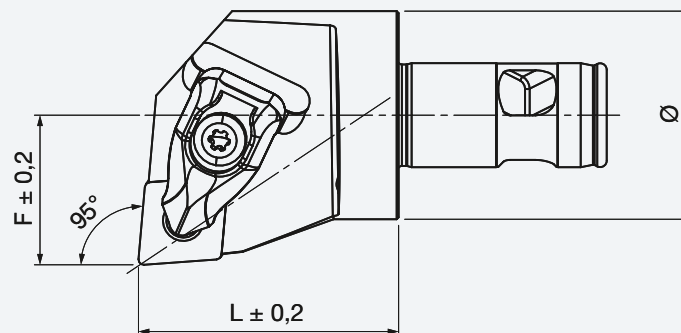


Illustration shows the right-hand version.

Ø	F	L	D _{min}	Indexable insert	Order number	Clamping set
25	17	40	30	CN...1204	MT-K-D25-DCLNR/L-17040-12	100-21
32	23	40	39	CN...1204	MT-K-D32-DCLNR/L-23040-12	100-21

- Positioning head, see page 45

Cutter head

SVPB series

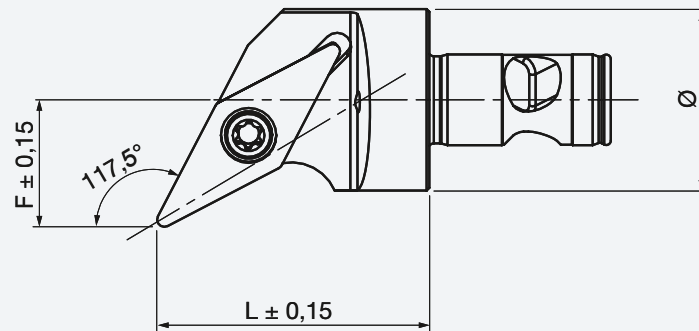


Illustration shows the right-hand version.

Ø	F	L	D _{min}	Indexable insert	Order number	Screw
20	14	30	24	VB...1604	MT-K-D20-SVPBR/L-14030-16	BFTX03588
25	17	30	30	VB...1604	MT-K-D25-SVPBR/L-17030-16	BFTX03588
32	22	30	38	VB...1604	MT-K-D32-SVPBR/L-22030-16	BFTX03588

- Positioning head, see page 45

CRXB series

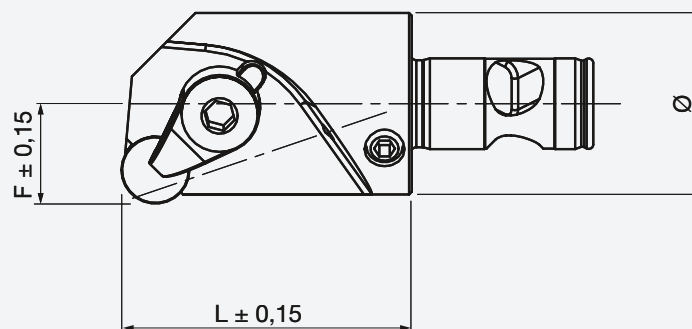


Illustration shows the right-hand version.

Ø	F	L	D _{min}	Indexable insert	Order number	Screw
20	11	32	21	RBGN075	MT-K-D20-CRXHR/L-11032-075	BFTX03588
25	17	32	30	RBGN075	MT-K-D25-CRXHR/L-17032-075	BFTX03588
32	22	32	38	RBGN075	MT-K-D32-CRXHR/L-22032-075	BFTX03588

- Positioning head, see page 45

Cutter head

Version SCXC 95°

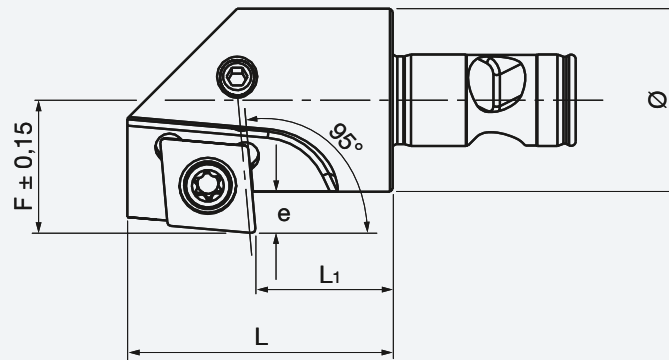


Illustration shows the right-hand version.

MODUL[®]turn

Ø	F	L	L ₁	D _{min}	e	Indexable insert	Order number	Screw
25	18	29	15	31	5.5	CC...09T3	MT-K-D25-SCXCR/L-18029-09	BFTX03588
32	23	29	15	39	7	CC...09T3	MT-K-D32-SCXCR/L-23029-09	BFTX03588

- Positioning head, see page 45

Version SDXC 95°

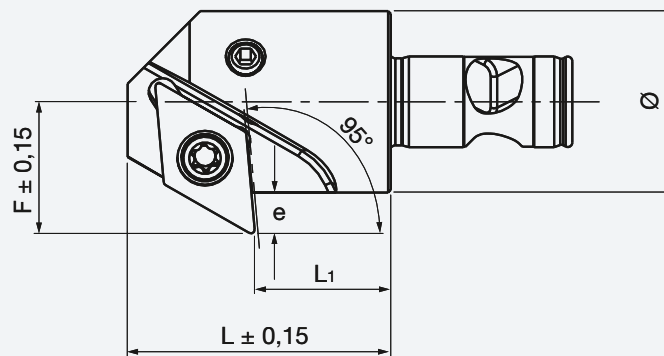


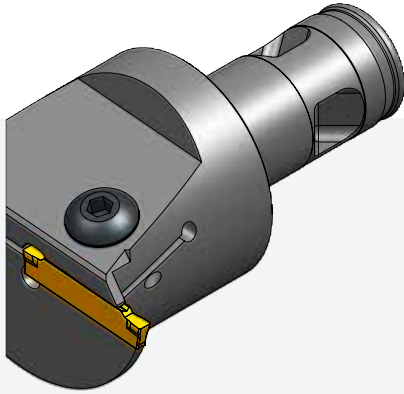
Illustration shows the right-hand version.

Ø	F	L	L ₁	D _{min}	e	Indexable insert	Order number	Screw
25	18	29	15	31	5.5	DC...11T3	MT-K-D25-SDXCR/L-18029-11	BFTX03588
32	23	29	15	39	7	DC...11T3	MT-K-D32-SDXCR/L-23029-11	BFTX03588

- Positioning head, see page 45

Special solutions

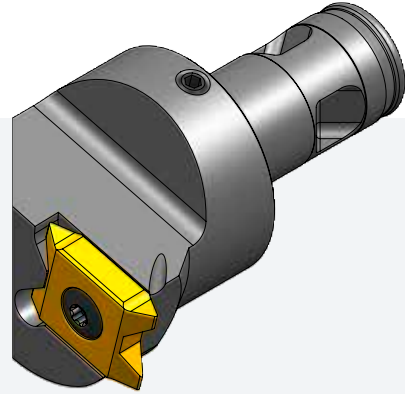
Examples



- Internal grooving

E1003

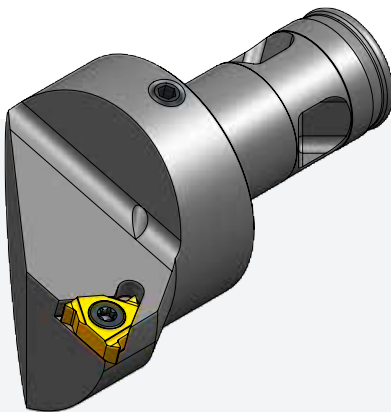
MT-K-D32-GNDR-22030-T206



- Inside thread also with CBN

E1046

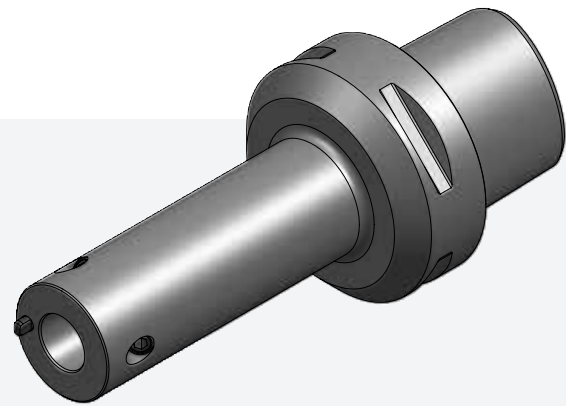
MT-K-D32-QNR-22030-20



- Inside thread soft

E1232

MT-K-D32-SGWER-22030-21



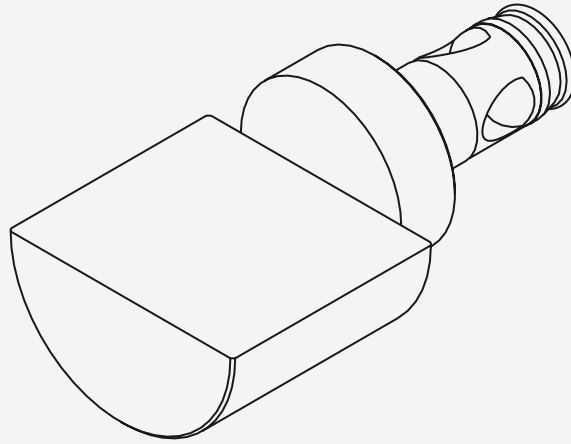
- Shank with PSC holder

E3394

MT-C5-D25-90A

Accessories

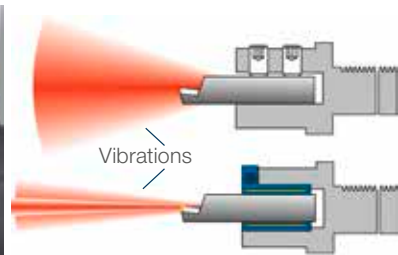
Positioning head



MODUL[®]turn

Ø	Order number - positioning head
20	MT-A-D20
25	MT-A-D25
32	MT-A-D32

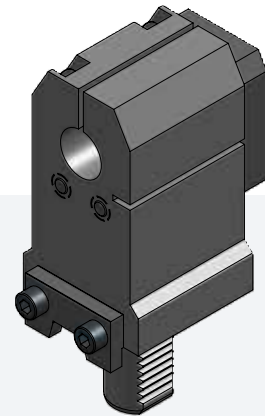
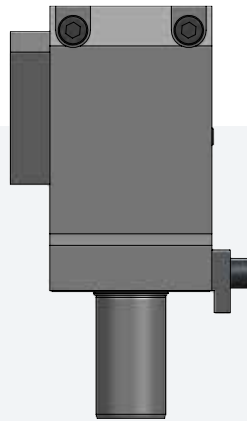
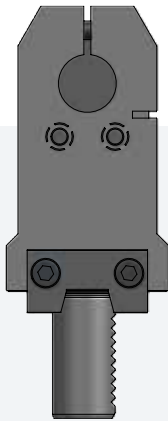
Tool holding holder for cylindrical shanks



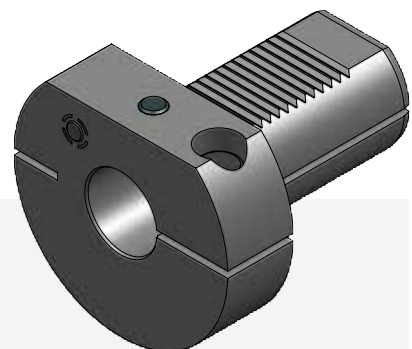
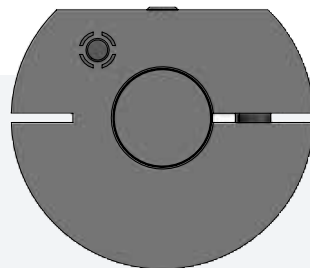
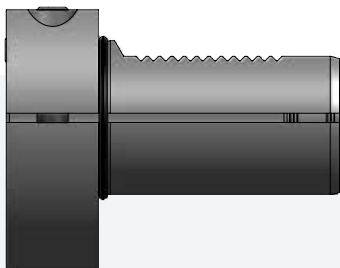
- Hydraulic expansion sleeves on request → additional vibration dampening
- Slotted and solid turret tool holder version available on request (see page 46)
- For detailed information, see ETP HYDRO-GRIP[®] catalog

Recommended tool holders

Examples



• VDI30 boring bar holder $\varnothing 25$



• VDI50 boring bar holder $\varnothing 32$

FOCUS ON TOOLS

Increased Cost Efficiency with Modular Boring Rods

Shanks and cutting heads can be combined with flexibility

Our MODUL©turn boring rod system provides high flexibility and minimal expense thanks to its modular design, because it enables shanks of steel, carbide or heavy metal to be combined with standardized cutting heads made of steel. Because shock absorption and stability are largely dictated by the material from which the shank is made, production facilities can professionally machine a full range of soft and hard materials simply with the right choice of the appropriate shanks. This reduces tool costs significantly. A cleverly designed connector enables the all-purpose cutting heads to be reliably replaced and clamped. Form-fit connection ensures that the cutting head and shank are fitted quickly, easily and in the right direction, providing you with additional reliability.

Whenever you need to machine a very wide range of workpiece geometries, whether made-to-order or in serial production, the MODUL©turn boring rod system always offers the best tool for the job with 20, 25, 32, 40 and 60 mm shank diameters. The all-purpose cutting heads also contribute to the high flexibility for a diverse range of different potential machining applications. Several designs support inserts designed specifically designed for the machining application in question or standardized indexable inserts, including round inserts. Insert seats milled to high precision and optional threaded or plug clamps ensure that the inserts remain stable. Aligned holes in the shank and cutting head enable an internal supply of coolant directly to the cutting edge for highly productive, reliable machining.

To enable the modular boring rod system to be utilized with any commonly used turning or milling center, there are not only round shanks for clamping in hydraulic chuck sleeves but also designs with the commonly used VDI, tapered polygon (Capto) and HSK tool holders. At diameters of 20, 25 and 32 mm, shanks of 90 and 140 mm length are available, at a diameter of 32 mm, a 200 mm length is also available, at a diameter of 40 mm, 180 and 250 mm lengths are available, and at a diameter of 60 mm, 250 and 350 mm lengths are available as standard. For individual machining conditions and custom workpiece geometries, our specialists will design further lengths and shank diameters for the modular system.



MODUL©turn

An all-purpose solution enabled by a broad range of tool holders and clamping shanks: the MODUL©turn boring rod system

PZ[®]turn

Modular Tool System
for Sliding Head Turning Tools





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PZ[®]turn

Benefits and features

- Quick-change system with just one clamping screw

- From a square shank of 12mm x 12mm / 16mm x 16mm

- Maximum repeatable precision, including in relation to center height

- All-purpose for all sliding-head turning machines

- Internal coolant supply through the holder

- Optimum accessibility when replacing indexable inserts

System of order numbers

Shanks

PZ®turn	1	2	3
PZ	12x12 / 16x16	R	84

Designation system

1	Joint	12x12/16x16	Square shank 12x12mm / 16x16mm
2	Version	R	Right-hand
3	For shanks:	84	Length
X	Code for special product		

PZ®turn

Cutter heads

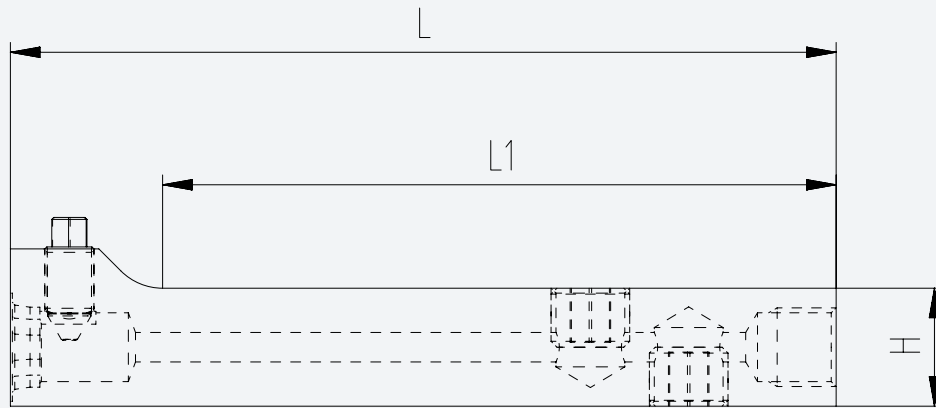
PZ®turn	1	2	3	4	5
PZ	12/16	K	SCLCR	0616	09

Designation system

1	Joint	12/16	Square shank 12x12mm; 16x16mm
2	Version	K	Cutter head
3	Application WP	SCLCR	Insert type; clamping; mounting position
4		0616	Cutter head size
5	Indexable insert	09	Plate size
X	Code for special product		

Shank versions

Square shank



Square shank	Order number steel	L	L1	Setscrew	Clamping screw		
12 x 12	PZ1212-R-84	84	71	M8 x 1 x 6	M5x0,5x5x60-E17019	SW3,5	3 Nm
16 x 16	PZ1616-R-84	84	71	M8 x 1 x 6	M6x0,75x10,5x60-E19291	SW4,5	4 Nm

- Steel version

- Square shank version

- Special lengths available on request

- A Torx screw can also be supplied as a spare part

Cutter heads

SCLCR series

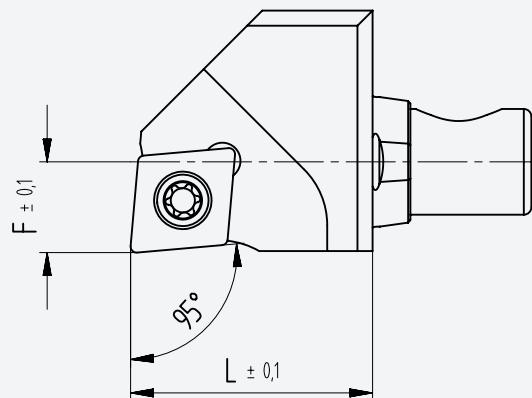


Illustration shows the right-hand version.

PZ[®]turn

SCLCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	16	CC...0602	PZ12-K-SCLCR-0616-06	BFTX02506N 1,5Nm
16 x 16	8	16	CC...0602	PZ16-K-SCLCR-0816-06	BFTX02506N 1,5Nm

SCLCR series

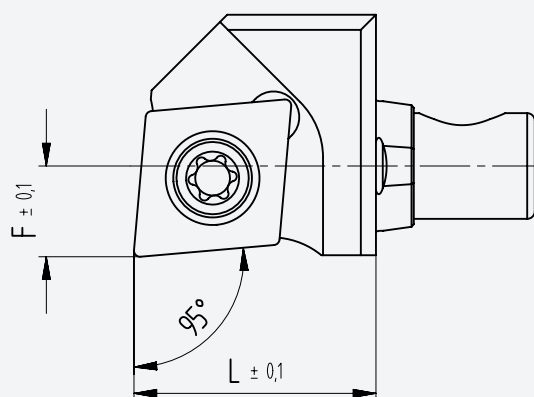


Illustration shows the right-hand version.

SCLCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	16	CC...09T3	PZ12-K-SCLCR-0616-09	BFTX03588 3,4Nm
16 x 16	8	16	CC...09T3	PZ16-K-SCLCR-0816-09	BFTX03588 3,4Nm

Cutter heads

SDHCR series

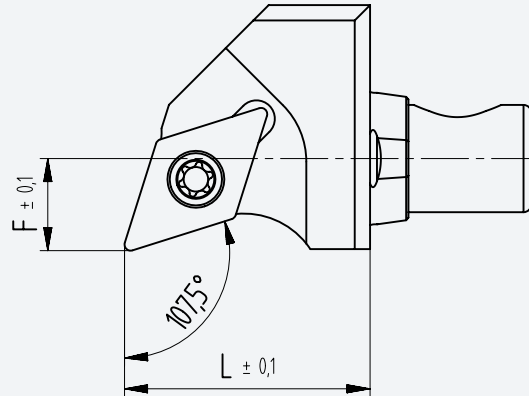


Illustration shows the right-hand version.

SDHCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	16	DC...0702	PZ12-K-SDHCR-0616-07	BFTX02506N 1,5Nm
16 x 16	8	16	DC...0702	PZ16-K-SDHCR-0816-07	BFTX02506N 1,5Nm

SDHCR series

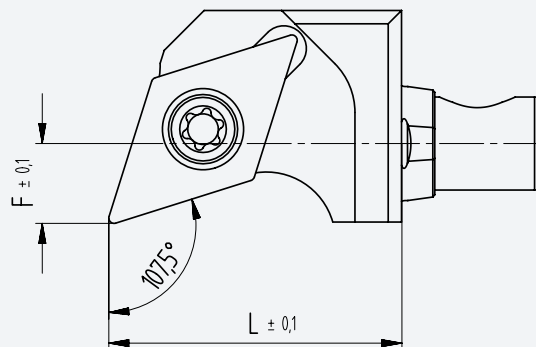


Illustration shows the right-hand version.

SDHCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	22	DC...11T3	PZ12-K-SDHCR-0622-11	BFTX03588 3,4Nm
16 x 16	8	22	DC...11T3	PZ16-K-SDHCR-0822-11	BFTX03588 3,4Nm

Cutter heads

SDJCR series

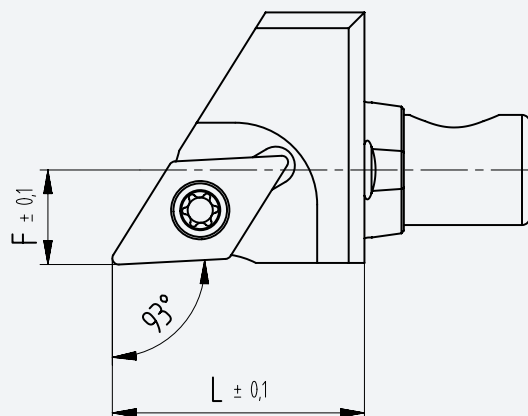


Illustration shows the right-hand version.

PZ[®]turn

SDJCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	16	DC...0702	PZ12-K-SDJCR-0616-07	BFTX02506N 1,5Nm
16 x 16	8	16	DC...0702	PZ16-K-SDJCR-0816-07	BFTX02506N 1,5Nm

SDJCR series

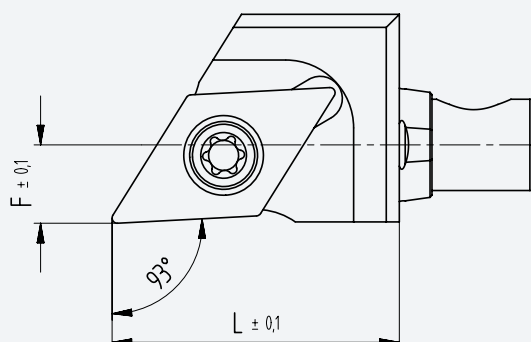


Illustration shows the right-hand version.

SDJCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	22	DC...11T3	PZ12-K-SDJCR-0622-11	BFTX03588 3,4Nm
16 x 16	8	22	DC...11T3	PZ16-K-SDJCR-0822-11	BFTX03588 3,4Nm

Cutter heads

SVHCR series

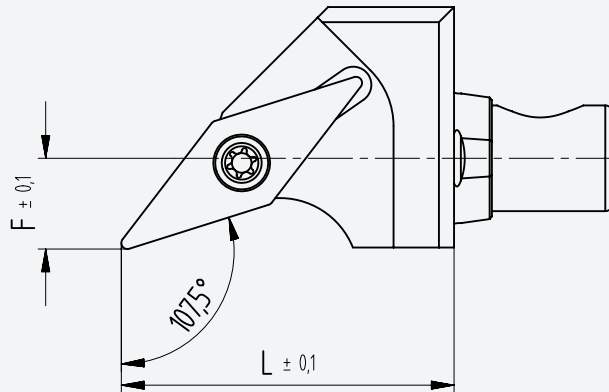


Illustration shows the right-hand version.

SVHCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	22	VC...1103	PZ12-K-SVHCR-0622-11	5513020-03 0,8Nm
16 x 16	8	22	VC...1103	PZ16-K-SVHCR-0822-11	5513020-03 0,8Nm

SVJCR series

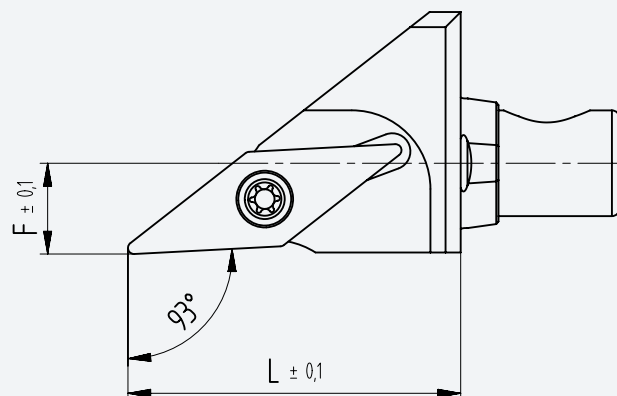


Illustration shows the right-hand version.

SVJCR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	22	VC...1103	PZ12-K-SVJCR-0622-11	5513020-03 0,8Nm
16 x 16	8	22	VC...1103	PZ16-K-SVJCR-0822-11	5513020-03 0,8Nm

Cutter heads

SVJBR series

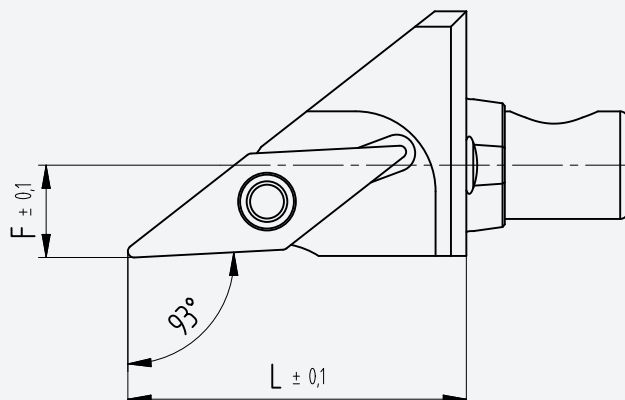


Illustration shows the right-hand version.

PZ[®]turn

SVJBR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	22	VB...1103	PZ12-K-SVJBR-0622-11	BFTX02506N 1,5Nm
16 x 16	8	22	VB...1103	PZ16-K-SVJBR-0822-11	BFTX02506N 1,5Nm

SDNCN series

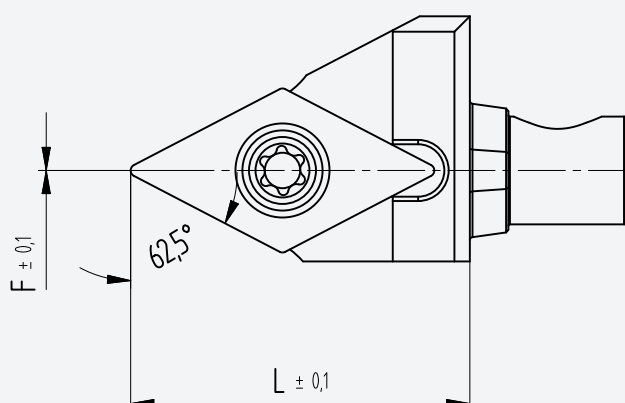


Illustration shows the right-hand version.

SDNCN series	F	L	Indexable insert	Order number	Screw
12 x 12	0	22	DC...11T3	PZ12-K-SDNCN-0022-11	BFTX03588 3,4Nm
16 x 16	3	22	DC...11T3	PZ16-K-SDNCN-0322-11	BFTX03588 3,4Nm

Cutter heads

LNEX series

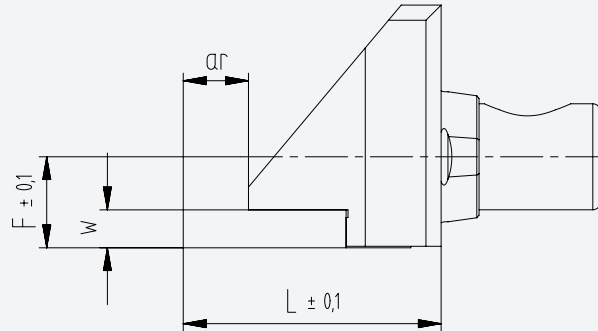


Illustration shows the right-hand version.

LNEX series	F	L	Indexable insert	Order number	Screw	W	ar
12 x 12	6	17	H-L0602	PZ12-K-LNEX-0617-0602	M2,5 x 5,5T x 8 3Nm	2mm	3,5
16 x 16	8	17	H-L0602	PZ16-K-LNEX-0817-0602	M2,5 x 5,5T x 8 3Nm	2mm	3,5
12 x 12	6	17	H-L0604	PZ12-K-LNEX-0617-0604	M2,5 x 8T x 8 3Nm	2mm	3,5
16 x 16	8	17	H-L0604	PZ16-K-LNEX-0817-0604	M2,5 x 8T x 8 3Nm	2mm	3,5

- Further plate varieties available on request.

Plate for turning for LNEX cutter head

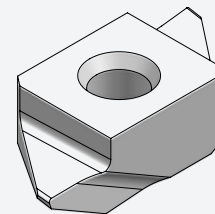
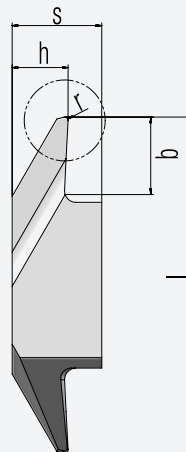
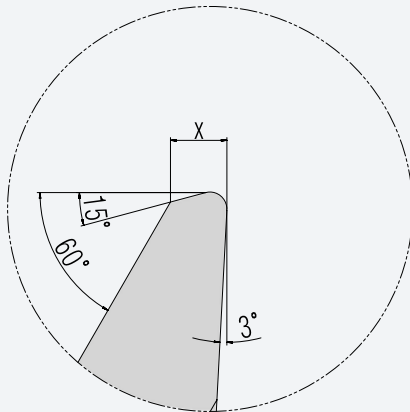


Illustration shows the right-hand version.

Execution	Order number	Coating	l	b	h	s	r
right-hand	LNEX0604015-R-HM20	no	14	3,5	2,5	4	0,15
right-hand	LNEX0604005-R-HM20	no	14	3,5	2,5	4	0,05
right-hand	LNEX0604015-R-HM50	yes	14	3,5	2,5	4	0,15
right-hand	LNEX0604005-R-HM50	yes	14	3,5	2,5	4	0,05
left-hand	LNEX0604015-L-HM20	no	14	3,5	2,5	4	0,15
left-hand	LNEX0604005-L-HM20	no	14	3,5	2,5	4	0,05
left-hand	LNEX0604015-L-HM50	yes	14	3,5	2,5	4	0,15
left-hand	LNEX0604005-L-HM50	yes	14	3,5	2,5	4	0,05

- Further plate varieties available on request.

Cutter heads

GND series

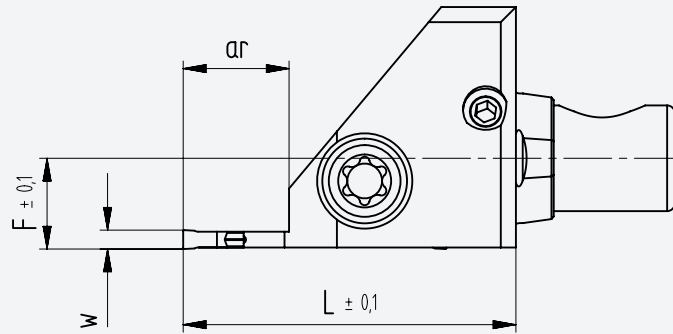


Illustration shows the right-hand version.

PZ[®]turn

GND series	F	L	Indexable insert	Order number	Screw	W	ar
12 x 12	6	22	GCMN125005	PZ12-K-GNDR-0622-H12507	BFTX0414 4Nm	1,25mm	7
16 x 16	8	22	GCMN125005	PZ16-K-GNDR-0822-H12507	BFTX0414 4Nm	1,25mm	7
12 x 12	6	22	GCMN150005	PZ12-K-GNDR-0622-H15007	BFTX0414 4Nm	1,5mm	7
16 x 16	8	22	GCMN150005	PZ16-K-GNDR-0822-H15007	BFTX0414 4Nm	1,5mm	7
12 x 12	6	25	GCMN2002	PZ12-K-GNDR-0625-H212	BFTX0414 4Nm	2,0mm	12
16 x 16	8	25	GCMN2002	PZ16-K-GNDR-0825-H212	BFTX0414 4Nm	2,0mm	12
12 x 12	6	25	GCMN3002	PZ12-K-GNDR-0625-H312	BFTX0414 4Nm	3,0mm	12
16 x 16	8	25	GCMN3002	PZ16-K-GNDR-0825-H312	BFTX0414 4Nm	3,0mm	12

- Further plate varieties available on request.

GND series

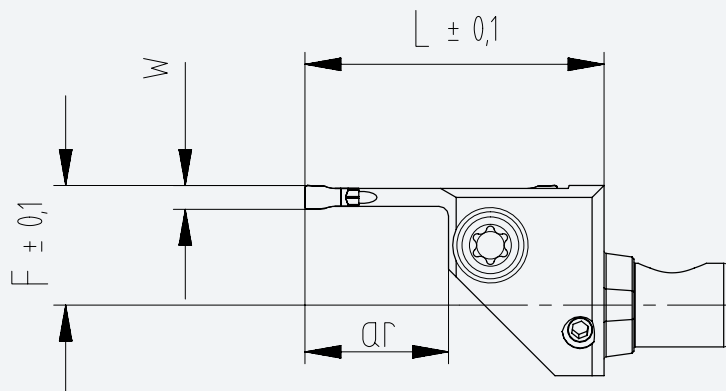


Illustration shows the left-hand version.

GND series	F	L	Indexable insert	Order number	Screw	W	ar
12 x 12	10	22	GCMN125005	PZ12-K-GNDL-1022-H12507	BFTX0414 4Nm	1,25mm	7
16 x 16	12	22	GCMN125005	PZ16-K-GNDL-1222-H12507	BFTX0414 4Nm	1,25mm	7
12 x 12	10	22	GCMN150005	PZ12-K-GNDL-1022-H15007	BFTX0414 4Nm	1,5mm	7
16 x 16	12	22	GCMN150005	PZ16-K-GNDL-1222-H15007	BFTX0414 4Nm	1,5mm	7
12 x 12	10	25	GCMN2002	PZ12-K-GNDL-1025-H212	BFTX0414 4Nm	2,0mm	12
16 x 16	12	25	GCMN2002	PZ16-K-GNDL-1225-H212	BFTX0414 4Nm	2,0mm	12
12 x 12	10	25	GCMN3002	PZ12-K-GNDL-1025-H312	BFTX0414 4Nm	3,0mm	12
16 x 16	12	25	GCMN3002	PZ16-K-GNDL-1225-H312	BFTX0414 4Nm	3,0mm	12

- Further plate varieties available on request.

Special solutions: examples

CXJBR series

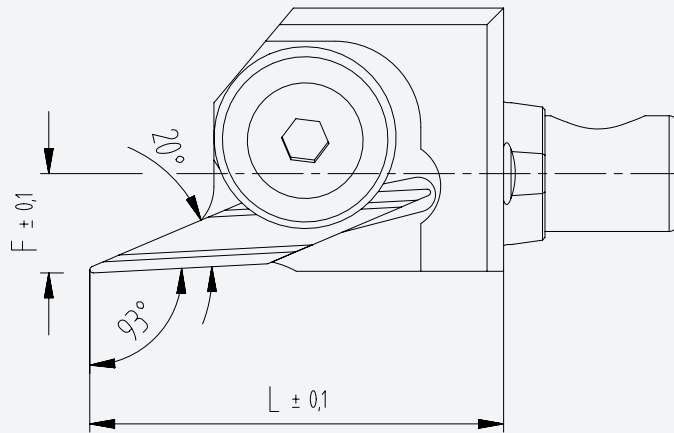


Illustration shows the right-hand version.

CXJBR series	F	L	Indexable insert	Order number	Screw
12 x 12	6	25	XBGR	PZ12-K-CXJBR-0625-10	K17385 M5 links 4Nm
16 x 16	8	25	XBGR	PZ16-K-CXJBR-0825-10	K17385 M5 links 4Nm

STS Gewindeschneiden series

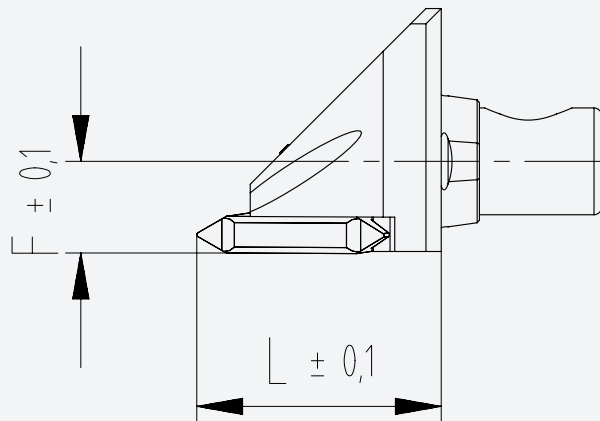


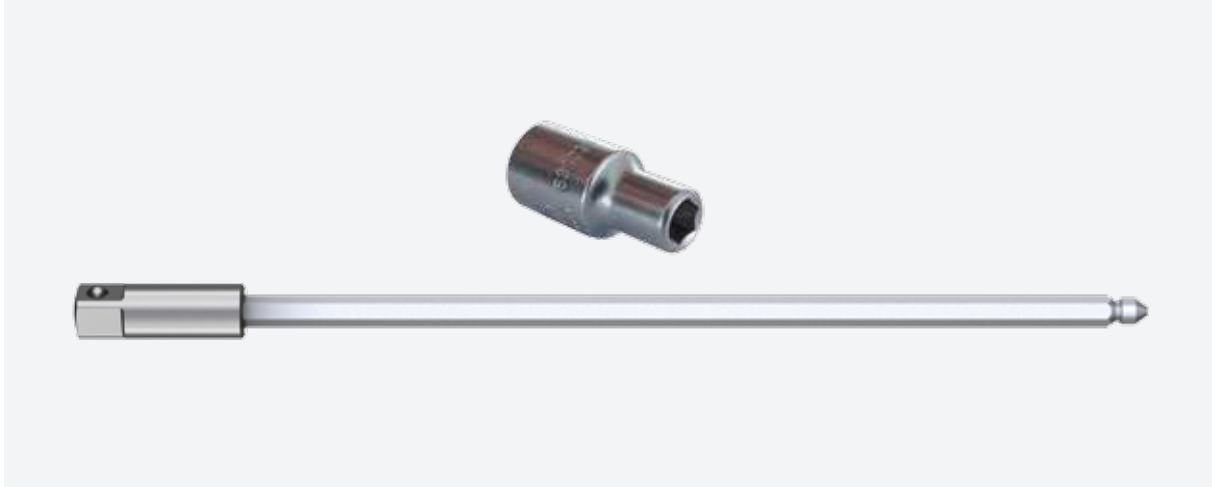
Illustration shows the right-hand version.

STS series	F	L	Indexable insert	Order number	Screw
12 x 12	6	16	12E...	PZ12-K-STG-0616-11	STS T9xm3 2Nm
16 x 16	8	16	12E...	PZ16-K-STG-0816-11	STS T9xm3 2Nm

- Further plate varieties available on request.

Accessories

Torque interchangeable blade and hexagonal insert



PZ®turn

Version	Application area	Order number
1/4 Zoll	PZ 12 / 16	WECHSELKLINGE 1/4 ZOLL
SW 3,5	PZ12	6-KANT EINSATZ SW3,5
SW4,5	PZ16	6-KANT EINSATZ SW4,5

WIHA screwdriver torque



Version	Application area	Order number
3Nm	PZ12	screwdriver torque 3Nm
4Nm	PZ16	screwdriver torque 4Nm

IN[©]turn

Interior hard and soft machining





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IN©turn

Benefits and Features

- Interior turning for diameters over 1.00mm

- High changing accuracy and rigidity

- Variable use with holder system from Ø2.00 mm to Ø6.00 mm

- Wear-resistant CBN and carbide metal grades also for stainless steel

- Smallest possible diameter: tailored to the component;
even Ø0.50 mm can be implemented

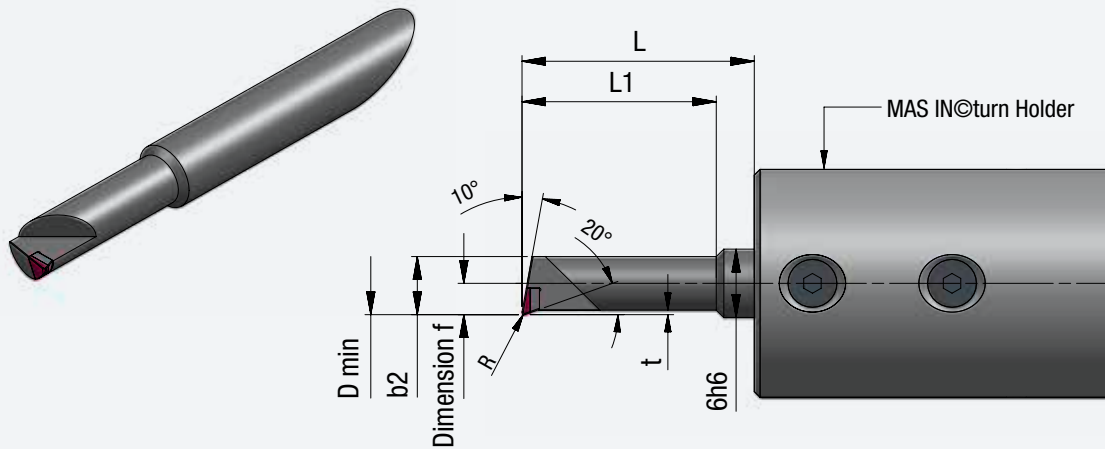
- Vibration-dampening holders with hydraulic expansion direct clamping

- Perfect price-performance ratio

IN[®]turn product range

Boring bar

CBN brazed



IN[®]turn

Order number	Cutting material	Dmin	L1	R	t	Dimension F	b2	L
IN6.020.031	CBN120	2.0	3.1	0.1	0.2	1.00	1.8	7
IN6.020.062	CBN120	2.0	6.2	0.1	0.2	1.00	1.8	14
IN6.025.038	CBN120	2.5	3.8	0.1	0.2	1.25	2.3	7
IN6.025.077	CBN120	2.5	7.7	0.1	0.2	1.25	2.3	14
IN6.030.047	CBN120	3.0	4.7	0.1	0.2	1.50	2.8	7
IN6.030.092	CBN120	3.0	9.2	0.1	0.2	1.50	2.8	14
IN6.035.054	CBN120	3.5	5.4	0.2	0.3	1.75	3.2	8
IN6.035.107	CBN120	3.5	10.7	0.2	0.3	1.75	3.2	16
IN6.040.061	CBN120	4.0	6.1	0.2	0.3	2.00	3.7	8
IN6.040.122	CBN120	4.0	12.2	0.2	0.3	2.00	3.7	16
IN6.045.068	CBN120	4.5	6.8	0.2	0.3	2.25	4.2	8
IN6.045.137	CBN120	4.5	13.7	0.2	0.3	2.25	4.2	16
IN6.050.076	CBN120	5.0	7.6	0.2	0.4	2.50	4.6	11
IN6.050.152	CBN120	5.0	15.2	0.2	0.4	2.50	4.6	20
IN6.055.083	CBN120	5.5	8.3	0.2	0.4	2.75	5.1	11
IN6.055.167	CBN120	5.5	16.7	0.2	0.4	2.75	5.1	20
IN6.060.092	CBN120	6.0	9.2	0.2	0.4	3.00	5.6	11
IN6.060.182	CBN120	6.0	18.2	0.2	0.4	3.00	5.6	20

- Cutting inserts can be produced to meet your requirements.
- Minimum ordering quantity 5 pieces - over Ø0.50mm
- Available in PKD on request

System of order numbers

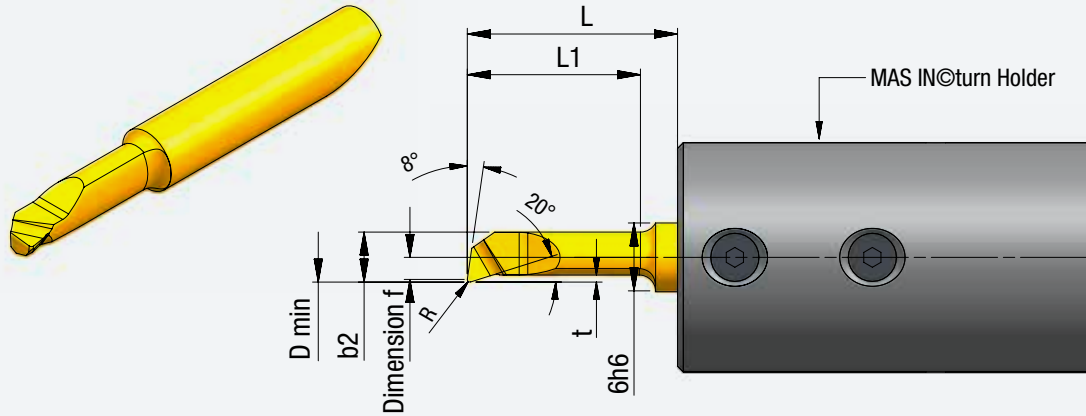
Ordering Example

Interface	Dmin	L1	Cutting material
IN6.	020.	031	CBN120

IN[©]turn product range

Boring bar

Carbide metal



Order number	Cutting material	Dmin	L1	R	t	Dimension F	b2	L
IN6.010.030.003	HM120C	1.0	3.0	0.03	0.10	0.50	0.95	7.0
IN6.010.030.010	HM120C	1.0	3.0	0.10	0.10	0.50	0.95	7.0
IN6.010.050.003	HM120C	1.0	5.0	0.03	0.10	0.50	0.95	7.0
IN6.010.050.010	HM120C	1.0	5.0	0.10	0.10	0.50	0.95	7.0
IN6.015.045.003	HM120C	1.5	4.5	0.03	0.15	0.75	1.35	6.5
IN6.015.045.010	HM120C	1.5	4.5	0.10	0.15	0.75	1.35	6.5
IN6.015.075.003	HM120C	1.5	7.5	0.03	0.15	0.75	1.35	9.5
IN6.015.075.010	HM120C	1.5	7.5	0.10	0.15	0.75	1.35	9.5
IN6.020.060.010	HM120C	2.0	6.0	0.10	0.20	1.00	1.75	8.0
IN6.020.100.003	HM120C	2.0	10.0	0.03	0.20	1.00	1.75	12.0
IN6.020.100.010	HM120C	2.0	10.0	0.10	0.20	1.00	1.75	12.0
IN6.025.075.010	HM120C	2.5	7.5	0.10	0.20	1.25	2.25	9.5
IN6.025.125.010	HM120C	2.5	12.5	0.10	0.20	1.25	2.25	14.5
IN6.025.175.010	HM120C	2.5	17.5	0.10	0.20	1.25	2.25	19.5
IN6.030.090.015	HM120C	3.0	9.0	0.15	0.20	1.50	2.75	11.0
IN6.030.150.015	HM120C	3.0	15.0	0.15	0.20	1.50	2.75	17.0
IN6.030.210.015	HM120C	3.0	21.0	0.15	0.20	1.50	2.75	23.0
IN6.035.105.015	HM120C	3.5	10.5	0.15	0.20	1.75	3.25	12.5
IN6.035.175.015	HM120C	3.5	17.5	0.15	0.20	1.75	3.25	19.5
IN6.035.245.015	HM120C	3.5	24.5	0.15	0.20	1.75	3.25	26.5

Order number	Cutting material	Dmin	L1	R	t	Dimension F	b2	L
IN6.040.120.015	HM120C	4.0	12.0	0.15	0.30	2.00	3.75	14.0
IN6.040.200.015	HM120C	4.0	20.0	0.15	0.30	2.00	3.75	22.0
IN6.040.280.015	HM120C	4.0	28.0	0.15	0.30	2.00	3.75	30.0
IN6.045.135.015	HM120C	4.5	13.5	0.15	0.30	2.25	4.25	15.5
IN6.045.225.015	HM120C	4.5	22.5	0.15	0.30	2.25	4.25	24.5
IN6.045.315.015	HM120C	4.5	31.5	0.15	0.30	2.25	4.25	33.5
IN6.050.150.020	HM120C	5.0	15.0	0.20	0.50	2.50	4.75	17.0
IN6.050.250.020	HM120C	5.0	25.0	0.20	0.50	2.50	4.75	27.0
IN6.050.350.020	HM120C	5.0	35.0	0.20	0.50	2.50	4.75	37.0
IN6.055.165.020	HM120C	5.5	16.5	0.20	0.50	2.75	5.25	18.5
IN6.055.275.020	HM120C	5.5	27.5	0.20	0.50	2.75	5.25	29.5
IN6.055.385.020	HM120C	5.5	38.5	0.20	0.50	2.75	5.25	40.5

- Cutting inserts can be produced to meet your requirements.
- Minimum ordering quantity 5 pieces - over Ø0.50mm

IN[®]turn

System of order numbers

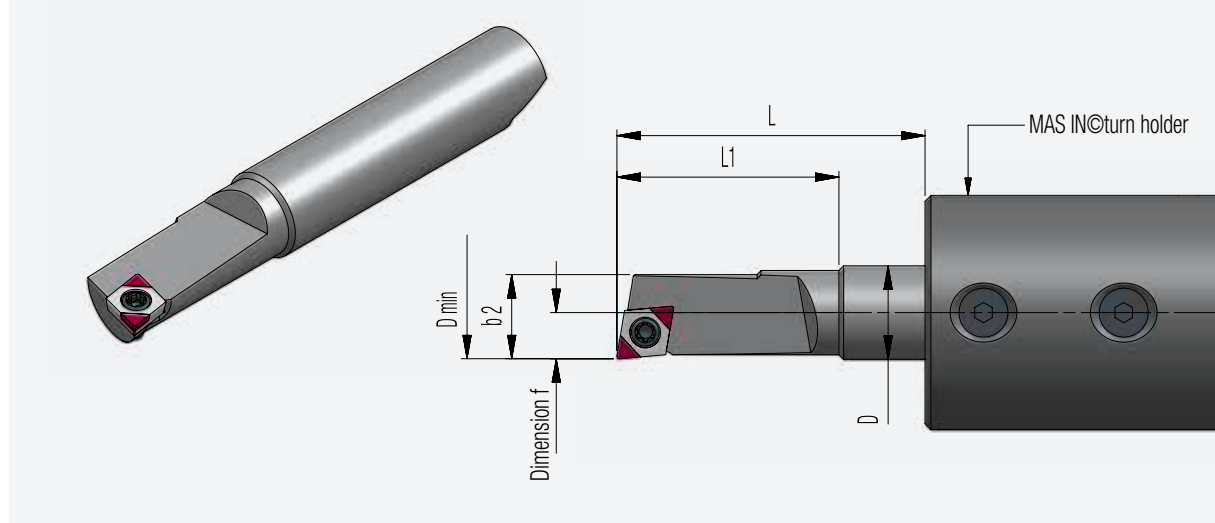
Ordering Example

Interface	Dmin	L1	Radius	Cutting material
IN6.	010.	030	003	HM120C

IN[©]turn product range

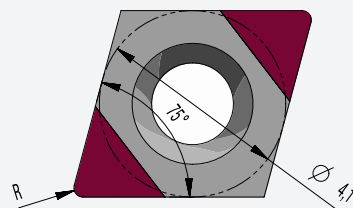
Boring bar

With indexable insert CBN



Order number	Dmin	L1	Dimension F	b2	L	Indexable insert screw	Tightening torque
IN6.060.092-SEXBR04	6.0	9.2	3.0	5.5	11	WPS016030-06TX	0.2 Nm
IN6.060.182-SEXBR04	6.0	18.2	3.0	5.5	20	WPS016030-06TX	0.2 Nm
IN8.070.107-SEXBR04	7.0	10.7	3.5	6.4	12	BFTX016033	0.2 Nm
IN8.070.212-SEXBR04	7.0	21.2	3.5	6.4	23	BFTX016033	0.2 Nm
IN8.080.122-SEXBR04	8.0	12.2	4.0	7.2	14	BFTX016033	0.2 Nm
IN8.080.242-SEXBR04	8.0	24.2	4.0	7.2	26	BFTX016033	0.2 Nm

Indexable inserts



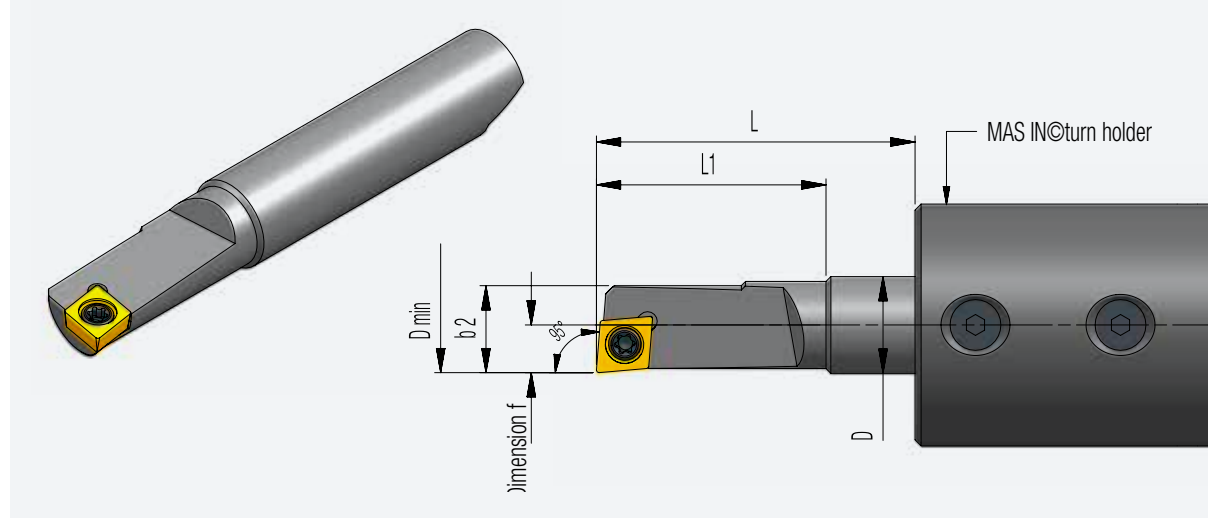
Order number	Radius
EBGW040101CBN120	0.1
EBGW040102CBN120	0.2
EBGW040104CBN120	0.4

- Indexable inserts can be produced to meet your requirements.
- Minimum ordering quantity 5 pieces
- Available in PKD on request

IN[©]turn product range

Boring bar

With indexable insert carbide metal



IN[©]turn

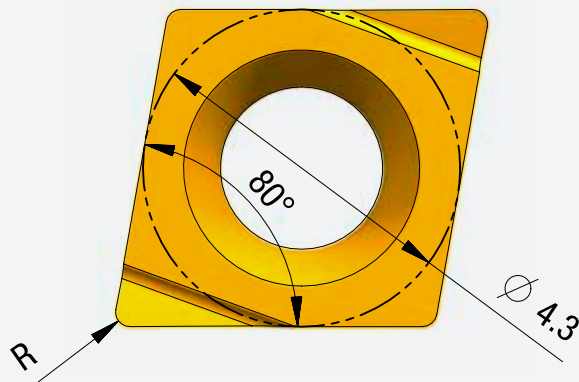
Order number	Dmin	L1	Dimension F	b2	L	Indexable insert screw	Tightening torque
IN6.060.092-SCLCR04	6.0	9.2	3.0	5.5	11	WPS016030-06TX	0.2Nm
IN6.060.182-SCLCR04	6.0	18.2	3.0	5.5	20	WPS016030-06TX	0.2Nm
IN6.060.302-SCLCR04	6.0	30.2	3.0	5.5	32	WPS016030-06TX	0.2Nm
IN8.070.107-SCLCR04	7.0	10.7	3.5	6.4	12	BFTX016033	0.2Nm
IN8.070.212-SCLCR04	7.0	21.2	3.5	6.4	23	BFTX016033	0.2Nm
IN8.070.352-SCLCR04	7.0	35.2	3.5	6.4	37	BFTX016033	0.2Nm
IN8.080.122-SCLCR04	8.0	12.2	4.0	7.2	14	BFTX016033	0.2Nm
IN8.080.242-SCLCR04	8.0	24.2	4.0	7.2	26	BFTX016033	0.2Nm
IN8.080.402-SCLCR04	8.0	40.2	4.0	7.2	42	BFTX016033	0.2Nm

- Boring bars can be produced to meet your requirements.
- Minimum ordering quantity 2 pieces

IN[®]turn product range

Indexable insert

With indexable inserts



Order number	Chip groove	Cutting material	R
CCET04X101	L-FY	ACZ150	0.1
CCET04X102	L-FY	ACZ150	0.2
CCET04X104	L-FY	ACZ150	0.4
CCET04X101	R-FY	ACZ150	0.1
CCET04X102	R-FY	ACZ150	0.2
CCET04X104	R-FY	ACZ150	0.4

- Indexable inserts can be produced to meet your requirements.
- Minimum ordering quantity 10 pieces

System of order numbers

Ordering Example

Order number	Orientation chip groove		Workmanship chip groove	Cutting material
	L=left	R=right		
CCET04X101	L-		FY	ACZ150

NOTES

A large rectangular area filled with a grid of small, light gray dotted lines, intended for writing notes.

IN[©]turn product range

Recommended cutting data

CBN 120				
IN [©] turn product range	D mm	Vc m/min	f mm/U	ap mm
IN6.020.031 IN6.020.062	2.0	50-150	0.005-0.02	0.01 - 0.05
IN6.025.038 IN6.025.077	2.5	50-150	0.005-0.02	0.01 - 0.05
IN6.030.047 IN6.030.092	3.0	50-150	0.005-0.02	0.01 - 0.05
IN6.035.054 IN6.035.107	3.5	50-150	0.005-0.04	0.01 - 0.10
IN6.040.061 IN6.040.122	4.0	50-150	0.005-0.04	0.01 - 0.10
IN6.045.068 IN6.045.137	4.5	50-150	0.005-0.04	0.01 - 0.10
IN6.050.076 IN6.050.152	5.0	50-150	0.005-0.07	0.01 - 0.10
IN6.055.083 IN6.055.167	5.5	50-150	0.005-0.07	0.01 - 0.10
IN6.060.092 IN6.060.182	6.0	50-150	0.005-0.07	0.01 - 0.10
EBGW040101CBN120		50-150	0.005-0.07	0.01 - 0.10
EBGW040102CBN120		50-150	0.005-0.07	0.01 - 0.10
EBGW040104CBN120		50-150	0.005-0.07	0.01 - 0.10

- Multi-grade fine grain CBN grade
- Machining of smooth and interrupted cuts
- Even in hardened stainless material

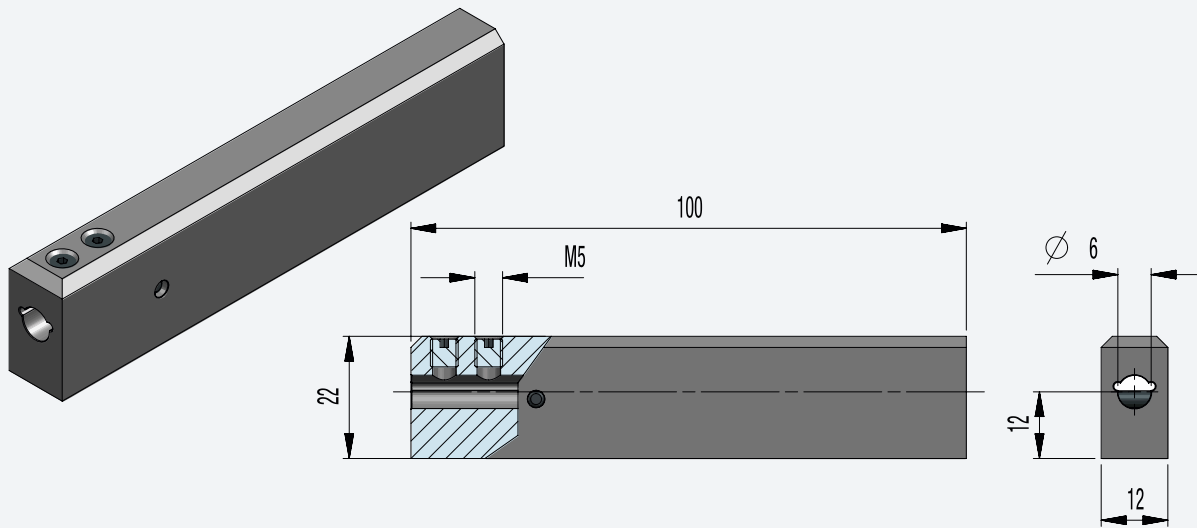
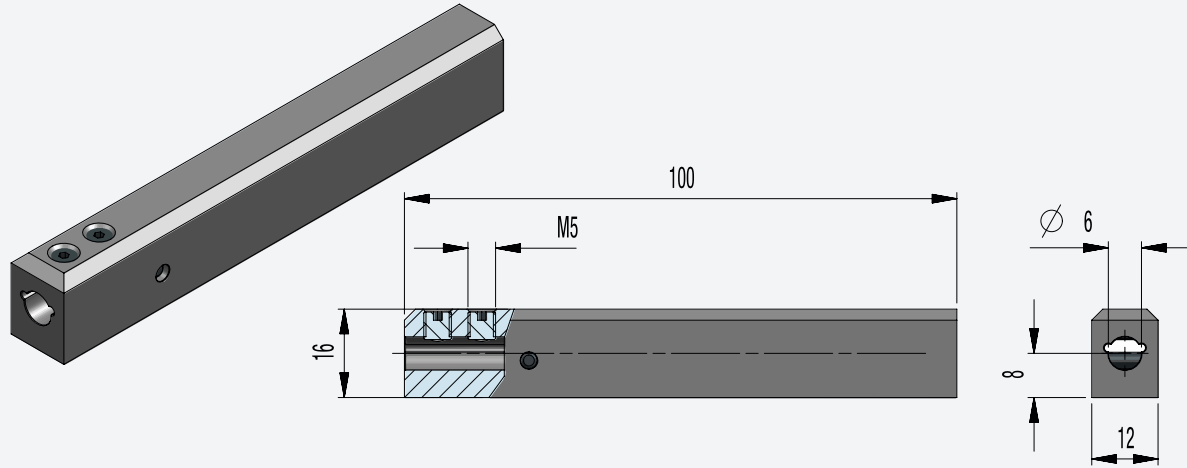
Recommended cutting data

HM120C and ACZ150				
In [©] turn-Programm	D mm	Vc m/min	f mm/U	ap mm
IN6.010.030 IN6.010.050	1.0	30-120	0.005-0.02	0.01 - 0.08
IN6.015.045 IN6.015.075	1.5	30-120	0.005-0.02	0.01 - 0.08
IN6.020.060 IN6.020.100	2.0	30-120	0.005-0.02	0.01 - 0.08
IN6.025.075 IN6.025.125 IN6.025.175	2.5	30-120	0.005-0.03	0.01 - 0.10
IN6.030.090 IN6.030.150 IN6.030.210	3.0	30-120	0.005-0.03	0.01 - 0.10
IN6.035.105 IN6.035.175 IN6.035.245	3.5	30-120	0.005-0.05	0.01 - 0.15
IN6.040.120 IN6.040.200 IN6.040.280	4.0	30-120	0.005-0.05	0.01 - 0.15
IN6.045.135 IN6.045.225 IN6.045.315	4.5	30-120	0.005-0.05	0.01 - 0.15
IN6.050.150 IN6.050.250 IN6.050.350	5.0	30-120	0.005-0.07	0.01 - 0.25
IN6.055.165 IN6.055.275 IN6.055.385	5.5	30-120	0.005-0.07	0.01 - 0.25
CCET04X101LFYACZ150 CCET04X101RFYACZ150		30-120	0.01-0.10	0.01 - 0.35
CCET04X102LFYACZ150 CCET04X102RFYACZ150		30-120	0.01-0.10	0.01 - 0.35
CCET04X104LFYACZ150 CCET04X104RFYACZ150		30-120	0.01-0.10	0.01 - 0.35

- Ultra fine grain carbide metal grade
- Machining of smooth and interrupted cuts
- Even in stainless material

Rectangular shank holder

IN6



Order number	Clamping screw
1612-IN6	M050.005-S633
2212-IN6	M050.005-S633

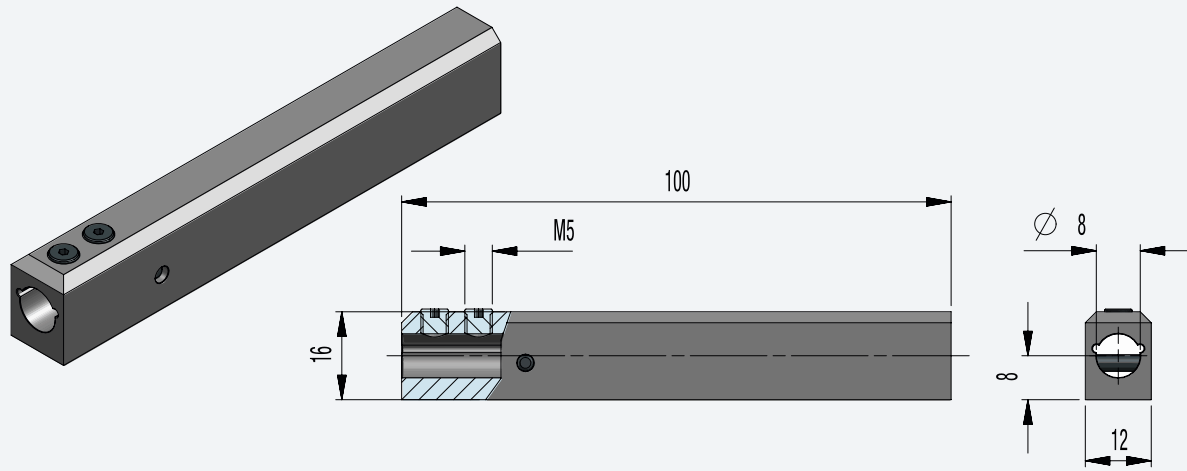


Fig.: 1612-IN8

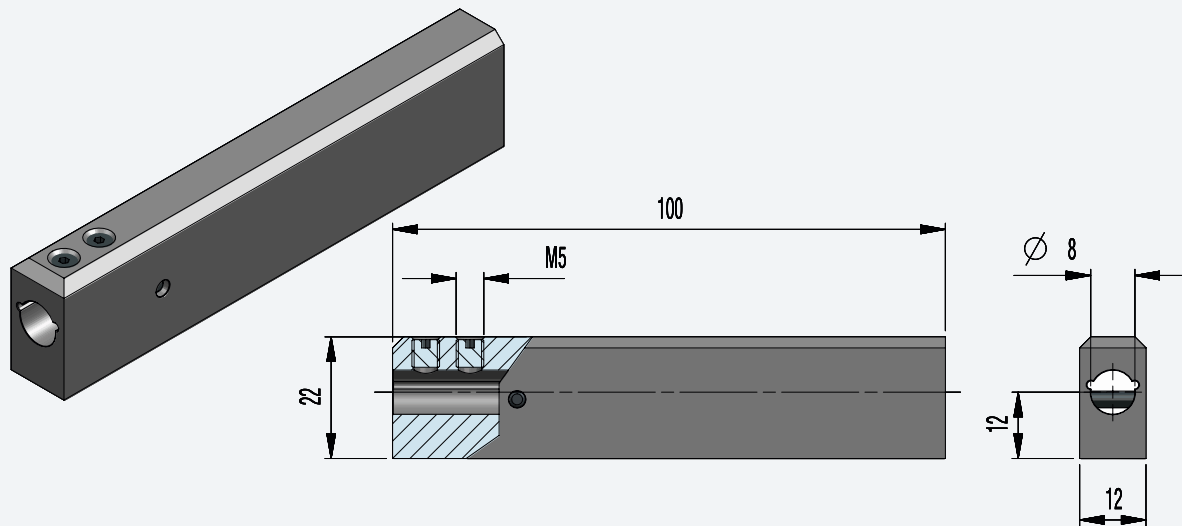


Fig.: 2212-IN8

Order number	Clamping screw
1612-IN8	M050.005-S633
2212-IN8	M050.005-S633

Holders

Round shank holder with clamping surface

IN6

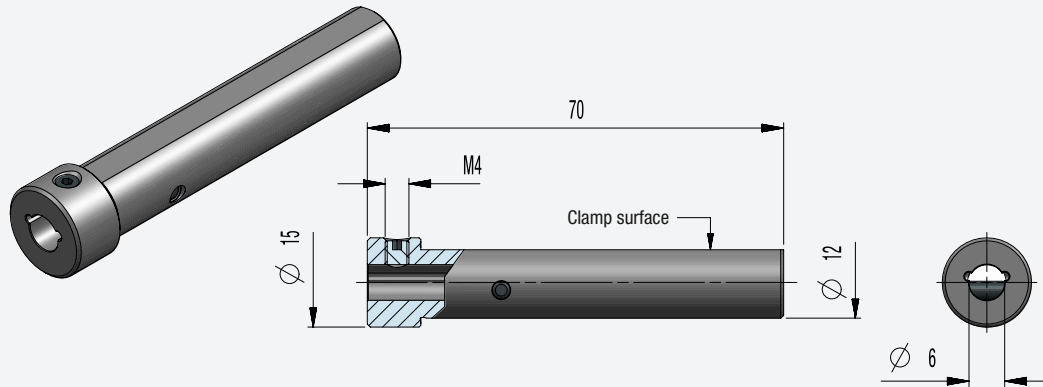


Fig.: RDF12-IN6

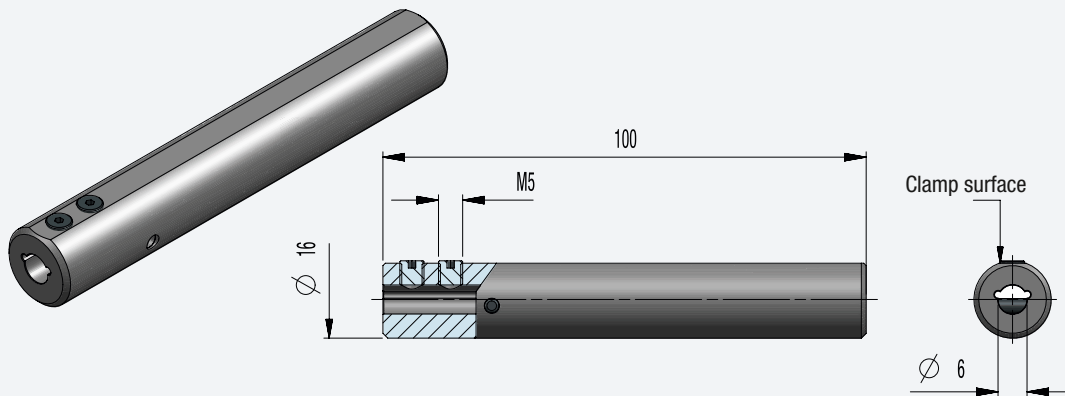


Fig.: RDF16-IN6

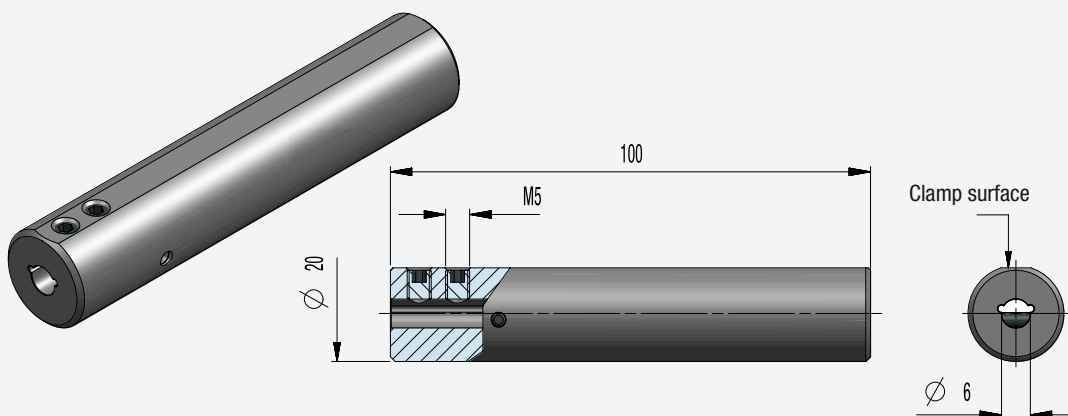


Fig.: RDF20-IN6

Order number	Clamping screw
RDF12-IN6	M040.004-S34
RDF16-IN6	M050.005-S633
RDF20-IN6	M050.005-S633

IN8

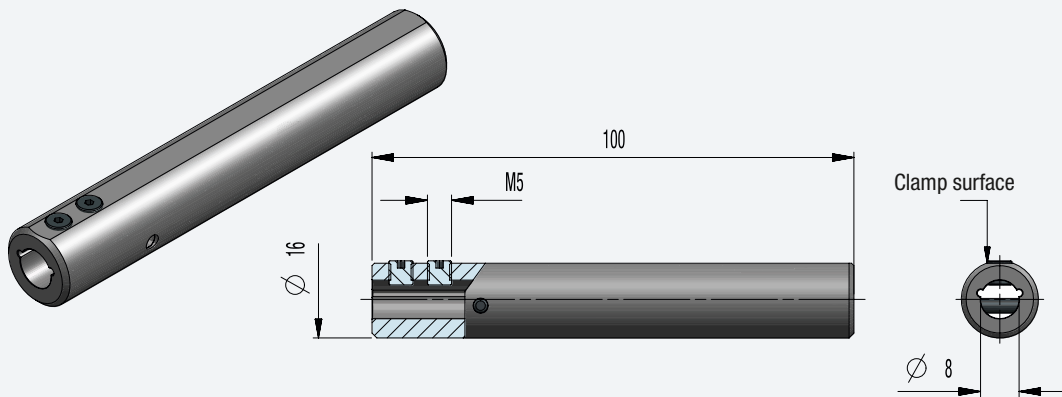


Fig.: RDF16-IN8

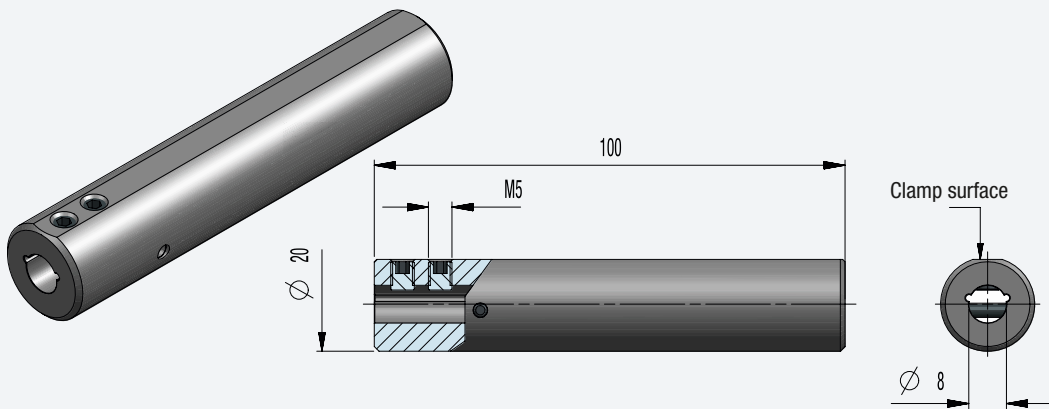


Fig.: RDF20-IN8

Order number	Clamping screw
RDF16-IN8	M050.005-S633
RDF20-IN8	M050.005-S633

IN[®]turn

MEX[®]turn round shank holder

IN6

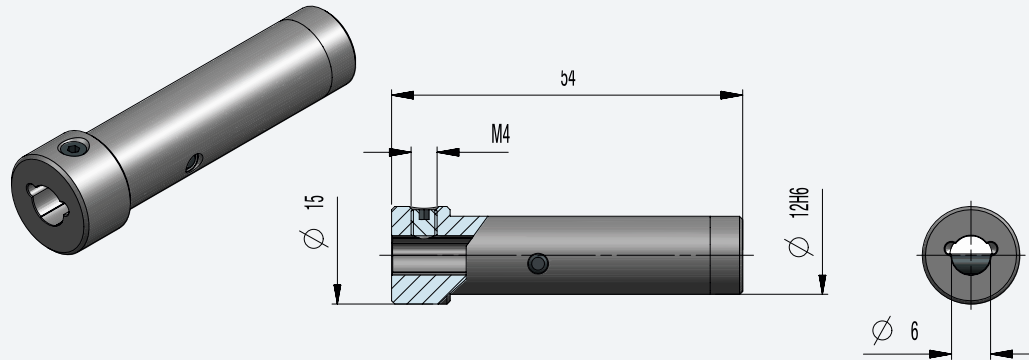


Fig.: MEX12-IN6

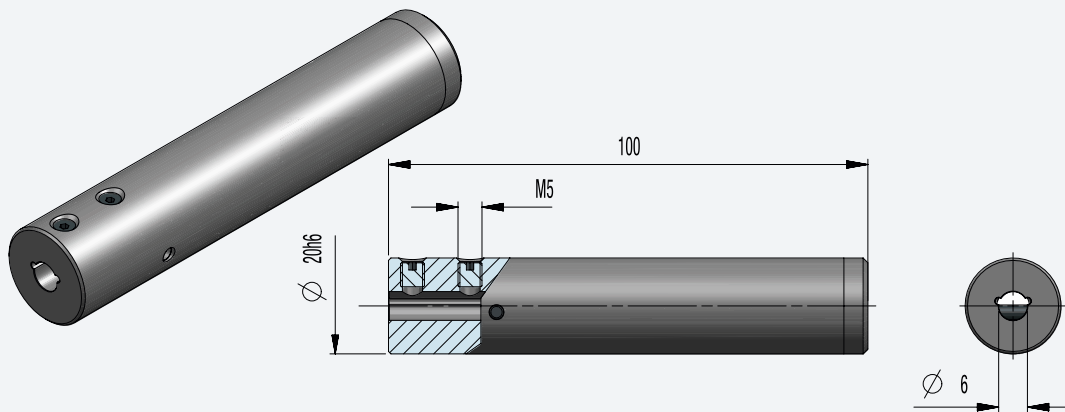


Fig.: MEX20-IN6

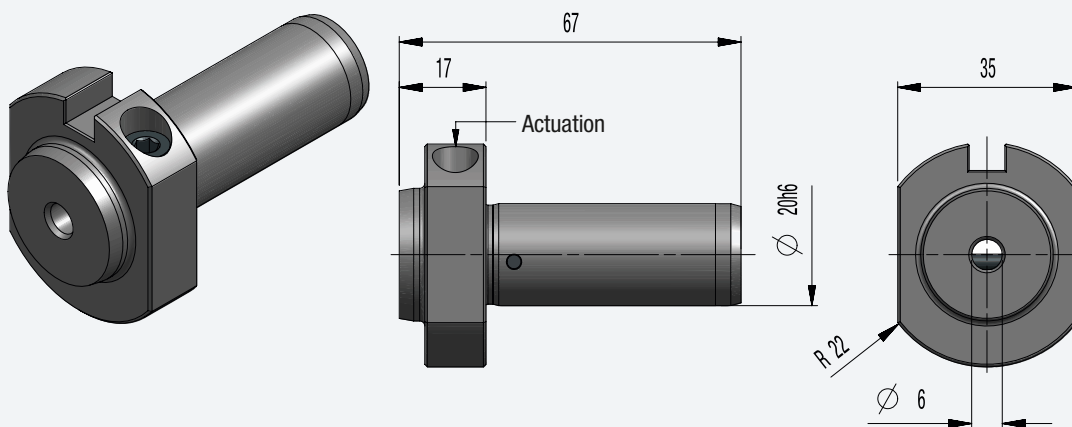


Fig.: MEX20-IN6-HD-E949

Order number	Clamping screw
MEX12-IN6	M040.004-S34
MEX20-IN6	M050.005-S633
MEX20-IN6-HD-E949	—

IN8

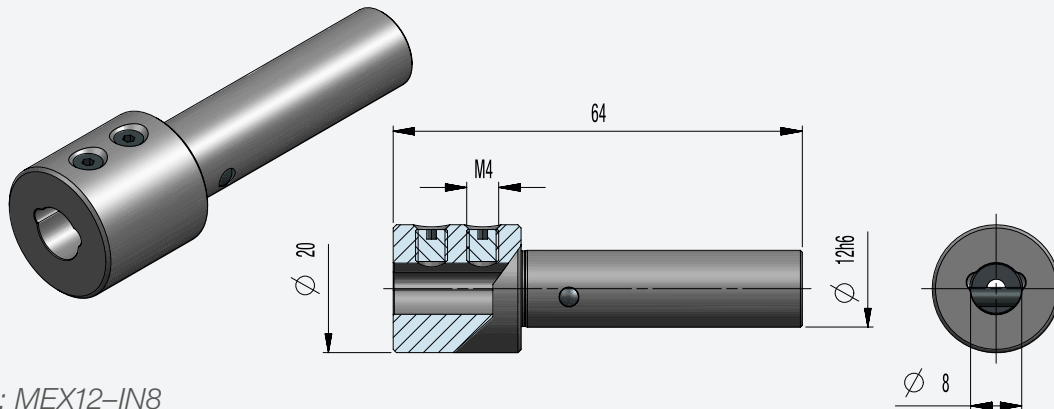


Fig.: MEX12-IN8

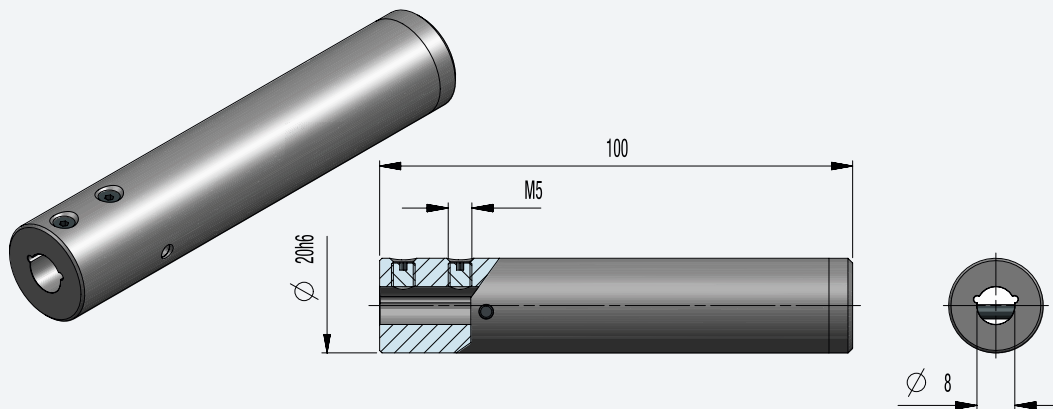


Fig.: MEX20-IN8

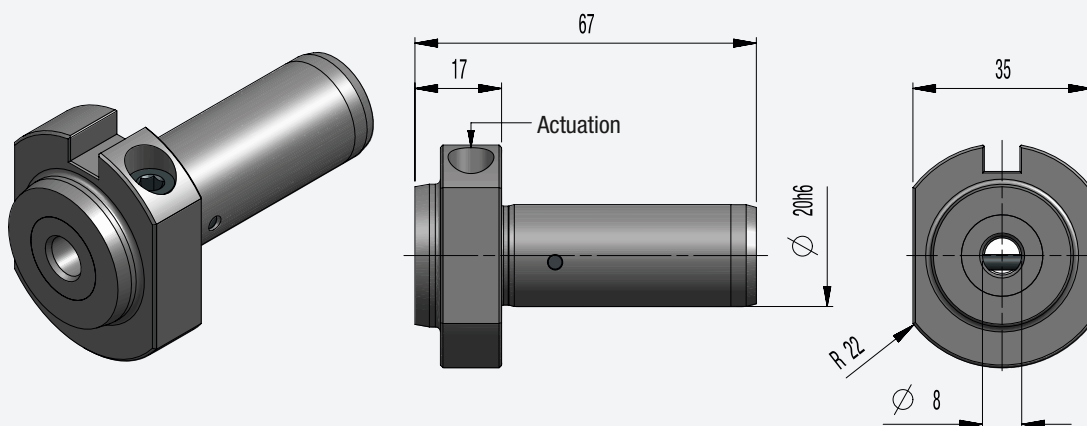


Fig.: MEX20-IN8-HD-E4315

Order number	Clamping screw
MEX12-IN8	M040.005-S624
MEX20-IN8	M050.005-S633
MEX20-IN8-HD-E4315	—

IN[®]turn

Setting gauges

for MEX IN[®]turn boring bar holders

- For alignment of IN[®]turn boring bar

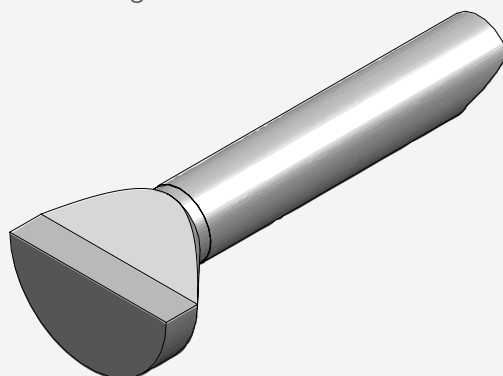


Fig.: IN6 gauge

- For alignment of IN[®]turn boring bar

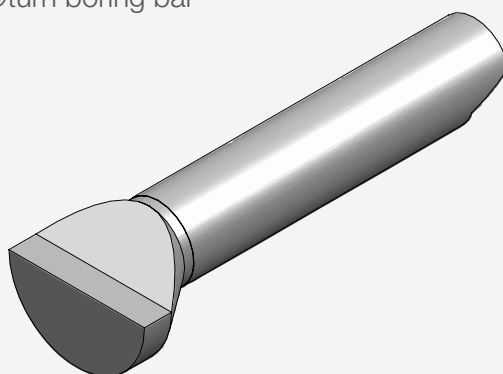


Fig.: IN8 gauge

Order number
IN6 gauge
IN8 gauge

Accessories and special solutions

VDI hydraulic expansion chucks

IN6 and IN8

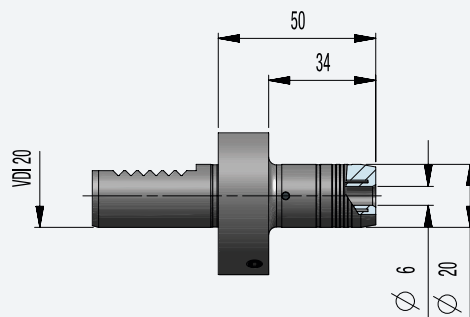
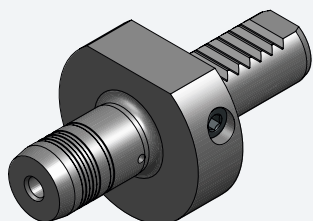


Fig.: VDI20-IN6X50-HD

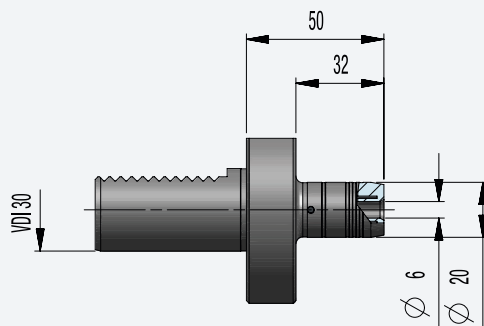
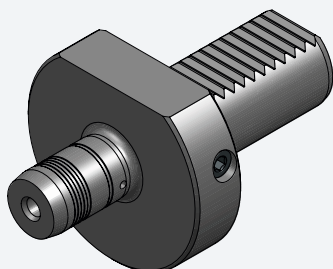


Fig.: VDI30-IN6X50-HD

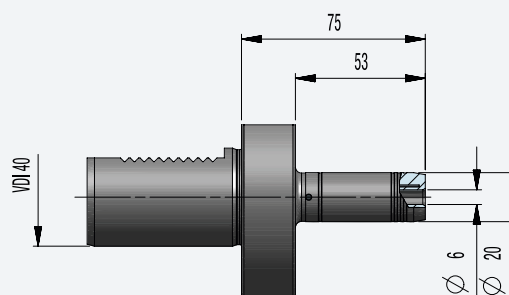
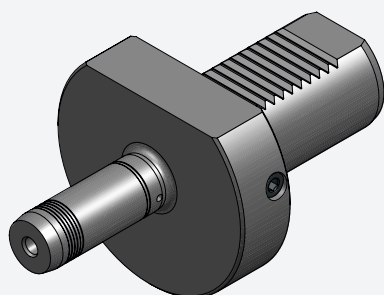


Fig.: VDI40-IN6X75-HD

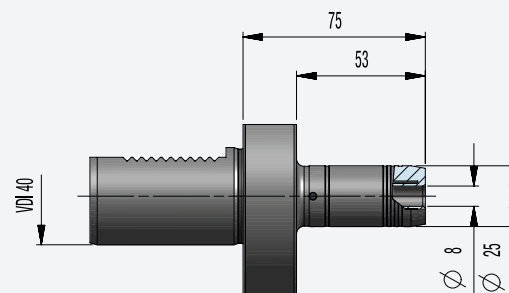
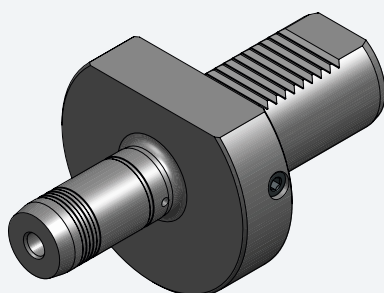


Fig.: VDI40-IN8X75-HD

Order number

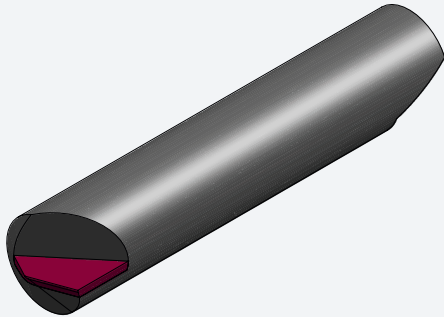
- VDI20-IN6X50-HD
- VDI30-IN6X50-HD
- VDI40-IN6X75-HD
- VDI40-IN8X75-HD

IN[®]turn

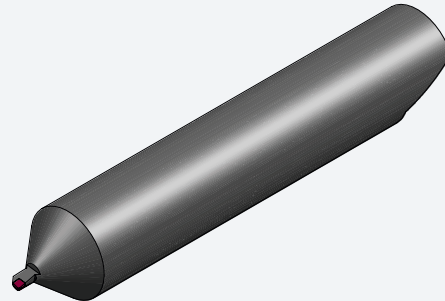
Accessories and special solutions

IN[®]turn special solutions

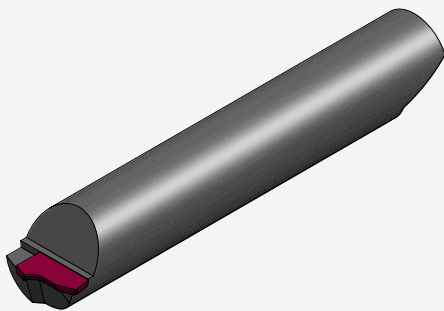
Examples



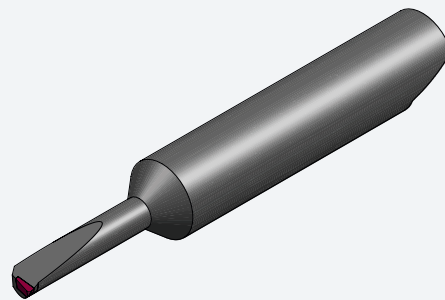
Taper cutter 140°



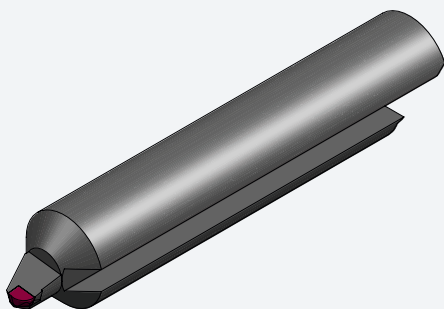
Milling out tool Ø 0.86mm



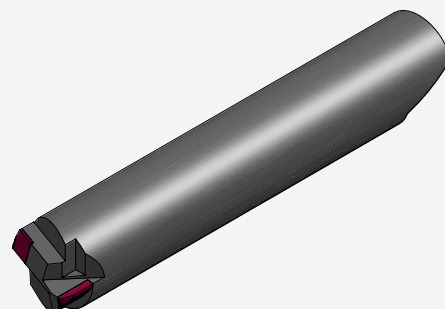
Axial form-cutting tool



Milling-out tool 4xD



Taper turning tool R0.8



Burr-free grooving tool

- Many other special solutions are possible!
- Available also in carbide metal and PKD on request

FOCUS ON TOOLS

Internal Hard Part Turning with a Systematic Approach

Internal CBN turning tools and matching clamping shanks

Our extensive INturn tool system is specially designed for the hard turning of small and ultra-small internal diameters using CBN cutting inserts. These tools are ideally used in the machining of high-grade injection nozzles for common rail technology. A choice of rectangular clamping shanks with dimensions of 16 x 12 mm or 22 x 12 mm or round clamping shanks with diameters of 12 or 20 mm are used to secure the boring rods with a standardized shank diameter of 6 mm. For maximum stability and precision when reliably machining using CBN cutting implements, the clamping shanks are made of cold-formed steel hardened to 54+3 HRC. Repetition following tool changes is possible with 0.05 mm precision in the Z-axis, 0.04 mm precision in the X-axis and 0.03 mm in center height.

The optimized form of the boring rod holders in the clamping shanks contributes to the high level of precision. Suitable clamping shanks with diameters of 12 mm and 20 mm are specifically available for our MEXturn hydraulic clamping system (www.mexturn.de). A variety of special-purpose clamping shanks, for instance for HSK and Capto holders, is also optionally available, making the INturn internal turning tools suitable for hard part turning on any standard turning machine with linear stages and turret lathes. The standard range includes boring rods with a boring diameter of 2 mm to 6 mm. Customized internal turning tools with turning diameters from 0.65 mm and special holders are optionally available.



IN[®]turn

The INturn range offers internal turning tools with CBN cutting implements for turning diameters from 0.65 mm.

PSI[©]turn

Process-safe internal cooling



MAS
TOOLS & ENGINEERING

PSI[©]turn



PSI[®]turn

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PSI[®]turn

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Benefits and Features

- Optimum chip control
-

- Improvement of tool life
-

- Reliable internal cooling
-

- Innovative new design
-

- Increased productivity
-

System of order numbers

Square shanks

PSI©turn	1	2	3
PSI	2020	SCLCR	09

Square shanks designation system

1	Interface:	2020	Square shank 20x20mm
2	Indexable insert angulation	SCLCR	Indexable insert type, clamping, installation position
3	Indexable insert	09	Insert size
X	Code for special product		

PSI©turn

PSK-Holders

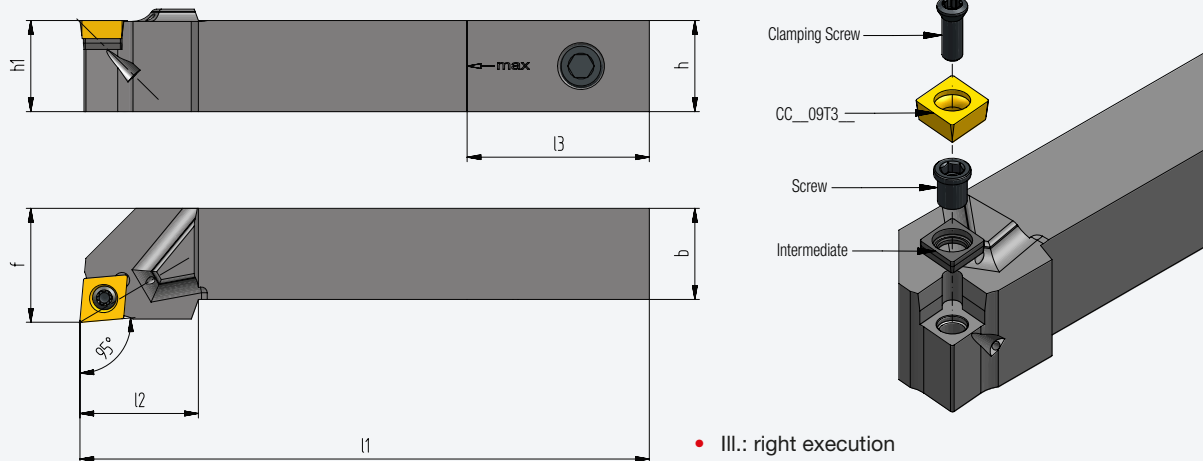
PSI©turn	1	2	3
PSI	C3	PDJNR	15

PSK-Holders designation system

1	Interface:	C3	PSK-Holders C3
2	Indexable insert angulation	PDJNR	Indexable insert type, clamping, installation position
3	Indexable insert	15	Insert size
X	Code for special product		

Square shanks for positive inserts

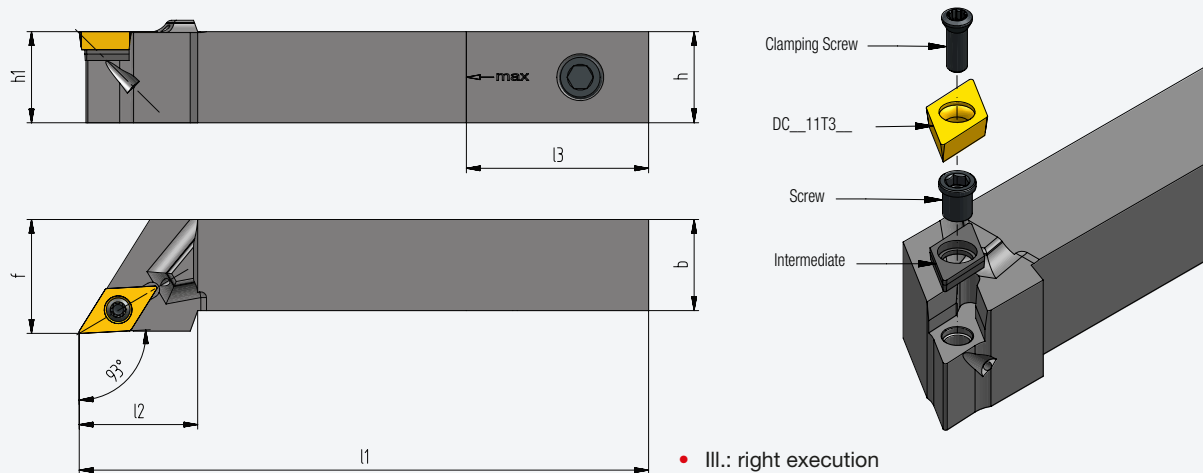
Model SCLCL/R...09



Holders									Spare parts			Indexable insert
Order no.	Version	h1	h	f	b	l1	l2	l3*	Intermediate	Screw	Clamping screw	
PSI-2020-SCLCR-09	right	20	20	25	20	125	26	40	3609	BCL7/3,5Nm	123511P/3,5Nm	CC...09
PSI-2020-SCLCL-09	left	20	20	25	20	125	26	40				

* l3= Maximum truncation length of the holder without loss of internal cooling

Model SDJCL/R...11

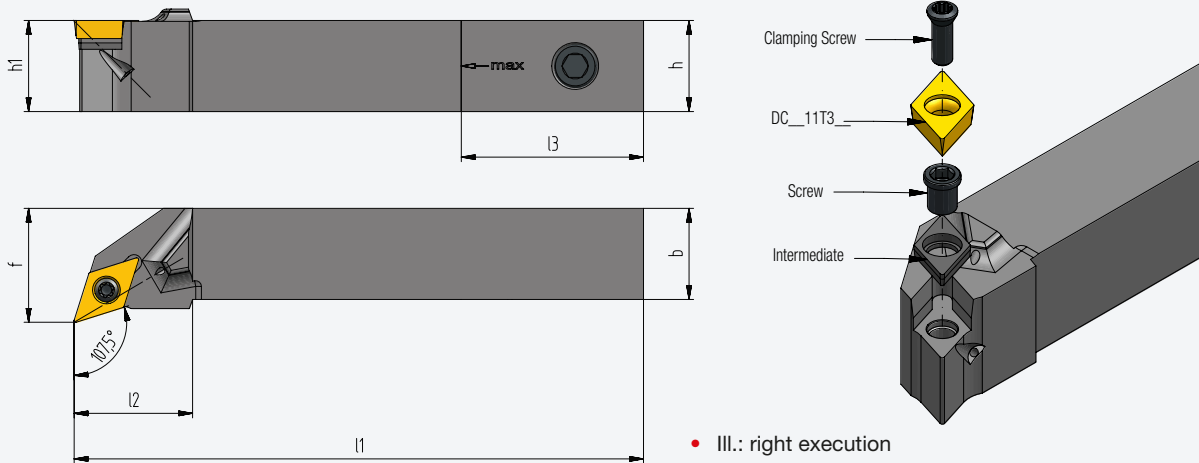


Holders									Spare parts			Indexable insert
Order no.	Version	h1	h	f	b	l1	l2	l3*	Intermediate	Screw	Clamping screw	
PSI-2020-SDJCR-09	right	20	20	25	20	125	26	40	3711	BCL7/3,5Nm	123511P/3,5Nm	DC...11
PSI-2020-SDJCL-09	left	20	20	25	20	125	26	40				

* l3= Maximum truncation length of the holder without loss of internal cooling

Square shanks for negative inserts

Model SDHCL/R...11

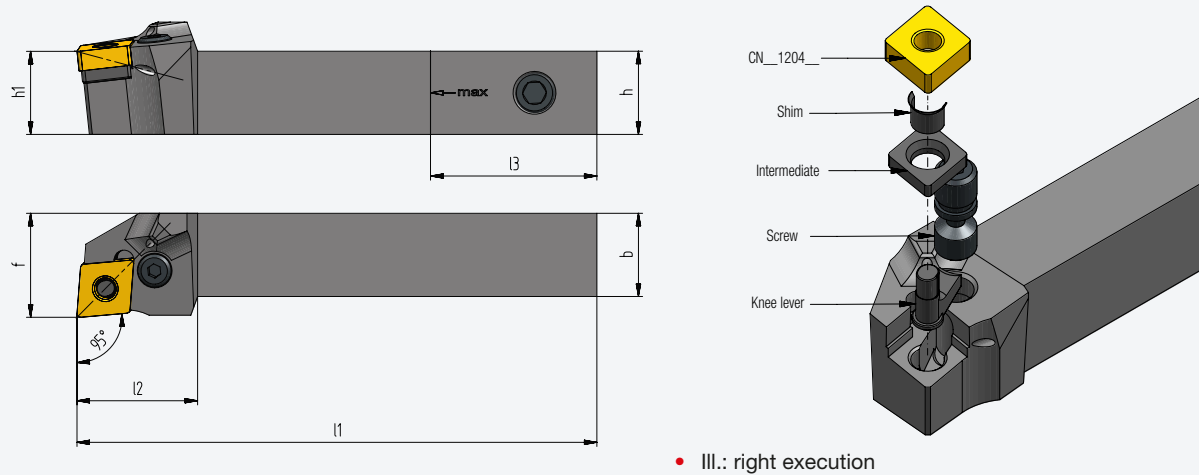


Holders									Spare parts			Indexable insert
Order no.	Version	h1	h	f	b	l1	l2	l3*	Intermediate	Screw	Clamping screw	
PSI-2020-SDHCR-11	right	20	20	25	20	125	26	40	3711	BCL7/3,5Nm	123511P/3,5Nm	DC...11
PSI-2020-SDHCL-11	left	20	20	25	20	125	26	40				

* l3= Maximum truncation length of the holder without loss of internal cooling

PSI[®]turn

Model PCLNL/R...12

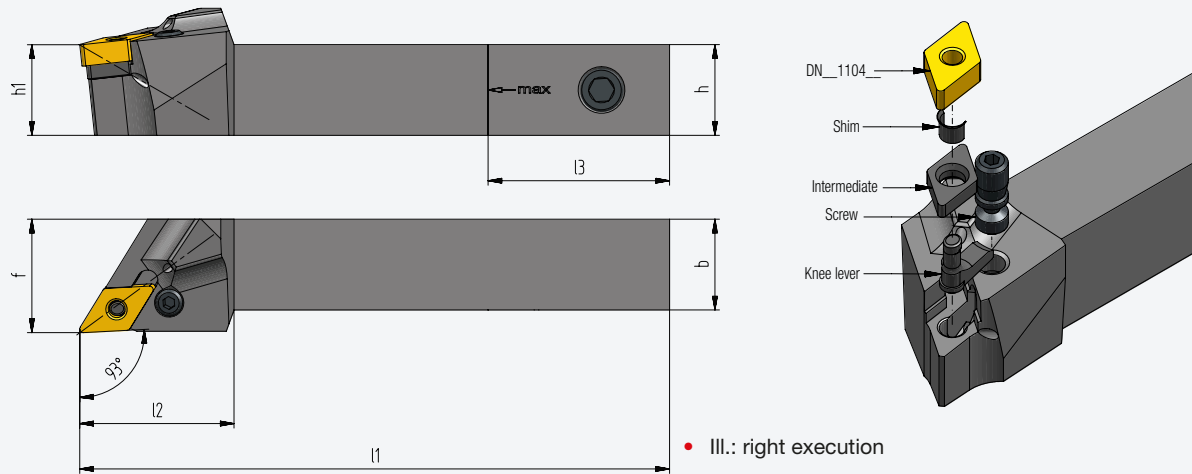


Holders									Spare parts				Indexable insert
Order no.	Version	h1	h	f	b	l1	l2	l3*	Knee lever	Screw	Intermediate	Shim	
PSI-2020-PCLNR-12	right	20	20	25	20	125	29	40	8012	1608/4Nm	3612	4112	CN...12
PSI-2020-PCLNL-12	left	20	20	25	20	125	29	40					

* l3= Maximum truncation length of the holder without loss of internal cooling

Square shanks for negative inserts

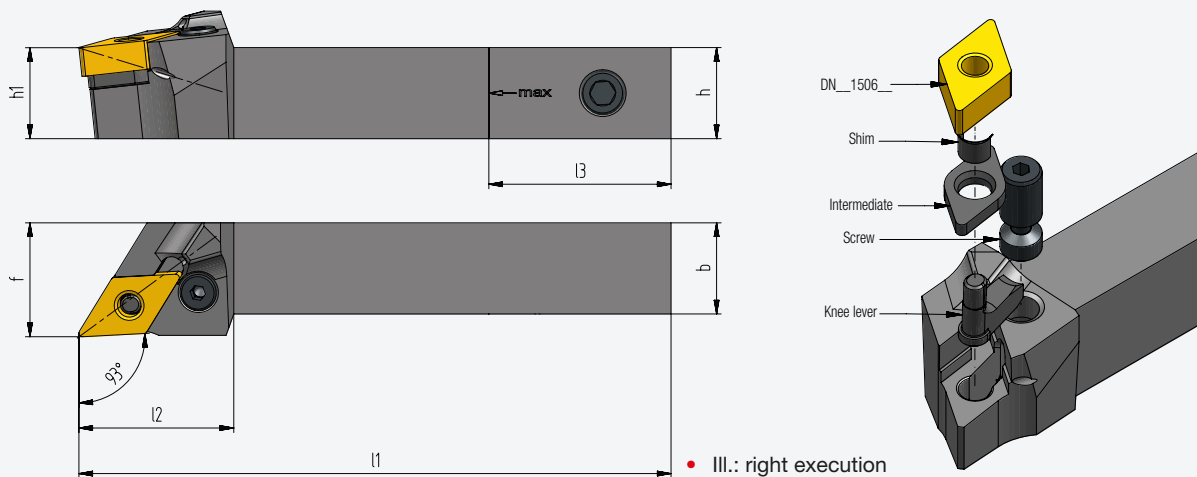
Model PDJNL/R...11



Holders									Spare parts				Indexable insert
Order no.	Version	h1	h	f	b	l1	l2	l3*	Knee lever	Screw	Intermediate	Shim	
PSI-2020-PDJNR-11	right	20	20	25	20	130	34	40	8411	1606/3,5Nm	3710	4108	DN...11
PSI-2020-PDJNL-11	left	20	20	25	20	130	34	40					

* l3= Maximum truncation length of the holder without loss of internal cooling

Model PDJNL/R...15

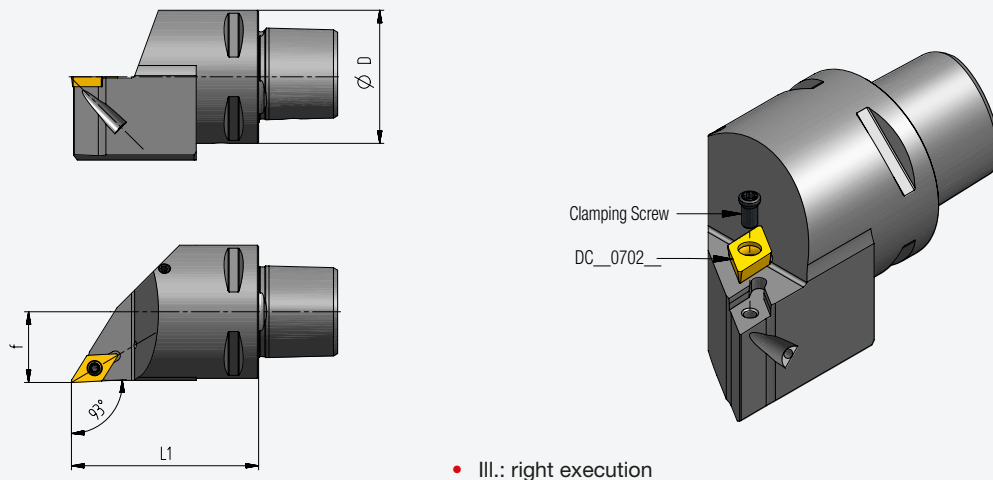


Holders									Spare parts				Indexable insert
Order no.	Version	h1	h	f	b	l1	l2	l3*	Knee lever	Screw	Intermediate	Shim	
PSI-2020-PDJNR-15	right	20	20	25	20	130	34	40	8415	1638/4Nm	3715	4112	DN...15
PSI-2020-PDJNL-15	left	20	20	25	20	130	34	40					

* l3= Maximum truncation length of the holder without loss of internal cooling

PSK-Holders for positive inserts

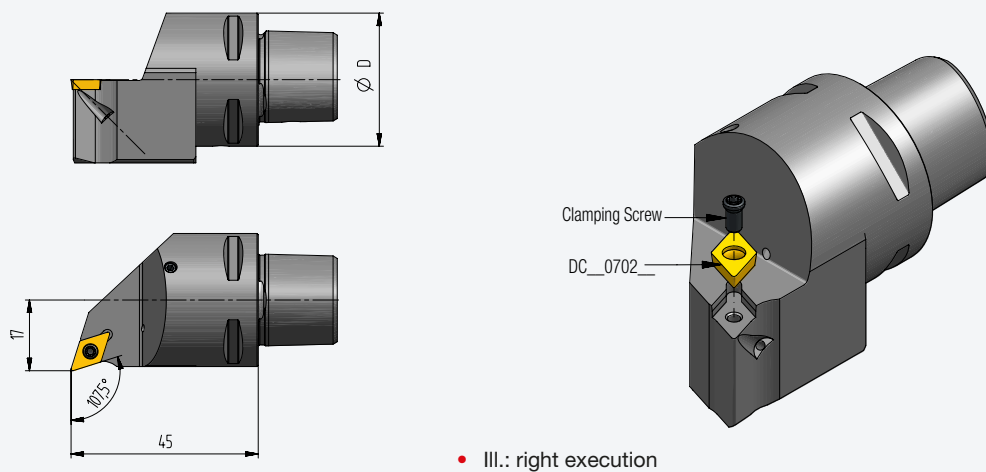
Model SDJCL/R...07



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Knee lever	Screw	Clamping screw	Shim	
PSI-C3-SDJCR-12	right	32	45	17	-	-	BFTX02506N/1,5Nm	-	DC...07
PSI-C3-SDJCL-12	left	32	45	17	-	-	BFTX02506N/1,5Nm	-	



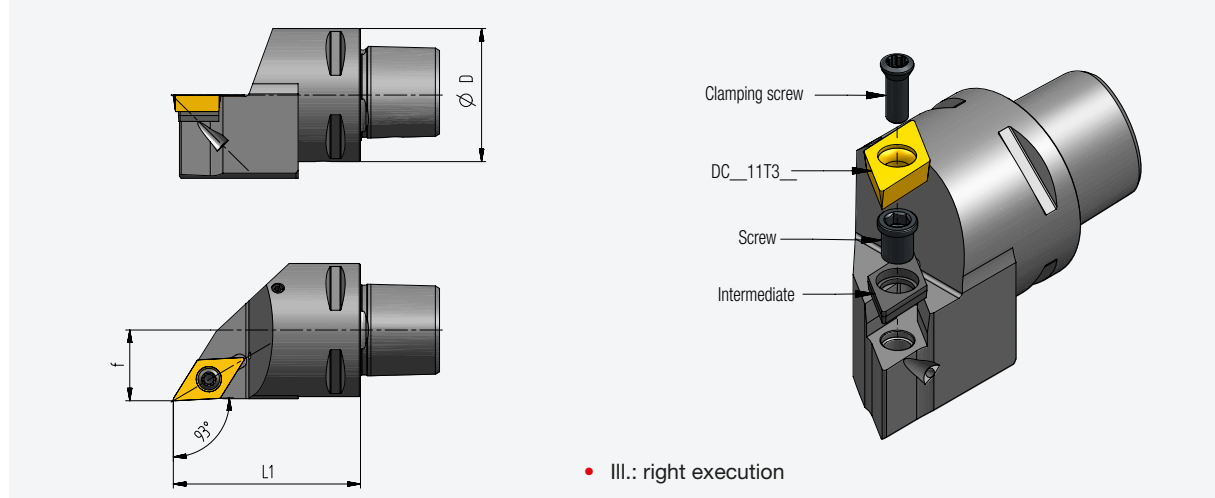
Model SDHCL/R...07



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Knee lever	Screw	Clamping screw	Shim	
PSI-C3-SDHCR-1745-07	right	32	45	17	-	-	BFTX02506N/1,5Nm	-	DC...07
PSI-C3-SDHCL-1745-07	left	32	45	17	-	-	BFTX02506N/1,5Nm	-	

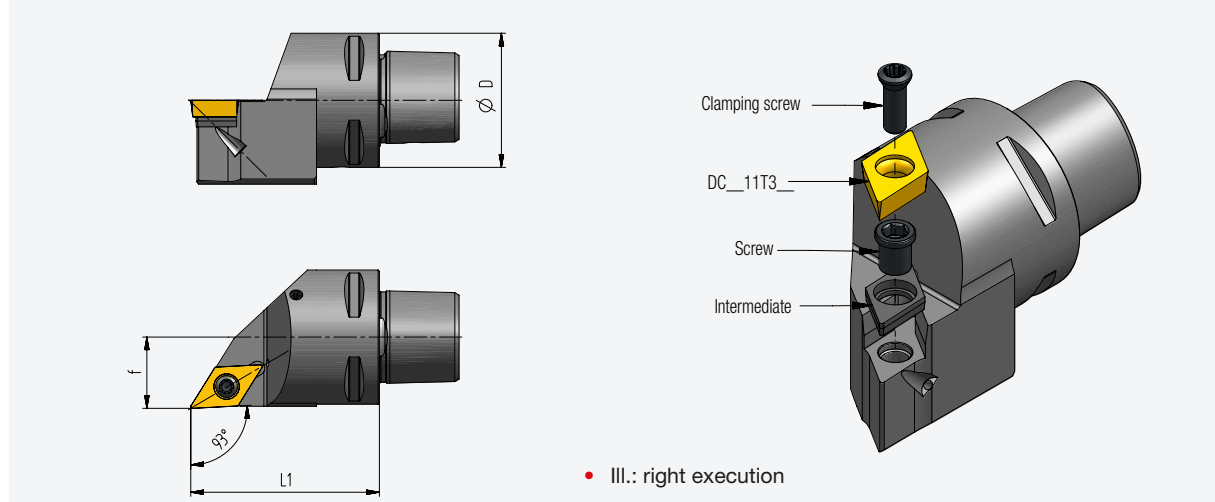
PSK-Holders for positive inserts

Model SDJCL/R...11



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Intermedi-ate	Screw	Clamping screw	Shim	
PSI-C3-SDJCR-1745-11	right	32	45	17	3711	BLC7/3,5Nm	123511P	-	DC...11
PSI-C3-SDJCL-1745-11	left	32	45	17					

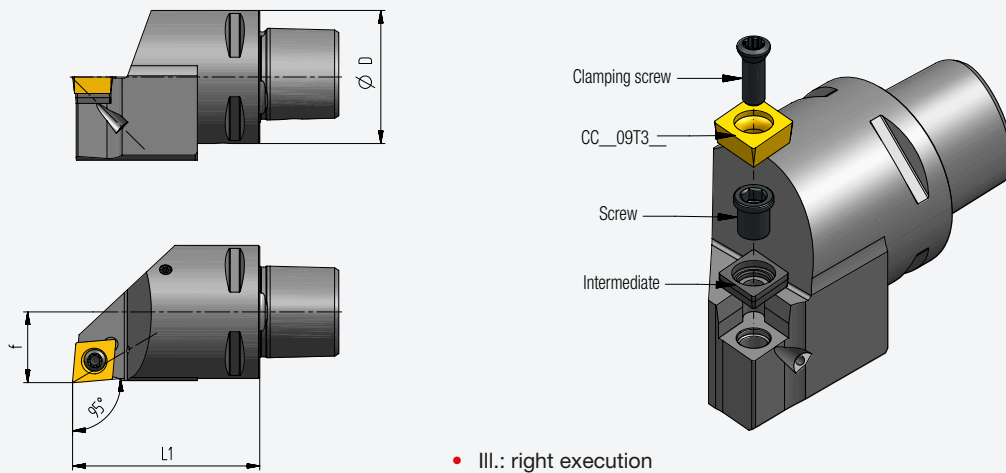
Model SDHCL/R...11



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Intermedi-ate	Screw	Clamping screw	Shim	
PSI-C3-SDHCR-1745-11	right	32	45	17	3711	BLC7/3,5Nm	123511P	-	DC...11
PSI-C3-SDHCL-1745-11	left	32	45	17					

PSK-Holders for negative inserts

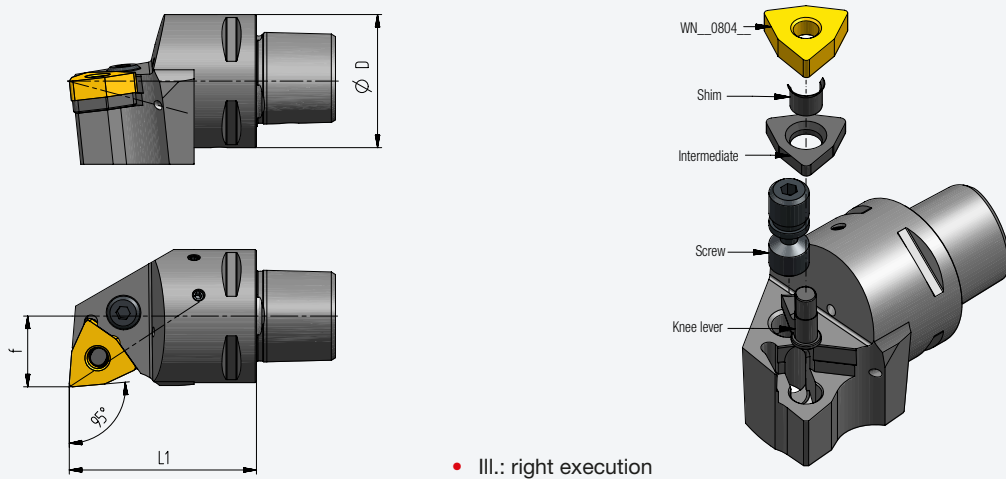
Model SCLCL/R...09



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Intermedi-ate	Screw	Clamping screw	Shim	
PSI-C3-SCLCR-1745-09	right	32	45	17	3609	BLC7/3,5Nm	123511P	-	CC...09
PSI-C3-SCLCL-1745-09	left	32	45	17					

PSI[®]turn

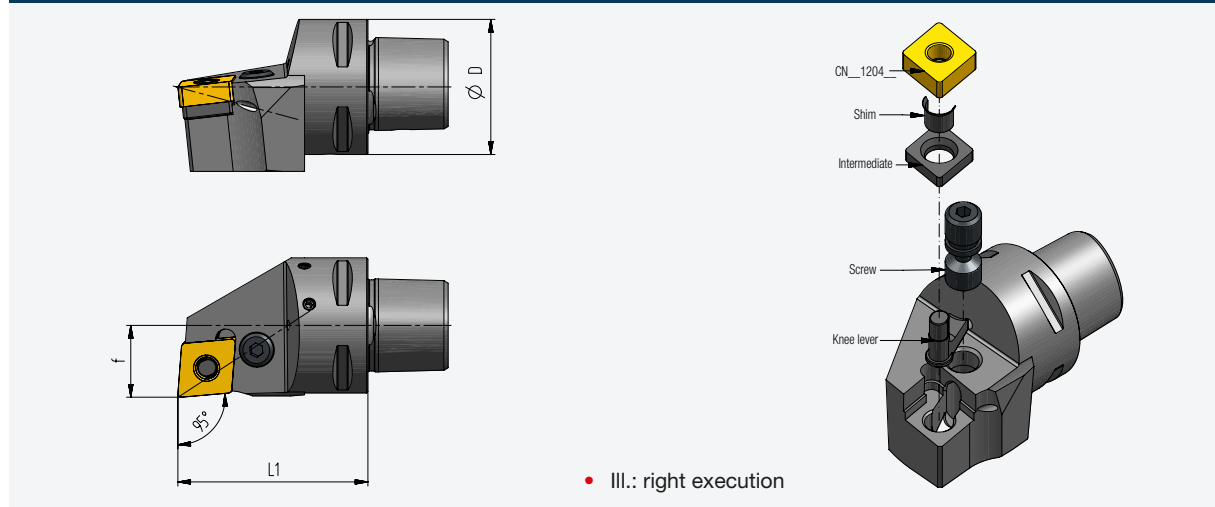
Model PWLNL/R...08



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Knee lever	Screw	Intermediate	Shim	
PSI-C3-PWLN-1745-08	right	32	45	17	8012	1608/4Nm	3608M	4112	WN...08
PSI-C3-PWLNL-1745-08	left	32	45	17					

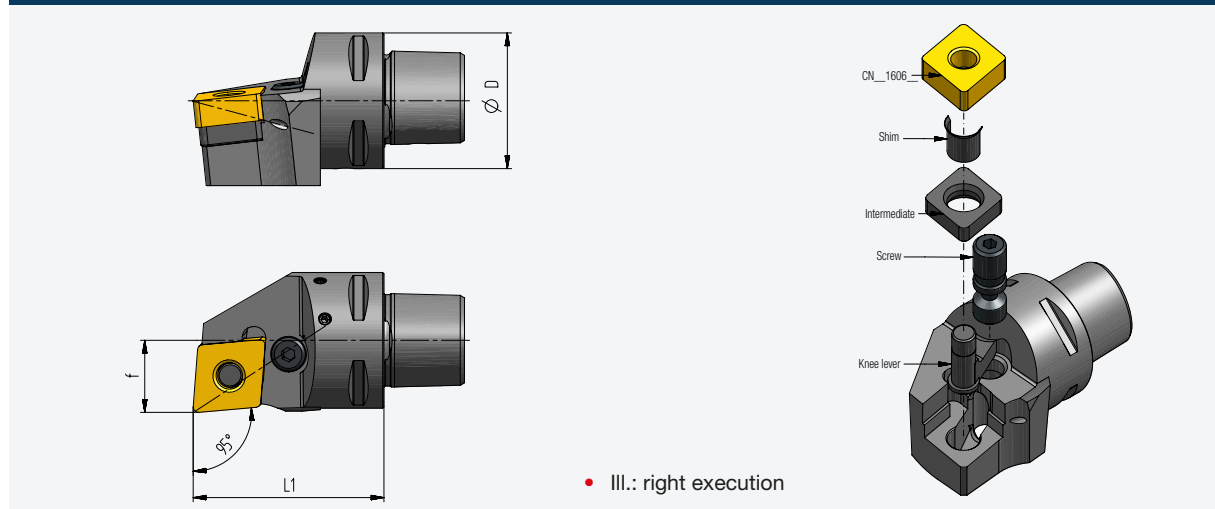
PSK-Holders for negative inserts

Model PCLNL/R...12



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Knee lever	Screw	Intermediate	Shim	
PSI-C3-PCLNR-1745-12	right	32	45	17	8012	1608/4Nm	3612M	4112	CN...12
PSI-C3-PCLNL-1745-12	left	32	45	17					

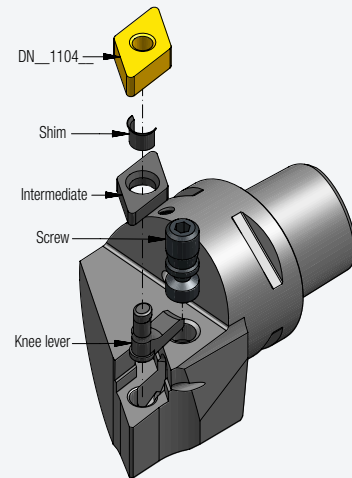
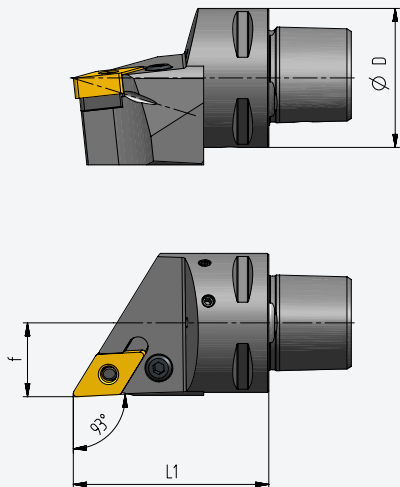
Model PCLNL/R...16



Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Knee lever	Screw	Intermediate	Shim	
PSI-C3-PCLNR-1745-16	right	32	45	17	8012	1618/4Nm	3616M	4115	CN...16
PSI-C3-PCLNL-1745-16	left	32	45	17					

PSK-Holders for negative inserts

Model PDJNL/R...11

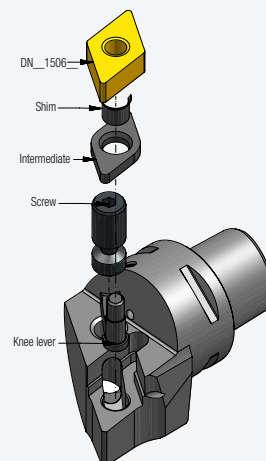
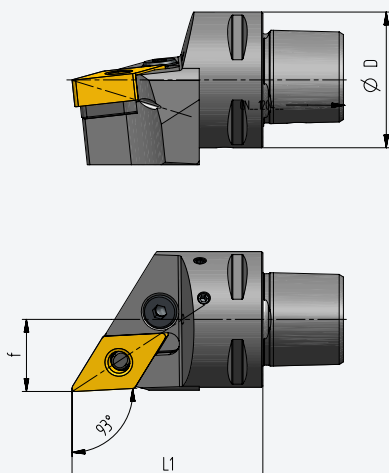


• Ill.: right execution

Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Knee lever	Screw	Intermediate	Shim	
PSI-C3-PDJNR-1745-11	right	32	45	17	8411	1606/3,5Nm	3710M	4108	DN...11
PSI-C3-PDJNL-1745-11	left	32	45	17					

PSI[®]turn

Model PDJNL/R...15



• Ill.: right execution

Holders					Spare parts				Indexable insert
Order no.	Model	D	L1	f	Knee lever	Screw	Intermediate	Shim	
PSI-C3-PDJNR-1745-15	right	32	45	17	8415	1638/4Nm	3715M	4112	DN...15
PSI-C3-PDJNL-1745-15	left	32	45	17					

Precision indexable inserts + holders



Precision indexable inserts + holders

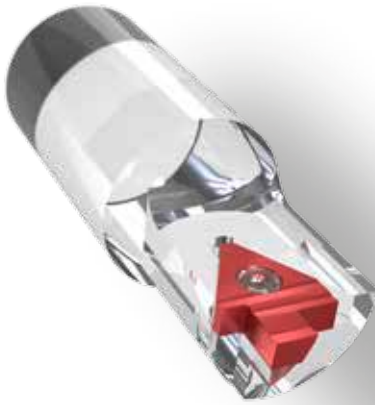


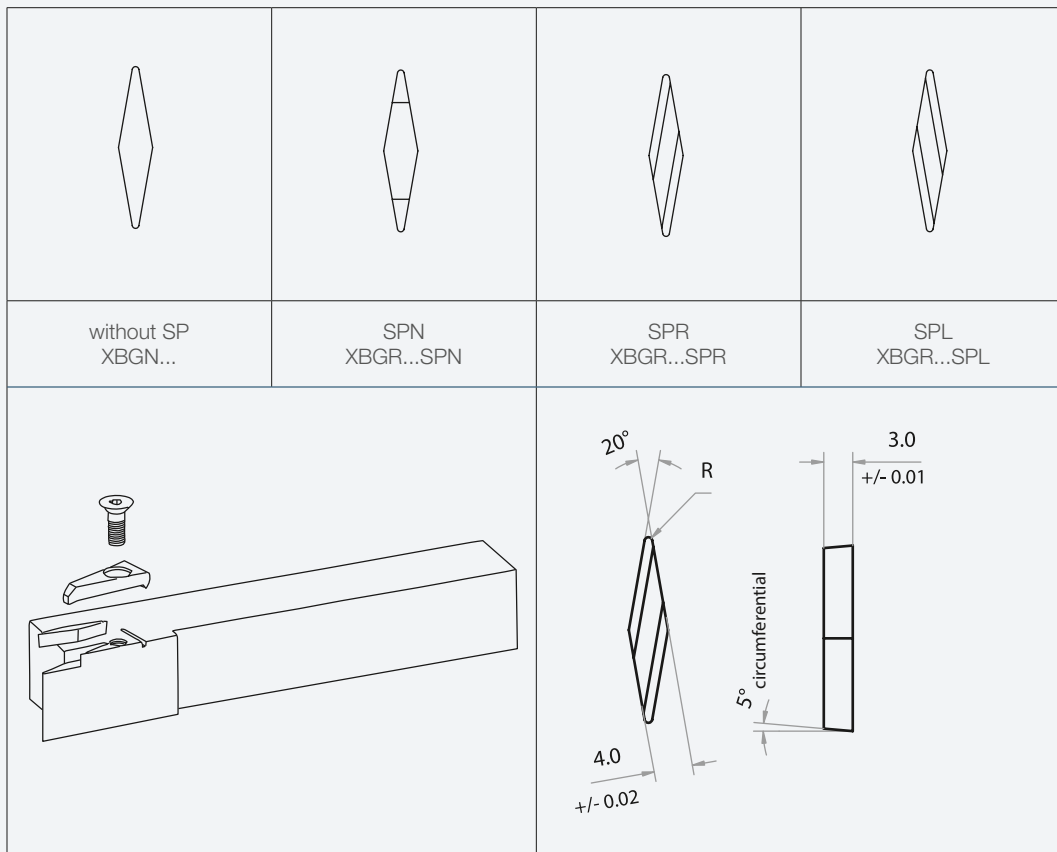
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Copying indexable insert

XBG 20° point angle

- Precision insert - ground on all sides

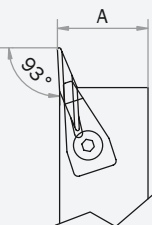
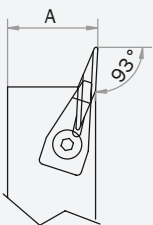
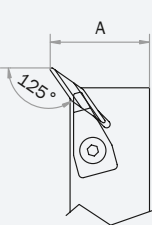
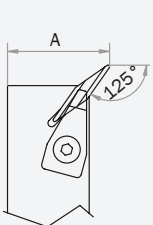
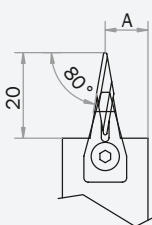


Order number	R
XBGN100302-TIN	0.2
XBGN100304-TIN	0.4
XBGR100302SPR-TIN	0.2
XBGR100304SPR-TIN	0.4
XBGR100302SPL-TIN	0.2
XBGR100304SPL-TIN	0.4
XBGR100302SPN-TIN	0.2
XBGR100304SPN-TIN	0.4

Tool holders

XBG ... 1003 external fixture

- incl. clamping bracket
- Standard stock program

				
CXJBR	CXJBL	CX125BR	CX125BL	CX80BN
Tool holders CXJBR Right-hand	Tool holders CXJBL Left-hand	Tool holders CX125BR Right-hand	Tool holders CX125BL Left-hand	Tool holders CX80BN Neutral

Order number	Shank	Dimension A	Clamping bracket
CXJBR1212H1003	12x12x100	12.5	SF003
CXJBR1616H1003	16x16x100	16.5	SF003
CXJBR2020K1003	20x20x125	20.5	SF003
CXJBR2525L1003	25x25x140	25.5	SF003
CX125BR1212H1003	12x12x100	17.0	SF003
CX125BR1616H1003	16x16x100	21.0	SF003
CX125BR2020K1003	20x20x125	25.0	SF003
CX125BR2525L1003	25x25x140	30.0	SF003
CX80BN1212H1003	12x12x100	6.0	SF003
CX80BN1616H1003	16x16x100	8.0	SF003
CX80BN2020K1003	20x20x125	10.0	SF003
CX80BN2525L1003	25x25x140	12.5	SF003
CXJBL1212H1003	12x12x100	12.5	SF003
CXJBL1616H1003	16x16x100	16.5	SF003
CXJBL2020K1003	20x20x125	20.5	SF003
CXJBL2525L1003	25x25x140	25.5	SF003
CX125BL1212H1003	12x12x100	17.0	SF003
CX125BL1616H1003	16x16x100	21.0	SF003
CX125BL2020K1003	20x20x125	25.0	SF003
CX125BL2525L1003	25x25x140	30.0	SF003

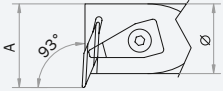
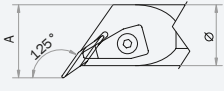
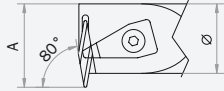
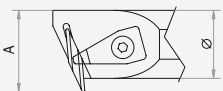
Inserts
Turning

- Dimension A referred to XBG100304

Tool holders

XBG... 1003 boring bars right-hand

- incl. clamping bracket
- Standard stock program

			
S...CXUBR Version right-hand	S...CX125BR Version right-hand	S...CX80BR Version right-hand	S...CXLBR Version right-hand

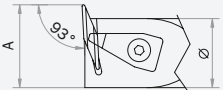
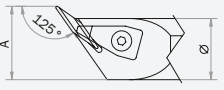
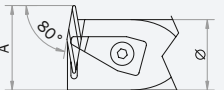
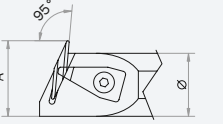
Order number	Shank	Dimension A	Clamping bracket
... CXU ...			
S16HCXUBR	Ø 16x100	20	SF003
S20MCXUBR	Ø 20x150	24	SF003
S25RCXUBR	Ø 25x200	29	SF003
... CX80 ...			
S16HCX80BR	Ø 16x100	20	SF003
S20MCX80BR	Ø 20x150	24	SF003
S25RCX80BR	Ø 25x200	29	SF003
... CX125 ...			
S16HCX125BR	Ø 16x100	20	SF003
S20MCX125BR	Ø 20x150	24	SF003
S25RCX125BR	Ø 25x200	29	SF003
... CXL ...			
S16HCXLBR	Ø 16x100	20	SF003
S20MCXLBR	Ø 20x150	24	SF003
S25RCXLBR	Ø 25x200	29	SF003

Order number	Spare part
M3.5X8.6TX15	Clamping screw
SF003	Clamping bracket (incl. screw)

Tool holders

XBG ... 1003 boring bars left-hand

- incl. clamping bracket
- Standard stock program

			
S...CXUBL Version left-hand	S...CX125BL Version left-hand	S...CX80BL Version left-hand	S...CXLBL Version left-hand

Order number	Shank	Dimension A	Clamping bracket
... CXU ...			
S16HCXUBL	Ø 16x100	20	SF003
S20MCXUBL	Ø 20x150	24	SF003
S25RCXUBL	Ø 25x200	29	SF003
... CX80 ...			
S16HCX80BL	Ø 16x100	20	SF003
S20MCX80BL	Ø 20x150	24	SF003
S25RCX80BL	Ø 25x200	29	SF003
... CX125 ...			
S16HCX125BL	Ø 16x100	20	SF003
S20MCX125BL	Ø 20x150	24	SF003
S25RCX125BL	Ø 25x200	29	SF003
... CXL ...			
S16HCXLBL	Ø 16x100	20	SF003
S20MCXLBL	Ø 20x150	24	SF003
S25RCXLBL	Ø 25x200	29	SF003

Order number	Spare part
M3.5X8.6TX15	Clamping screw
SF003	Clamping bracket (incl. screw)

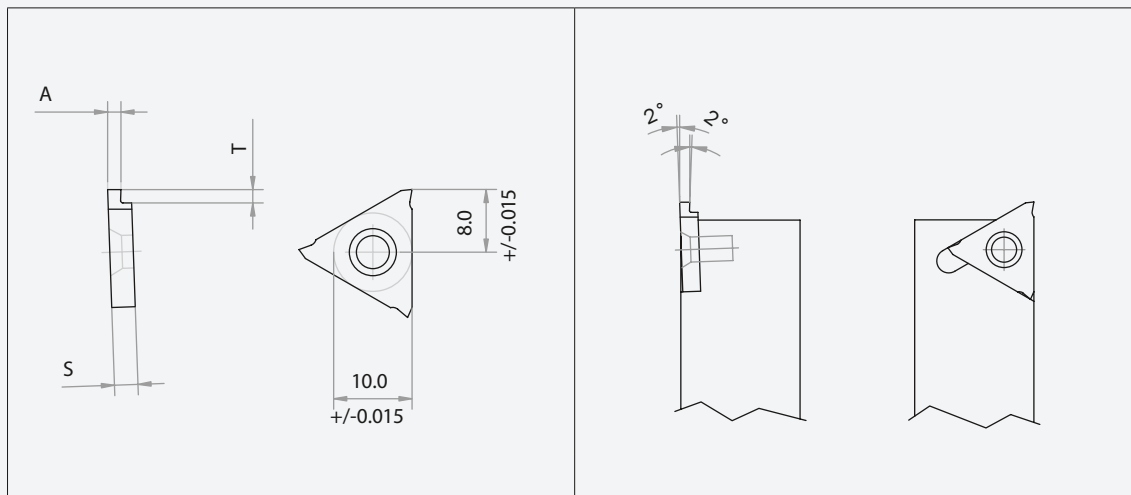
Inserts
Turning

Precision indexable inserts

for cutting grooves for lock washers

Version right-hand

- Indexable precision grooving insert with chip breaker
- Fully ground



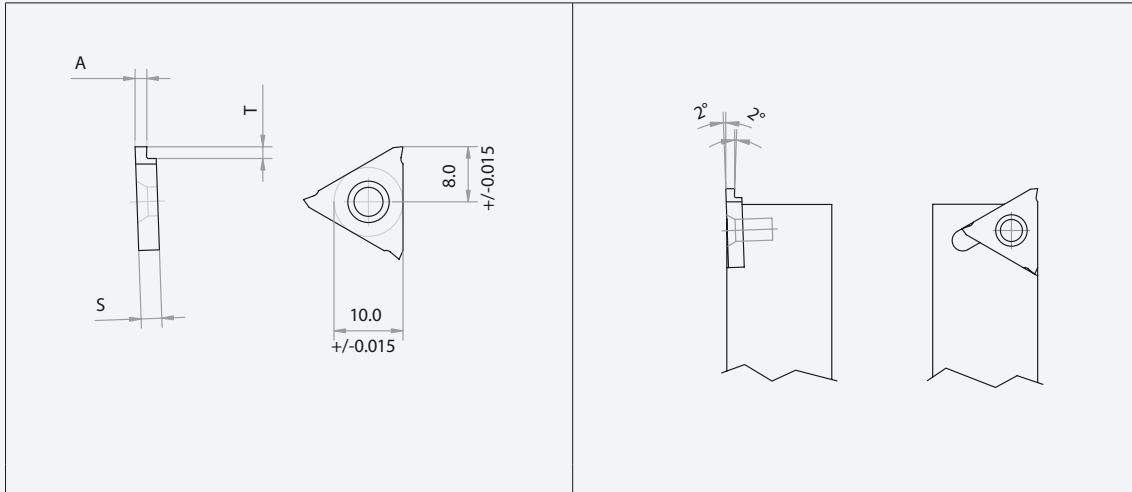
Order number	Groove width	Grooving width	Max. grooving depth	Indexable insert thickness S
TN1003E0.58SPRTIN	0.50	0.58	0.80	3.0
TN1003E0.78SPRTIN	0.70	0.78	0.80	3.0
TN1003E0.88SPRTIN	0.80	0.88	1.00	3.0
TN1003E0.98SPRTIN	0.90	0.98	1.00	3.0
TN1003E1.20SPRTIN	1.10	1.20	1.20	3.0
TN1003E1.40SPRTIN	1.30	1.40	1.40	3.0
TN1003E1.70SPRTIN	1.60	1.70	1.70	3.0
TN1003E1.95SPRTIN	1.85	1.95	1.95	3.0
TN1003E2.25SPRTIN	2.15	2.25	2.25	3.0
TN1003E2.75SPRTIN	2.65	2.75	2.75	3.0
TN1004E3.25SPRTIN	3.15	3.25	3.25	4.0

- Grooving widths in all special dimensions available on short notice
- Grooving widths in all intermediate dimensions available on short notice
- Ordering example for 1.78 ± 0.02 - TN1003 E1.78SPRTIN

Refer also to the following page ►

Version left-hand

- Indexable precision grooving insert with chip breaker
- Fully ground



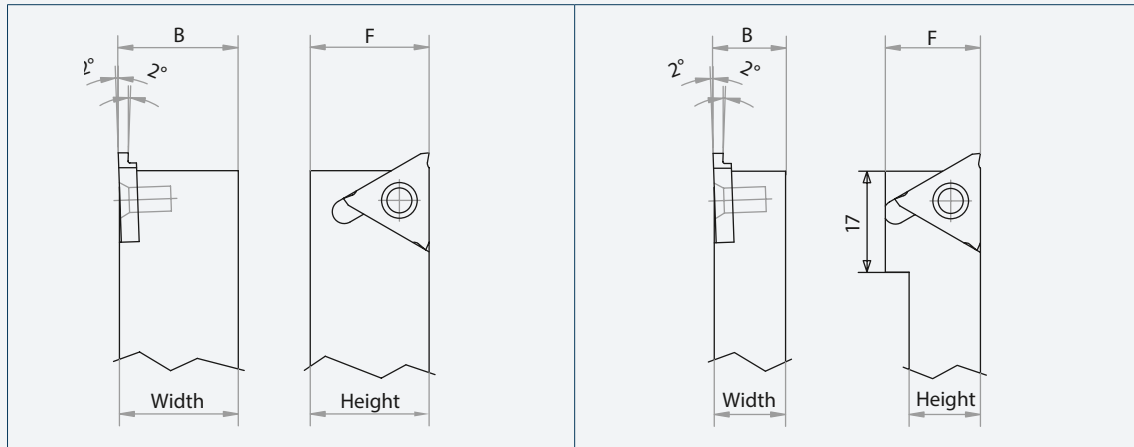
Order number	Groove width	Grooving width	Max. grooving depth	Indexable insert thickness S
TN1003E0.58SPLTIN	0.50	0.58	0.80	3.0
TN1003E0.78SPLTIN	0.70	0.78	0.80	3.0
TN1003E0.88SPLTIN	0.80	0.88	1.00	3.0
TN1003E0.98SPLTIN	0.90	0.98	1.00	3.0
TN1003E1.20SPLTIN	1.10	1.20	1.20	3.0
TN1003E1.40SPLTIN	1.30	1.40	1.40	3.0
TN1003E1.70SPLTIN	1.60	1.70	1.70	3.0
TN1003E1.95SPLTIN	1.85	1.95	1.95	3.0
TN1003E2.25SPLTIN	2.15	2.25	2.25	3.0
TN1003E2.75SPLTIN	2.65	2.75	2.75	3.0
TN1004E3.25SPLTIN	3.15	3.25	3.25	4.0

Inserts
Cutting

- Grooving widths in all special dimensions available on short notice
- Grooving widths in all intermediate dimensions available on short notice
- Ordering example for 1.78 ± 0.02 - TN1003 E1.78SPRTIN

Tool holders for grooving inserts

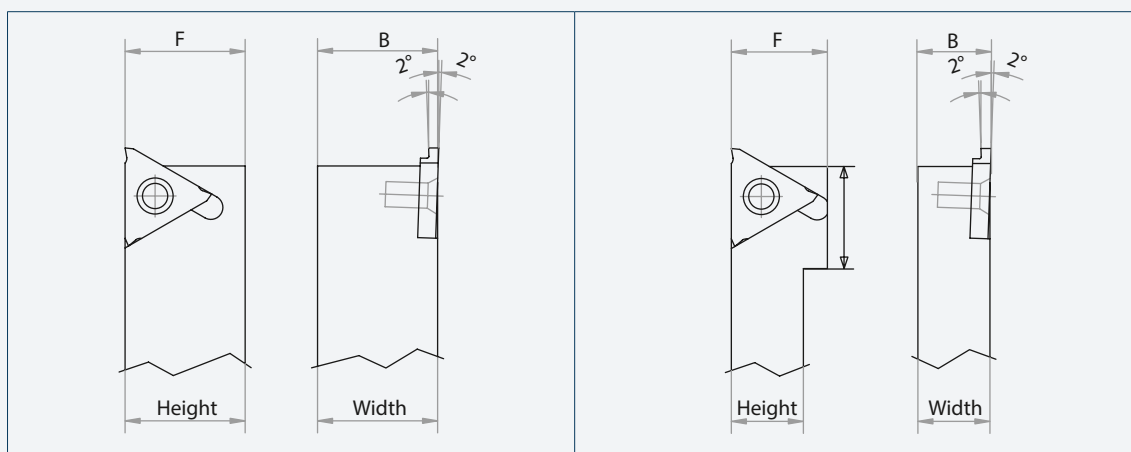
Version right-hand



Order number	Height x width x length	Dimension F	Dimension B	incl. screw
1010-100-T1003RA	10 x 10 x 100	16	10.2	M3.5X8.6TX15
1212-100-T1003RA	12 x 12 x 100	16	12.2	M3.5X8.6TX15
1616-100-T1003RA	16 x 16 x 100	16	16.2	M3.5X8.6TX15
2020-125-T1003RA	20 x 20 x 125	20	20.2	M3.5X8.6TX15
2525-150-T1003RA	25 x 25 x 150	25	25.2	M3.5X8.6TX15

Refer also to the following page ►

Version left-hand



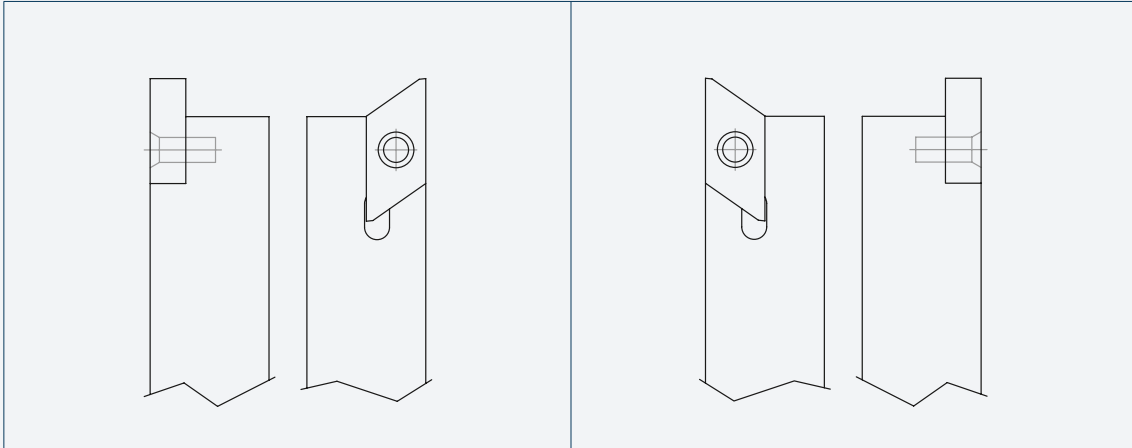
Inserts
Cutting

Order number	Height x width x length	Dimension F	Dimension B	incl. screw
1010-100-T1003LA	10 x 10 x 100	16	10.2	M3.5X8.6TX15
1212-100-T1003LA	12 x 12 x 100	16	12.2	M3.5X8.6TX15
1616-100-T1003LA	16 x 16 x 100	16	16.2	M3.5X8.6TX15
2020-125-T1003LA	20 x 20 x 125	20	20.2	M3.5X8.6TX15
2525-150-T1003LA	25 x 25 x 150	25	25.2	M3.5X8.6TX15

Tool holders

for indexable profiling inserts

Tool holder, external



• Right-hand version

• Left-hand version

System of order numbers

Ordering example:

height	width	length	semi-finished parts	version R/L
12	12	100	L1004	RN

resulting order number: 1212-100-L1004 RN

Refer also to the following page ►

Order number	incl. screw
... 1212 ...	
1212-100-L1004RN	M3.5X8.6TX15
1212-100-L1004LN	M3.5X8.6TX15
1212-100-L1006RN	M3.5X11TX15
1212-100-L1006LN	M3.5X11TX15
1212-100-L1008RN	M3.5X12.5TX15
1212-100-L1008LN	M3.5X12.5TX15
1212-100-L1010RN	M3.5X12.5TX15
1212-100-L1010LN	M3.5X12.5TX15
... 1616 ...	
1616-100-L1004RN	M3.5X8.6TX15
1616-100-L1004LN	M3.5X8.6TX15
1616-100-L1006RN	M3.5X11TX15
1616-100-L1006LN	M3.5X11TX15
1616-100-L1008RN	M3.5X15TX15
1616-100-L1008LN	M3.5X15TX15
1616-100-L1010RN	M3.5X15TX15
1616-100-L1010LN	M3.5X15TX15
... 2020 ...	
2020-125-L1004RN	M3.5X8.6TX15
2020-125-L1004LN	M3.5X8.6TX15
2020-125-L1006RN	M3.5X11TX15
2020-125-L1006LN	M3.5X11TX15
2020-125-L1008RN	M3.5X15TX15
2020-125-L1008LN	M3.5X15TX15
2020-125-L1010RN	M3.5X15TX15
2020-125-L1010LN	M3.5X15TX15
... 2525 ...	
2525-150-L1004RN	M3.5X8.6TX15
2525-150-L1004LN	M3.5X8.6TX15
2525-150-L1006RN	M3.5X11TX15
2525-150-L1006LN	M3.5X11TX15
2525-150-L1008RN	M3.5X15TX15
2525-150-L1008LN	M3.5X15TX15
2525-150-L1010RN	M3.5X15TX15
2525-150-L1010LN	M3.5X15TX15

Inserts
Cutting

K20 modular grooving tool-holder

System for changing cartridge

PSK-K20

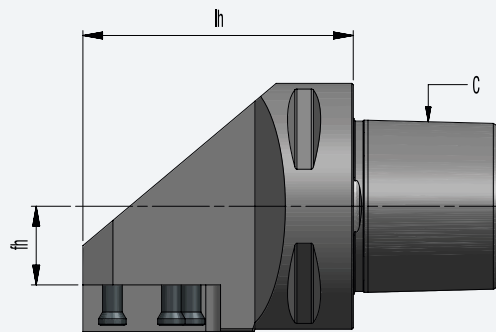


Illustration shows right version

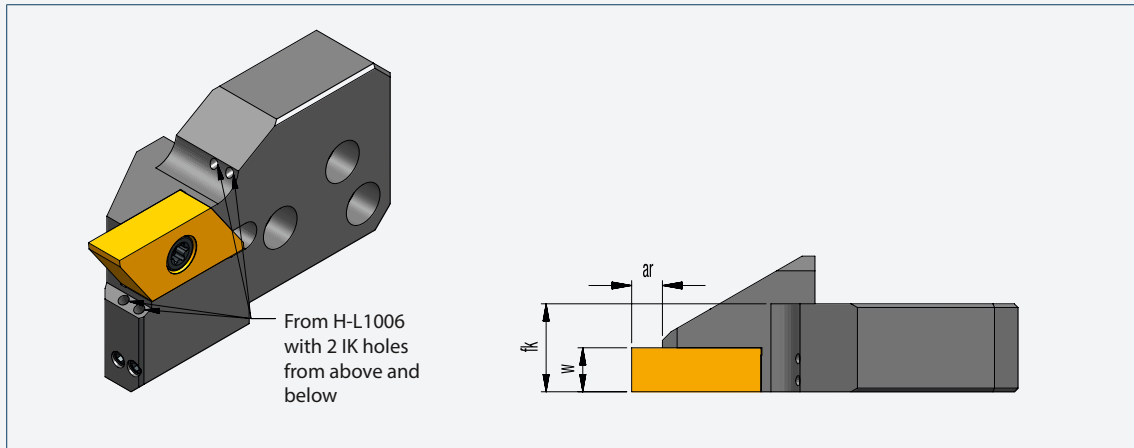
Order number	fh	lh	C
GND R C3 1046-K20	10	46	C3
GND R C4 1255-K20	12	55	C4
GND R C5 1655-K20	16	55	C5
GND R C6 2260-K20	22	60	C6

- Tool cartridges, see page 109
- Clamping screw BFTX0414
- Tightening torque (Nm) 3.4
- Wrench T x 15

GLR grooving system

Cartridges

GLR-K20



Inserts
Cutting

Order number	fk	w	ar	Indexable insert	incl. screw
GLR-K20-L1004	12.00	4.00	4.20	H-L1004	M3.5X8.6TX15
GLR-K20-L1006	12.00	6.00	4.20	H-L1006	M3.5X11TX15
GLR-K20-L1008	12.00	8.00	4.20	H-L1008	M3.5X15TX15
GLR-K20-L1010	12.00	10.00	4.20	H-L1010	M3.5X15TX15
GLR-K20-L1011	12.00	11.00	4.20	H-L1011	M3.5X15TX15
GLR-K20-L1013	12.00	11.00	4.20	H-L1013	M3.5X15TX15

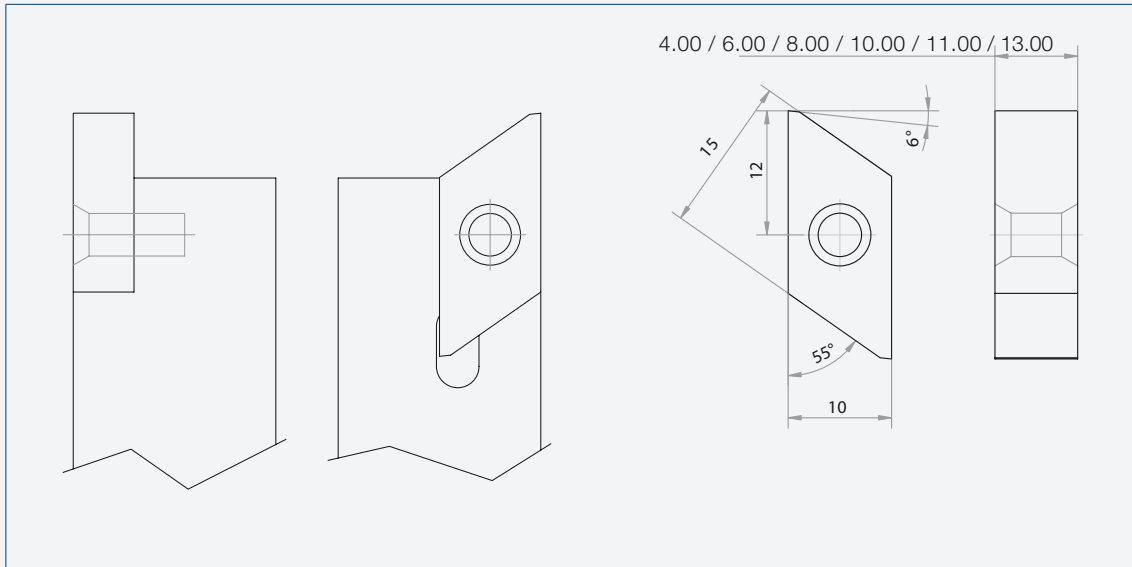
- Indexable profiling inserts, see page 110

Semi-finished parts

as initial inserts for indexable profiling inserts

With two edges

- Precision version ground on all sides
- Very stable system
- All versions in K20M and P20 from stock
- Screw recess on both sides
- In insert thicknesses 4.00 / 6.00 / 8.00 / 10.00 / 11.00 / 13.00 from stock



Order number	Carbide grades		Insert thickness ±0.01
	K20M	P20	
H-L1004	●	○	4.00
H-L1006	●	●	6.00
H-L1008	●	●	8.00
H-L1010	●	○	10.00
H-L1011	●	○	11.00
H-L1013	●	○	13.00

● in stock ○ on request

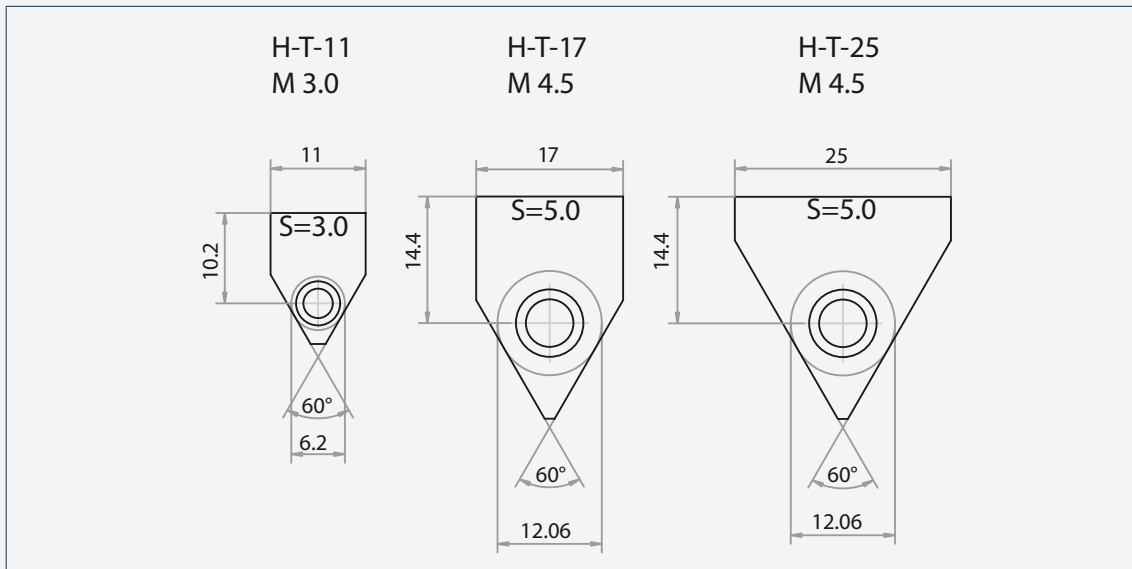
- All dimensions ground - tolerance ±0.02

System of order numbers

Ordering example

type	carbide grades	resulting order number:
H-L1006	K20M	H-L1006 K20M

Single edge



Inserts
Cutting

Order number

H-T-11 K20M

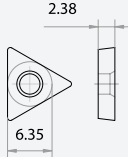
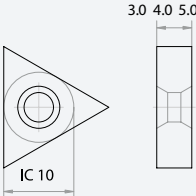
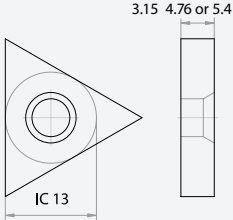
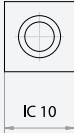
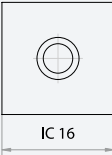
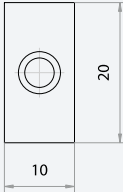
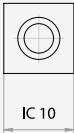

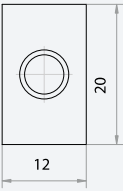
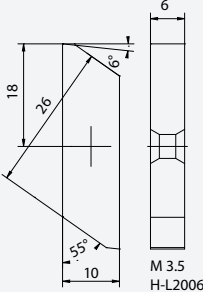
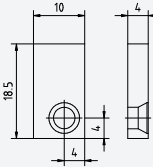
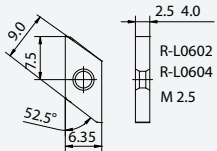
H-T-17 K20M

H-T-25 K20M

- Ground on thickness and contact faces (60° V-block)

Blank program

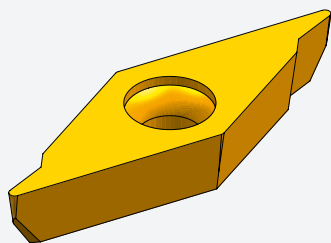
Overview

 <p>R-T0602 M2.5</p>	 <p>R-T1003 R-T1004 R-T1005 R-T1006 M3.5</p>	 <p>R-T1303 R-T1304 R-T1305 M4.5</p>
 <p>R-S1003 3.2 thick M3.5 Lowering one-sided</p>	 <p>R-S1604 4.00 thick M3.5 Lowering one-sided</p>	 <p>R-A1004 4.76 thick M3.5 Lowering on both sides</p>
 <p>R-S1003 3.2 thick M3.5 Lowering one-sided</p>	 <p>R-S1604 4.00 thick M3.5 Lowering one-sided</p>	 <p>R-A1204 4.76 thick M4.5 Lowering one-sided</p>
 <p>M 3.5 H-L2006</p>	 <p>R-132155 4.0 thick M3.5 Lowering one-sided</p>	 <p>R-L0602 R-L0604 M 2.5</p>

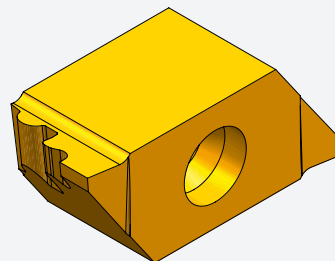
- Finished dimensions ground
- Blanks with allowance

Special solutions

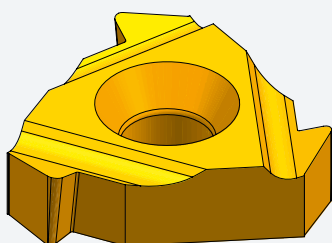
Examples



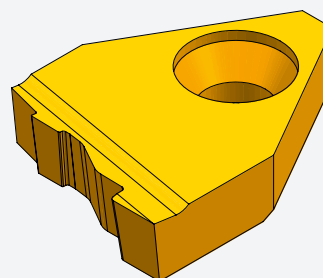
• Contoured indexable insert with neck



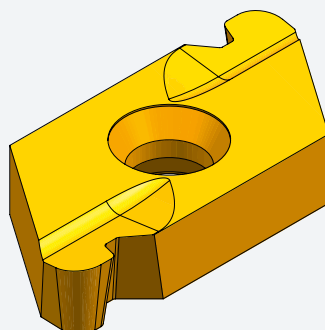
• Radial grooving insert 2 edges



• Threaded insert



• Radial grooving insert 1 edges



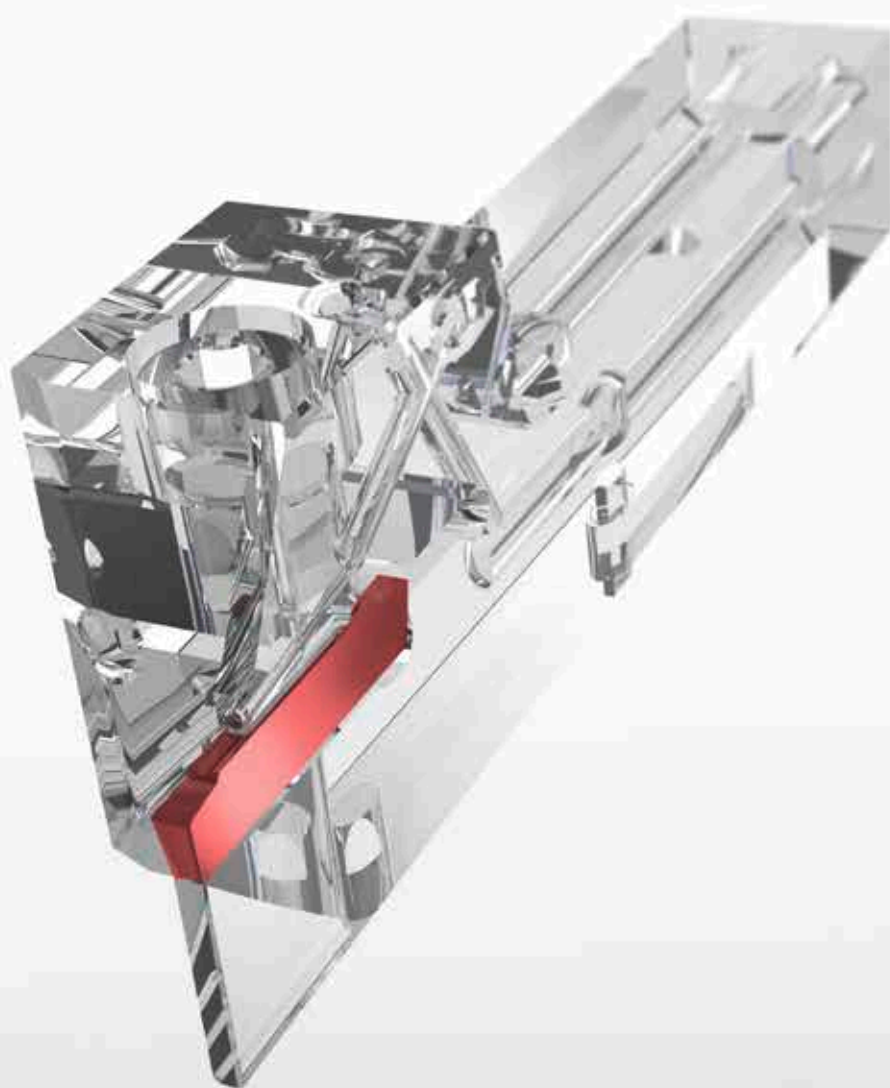
• Radial inside grooving insert

Inserts
Cutting

- Many other special solutions available on request

GND grooving system

Monobloc and modular tools with
internal cooling



GND grooving system



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for changing cartridge	121
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VDI tool holding fixtures with internal cooling	130
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Spare parts	132

GND



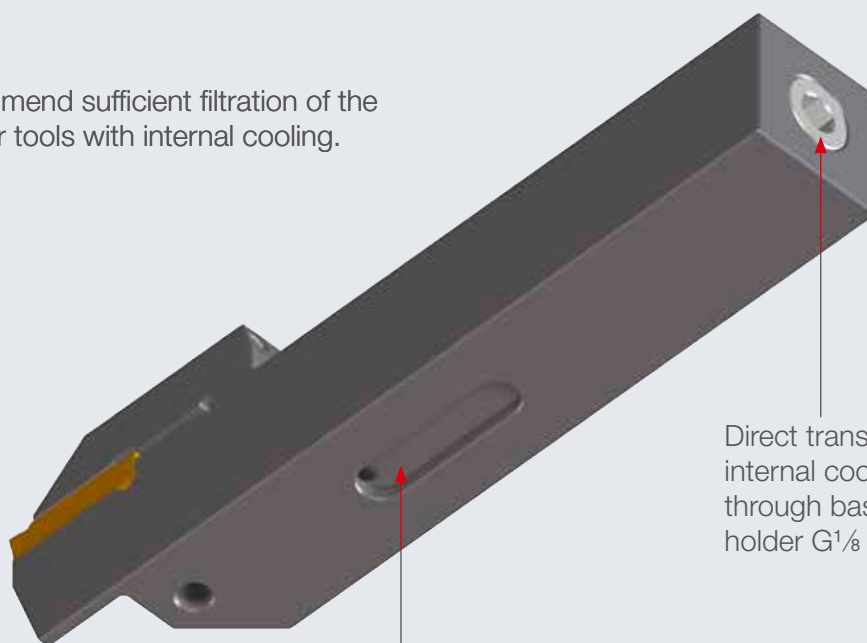
Benefits and Features

- Square shank tool holder with direct internal cooling transfer, standard version with 3 grooving depths and 5 grooving widths
- Square shank tool holder 2525 with exchangeable tool cartridge
- Square shank tool holder with internal cooling from the top
- Tool cartridge with internal cooling from top & bottom
- Optimized chip control and wear resistance thanks to internal cooling
- Square shank tool holder, standard 1616 and 2020 with large grooving depth
- Basic tool holder system PSK with exchangeable tool cartridge
- Quenched and tempered basic tool holder for long service life

GND basic tool holder

with internal cooling

We recommend sufficient filtration of the coolant for tools with internal cooling.



Direct transfer of internal cooling through basic tool holder G $\frac{1}{8}$ from rear

Direct transfer of internal cooling through basic tool holder from bottom

GND

System of order numbers

Examples

Square shank MONO

GND-system	1	2	3	4	5
GND	R/L	2020	-H	2	17

Cartridge holder

GND-system	1	2
GND	R/L	C4-K20

Cartridges

GND-system	1	2	3	4	5
GND	R/L	K20	-H	4	12

Designation system

1	Version:	Right-hand/ left-hand
2	Interface:	Square shank PSK (e.g. C4) K Cartridge mounting dimension P V-block S Cutting blade
3	Application:	H Grooving / cutting HS Grooving / cutting with angular tool holder F Axial grooving FS Axial grooving with angular tool holder I Internal grooving K Cartridge solution
4	Grooving width	
5	Grooving depth	

Grooving tool holder dimensions

Monobloc

Size 1616

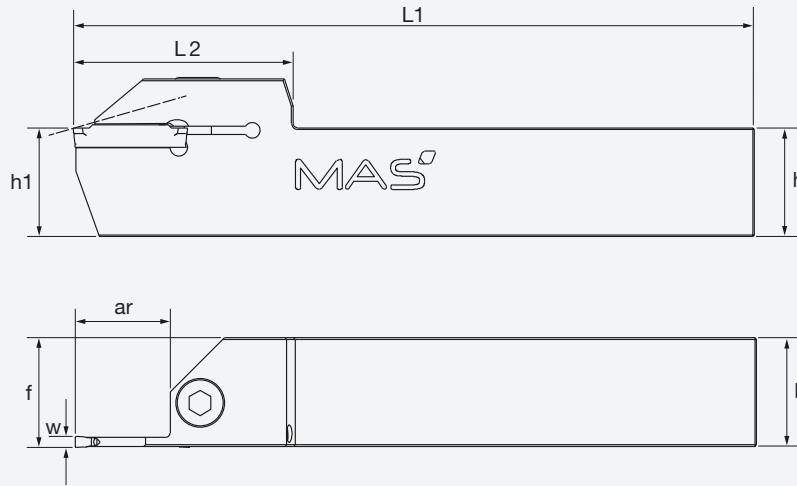


Illustration shows the right-hand version

Order number	h	b	L1	f	h1	L2	w	ar
GND R/L 1616 H 212	16	16	100.5	16.17	16	35.5	2	12
GND R/L 1616 H 217	16	16	105.5	16.17	16	40.5	2	17
GND R/L 1616 H 222	16	16	110.5	16.17	16	45.5	2	22
GND R/L 1616 H 312	16	16	100.5	16.42	16	35.5	3	12
GND R/L 1616 H 317	16	16	105.5	16.42	16	40.5	3	17
GND R/L 1616 H 322	16	16	110.5	16.42	16	45.5	3	22
GND R/L 1616 H 412	16	16	100.5	16.42	16	35.5	4	12
GND R/L 1616 H 417	16	16	105.5	16.42	16	40.5	4	17
GND R/L 1616 H 422	16	16	110.5	16.42	16	45.5	4	22
GND R/L 1616 H 512	16	16	100.5	16.5	16	35.5	5	12
GND R/L 1616 H 517	16	16	105.5	16.5	16	40.5	5	17
GND R/L 1616 H 522	16	16	110.5	16.5	16	45.5	5	22
GND R/L 1616 H 612	16	16	100.5	16.5	16	35.5	6	12
GND R/L 1616 H 617	16	16	105.5	16.5	16	40.5	6	17
GND R/L 1616 H 622	16	16	110.5	16.5	16	45.5	6	22

GND

- Socket head bolt M5x16 DIN912
- Plug G 1/8 type 596
- Tightening torque (Nm) 5
- Wrench LH040

Grooving tool holder dimensions

Monobloc

Size 2020

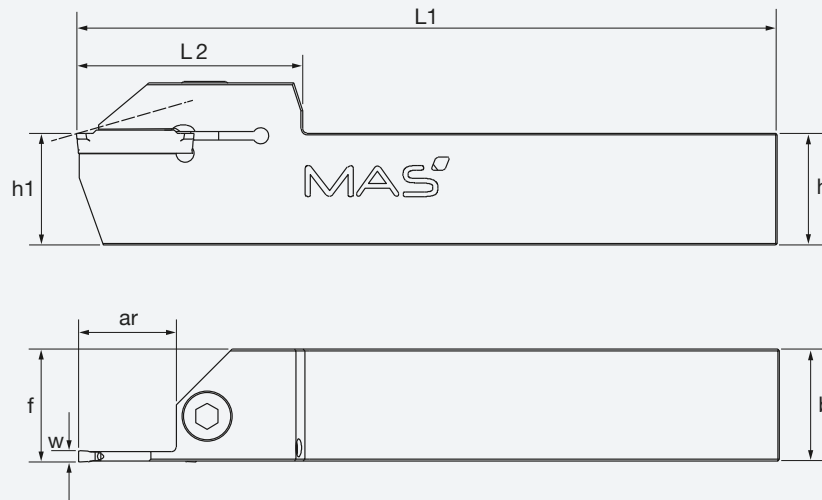


Illustration shows the right-hand version

Order number	h	b	L1	f	h1	L2	w	ar
GND R/L 2020 H 212	20	20	120.5	20.17	20	35.5	2	12
GND R/L 2020 H 217	20	20	125.5	20.17	20	40.5	2	17
GND R/L 2020 H 222	20	20	130.5	20.17	20	45.5	2	22
GND R/L 2020 H 312	20	20	120.5	20.42	20	35.5	3	12
GND R/L 2020 H 317	20	20	125.5	20.42	20	40.5	3	17
GND R/L 2020 H 322	20	20	130.5	20.42	20	45.5	3	22
GND R/L 2020 H 412	20	20	120.5	20.42	20	35.5	4	12
GND R/L 2020 H 417	20	20	125.5	20.42	20	40.5	4	17
GND R/L 2020 H 422	20	20	130.5	20.42	20	45.5	4	22
GND R/L 2020 H 512	20	20	120.5	20.5	20	35.5	5	12
GND R/L 2020 H 517	20	20	125.5	20.5	20	40.5	5	17
GND R/L 2020 H 522	20	20	130.5	20.5	20	45.5	5	22
GND R/L 2020 H 612	20	20	120.5	20.5	20	35.5	6	12
GND R/L 2020 H 617	20	20	125.5	20.5	20	40.5	6	17
GND R/L 2020 H 622	20	20	130.5	20.5	20	45.5	6	22

- Socket head bolt M5x16 DIN912
- Plug G 1/8 type 596
- Tightening torque (Nm) 5
- Wrench LH040

Grooving tool holder dimensions for changing cartridge

Size 2020

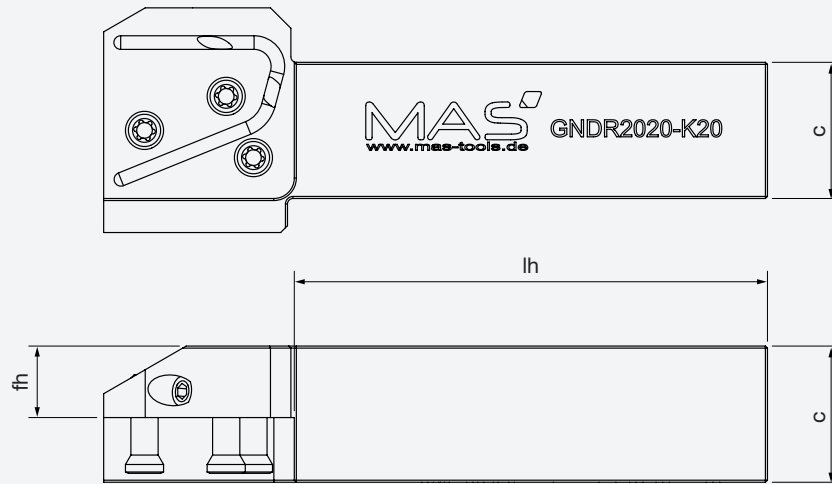


Illustration shows the right-hand version

Order number	fh	lh	c
GND R/L 2020-K20	10.5	70	20

Size 2525

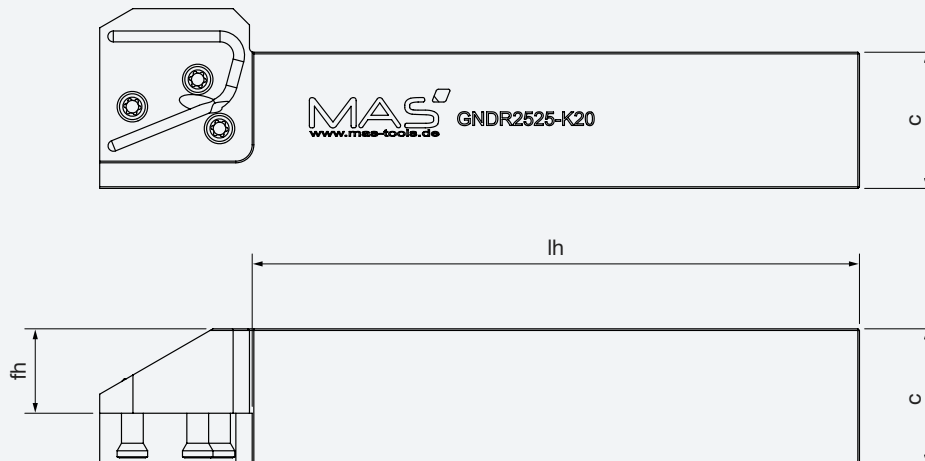


Illustration shows the right-hand version

Order number	fh	lh	c
GND R/L 2525-K20	15.5	111.5	25

- Tool cartridges, see page 124
- Clamping screw BFTX0414
- Plug G 1½ type 596
- Tightening torque (Nm) 3.4
- Wrench Tx15

Grooving tool holder dimensions for changing cartridge

Size 2020 F

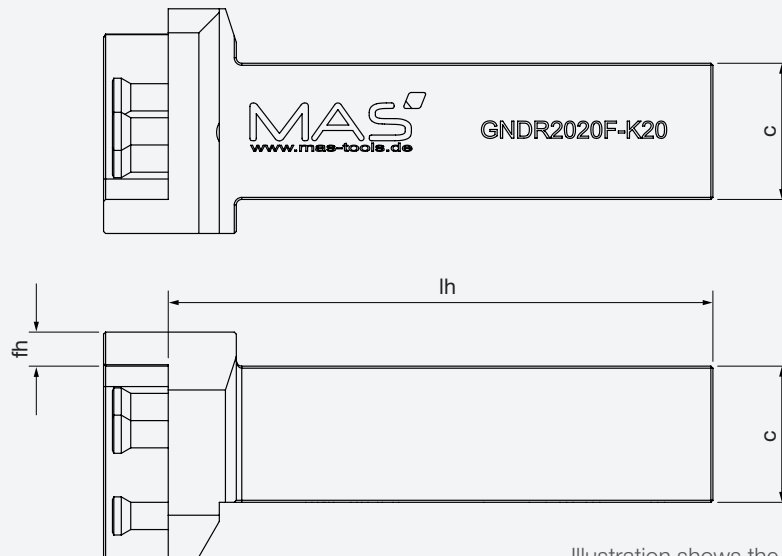


Illustration shows the right-hand version

Order number	fh	lh	c
GND R/L 2020F-K20	5	70	20

Size 2525F axial/90° angle

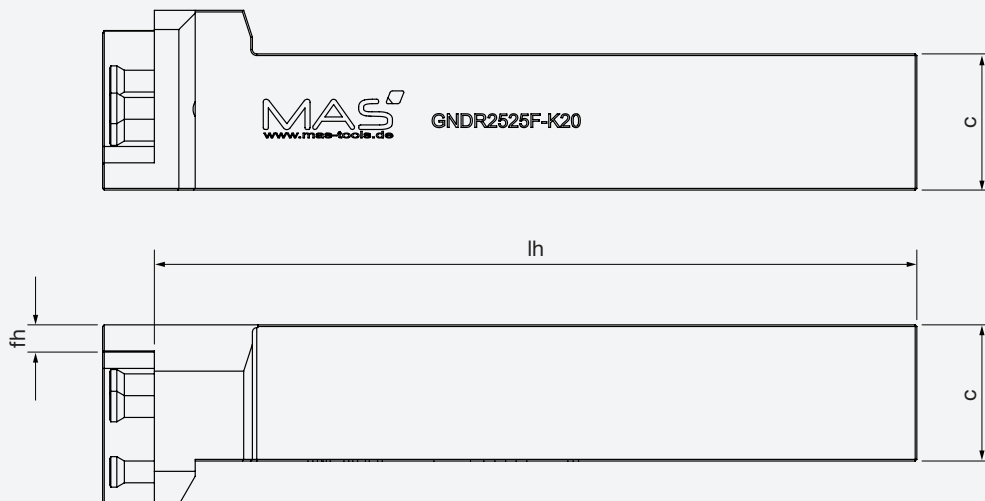


Illustration shows the right-hand version

Order number	fh	lh	c
GND R/L 2525F-K20	5	140	25

- Tool cartridges, see page 124
- Clamping screw BFTX0414
- Plug G 1/8 type 596
- Tightening torque (Nm) 3.4
- Wrench Tx15

Grooving tool holder dimensions

PSK for changing cartridge

PSK-K20

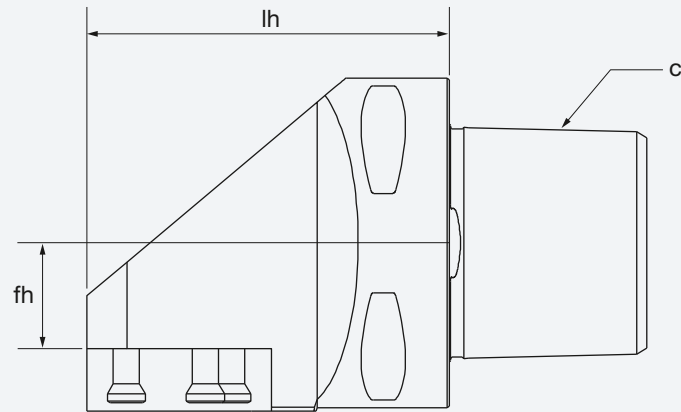


Illustration shows the right-hand version

Order number	fh	lh	c
GND R/L C3 1046-K20	10	46	C3
GND R/L C4 1255-K20	12	55	C4
GND R/L C5 1655-K20	16	55	C5
GND R/L C6 2260-K20	22	60	C6

GND

- Tool cartridges, see page 124
- Clamping screw BFTX0414
- Tightening torque (Nm) 3.4
- Wrench Tx15

Cartridges

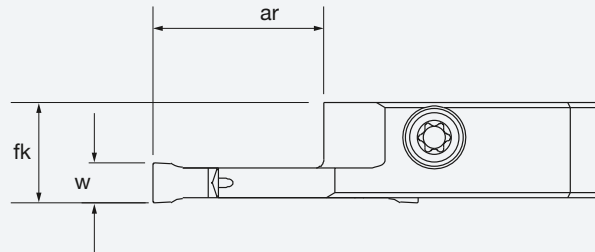
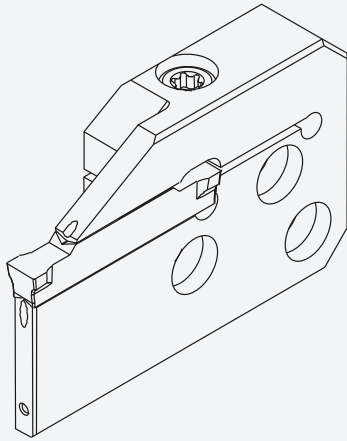


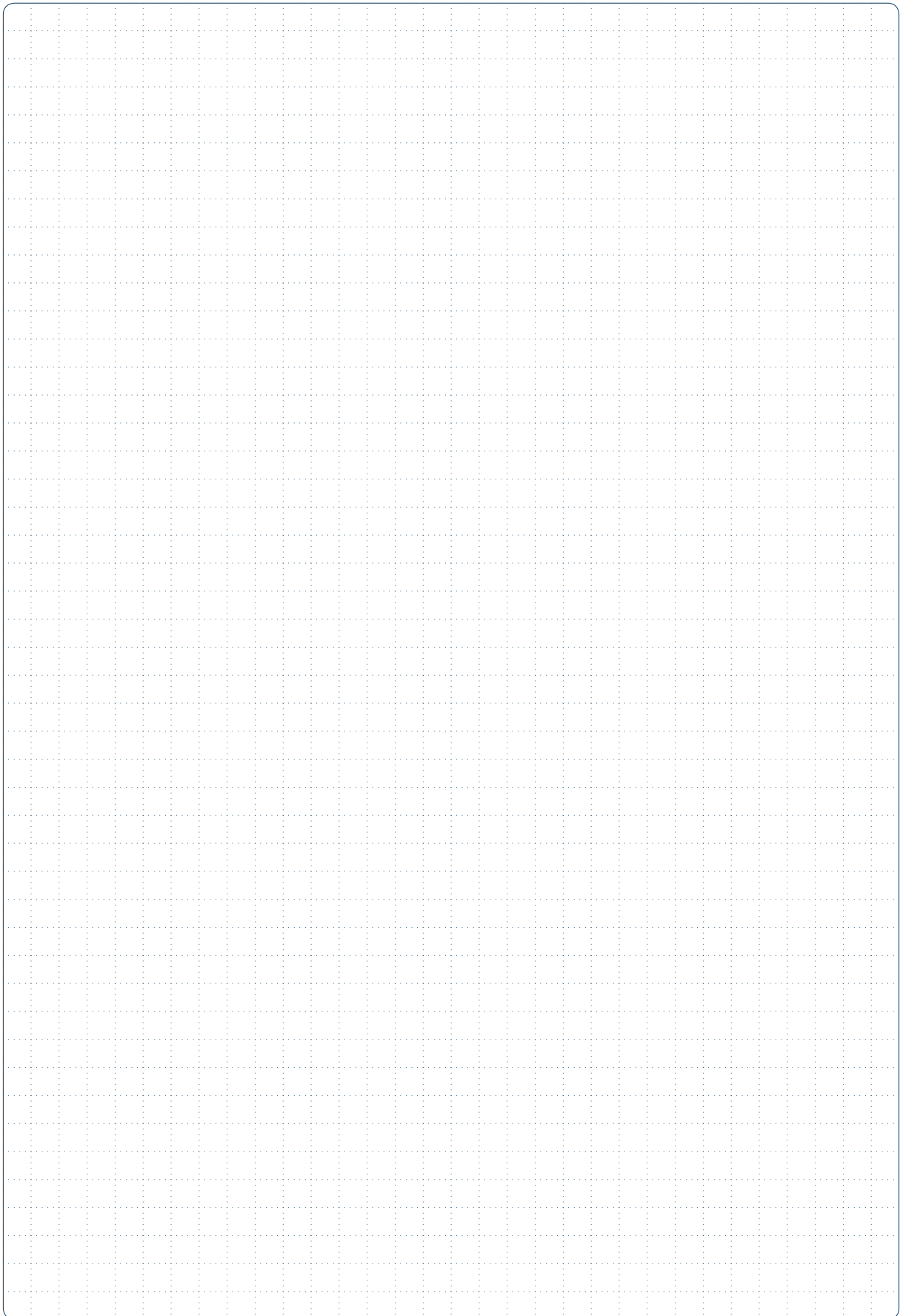
Illustration shows the right-hand version

Order number	fk	w	ar	Cutting insert	R	L
GND R/L K20-H12507	10	1,25	7	GCM □ 1250 □□	●	●
GND R/L K20-H12512	10	1,25	12	GCM □ 1250 □□	●	●
GND R/L K20-H1507	10	1,5	7	GCM □ 1500 □□	●	●
GND R/L K20-H1512	10	1,5	12	GCM □ 1500 □□	●	●
GND R/L K20-H212	10	2	12	GCM □ 2000 □□		
GND R/L K20-H217	10	2	17	GCM □ 2000 □□		
GND R/L K20-H222	10	2	22	GCM □ 2000 □□		
GND R/L K20-H312	10	3	12	GCM □ 3000 □□		
GND R/L K20-H317	10	3	17	GCM □ 3000 □□		
GND R/L K20-H322	10	3	22	GCM □ 3000 □□		
GND R/L K20-H412	10	4	12	GCM □ 4000 □□		
GND R/L K20-H417	10	4	17	GCM □ 4000 □□		
GND R/L K20-H422	10	4	22	GCM □ 4000 □□		
GND R/L K20-H512	11	5	12	GCM □ 5000 □□		
GND R/L K20-H517	11	5	17	GCM □ 5000 □□		
GND R/L K20-H522	11	5	22	GCM □ 5000 □□		
GND R/L K20-H612	12	6	12	GCM □ 6000 □□		
GND R/L K20-H617	12	6	17	GCM □ 6000 □□		
GND R/L K20-H622	12	6	22	GCM □ 6000 □□		
GND R/L K20-H717	13	7	17	GCM □ 7000 □□		
GND R/L K20-H722	13	7	22	GCM □ 7000 □□		
GND R/L K20-H817	14	8	17	GCM □ 8000 □□		
GND R/L K20-H822	14	8	22	GCM □ 8000 □□		

● in stock ○ on request

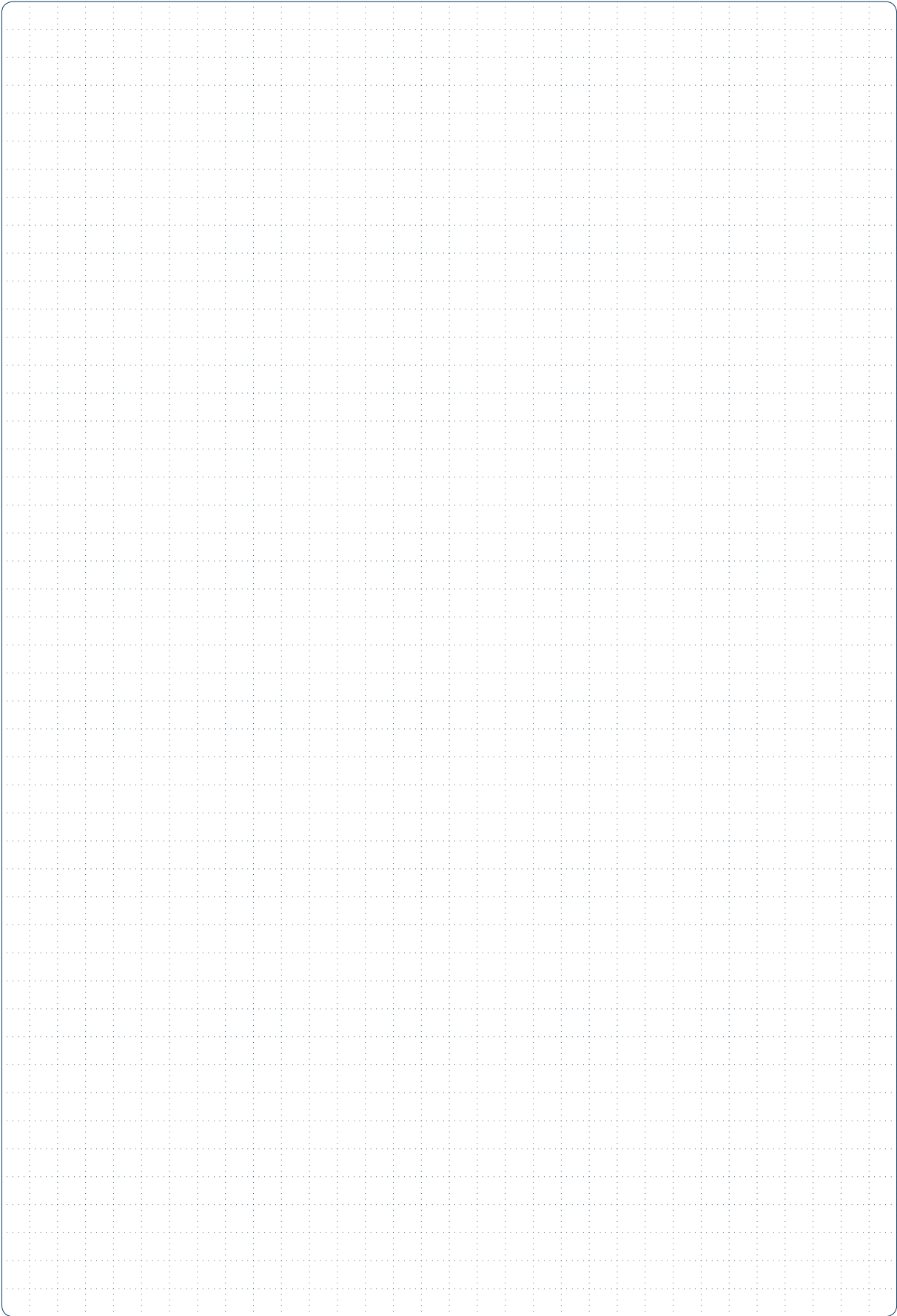
- Internal cooling from top and bottom: $w=2$
- Clamping screw BFTX0414
- Tightening torque (Nm) 3.4
- Wrench Tx15

NOTES

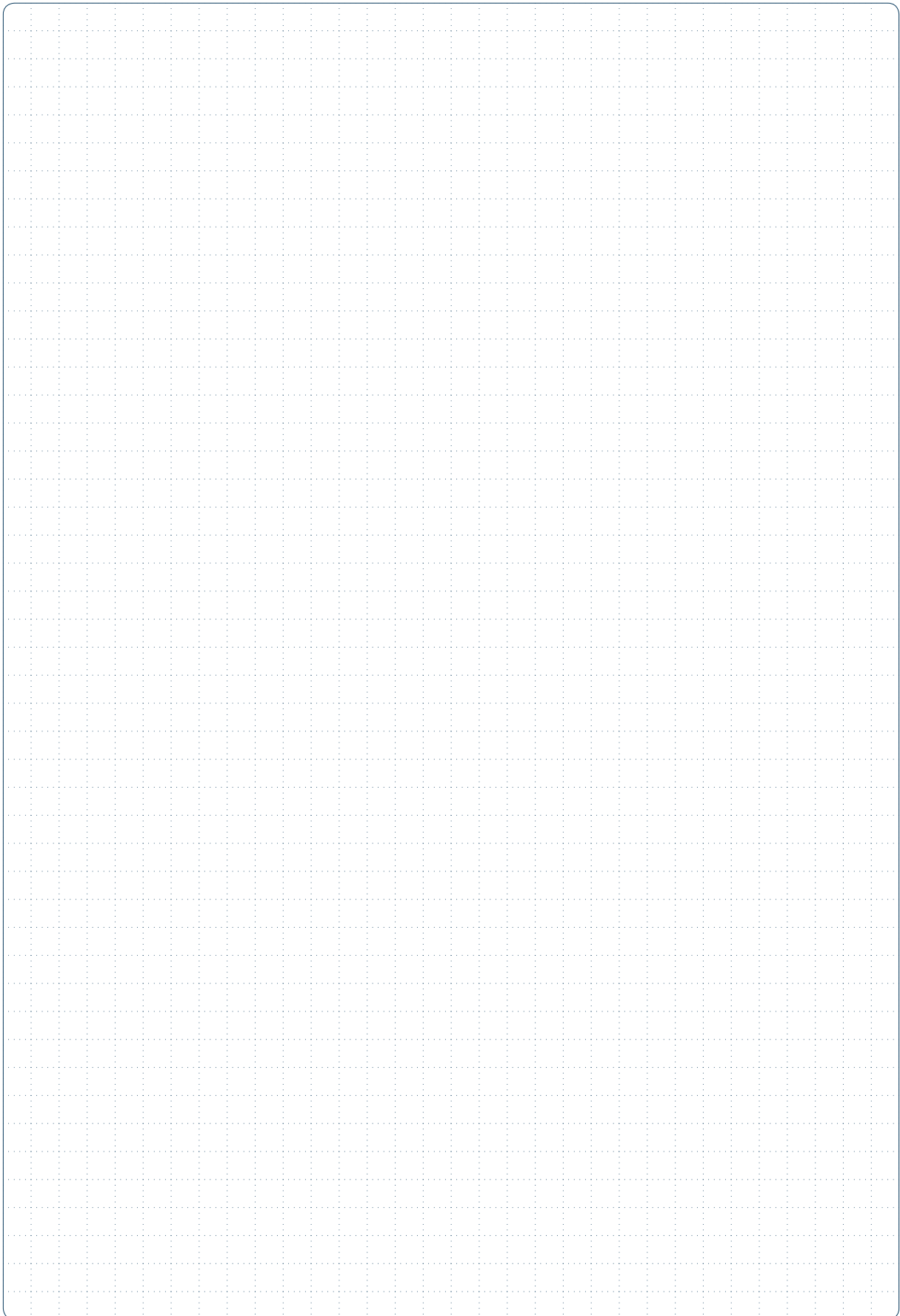


GND

NOTES

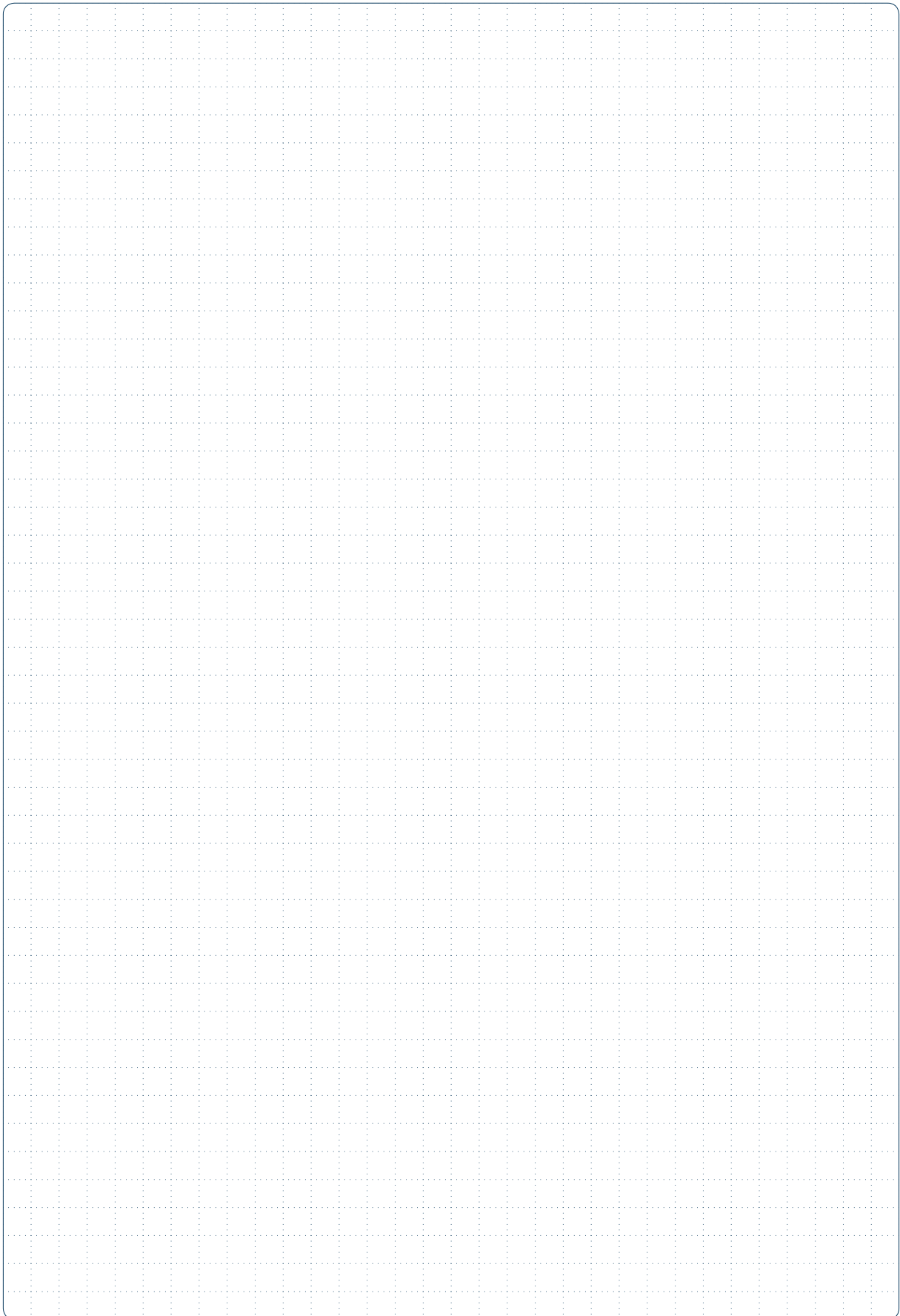


NOTES

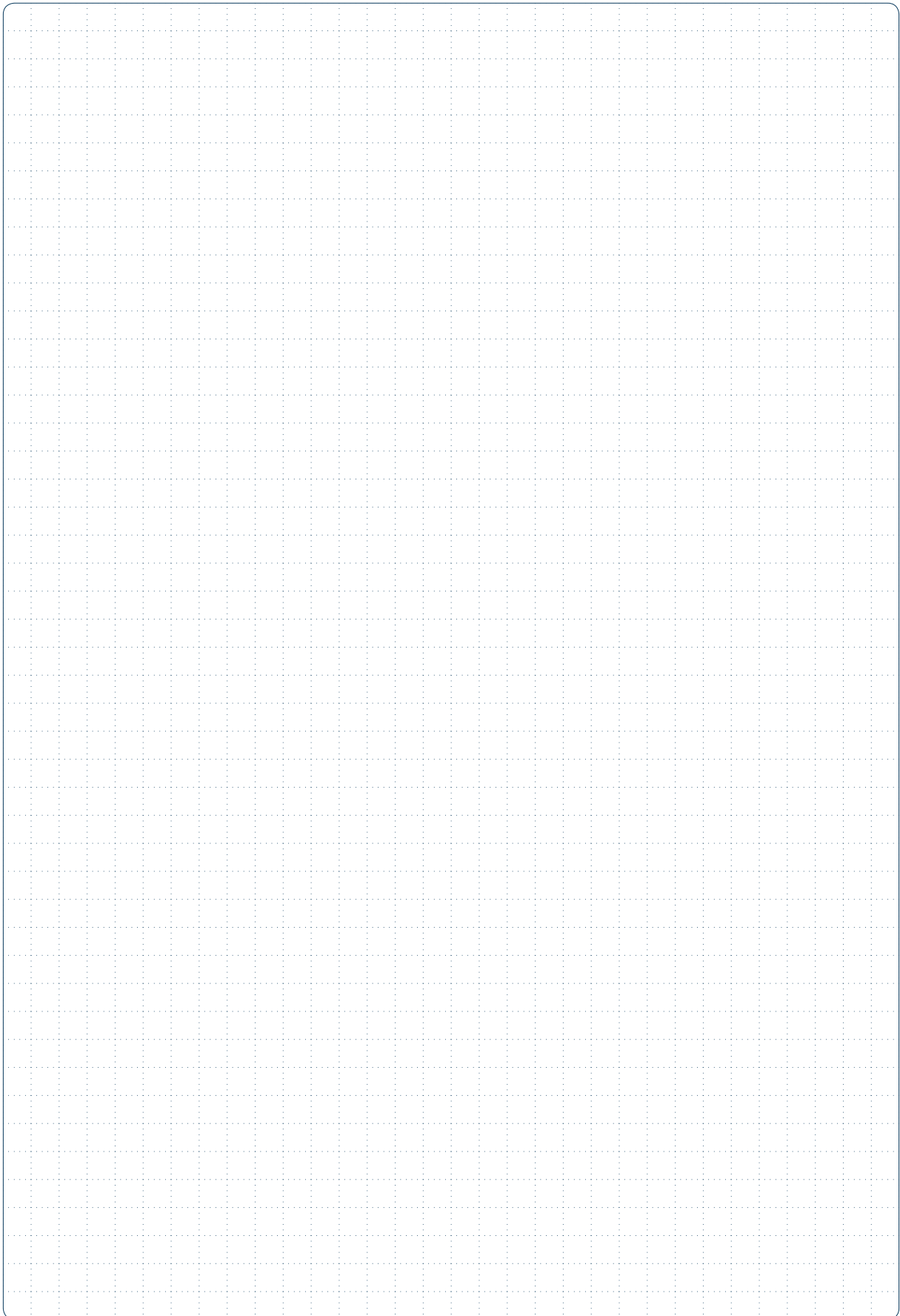


GND

NOTES



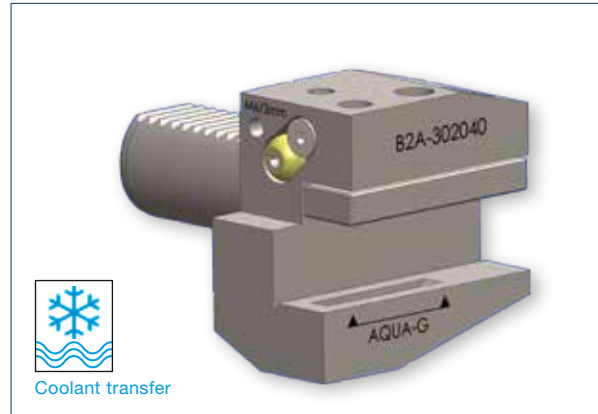
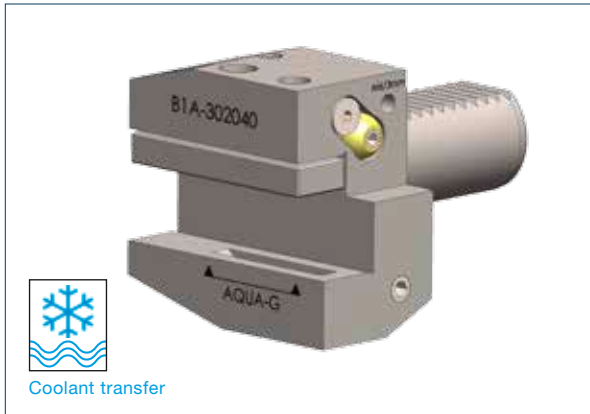
NOTES




GND

AQUA-G® VDI tool holding fixture

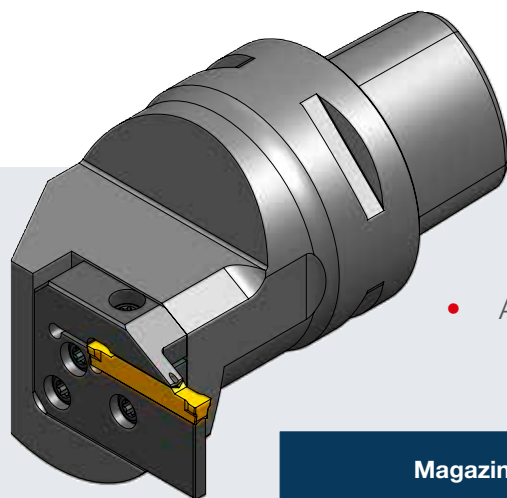
with internal cooling



- Coolant hose tight up to 150 bar
- Coolant hose with adapter G1/8" - M12 x 1,5
- Coolant hose not included in the scope of delivery of the VDI tool holders
- Aperture of external coolant nozzle indicates the maximum quantity of coolant for internal cooling.
- Plug screw M6 3 mm included in the scope of delivery
- Plug screw attachable at tool holder
-  CAUTION: Coolant nozzle in as-delivered condition closed by screw.
- Detailed information in our new AQUA-G® catalog

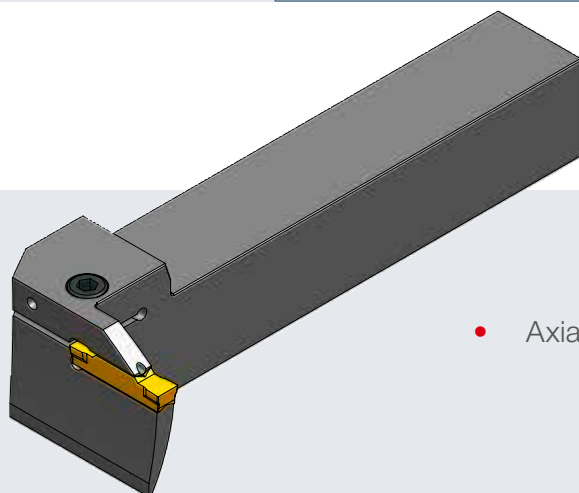
Special solutions

Examples



- Angled Capto tool holder with cartridge

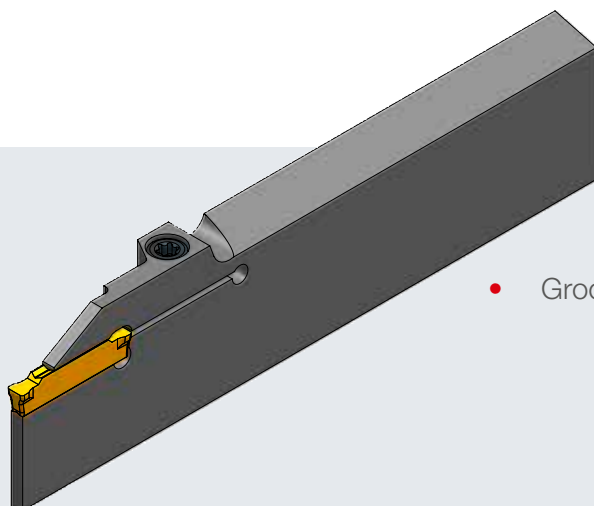
Magazine	Order number
WKL-GCMNH412	C5-GNDMR-011540



- Axial grooving

Order number
GNDL2525FS623-100-E926

GND



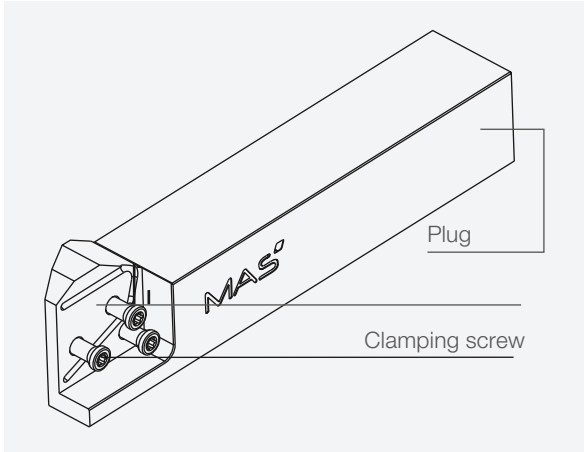
- Grooving blade

Order number
GNDL-K-319-S504

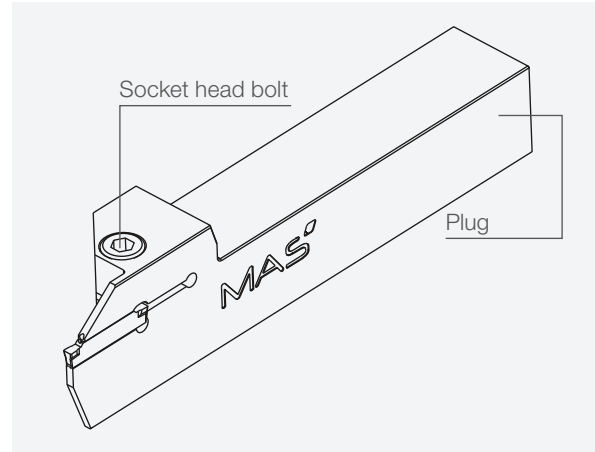
Right-hand version shown in the illustration.

Spare parts

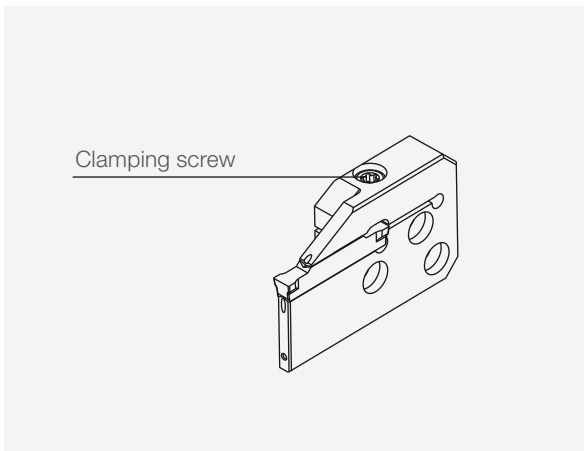
Plugs, clamping screws and wrench



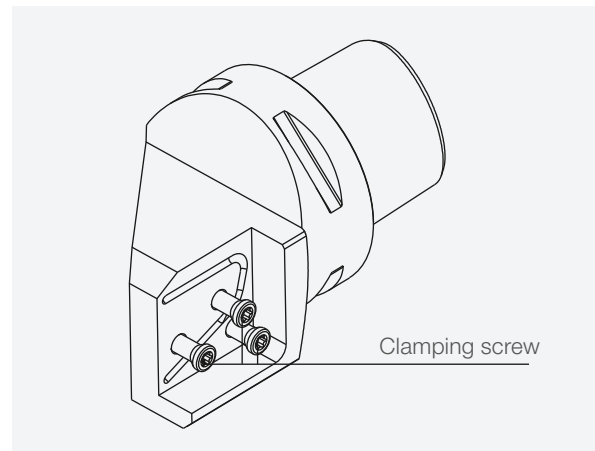
Order number	Clamping screw	Plug
GND R/L 2525-K20	BFTX0414	G 1/8 type 596



Order number	Socket head bolt	Plug
GND R/L 2020-H...	M5x16 DIN912	G 1/8 type 596



Order number	Clamping screw
GND R/L K20-H...	BFTX0414



Order number	Clamping screw
GND R/L C...-K20	BFTX0414

for order number required wrench ID:
GND R/L 1616-H...	Hexagon socket wrench LH040
GND R/L 2020-H...	Hexagon socket wrench LH040
GND R/L 2525-K20	Wrench Tx15
GND R/L 2525F-K20	Wrench Tx15
GND R/L C. 1046-K20	Wrench Tx15
GND R/L K20-H...	Wrench Tx15

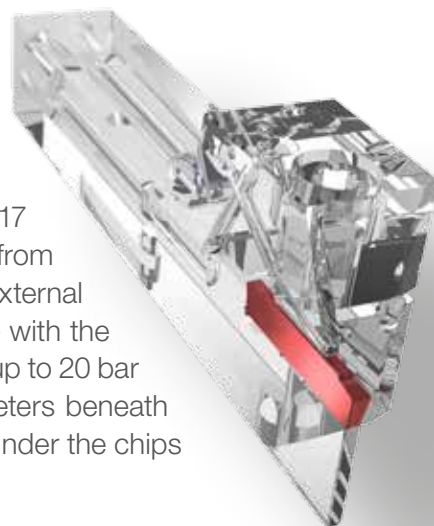
FOCUS ON TOOLS

Longer Service Lives when Grooving

Feeding coolant directly to the blade

Our tool holders for groove turning with the GND cutting system from Sumitomo have an internal coolant supply system which increases service lives by up to 30 percent. The square shanks, which measure 16 x 16 mm or 20 x 20 mm, support grooving inserts of 2 to 6 mm width from Sumitomo's GND range of grooving products, allowing them to cut grooves of 12, 17 and 22 mm depth. The coolant can be fed in from the side or from below into the tool shanks as desired. There is no need for external pipelines or hoses, meaning that there are no forms to interfere with the process. The internal coolant ducts can withstand pressures of up to 20 bar without any problems. The coolant discharge just a few millimeters beneath the cutting surface of the inserts ensures that the coolant gets under the chips directly, lifting them reliably.

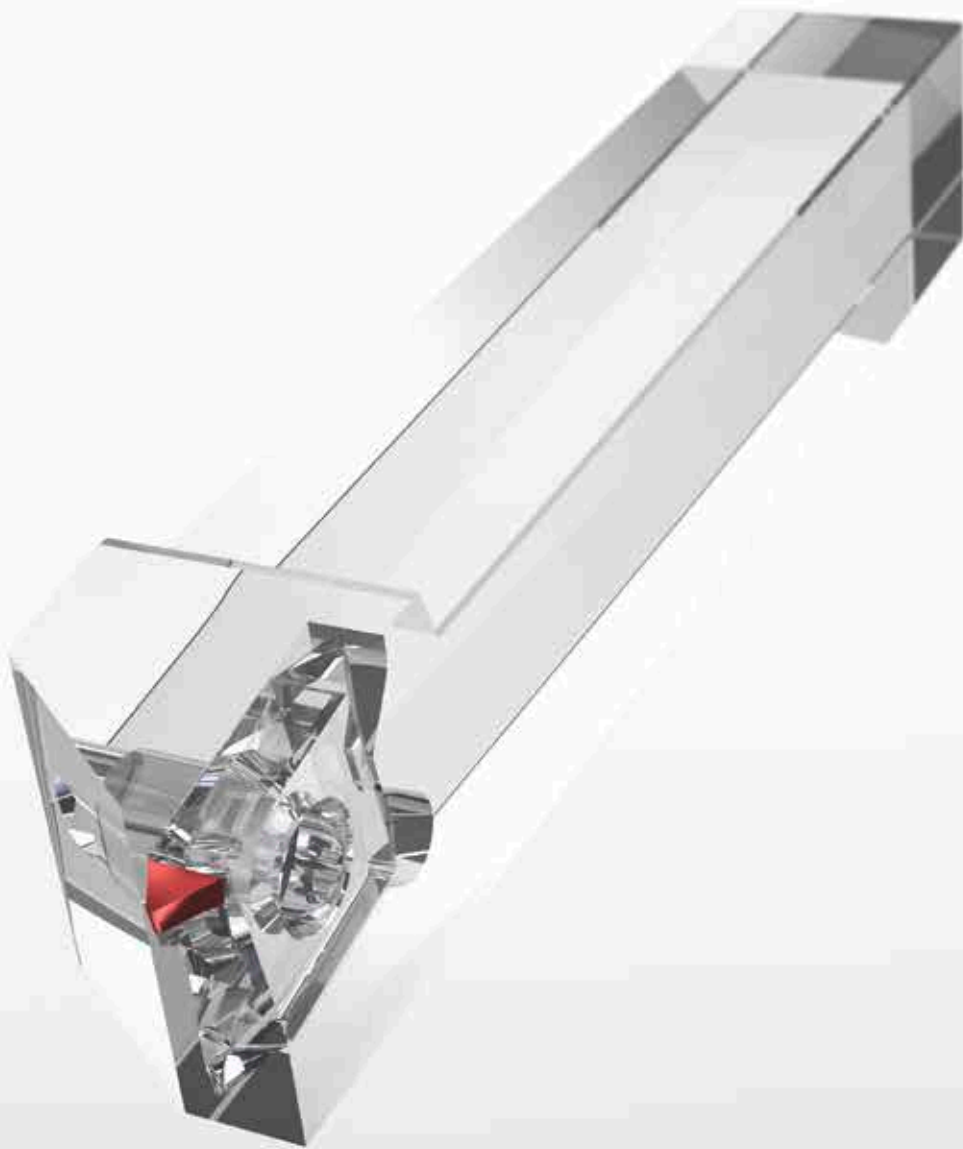
Even with more challenging materials, the chips are short and are reliably discharged from the cutting point of the inserts. The coolant jet also continuously cools the insert directly at the point where the heat is generated from the cutting process. The main advantages are the high process reliability and the increase in service life of the carbide inserts by over 30 per cent. Because the time between tool changes is much longer and the machines are left idle for less time, the internal coolant supply also enhances productivity. The internal coolant supply of our innovative groove turning tool holders there contributes significantly to more cost-effective turning, specifically for automotive suppliers.



GND

CBN

Hard Threading



CBN Hard Threading

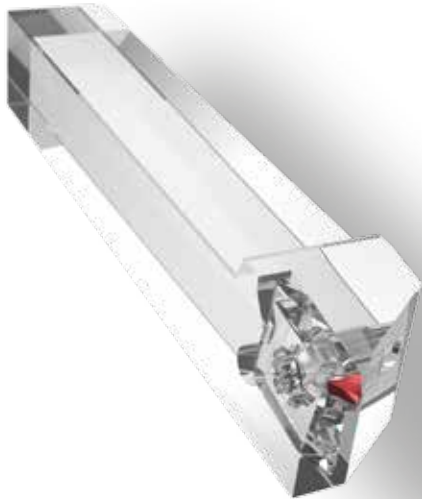


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Full profile			143
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Hard Threading Technology			145

CBN

CBN Hard Threading

Benefits and Features

- Flexible system
- Great time advantage thanks to turning
- Pre-cutting of the threads is not required
- Highest precision due to several machining operations in one set-up
- High thread quality
- Hard/Soft machining of, e.g., case-hardened steels
- Inside and outside thread
- Interrupted cutting possible

Product range

Partial profile inserts

Outside thread

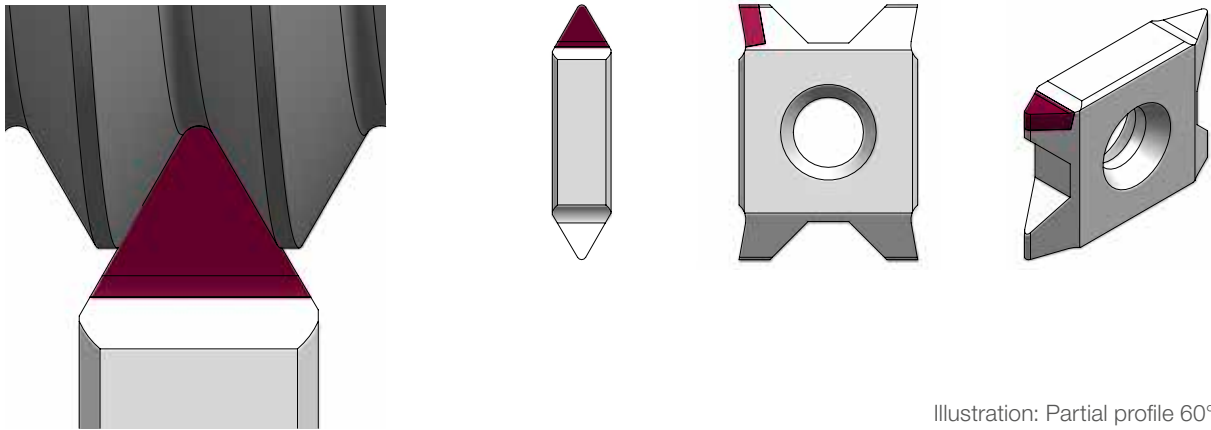


Illustration: Partial profile 60°

Order number	Gradient	Radius	Cutting material CBN
12 E 0.50 ISO BN250 PARTIAL PROFILE	0.50	0,072	BN250
12 E 0.75 ISO BN250 PARTIAL PROFILE	0.75	0,1	BN250
12 E 0.80 ISO BN250 PARTIAL PROFILE	0.80	0,11	BN250
12 E 1.00 ISO BN250 PARTIAL PROFILE	1.00	0,14	BN250
12 E 1.25 ISO BN250 PARTIAL PROFILE	1.25	0,17	BN250
12 E 1.50 ISO BN250 PARTIAL PROFILE	1.50	0,21	BN250
12 E 1.75 ISO BN250 PARTIAL PROFILE	1.75	0,26	BN250
12 E 2.00 ISO BN250 PARTIAL PROFILE	2.00	0,29	BN250
12 E 2.50 ISO BN250 PARTIAL PROFILE	2.50	0,36	BN250
20 E 2.00 ISO BN250 PARTIAL PROFILE	2.00	0,29	BN250
20 E 2.50 ISO BN250 PARTIAL PROFILE	2.50	0,36	BN250
20 E 3.00 ISO BN250 PARTIAL PROFILE	3.00	0,43	BN250

CBN

- Special solutions and further versions available upon request.
- Find the matching tool holder system e.g. in our MAS catalog MODUL®turn.

Product range

Partial profile inserts

Inside thread

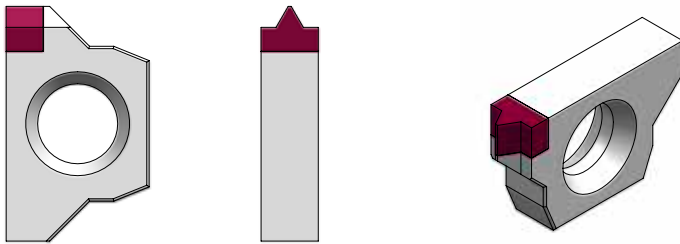


Illustration: ISO metric 60°

Order number	Gradient	Radius	Cutting material CBN
10 N 0.5 ISO BN250 PARTIAL PROFILE	0.50	0,036	BN250
10 N 0.75 ISO BN250 PARTIAL PROFILE	0.75	0,054	BN250
10 N 1.0 ISO BN250 PARTIAL PROFILE	1.00	0,072	BN250
10 N 1.25 ISO BN250 PARTIAL PROFILE	1.25	0,17	BN250
10 N 1.5 ISO BN250 PARTIAL PROFILE	1.50	0,1	BN250
10 N 2.0 ISO BN250 PARTIAL PROFILE	2.00	0,144	BN250
11 N 0.5 ISO BN250 PARTIAL PROFILE	0.50	0,036	BN250
11 N 1.0 ISO BN250 PARTIAL PROFILE	1.00	0,072	BN250
11 N 1.5 ISO BN250 PARTIAL PROFILE	1.50	0,1	BN250
11 N 2.0 ISO BN250 PARTIAL PROFILE	2.00	0,144	BN250

Product range

Holders

Outside thread

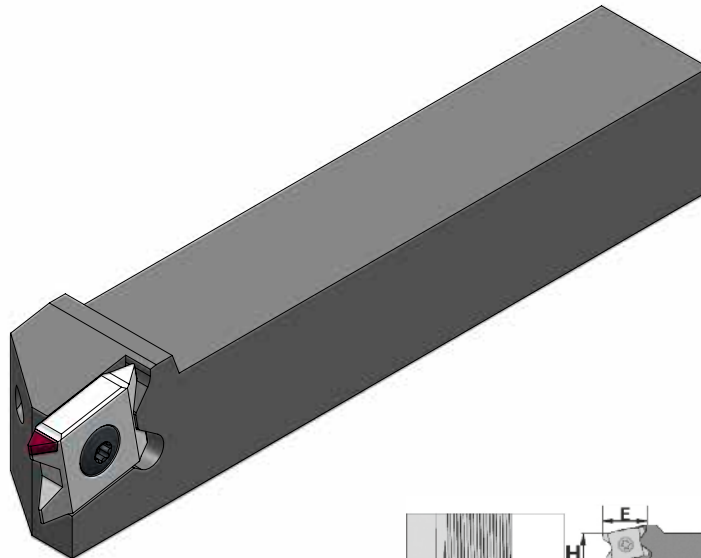
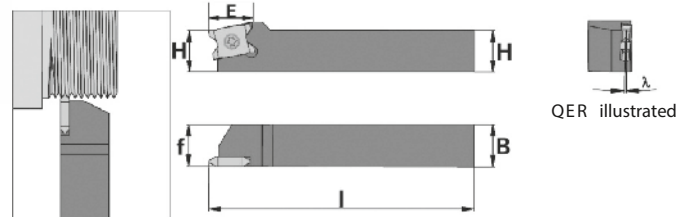


Illustration shows the right-hand version



Order number	Dimensions				Insert	Gradient angle				
	H/B	I	f	E		3	1.5	0	98.5	97
QER 1010H-12	10	100	10	17.5	12...	●	●	●	●	●
QER 1212H-12	12	100	12	17.5	12...	●	●	●	●	●
QER 1616H-12	16	100	16	17.5	12...		●			
QER 2020K-12	20	125	20	17.5	12...		●			
QER 2525M-12	25	150	25	17.5	12...		●			
QER 2020K-20	20	125	20	25.5	20...		●			
QER 2525M-20	25	150	25	25.5	20...		●			
QER 3232P-20	32	170	32	25.5	20...		●			
QEL 1010H-12	10	100	10	17.5	12...	●	●	●	●	●
QEL 1212H-12	12	100	12	17.5	12...	●	●	●	●	●
QEL 1616H-12	16	100	16	17.5	12...		●			
QEL 2020K-12	20	100	20	17.5	12...		●			
QEL 2525M-12	25	150	25	17.5	12...		●			

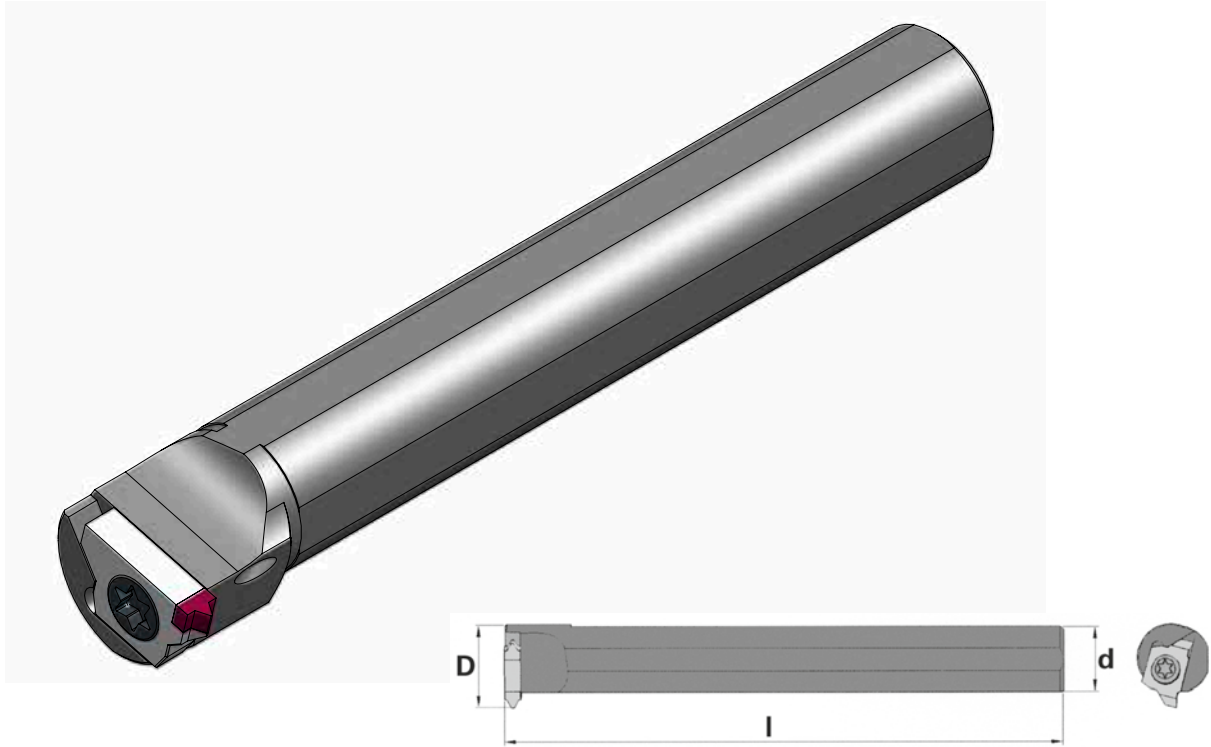
● in stock

CBN

Product range

Drill rods

Inside thread



Order number	Dimensions			Gradient angle			
	d	l	D _{min}	3	1.5	0	98.5
QNR 0010J-10	10	110	14	●	●	●	●
QNR 0012K-10	12	125	16	●	●	●	●
QNR 0016K-10	16	125	20	●	●	●	●
QNR 0020M-10	20	150	24	●	●	●	●
QNL 0010J-10	10	110	14	●	●	●	●
QNL 0012K-10	12	125	16	●	●	●	●
QNL 0016K-10	16	125	20	●	●	●	●
QNL 0020M-10	20	150	24	●	●	●	●
QNR 0010M-D-10*	10	150	14		●		
QNR 0012M-D-10*	12	150	16		●		
QNR 0016Q-D-10*	16	180	20		●		
QNR 0025P-11	25	170	30	●	●	●	●
QNL 0025P-11	25	170	30	●	●	●	●

● in stock ● at short notice

*These drill rods can be used with a large projection length where vibration and high cutting forces may occur.

Product range

Magazine holders

For standard magazines

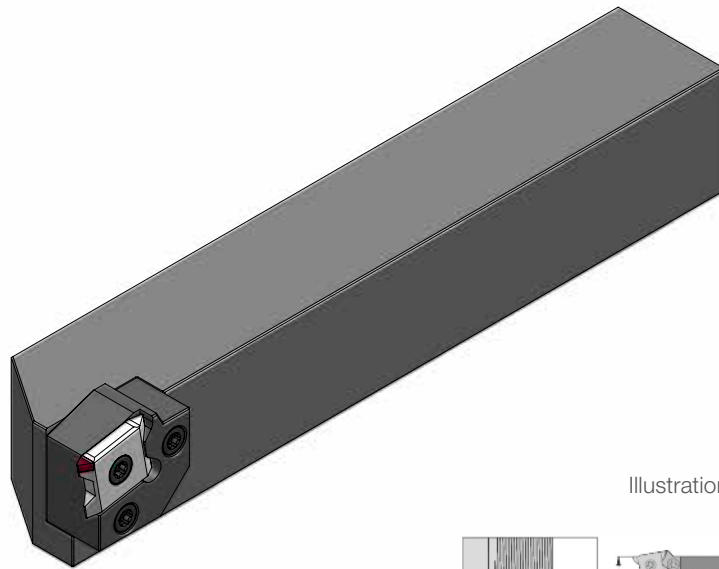
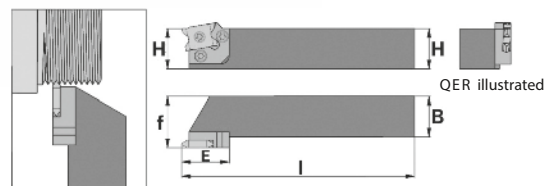


Illustration shows the right-hand version



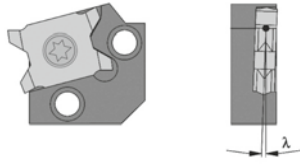
Order number	Dimensions				Magazine		
	H/B	l	f	E	Insert 12...	Insert 20...	
QER 1616H-C20	16	100	20	22.5	QER 20-12		●
QER 2020K-C20	20	125	25	22.5	QER 20-12		●
QER 2525M-C25	25	150	32	29.5	QER 25-12	QER 25-20	●
QER 3232P-C25	32	170	40	29.5	QER 25-12	QER 25-20	●
QER 4040R-C25	40	200	50	29.5	QER 25-12	QER 25-20	●
QEL 1616H-C20	16	100	20	22.5	QEL 20-12		●
QEL 2020K-C20	20	125	25	22.5	QEL 20-12		●
QEL 2525M-C25	25	150	32	29.5	QEL 25-12	QEL 25-20	●
QEL 3232P-C25	32	170	40	29.5	QEL 25-12	QEL 25-20	●
QEL 4040R-C25	40	200	50	29.5	QEL 25-12	QEL 25-20	●

● in stock

CBN

Product range

Standard magazines



Order number	Insert	Gradient angle					
		4.5	3	1.5	0	98.5	97
QER 20-12	12...	●	●	●	○	●	○
QER 25-12	12...	○	●	●	○	●	○
QER 25-20	20...	○	●	●	○	●	○
QEL 20-12	12...	○	●	●	○	●	○
QEL 25-12	12...	○	●	●	○	●	○
QEL 25-20	20...	○	●	●	○	●	○

● in stock ○ at short notice

Spare parts

Screws and keys

Screws

Order number	for..
STS T15xM5	Insert 20
STS T9xM3	Insert 12

Keys

Order number	for..
WiHA 365 Torx T15	STS T15xM5
WiHA 365 Torx T9	STS T9xM3

Special solutions

Inserts

Trapezoidal screw thread

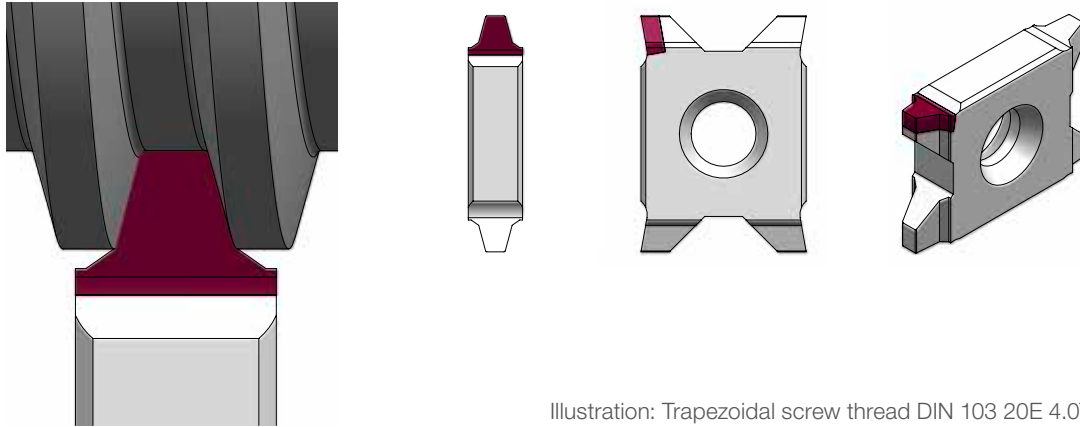


Illustration: Trapezoidal screw thread DIN 103 20E 4.0TR...

Full profile

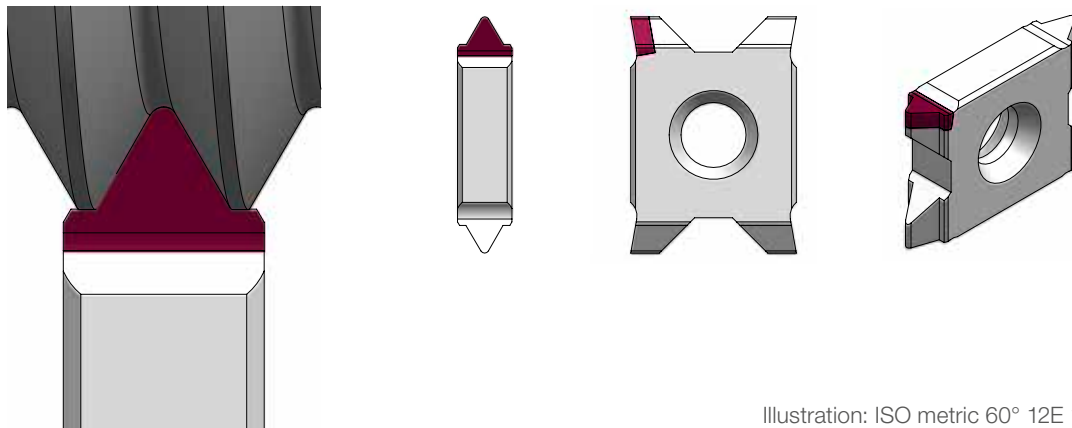


Illustration: ISO metric 60° 12E 1,5...

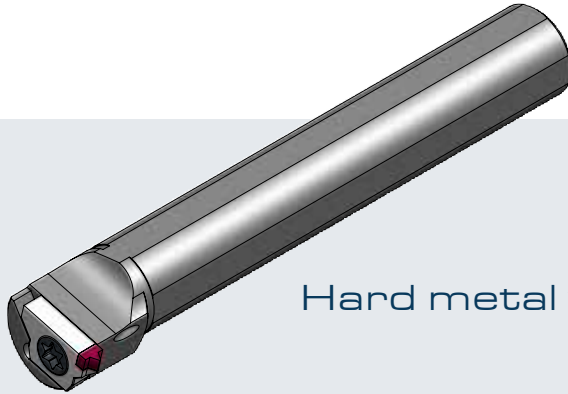
Benefits:

- Production of the complete thread
- Longer tool life and higher quality compared to partial profiles
- Less tool passes

CBN

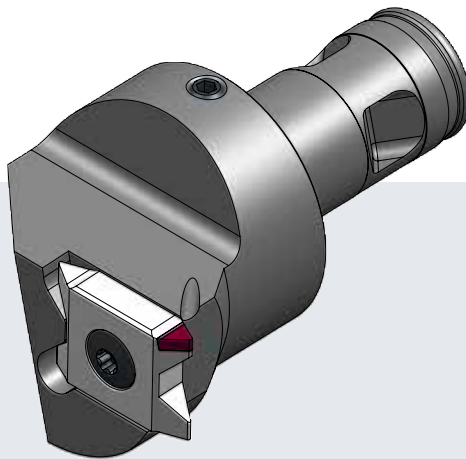
Special holders

Examples



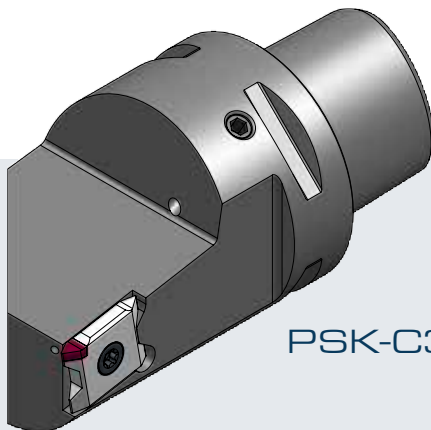
Hard metal with internal cooling

Illustration shows the right-hand version



MODUL[®]turn head fitting system

Illustration shows the right-hand version



PSK-C3 holder with internal cooling

Illustration shows the right-hand version

- We manufacture drill rods and holders, e.g. HSK or Capto.

Technology

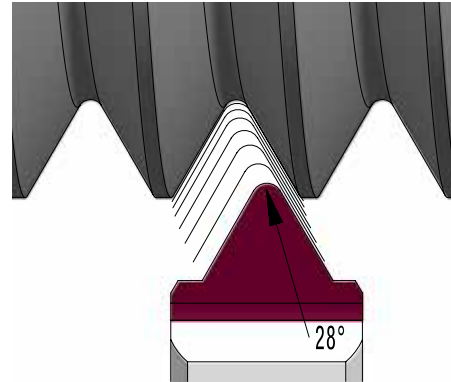
Hard Threading

Machinable materials

- Case-hardened and through-hardened steels
- HRC 52-65

Type of threads

- Metric threads as partial and full profile
- Gradients between 0.5 – 3.0 mm
- Threads with cut interruptions



Modified flank infeed

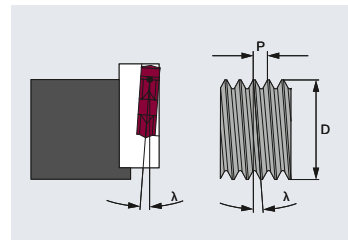
Machining

- Cutting speed: $v_c = 80 - 120$ m/min
- Constant radial infeed in X between 0.03 and 0.06 mm in the radius per pass with 28° flank infeed in Z. The number of passes is calculated based on the thread depth.
- With smooth cuts, it is possible to machine in wet and dry conditions. With interrupted cuts, machining should only occur in dry conditions.

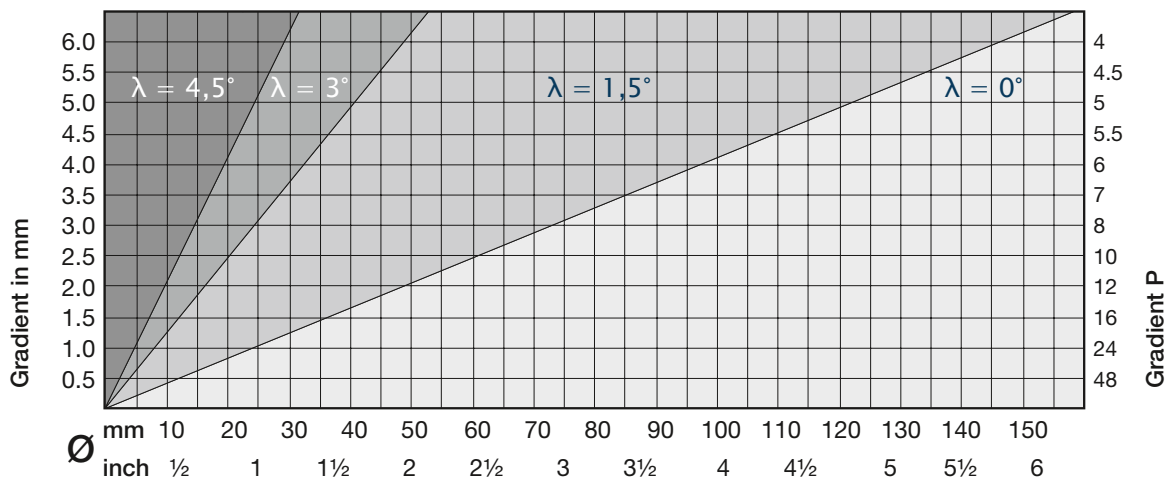
Gradient angle

- 98% of all threads have a gradient angle between 0.5° and 2.0°.
- The gradient angle (λ) according to diameter (D) and gradient (P) of the thread is shown in the diagram.

$$\tan \lambda = \frac{P}{\pi \times D}$$

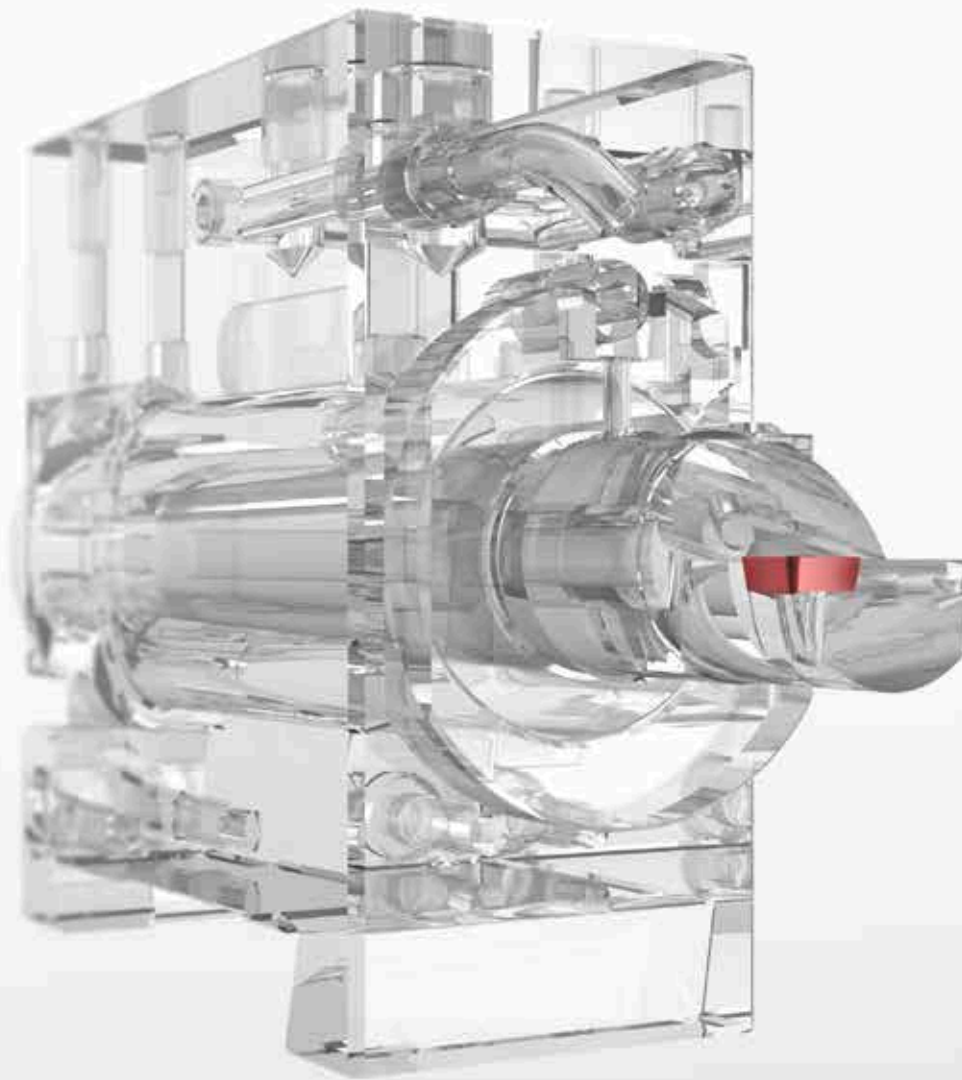


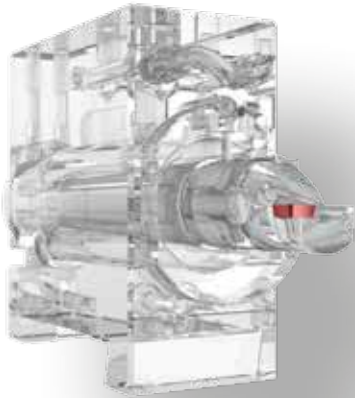
CBN



MEX[®]turn

Center height to the nearest μm





Benefits and Features

- Center height fast adjustable under 0,01 mm by an excenter system
Variation of center height for optimizing purposes possible
- Holders for div. machine types, f.i. linear-, turret-, multi-spindle-lathe
Special holders for customer requirements fast and cost-effectively realisable
- Presetable Quick-change-system
With center coolant
- Vibration damped characteristics, from experience: higher tool life,
better surfaces, greater diameter-length-ratio possible
→ higher process reliability
- Minimal tool overhang possible
Tool clamping in the base body
- Highest flexibility
Quick setup by separate adjusting of center height at multi-holders
- Clamping of high frequency spindles (HFS) Ø 25,4 and Ø 33 mm possible

The Genesis of MEX[©]turn

Clamping using a hydraulic eccentric bushing minimizes tooling up times

How our innovative MEX clamping system was born out of instructive practical experience and thorough knowledge of engineering design

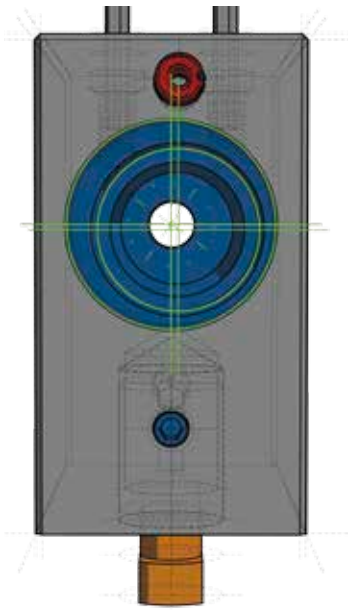


It was a typical situation: Manufacturing assignments had been scheduled, and this meant replacing the tools and the tool holders on several linear machines. As the contract manufacturer was able to keep the lathes working to full capacity during all shifts and from Sunday to Friday, there was only one day available for tool changing: the Saturday. Steffen Schmigalla, who with his brother Jochen represents the MAS management board, as well as our Technical Director Thomas Mörk, provided support to the contract manufacturer's machine setters during the work that it entailed.

It turned out, however, that adjusting the tool holders with the tools being used was extremely difficult and complicated. The normal holders with wedges could only be set inexactly by hand or using setting screws. Also, while clamping the tool the clamping screws exert so much force that the tool moves away from its set position. In the end, adjusting the tools at center height to an accuracy of 0.01 mm and clamping them firmly only succeeded after several hours and a great deal of trial and error.

As Thomas Mörk and the contract manufacturer's specialists realized, this adds up to an unacceptable amount of effort. "We have a highly-developed machine technology that has cost the company around half a million euros per machine, but when it comes to the tool clamping system we have to apply simple, almost primitive mechanical solutions that only deliver the required results thanks to the specialist staff's dexterity and patience. In many cases achieving the degree of precision is pretty much a question of chance," as Thomas Mörk summarizes his experience. He and Steffen Schmigalla left the contract manufacturer with a queasy feeling. For them it was simply not acceptable to leave a customer alone with that kind of headache.

And that is why Thomas Mörk, together with some of our specialists, worked out how to develop a significantly more sophisticated clamping system. The system was to feature dependable repeatability. It had to be operated easily, fast and reliably. And the result – accuracy to less than 0.01 mm while adjusting the tools to center height – was to be possible independently of the machine setter's dexterity and effort.



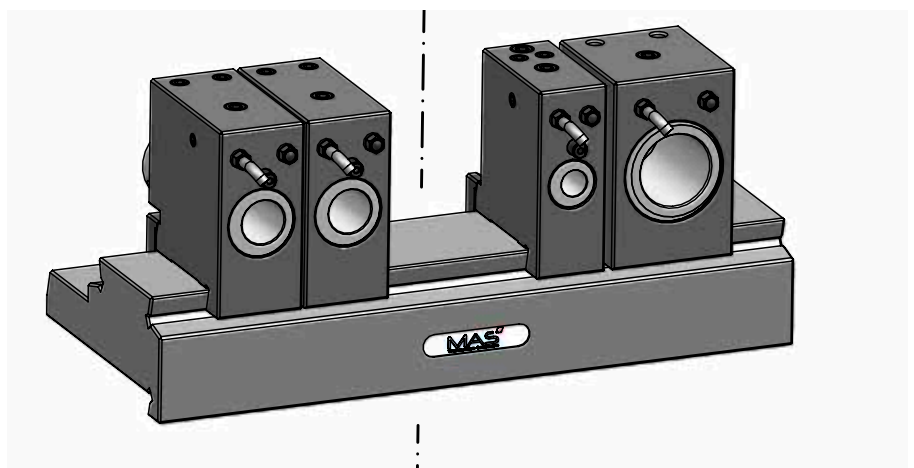
Thomas Mörk systematically compared the advantages and disadvantages of a large number of possible clamping systems. Mechanical devices are easy to set up and can be manufactured especially cheaply. However, it is difficult to achieve the required positioning precision. Also, using pressure screws for clamping unavoidably pushes the tool out of the exact position.

Systems that can avoid these disadvantages are either very bulky with a long overhang, or they can only be used with manufacturer-specific tool and holder interfaces. So such systems cannot be universally and flexibly deployed for all tools and on different turning machines. But Thomas Mörk wanted to be able to provide all manufacturing facilities with a stable and nevertheless highly precise holder system. Through these methodical comparisons of different concepts and functional principles it emerged that clamping by hydraulic means and using an eccentric bushing fulfills all the requirements and conditions. The investigations then crystallized into the MEX clamping system.

It clamps all tools with round shanks, which can also have a clamping surface. The clamped tool shanks are largely enclosed by the stable clamping block, with only minimal overhang. This ensures the greatest possible rigidity. The hydraulic clamping system clamps the tools reliably and centered without shifting them during the clamping process. The clamping pressure is applied uniformly to the eccentric bushing and a reducer sleeve or collet chuck as well as to the tool – from all sides. The machine setter can adjust the center height very exactly and with a precision of better than 0.01 mm by means of the eccentric bushing. To ensure repeatability when tools are removed and replaced there is a clamping ring with positioning pin that is fixed to the tool shank or collet chuck the first time the tool is adjusted. This makes MEX a sophisticated, innovative quick-clamping system for universal application with linear automatic lathes.

Read more about the standard sizes, the clampable tool lengths and diameters as well as the options available for our universal and flexible MEX quick-clamping system in the following catalog presentation.

MEX®turn



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MEX[®]turn

MEX[©]turn

Overview

Machine	Type	Order number	Socket/ Bore	Tension position	Stock	Page	
BENZINGER	Mμ Future	MEX20-BE-1-S411H	ø20	1	●	154	
	Go Future	MEX25.4-BE-1-S532H	ø25,4	1	○	155	
BENZINGER special solution		MEX20-BE-8-S372	ø20	8	○	158	
CITIZEN	Miyano BNA-34/42	MEX20-BNA-2-S567H	ø20	2	○	160	
CITIZEN special solution	M32	MEX12-M32-1-S367H	ø12	1	○	160	
DMG MORI	Wasino G07 / T-Nut	MEX20-WAS-5-Z356	ø20	5	○	162	
DOOSAN	TT1500 / 1800	MEX20-DO-1-Z494	ø20	1	●	166	
HARDINGE	GT27	MEX20-GT27-1-S385H	ø20	1	●	168	
INDEX	MS16	MEX12-MS16-3-Z296	ø12	3	●	170	
	MS22	MEX12-MS22-1-S620H	ø12	1	○	171	
		MEX12-MS22-2-S618H	ø12	2	●	172	
		MEX12-MS22-3-S298H	ø12	3	●	173	
		MEX20-MS22-1-S619H	ø20	1	●	174	
		MEX20-MS22-1-S479H	ø20	1	●	175	
		MEX20P-MS22-1-Z17	ø20	1	○	176	
		MEX20-MS22-2-Z5	ø20	2	●	177	
		MEX20-MS22-2-S595H	ø20	2	●	178	
		MEX20P-MS22-2-Z18	Quill ø20	2	○	179	
		MEX20-MS22-2-S553H	ø20	2	●	180	
		MEX25.4-MS22-1-S377H	ø25,4	1	○	181	
		MEX28.5-MS22-VX-S387H	ø28,5	1	○	182	
		MEX28.5-MS22-1-Z72	ø28,5	1	●	183	
		MEX28.5-MS22-2-Z73	ø28,5	2	●	184	
		MEX33-MS22-1-S611	ø33	1	●	185	
		MEX33-MS22-1-S539H	ø33	1	●	186	
		MEX36-MS22-1-S292H	ø36	1	●	187	
		MEX36-MS22-1-S615H	ø36	1	●	188	
	MEX36-MS22-2-S297H	ø36	2	●	189		
	MS32	MEX12-MS32-3-S259H	ø12	3	●	190	
		MEX20-MS32-VX80-Z529	ø20	1	○	191	
		MEX20-MS32-1-Z187	ø20	1	●	192	
		MEX20-MS32-2-Z205	ø20	2	●	193	
		MEX33-MS32-1-S463H	ø33	1	●	194	
		MEX33-MS32-1-S519H	ø33	1	●	195	
		MEX33-MS32-1-S540	ø33	1	●	196	
		MEX36-MS32-1-Z15	ø36	1	●	197	
		MEX36-MS32-VX-S384H	ø36	1	○	198	
		MEX36-MS32-2-Z16	ø36	2	●	199	
	MS40	MEX20-MS40-3-S491H	ø20	3	●	200	
	MS52	MEX12-MS52-2-S365H	ø12	2	○	201	
		MEX12-MS52-3-S366H	ø12	3	○	202	
	INDEX special solution	MS22	MEX12-MS22-2-S541H	ø12	2	○	203
			MEX12-MS22-3-S551H	ø12	3	○	204
			MEX20-MS22-2-S626H	ø20	2	○	205
MS40		MEX12-20-MS40-3-Z32	ø12	3	○	205	
MS32P		MEX12-MS32P-3-S284H	ø12	3	○	206	

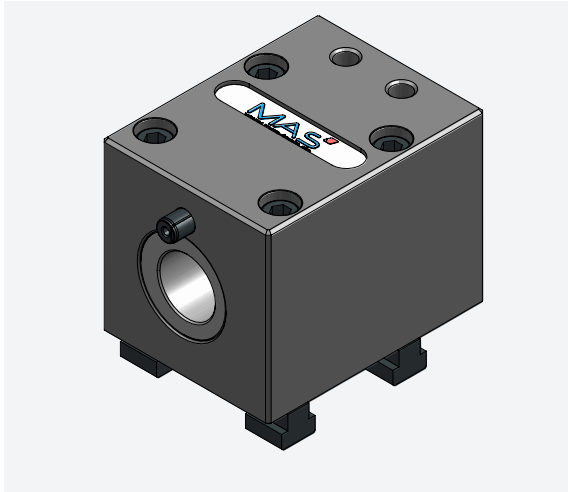
Machine	Type	Order number	Socket/ Bore	Tension position	Stock	Page
KUMMER	Verzahnung	MEX12-KU-1-Z304	ø12	1	●	212
		MEX20-KU-1-S405H	ø20	1	●	213
		MEX20-KU-3-Z207	ø20	3	○	214
		MEX20-KU-4-S583H	ø20	4	○	215
		MEX33-KU-1-S633H	ø33	1	●	216
MIKRON	NX24	MEX20-NX24-1-S512	ø20	1	○	218
NAKAMURA	TW 10M	MEX20-TW10M-1-S577H	ø20	1	○	220
		MEX20-TW10M-1-S559H	ø20	1	○	220
	WT 100	MEX20-WT-1-S566H	ø20	1	○	221
SCHÜTTE	SCX	MEX20-SCX-1-S352H	ø20	1	○	222
		MEX20-SCX-1-S368H	ø20	1	○	222
		MEX20-12-SCX-2-S525H	ø12 / ø20	2	●	223
		MEX20-12-SCX-2-S548H	ø12 / ø20	2	●	223
		MEX20-12-SCX-2-S549H	ø12 / ø20	2	●	224
		MEX20-12-SCX-2-S550H	ø12 / ø20	2	○	224
		MEX33-SCX-1-S552H	ø33	1	●	225
		MEX33-SCX-1-S579H	ø33	1	○	225
SPINNER	PD32 / PD42	MEX20-SP-1-S400H	ø20	1	●	226
STOPP	ST	MEX20-ST-1-S557	ø20	1	○	228
		MEX20-ST-1-S517H	ø20	1	○	228
	AUTO-TURN	MEX20-STP-1-S571H	ø20	1	○	229
	AUTO-TURN / FLEX-TURN	MEX20-STP-7-Z495	ø20	7	○	230
	FLEX-TURN	MEX20-STP-5-S440H	ø20	5	○	231
STOPP special solution	AUTO-TURN	MEX20-STP-3-S602H	ø20	3	○	232
TAKAMAZ	XW-50 Axial	MEX12-XW50REV-AXI-S328H	ø12	1	○	234
		MEX12-XW50REV-AXI-2-S515H	ø12	2	○	235
	XL-150 / XC-150	MEX20-XL150-1-Z19	ø20	1	○	236
	XW50-Radial	MEX12-XW50REV-RAD-S327H	ø12	1	○	237
TORNOS	DECO 10	MEX12-DECO10-4-S369H	ø12	4	○	238
	MULTIDECO 266	MEX20-266-1-S439	ø20	1	○	238
TSUGAMI	G220 / T-Groove	MEX20-TS-1-Z202	ø20	1	○	240

● Further manufacturers on demand.

● in stock ○ on request

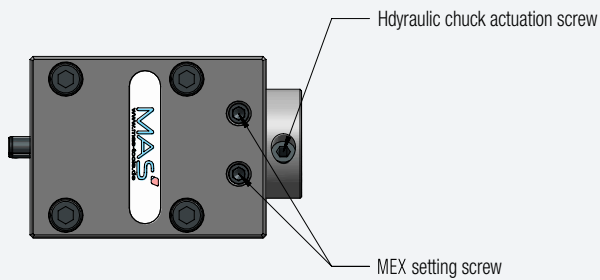
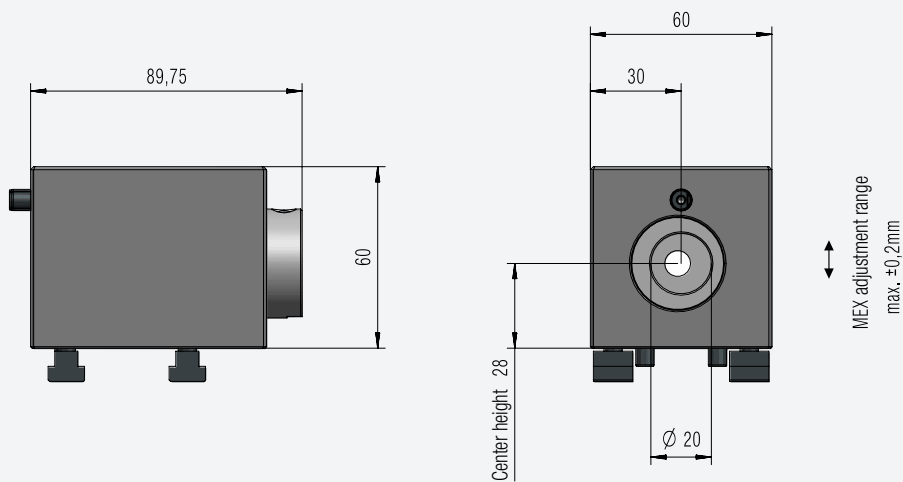
MEX[®]turn

MEX-holder 1x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 125	MEX20-BE-1-S411H	●

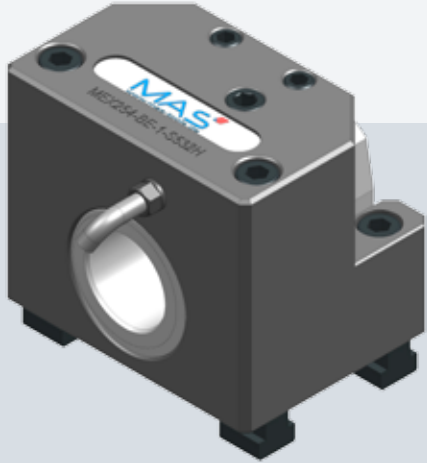
Accessories, see from page 254 ● in stock ○ on request



BENZINGER

Go Future

MEX-holder 1x / HFS $\varnothing 25,4$ mm

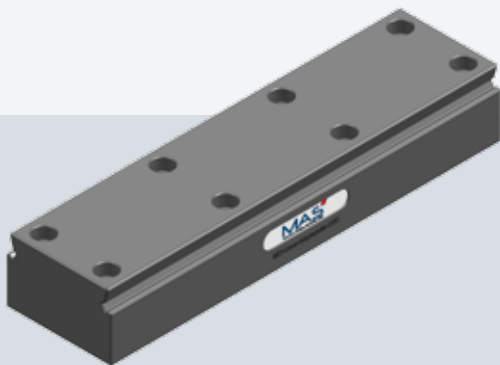


Order number	Stock
MEX25.4-BE-1-S532H	<input type="radio"/>

Accessories, see from page 254 in stock on request

Go Future

Adapter plates for MAS-dovetail



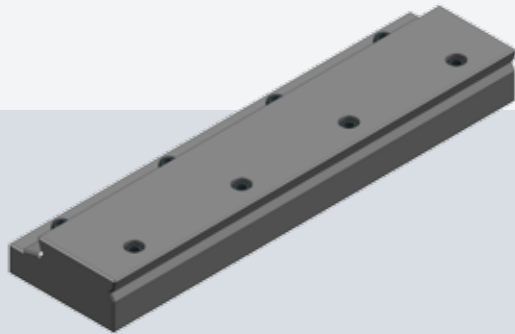
Order number	Length	Total center height	Stock
MEX linear adapter plate-S353	230 mm	70,5 mm	<input checked="" type="radio"/>

Accessories, see from page 254 in stock on request

- The dovetailed panels are specifically adapted for your machine!
- Actual center height has to be checked!

MEX[®]turn

Adapter plates for MAS-dovetail



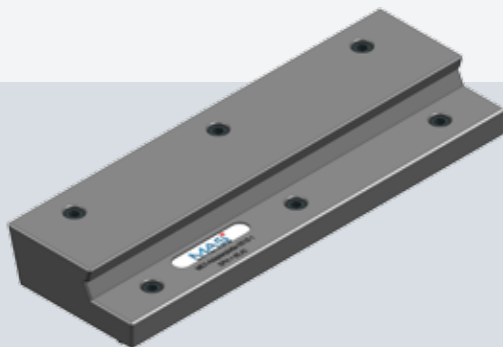
Order number	Length	Total center height	Stock
ADP-Z51	300 mm	66,5 mm	<input type="radio"/>

Accessories, see from page 254 in stock on request

- The dovetailed panels are specifically adapted for your machine!
- Actual center height has to be checked!

TNL

Adapter plates for MAS-dovetail



Order number	Length	Total center height	Stock
ADP-Z164	260 mm	65.42 mm	<input type="radio"/>

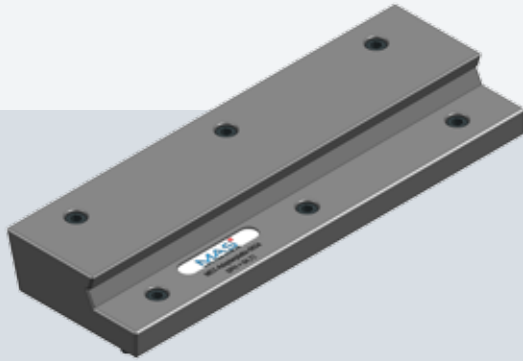
Accessories, see from page 254 in stock on request

- The dovetailed panels are specifically adapted for your machine!
- Actual center height has to be checked!

BENZINGER

TNL

Adapter plates for MAS-dovetail



Order number	Length	Total center height	Stock
ADP-Z165	260 mm	64,72 mm	<input type="radio"/>

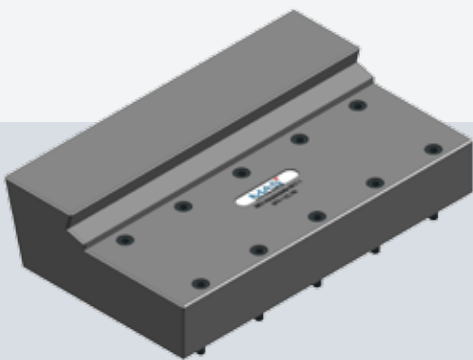
Accessories, see from page 254

in stock on request

- The dovetailed panels are specifically adapted for your machine!
- Actual center height has to be checked!

TCM-S

Adapter plates for MAS-dovetail



Order number	Length	Total center height	Stock
ADP-Z163	250 mm	92.155 mm	<input type="radio"/>

Accessories, see from page 254

in stock on request

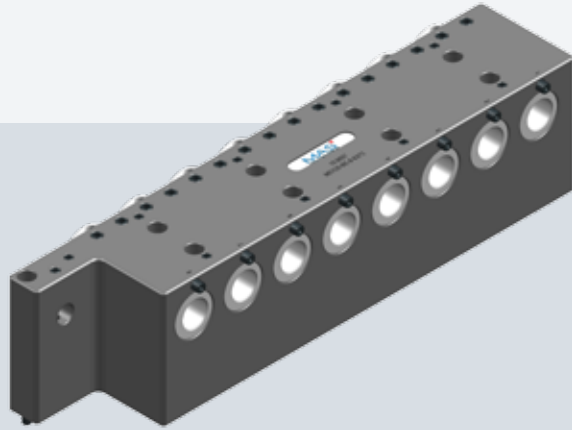
- The dovetailed panels are specifically adapted for your machine!
- Actual center height has to be checked!

MEX[®]turn

BENZINGER special solutions

Go Future

MEX-multi-holder / clamping $\varnothing 20$ mm

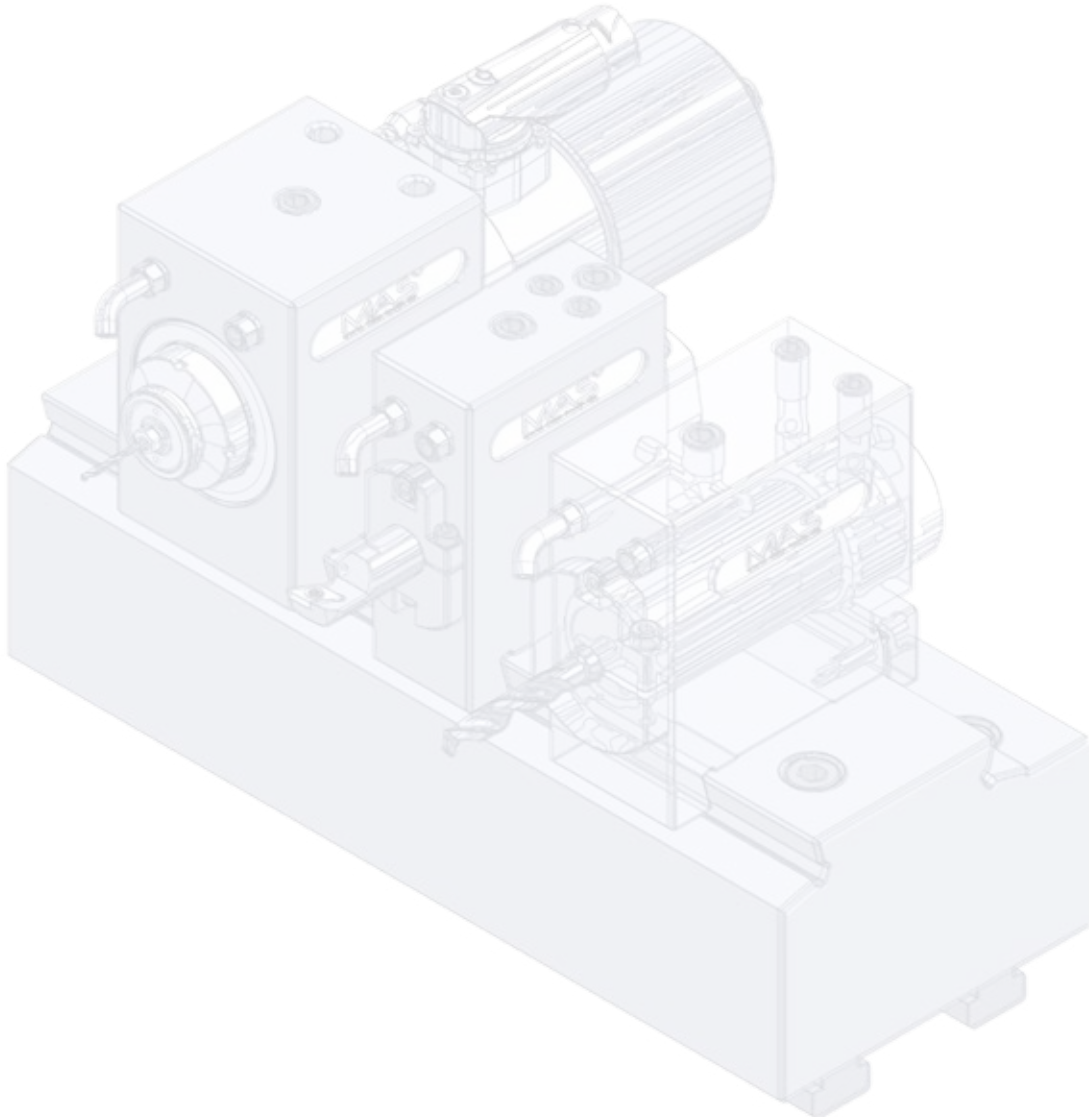


Order number	Stock
MEX20-BE-8-S372	<input type="radio"/>

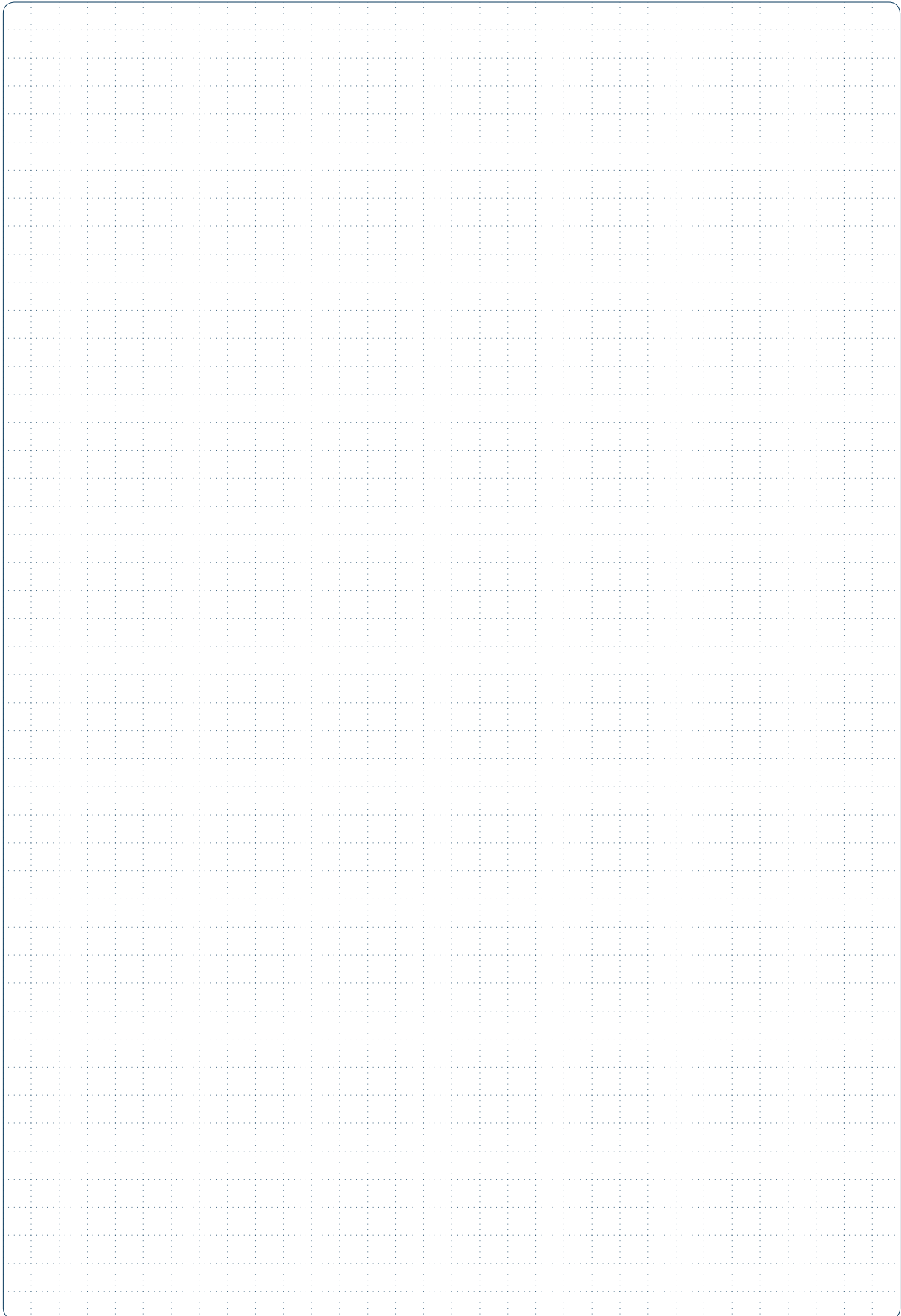
Accessories, see from page 254 in stock on request

- Multi-holder including measuring probe
- Clamping point
- Internal cooling via MEX20 sleeve

- On request also available other adapter plates and special solutions.



NOTES

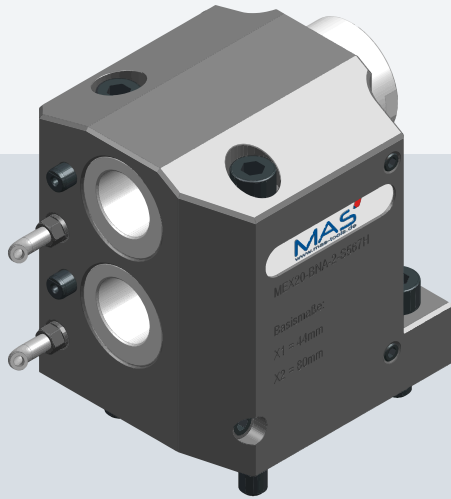


MEX[®]turn

CITIZEN

Miyano BNA-34/42

MEX-holder 2x/ clamping \varnothing 20 mm



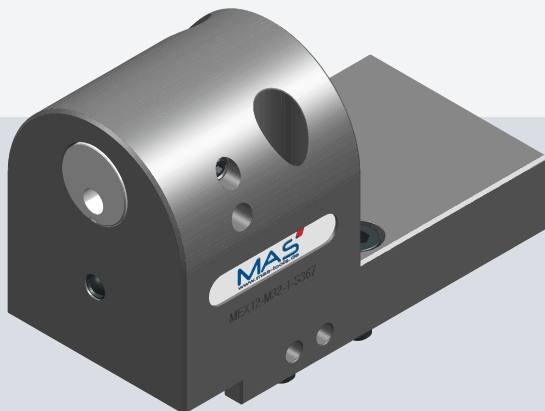
Order number	Stock
MEX20-BNA-2-S567H	<input type="radio"/>

Accessories, see from page 254 in stock on request

CITIZEN special solutions

M32

MEX-holder 1x/ clamping \varnothing 12 mm

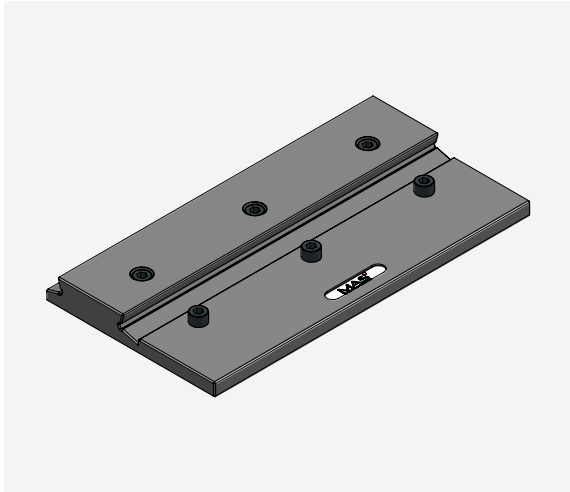


Order number	Stock
MEX12-M32-1-S367H	<input type="radio"/>

Accessories, see from page 254 in stock on request

- Incl. eccentric adjustment in holder to compensate for misalignments
- Includes internal cooling via holder
- Holder ideal for drilling deep holes
- Height adjustable via MEX

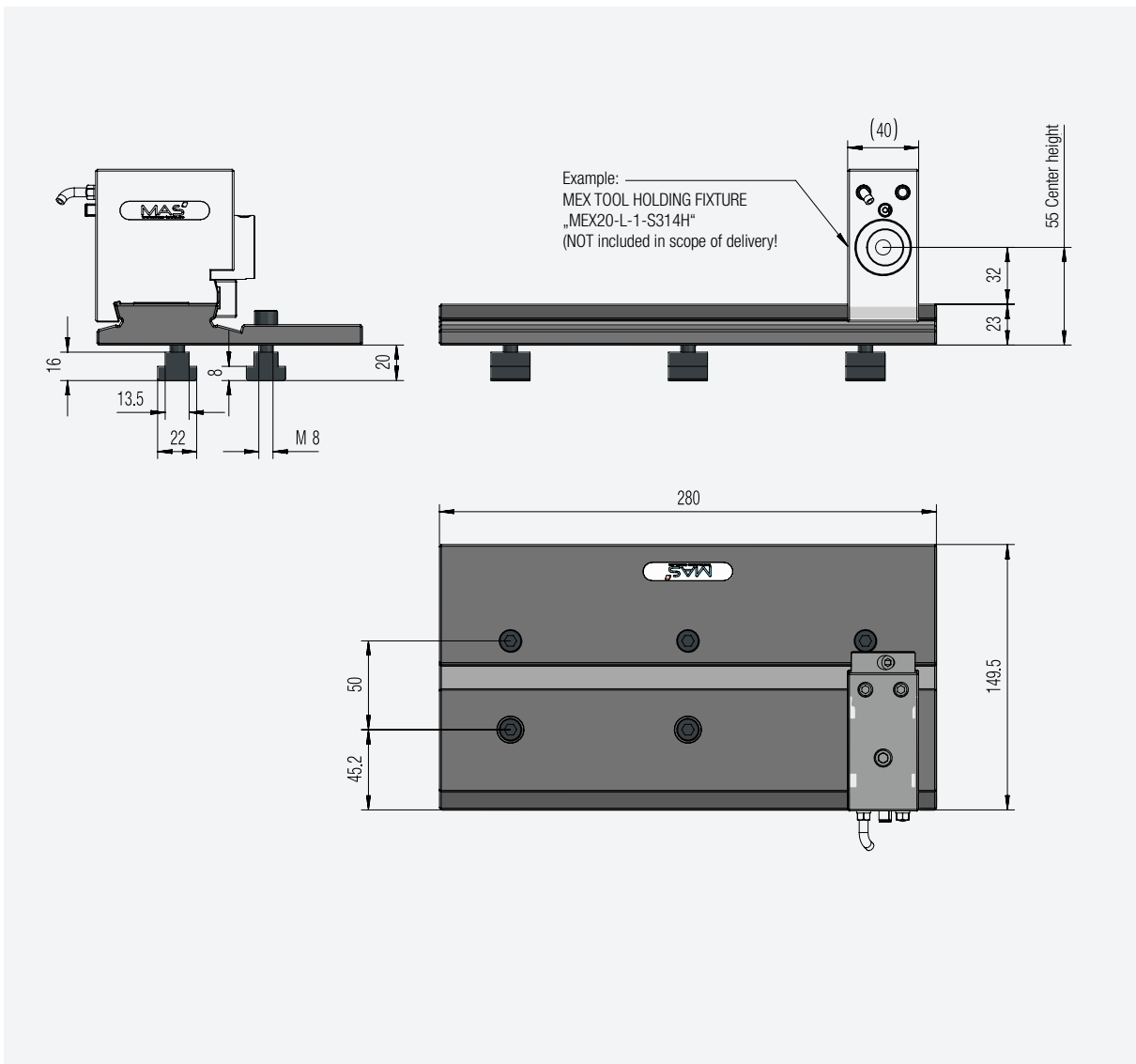
Adapter plates for MAS-dovetail



MAS-ID	Order number	Stock
Z00 000 252	ADP-Z252	●

Accessories, see from page 254 ● in stock ○ on request

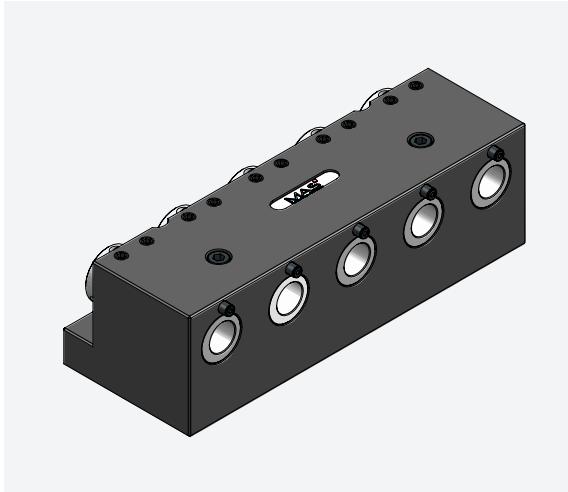
● Actual center height has to be checked!



DMG MORI

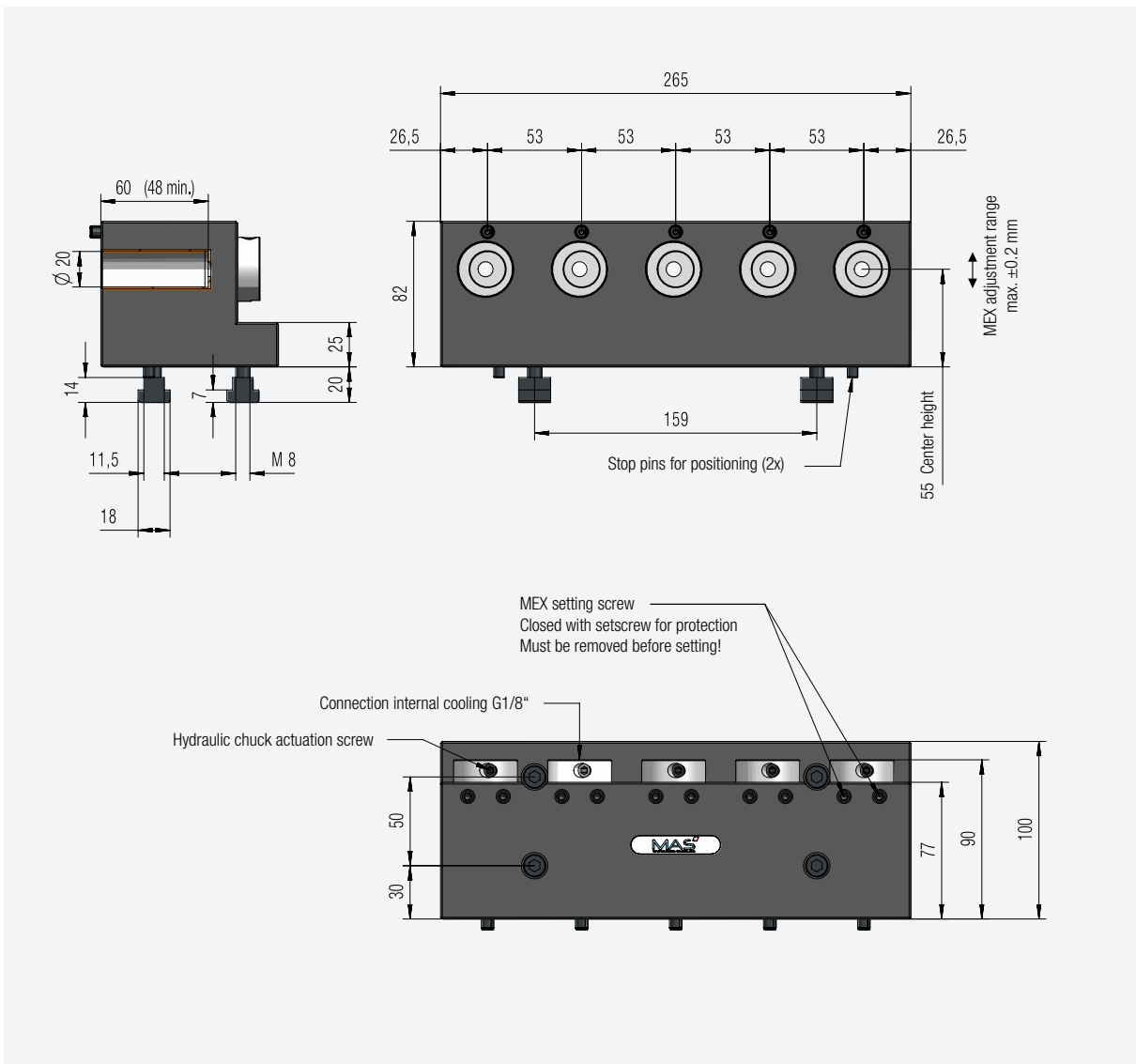
Wasino G07 / T-groove

MEX-holder 5x / clamping 20mm



MAS-ID	Order number	Stock
Z00 000 356	MEX20-WAS-5-Z356	○

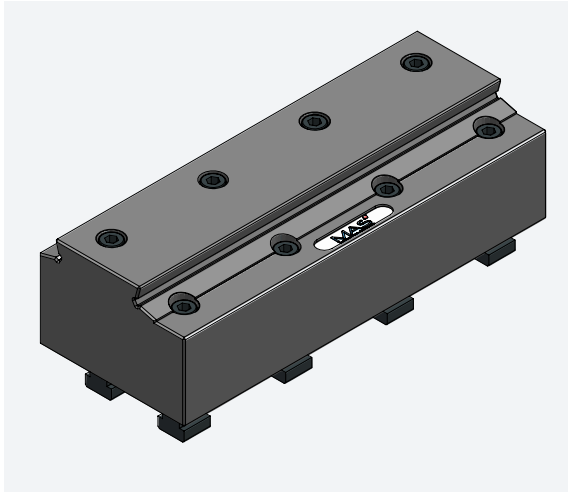
Accessories, see from page 254 ● in stock ○ on request



DMG MORI

Wasino G100 / T-groove

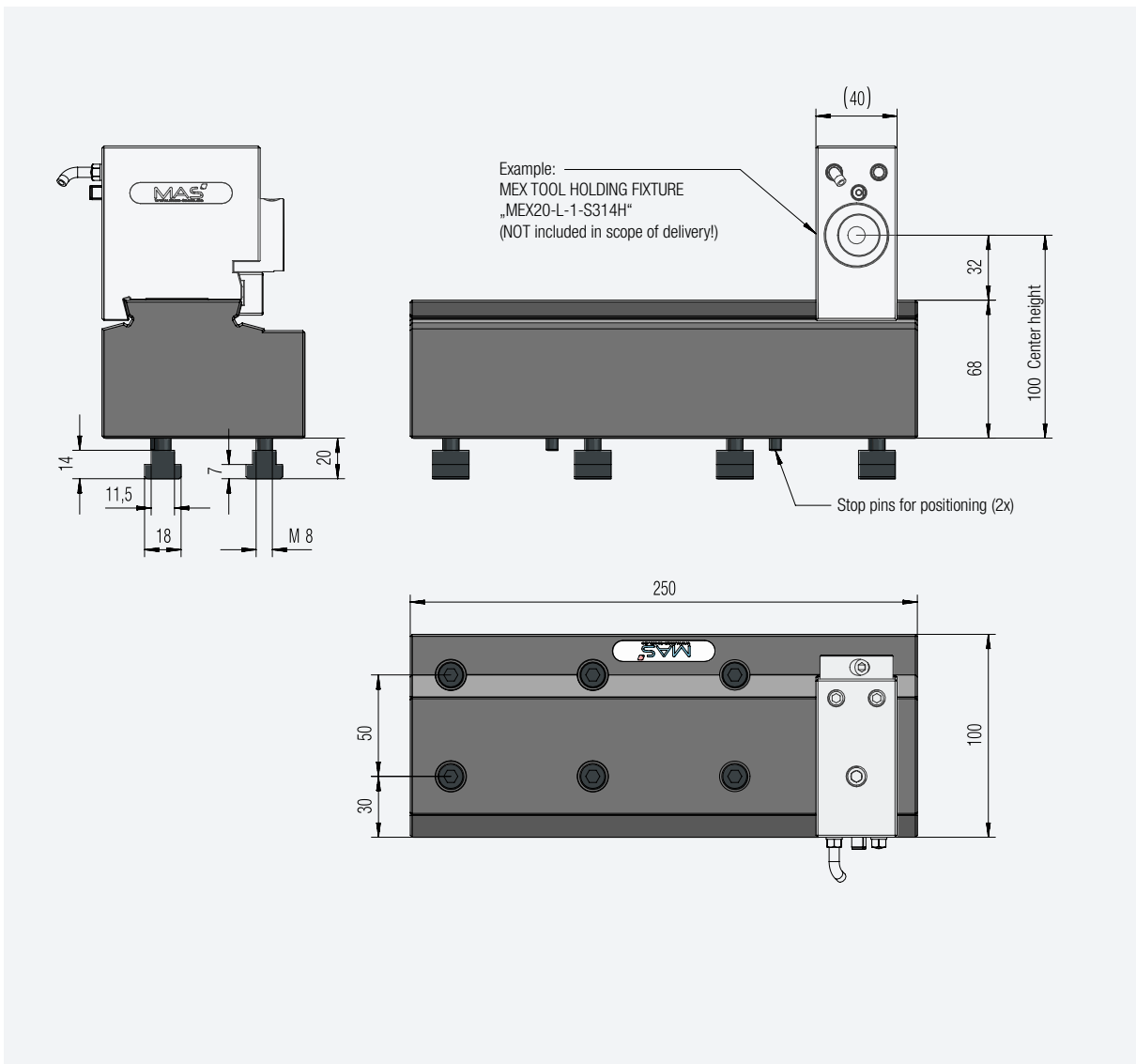
Adapter plate for MAS-dovetail



MAS-ID	Order number	Stock
Z00 000 047	ADP-Z47	●

Accessories, see from page 254 ● in stock ○ on request

- Actual center height has to be checked



MEX[®]turn

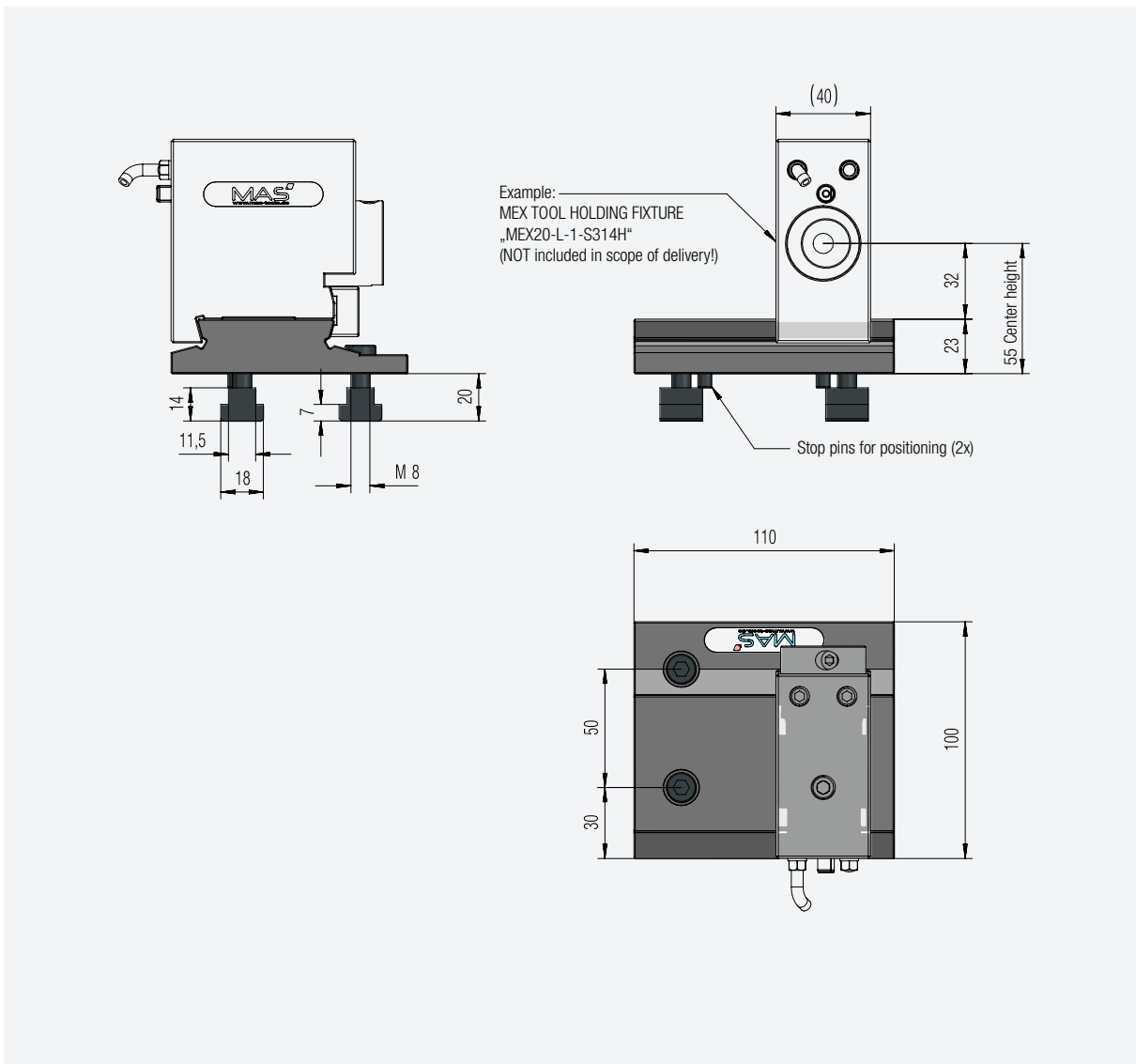
Adapter plate for MAS-dovetail



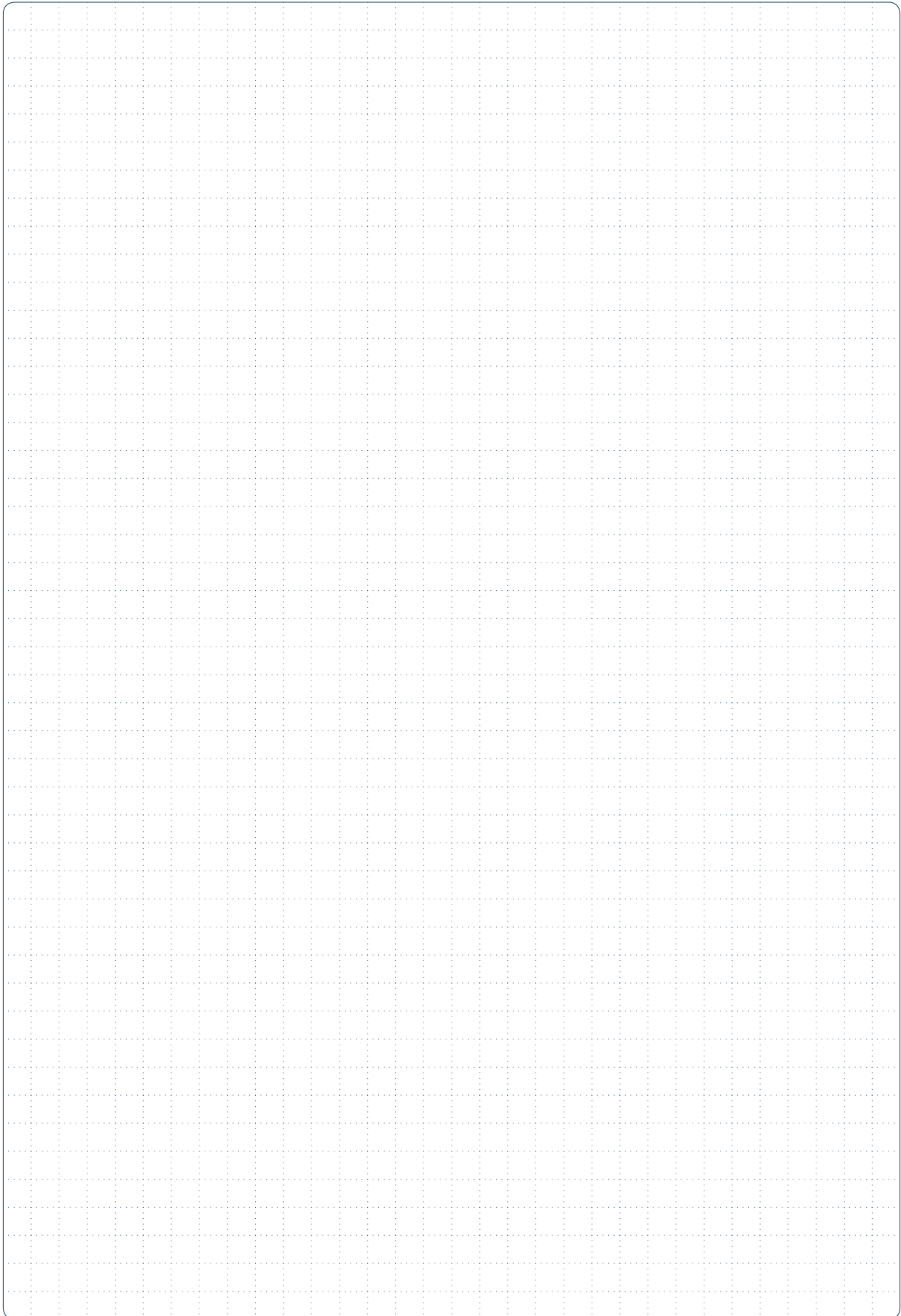
MAS-ID	Order number	Stock
Z00 000 026	ADP-Z26	○

Accessories, see from page 254 ● in stock ○ on request

- Actual center height has to be checked

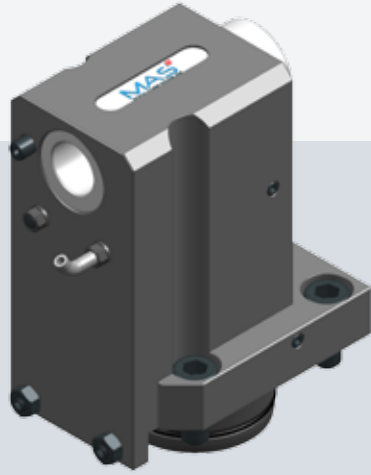


NOTES



MEX[®]turn

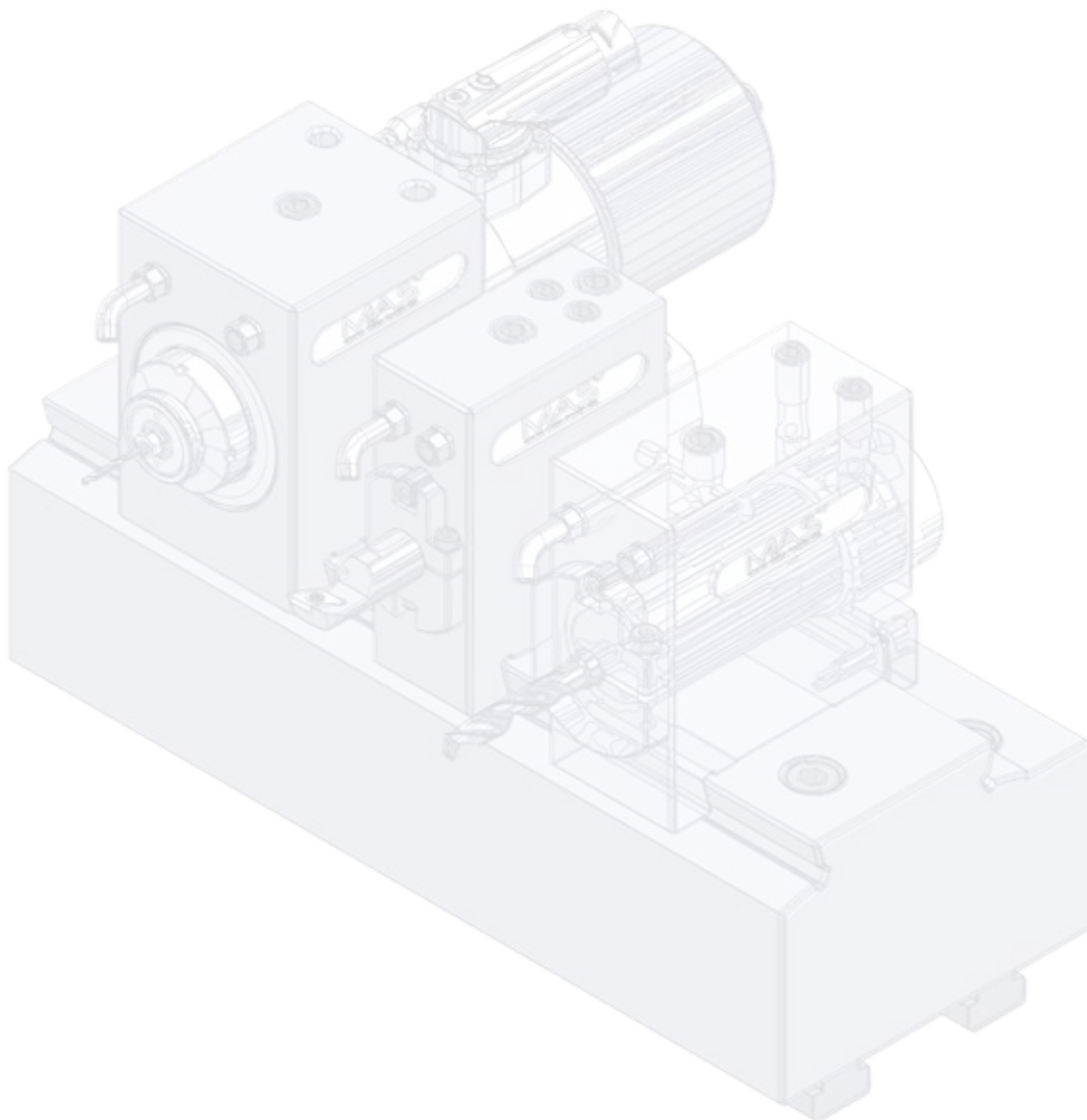
MEX-holder 1x / clamping $\varnothing 20$ mm



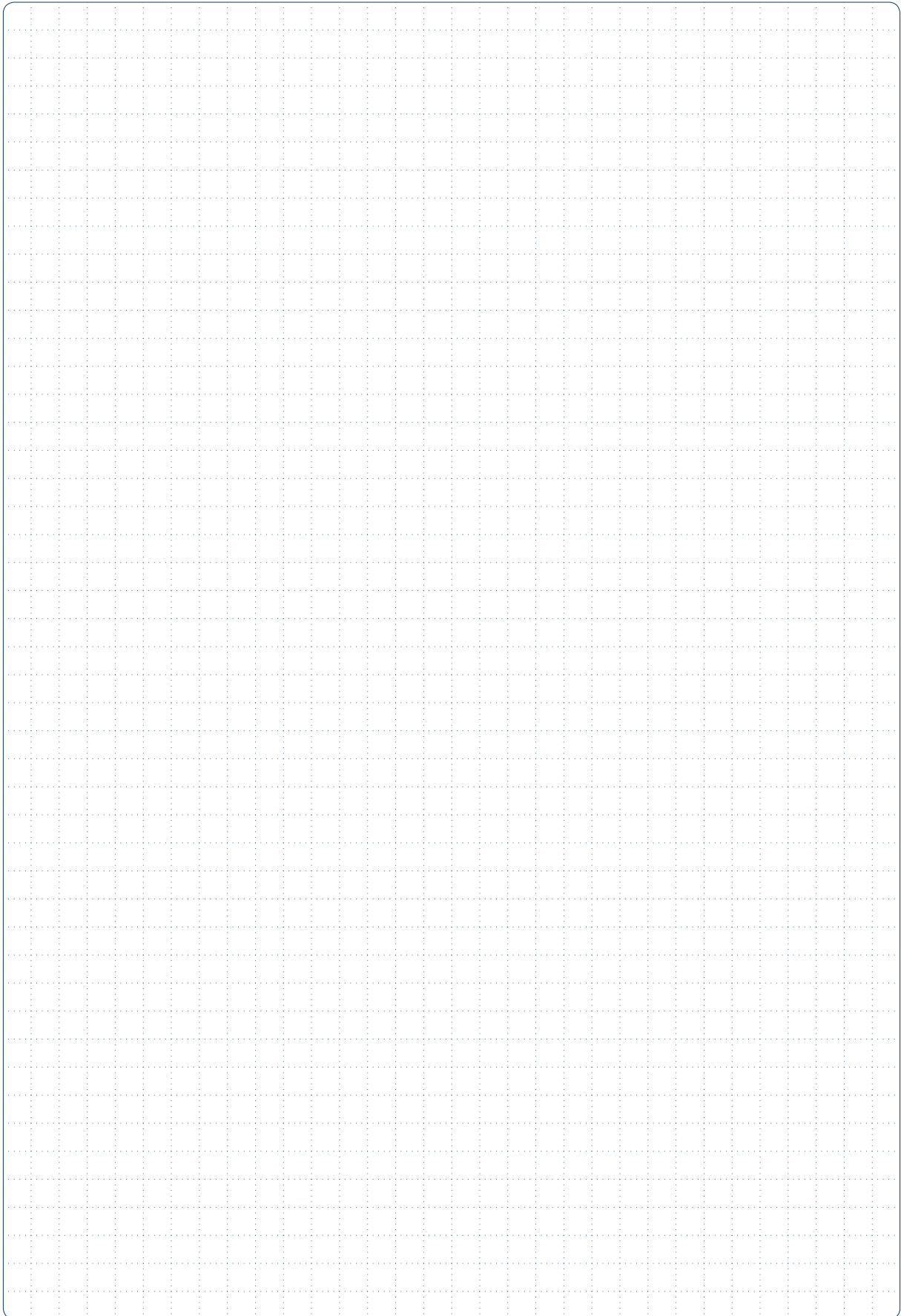
Order number	Stock
MEX20-DO-1-Z494	<input checked="" type="radio"/>

Accessories, see from page 254 in stock on request

- Incl. internal and external cooling via holder



NOTES

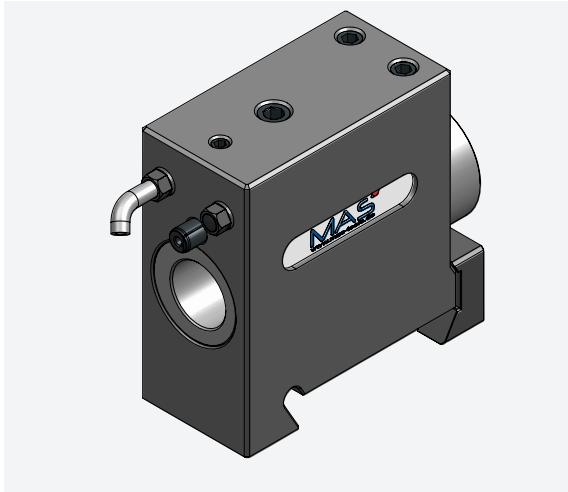


MEX[®]turn

HARDINGE

GT27

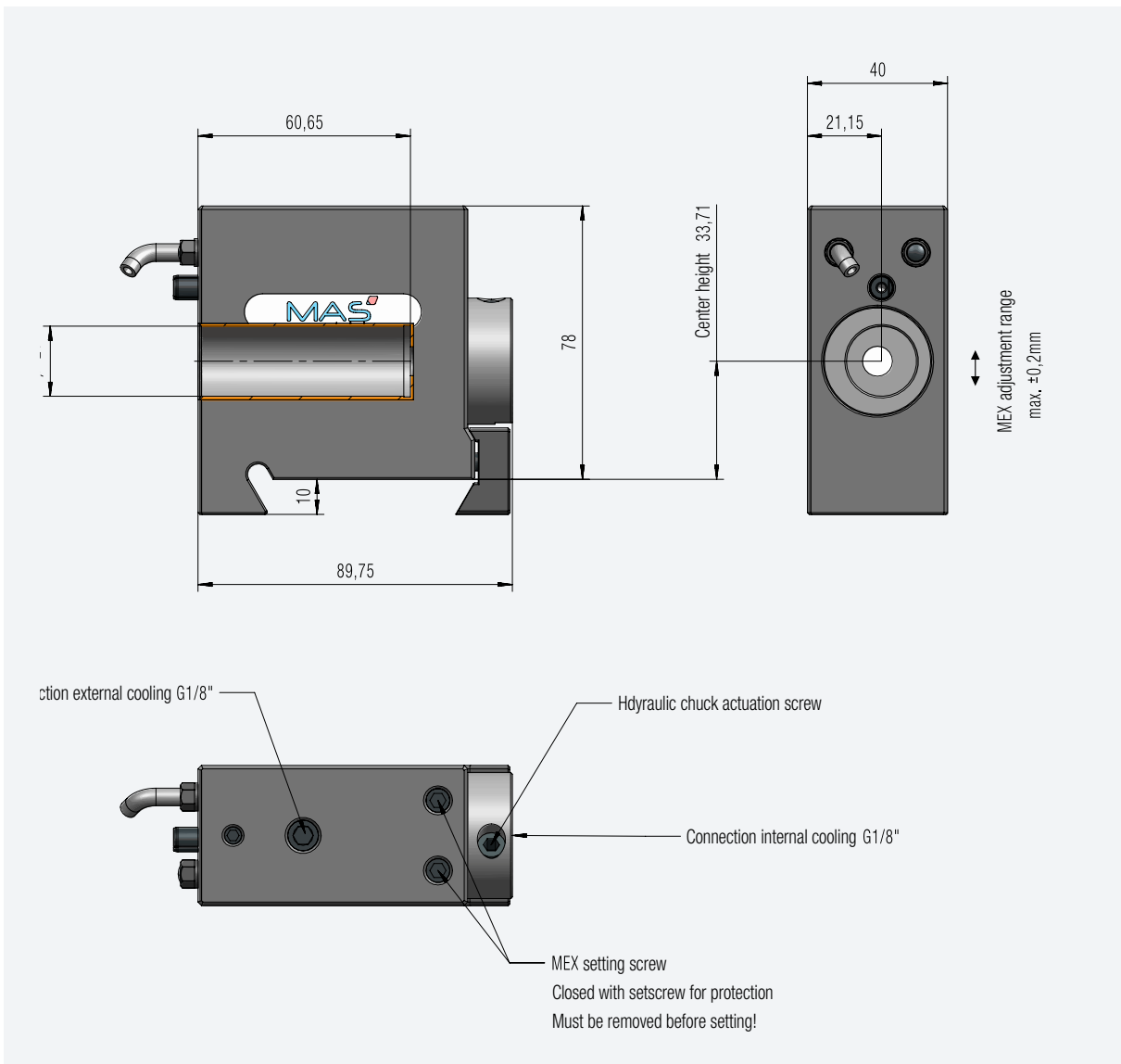
MEX-holder 1x / clamping $\varnothing 20$ mm



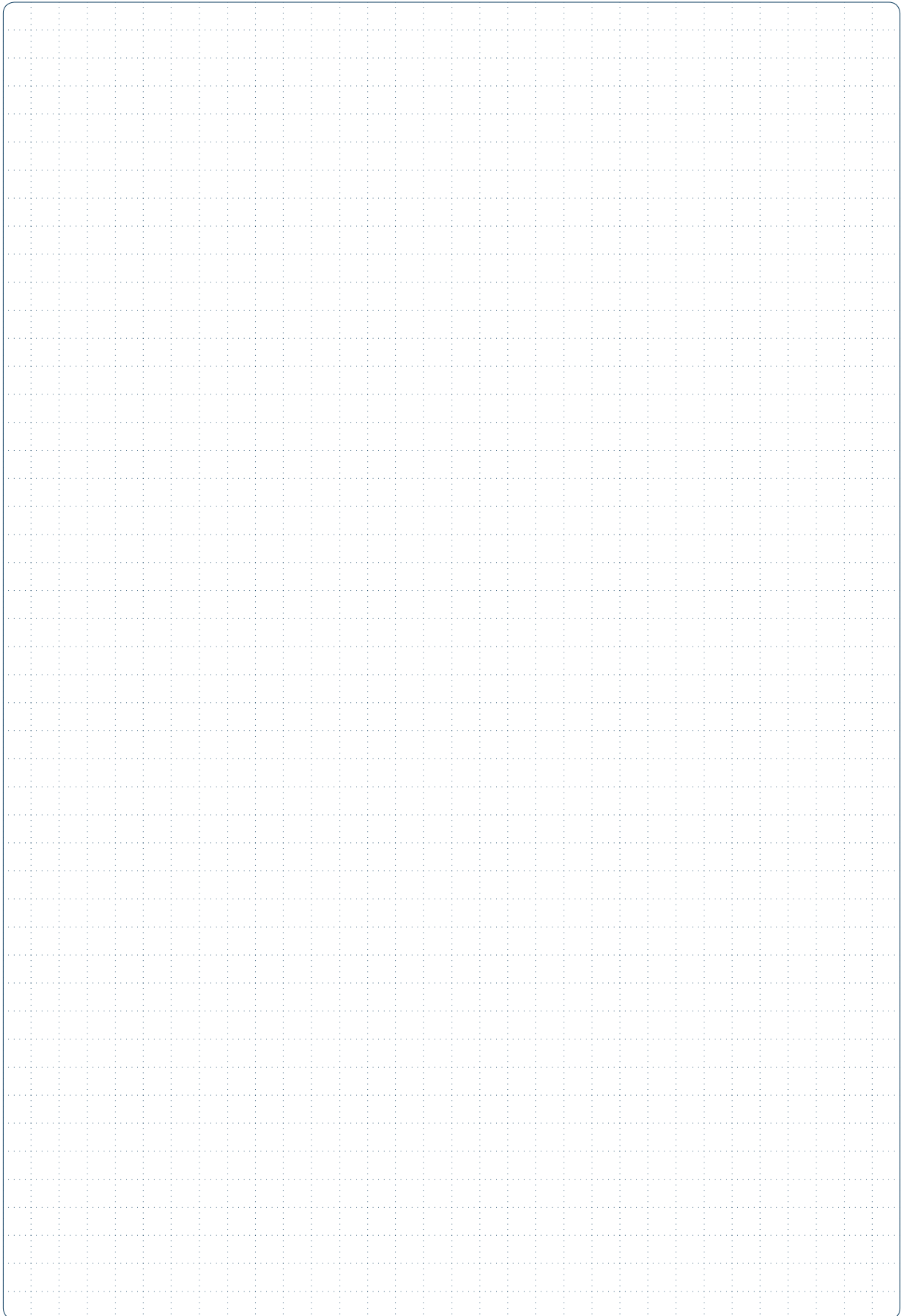
MAS-ID	Order number	Stock
Z00000124	MEX20-GT27-1-S385H	●

Accessories, see from page 254 ● in stock ○ on request

● Actual center height has to be checked!



NOTES

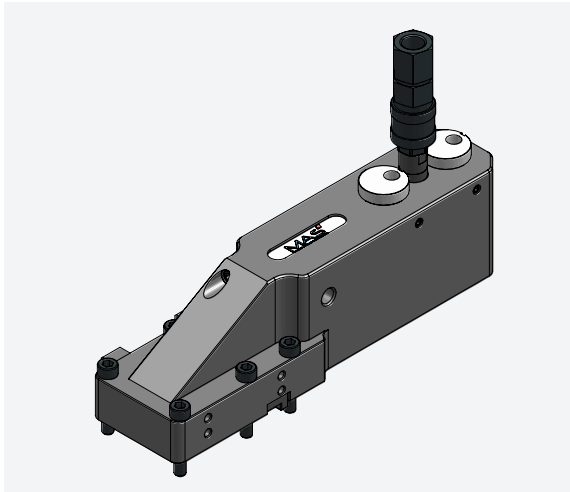


MEX[®]turn

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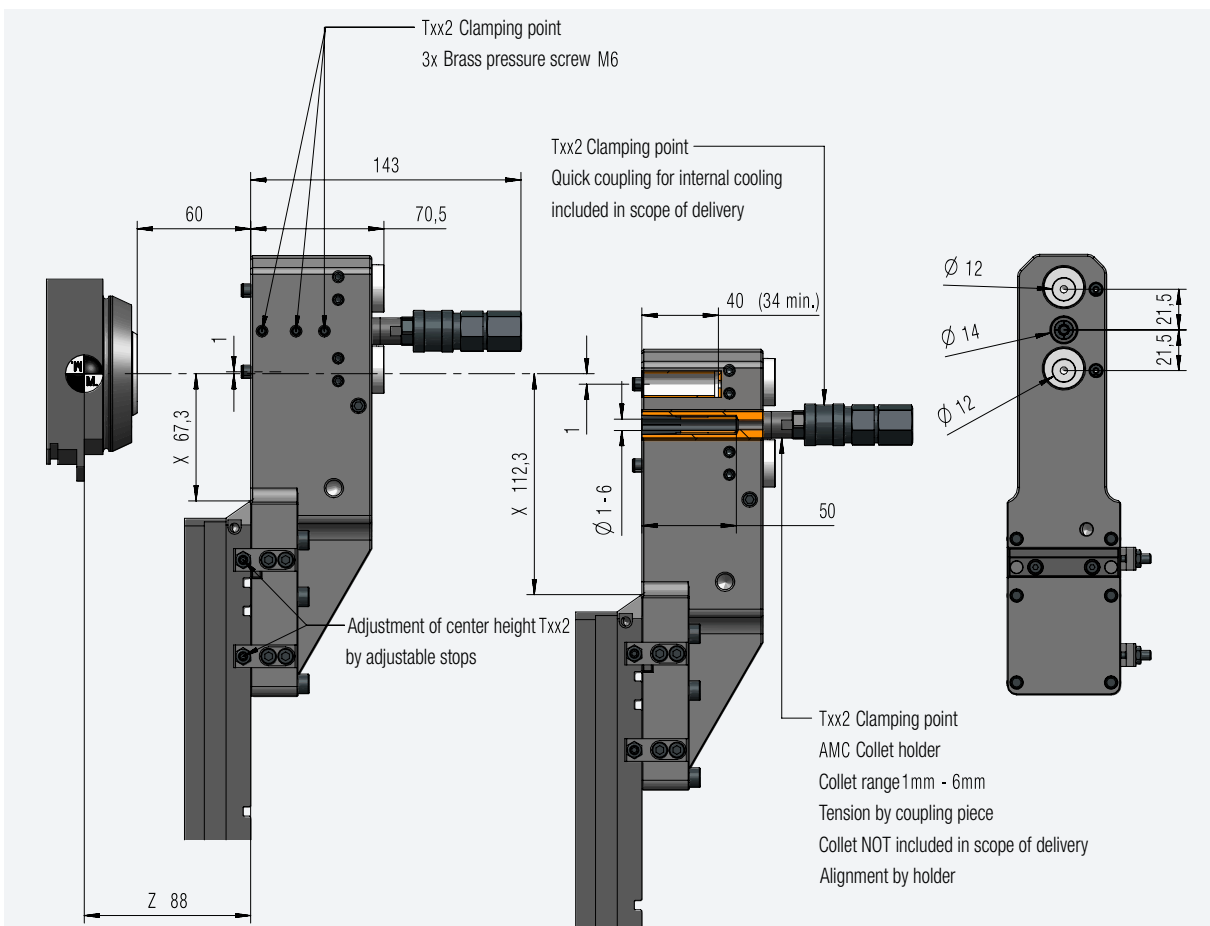
MS 16

MEX-holder 2x/ clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 296	MEX12-MS16-3-Z296	○

Accessories, see from page 254 ● in stock ○ on request



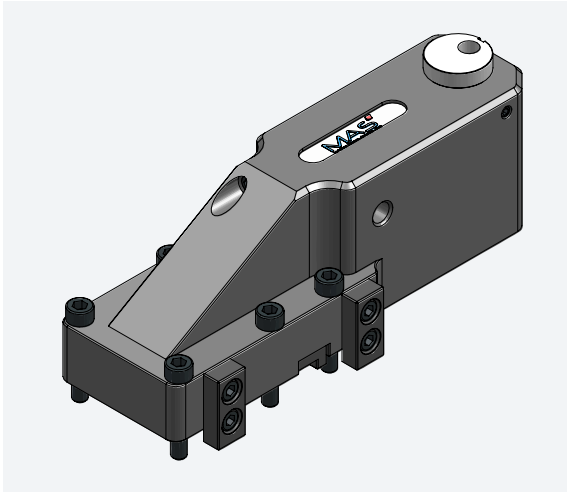
Base dimensions	X	Z
Txx1	68,3	0
Txx2	89,8	0
Txx3	111,3	0

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS16	45	70	67,3	112,3	18	88
MS22	62	85	67,3	129,3	18	103

INDEX

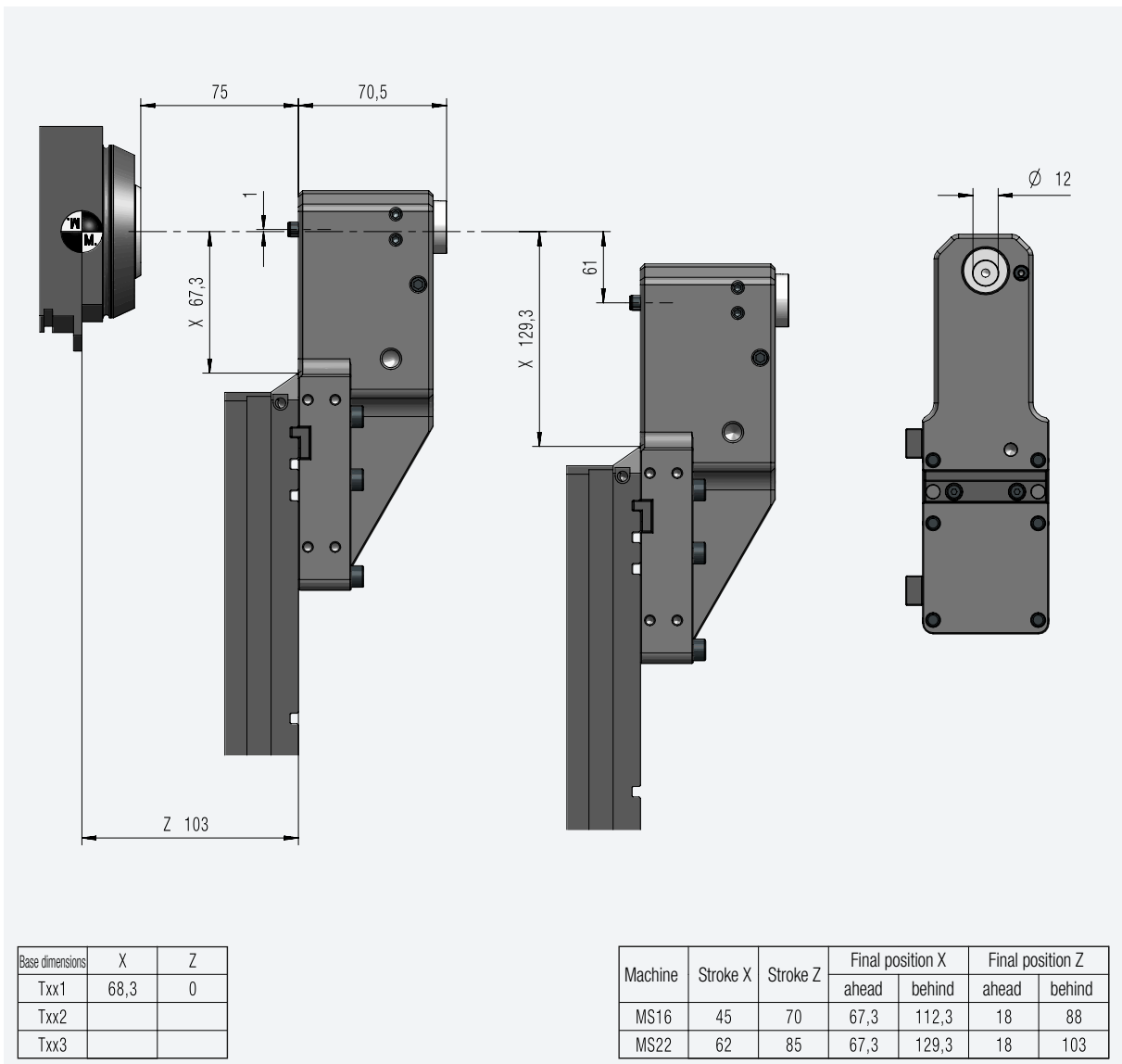
MS22

MEX-holder 1x / clamping \varnothing 12 mm



MAS-ID	Order number	Stock
Z00 000 137	MEX12-MS22-1-S620H	○

Accessories, see from page 254 ● in stock ○ on request

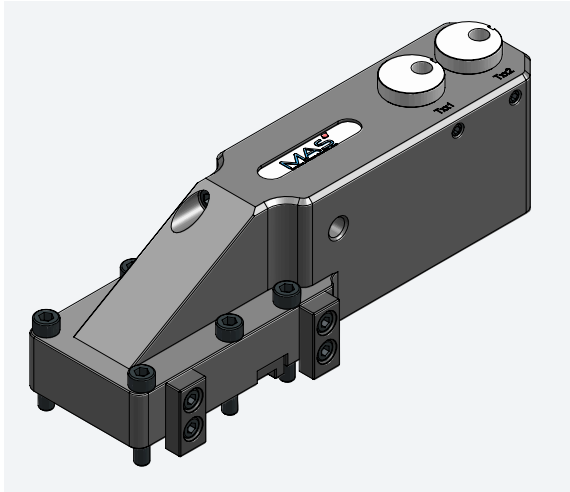


MEX[®]turn

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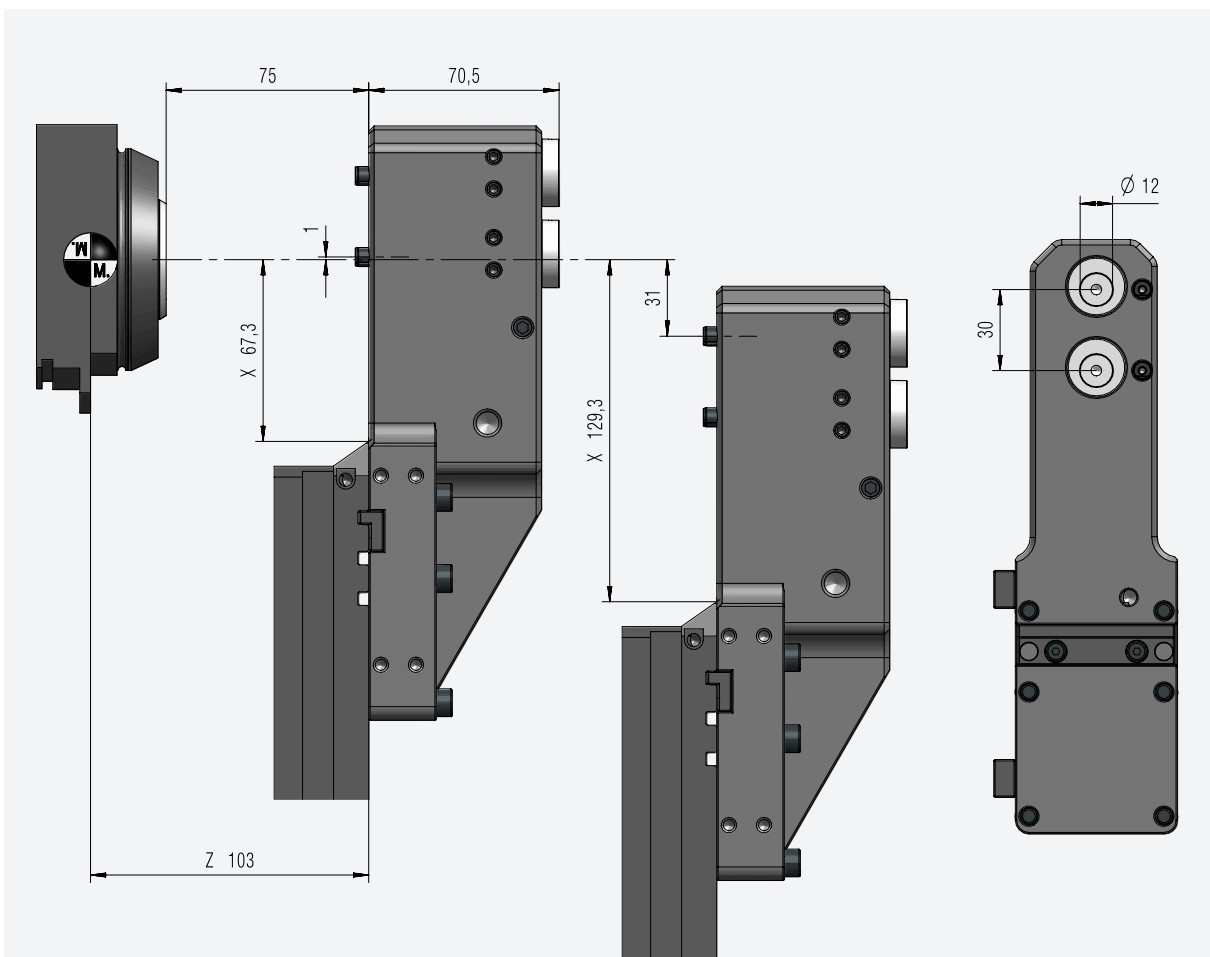
MS22

MEX-holder 2x / clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 138	MEX12-MS22-2-S618H	●

Accessories, see from page 254 ● in stock ○ on request



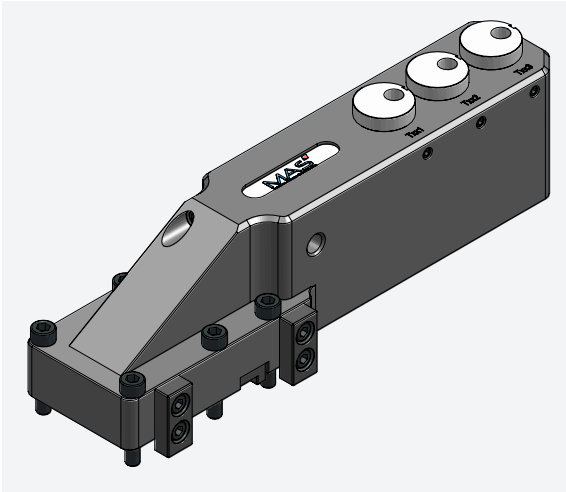
Base dimensions	X	Z
Txx1	68,3	0
Txx2	98,3	0
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS16	45	70	67,3	112,3	18	88
MS22	62	85	67,3	129,3	18	103

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MS22

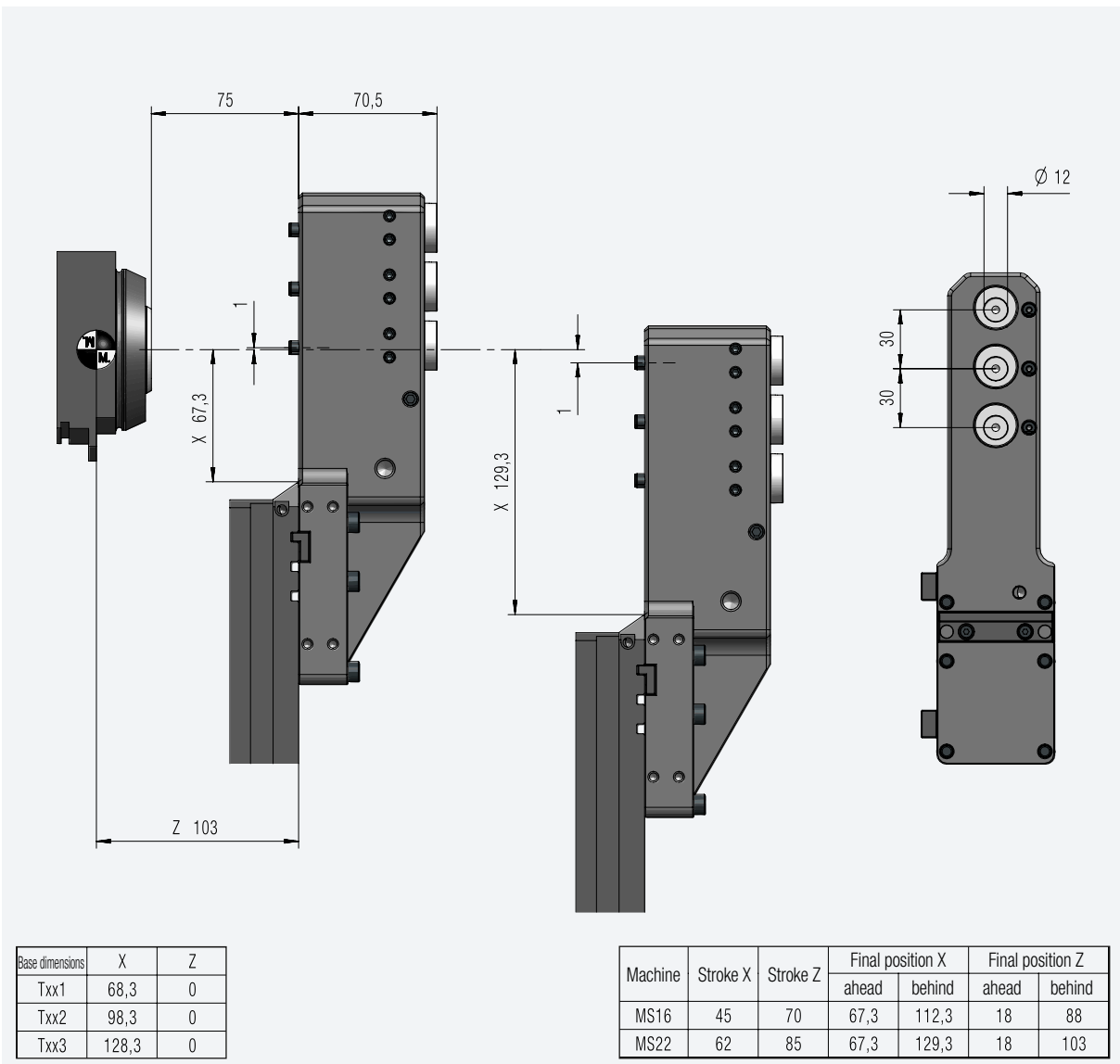
MEX-holder 3x/ clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 067	MEX12-MS22-3-S298H	●

Accessories, see from page 254 ● in stock ○ on request

- Includes internal cooling via slide
- Der Halter kann mit Einschränkung auch auf der INDEX MS18 eingesetzt werden.

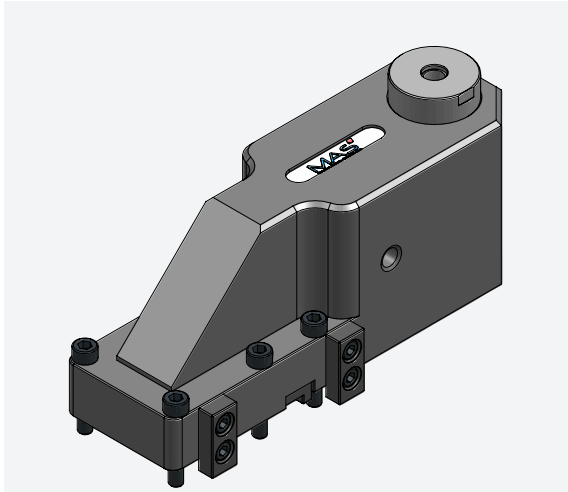


MEX[®]turn

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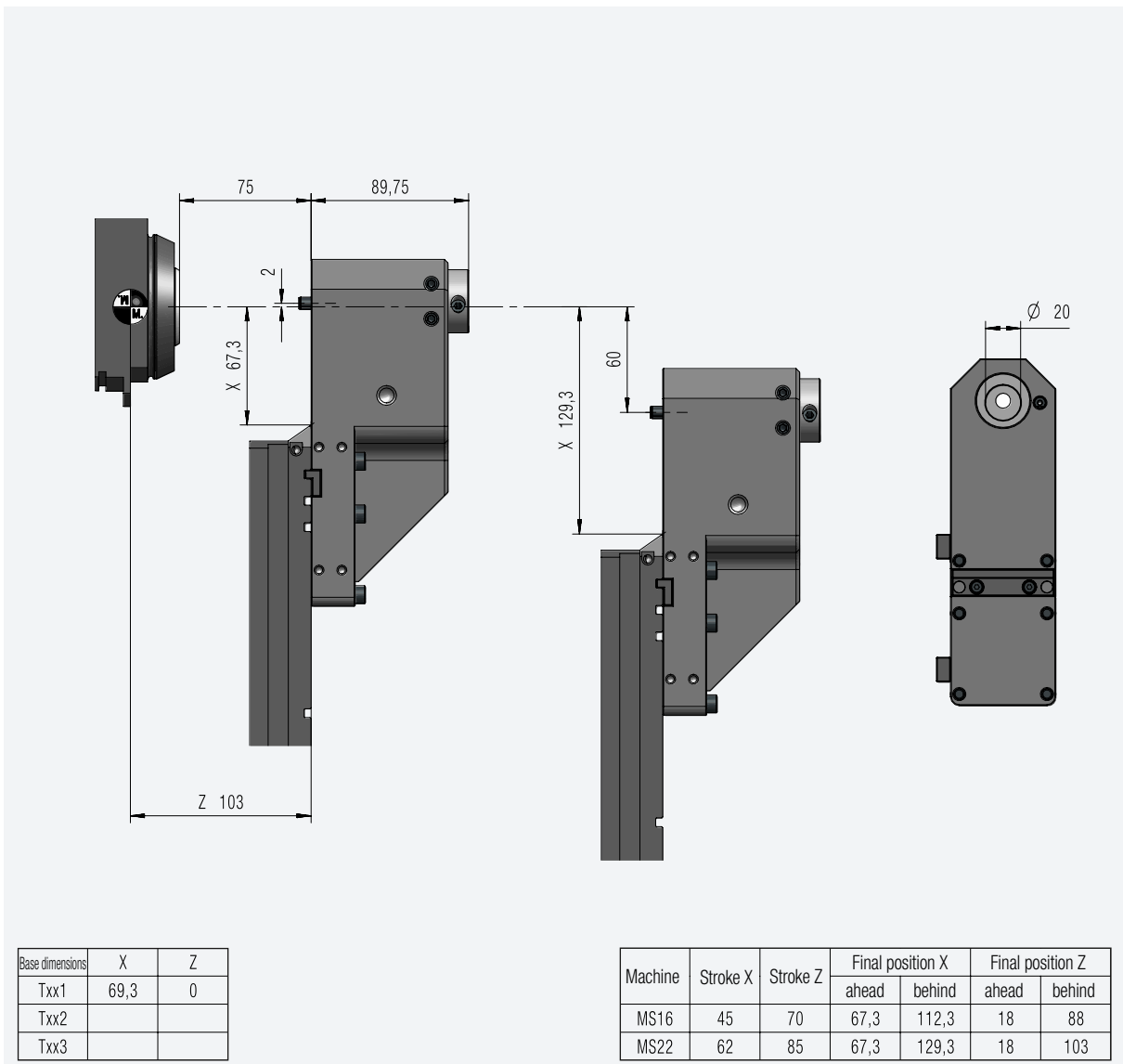
MS22

MEX-holder 1x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 000 109	MEX20-MS22-1-S619H	●

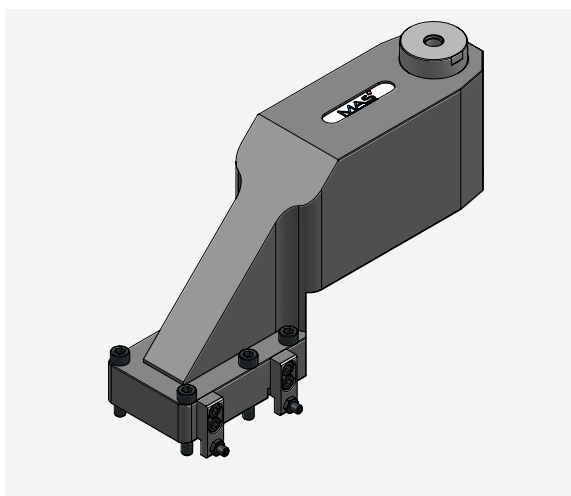
Accessories, see from page 254 ● in stock ○ on request



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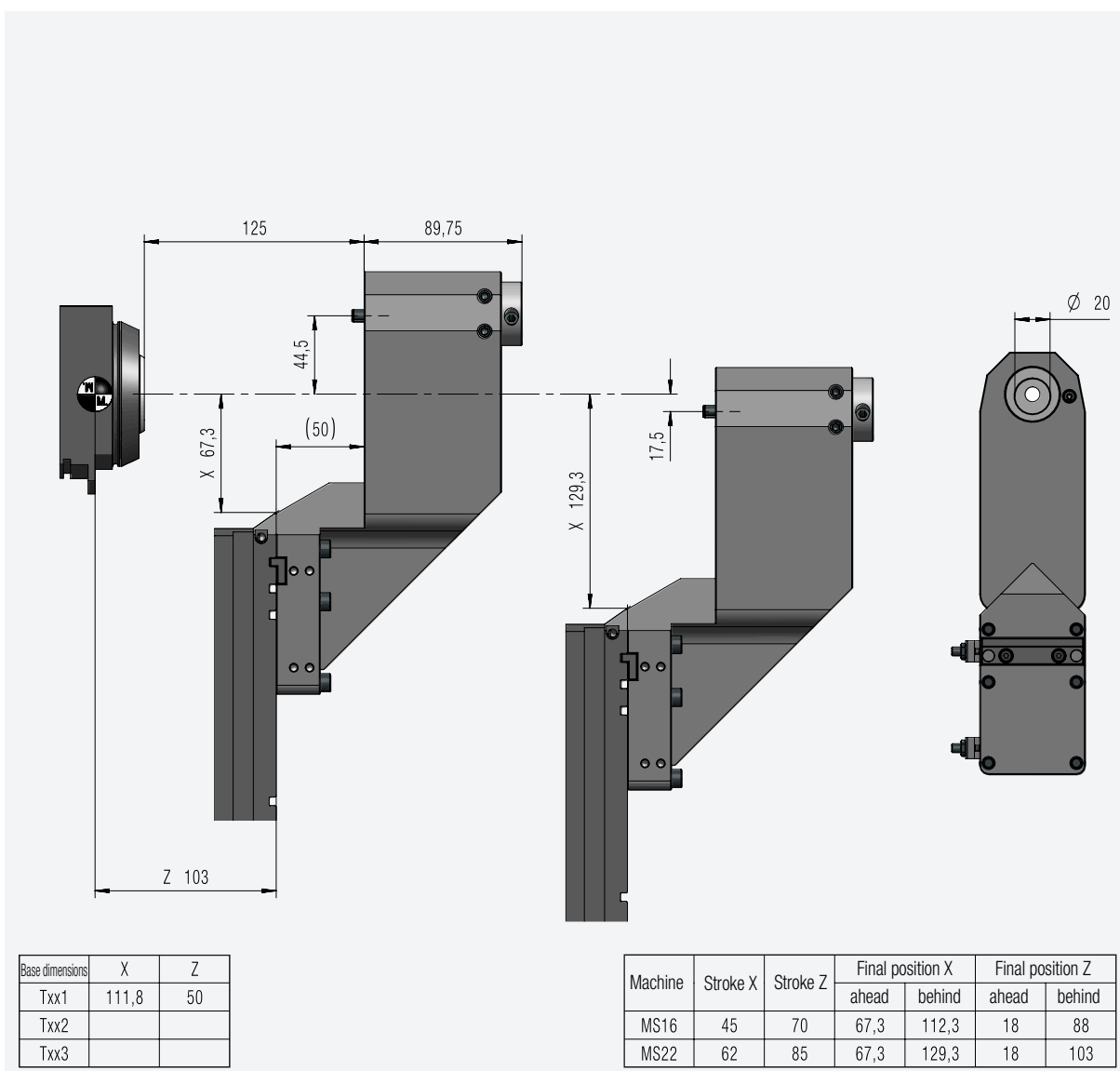
MS22

MEX-holder 1x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 000 108	MEX20-MS22-1-S479H	●

Accessories, see from page 254 ● in stock ○ on request

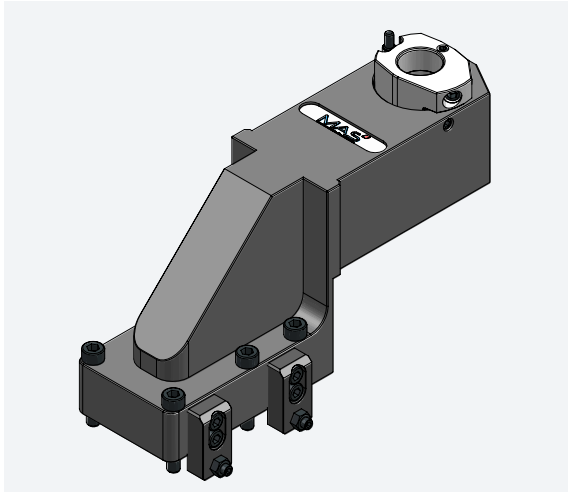


MEX[®]turn

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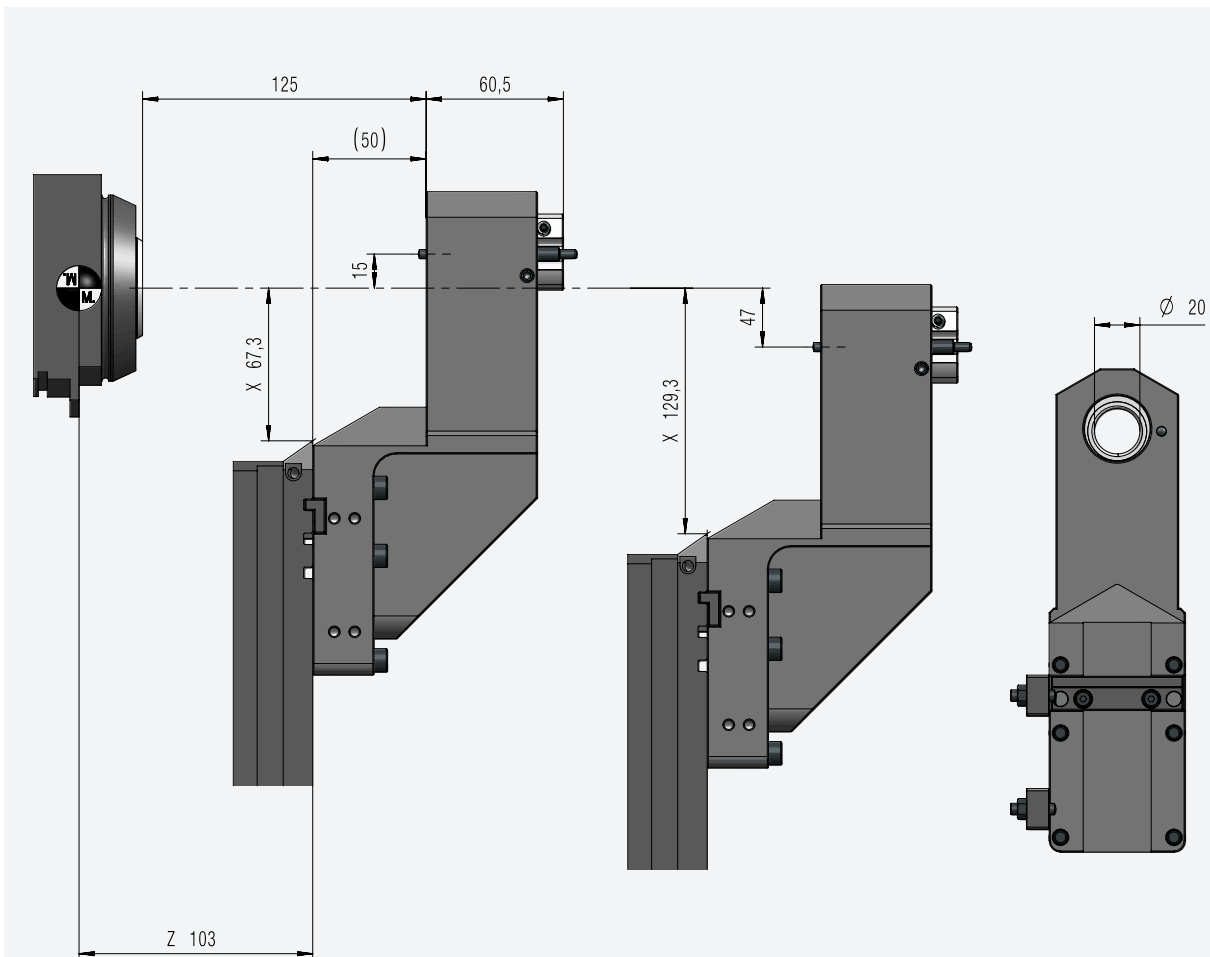
MS22

MEX-holder 1x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 000 017	MEX20-MS22-1-Z17	○

Accessories, see from page 254 ● in stock ○ on request



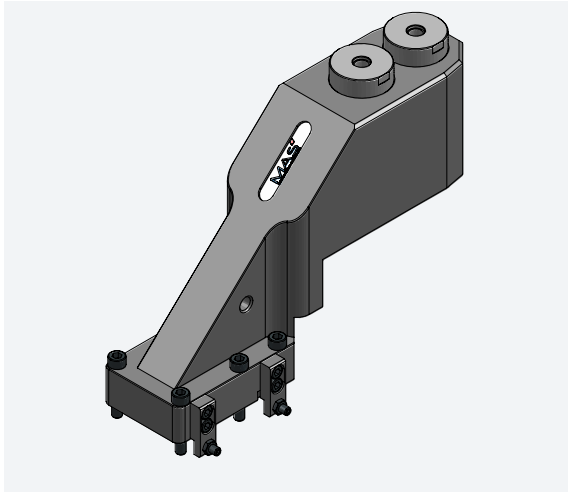
Base dimensions	X	Z
Txx1	82,3	110,5
Txx2		
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS16	45	70	67,3	112,3	18	88
MS22	62	85	67,3	129,3	18	103

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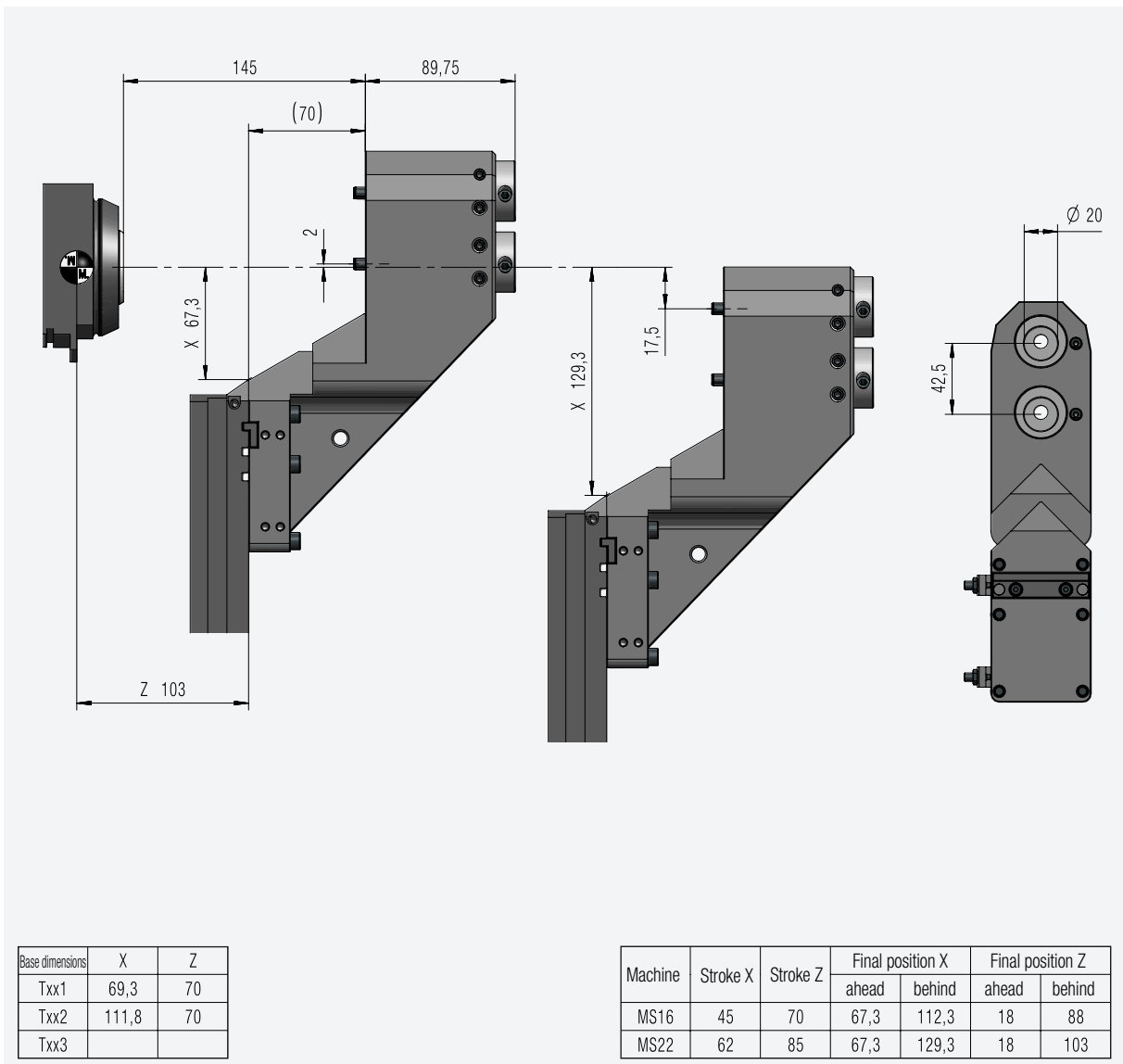
MS22

MEX-holder 2x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 005	MEX20-MS22-2-Z5	●

Accessories, see from page 254 ● in stock ○ on request

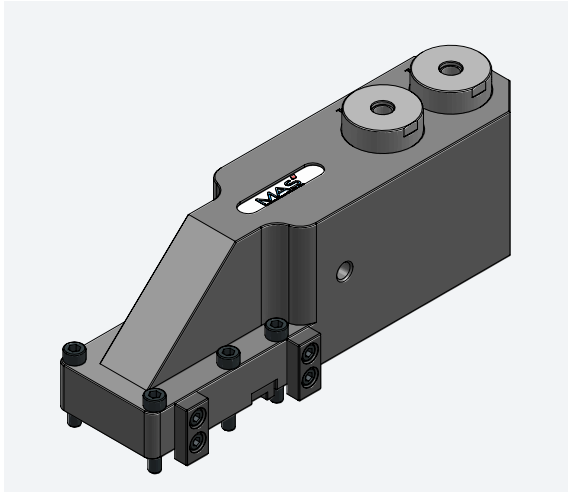


MEX[®]turn

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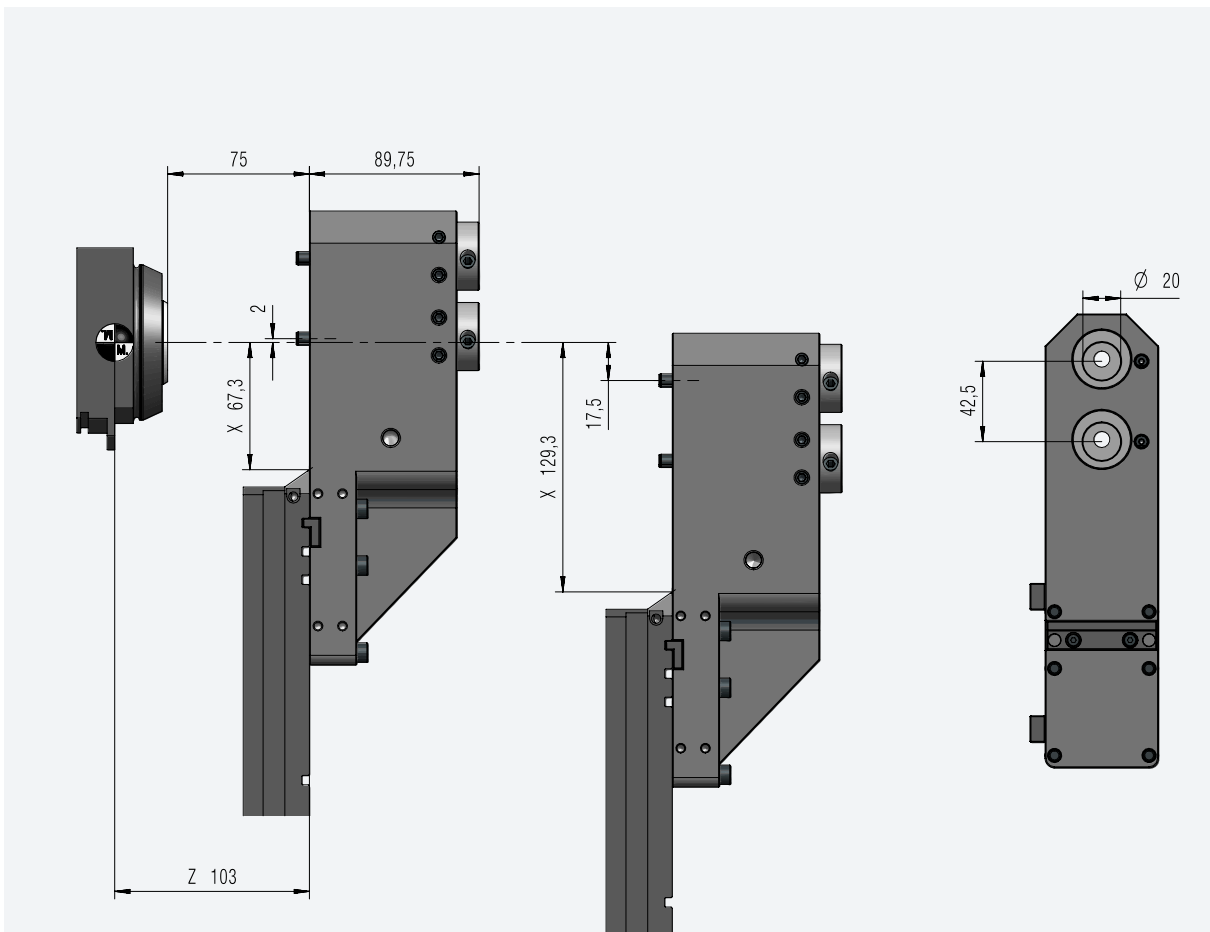
MS22

MEX-holder 2x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 069	MEX20-MS22-2-S595H	●

Accessories, see from page 254 ● in stock ○ on request



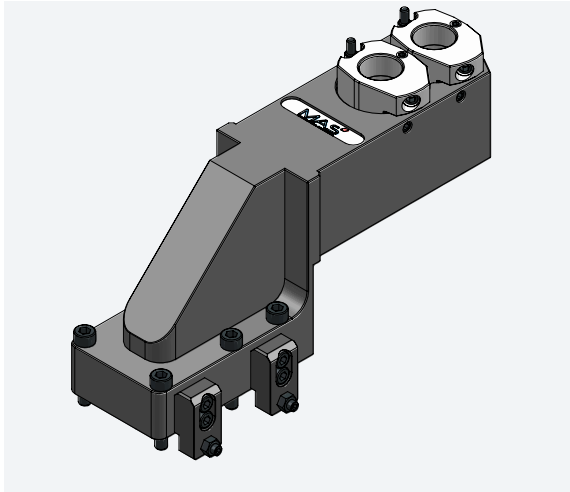
Base dimensions	X	Z
Txx1	69,3	0
Txx2	111,8	0
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS16	45	70	67,3	112,3	18	88
MS22	62	85	67,3	129,3	18	103

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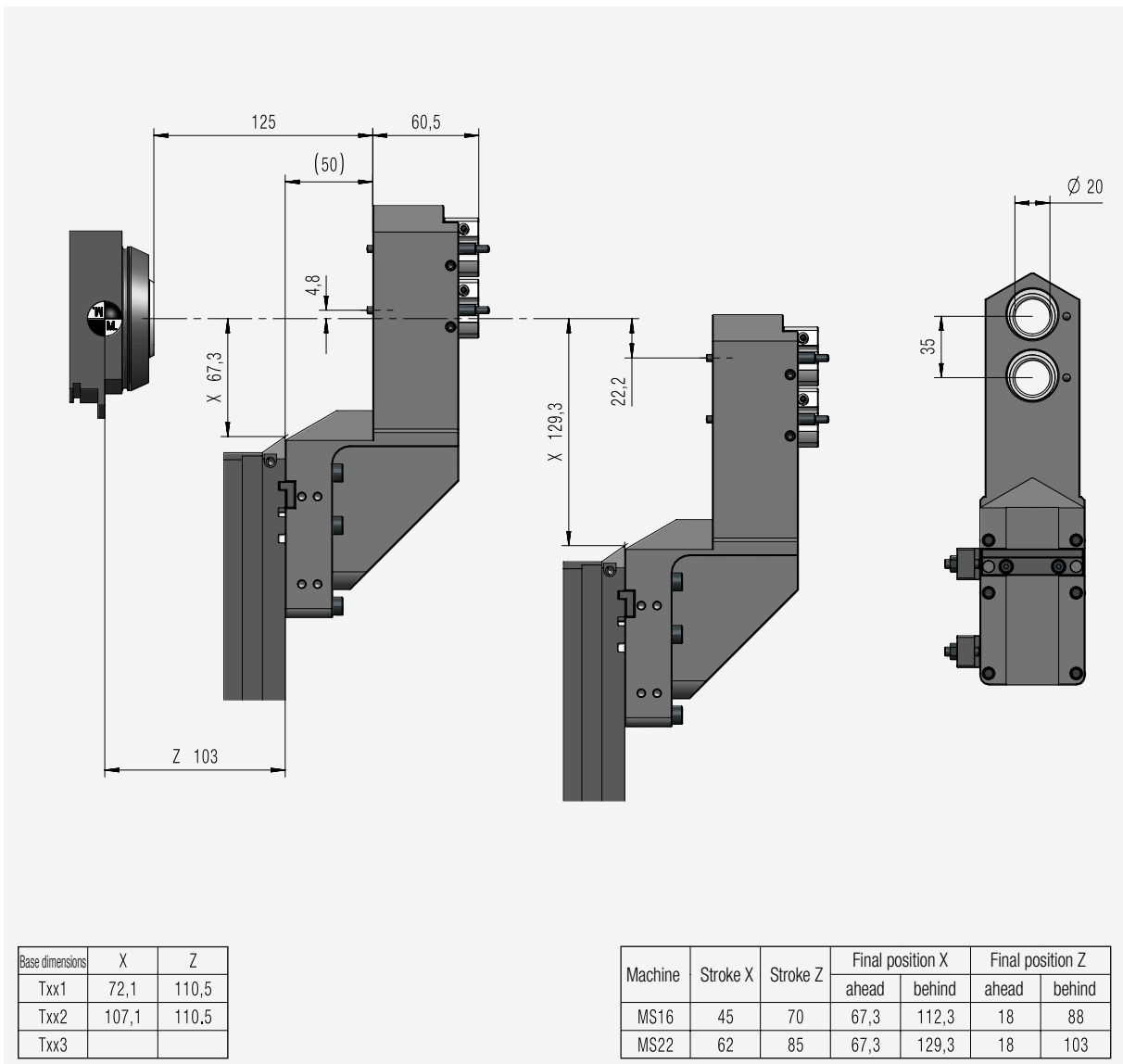
MS22

MEX-holder 2x / quill $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 018	MEX20P-MS22-1-Z18	○

Accessories, see from page 254 ● in stock ○ on request

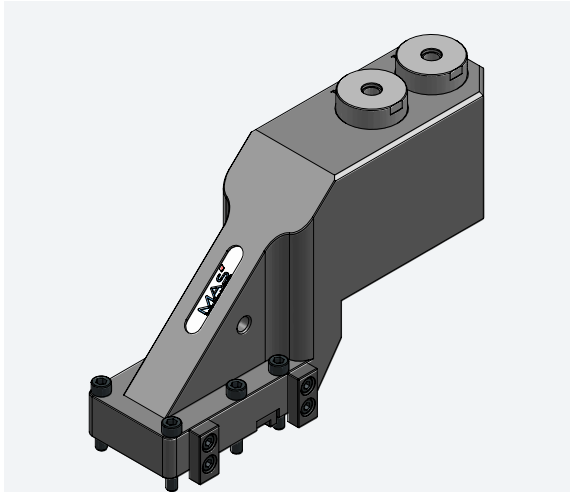


MEX[®]turn

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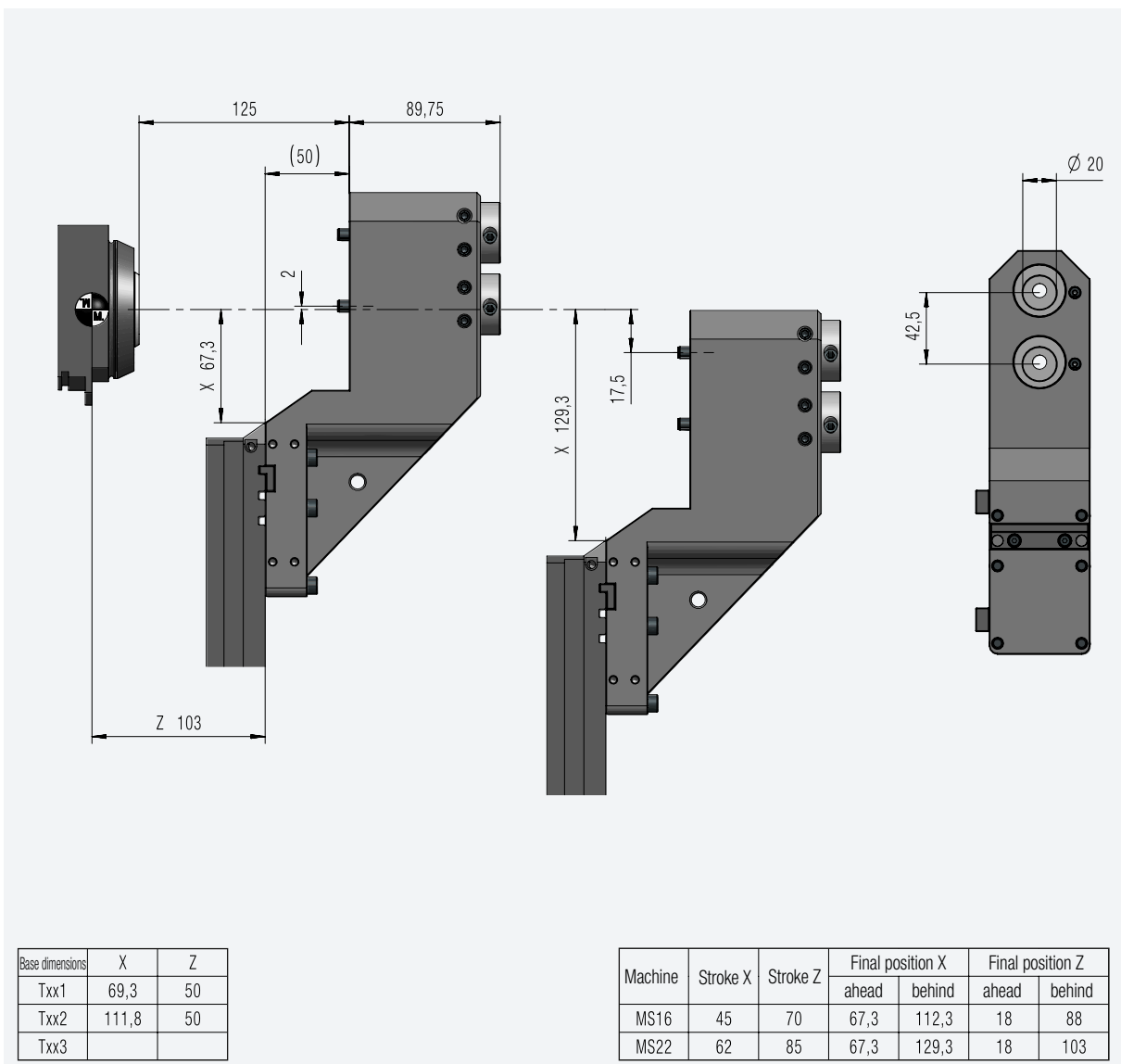
MS22

MEX-holder 2x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 111	MEX20-MS22-2-S553H	●

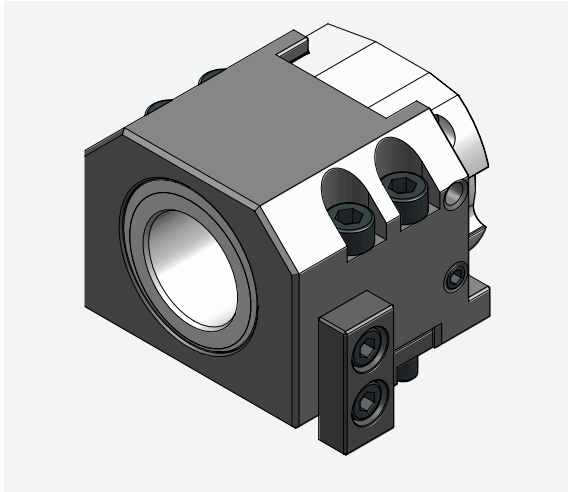
Accessories, see from page 254 ● in stock ○ on request



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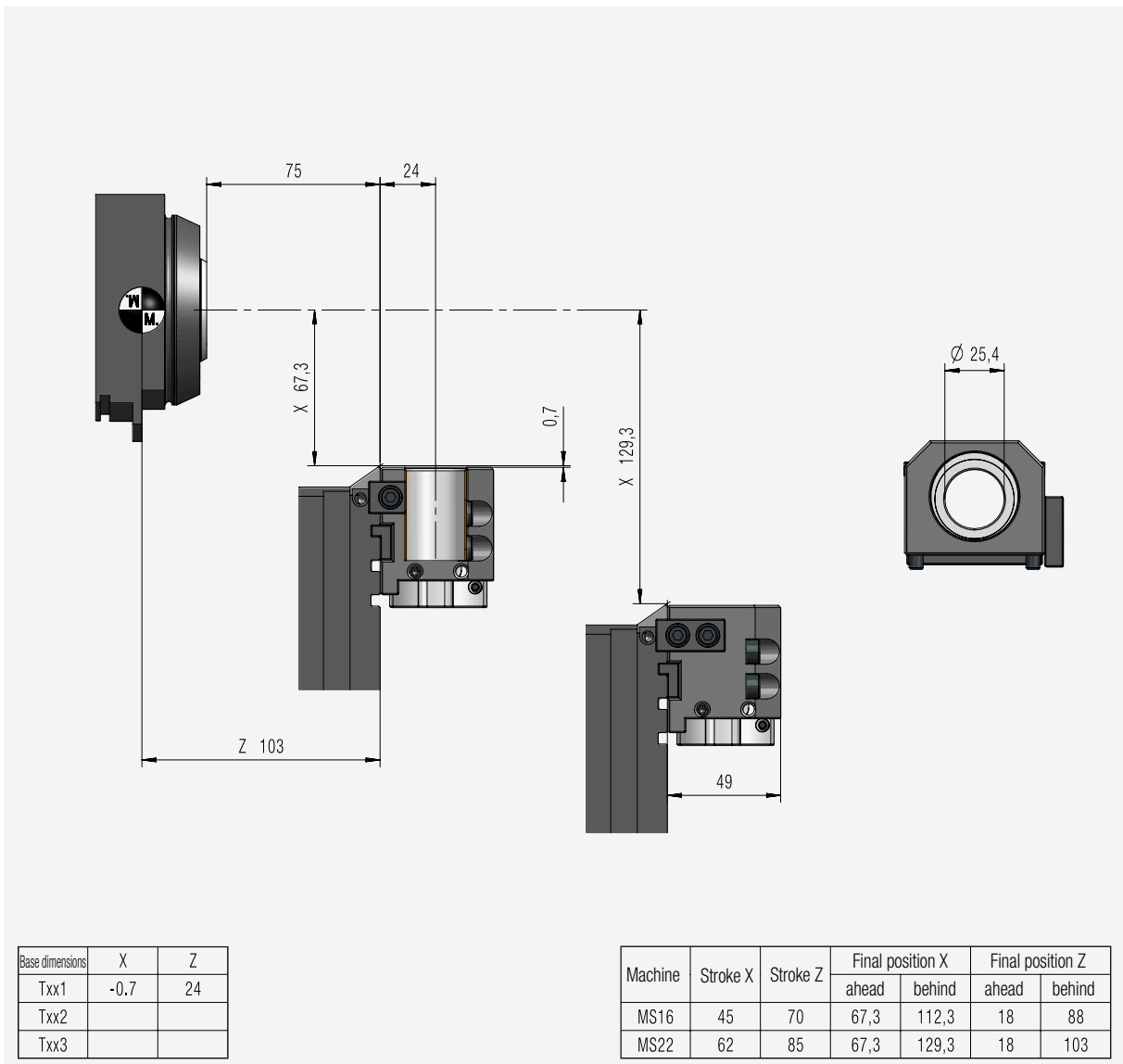
MS22

MEX-holder 1x / clamping HFS $\varnothing 25,4$ mm



MAS-ID	Order number	Stock
Z00 000 127	MEX25.4-MS22-1-S377H	○

Accessories, see from page 254 ● in stock ○ on request

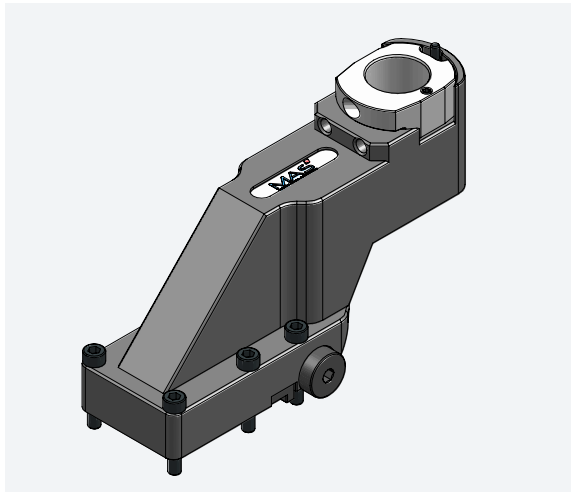


MEX[®]turn

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MS22

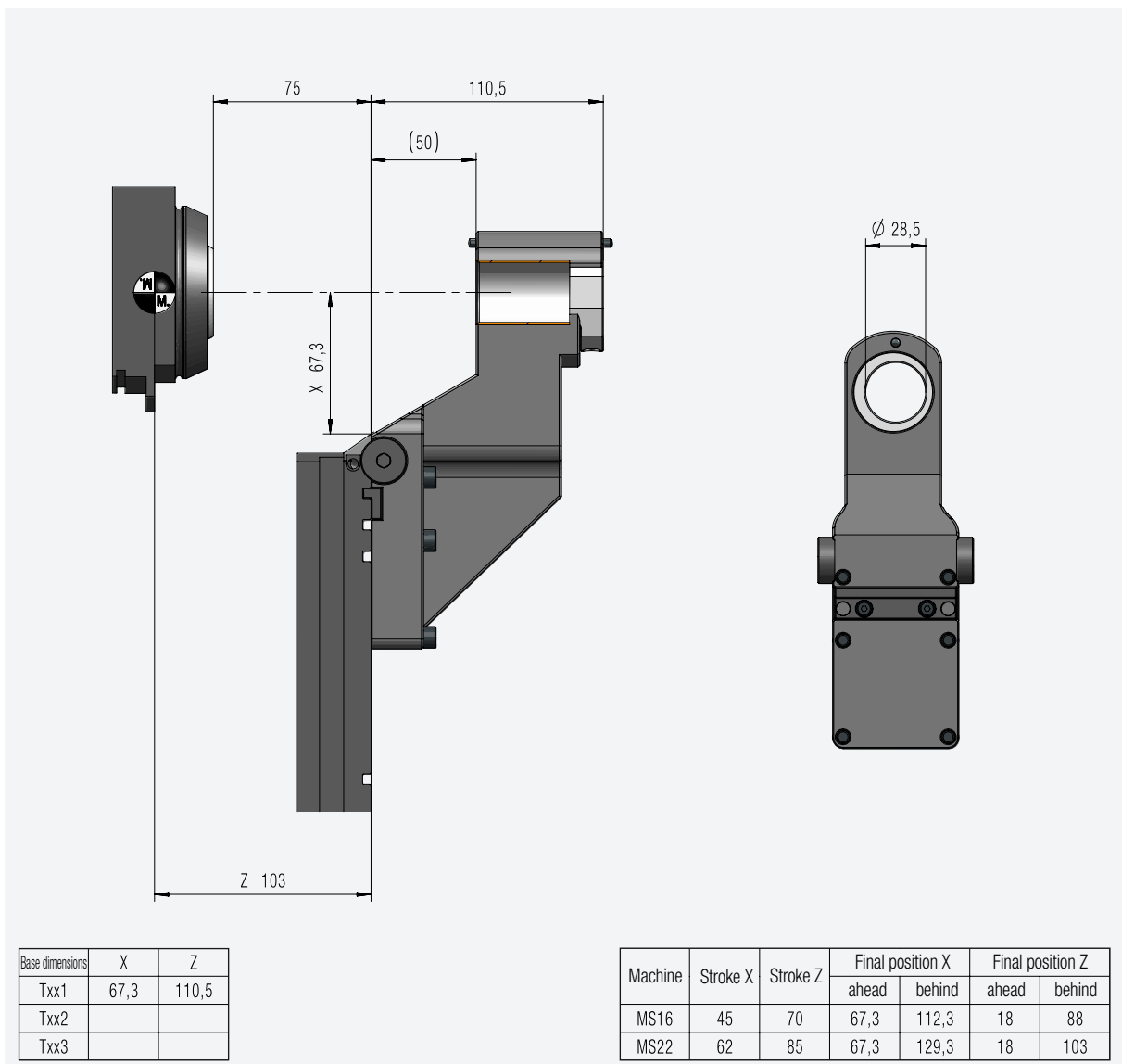
MEX-holder 1x / quill $\varnothing 28.5\text{mm}$



MAS-ID	Order number	Stock
Z00 000 068	MEX28.5-MS22-VX-S387H	○

Accessories, see from page 254 ● in stock ○ on request

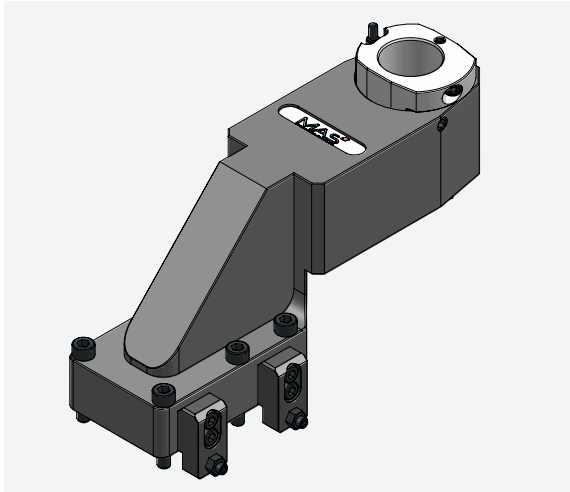
- This holder can also be used on the INDEX MS18 with limitations
- For rigid slides 1.2 und 2.1 through INDEX MS22
- Fine adjustment of x using MEX
- Fine adjustment of y using MAS-Dovetail



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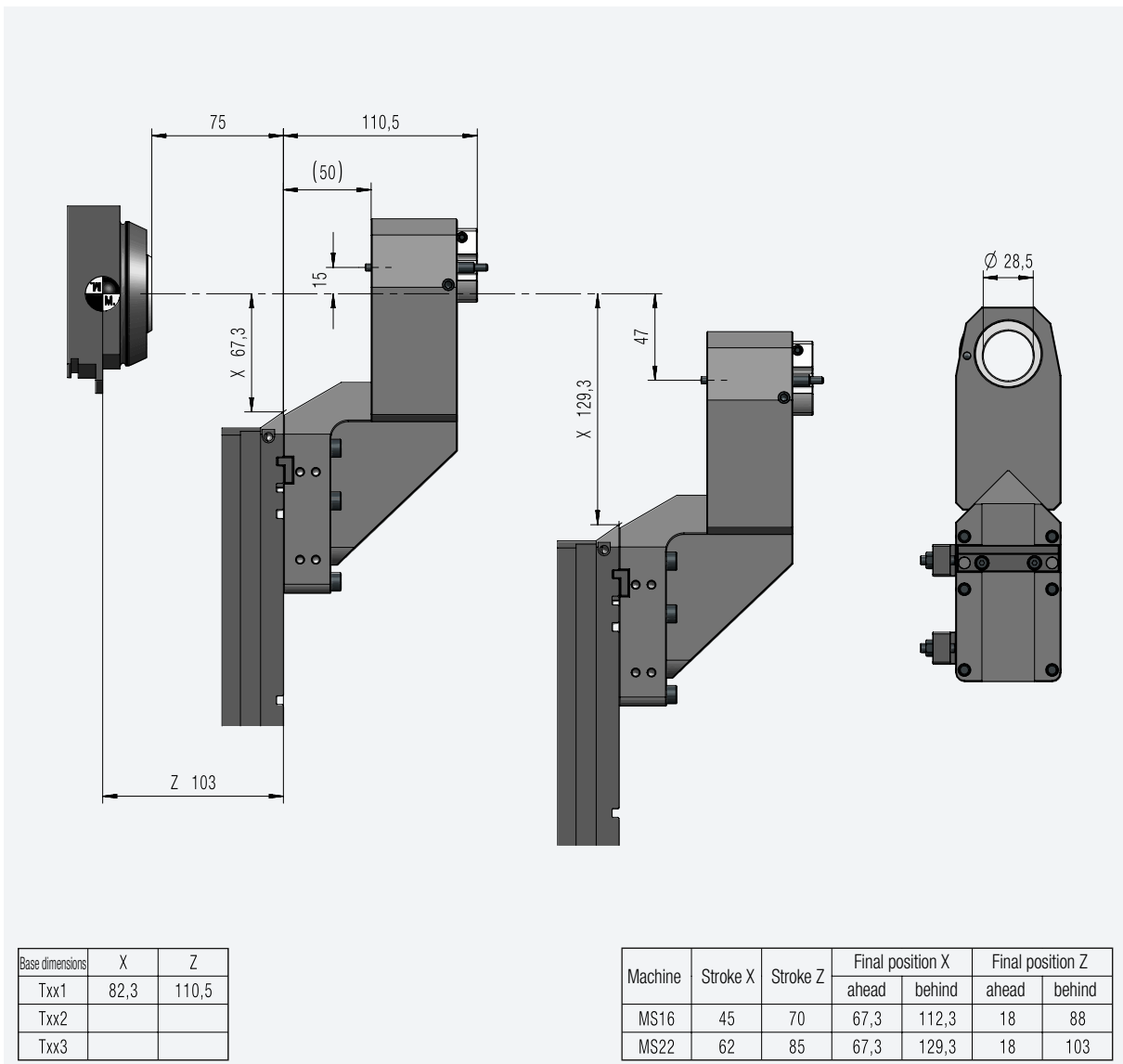
MS22

MEX-holder 1x / quill $\varnothing 28,5$ mm



MAS-ID	Order number	Stock
Z00 000 072	MEX25.4-MS22-1-S377H	●

Accessories, see from page 254 ● in stock ○ on request

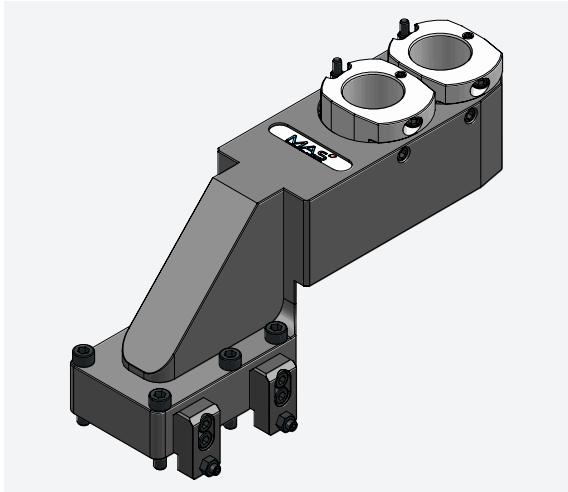


MEX[®]turn

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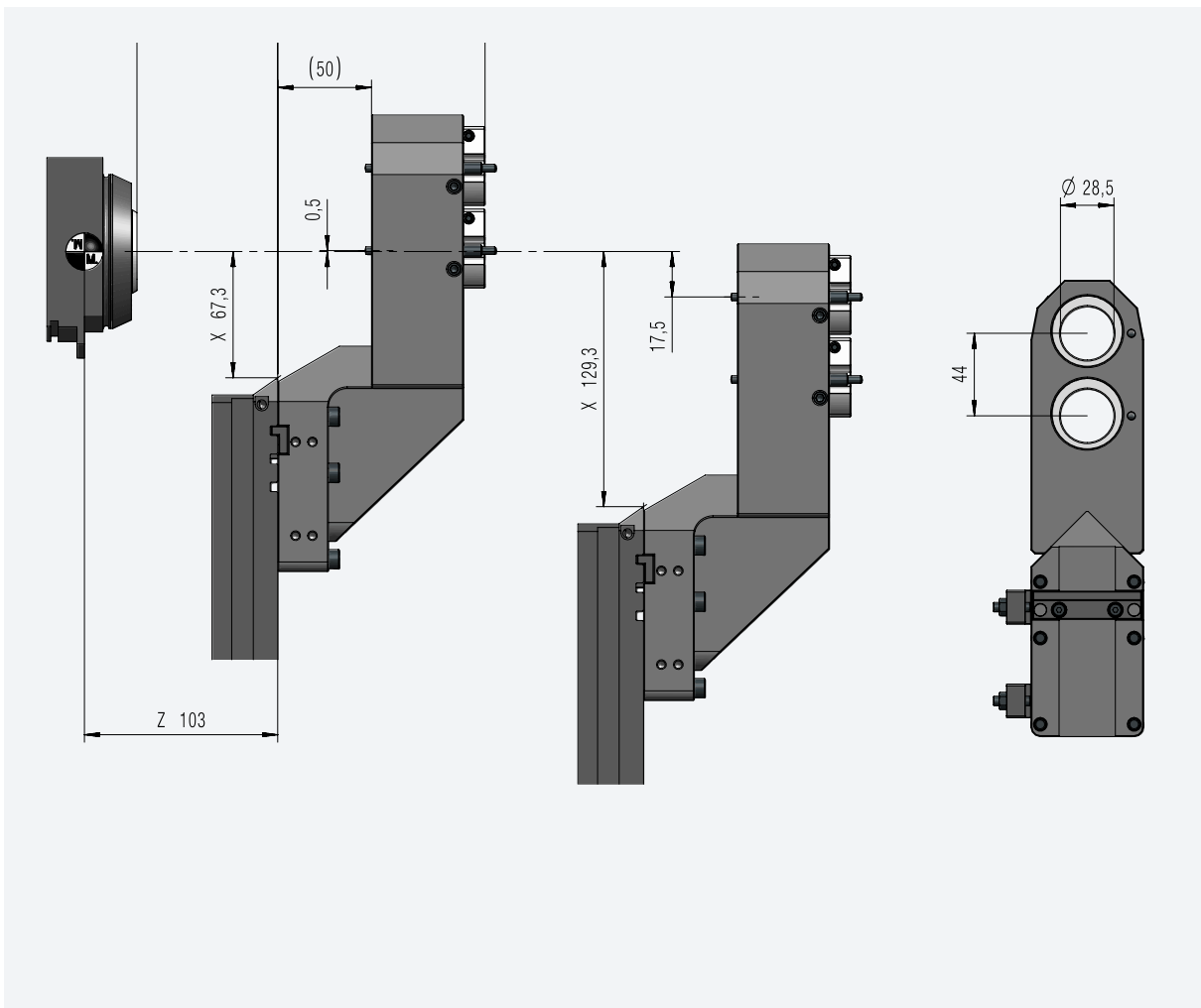
MS22

MEX-holder 2x / quill $\varnothing 28,5$ mm



MAS-ID	Order number	Stock
Z00 000 073	MEX28.5-MS22-2-Z73	●

Accessories, see from page 254 ● in stock ○ on request



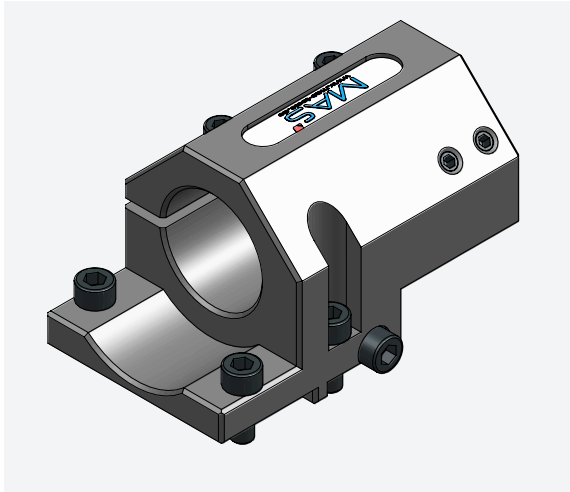
Base dimensions	X	Z
Txx1	67,8	110,5
Txx2	111,8	110,5
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS16	45	70	67,3	112,3	18	88
MS22	62	85	67,3	129,3	18	103

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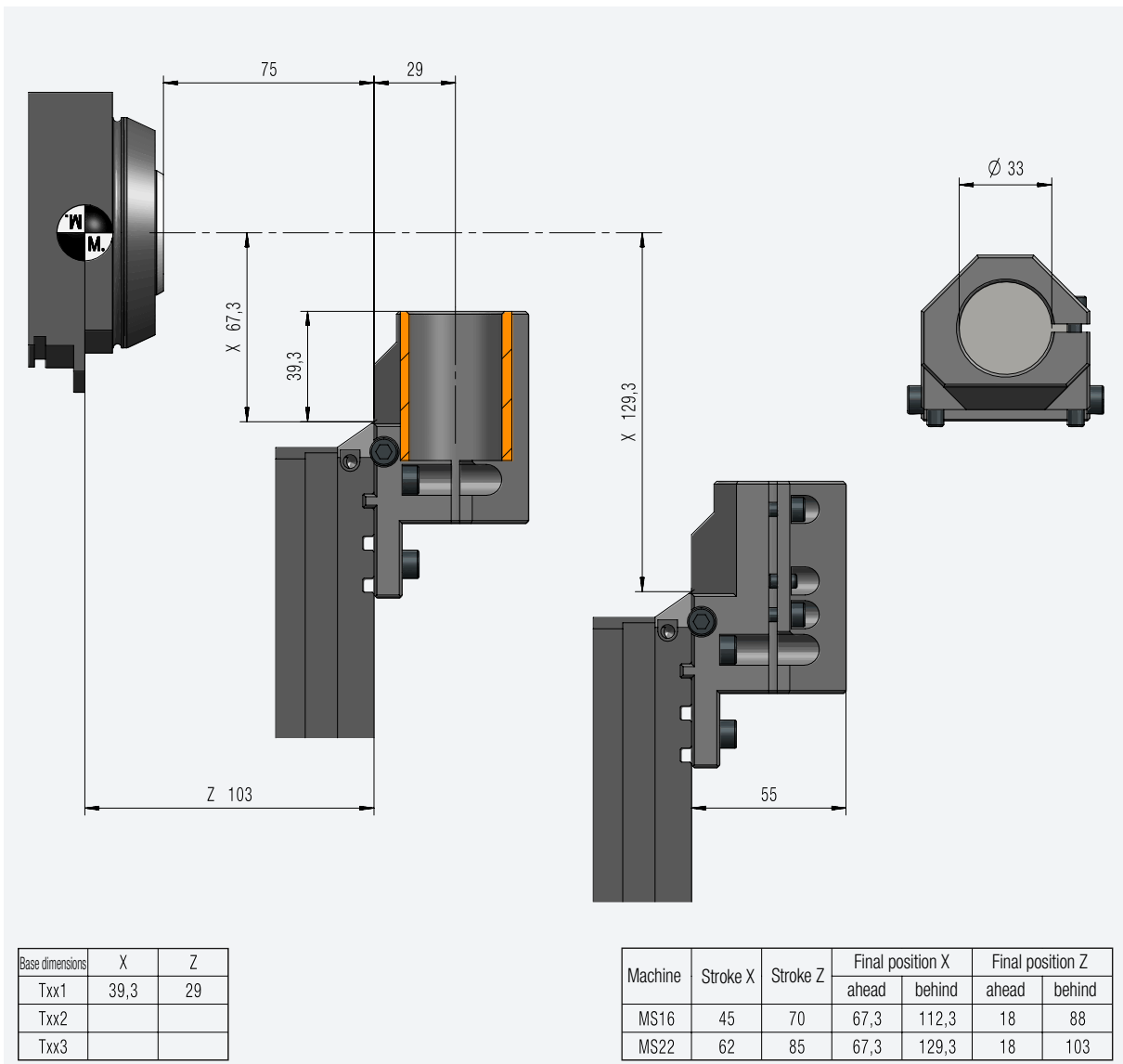
MS22

MEX-holder 1x / HFS $\varnothing 33$ mm



MAS-ID	Order number	Stock
Z00 000 079	MEX33-MS22-1-S611	●

Accessories, see from page 254 ● in stock ○ on request

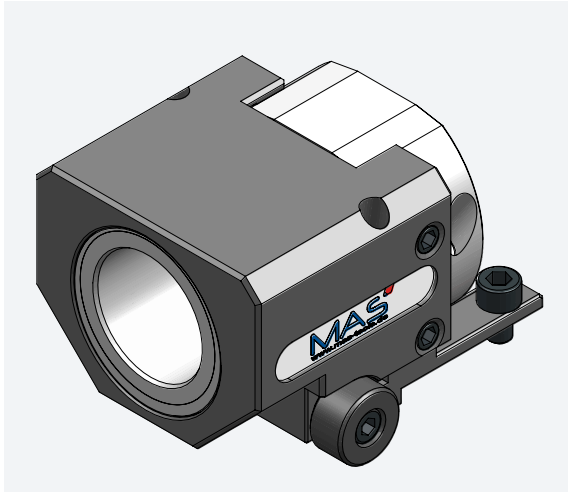


MEX[®]turn

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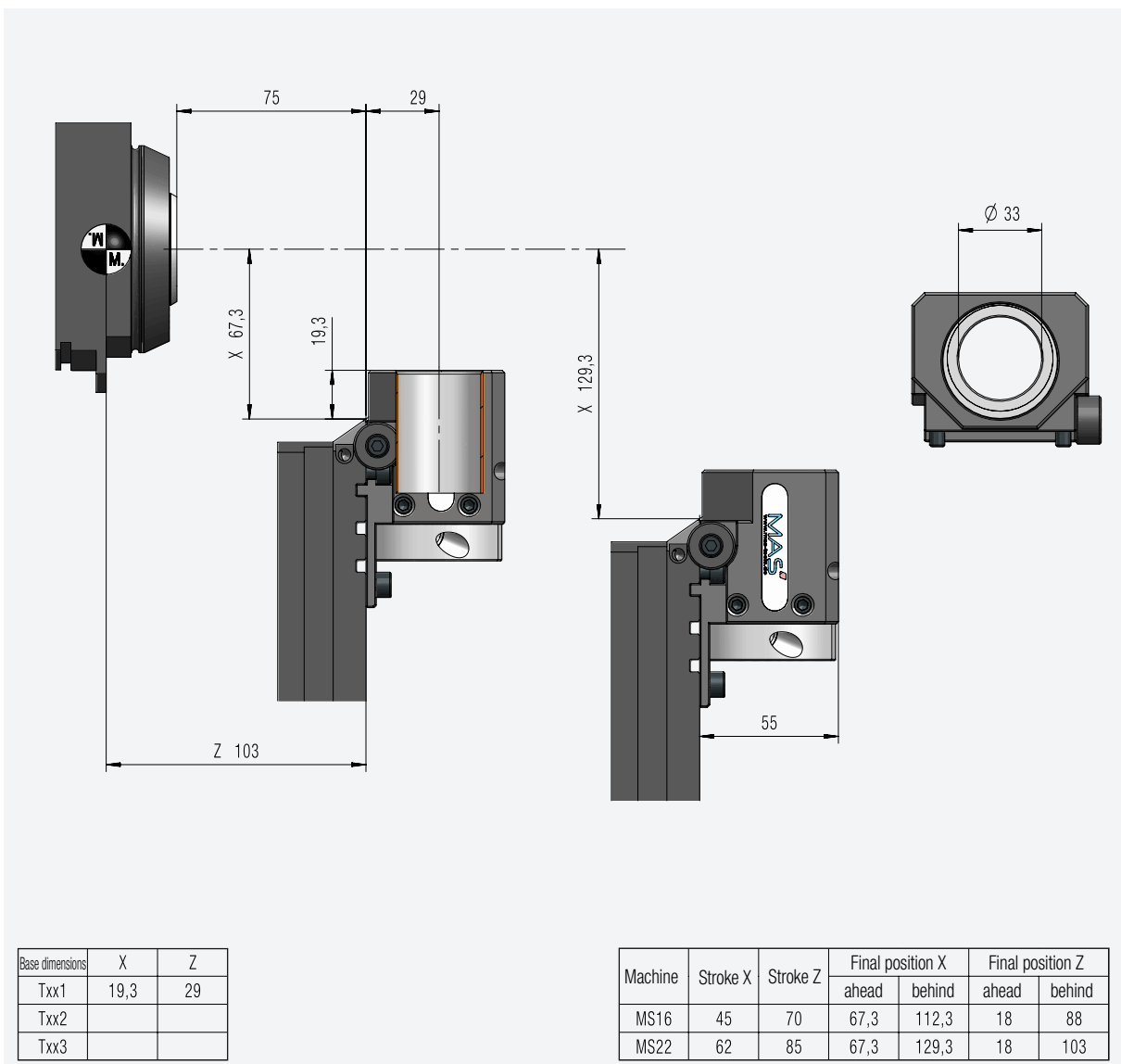
MS22

MEX-holder 1x / HFS \varnothing 33 mm



MAS-ID	Order number	Stock
Z00 000 149	MEX33-MS22-1-S539H	●

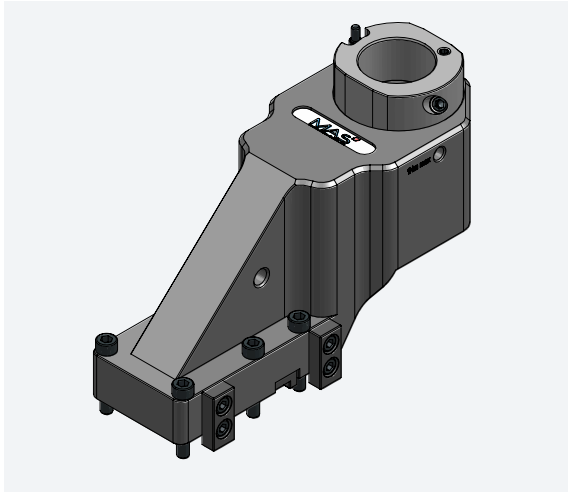
Accessories, see from page 254 ● in stock ○ on request



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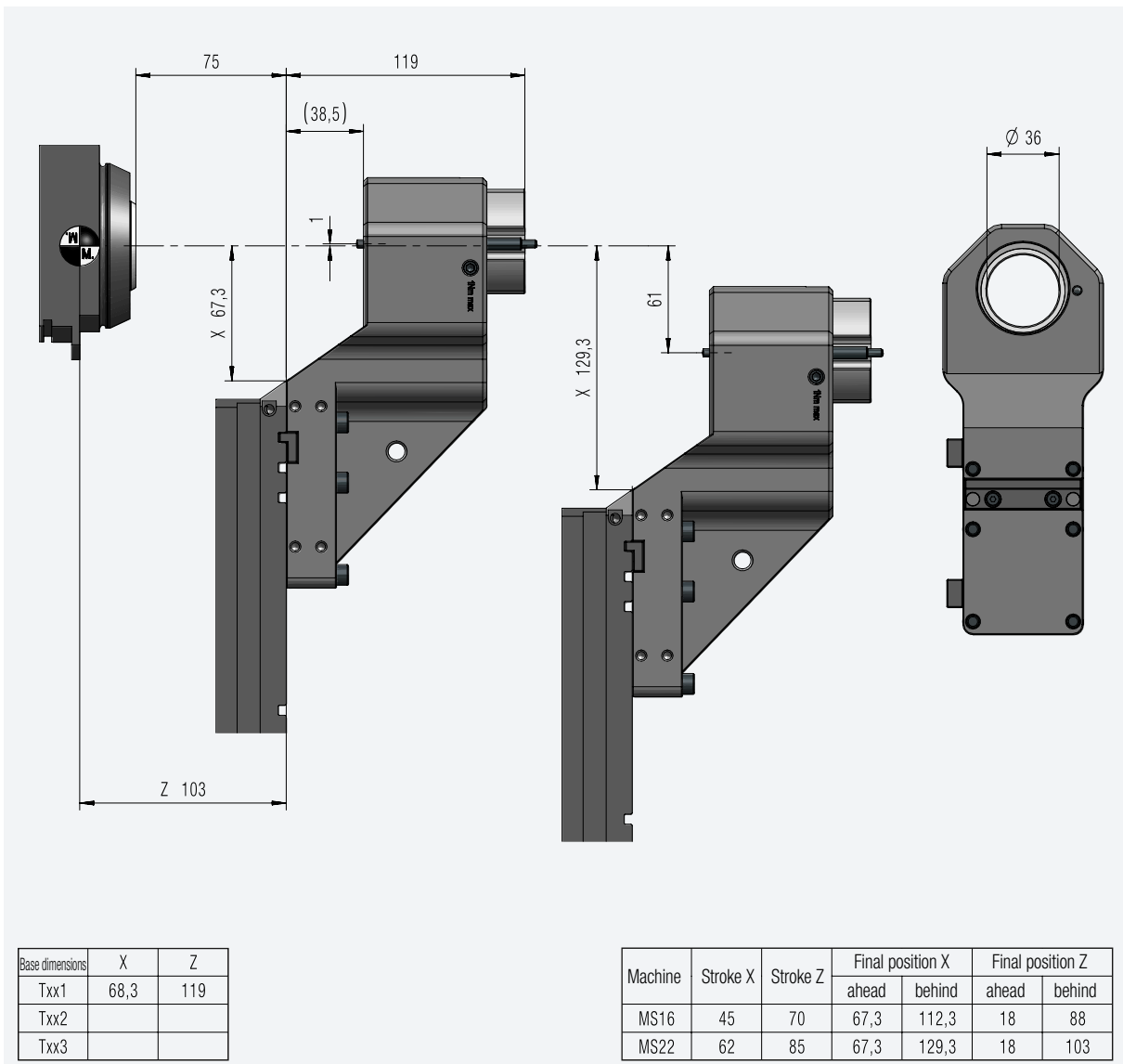
MS22

MEX-holder 1x / quill \varnothing 36mm



MAS-ID	Order number	Stock
Z00 000 083	MEX36-MS22-1-S292H	●

Accessories, see from page 254 ● in stock ○ on request

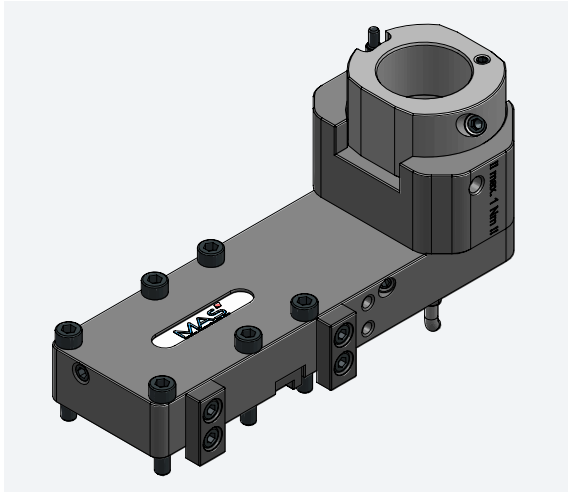


MEX[®]turn

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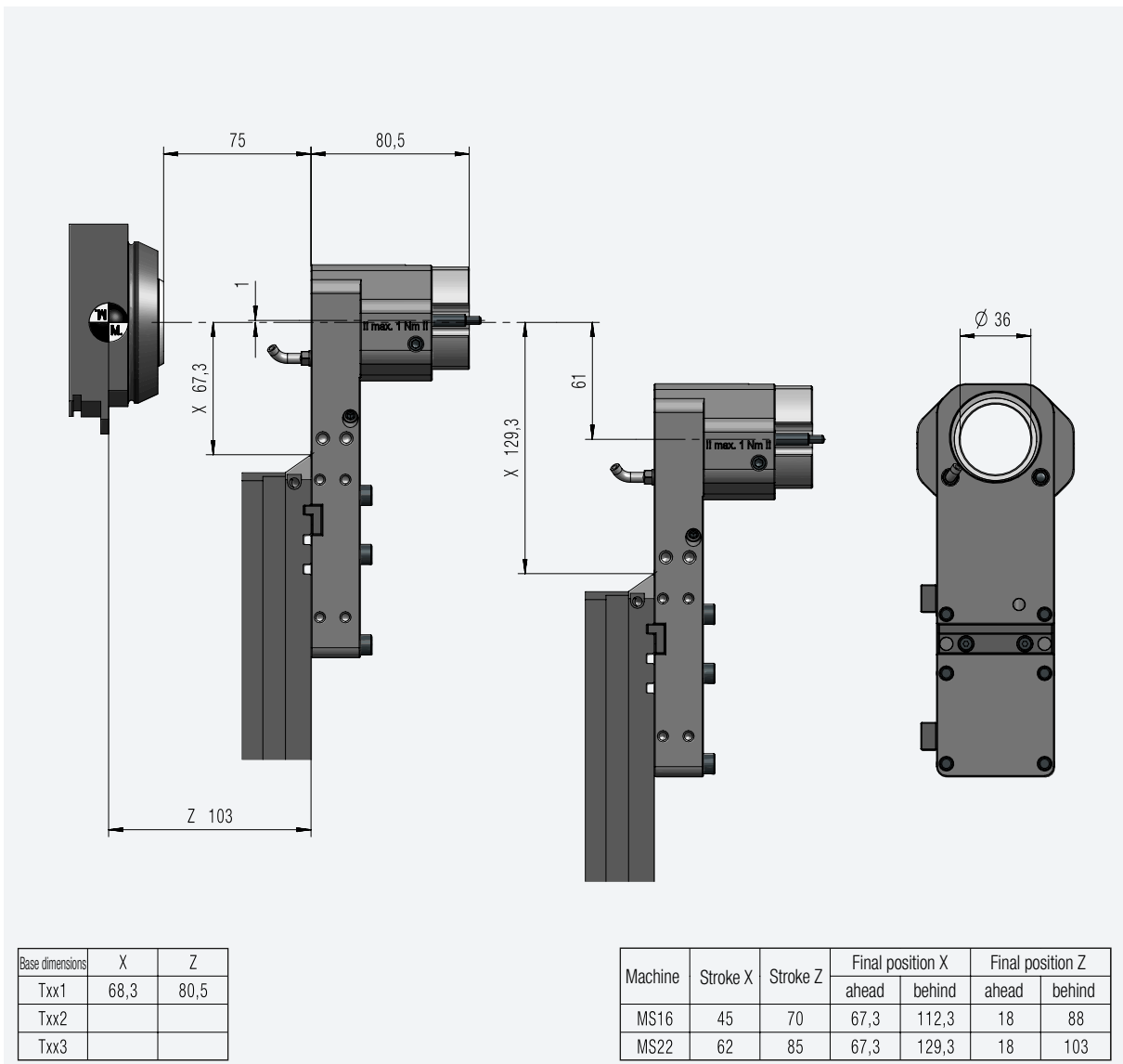
MS22

MEX-holder 1x / quill $\varnothing 36$ mm



MAS-ID	Order number	Stock
Z00 000 086	MEX36-MS22-1-S615H	●

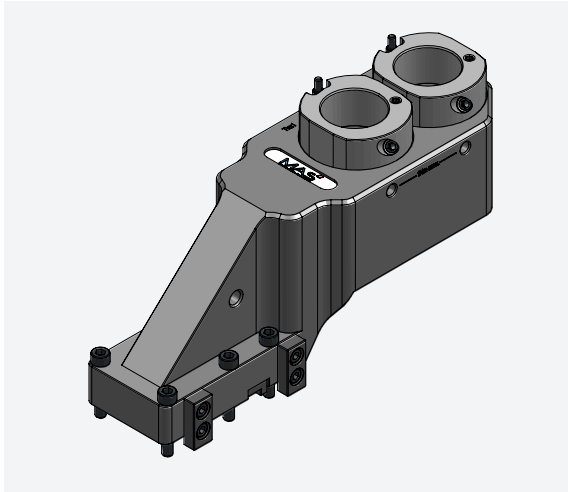
Accessories, see from page 254 ● in stock ○ on request



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MS22

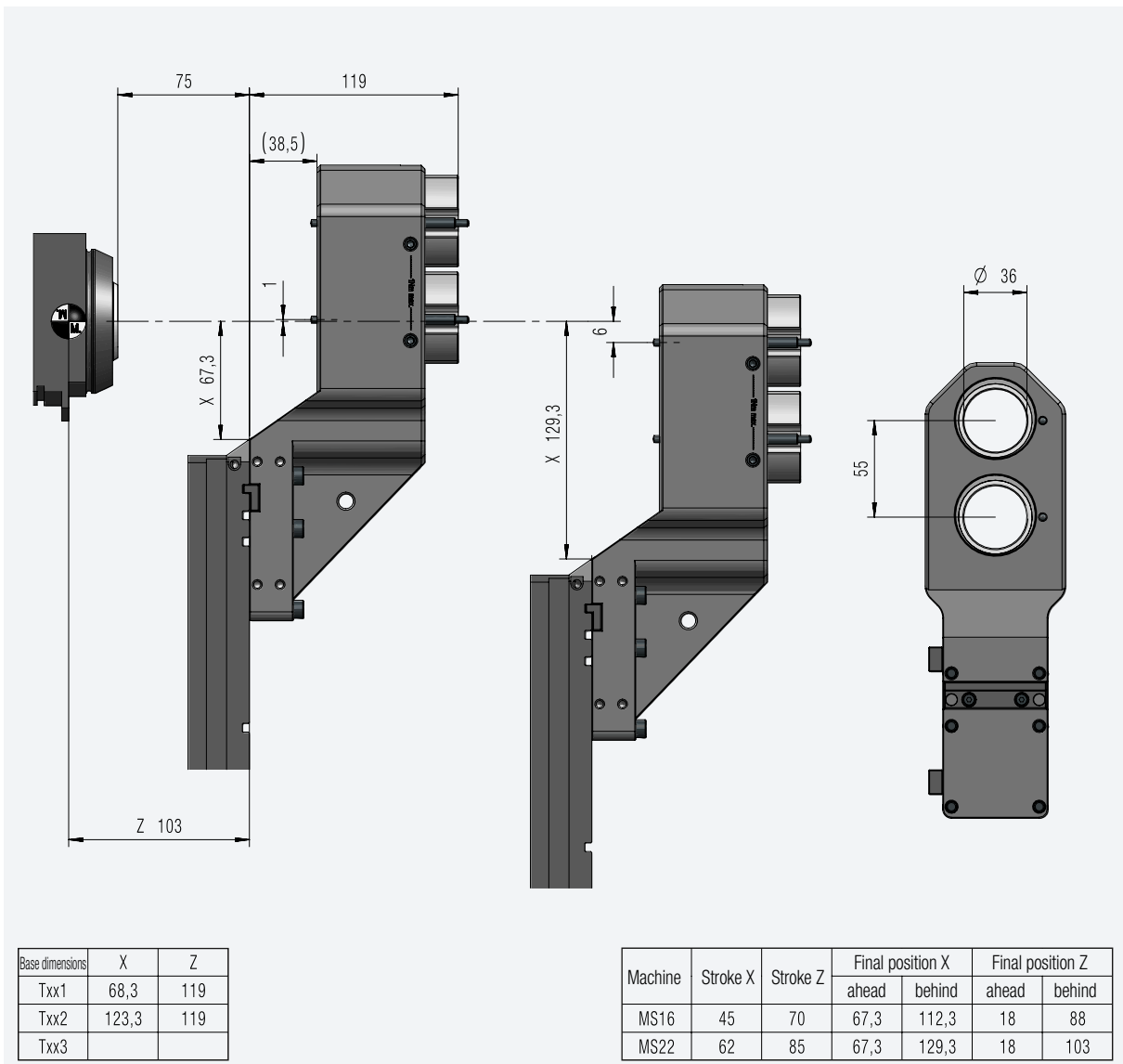
MEX-holder 2x / quill $\varnothing 36$ mm



MAS-ID	Order number	Stock
Z00 000 084	MEX36-MS22-2-S297H	●

Accessories, see from page 254 ● in stock ○ on request

- This holder can also be used on the INDEX MS18 with limitations.

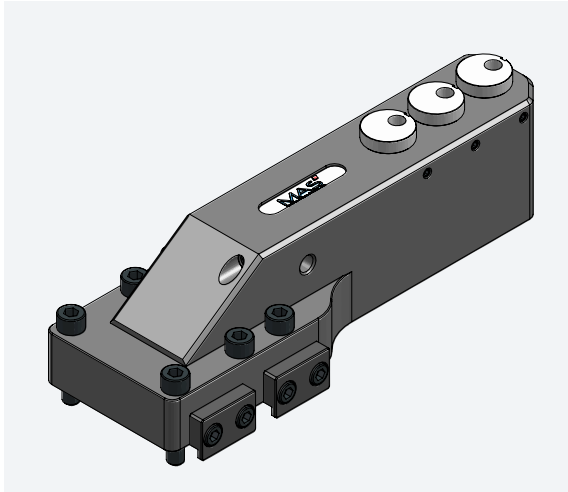


MEX[®]turn

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MS32

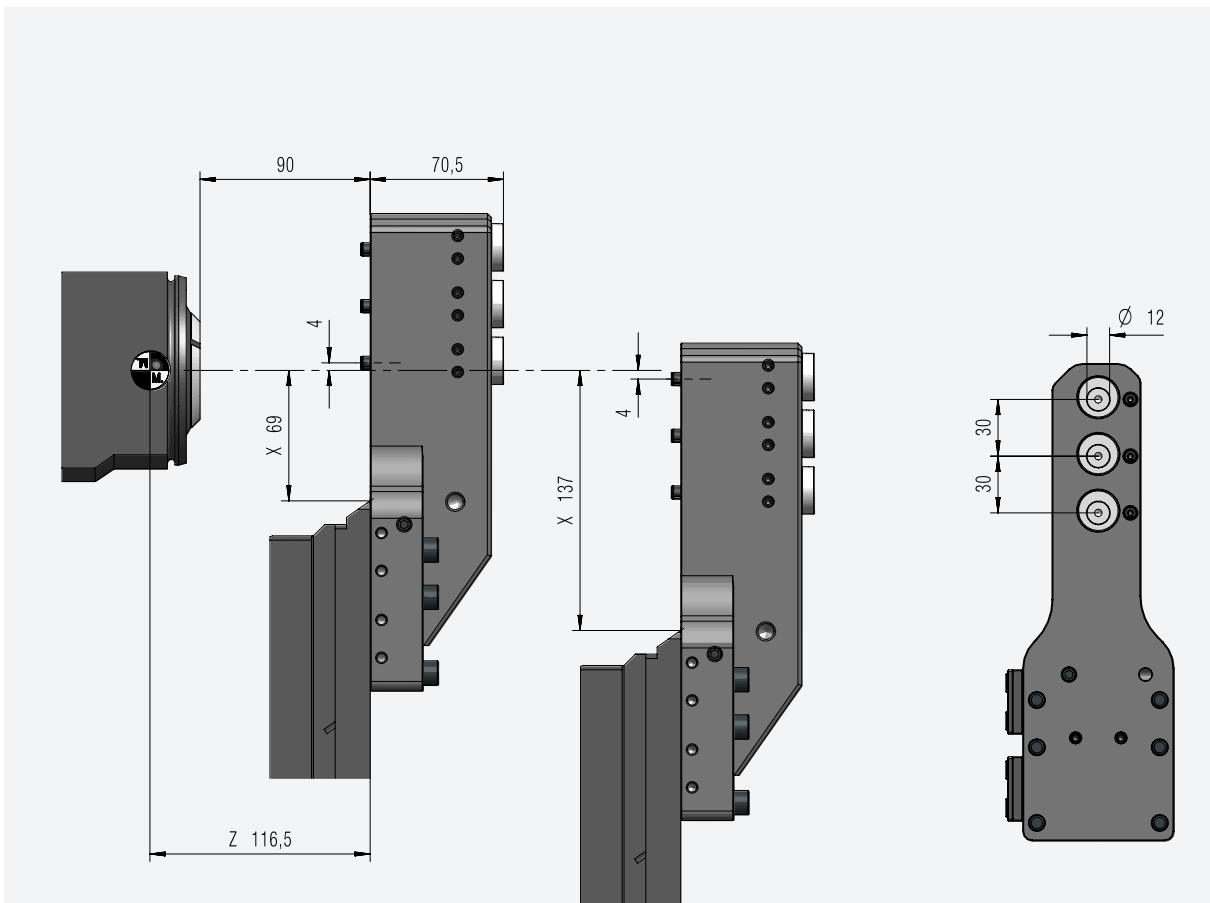
MEX-holder 3x / clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 078	MEX12-MS32-3-S259H	●

Accessories, see from page 254 ● in stock ○ on request

- Includes internal cooling via slide



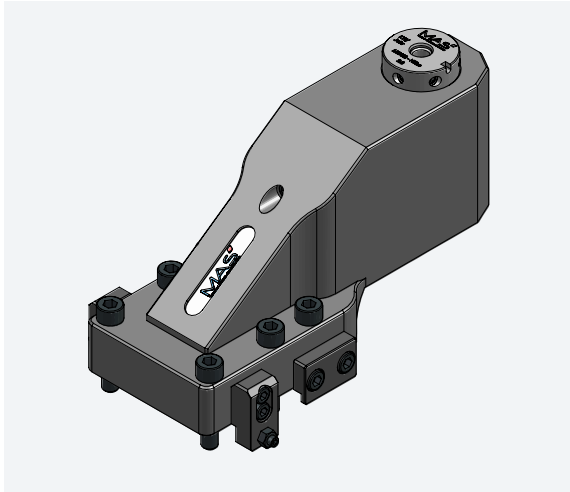
Base dimensions	X	Z
Txx1	73	0
Txx2	103	0
Txx3	133	0

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS32	68	100	69	137	16,5	116,5
MS40	73	120	69	142	40	160

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MS32

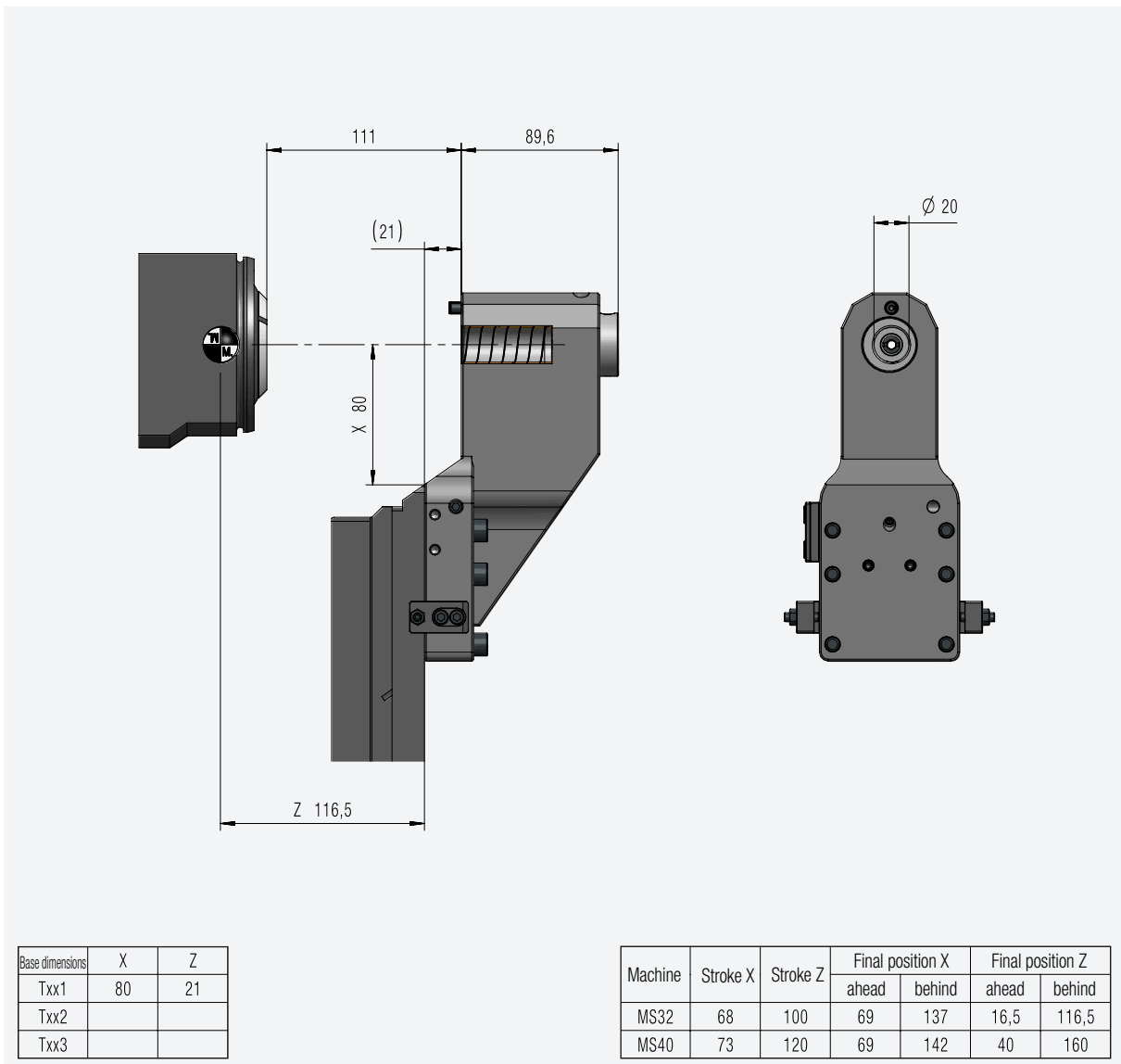
MEX-holder 1x/ clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 529	MEX20-MS32-VX80-Z529	○

Accessories, see from page 254 ● in stock ○ on request

- Internal cooling via MEX20 sleeve (G1/8")
- For rigid slides 1.2 & 2.1 for INDEX MS32
- Fine adjustment of x using MEX
- Fine adjustment of y using dovetail

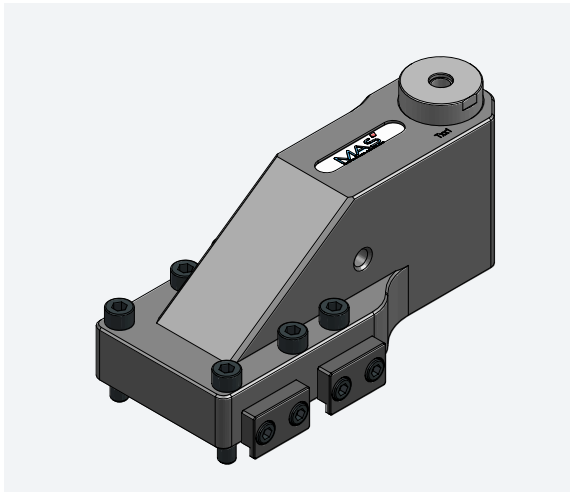


MEX[®]turn

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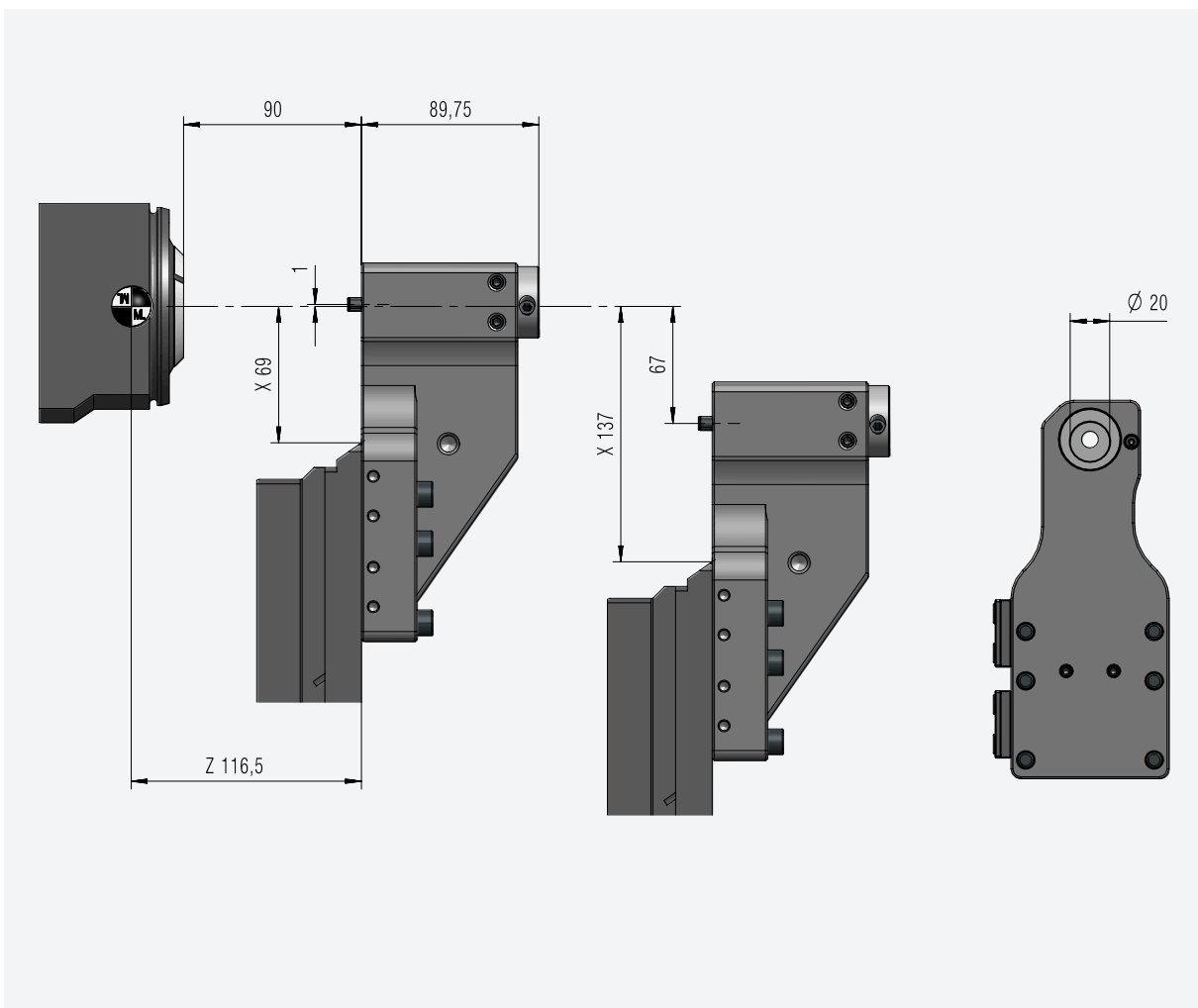
MS32

MEX-holder 1x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 187	MEX20-MS32-1-Z187	●

Accessories, see from page 254 ● in stock ○ on request



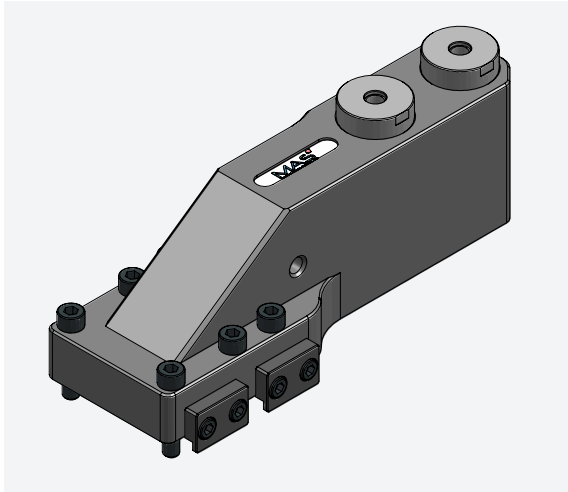
Base dimensions	X	Z
Txx1	70	0
Txx2		
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS32	68	100	69	137	16,5	116,5
MS40	73	120	69	142	40	160

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MS32

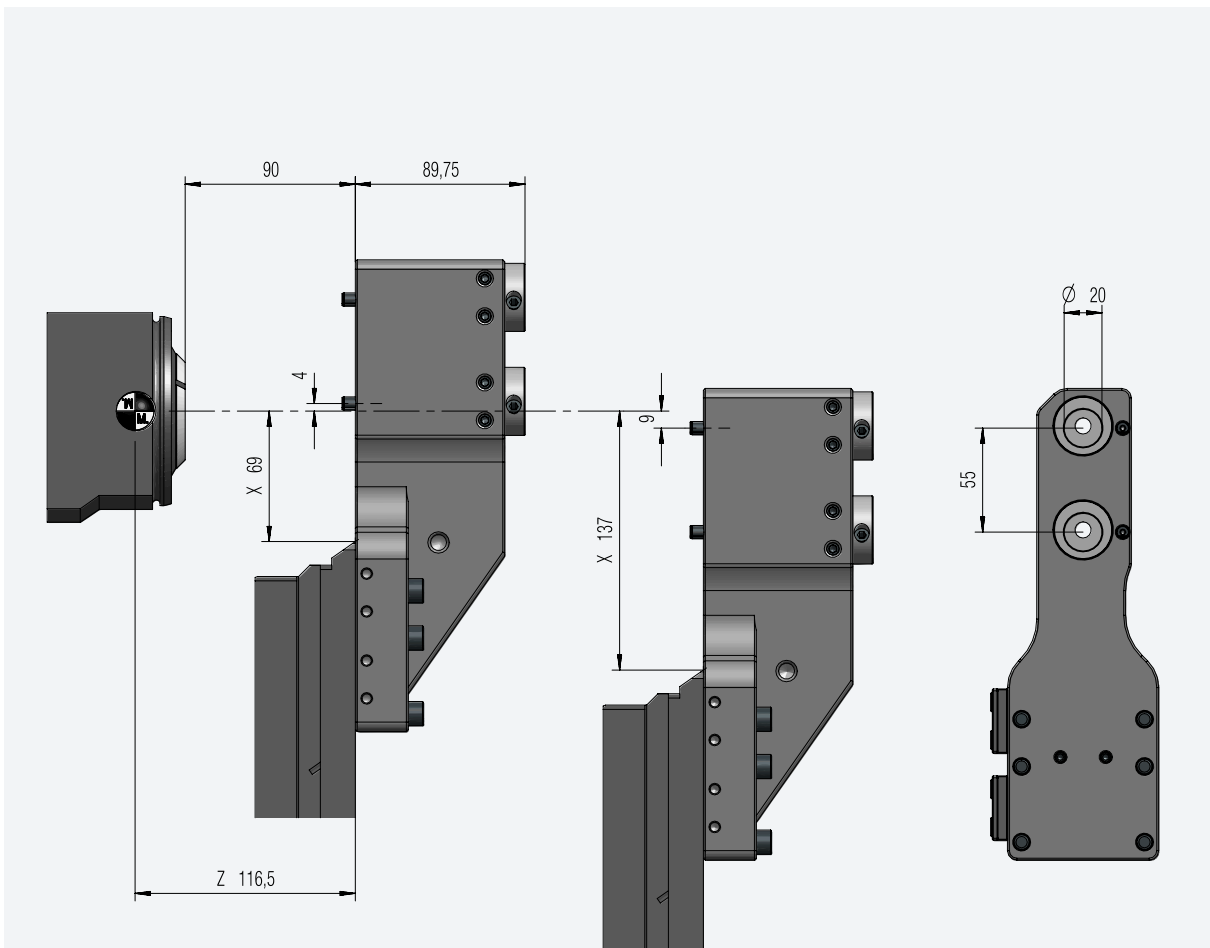
MEX-holder 2x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 205	MEX20-MS32-2-Z205	●

Accessories, see from page 254 ● in stock ○ on request

- Internal cooling via MEX20 sleeve (G1/8")



Base dimensions	X	Z
Txx1	73	0
Txx2	128	0
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS32	68	100	69	137	16,5	116,5
MS40	73	120	69	142	40	160

MEX[®]turn

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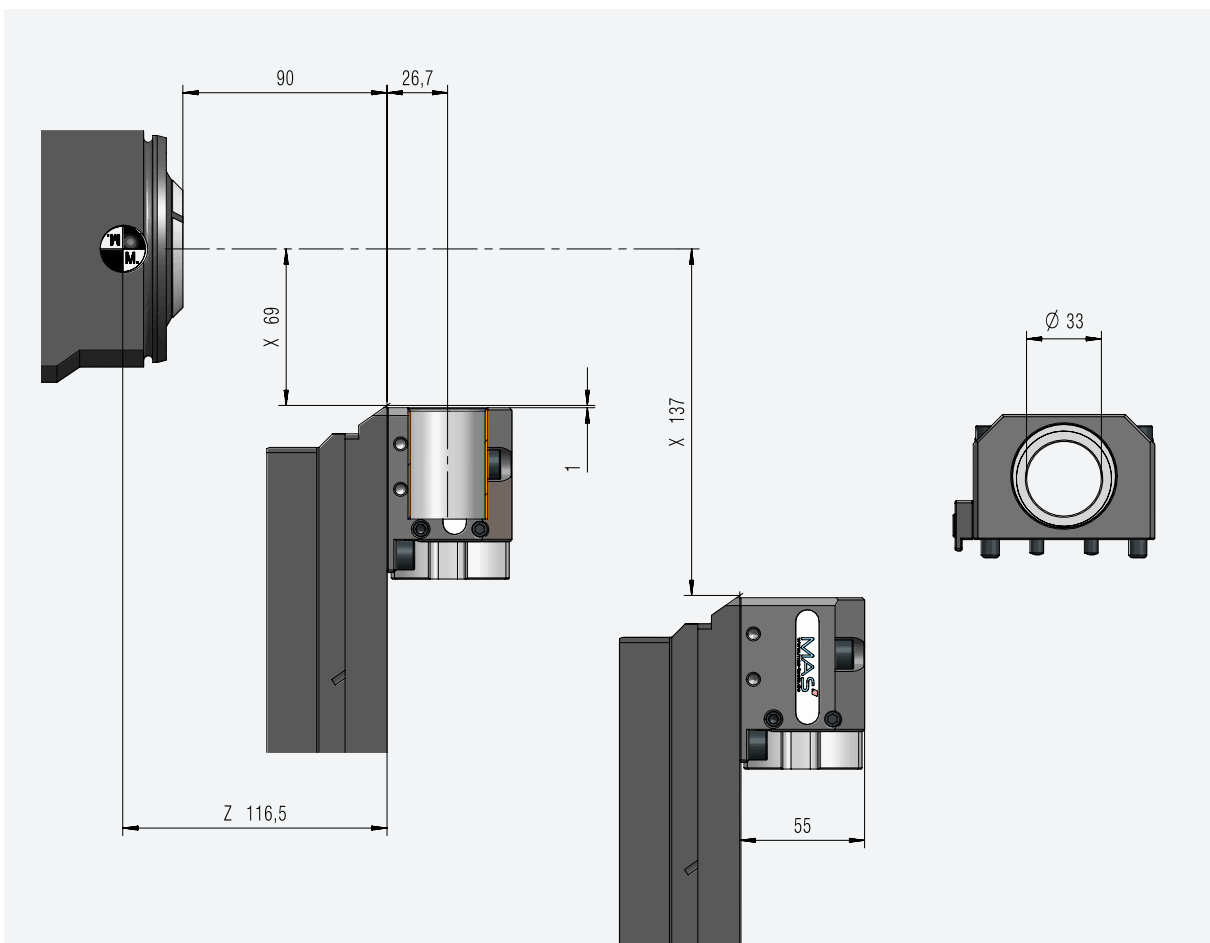
MS32

MEX-holder 1x / HFS $\varnothing 33$ mm



MAS-ID	Order number	Stock
Z00 000 148	MEX33-MS32-1-S463H	●

Accessories, see from page 254 ● in stock ○ on request



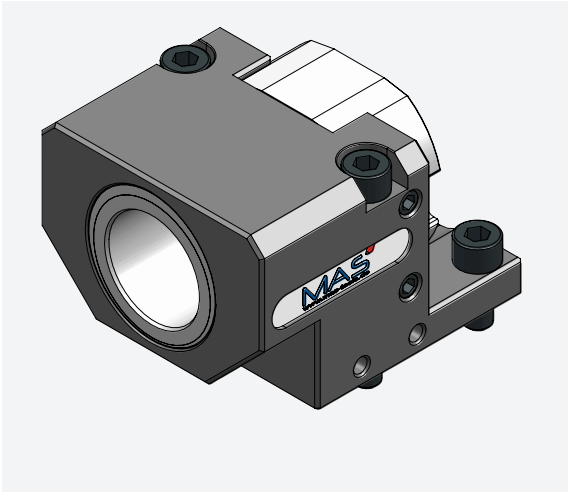
Base dimensions	X	Z
Txx1	-1	26,7
Txx2		
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS32	68	100	69	137	16,5	116,5
MS40	73	120	69	142	40	160

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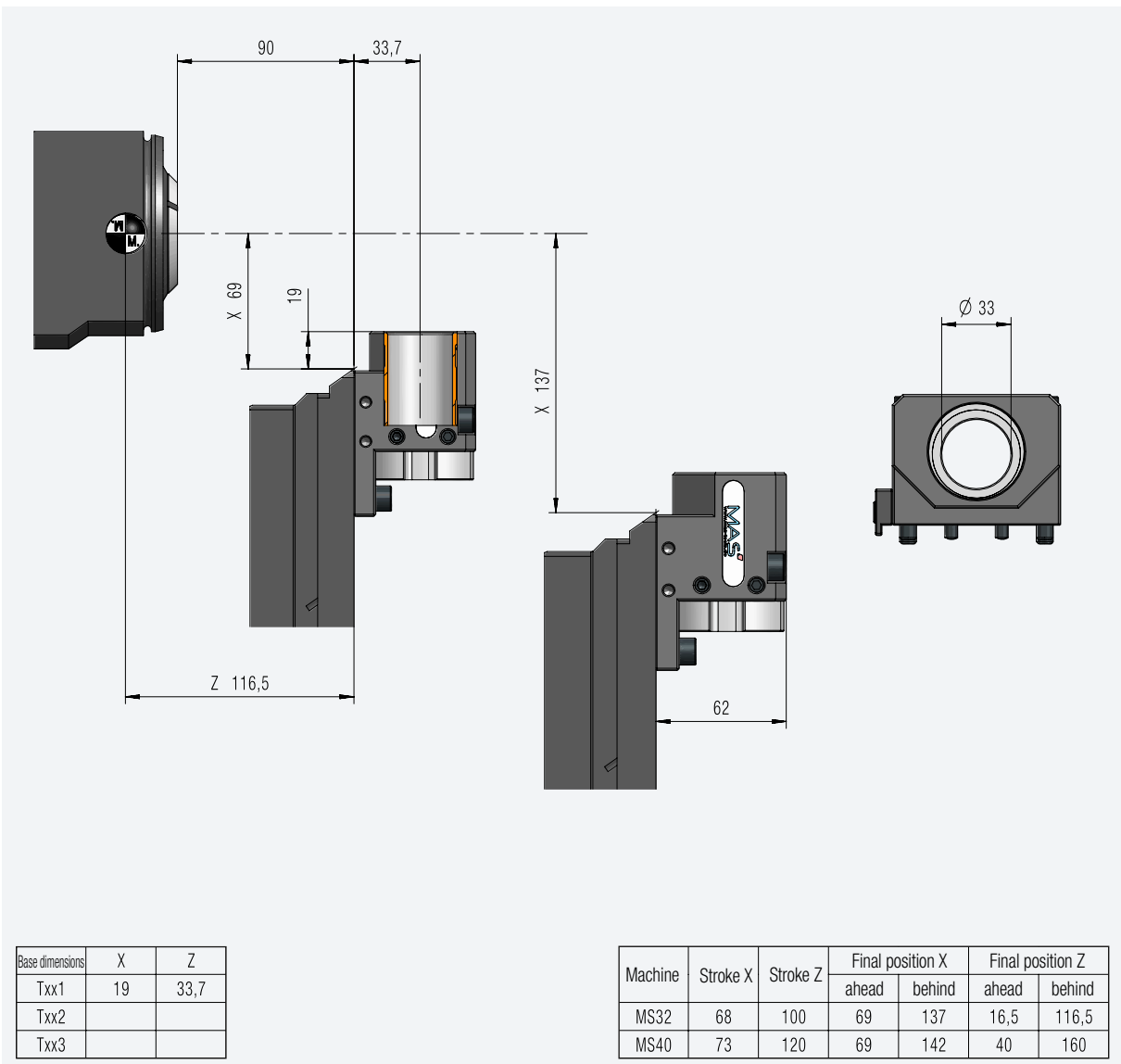
MS32

MEX-holder 1x / HFS $\varnothing 33$ mm



MAS-ID	Order number	Stock
Z00 000 147	MEX33-MS32-1-S519H	●

Accessories, see from page 254 ● in stock ○ on request



MEX[®]turn

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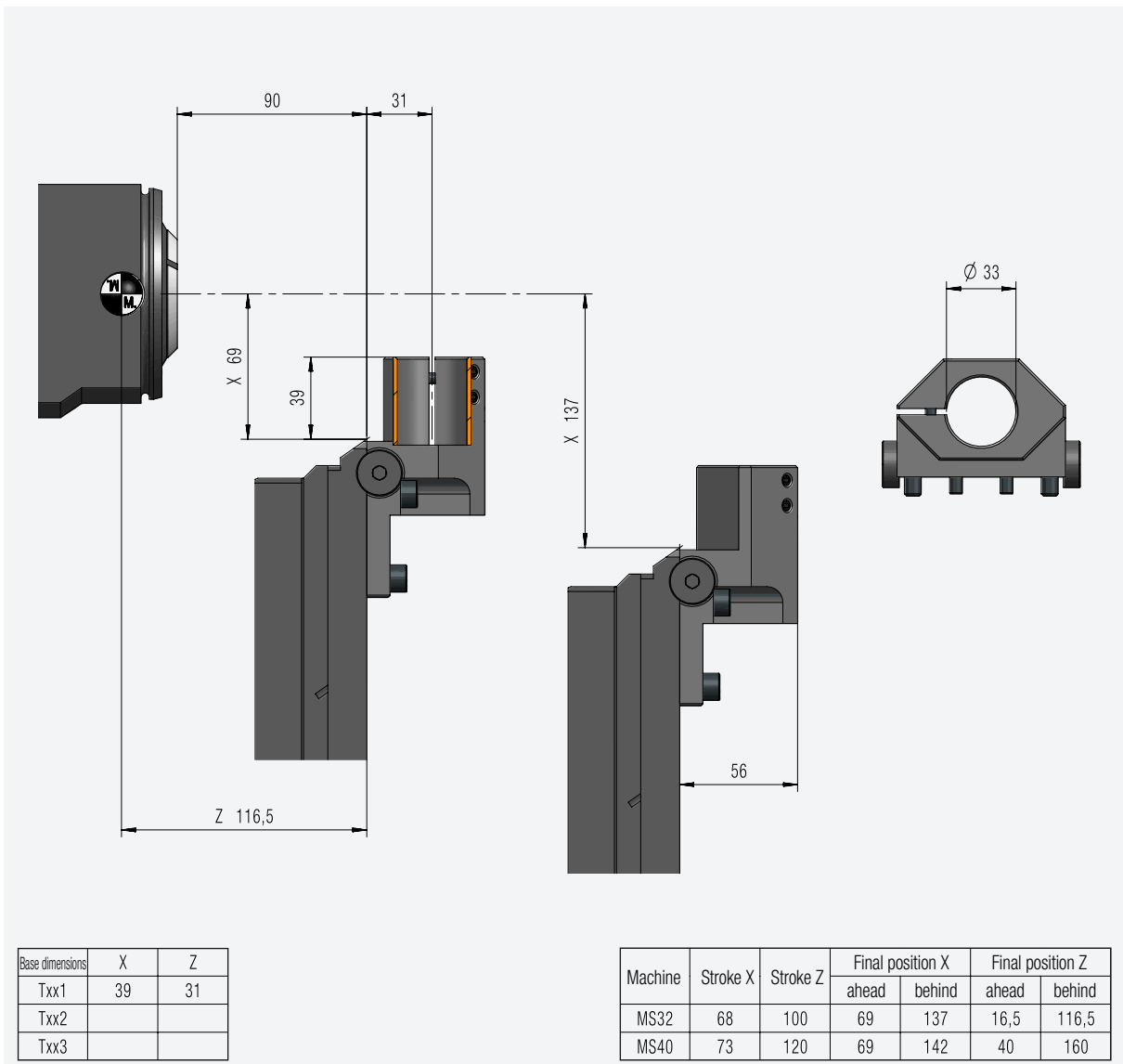
MS32

MEX-holder 1x / HFS $\varnothing 33$ mm



MAS-ID	Order number	Stock
Z00 000 140	MEX33-MS32-1-S540	●

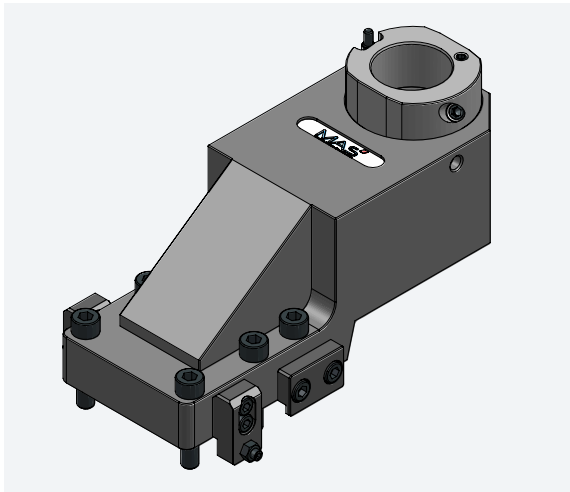
Accessories, see from page 254 ● in stock ○ on request



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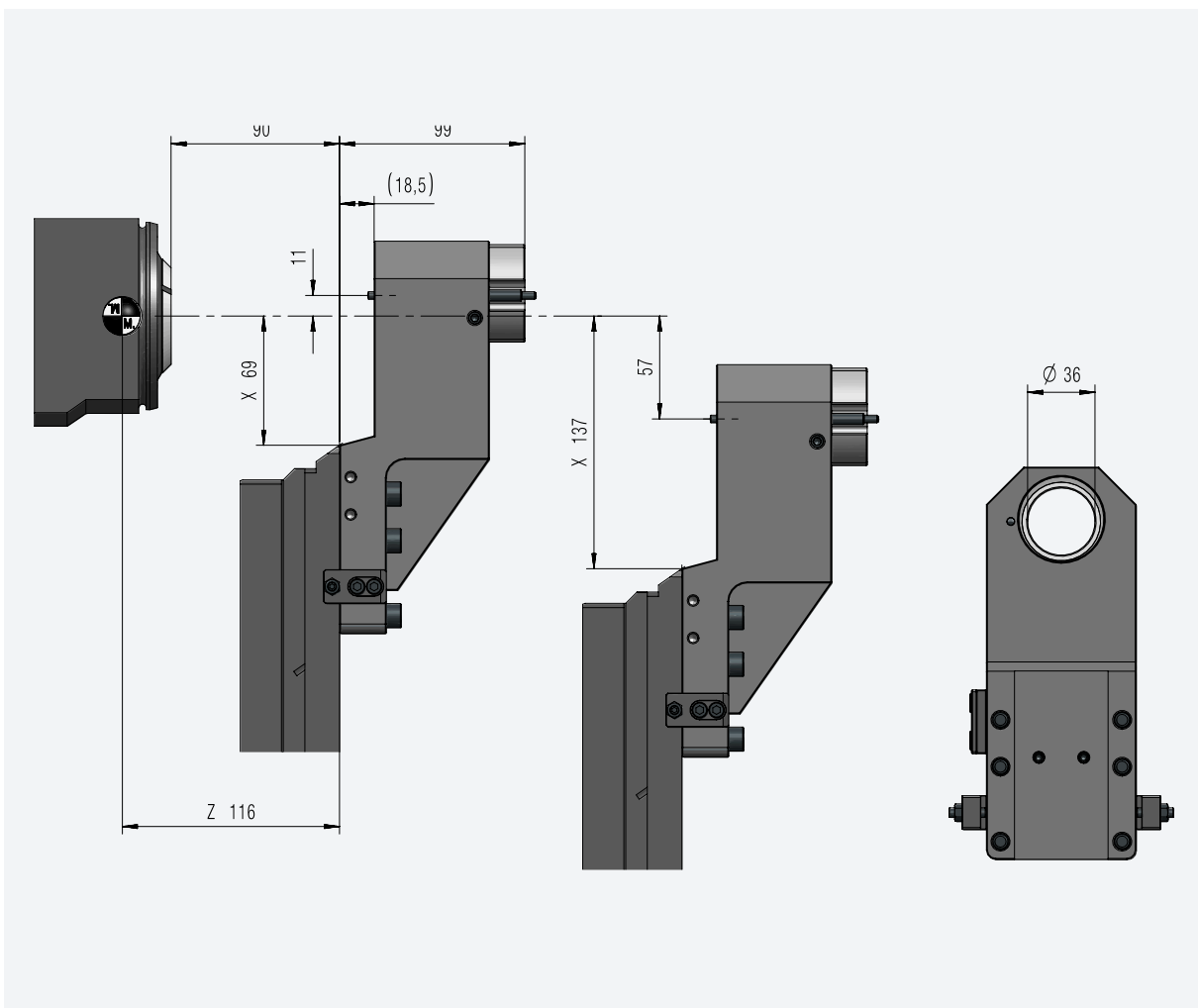
MS32

MEX-holder 1x / clamping $\varnothing 36$ mm



MAS-ID	Order number	Stock
Z00 000 015	MEX36-MS32-1-Z15	●

Accessories, see from page 254 ● in stock ○ on request



MEX[®]turn

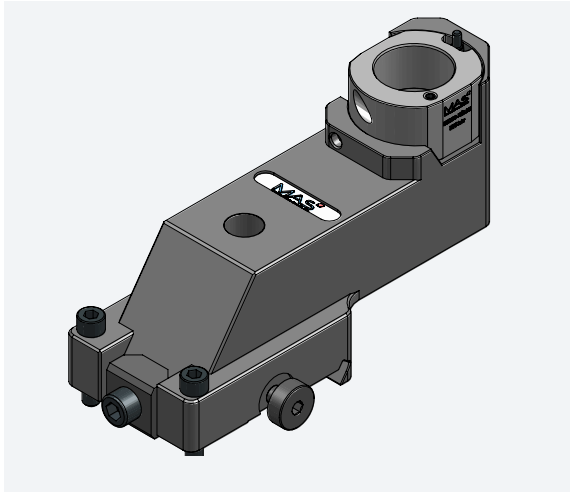
Base dimensions	X	Z
Txx1	80	99
Txx2		
Txx3		

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS32	68	100	69	137	16,5	116,5
MS40	73	120	69	142	40	160

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MS32

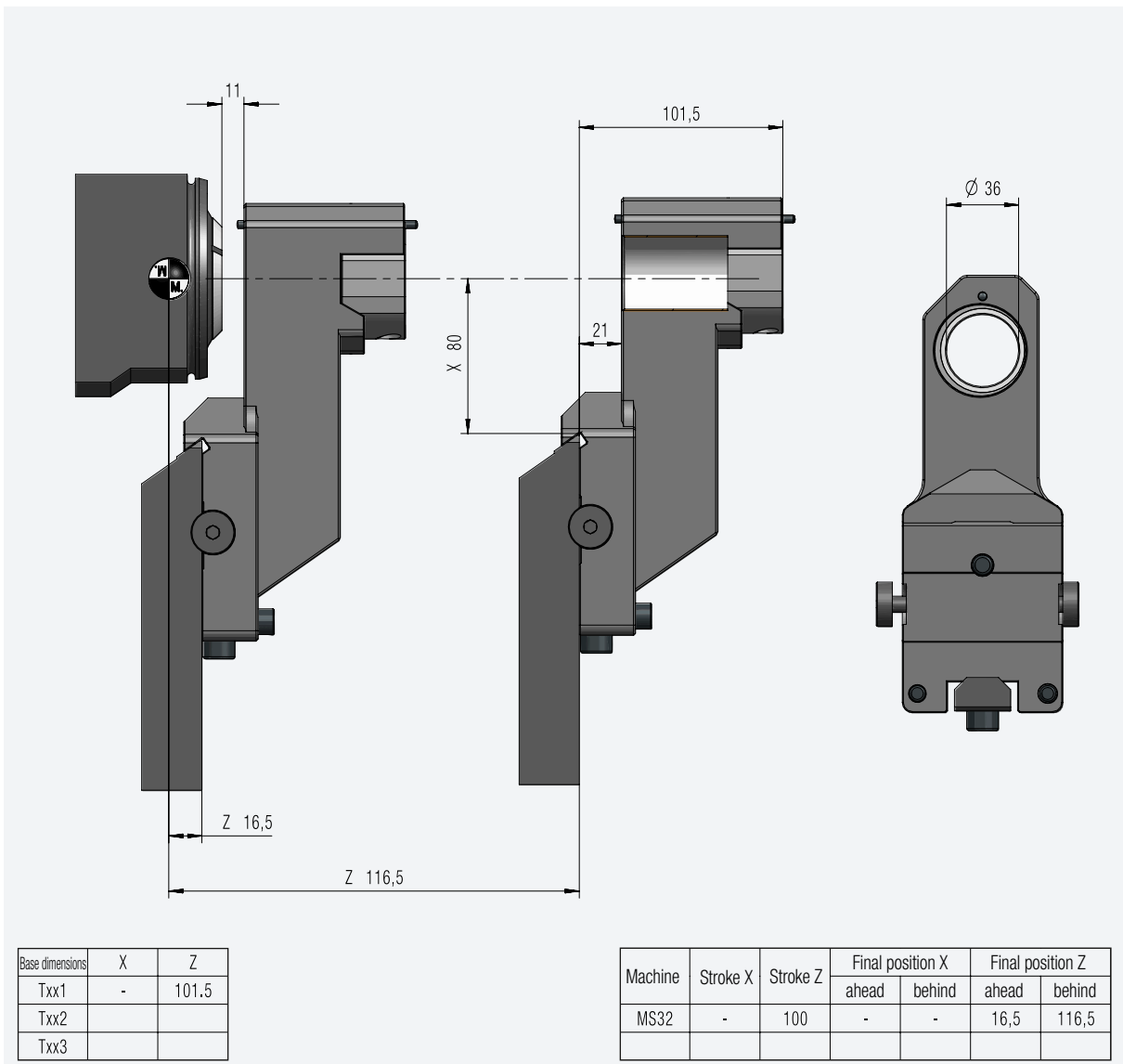
MEX-holder 1x / quill $\varnothing 36$ mm



Order number	Stock
MEX36-MS32-VX-S384H	○

Accessories, see from page 254 ● in stock ○ on request

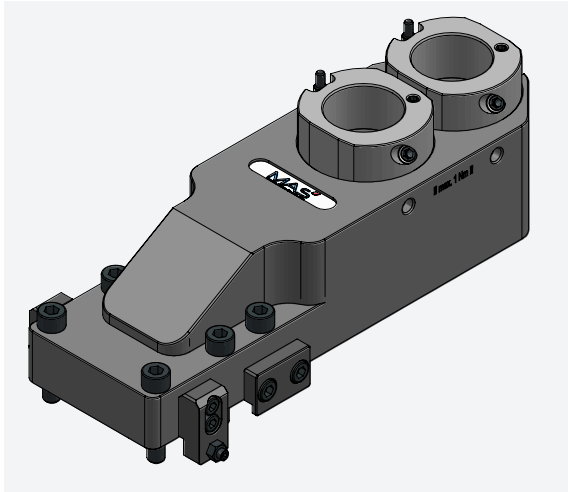
- For rigid slides 1.2 & 2.1 for INDEX MS32
- Fine adjustment of x using MEX
- Fine adjustment of y using dovetail



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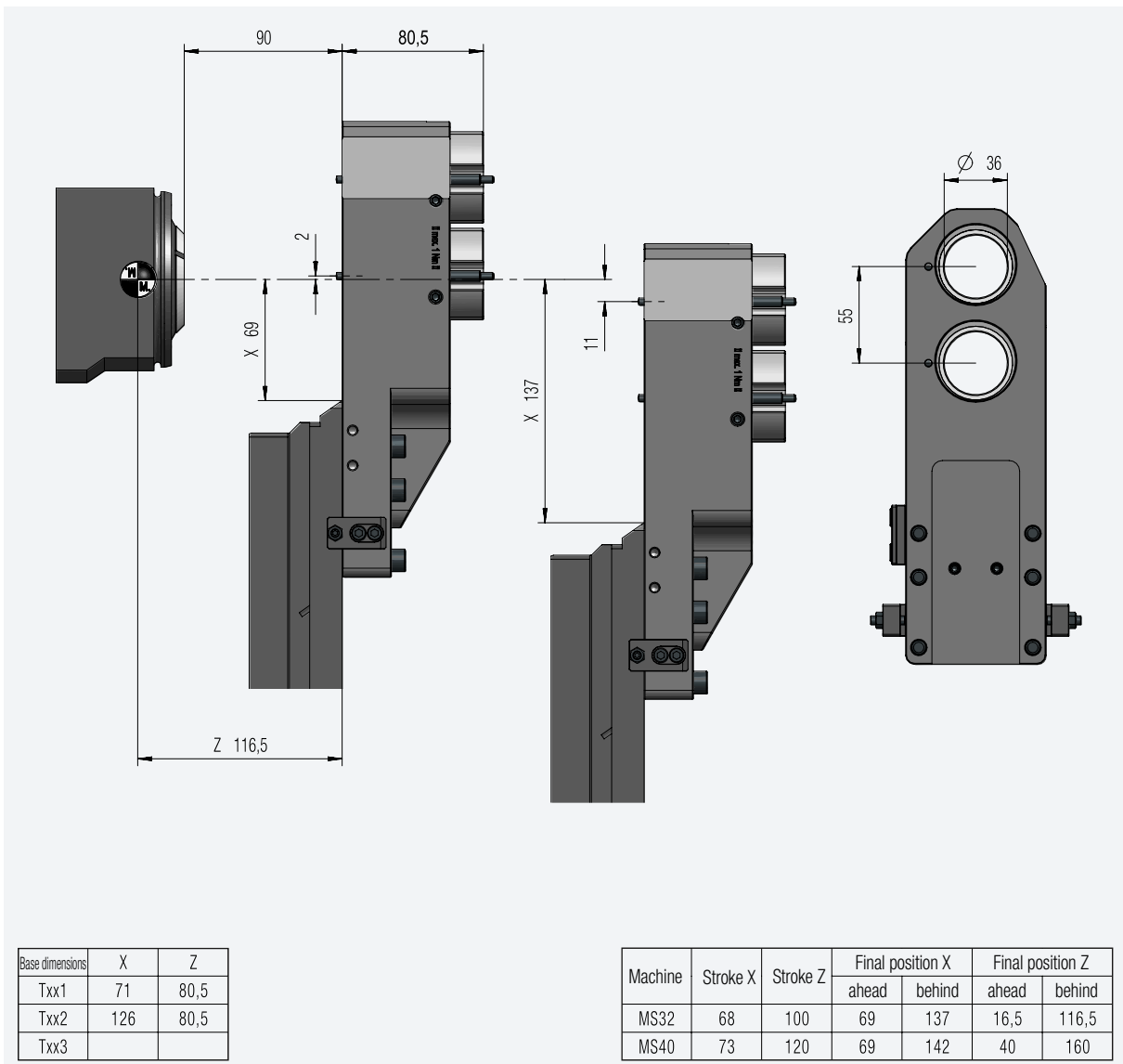
MS 32

MEX-holder 2x / quill $\varnothing 36$ mm



MAS-ID	Order number	Stock
Z00 000 016	MEX36-MS32-2-Z16	●

Accessories, see from page 254 ● in stock ○ on request

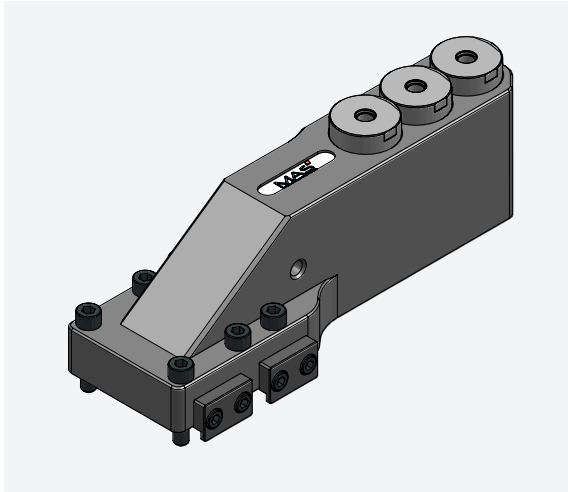


MEX[®]turn

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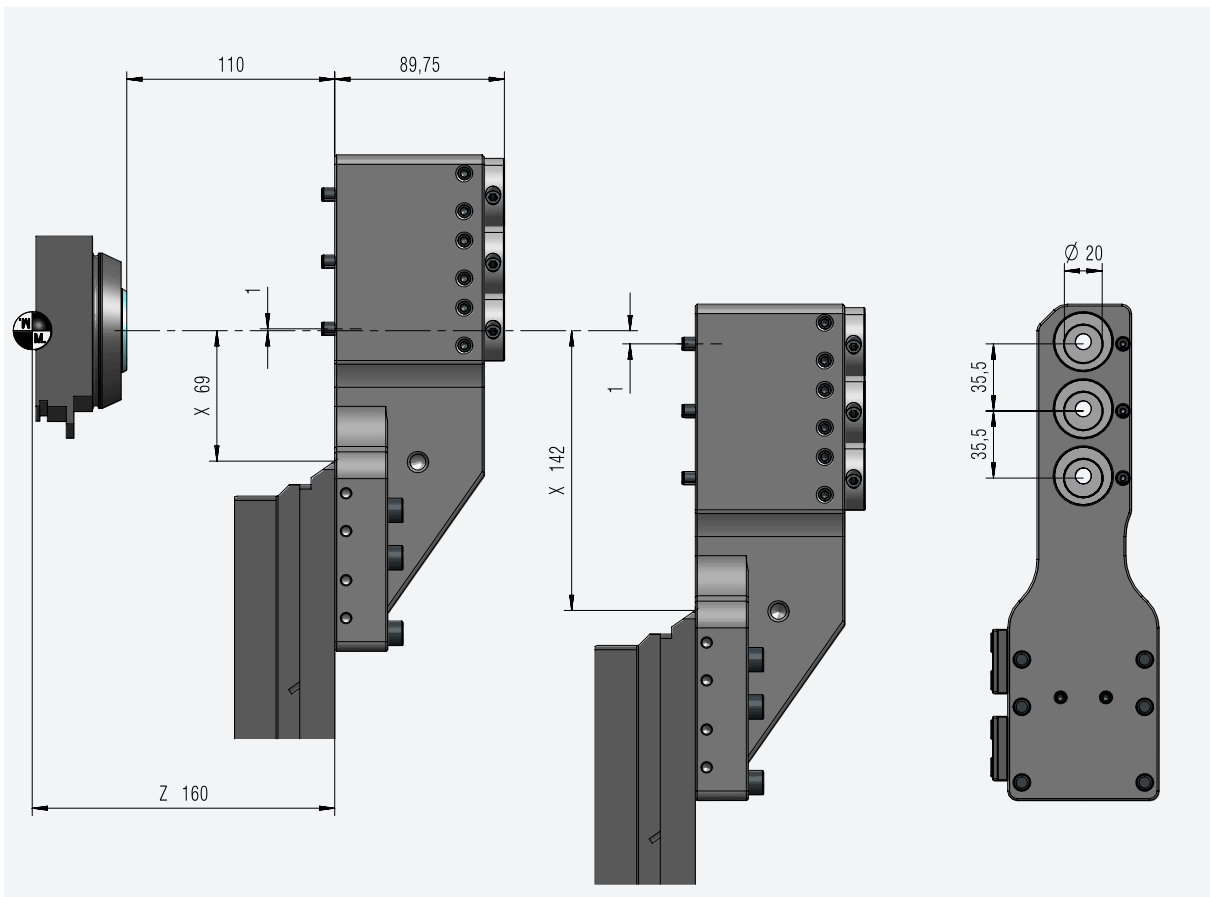
MS40

MEX-holder 3x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 074	MEX20-MS40-3-S491H	●

Accessories, see from page 254 ● in stock ○ on request



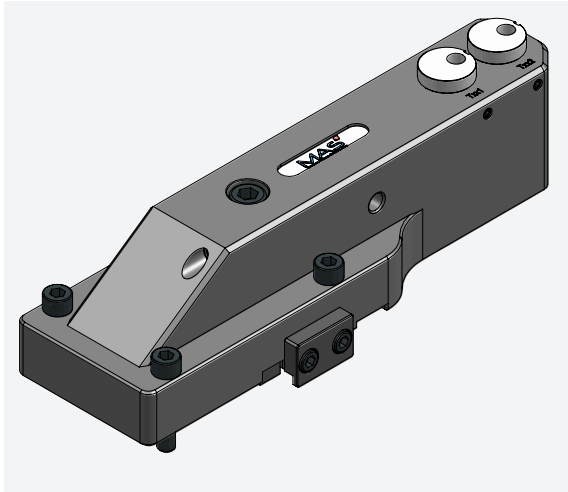
Base dimensions	X	Z
Txx1	70	0
Txx2	105,5	0
Txx3	141	0

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS32	68	100	69	137	16,5	116,5
MS40	73	120	69	142	40	160

INDEX

MS52

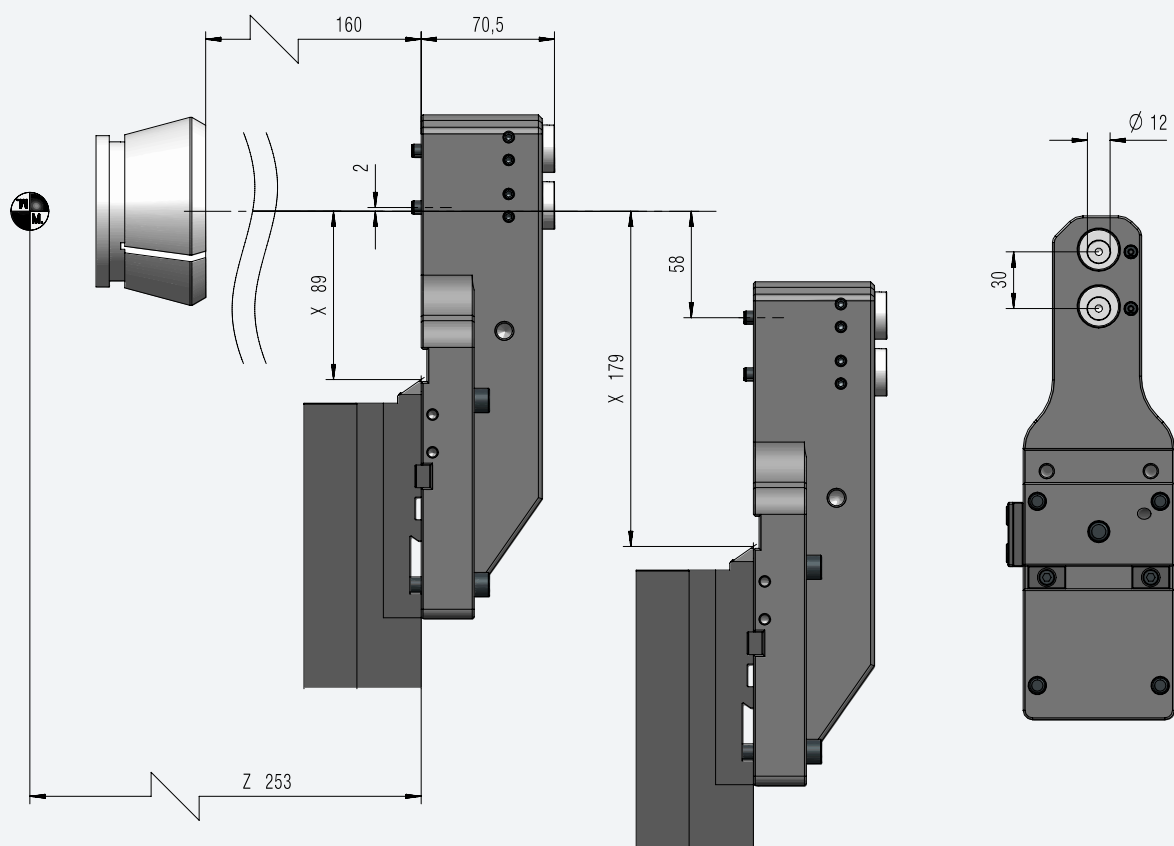
MEX-holder 2x / clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 099	MEX12-MS52-2-S365H	○

Accessories, see from page 254 ● in stock ○ on request

- Includes internal cooling via slide



Base dimensions	X	Z
Txx1	91	0
Txx2	121	0
Txx3		

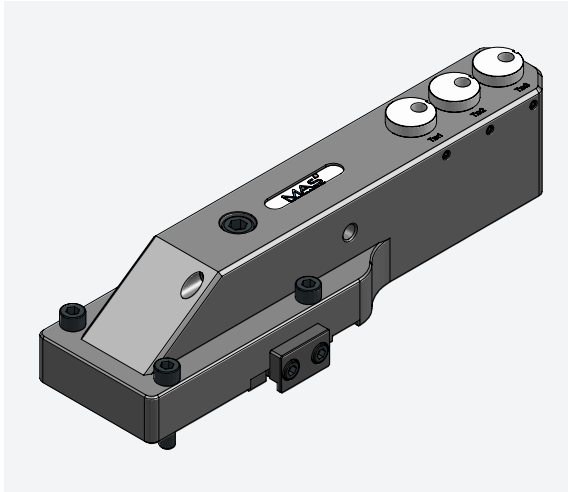
Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS52	90	160	89	179	93	253

MEX[®]turn

INDEX

MS52

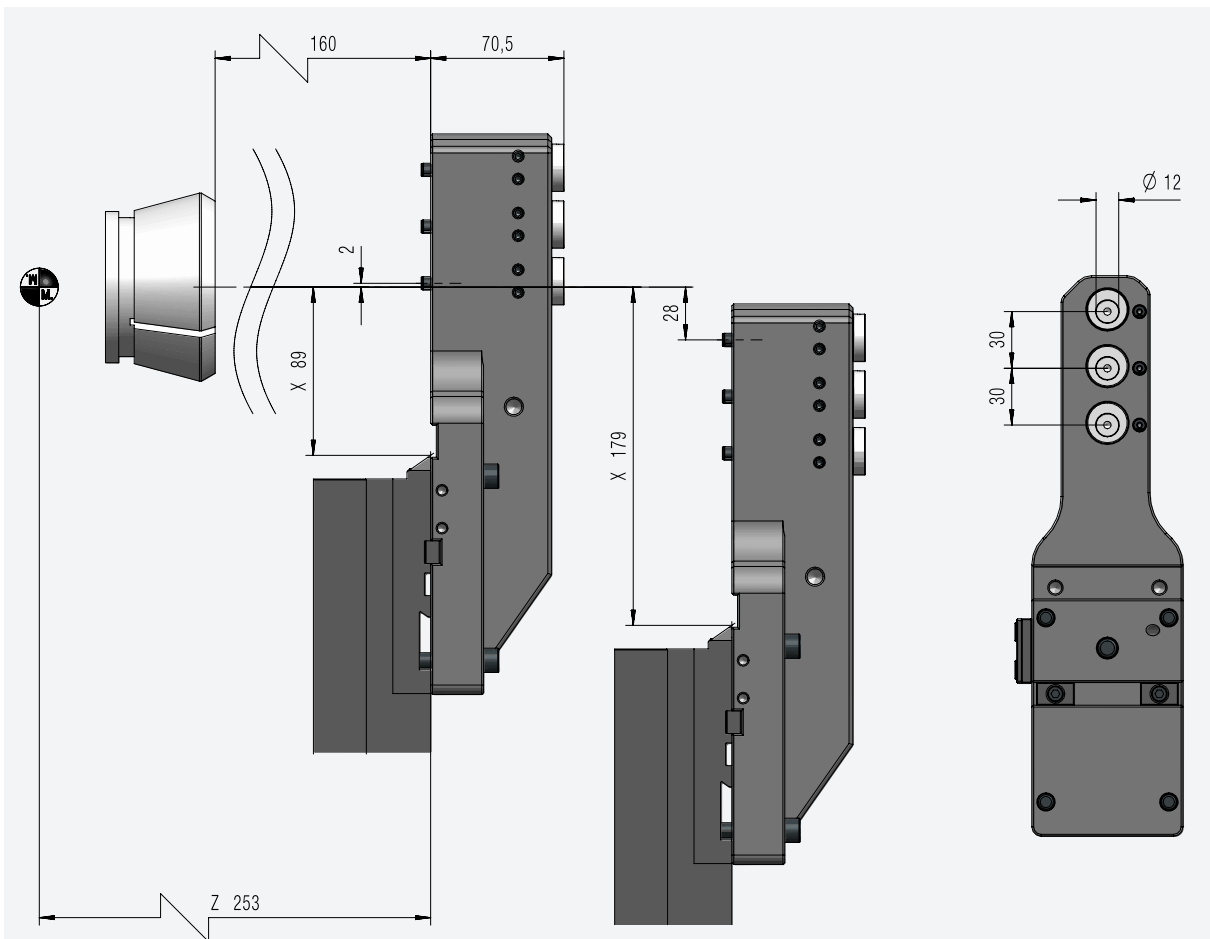
MEX-holder 3x / clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 096	MEX12-MS52-3-S366H	<input type="radio"/>

Accessories, see from page 254 ● in stock ○ on request

- Includes internal cooling via slide



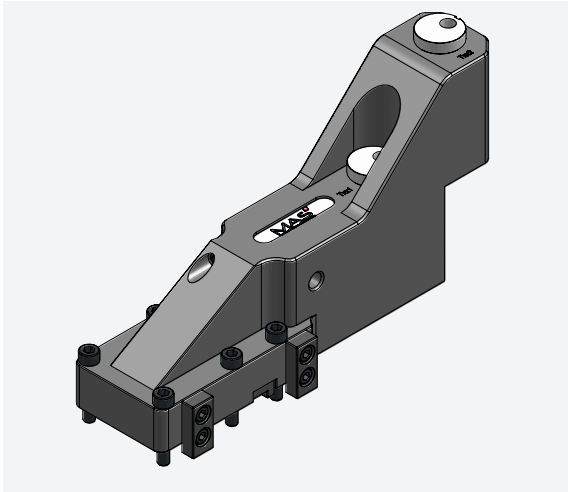
Base dimensions	X	Z
Txx1	91	0
Txx2	121	0
Txx3	151	0

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS52	90	160	89	179	93	253

INDEX special solutions

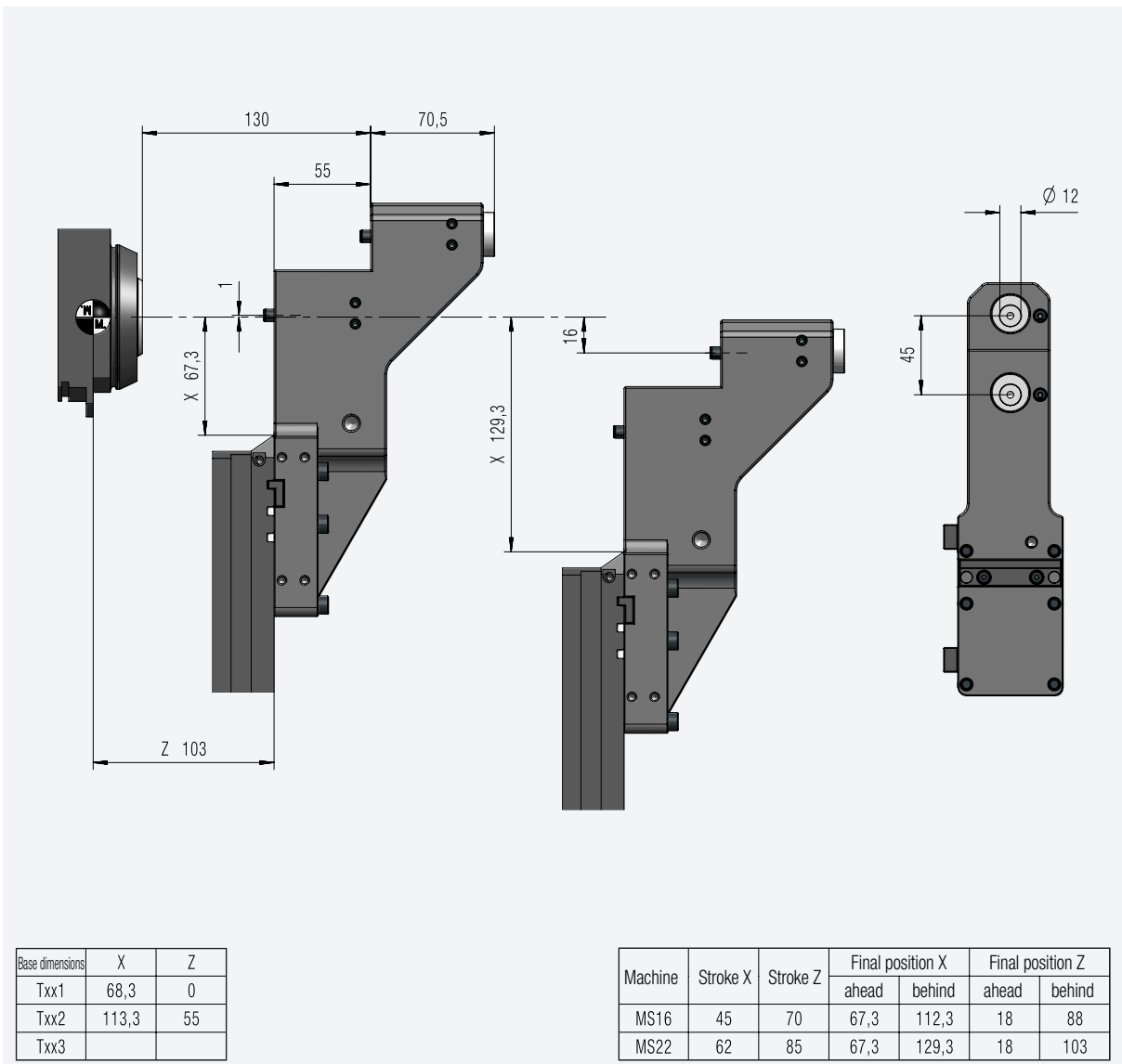
MS22

MEX-holder 2x / clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 153	MEX12-MS22-2-S541H	○

Accessories, see from page 254 ● in stock ○ on request

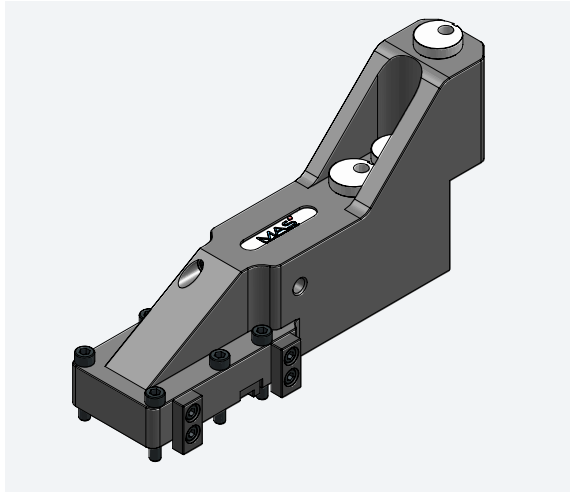


MEX[®]turn

INDEX special solutions

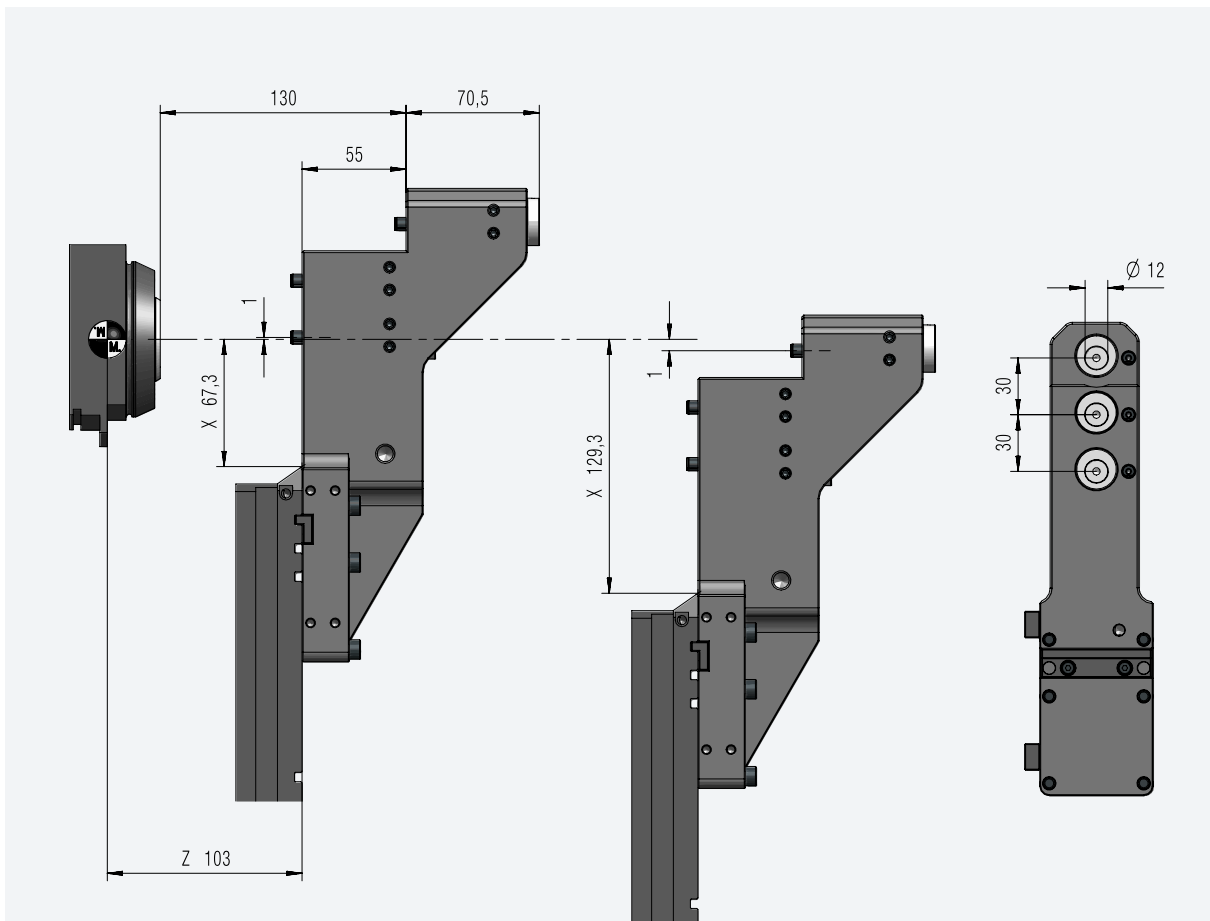
MS22

MEX-holder 3x/ clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 139	MEX12-MS22-3-S551H	○

Accessories, see from page 254 ● in stock ○ on request



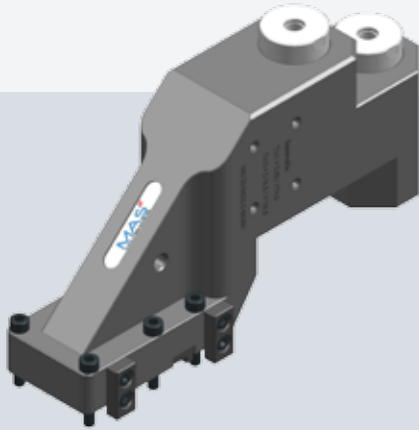
Base dimensions	X	Z
Txx1	68,3	0
Txx2	98,3	0
Txx3	128,3	55

Machine	Stroke X	Stroke Z	Final position X		Final position Z	
			ahead	behind	ahead	behind
MS16	45	70	67,3	112,3	18	88
MS22	62	85	67,3	129,3	18	103

INDEX special solutions

MS 22

MEX-holder 2x / clamping $\varnothing 20$ mm

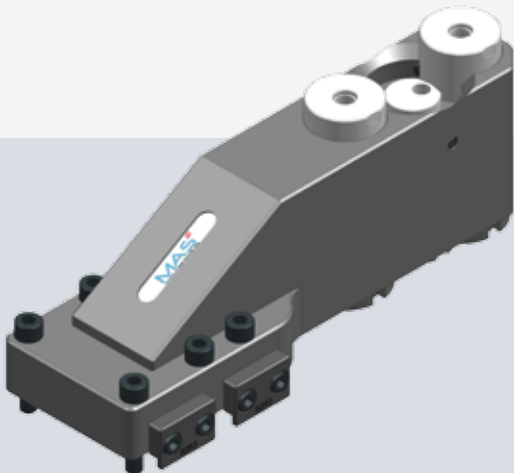


Order number	Stock
MEX20-MS22-2-S626H	<input type="radio"/>

Accessories, see from page 254 in stock on request

MS 40

MEX-holder 3x / clamping $\varnothing 12$ and 20mm



Order number	Stock
MEX12-20-MS40-3-Z32	<input type="radio"/>

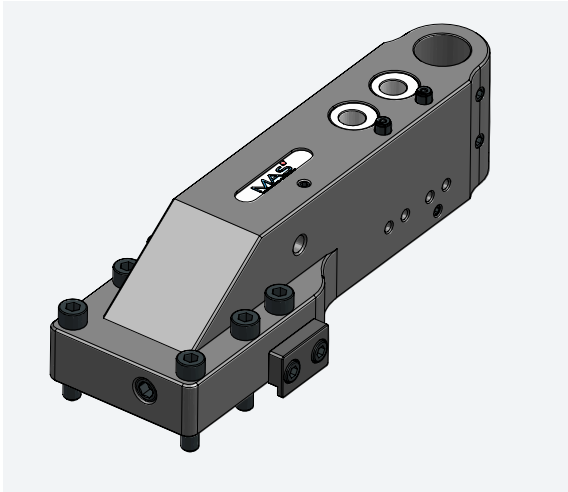
Accessories, see from page 254 in stock on request

MEX[®]turn

INDEX special solutions

Special solutions MS32P

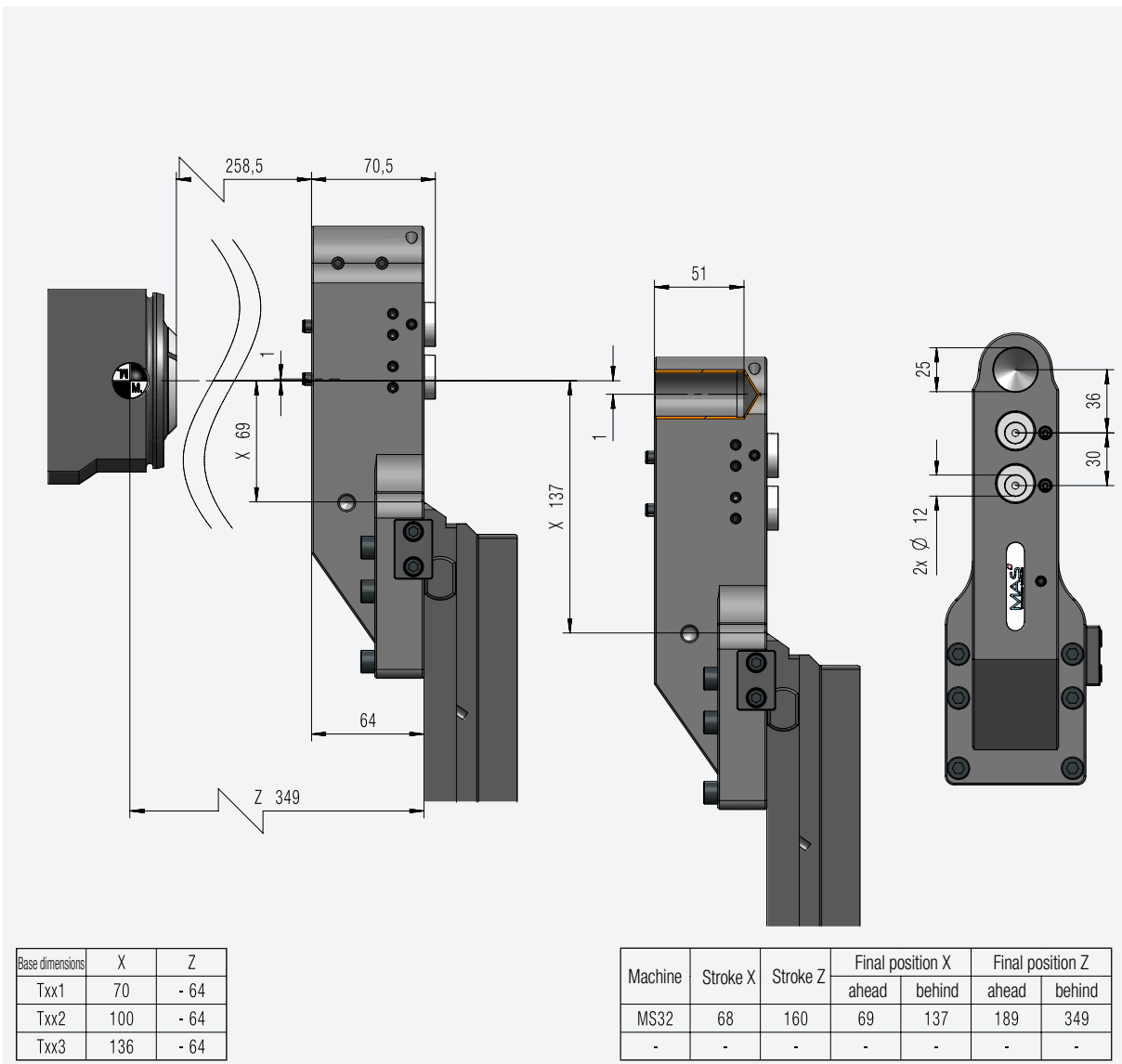
MEX-holder 3x / clamping $\varnothing 12$ mm



MAS-ID	Order number	Stock
Z00 000 082	MEX12-MS32P-3-S284H	○

Accessories, see from page 254 ● in stock ○ on request

- Internal cooling separate for both MEX12 clamping points (high-pressure/low-pressure)
- Third clamping point cylindrical $\varnothing 25$ mm for holding a live center for support

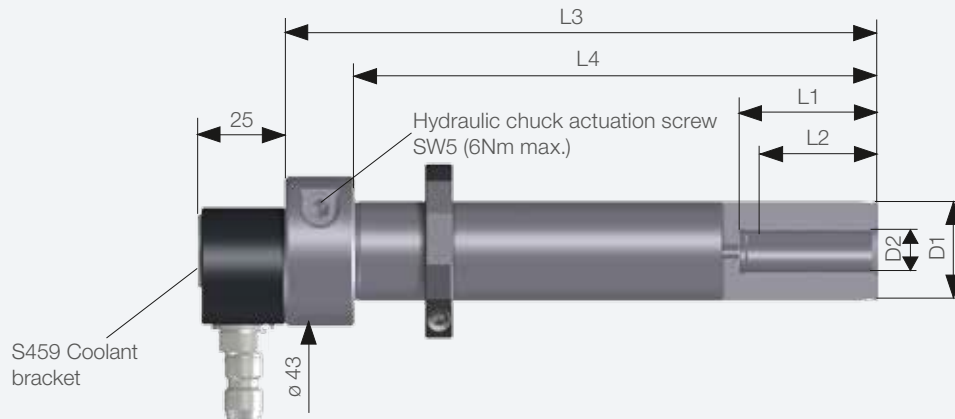


Advantages of our hydroquill

- Quill can be positioned easily in hard-to-reach working spaces
- Clamp dampens vibrations for superior surfaces
- Very good concentricity of tools
- Precisely centered clamping
- Tool changes are quick and clean
- Excellently suited to forming, fiction and ultra-small tools

MEX[®]turn

Hydroquill $\varnothing 28,5$ mm



- Includes S459 coolant angle and quick connector
- Includes MEX36 ring
- With shank tolerance h6

Fig. Hydroquill HP28.5-12-S424

Order number	D1	D2	L1 ¹⁾	L2 ²⁾	L3	L4	Nm ³⁾	Shank form	Stock
HP28.5-4-S424	28.5	4	20	15	170	150	6	HA	●
HP28.5-5-S424	28.5	5	37	31	170	150	6	HA	●
HP28.5-6-S424	28.5	6	40	30	170	150	6	HA	●
HP28.5-8-S424	28.5	8	40	30	170	150	17	HA	●
HP28.5-10-S424	28.5	10	40	37.5	170	150	38	HA	●
HP28.5-12-S424	28.5	12	45	37.5	170	150	60	HA,HB*,HE*	●
HP28.5-14-S424	28.5	14	55	52.5	170	150	120	HA,HB*,HE*	●
HP28.5-16-S424	28.5	16	55	52.5	170	150	155	HA,HB*,HE*	●

¹⁾ Clamping length max. ²⁾ Clamping length min. ³⁾ Transmissible torque

● in stock ○ on request

Shank forms:

HA = Smooth shank
HB = Weld-on clamp
HE = Whistle Notch

Concentricity:

Max. 0.006 mm measured at 3xD



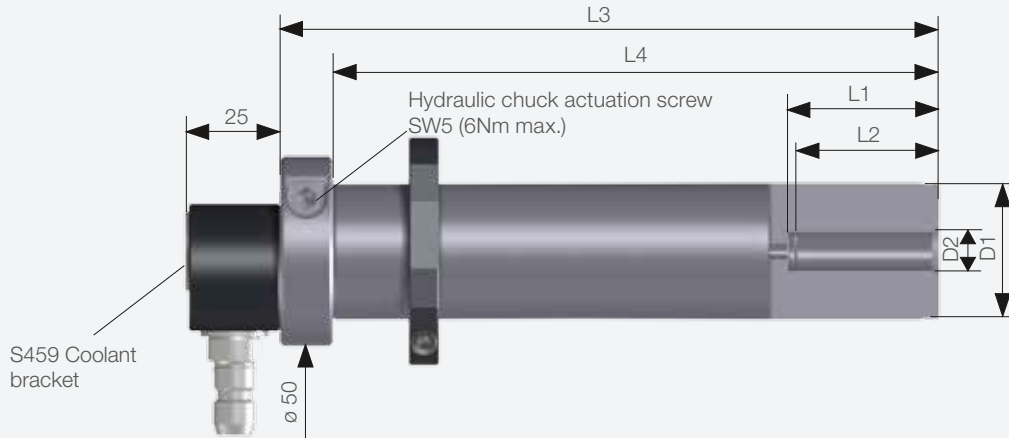
* Please note:

When using shank forms HB and HE, the clamping force is reduced by around 30%.

Please note:

Quill can only be used in the INDEX twin holder $\varnothing 28.5$ mm (W5190007) with restrictions! Axial distance of holder is just 34 mm.

Hydroquill $\varnothing 36$ mm



- Includes S459 coolant angle and quick connector
- Includes MEX36 ring
- With shank tolerance h6

Fig. Hydroquill HP36-10-S424

Order number	D1	D2	L1 ¹⁾	L2 ²⁾	L3	L4	Nm ³⁾	Shank form	Stock
HP36-4-S424	36	4	20	15	172	160	6	HA	●
HP36-5-S424	36	5	37	31	172	160	6	HA	●
HP36-6-S424	36	6	40	30	174	160	6	HA	●
HP36-8-S424	36	8	40	30	174	160	17	HA	●
HP36-10-S424	36	10	40	37.5	174	160	38	HA	●
HP36-12-S424	36	12	45	37.5	174	160	60	HA,HB*,HE*	●
HP36-14-S424	36	14	55	52.5	174	160	120	HA,HB*,HE*	●
HP36-16-S424	36	16	55	52.5	174	160	155	HA,HB*,HE*	●
HP36-20-S424	36	20	55	52.5	174	160	260	HA,HB*,HE*	●

¹⁾ Clamping length max. ²⁾ Clamping length min. ³⁾ Transmissible torque

● in stock ○ on request

Shank forms:

HA = Smooth shank
HB = Weld-on clamp
HE = Whistle Notch



* Please note:

When using shank forms HB and HE, the clamping force is reduced by around 30%.

MEX[®]turn

Concentricity:

Max. 0.006 mm measured at 3xD

Hydroquill $\varnothing 51$ mm

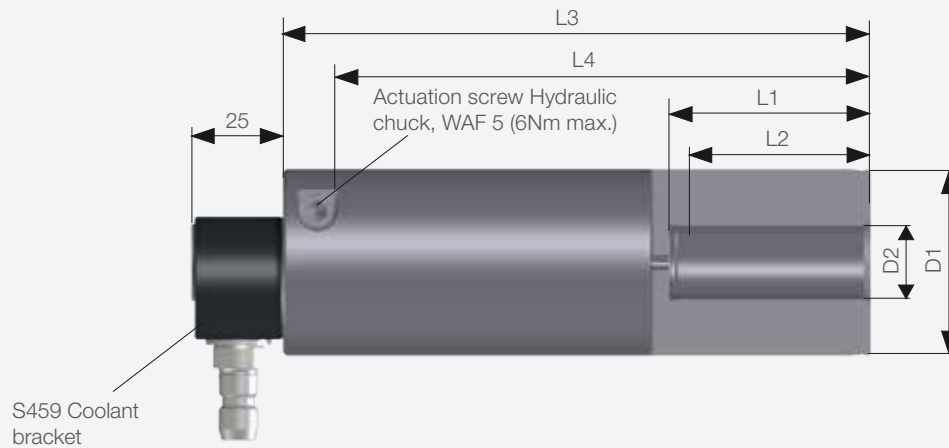


Fig. Hydroquill-28.5-12-S424

- Includes S459 coolant angle and quick connector
- No clamping ring available
- With shank tolerance h6

Order number	D1	D2	L1 ¹⁾	L2 ²⁾	L3	L4	Nm ³⁾	Shank form	Stock
HP51-10-S424	51	10	40	37,5	160	145	38	HA	●
HP51-12-S424	51	12	40	37,5	160	145	60	HA,HB*,HE*	●
HP51-14-S424	51	14	55	52,5	160	145	120	HA,HB*,HE*	●
HP51-16-S424	51	16	55	52,5	160	145	155	HA,HB*,HE*	●
HP51-20-S424	51	20	55	52,5	160	145	260	HA,HB*,HE*	●

¹⁾ Clamping length max. ²⁾ Clamping length min. ³⁾ Transmissible torque

● in stock ○ on request

Shank forms:

HA = Smooth shank
HB = Weld-on clamp
HE = Whistle Notch



* Please note:

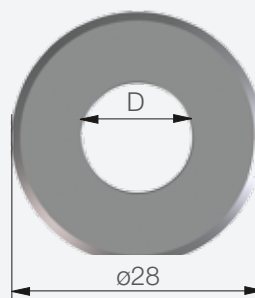
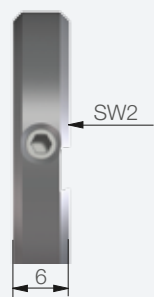
When using shank forms HB and HE, the clamping force is reduced by around 30%.

Concentricity:

Max. 0.006 mm measured at 3xD

INDEX Hydroquill Accessories

Clamping ring S420



Order number	D (mm)	Stock
S420-4	4	●
S420-5	5	●
S420-6	6	●
S420-8	8	●
S420-10	10	●
S420-12	12	●
S420-14	14	●
S420-16	16	●
S420-20	20	●

individual sizes between those specified and special-purpose available on request.

● in stock ○ on request

MEX[®]turn

KUMMER

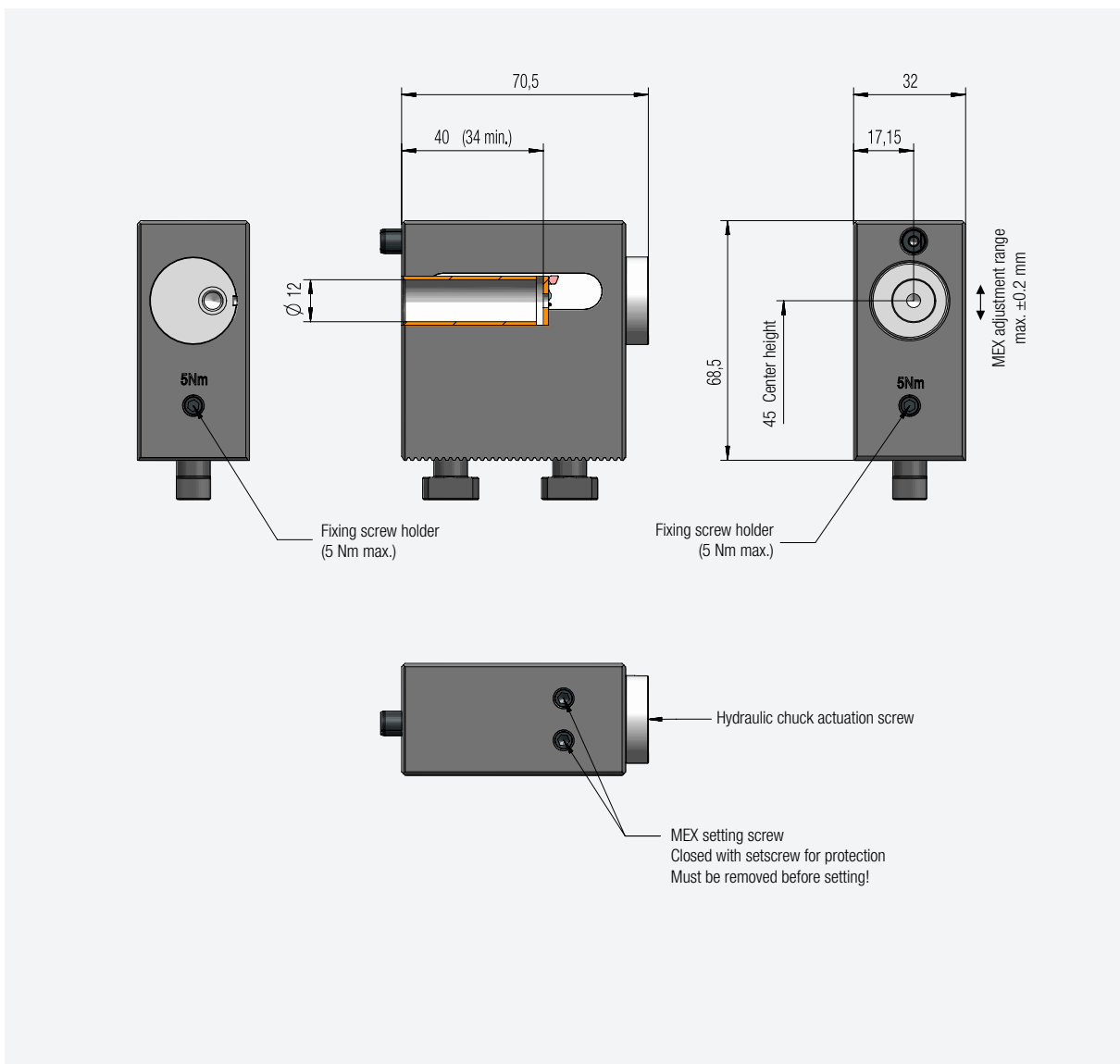
Toothing

MEX-holder 1x / clamping \varnothing 12 mm



MAS-ID	Order number	Stock
Z00 000 304	MEX12-KU-1-Z304	●

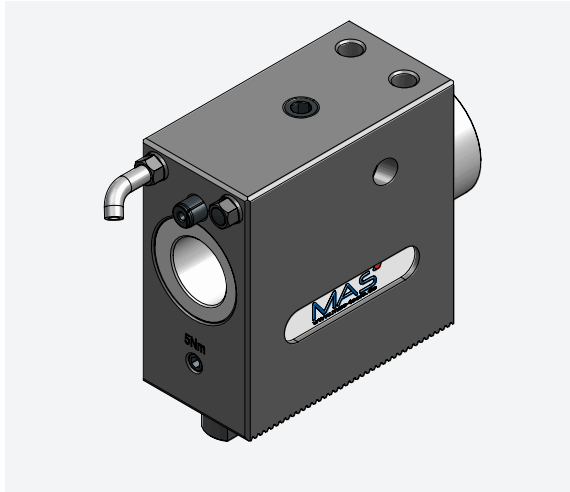
Accessories, see from page 254 ● in stock ○ on request



KUMMER

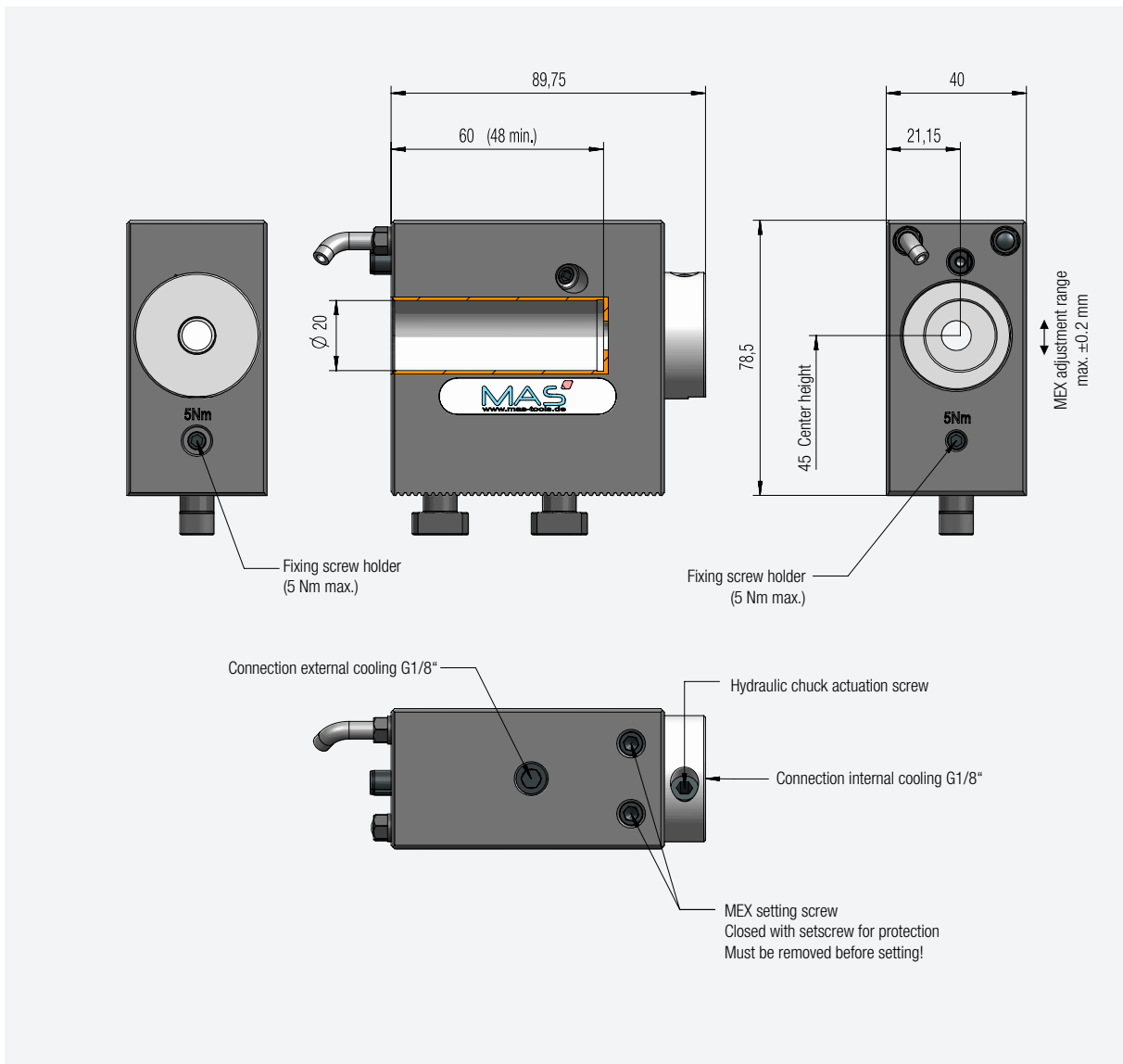
Toothing

MEX-holder 1x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 000 076	MEX20-KU-1-S405H	●

Accessories, see from page 254 ● in stock ○ on request

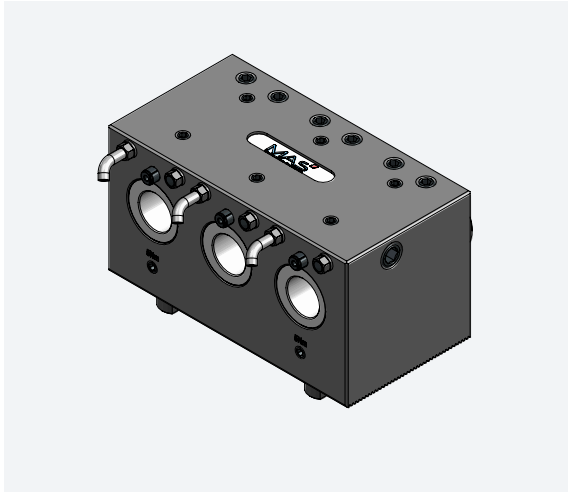


MEX®turn

KUMMER

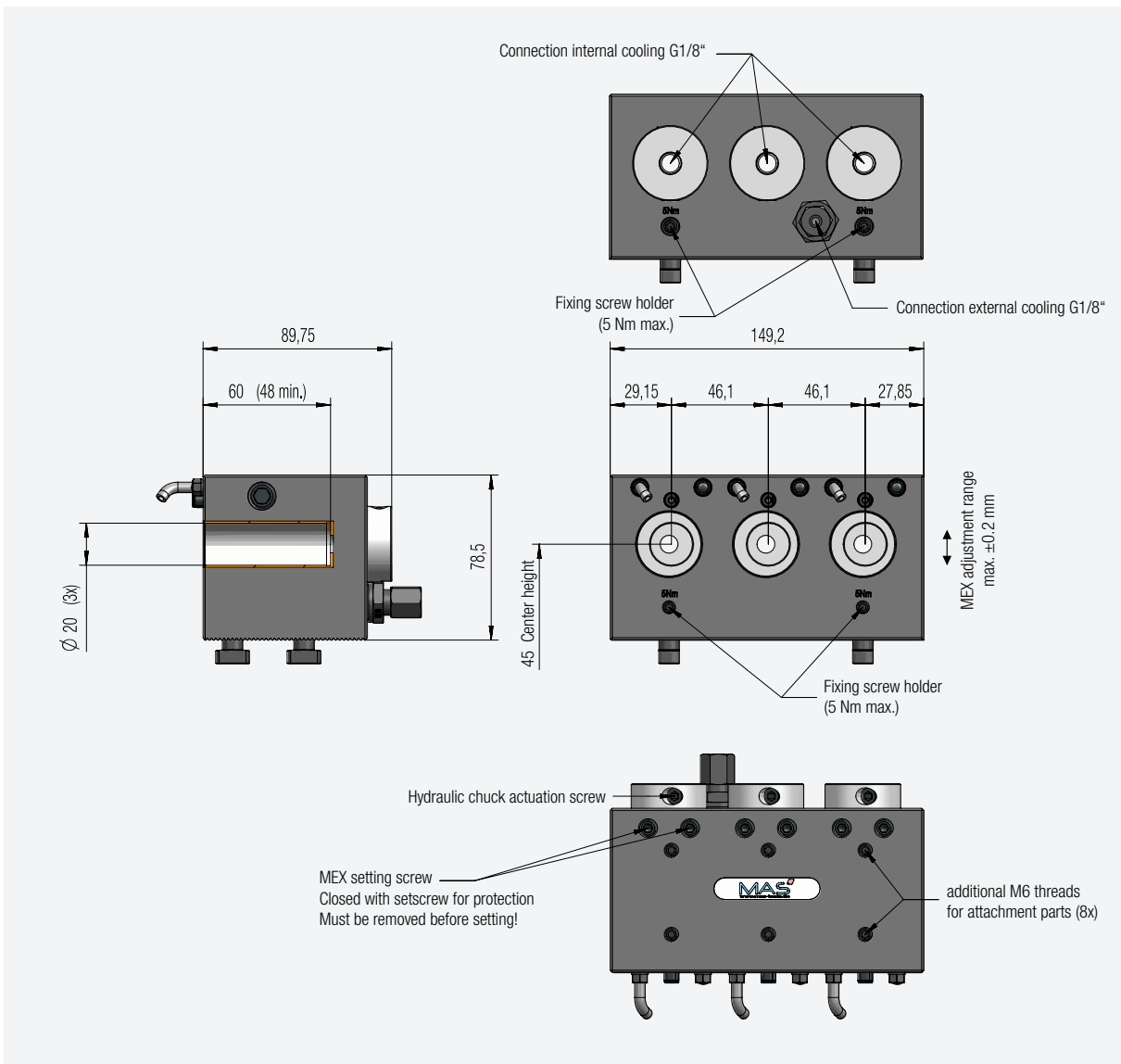
Toothing

MEX-holder 3x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 000 207	MEX20-KU-3-Z207	○

Accessories, see from page 254 ● in stock ○ on request



KUMMER

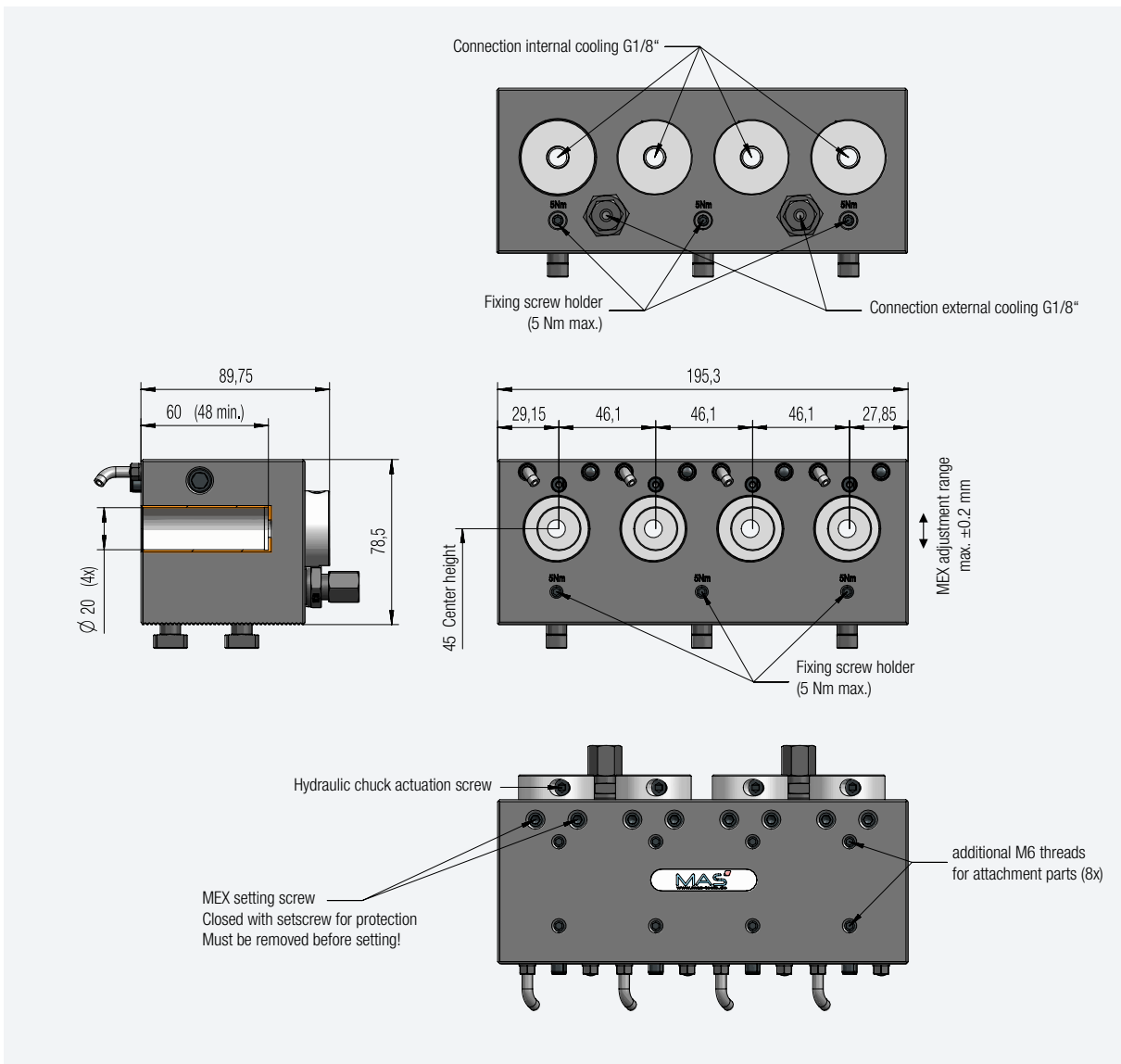
Toothing

MEX-holder 4x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 000 107	MEX20-KU-4-S583H	○

Accessories, see from page 254 ● in stock ○ on request

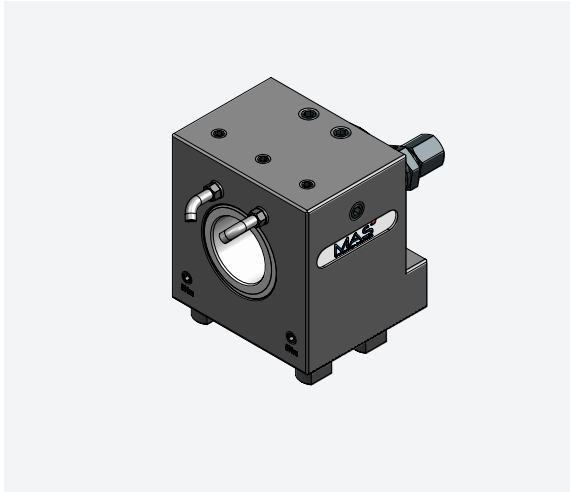


MEX[®]turn

KUMMER

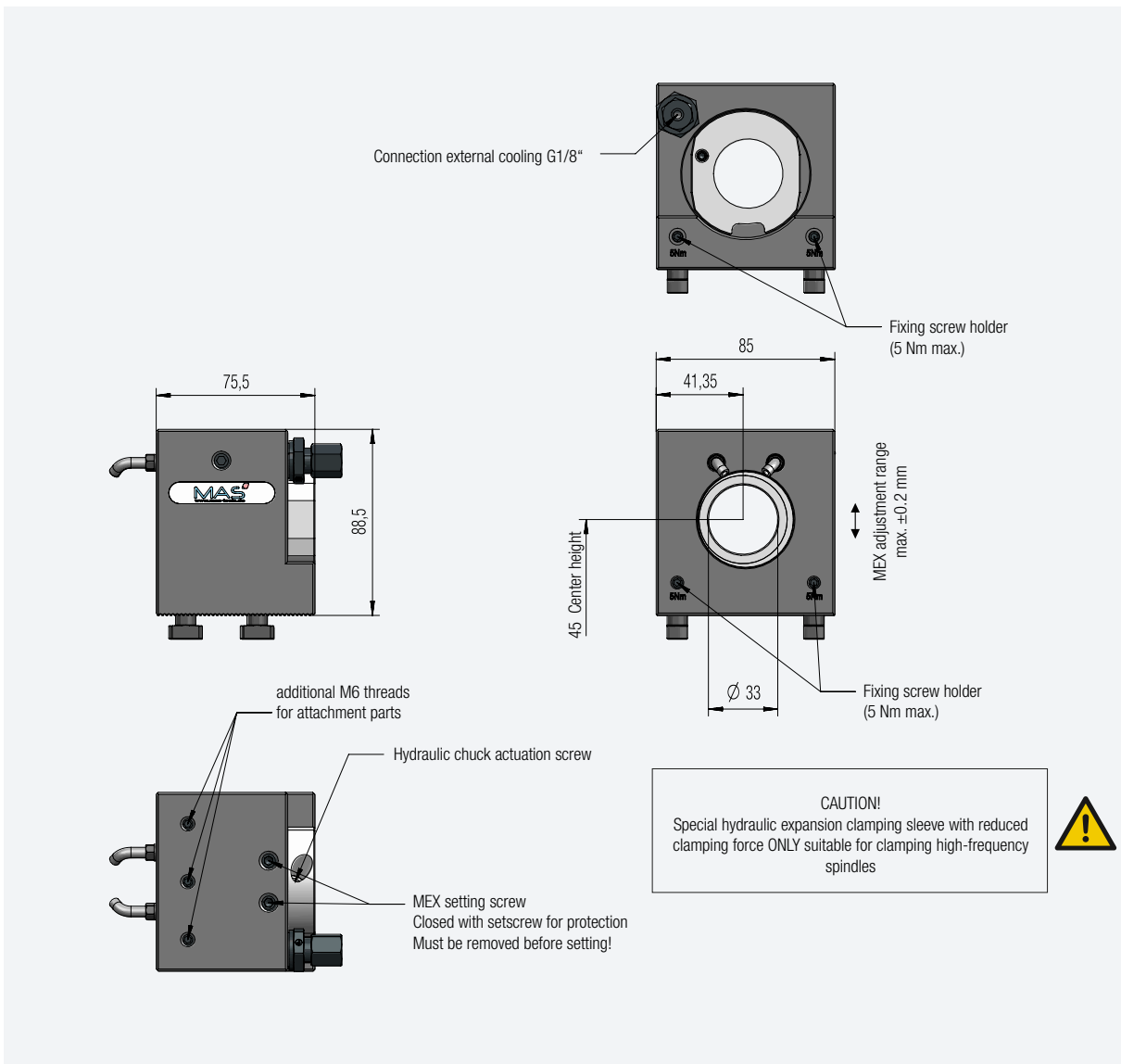
Toothing

MEX-holder 1x / HFS \varnothing 33 mm

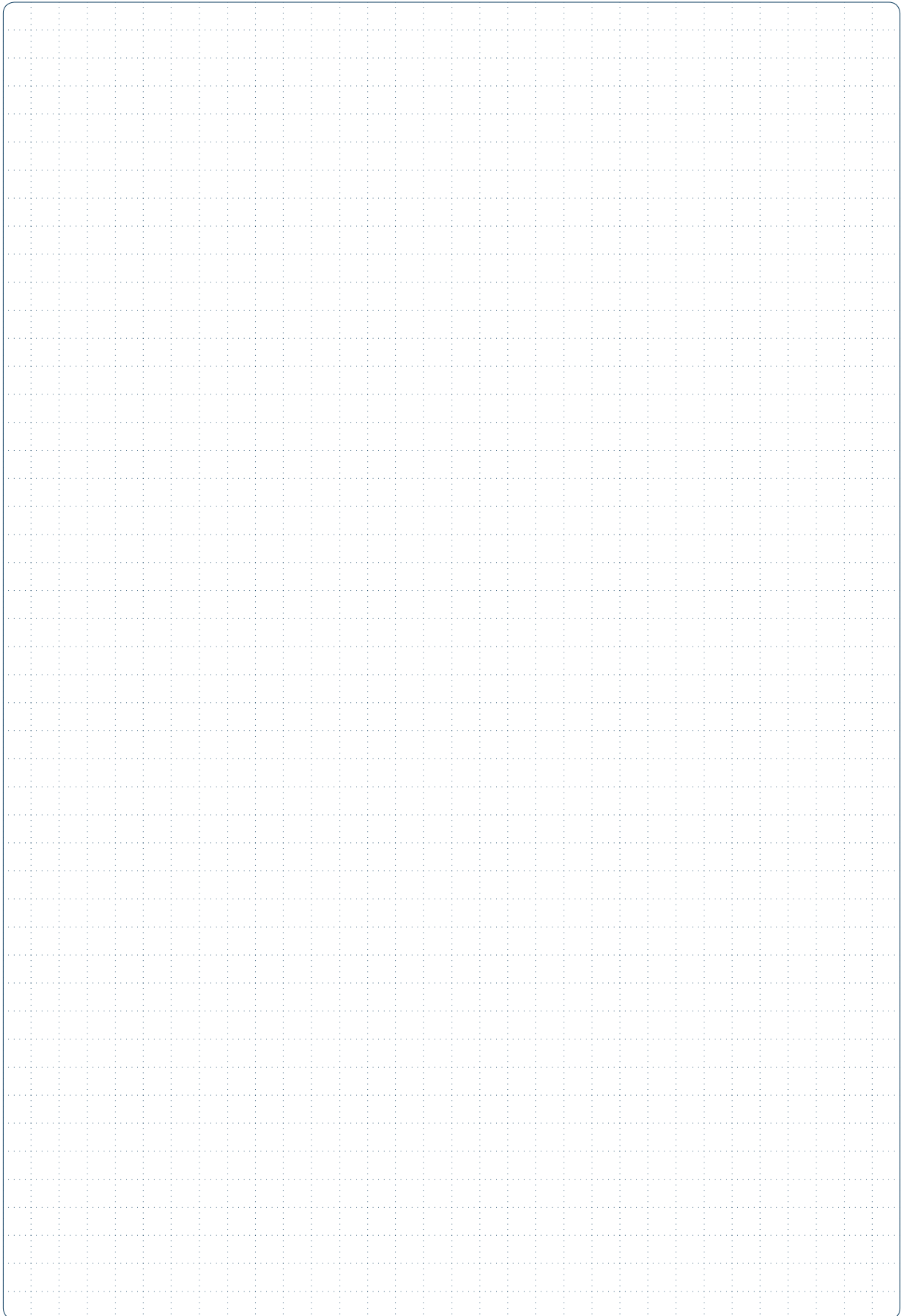


MAS-ID	Order number	Stock
Z00 000 145	MEX33-KU-1-S633H	●

Accessories, see from page 254 ● in stock ○ on request



NOTES

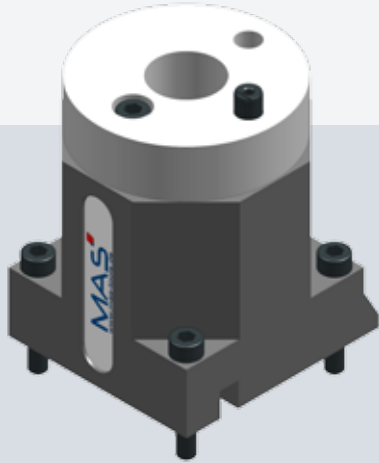


MEX[®]turn

MIKRON

NX24

MEX-holder 1x / clamping \varnothing 20 mm



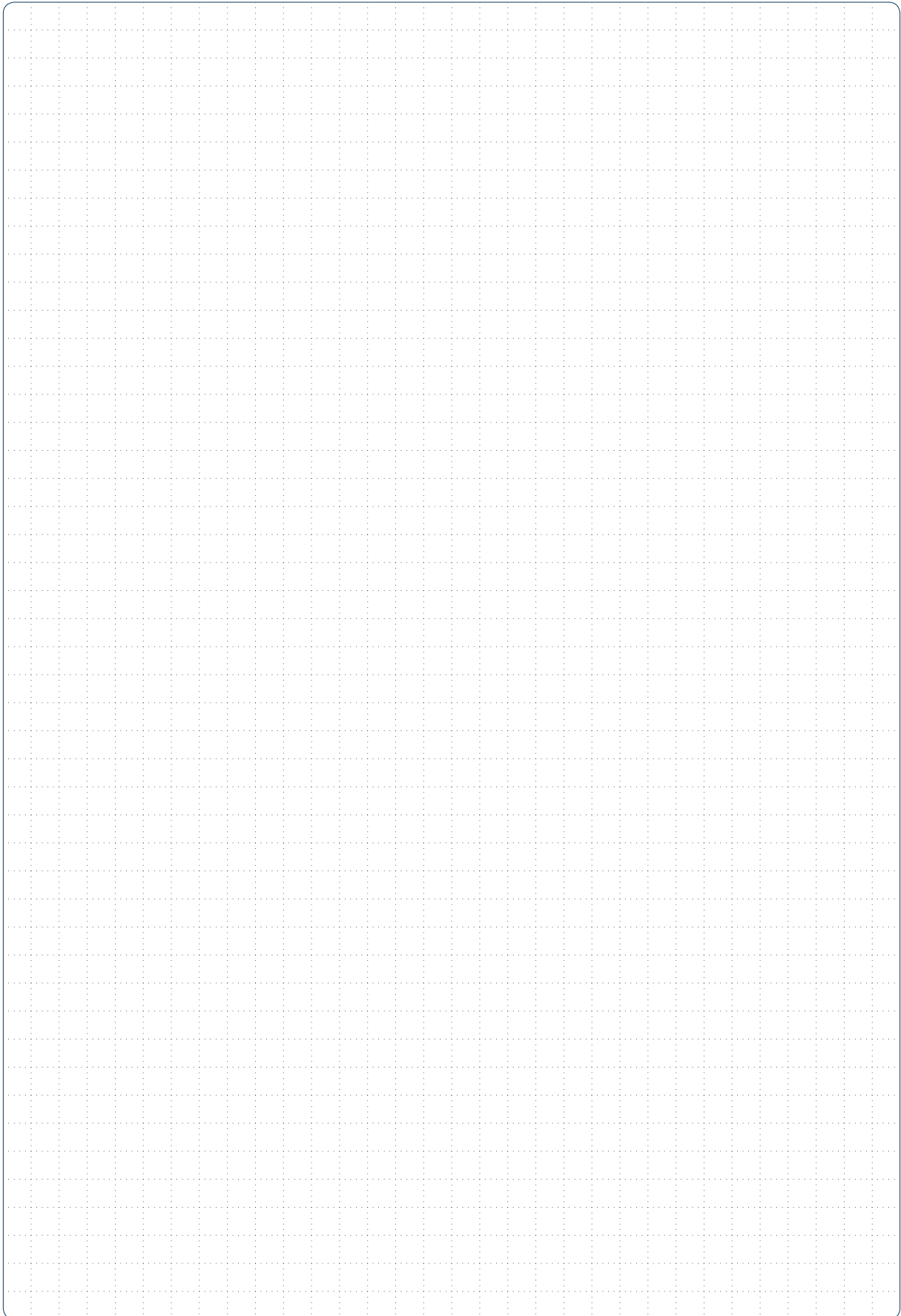
Order number	Stock
MEX20-NX24-1-S512	<input type="radio"/>

Accessories, see from page 254 in stock on request

- Other solutions available on request.



NOTES

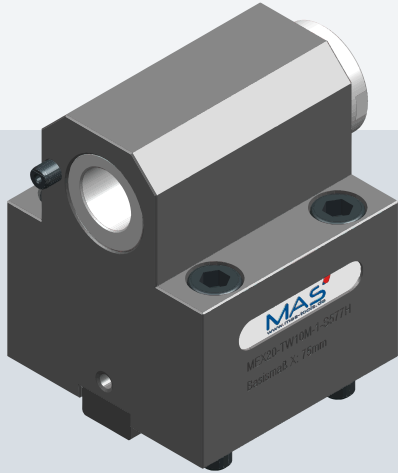


MEX[®]turn

NAKAMURA

TW 10M

MEX-holder 1x / clamping \varnothing 20 mm

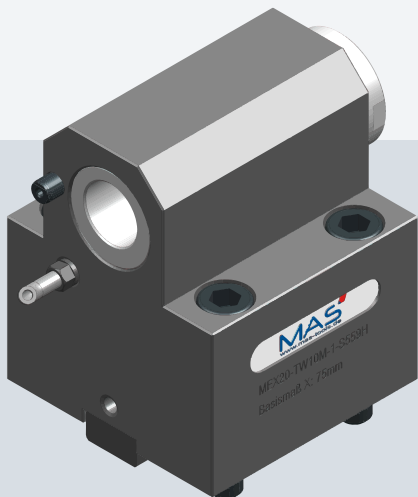


Order number	Stock
MEX20-TW10M-1-S577H	<input type="radio"/>

Accessories, see from page 254 in stock on request

TW 10M

MEX-holder 1x / clamping \varnothing 20 mm



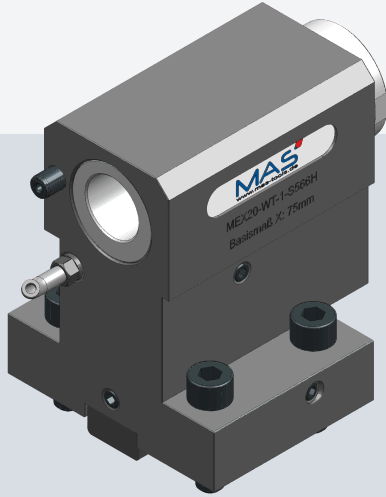
Order number	Stock
MEX20-TW10M-1-S559H	<input type="radio"/>

Accessories, see from page 254 in stock on request

NAKAMURA

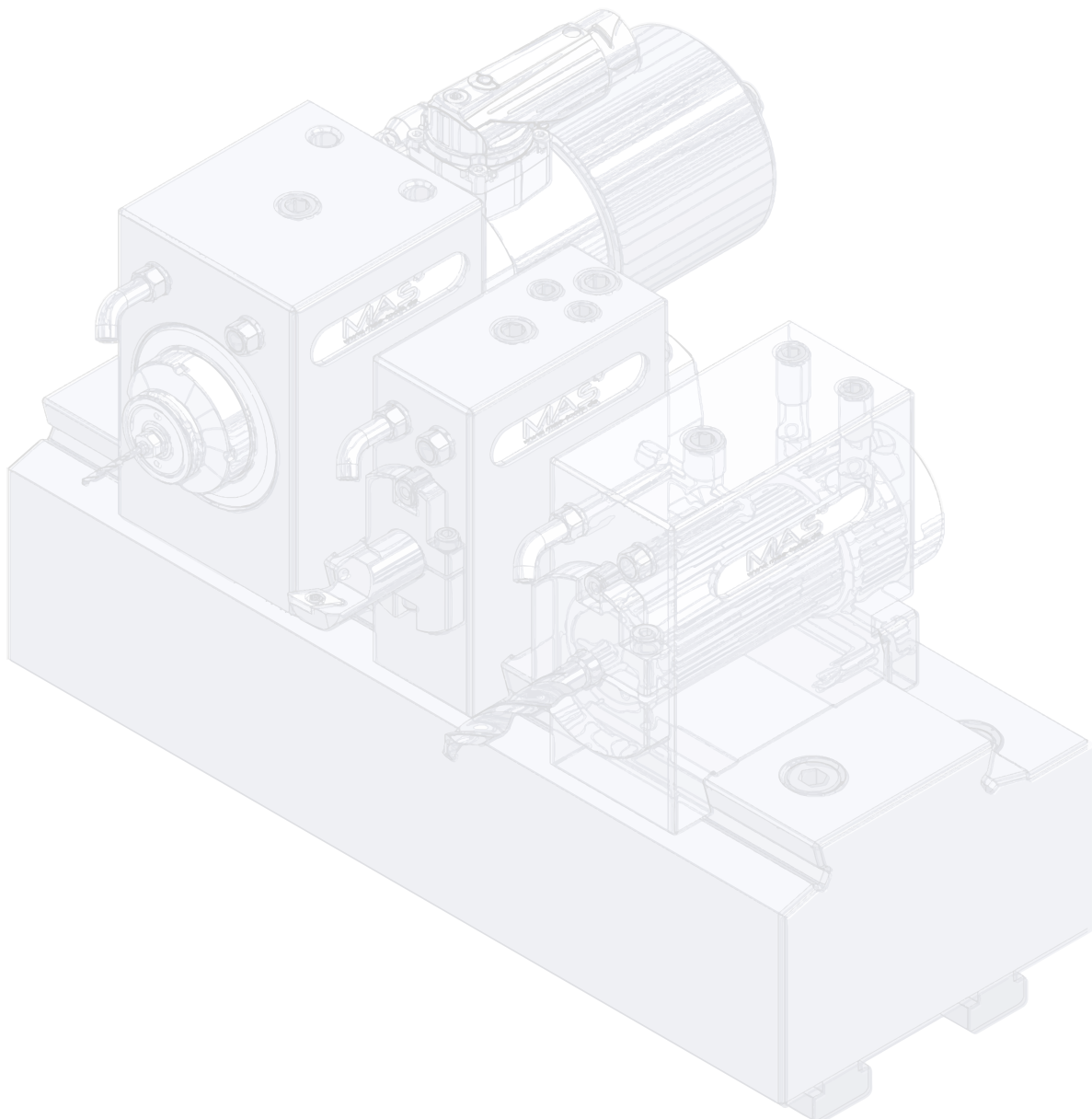
WT-100

MEX-holder 1x / clamping \varnothing 20 mm



Order number	Stock
MEX20-WT-1-S566H	<input type="radio"/>

Accessories, see from page 254 in stock on request

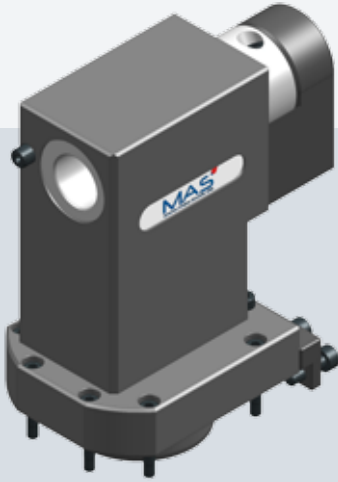


MEX[®]turn

SCHÜTTE

SCX

MEX-holder 1x / clamping \varnothing 20 mm



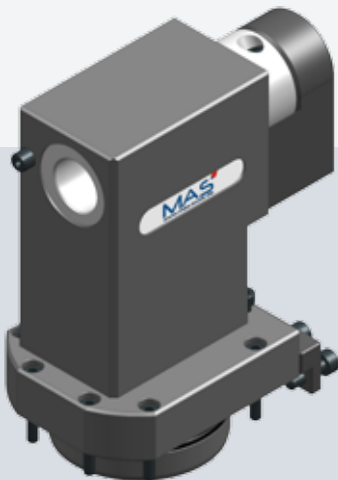
Order number	Stock
MEX20-SCX-1-S352H	<input type="radio"/>

Accessories, see from page 254 in stock on request

- Includes internal cooling via slide
- For tool pocket P2

SCX

MEX-holder 1x / clamping \varnothing 20 mm



Order number	Stock
MEX20-SCX-1-S368H	<input type="radio"/>

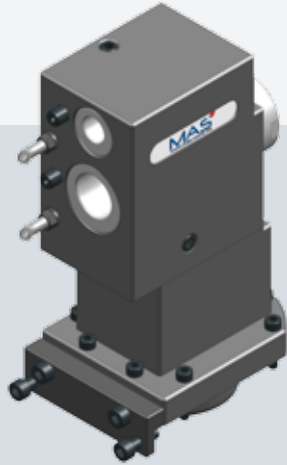
Accessories, see from page 254 in stock on request

- Includes internal cooling via slide
- For tool pocket P1 and P3

SCHÜTTE

SCX

MEX-holder 2x / clamping \varnothing 12 mm & 20 mm

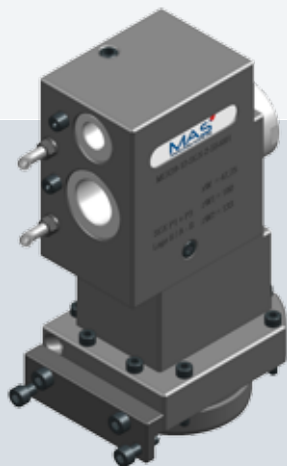


Order number	Stock
MEX20-12-SCX-2-S525H	<input checked="" type="radio"/>

Accessories, see from page 254 in stock on request

SCX

MEX-holder 2x / clamping \varnothing 12 mm & 20 mm



Order number	Stock
MEX20-12-SCX-2-S548H	<input checked="" type="radio"/>

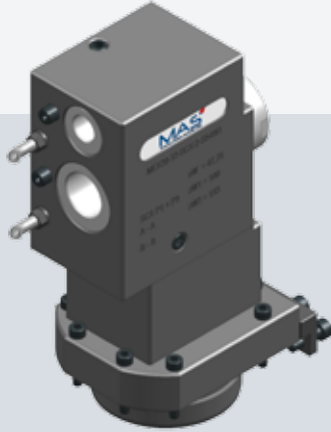
Accessories, see from page 254 in stock on request

MEX[®]turn

SCHÜTTE

SCX

MEX-holder 2x / clamping \varnothing 12 mm & 20 mm



Order number	Stock
MEX20-12-SCX-2-S549H	<input checked="" type="radio"/>

Accessories, see from page 254 in stock on request

SCX

MEX-holder 2x / clamping \varnothing 12 mm & 20 mm



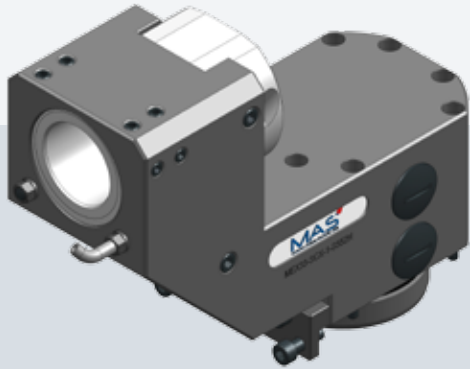
Order number	Stock
MEX20-12-SCX-2-S550H	<input type="radio"/>

Accessories, see from page 254 in stock on request

SCHÜTTE

SCX

MEX-holder 1x / HFS \varnothing 33 mm

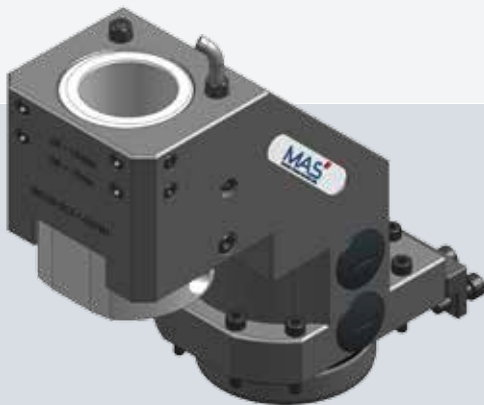


Order number	Stock
MEX33-SCX-1-S552H	<input checked="" type="radio"/>

Accessories, see from page 254 in stock on request

SCX

MEX-holder 1x / HFS \varnothing 33 mm



Order number	Stock
MEX33-SCX-1-S579H	<input type="radio"/>

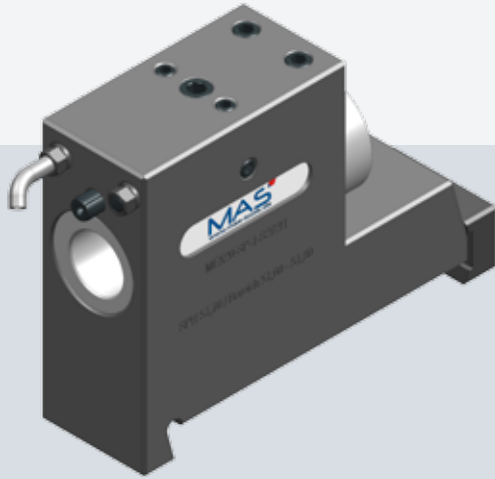
Accessories, see from page 254 in stock on request

MEX[®]turn

SPINNER

PD32 / PD42

MEX-holder 1x / clamping \varnothing 20 mm



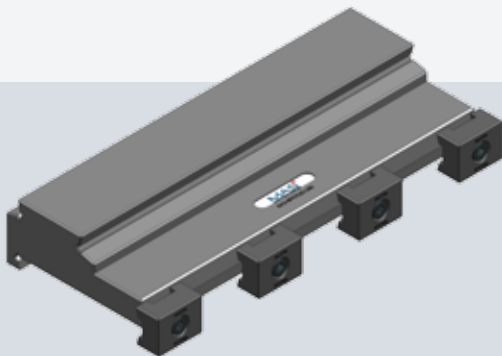
Order number	Center height	Center height range	Stock
MEX20-SP-1-S272H	51,70	51,60 - 51,80	●
MEX20-SP-1-S498H	51,80	51,70 - 51,90	●
MEX20-SP-1-S401H	51,90	51,80 - 52,00	●
MEX20-SP-1-S400H	52,00	51,90 - 52,10	●

Accessories see from page 254 ● in stock ○ on request

- Includes internal cooling via MEX20 sleeve (G1/8")
- Center height is specifically adjusted for your machine.

SB-CNC linear

Adapter plates for MAS-dovetail

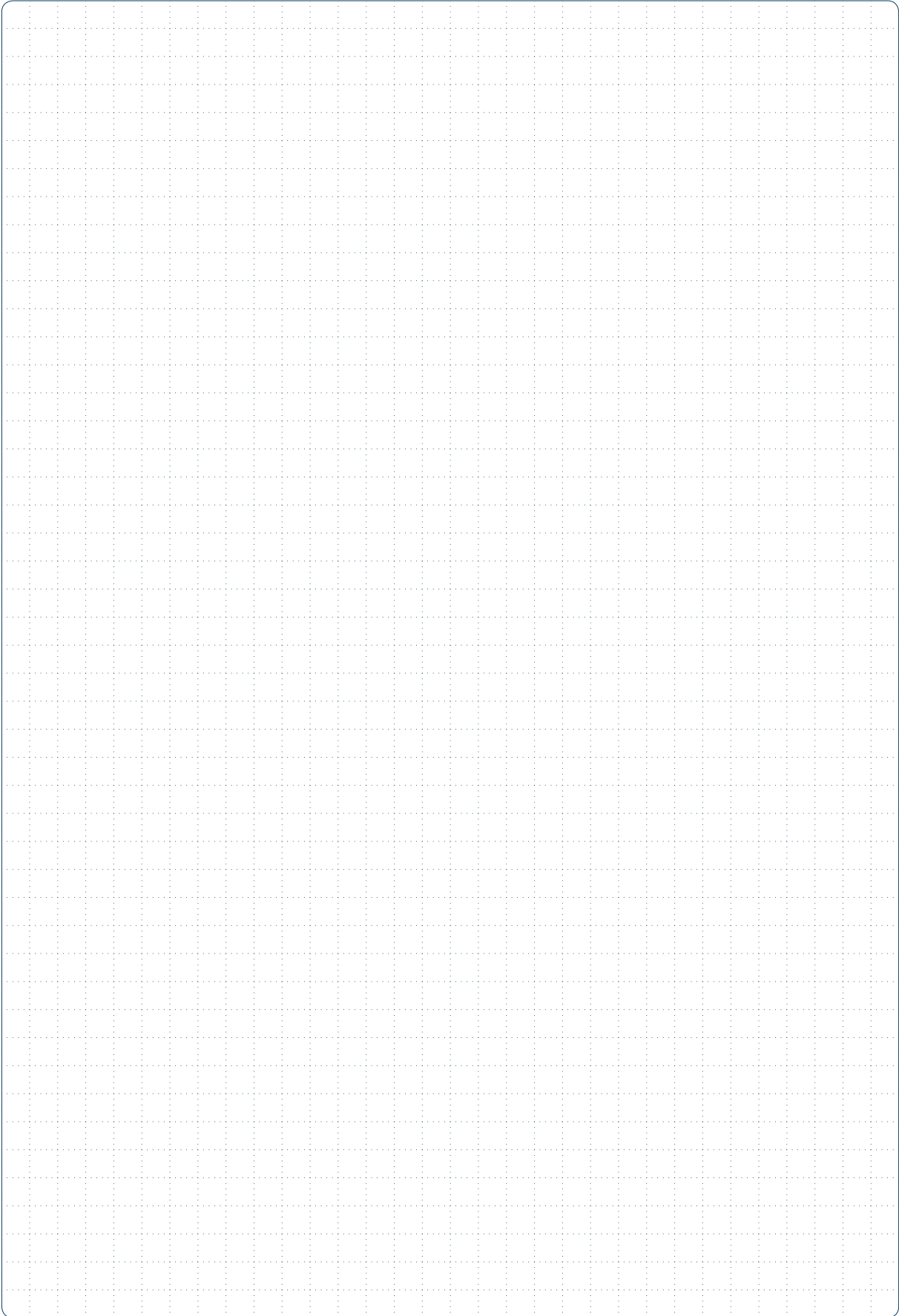


Order number	Length	Total center height	Stock
ADP-Z283	300	77,00	●

Accessories see from page 254 ● in stock ○ on request

- The dovetail panels are specifically adapted for your Machine!
- Actual center height has to be checked!

NOTES

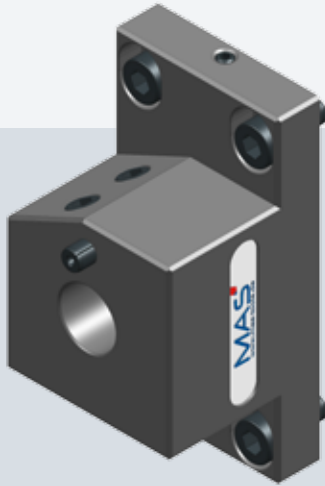


MEX[®]turn

STOPP

ST

MEX-holder 1x / clamping \varnothing 20 mm

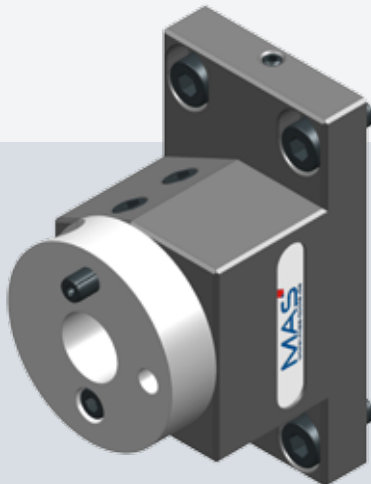


Order number	Stock
MEX20-ST-1-S557	<input type="radio"/>

Accessories, see from page 254 in stock on request

ST

MEX-holder 1x / clamping \varnothing 20 mm



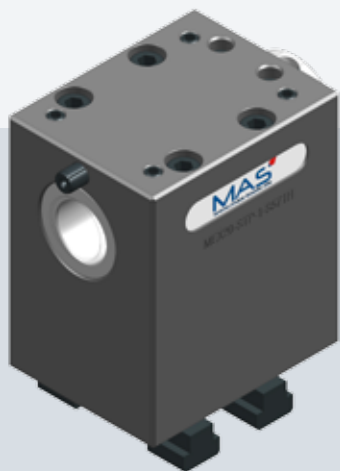
Order number	Stock
MEX20-ST-1-S517H	<input type="radio"/>

Accessories, see from page 254 in stock on request

STOPP

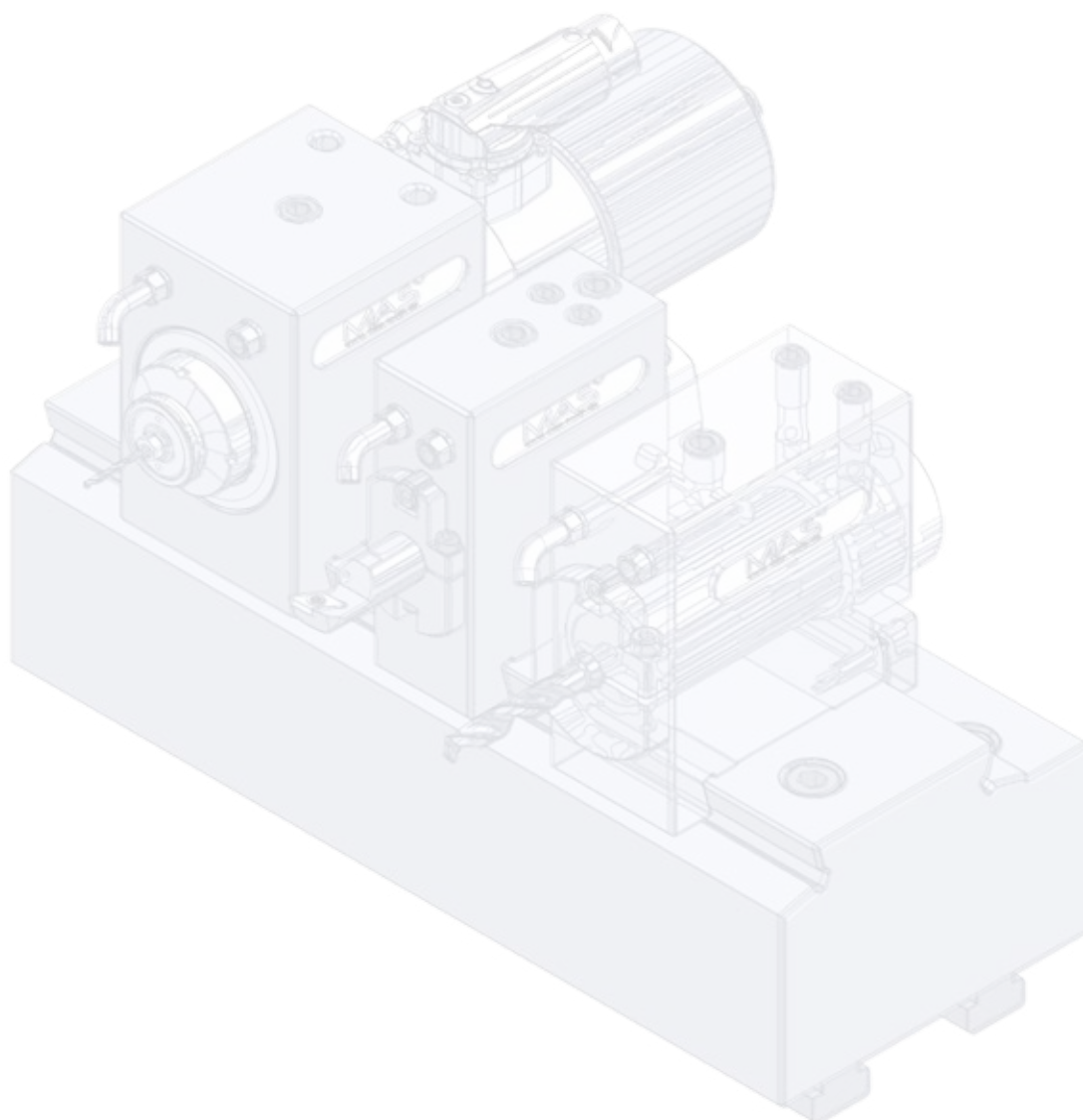
AUTO-TURN

MEX-holder 1x / clamping \varnothing 20 mm



Order number	Stock
MEX20-STP-1-S571H	<input type="radio"/>

Accessories, see from page 254 in stock on request

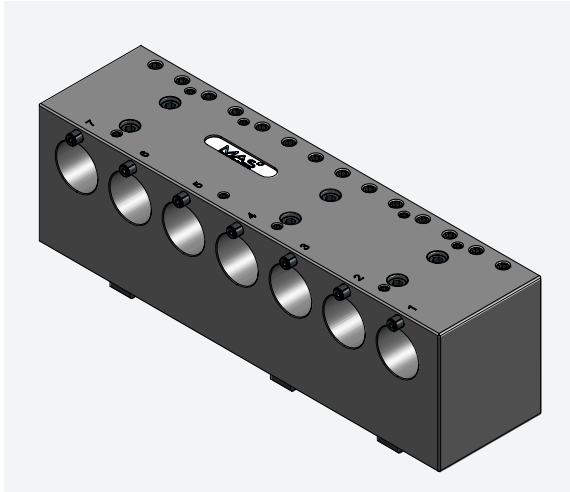


MEX[®]turn

STOPP Special solution

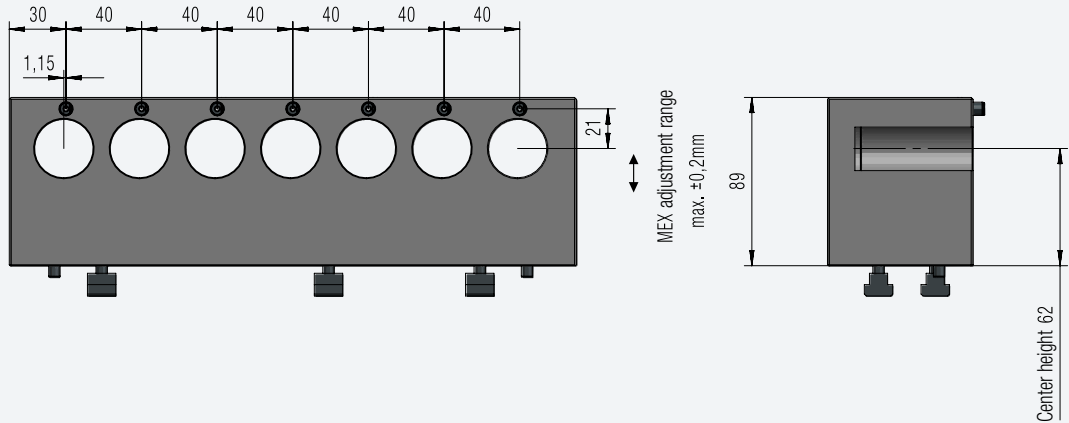
FLEX-TURN / AUTO-TURN

MEX-holder 7x / clamping \varnothing 20 mm



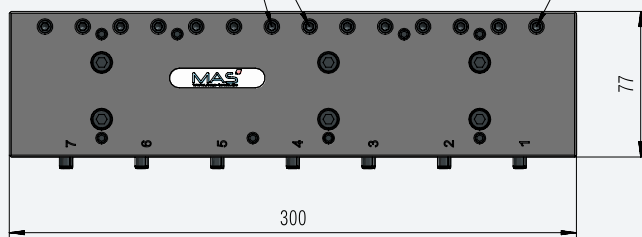
MAS-ID	Order number	Stock
Z00 000 495	MEX20-STP-7-Z495	○

Accessories, see from page 254 ● in stock ○ on request



MEX setting screws

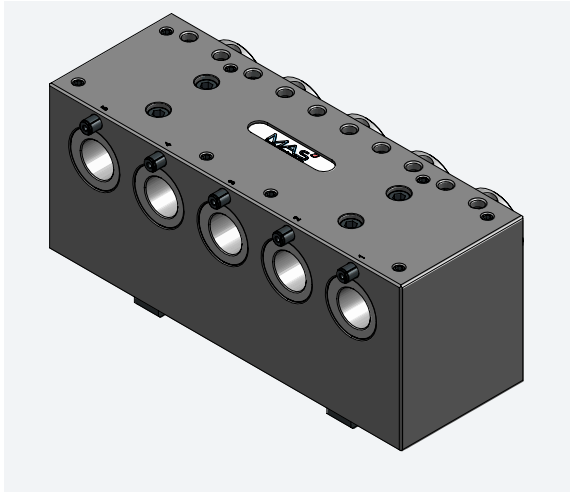
Additional M6 threads for attachment parts



STOPP Special solution

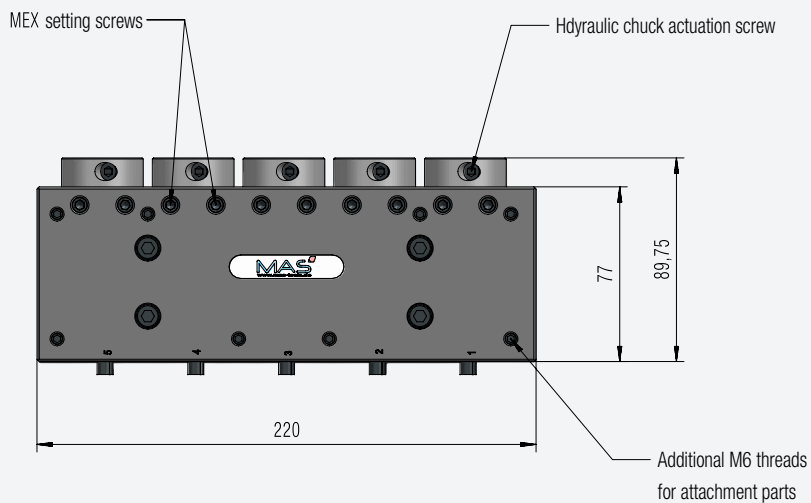
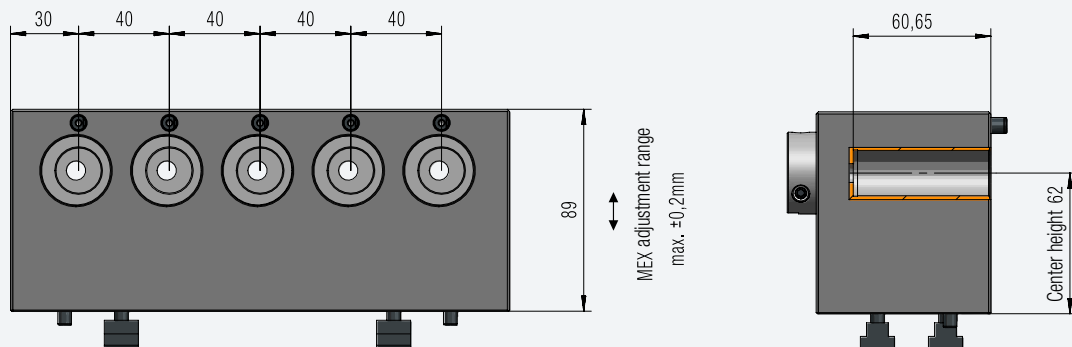
FLEX-TURN

MEX-holder 5x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 000 119	MEX20-STP-5-S440H	○

Accessories, see from page 254 ● in stock ○ on request

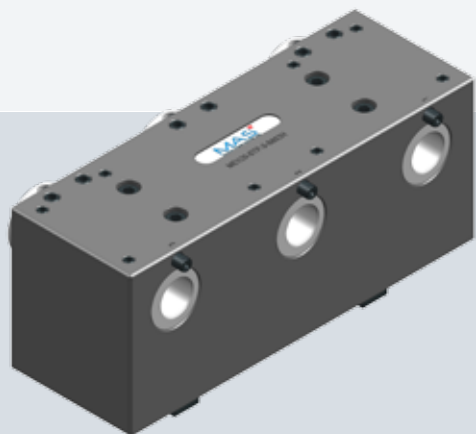


MEX®turn

STOPP Special solution

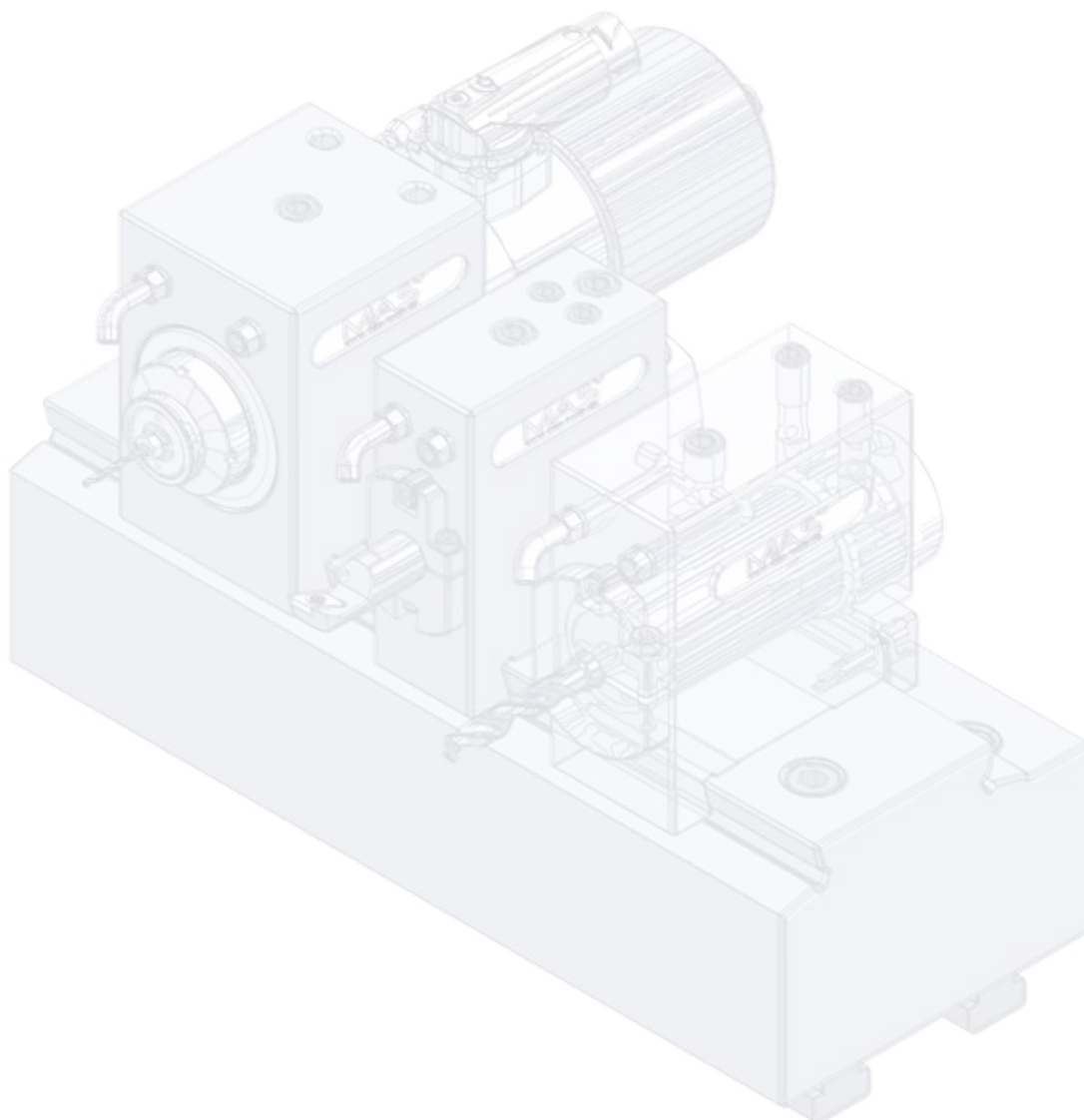
AUTO-TURN

MEX-holder 3x / clamping \varnothing 20 mm



Order number	Stock
MEX20-STP-3-S602H	<input type="radio"/>

Accessories, see from page 254 in stock on request

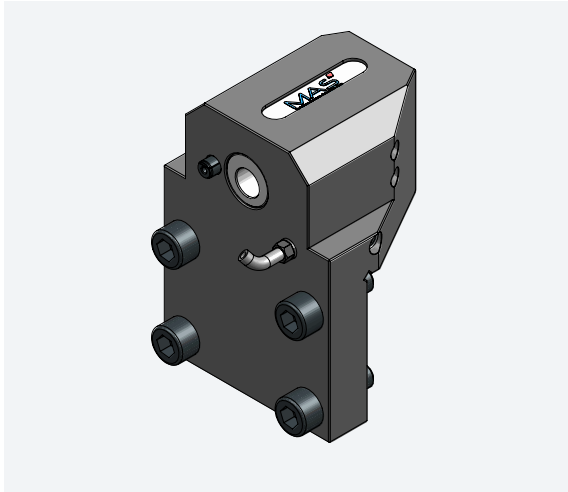


NOTES

A large rectangular area filled with a grid of small, evenly spaced dotted lines, intended for writing notes.

MEX[®]turn

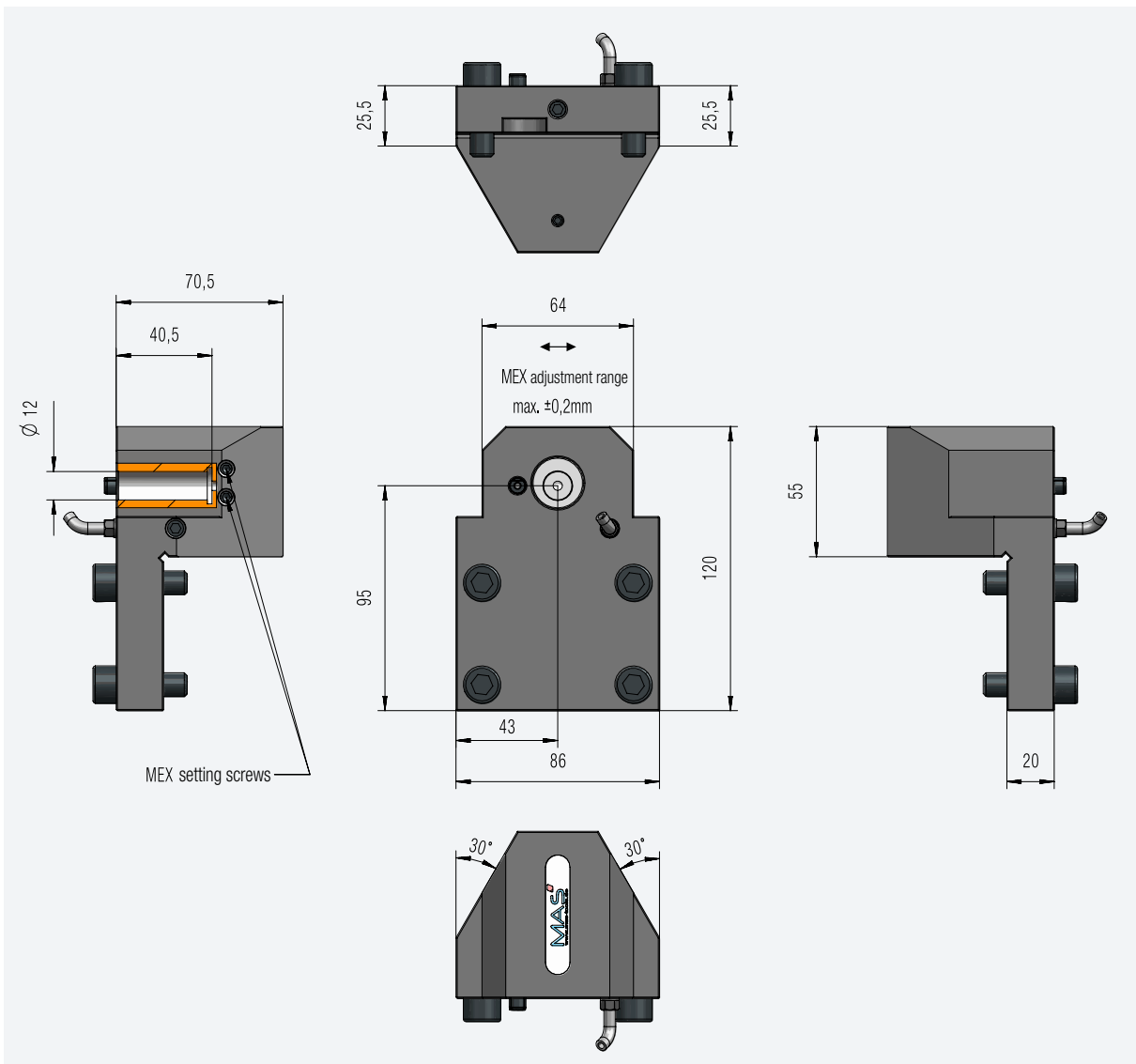
MEX-holder 1x / clamping \varnothing 12mm



MAS-ID	Order number	Stock
Z00 000 089	MEX12-XW50REV-AXI-S328H	○

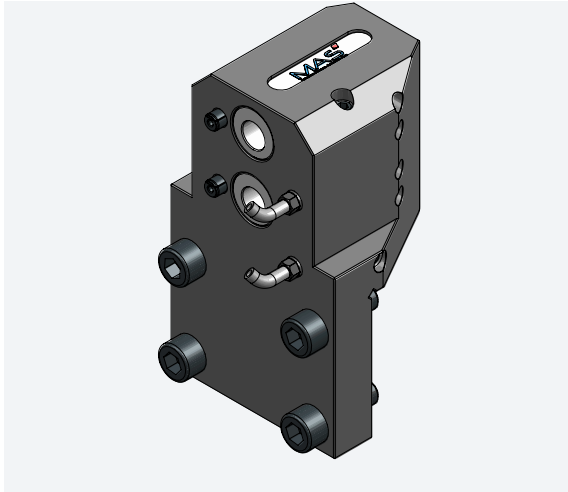
Accessories, see from page 254 ● in stock ○ on request

- Includes internal and external cooling via holder



XW-50 Axial

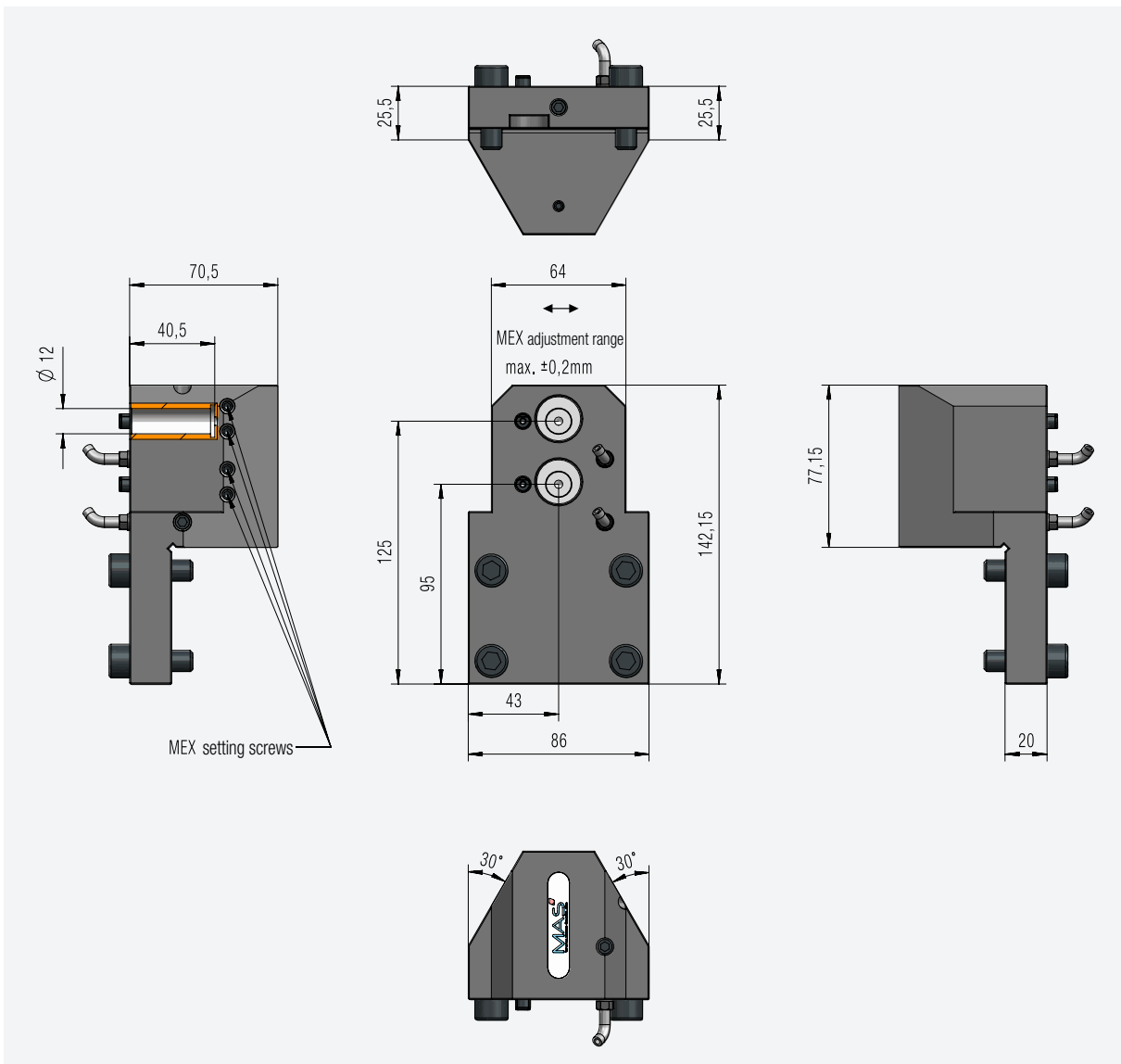
MEX-holder 2x / clamping \varnothing 12 mm



MAS-ID	Order number	Stock
Z00 000 141	MEX12-XW50REV-AXI-2-S515H	○

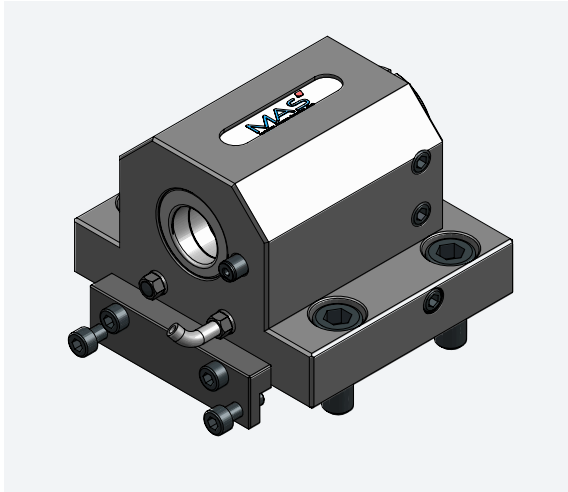
Accessories, see from page 254 ● in stock ○ on request

- Includes internal cooling via MEX20 sleeve (G1/8")
- Includes external cooling via holder



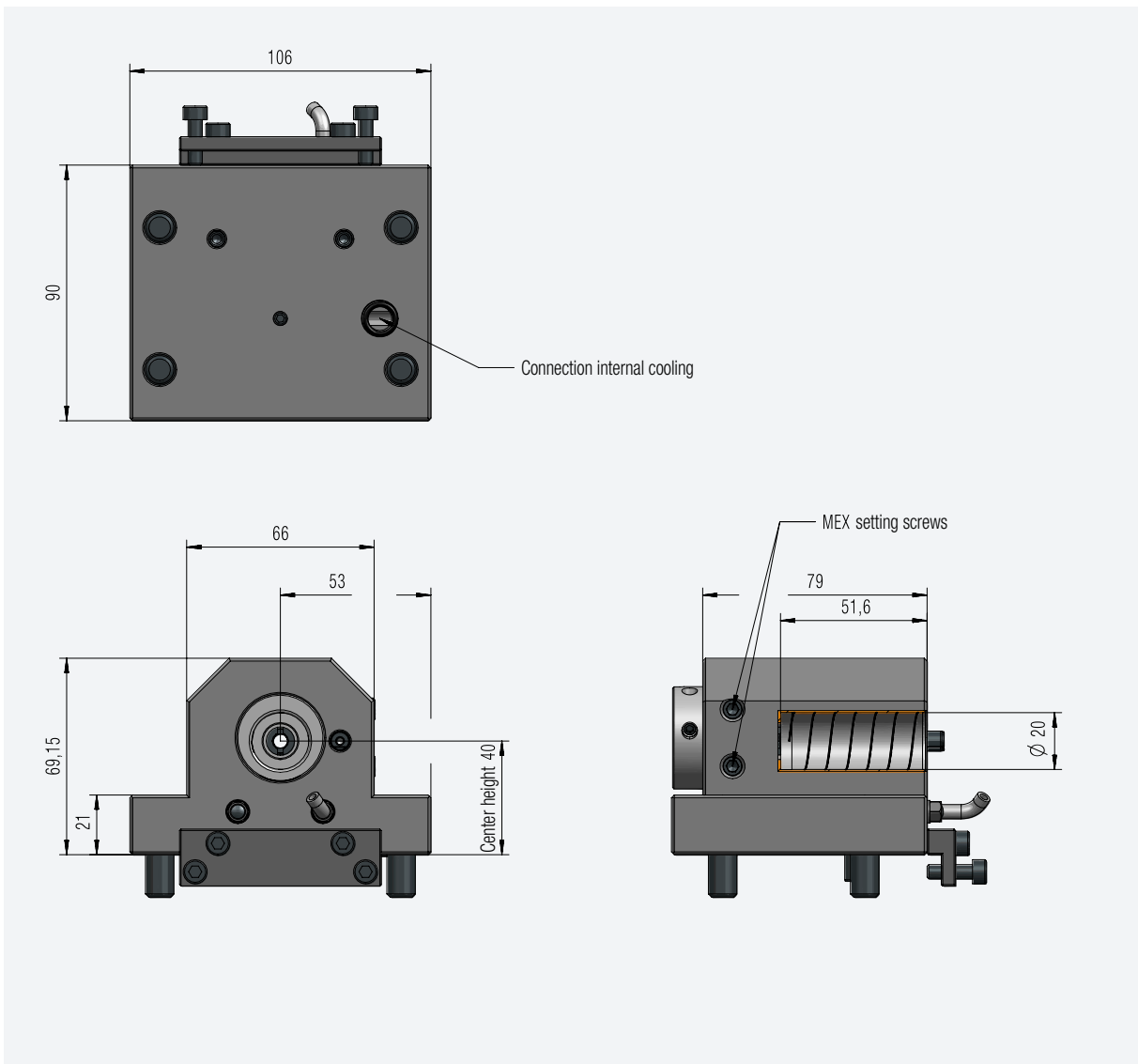
MEX®turn

MEX-holder 1x / clamping $\varnothing 20$ mm



MAS-ID	Order number	Stock
Z00 000 019	MEX20-XL150-1-Z19	○

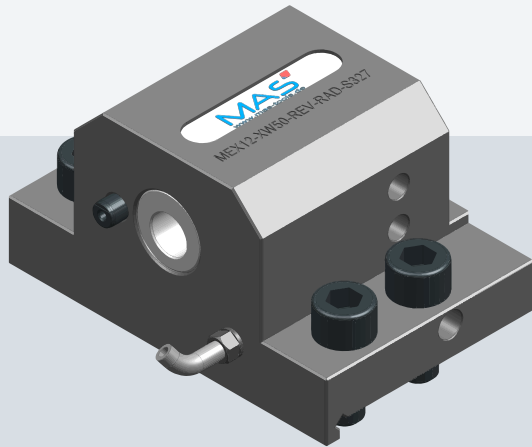
Accessories, see from page 254 ● in stock ○ on request



TAKAMAZ

XW-50 Radial

MEX-holder 1x / clamping \varnothing 12mm



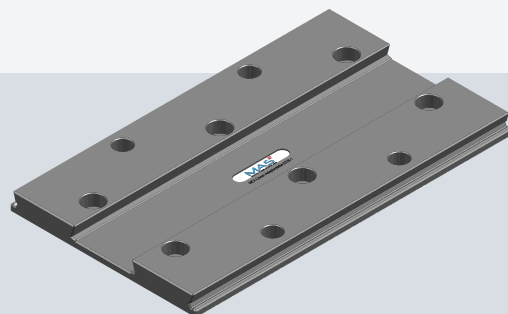
Order number	Stock
MEX12-XW50REV-RAD-S327H	<input type="radio"/>

Zubehör siehe ab Seite 254 auf Lager auf Anfrage

- Includes external cooling via holder

XD-8

Adapter plates for MAS-dovetail



Order number	Length	Total center height	Stock
MEX-Linear-Adapterplatte-Z253	300 mm	50 mm	<input type="radio"/>

Zubehör siehe ab Seite 254 auf Lager auf Anfrage

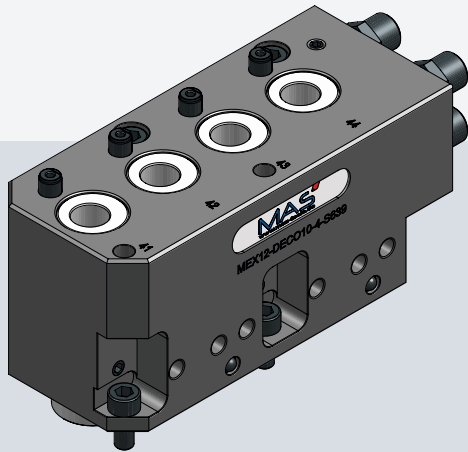
- The dovetailed panels are specifically adapted for your machine!
- Actual center height has to be checked!
- Special solutions on demand

MEX[®]turn

TORNOS

DECO 10

MEX-holder 4x / clamping \varnothing 12 mm



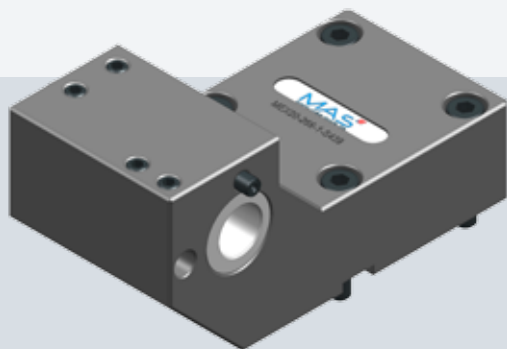
Order number	Stock
MEX12-DECO10-4-S369H	<input type="radio"/>

Accessories, see from page 254 in stock on request

- Includes internal cooling via holder.

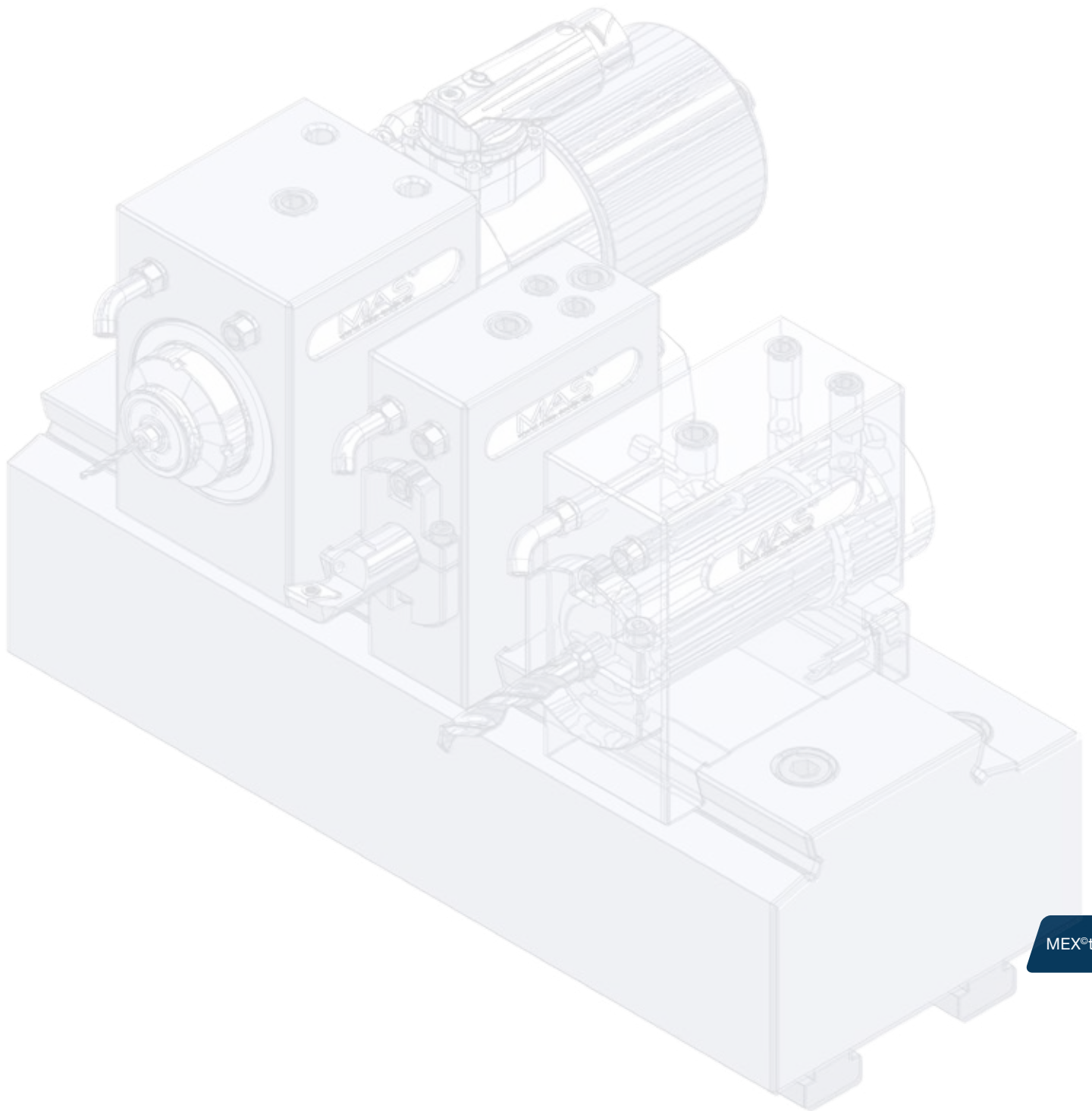
MULTIDECO 26/6 and 32/6

MEX-holder 1x / clamping \varnothing 20 mm



Order number	Stock
MEX20-266-1-S439	<input type="radio"/>

Accessories, see from page 254 in stock on request

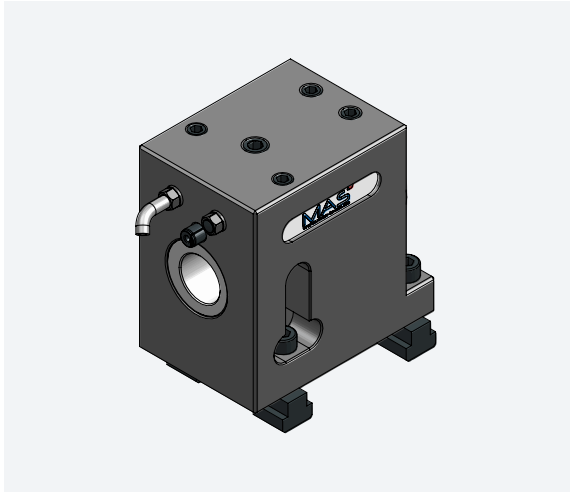


MEX[®]turn

TSUGAMI

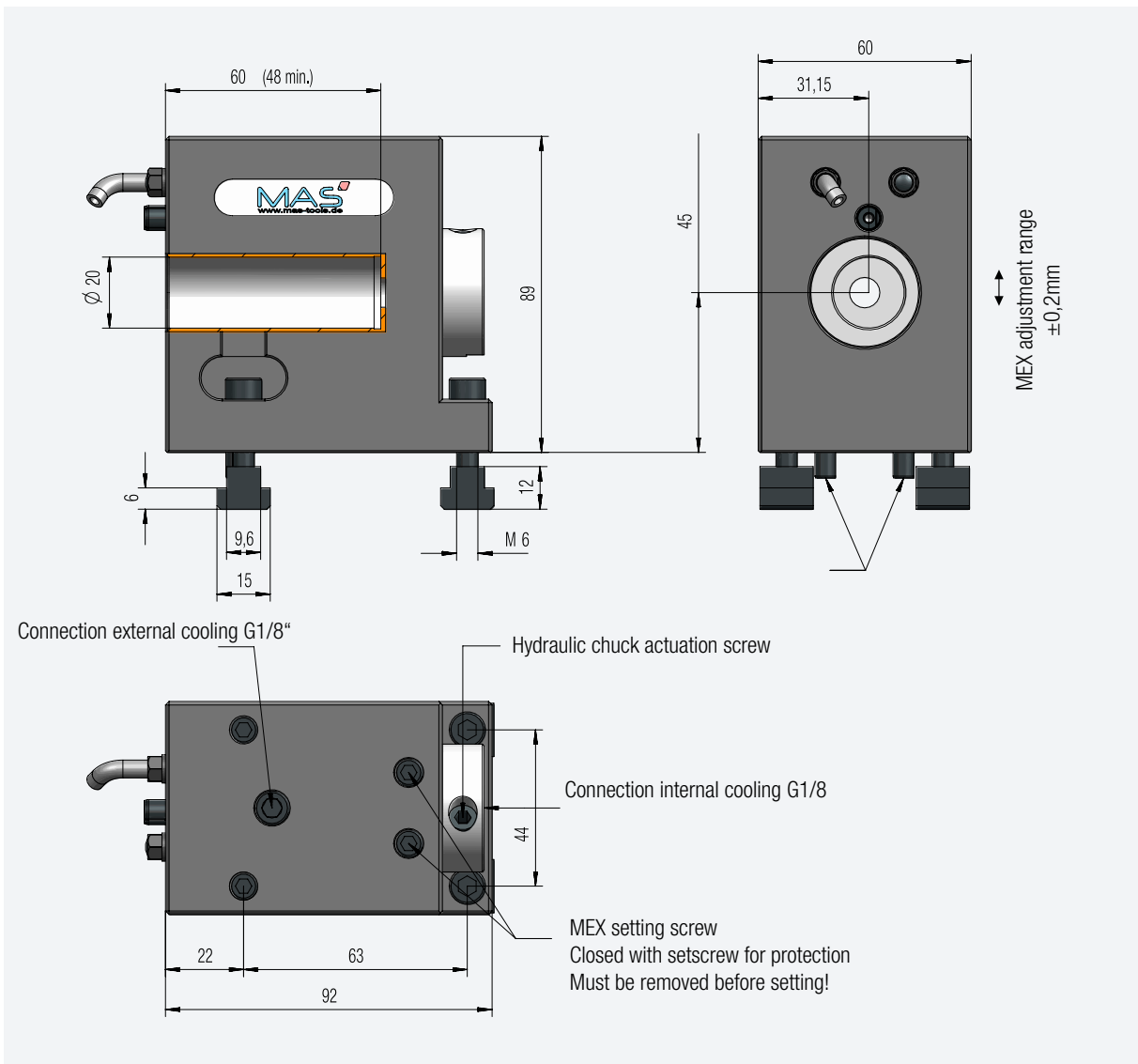
C220 / T-groove

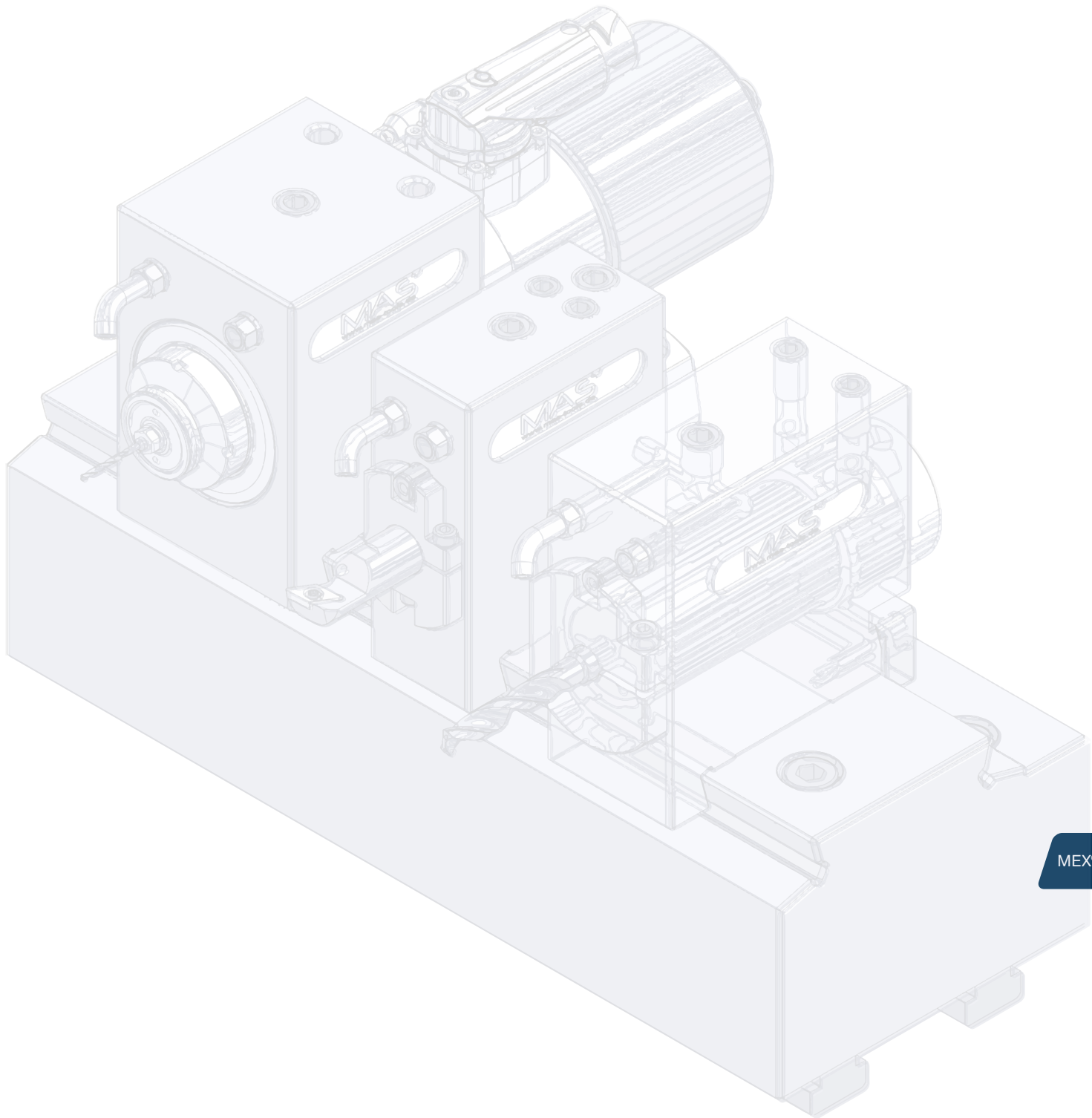
MEX-holder 1x / clamping $\varnothing 20\text{mm}$



MAS-ID	Order number	Stock
Z00 000 202	MEX20-TS-1-Z202	○

Accessories, see from page 254 ● in stock ○ on request





MEX[®]turn

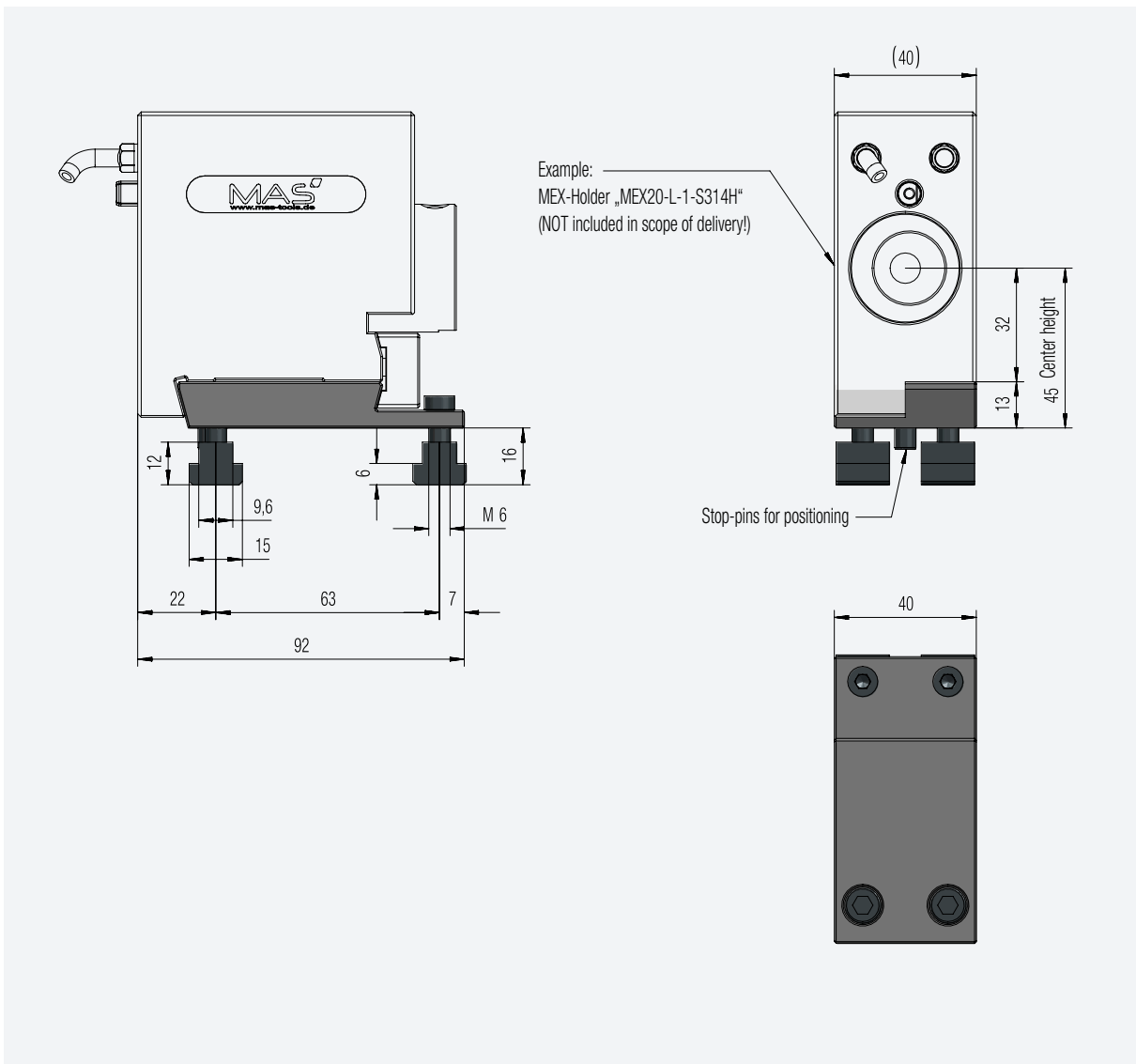
Adapter plate for MAS-dovetail



MAS-ID	Order number	Stock
Z00 000 232	ADP-Z232	○

Accessories, see from page 254 ● in stock ○ on request

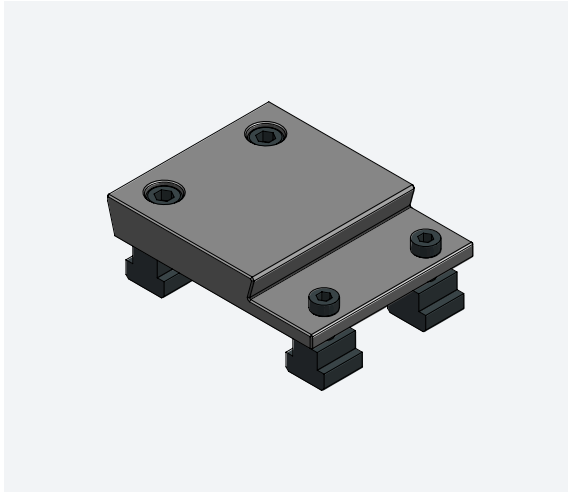
● Actual center height has to be checked



TSUGAMI

C220 / T-groove

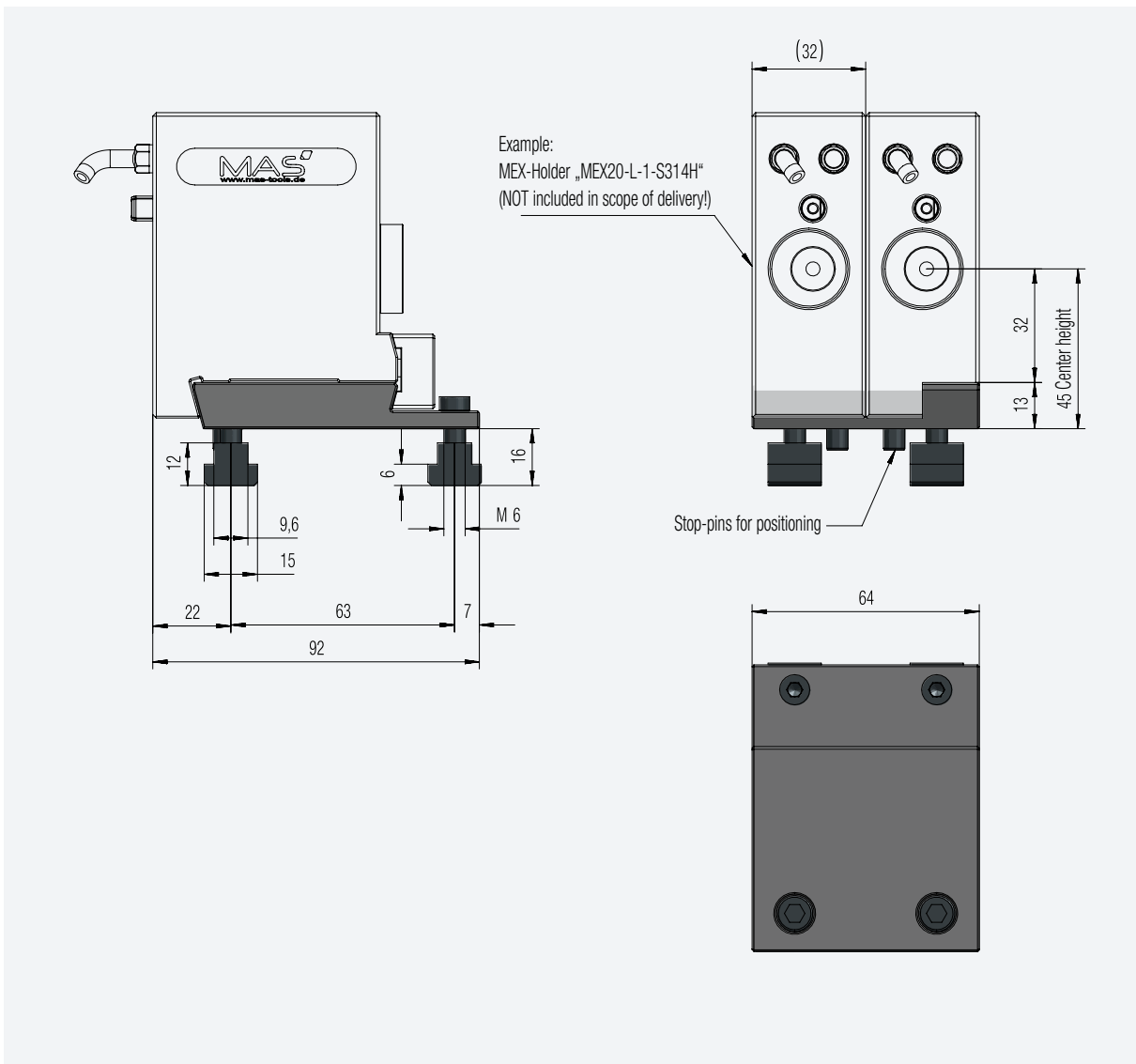
Adapter plate for MAS-dovetail



MAS-ID	Order number	Stock
Z00 000 285	ADP-Z285	○

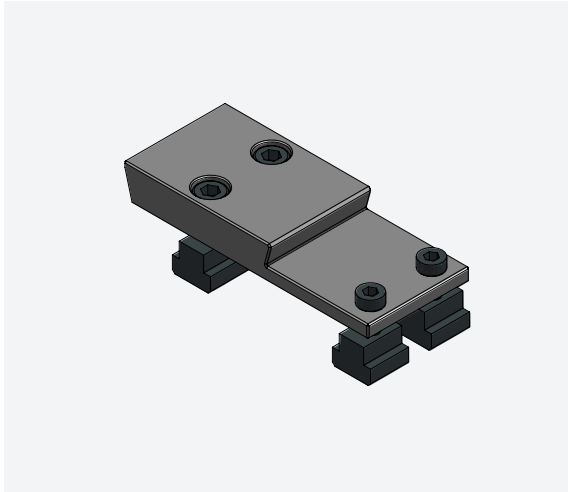
Accessories, see from page 254 ● in stock ○ on request

- Actual center height has to be checked



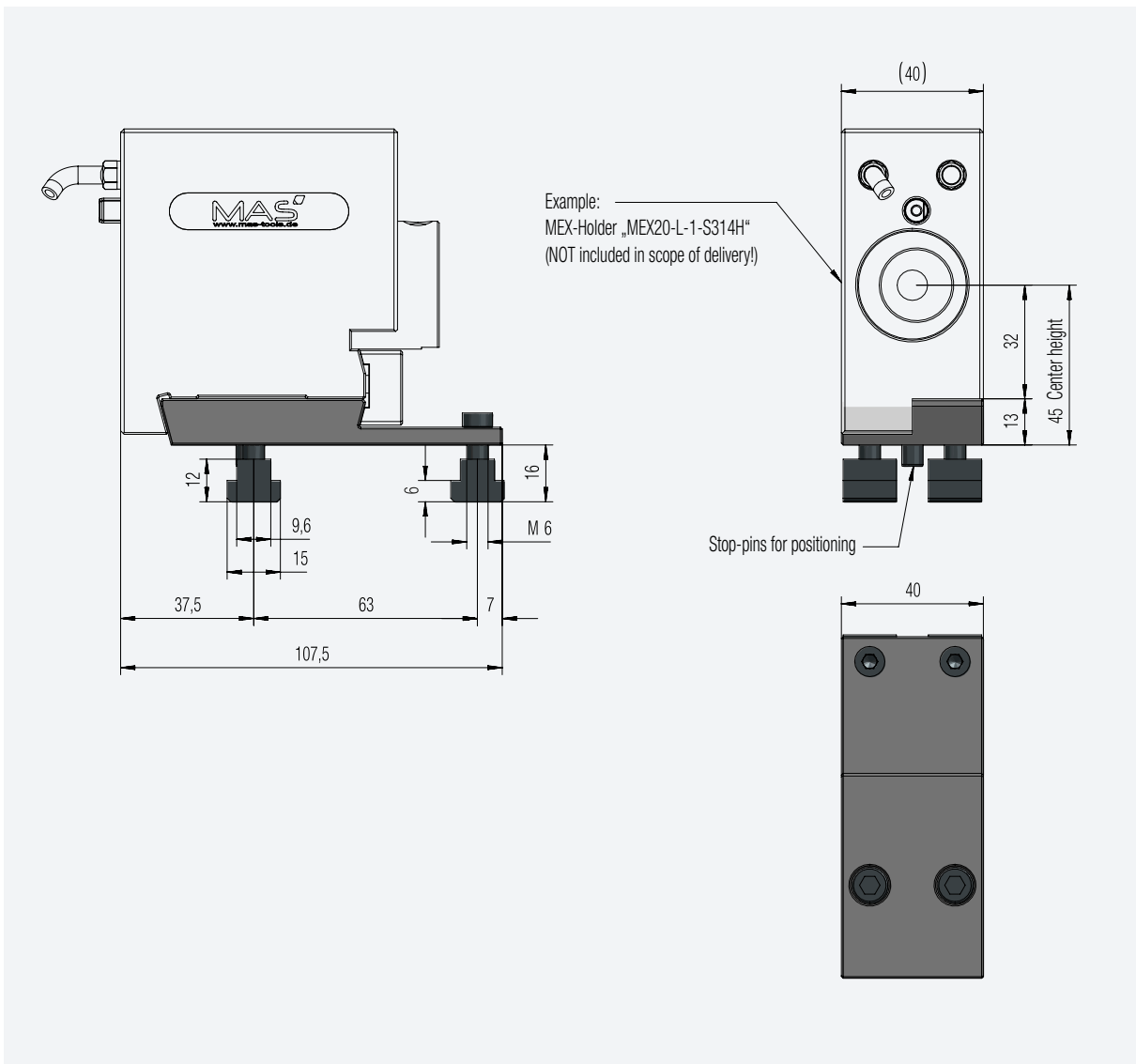
MEX[®]turn

Adapter plate for MAS-dovetail

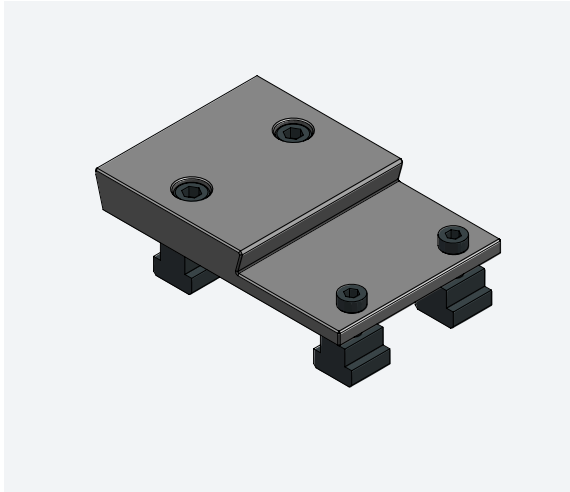


MAS-ID	Order number	Stock
Z00 000 379	ADP-Z379	○

Accessories, see from page 254 ● in stock ○ on request



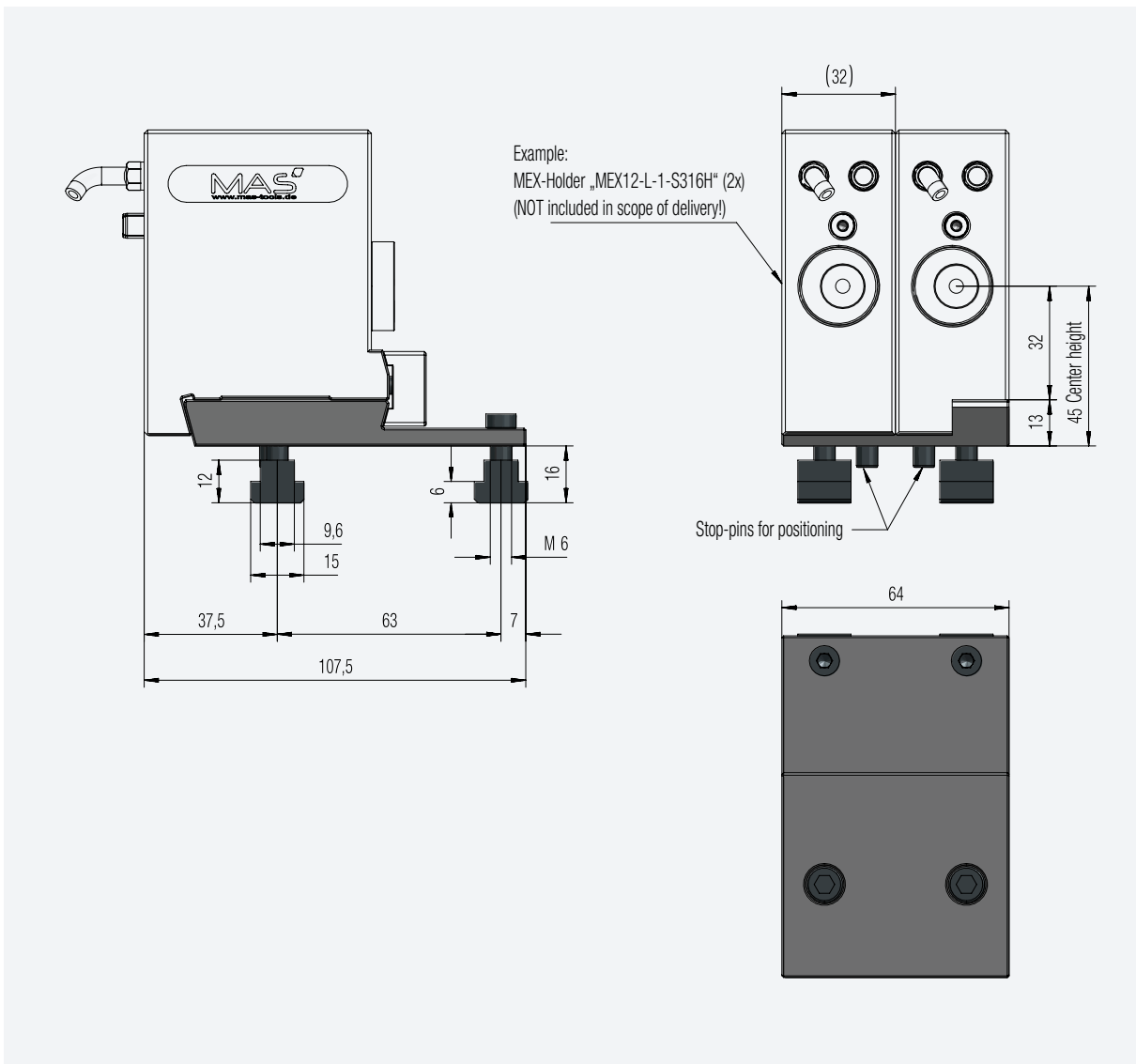
Adapter plate for MAS-dovetail



MAS-ID	Order number	Stock
Z00 000 381	ADP-Z381	○

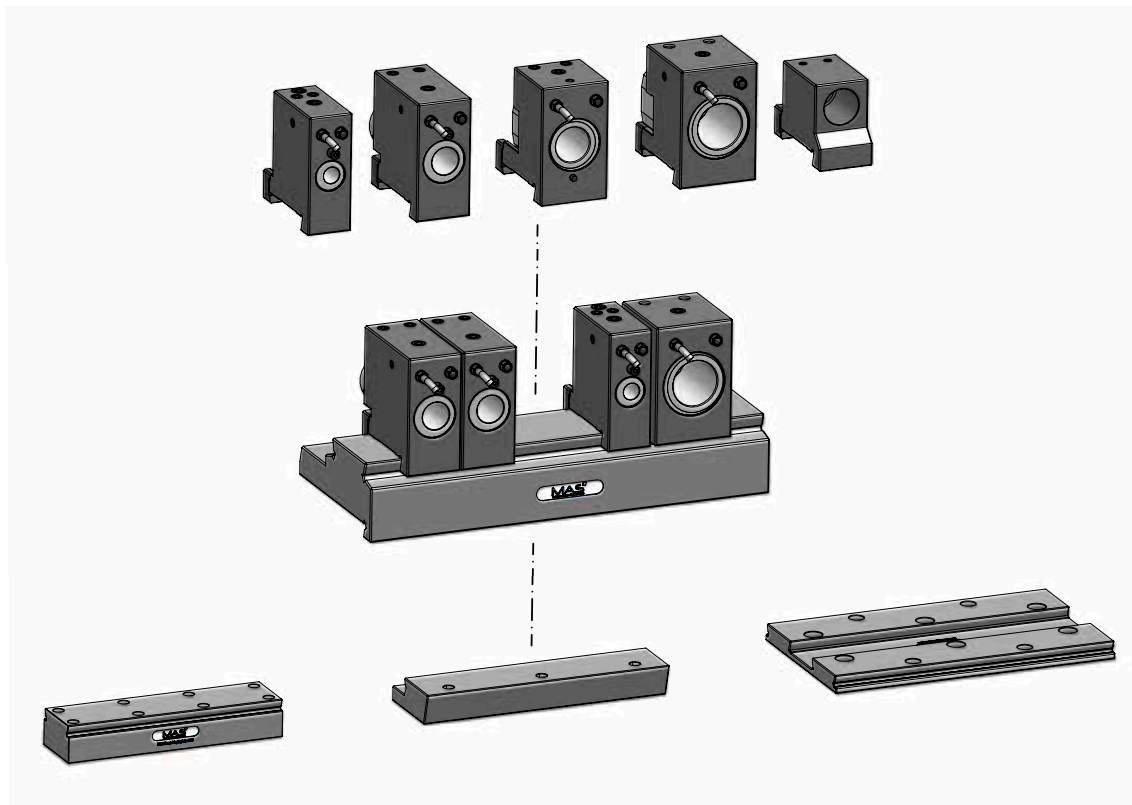
Accessories, see from page 254 ● in stock ○ on request

- Actual center height has to be checked



Universal deployment

LINEAR TOOLHOLDERS / MAS-DOVETAIL



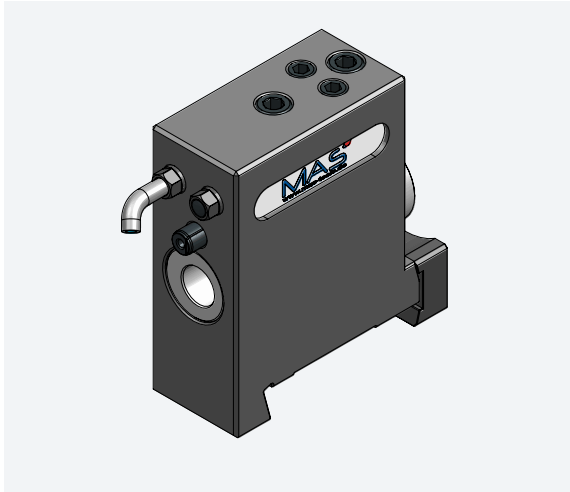
MEX Universal Linear Toolholders

The dovetailed panel is specifically adapted for your machine. This enables toolholder changes in a wide variety of linear machines from a wide variety of manufacturers.

- Facilitates tooling
- Includes internal cooling
- Includes external cooling
- Clamping of high-frequency spindles with $\varnothing 25.4$ m
- Clamping of measuring probes

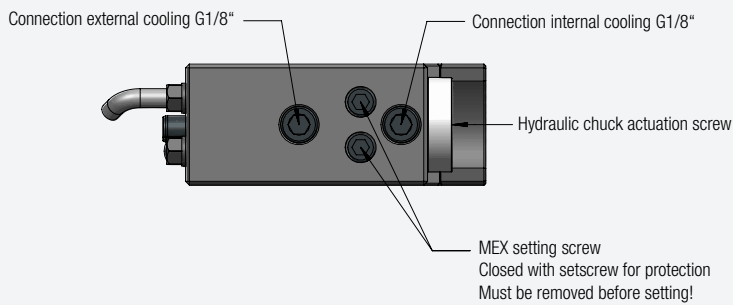
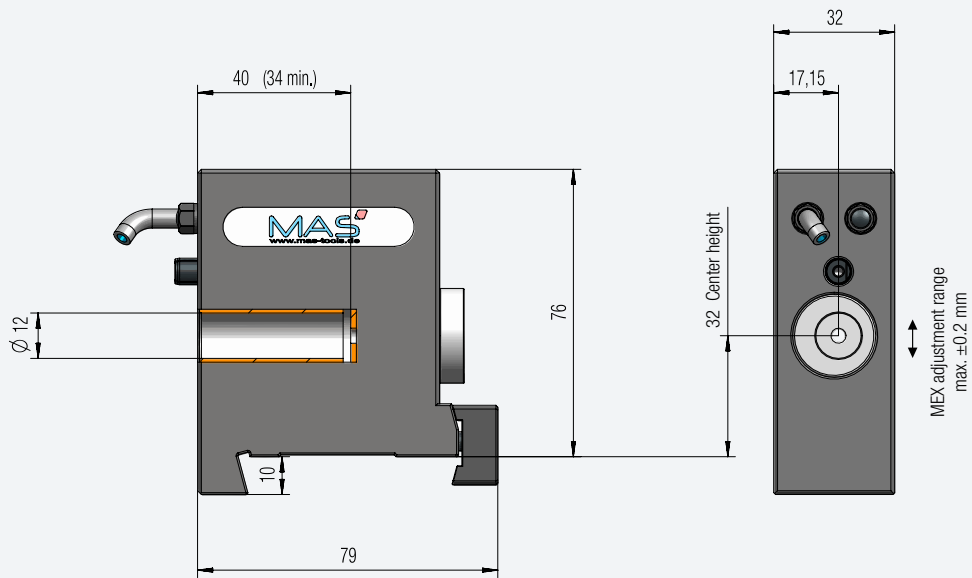
Universal deployment MAS-DOVETAIL

MEX-holder 1x / clamping \varnothing 12mm



MAS-ID	Order number	Stock
Z00 000 030	MEX12-L-1-S316H	●

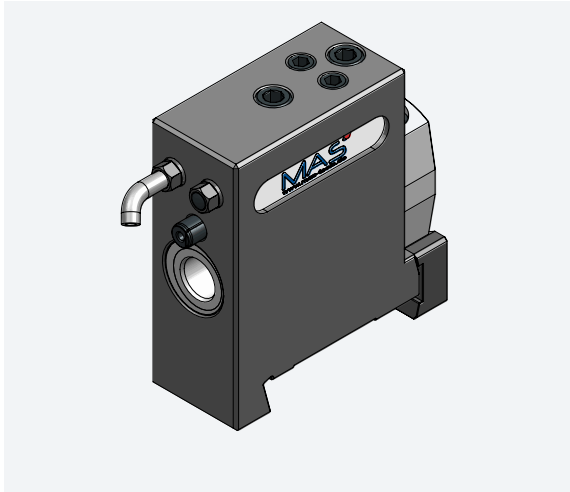
Accessories, see from page ● in stock ○ on request



MEX[®]turn

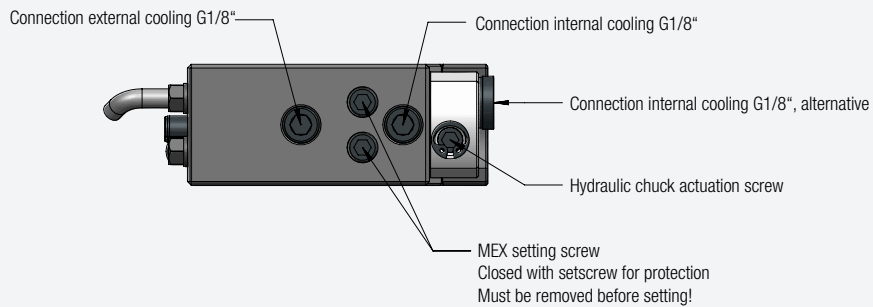
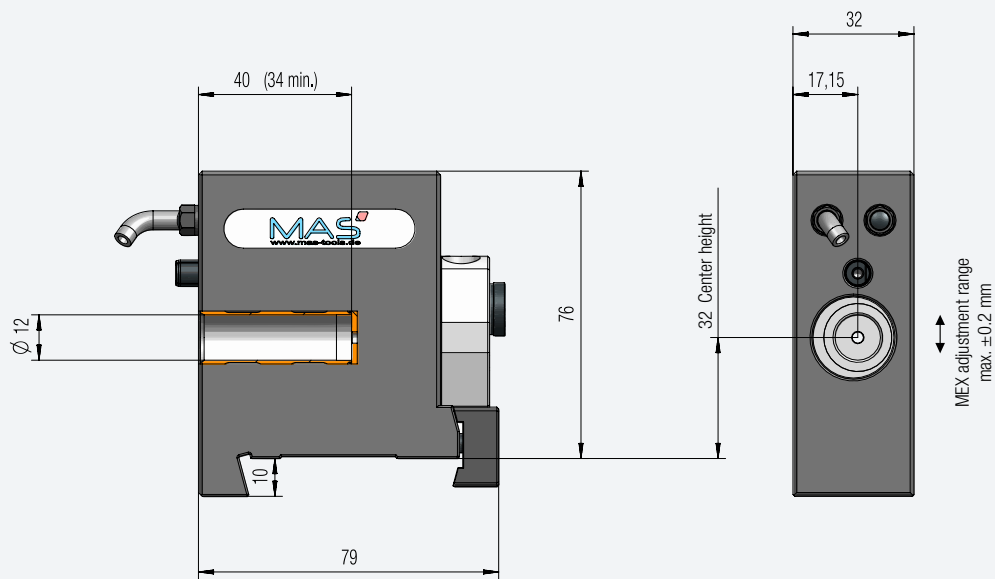
Universal deployment MAS-DOVETAIL

MEX-holder 1x / clamping \varnothing 12mm / radial



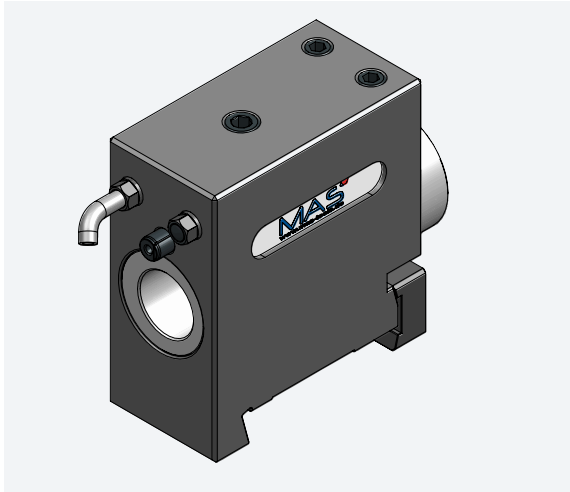
MAS-ID	Order number	Stock
Z00 000 317	MEX12-L-1-Z317	●

Accessories, see from page ● in stock ○ on request



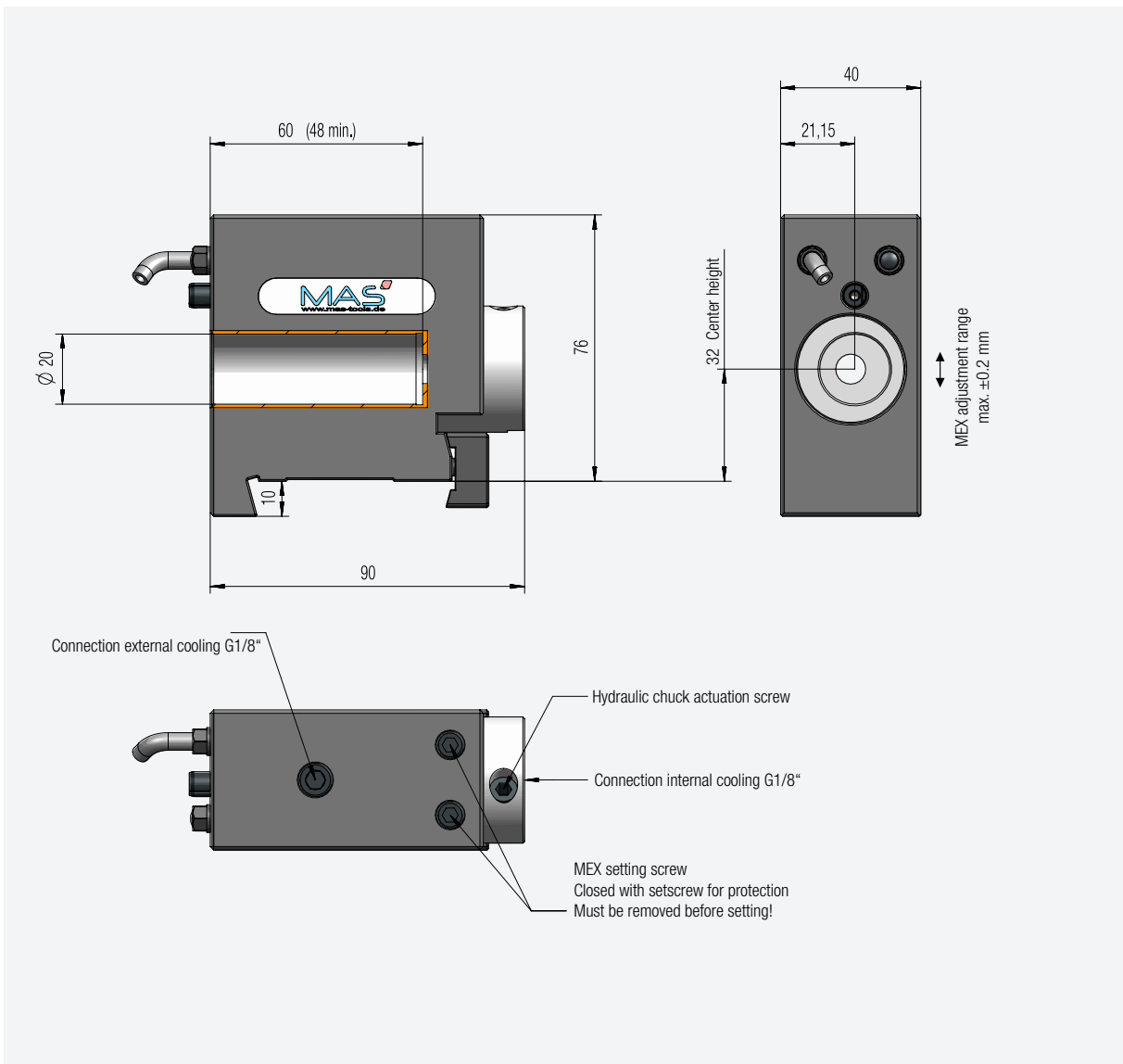
Universal deployment MAS-DOVETAIL

MEX-holder 1x / clamping \varnothing 20 mm



MAS-ID	Order number	Stock
Z00 004 916	MEX20-LINEAR-1-S314H	●

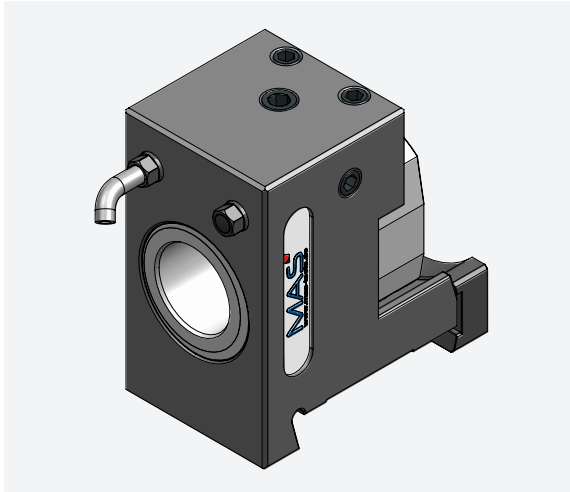
Accessories, see from page ● in stock ○ on request



MEX[®]turn

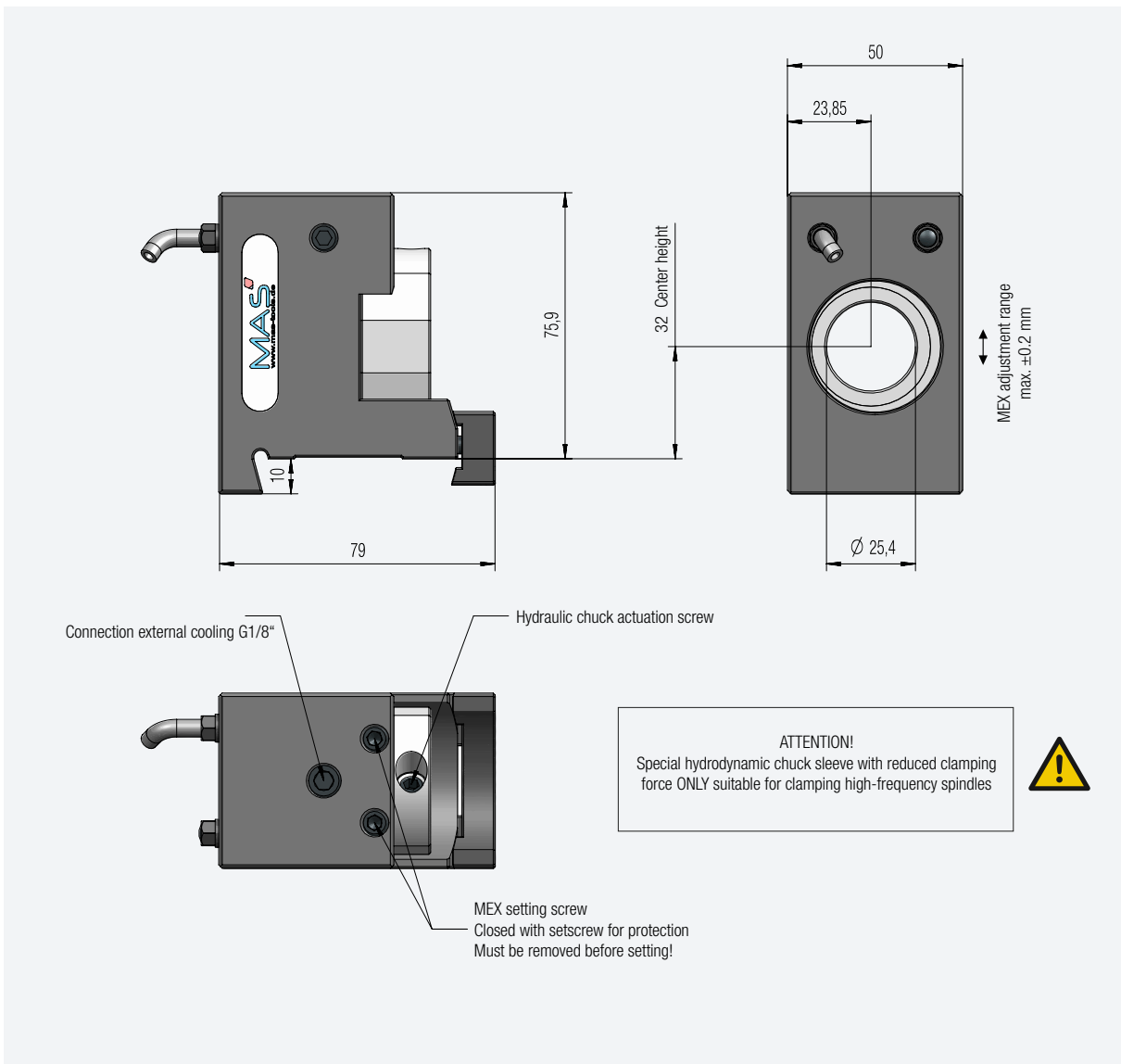
Universal deployment MAS-DOVETAIL

MEX-holder 1x / HFS \varnothing 25.4 mm



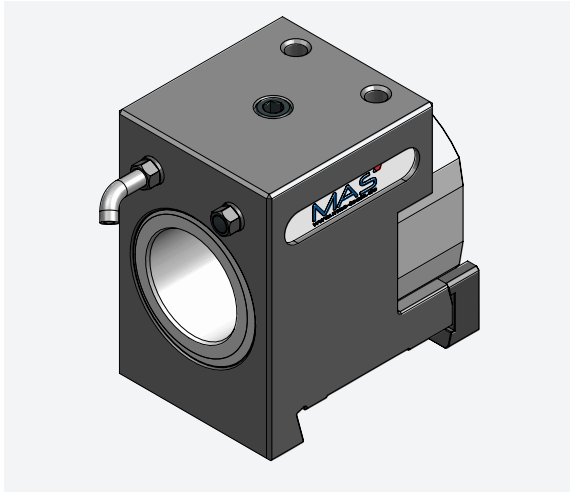
MAS-ID	Order number	Stock
Z00 000 129	MEX25.4-L-1-Z129	○

Accessories, see from page ● in stock ○ on request



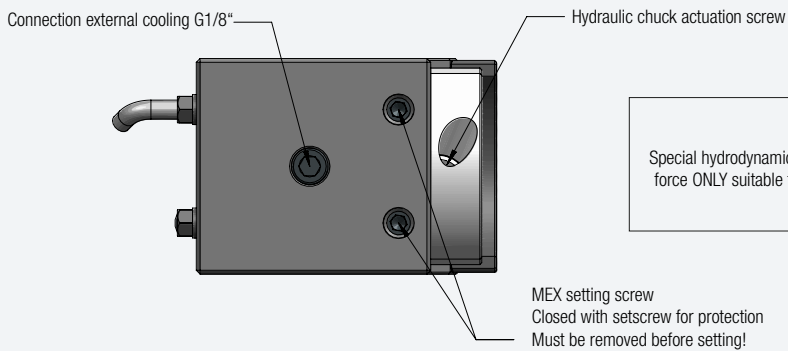
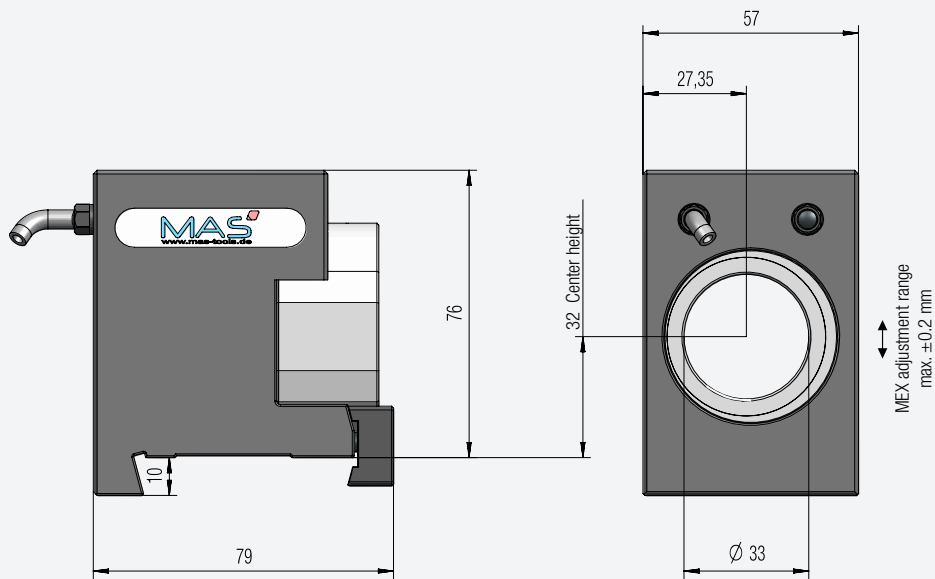
Universal deployment MAS-DOVETAIL

MEX-holder 1x/ HFS \varnothing 33 mm



MAS-ID	Order number	Stock
Z00 000 053	MEX33-L-1-S490H	●

Accessories, see from page ● in stock ○ on request



ATTENTION!
Special hydrodynamic chuck sleeve with reduced clamping force ONLY suitable for clamping high-frequency spindles

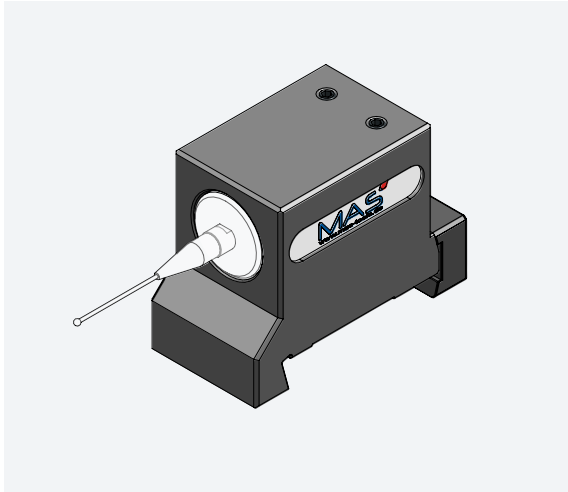


MEX setting screw
Closed with setscrew for protection
Must be removed before setting!

MEX[®]turn

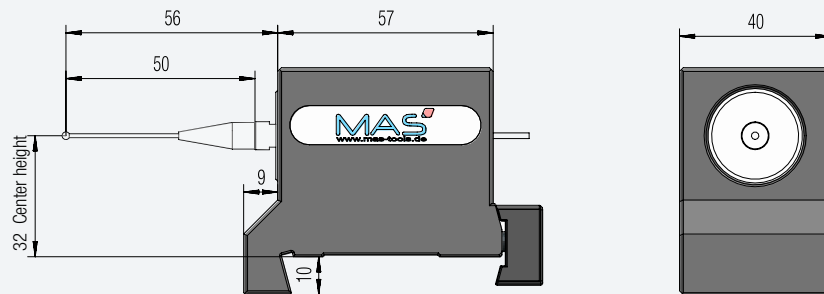
Universal deployment MAS-DOVETAIL

Measuring probe holder Blum TC76



MAS-ID	Order number	Stock
Z00 000 167	MES-L-Z167	●

Accessories, see from page ● in stock ○ on request



Probe insert 50mm
Also available in 30, 75 and 100mm
(not included in scope of delivery)

Blum measuring probe TC76
(not included in scope of delivery)

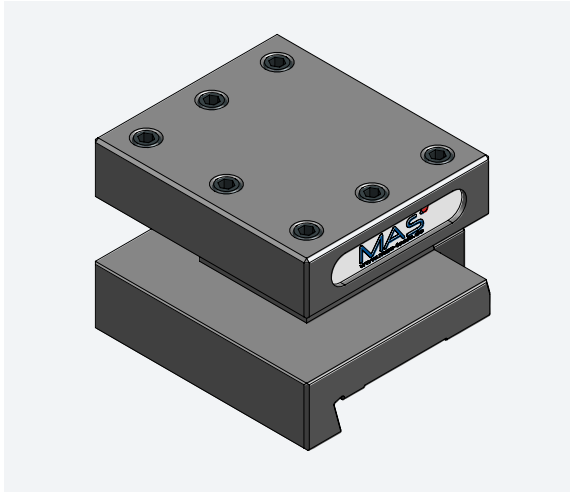


Setting screws for aligning and fixing
the holder in place

Blum socket adjustable for measuring probe TC76
P067600-40002 (2-pin)
P067600-40082 (3-pin)
(not included in scope of delivery)

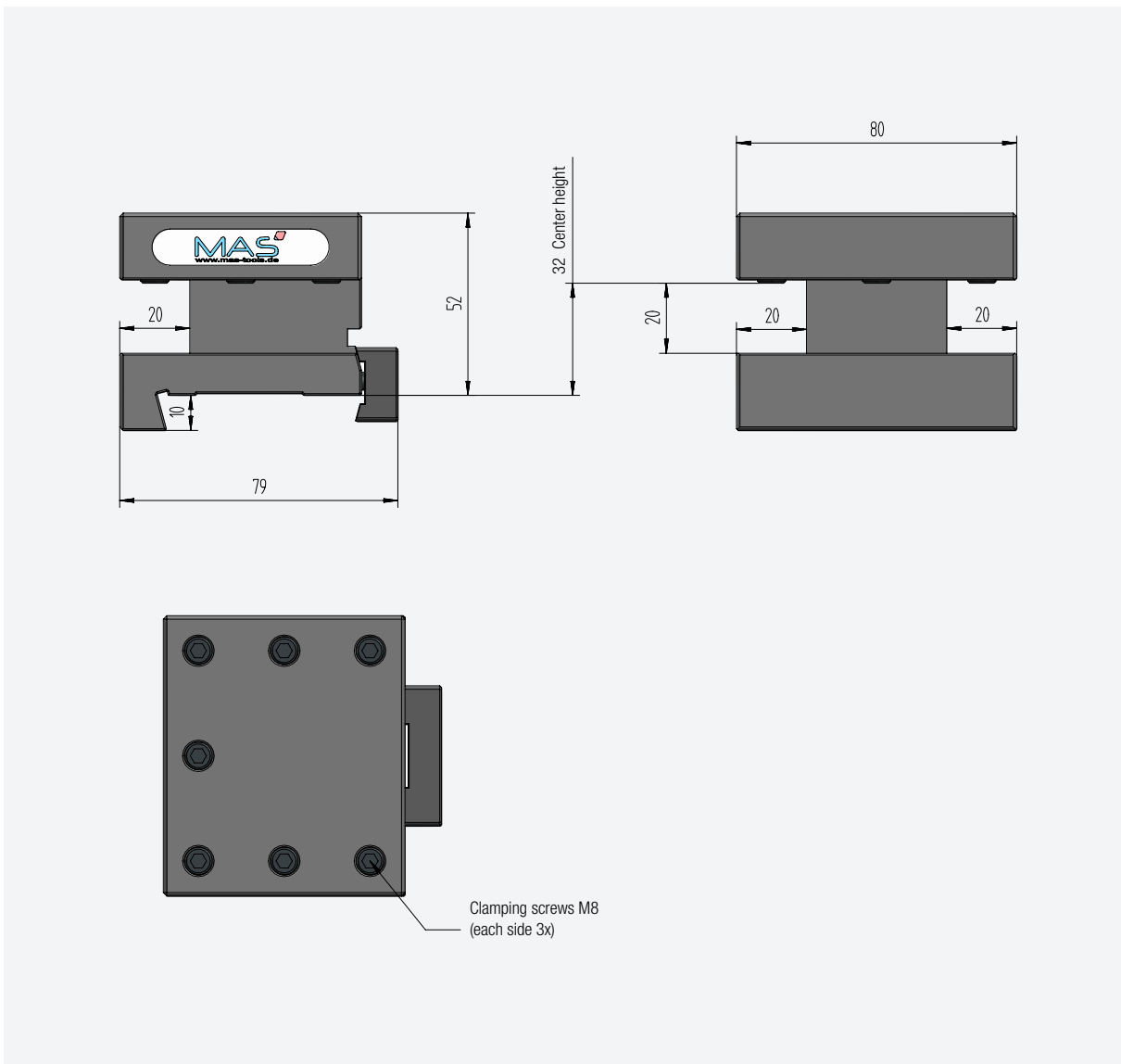
Universal deployment MAS-DOVETAIL

20X20 square shank holder



MAS-ID	Order number	Stock
Z00 000 201	MEX2020-L-1-Z201	<input checked="" type="radio"/> in stock <input type="radio"/> on request

Accessories, see from page in stock on request

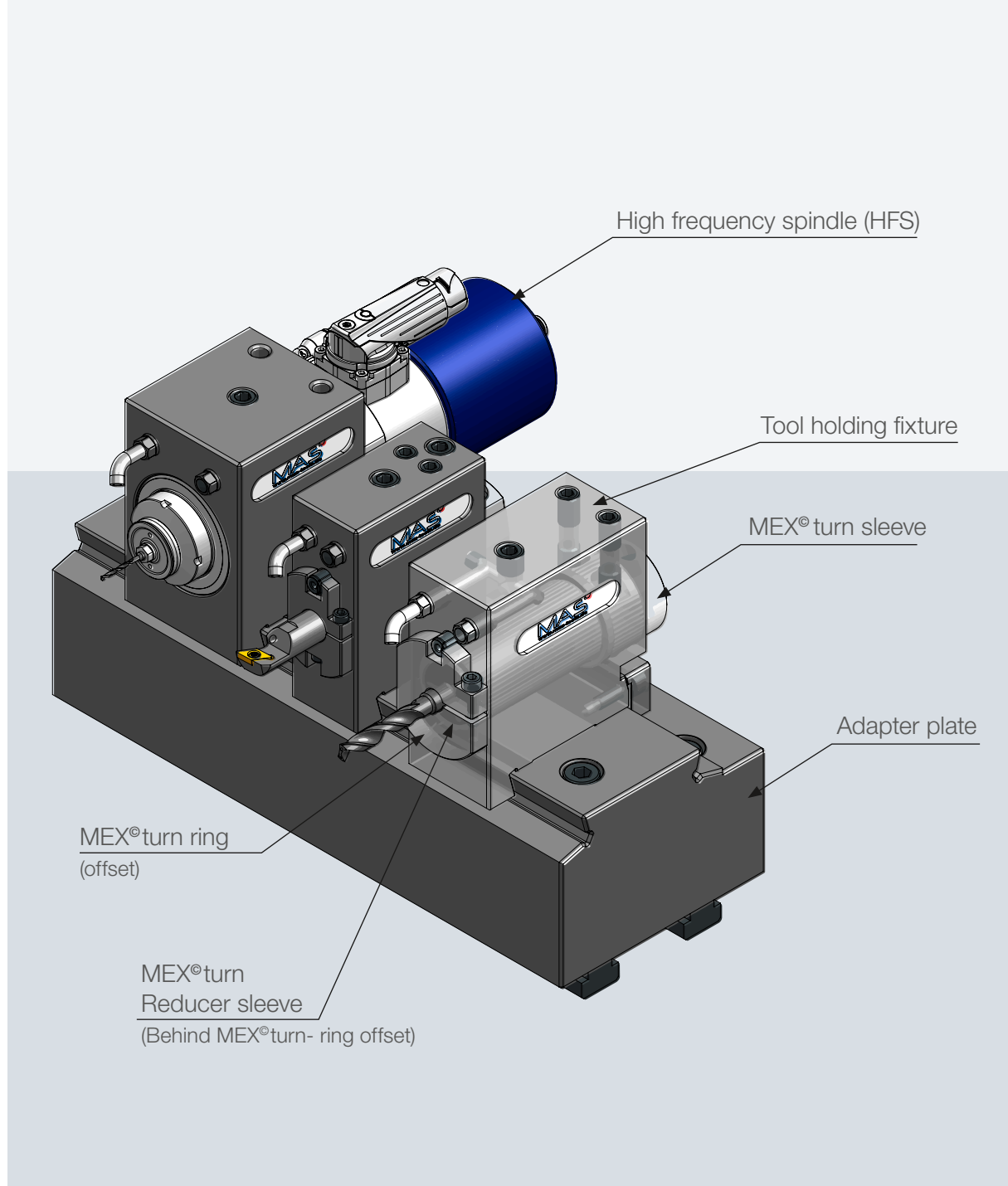


MEX[®]turn

MEX©TURN TOOL

Universal Linear Tool Holders

Assembly example



UNIVERSAL DEPLOYMENT

Operating and usage instructions

Cleaning

- Ensure that the holding fixture bore and tool shank are clean.

Clamping

- Maintain minimum clamping lengths in the hydraulic chuck sleeve.
- Clamp the shank by turning the clamping screw as far as it will go.
Do not clamp while empty!

Clamping shanks

- Only smooth shanks and tool shanks according to DIN 1835 Form A and Form B (up to 12 mm), as well as drill rods with a clamping surface in reducer sleeves.

Temperature

- Optimum temperature range between 10° and 50°.
Do not use at temperatures exceeding 80°.

Storage

- Store hydraulic chuck unclamped, cleaned and slightly lubricated.

MEX®turn



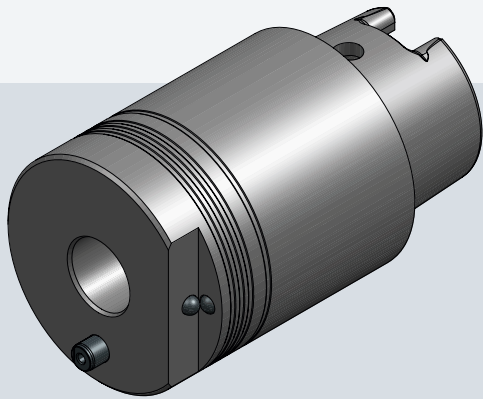
We would be pleased to send you our product portfolio.
Alternatively, feel free to visit our website.

www.mas-tools.de

PRE-ADJUSTMENT DEVICES

Setting Gauges for Manual Measurement and Adjustment

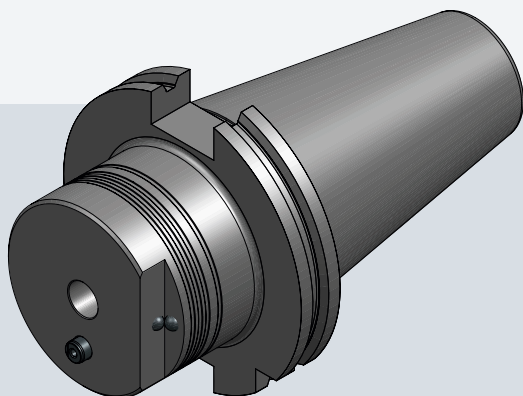
HSK63 tool holding fixture clamping \varnothing 12 & 20 mm



Order number	Stock
MEX12-HSK63 Fixture	<input checked="" type="radio"/>
MEX20-HSK63 Fixture	<input checked="" type="radio"/>

in stock on request

SK50 tool holding fixture clamping \varnothing 12 & 20 mm



Order number	Stock
MEX12-SK50 Fixture	<input checked="" type="radio"/>
MEX20-SK50 Fixture	<input checked="" type="radio"/>

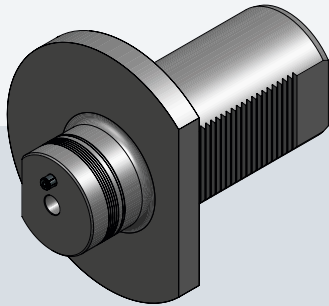
in stock on request

- Special lengths and diameters available on request.

PRE-ADJUSTMENT DEVICES

Setting Gauges for Manual Measurement and Adjustment

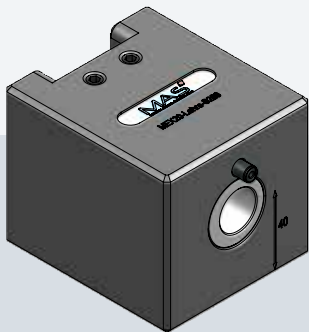
VDI80 gauge/clamping \varnothing 12 mm & 20 mm



Order number	Stock
MEX12-VDI80 Fixture	●
MEX20-VDI80 Fixture	●

● in stock ○ on request

Adjusting block/clamping \varnothing 12mm & 20mm

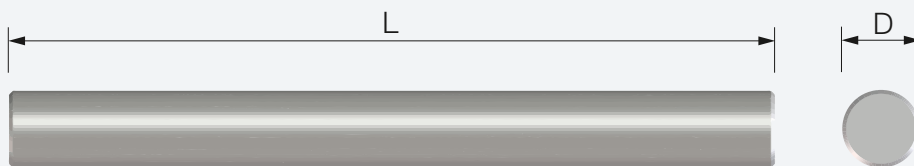


Order number	Stock
MEX12-Gauge-S287	●
MEX20-Gauge-S289	●

● in stock ○ on request

Round solid carbide rod

- für MEX Voreinstellung

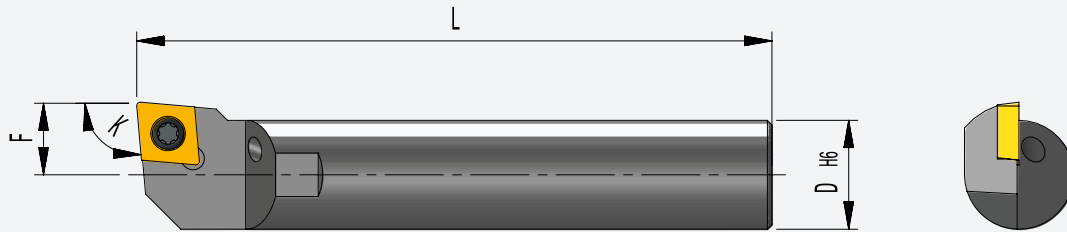


Order number	D (mm)	L (mm)	Stock
H01002-4H6x80mm	4	80	●
H01002-5H6x80mm	5	80	●
H01002-6H6x80mm	6	80	●
H01002-8H6x80mm	8	80	●
H01002-10H6x100mm	10	100	●
H01002-12H6x100mm	12	100	●
H01002-12H6x140mm	12	140	●
H01002-16H6x100mm	16	100	●
H01002-20H6x140mm	20	140	●

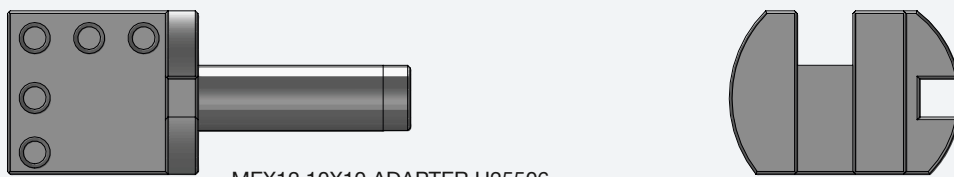
MEX®turn

TOOL HOLDERS FOR EXTERNAL TURNING

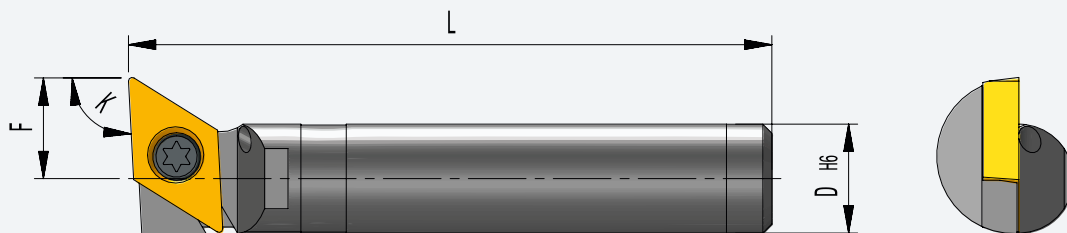
MEX12 external turning



SCLCL-RD12X-06-H25505



MEX12 10X10 ADAPTER H25506

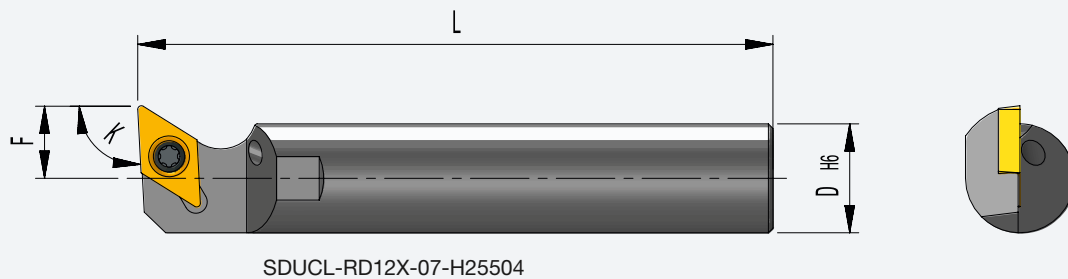


MEX12-SDUCL11L70.9F11.15H25377

Order number	F	L	κ	Dh6	Plate(s)	Nm	IC	R/L/N	Material	Stock
SCLCL-RD12X-06-H25505	8	70	95°	12	CC..0602..	1-1,2	x	Left	Steel	●
MEX12 10X10 ADAPTER H25506	—	—	—	—	—	—	—	—	—	●
MEX12-SDUCL11L70.9F11.15H25377	11,15	70,9	93°	12	DC..11T3..	—	x	Left	Steel	●

TOOL HOLDERS FOR EXTERNAL TURNING

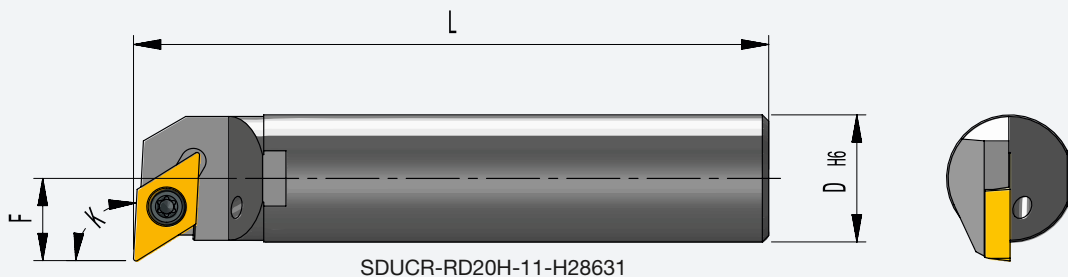
MEX12 external turning



Order number	F	L	κ	Dh6	Plate(s)	Nm	IC	R/L/N	Material	Stock
SDQCL-RD12X-07-H25470	8	70	107,5°	12	DC..0702..	1-1,2	x	Left	Steel	●
SDUCL-RD12X-07-H25504	8	70	93°	12	DC..0702..	1-1,2	x	Left	Steel	●
SDQCR-RD12X-07-H32737	8	70	107,5°	12	DC..0702..	1-1,2	x	Right	Steel	●

● in stock ○ on request

MEX20 external machining



Order number	F	L	κ	Dh6	Plate(s)	Nm	IC	R/L/N	Material	Stock
SDUCR-RD20H-11-H28631	13	100	93°	20	DC..11T3..	—	x	Right	Steel	●
SDUCL-RD20H-11-H28630	13	100	93°	20	DC..11T3..	—	x	Left	Steel	●

● in stock ○ on request

MEX[®]turn

TOOL HOLDERS FOR INTERNAL TURNING

MEX12 internal machining

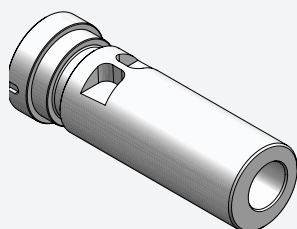


Order number	F	L	κ	Dh6	Plate(s)	Nm	IC	D _{min}	R/L/N	Material	Stock
MEX12-SVOCR11 H25469	8	70	140°	12	VC..1103..	—	×	—	Right	Steel	○
SDQCL-RD12X-11-H27944	9	70	107,5°	12	DC..11T3..	—	×	20	Left	Steel	○

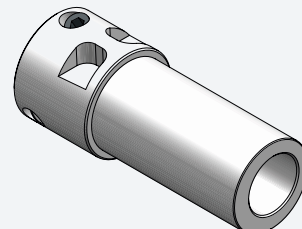
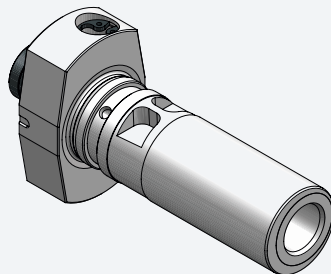
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MEX[®]turn SLEEVES

MEX tool holding fixture / various clamp diameters



Minimum clamp length: 34 mm

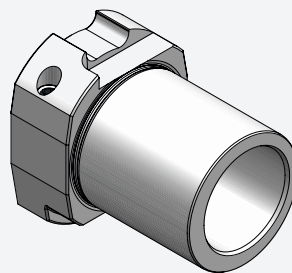
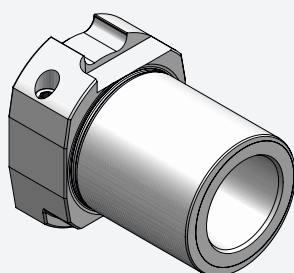


Minimum clamp length: 48 mm

Order number	D (mm)	Transmissible torque (Nm)	Max. clamp Depth (mm)	Stock
MEX12-SLEEVE	12	60	40	●
MEX12R-H-E1151	12	80	40	●
MEX20-SLEEVE	20	110	60	●

*Torque designed for HFS

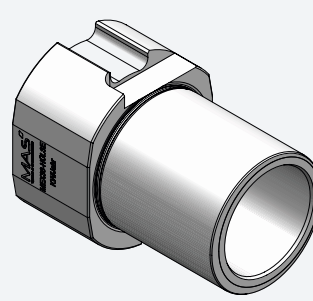
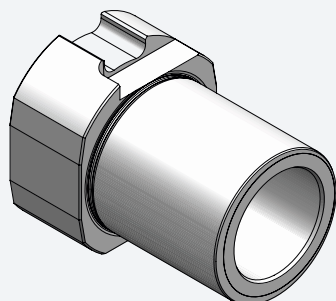
● in stock ○ on request



Order number	D (mm)	Transmissible torque (Nm)	Max. clamp Depth (mm)	Stock
MEX25,4-SLEEVE* High frequency (HFS)	25,4	50	—	●
MEX28,5-SLEEVE	28,5	250	—	●

*Torque designed for HFS

● in stock ○ on request



Order number	D (mm)	Transmissible torque (Nm)	Max. clamp Depth (mm)	Stock
MEX33-SLEEVE* High frequency (HFS)	33	75	—	●
MEX36-SLEEVE	36	300	—	●

*Torque designed for HFS

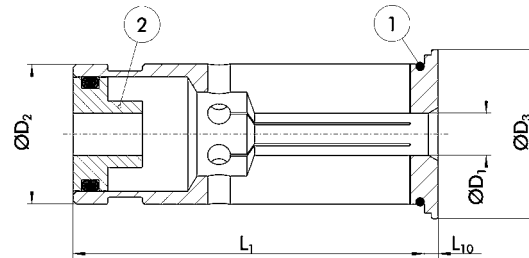
● in stock ○ on request

MEX[®]turn

REDUCER SLEEVES

Benefits and features

MEX GD Reducer sleeves - sealed



- ① O-ring seal
- ② Adjustable stop/Length adjustment

- With peripheral sealing

- Collar slitted

- Not coolant-tight

- High runout accuracy $< 3 \mu\text{m}$.

- Clamping different tool shank diameters.

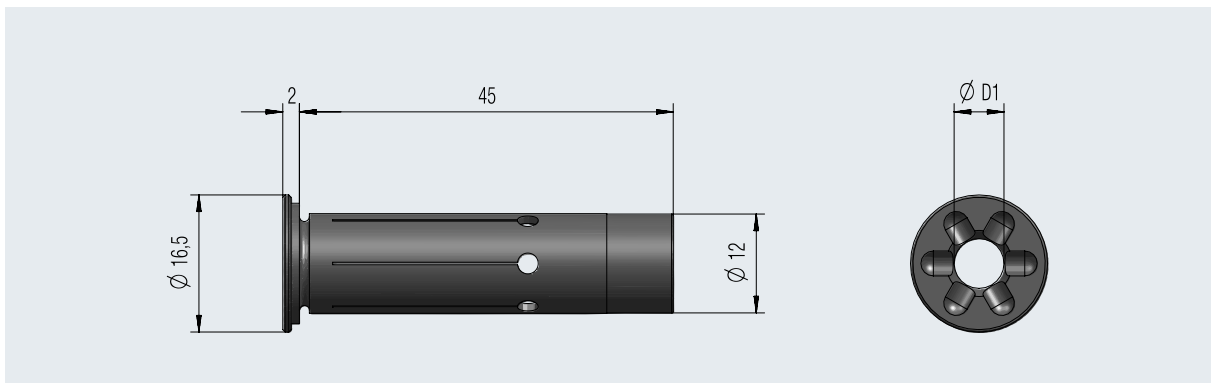
- The use of a reduction sleeve increases the transferable torque.

- Adjustable stop/Length adjustment

REDUCER SLEEVES

Benefits and features

MEX KM Reducer sleeves - not sealed



SEALED

MAS-ID	Order number	D1
M10 010 929	RED-MEX12-3-GD	3
M10 010 931	RED-MEX12-4-GD	4
M10 010 933	RED-MEX12-5-GD	5
S00 001 291	RED-MEX12-6-GD	6
M10 010 937	RED-MEX12-8-GD	8

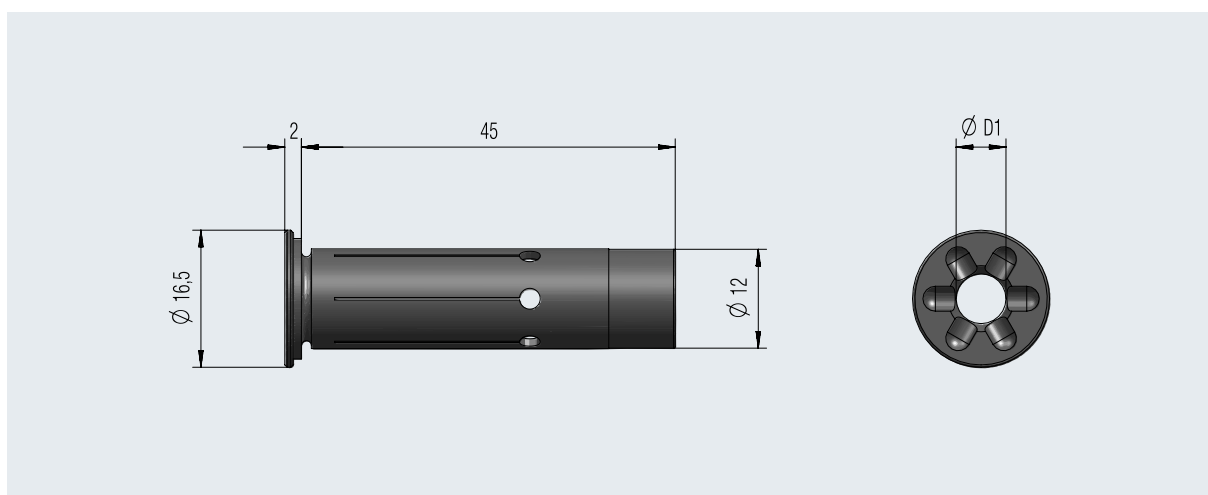
NOT SEALED

MAS-ID	Order number	D1
M10 010 930	RED-MEX12-3-KM	3
M10 010 932	RED-MEX12-4-KM	4
M10 010 934	RED-MEX12-5-KM	5
S00 001 290	RED-MEX12-6-KM	6
S00 001 270	RED-MEX12-8-KM	8

MEX[®]turn

REDUCER SLEEVES Ø12

MEX tool holding fixture / clamp ø 12mm



SEALED

Order number	D1	Stock
RED-MEX12-3-GD	3	●
RED-MEX12-4-GD	4	●
RED-MEX12-5-GD	5	●
RED-MEX12-6-GD	6	●
RED-MEX12-8-GD	8	●

● in stock ○ on request

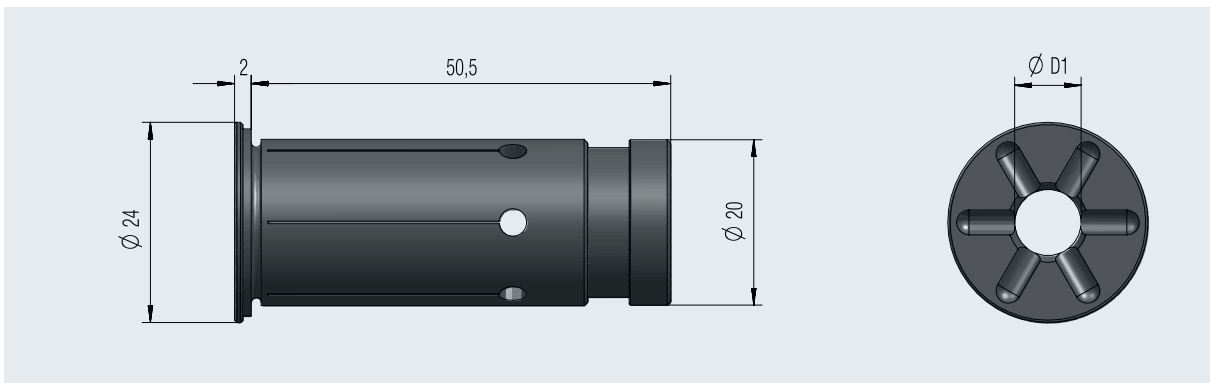
NOT SEALED

Order number	D1	Stock
RED-MEX12-3-KM	3	●
RED-MEX12-4-KM	4	●
RED-MEX12-5-KM	5	●
RED-MEX12-6-KM	6	●
RED-MEX12-8-KM	8	●

● in stock ○ on request

REDUCER SLEEVES Ø20

MEX tool holding fixture / clamp ø20mm



SEALED		
Order number	D1	Stock
RED-MEX20-3-GD	3	●
RED-MEX20-4-GD	4	●
RED-MEX20-5-GD	5	●
RED-MEX20-6-GD	6	●
RED-MEX20-7-GD	7	●
RED-MEX20-8-GD	8	●
RED-MEX20-9-GD	9	●
RED-MEX20-10-GD	10	●
RED-MEX20-11-GD	11	●
RED-MEX20-12-GD	12	●
RED-MEX20-13-GD	13	●
RED-MEX20-14-GD	14	●
RED-MEX20-15-GD	15	●
RED-MEX20-16-GD	16	●

● in stock ○ on request

NOT SEALED		
Order number	D1	Stock
RED-MEX20-3-KM	3	●
RED-MEX20-4-KM	4	●
RED-MEX20-5-KM	5	●
RED-MEX20-6-KM	6	●
RED-MEX20-7-KM	7	●
RED-MEX20-8-KM	8	●
RED-MEX20-9-KM	9	●
RED-MEX20-10-KM	10	●
RED-MEX20-11-KM	11	●
RED-MEX20-12-KM	12	●
RED-MEX20-13-KM	13	●
RED-MEX20-14-KM	14	●
RED-MEX20-15-KM	15	●
RED-MEX20-16-KM	16	●

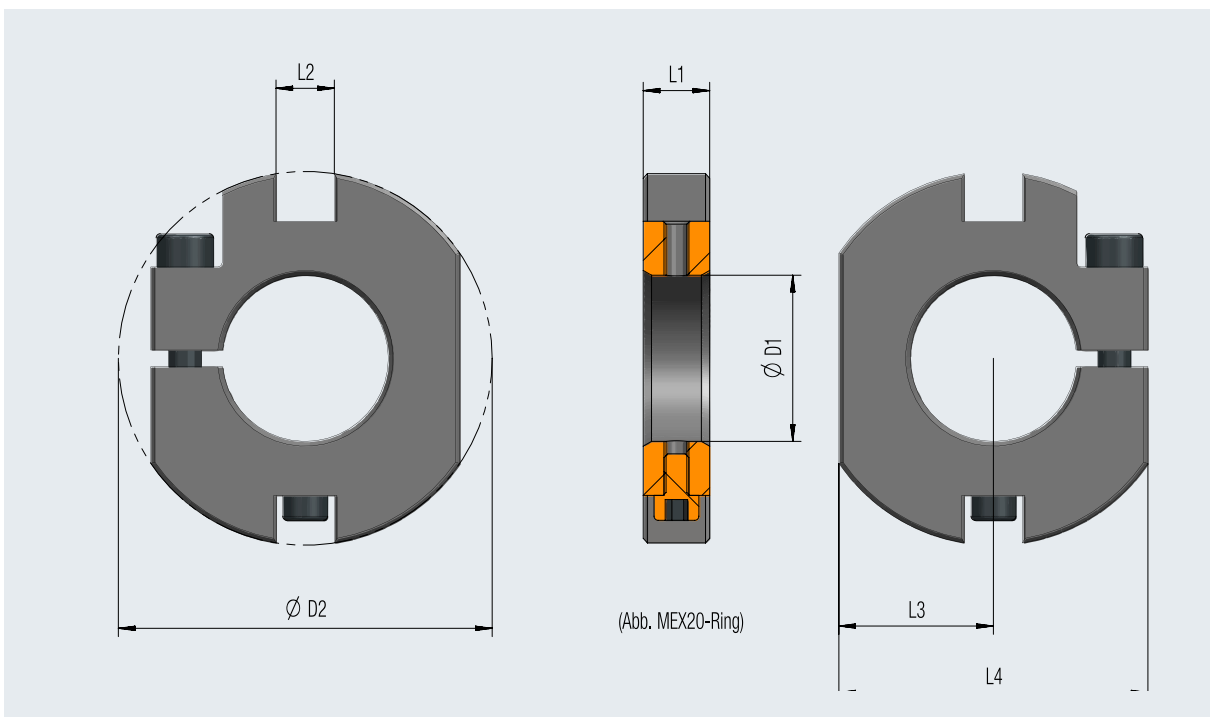
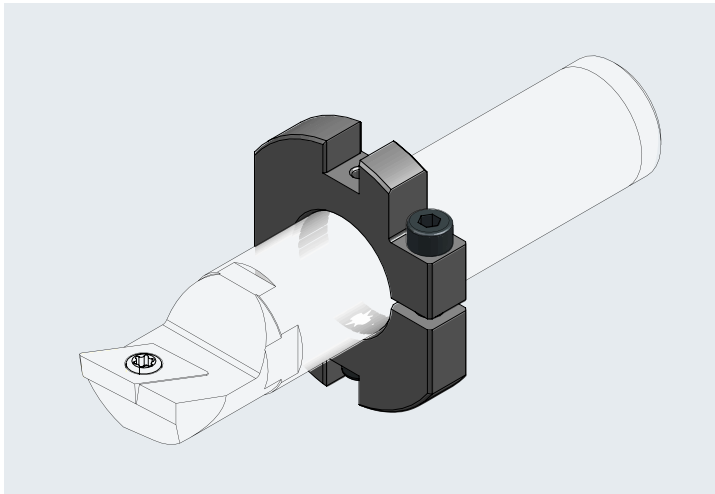
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- Individual sizes between those specified and special-purpose solutions available on request.

MEX[®]turn

VARIOUS MEX RINGS

MEX tool holding fixture / various clamp diameters



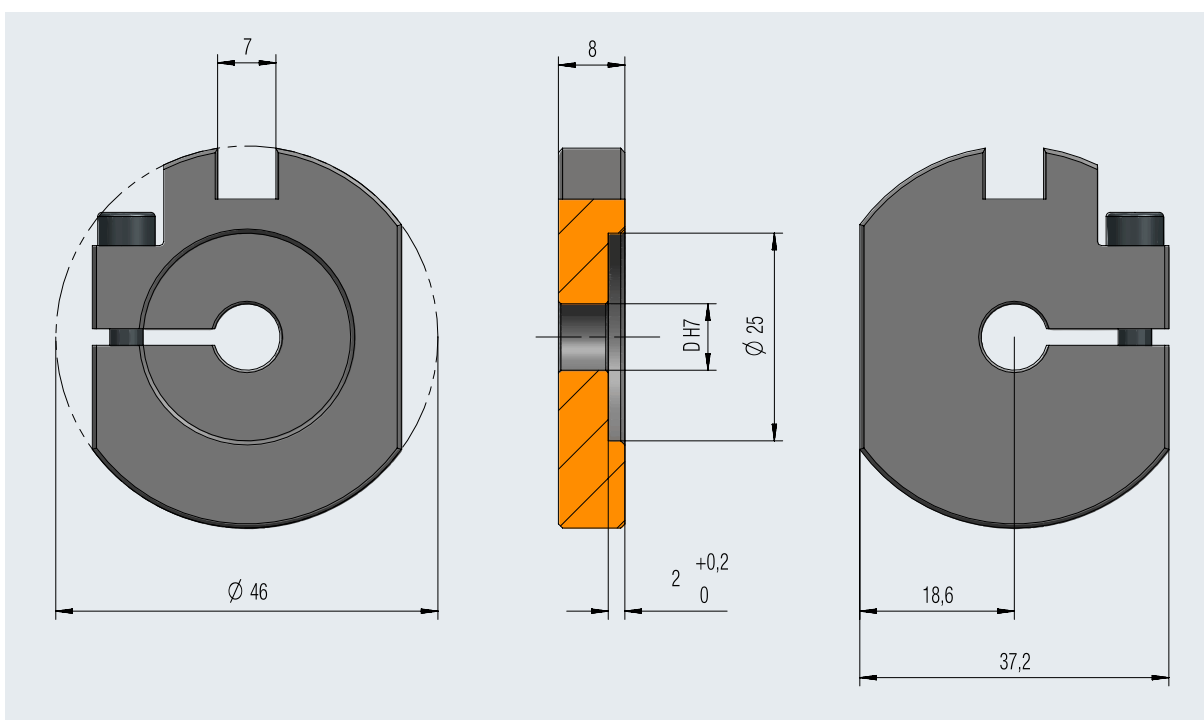
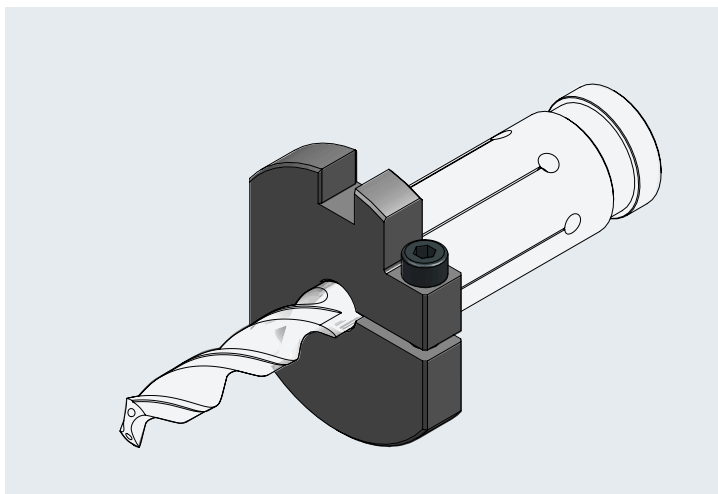
MAS-ID	Order number	D1 (mm)	D2 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	Stock
E 0000 3313	MEX12-RING	12	40	6	7	13	26.5	●
E 0000 1493	MEX20-RING	20	45	8	7	18.6	37.2	●
E 0000 4954	MEX20-RING-S544	20	45	8	7	17	35.2	●
E 0000 4955	MEX25.4-RING	25.4	50	8	4	19.85	39.7	●
E 0000 4956	MEX28.5-RING	28.5	50	8	4	19.85	39.7	●
E 0000 4957	MEX33-RING	33	60	8	4	24.85	49.7	●
E 0000 4958	MEX36-RING	36	60	8	4	24.85	49.7	●

● auf Lager ○ auf Anfrage

MEX RING, OFFSET

Direct Shank Clamping

MEX tool holding fixture / clamp $\varnothing 20\text{mm}$



MEX[®]turn

MAS-ID	Order number	DH7 Tool shank- \varnothing	Stock
E 0000 6510	MEX20-03-RING	3	●
E 0000 6511	MEX20-04-RING	4	●
E 0000 6512	MEX20-05-RING	5	●
E 0000 6513	MEX20-06-RING	6	●
E 0000 6514	MEX20-08-RING	8	●
E 0000 6515	MEX20-10-RING	10	●
E 0000 5874	MEX20-12-RING	12	●
E 0000 6516	MEX20-14-RING	14	●
E 0000 6517	MEX20-15-RING	15	●
E 0000 6531	MEX20-16-RING	16	●
E 0000 6534	MEX20-18-RING	18	●



PEOPLE



AMBITION



SYNERGY

ETP HYDRO-GRIP® series

Hydraulic toolholders



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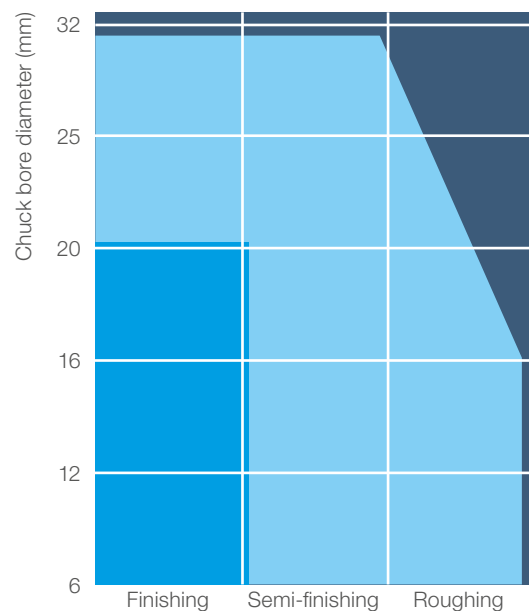
Hydro-Grip

Benefits and Features

- Easy handling and tool change
- Excellent runout accuracy
- High clamping force
- Vibration damping through hydraulic expansion technology
- Tool length adjustment through adjusting screw
- High speed capability
- Bore diameters 6 – 32 mm available
- From finishing to heavy roughing
- Excellent surface quality
- Increased tool life

Application areas of different tool holders

- HYDRO-GRIP® HD
- HYDRO-GRIP® PENCIL
- HYDRO-GRIP®



ETP Principle

Pascal discovered the principle. We put it to work.

The scientist Blaise Pascal formulated the principle of pressure propagation in liquids many years ago:







„A liquid confined in a vessel which is subjected to pressure distributes the pressure uniformly upon the walls of the vessel.“

ETP has explored the many positive qualities in this principle, developed it further and applied it to hub-shaft connections and tool-holders.

The hydraulic ETP principle:

All products consist of a double-walled hardened steel sleeve, filled with a pressure medium. In the flange there are one or more screws and a piston with seals for the pressure setting. All work according to the hydraulic principle: when tightening the screw an even and moderately high surface pressure is created against shaft and hub. Mounting and dismantling is done in less than 10 seconds.

The hydraulic principle gives advantages important for today's modern machines. With increased requirements for compact designs, better concentricity/balance at increased machine speeds, shorter downtime for service and increased precision, the ETP products are chosen for more and more designs.

Easy and accurate to position	Saves space along the shaft	Quick mounting	Small built-in dimensions	Good runout	Quick dismantling
					



HYDRO-GRIP® system

Hydraulic high precision toolholder

HYDRO-GRIP® system

- Easy handling and tool changes
- Hydraulic expansion clamping through pressure screw
- Tool changes within seconds
- High clamping force - sichere Spannung
- Low tightening torque (6~10 Nm)
- Complete assortment, covering finishing to heavy roughing

Toolholder shank:

Common machine interface shanks

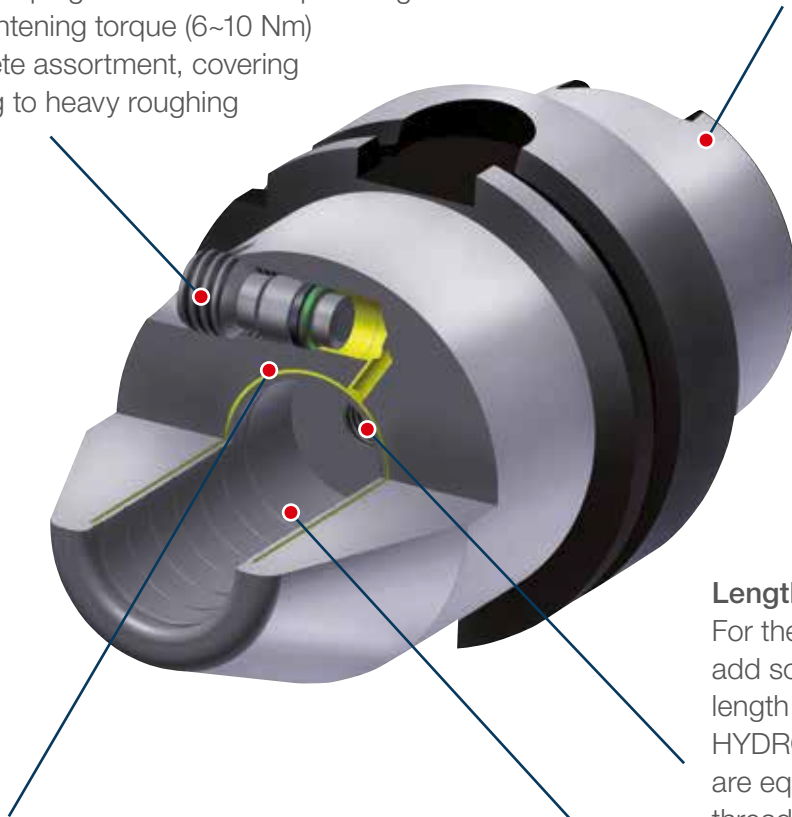
PSK - C4/5/6/8

HSK - 63/100

ISO - 30/40/50

BT - 30/40/50

CAT - 40/50



Length adjustment:

For the possibility to add screw for easy length adjustment ETP HYDRO-GRIP toolholders are equipped with a center thread.

Pressure chamber

Secure clamping of any tool type. A robust membrane and minimum amount of pressure media ensures a good temperature working range.

The groove:

The integral spiral groove ensures any residual oil or grease on the tool to be removed from the contact surface when mounting the tool. Ensures high gripping force at any time.



Easy mounting with torque wrench



High clamping force



High runout accuracy



Vibration damping



Fast set-up time

Systems comparison

Longer tool life and higher surface quality

Today's toolholder market offers in addition to hydraulic types an array of different clamping technologies, such as basic Set screw holders and Collet chucks to Shrink fit and Power chucks. However no other fastening technology than hydraulic clamping offers you the highest precision, in terms of tool life and higher surface quality, in combination with a total concept of easy handling and flexibility in design.

Benefits and features of:

Hydraulic holders

- High runout accuracy.
- Increased tool life and surface quality.
- Easy handling and tool changes.

As a good rule of thumb:

For every 10 microns increased runout, the tool life decreases by 50 %. This is important to bear in mind when choosing a Set screw or Collet chuck, which can have a runout of up to 0.04 mm.

Main disadvantage using:

Set-screw holders & Collet chucks

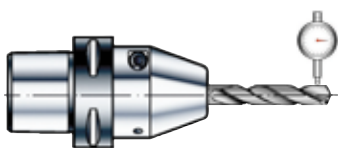
- Bad runout.
- Decreasing tool life and surface quality.
- Operator sensitive.

Shrink fit chucks

- Heavy investment in tools and machinery (heating systems).
- No flexibility as no reducing sleeves can be used.
- No dampening features.

Power chucks

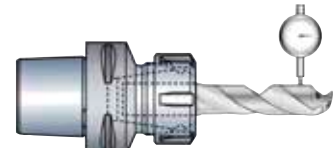
- Quick wear of bearings in holder, reducing the clamping force after only a few uses.



Hydraulic type
runout ≤ 0.004 mm



Set-screw types
runout 0.02 – 0.04 mm

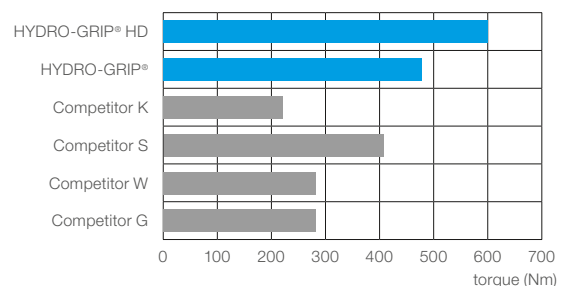


Collet types
runout 0.01 – 0.03 mm

Hydro-Grip

Test of torque transmission

Summary of required torque to get a tool movement with different hydraulic toolholders. All toolholders have diameter 20 mm.



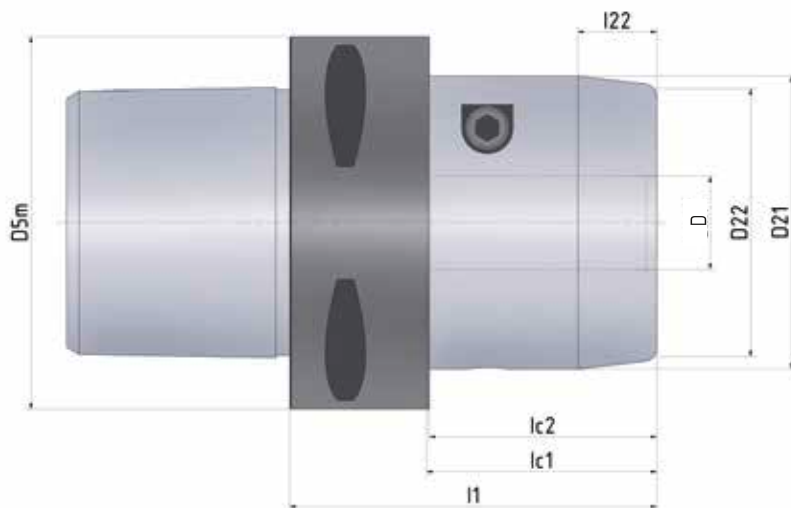
ETP HYDRO-GRIP® HD

Heavy Duty version
Up to 1670 Nm holding torque



- For heavy machining
- Extreme high clamping force
- Easy handling
- Rigid design

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
- Balancing grade: G 2.5 at 25 000 rpm for PSK C5 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Center thread, M12x1, for axial length adjustment screw (screw not included)
- Coolant through on all holders
- Drilling for data carriers - on request



Technical specification PSK form

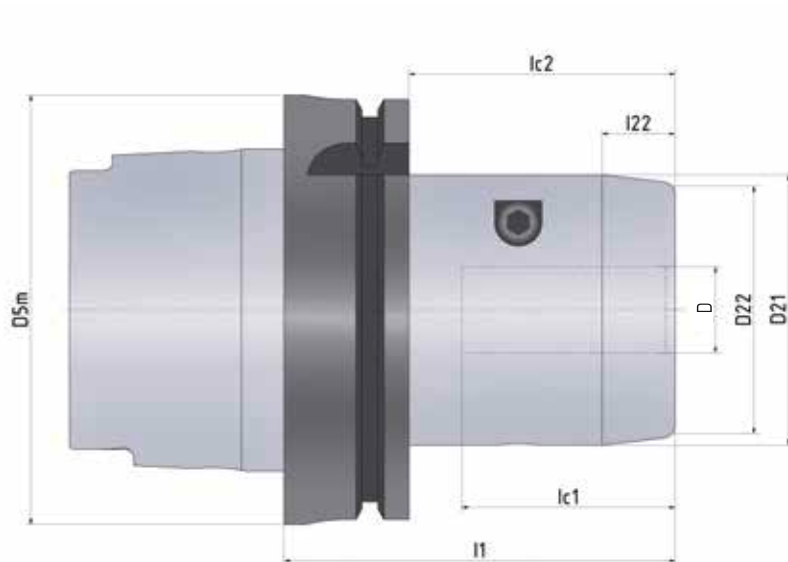
Coupling size	Order number	Description	Dimensions (mm)								
			D _{5m}	D	D ₂₁	D ₂₂	l ₁	l ₂₂	l _{c1}	l _{c2}	
C5	682040	HG HD-20/C5	50	20	63	59	79	17	52	—	●
C6	682050	HG HD-20/C6	63	20	63	59	73	17	52	—	●
	682060	HG HD-25/C6	63	25	74	70	80	17	56	—	●
	682070	HG HD-32/C6	63	32	80	76	86	17	60	—	●
C8	682080	HG HD-20/C8	80	20	63	59	79	17	52	49	●
	682090	HG HD-25/C8	80	25	74	70	83	17	56	53	●
	682100	HG HD-32/C8	80	32	80	76	87	17	60	—	●

● on stock ○ on request

Special solutions on request

l₁ = bracket length

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
- Balancing grade: G 2.5 at 25 000 rpm for PSK C5 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Center thread, M12x1, for axial length adjustment screw (screw not included)
- Coolant through on all holders
- Drilling for data carriers - on request



Technical specification HSK A/C

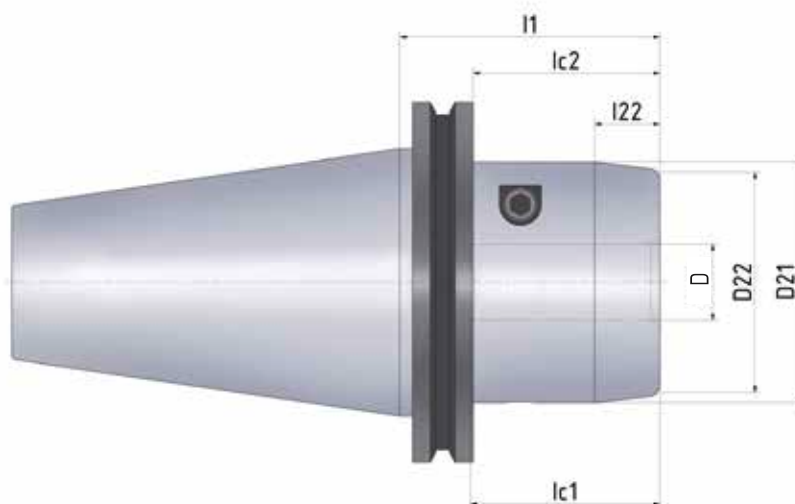
HSK size	Order number	Description	Dimensions (mm)								
			D_{5m}	D	D_{21}	D_{22}	l_1	l_{22}	l_{c1}	l_{c2}	
63	682150	HG HD-20/HSK63	63	20	63	59	96	17	52	70	●
100	682160	HG HD-20/HSK100	100	20	63	59	91	17	52	62	●
	682170	HG HD-25/HSK100	100	25	74	70	95	17	56	66	●
	682180	HG HD-32/HSK100	100	32	80	76	99	17	60	70	●

● on stock ○ on request

Special solutions on request

l_1 = bracket length

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
- Balancing grade: G 2.5 at 25 000 rpm for PSK C5 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Center thread, M12x1, for axial length adjustment screw (screw not included)
- Coolant through on all holders
- Drilling for data carriers - on request



Technical specification ISO form AD (A/B Coolant on all CAT40 and CAT50 holder)

Machine design	Taper	Order number	Description	Dimensions (mm)							
				D	D ₂₁	D ₂₂	l ₁	l ₂₂	l _{c1}	l _{c2}	
Cat V	40	682110	HG HD-20/Cat40	20	63	59	90	17	90	70.95	●
	50	682120	HG HD-20/Cat50	20	63	59	68	17	68	48.95	●
	50	682130	HG HD-25/Cat50	25	74	70	92	17	92	72.95	●
	50	682140	HG HD-32/Cat50	32	80	76	97	17	97	77.95	●
ISO 7388.1	40	682190	HG HD-20/ISO40	20	63	59	90	17	90	70.9	●
	50	682200	HG HD-20/ISO50	20	63	59	68	17	68	49	●
	50	682210	HG HD-25/ISO50	25	74	70	79	17	79	60	●
	50	682220	HG HD-32/ISO50	32	80	76	83	17	83	64	●
MAS BT403	40	682000	HG HD-20/BT40	20	63	59	79	17	79	—	●
	50	682010	HG HD-20/BT50	20	63	59	87	17	87	4	●
	50	682020	HG HD-25/BT50	25	74	70	91	17	91	53	●
	50	682030	HG HD-32/BT50	32	80	76	95	17	95	57	●

● on stock ○ on request
Special solutions on request
l₁ = bracket length

Hydro-Grip

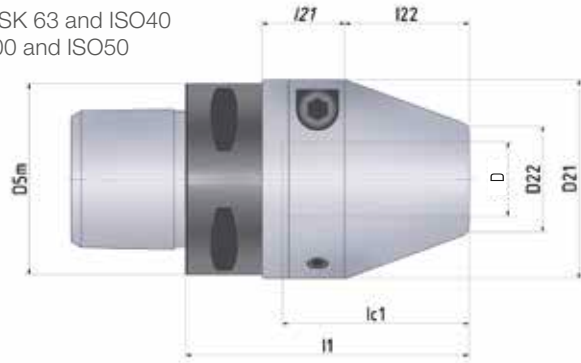
ETP HYDRO-GRIP®

Compact Design



- For drilling to semi-roughing
- High clamping force
- Easy handling
- Short overhang
- Modular design possibility

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
- Balancing grade: G 2.5 at 25 000 rpm for PSK C4 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Center thread, M8, for axial length adjustment screw (screw not included)
Exception: PSK C4 - thread is M6!
- Coolant through on all holders
- Drilling for data carriers - on request



Technical specification PSK form

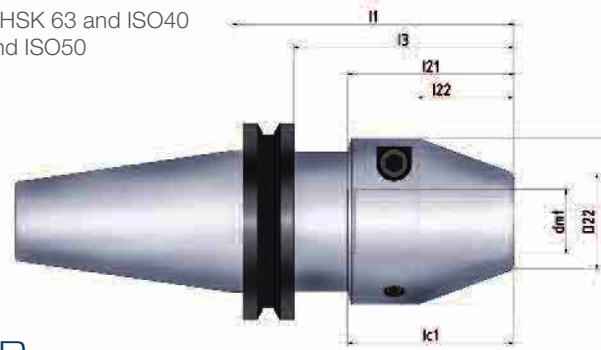
Coupling size	Order number	Description	Dimensions (mm)								
			D _{5m}	D	D ₂₁	D ₂₂	I ₁	I ₂₁	I ₂₂	I _{c1}	
C3	701557	HG-6x38-C3	32	6	37,5	16,5	38	20,5	10,5	30	○
	702142	HD-8x38-C3	32	8	39,5	18,5	38	20,5	10,5	30	●
	702143	HD-10x50-C3	32	10	43,5	19,8	50	22,5	20,5	40	○
	701558	HD-12x50-C3	32	12	43,5	19,8	50	22,5	20,5	40	○
	701666	HD-14x50-C3	32	14	46	24	50	22,5	19	40	○
	701559	HD-16x50-C3	32	16	48	24,3	50	27	20,5	40	●
	701525	HD-20x64-C3	32	20	52	30	64	27	30	52	○
C4*	703430	HG-12/C4 (no gripper)	40	12	43.5	22	50	25	18	40	●
C4	685160	HG-12/C4	40	12	43.5	22	62	24	18	40	●
	685170	HG-12x100/C4	40	12	43.5	22	100	25	18	40	●
	685180	HG-16/C4	40	16	48	26	72	24	28	50	○
	685190	HG-16x125/C4	40	16	48	26	125	24	28	50	○
	685200	HG-20/C4	40	20	52	30	75	25	30	52	●
	685210	HG-20x125/C4	40	20	52	30	125	75	30	52	●
C5	685220	HG-12/C5	50	12	43.5	22	62	24	18	40	●
	685230	HG-12x100/C5	50	12	43.5	22	100	62	18	40	●
	685240	HG-16/C5	50	16	48	26	72	24	28	50	○
	685250	HG-16x125/C5	50	16	48	26	125	77	28	50	○
	685260	HG-20/C5	50	20	52	30	74	24	30	52	●
	685270	HG-20x125/C5	50	20	52	30	125	24	30	52	●
	685280	HG-25/C5	50	25	59	35	79	25	34	56	●
C6	685290	HG-12/C6	63	12	43.5	22	64	24	18	40	●
	685300	HG-12x100/C6	63	12	43.5	22	100	60	18	40	●
	685310	HG-16/C6	63	16	48	26	74	24	28	50	○
	685320	HG-16x125/C6	63	16	48	26	125	75	28	50	○
	685330	HG-20/C6	63	20	52	30	76	24	30	52	●
	685340	HG-20x150/C6	63	20	52	30	150	98	30	52	●
	685350	HG-25/C6	63	25	59	35	80	24	34	56	●
	685360	HG-25x150/C6	63	25	59	35	150	94	34	56	●
685370	HG-32/C6	63	32	69.5	42	84	24	38	60	●	
C8	685380	HG-12/C8	80	12	43.5	22	67	19	18	40	○
	685390	HG-12x100/C8	80	12	43.5	22	100	52	18	40	○
	685400	HG-16/C8	80	16	48	26	77	19	28	50	○
	685410	HG-16x125/C8	80	16	48	26	125	67	28	50	○
	685420	HG-20/C8	80	20	52	30	79	19	30	52	●
	685430	HG-20x150/C8	80	20	52	30	150	90	30	52	●
	685440	HG-25/C8	80	25	59	35	83	19	34	56	●
	685450	HG-25x150/C8	80	25	59	35	150	86	34	56	●
685460	HG-32/C8	80	32	69.5	42	87	19	38	60	●	

* Short version with no gripper grooves.

Special solutions on request ● on stock ○ on request

I1 = bracket length

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
- Balancing grade: G 2.5 at 25 000 rpm for PSK C4 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Center thread, M8, for axial length adjustment screw (screw not included)
Exception: PSK C4 - thread is M6!
- Coolant through on all holders
- Drilling for data carriers - on request



Technical specification ISO form AD
(A/B Coolant on all CAT40 and CAT50 holder)

Machine design	Taper	Order number	Description	Dimensions (mm)									
				dm _t	D ₂₁	D ₂₂	l ₁	l ₃	l ₂₁	l ₂₂	l _{ct}		
ISO 7388/1	ISO40	685810	HG-12/ISO40	12	43.5	22	56	36.9			18	40	●
		685820	HG-12x100/ISO40	12	43.5	22	100	80.9			18	40	●
		685830	HG-16/ISO40	16	48	26	73	53.9			28	50	○
		685840	HG-16x125/ISO40	16	48	26	125	105.9			28	50	○
		685850	HG-20/ISO40	20	52	30	88	68.9	22.9		30	52	●
		685860	HG-20x125/ISO40	20	52	30	125	105.9	59.9		30	52	●
		685870	HG-25/ISO40	25	59	35	93	73.9	23.9		34	56	●
ISO 7388/1	ISO50	685880	HG-12/ISO50	12	43.5	22	56	36.9			18	40	○
		685890	HG-12x100/ISO50	12	43.5	22	100	80.9			18	40	○
		685900	HG-16/ISO50	16	48	26	66	46.9			28	50	○
		685910	HG-16x125/ISO50	16	48	26	125	105.9			28	50	○
		685920	HG-20/ISO50	20	52	30	68	48.9			30	52	●
		685930	HG-20x150/ISO50	20	52	30	150	130.0			30	52	●
		685940	HG-25/ISO50	25	59	35	72	52.9			34	56	●
		685950	HG-25x150/ISO50	25	59	35	150	130.9			34	56	●
MAS-BT 403	ISO30	685970	HG-12/BT30	12	43.5	22	59	37			18	40	●
		685980	HG-16/BT30	16	48	26	69	47			28	50	○
		685990	HG-20/BT30	20	52	30	76	54			30	52	●
MAS-BT 403	ISO40	685000	HG-12/BT40	12	43.5	22	64	37			18	40	●
		685010	HG-12x100/BT40	12	43.5	22	100	73			18	40	●
		685020	HG-16/BT40	16	48	26	74	47			28	50	○
		685030	HG-16x125/BT40	16	48	26	125	98			28	50	○
		685040	HG-20/BT40	20	52	30	76	49			30	52	●
		685050	HG-20x125/BT40	20	52	30	125	98			30	52	●
		685060	HG-25/BT40	25	59	35	80	53			34	56	●
MAS-BT 403	ISO50	685070	HG-12/BT50	12	43.5	22	75	37			18	40	○
		685080	HG-12x100/BT50	12	43.5	22	100	62			18	40	○
		685090	HG-16/BT50	16	48	26	85	47			28	50	○
		685100	HG-16x125/BT50	16	48	26	125	87			28	50	○
		685110	HG-20/BT50	20	52	30	87	49			30	52	●
		685120	HG-20x150/BT50	20	52	30	150	112			30	52	●
		685130	HG-25/BT50	25	59	35	91	53			34	56	●
		685140	HG-25x150/BT50	25	59	35	150	112			34	56	●
		685150	HG-32/BT50	32	69.5	42	95	57			38	60	●

● on stock ○ on request

Special solutions on request

l₁ = bracket length

Hydro-Grip

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
- Balancing grade: G 2.5 at 25 000 rpm for PSK C4 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Center thread, M8, for axial length adjustment screw (screw not included)
Exception: PSK C4 - thread is M6!
- Coolant through on all holders
- Drilling for data carriers - on request

Technical specification ISO form AD

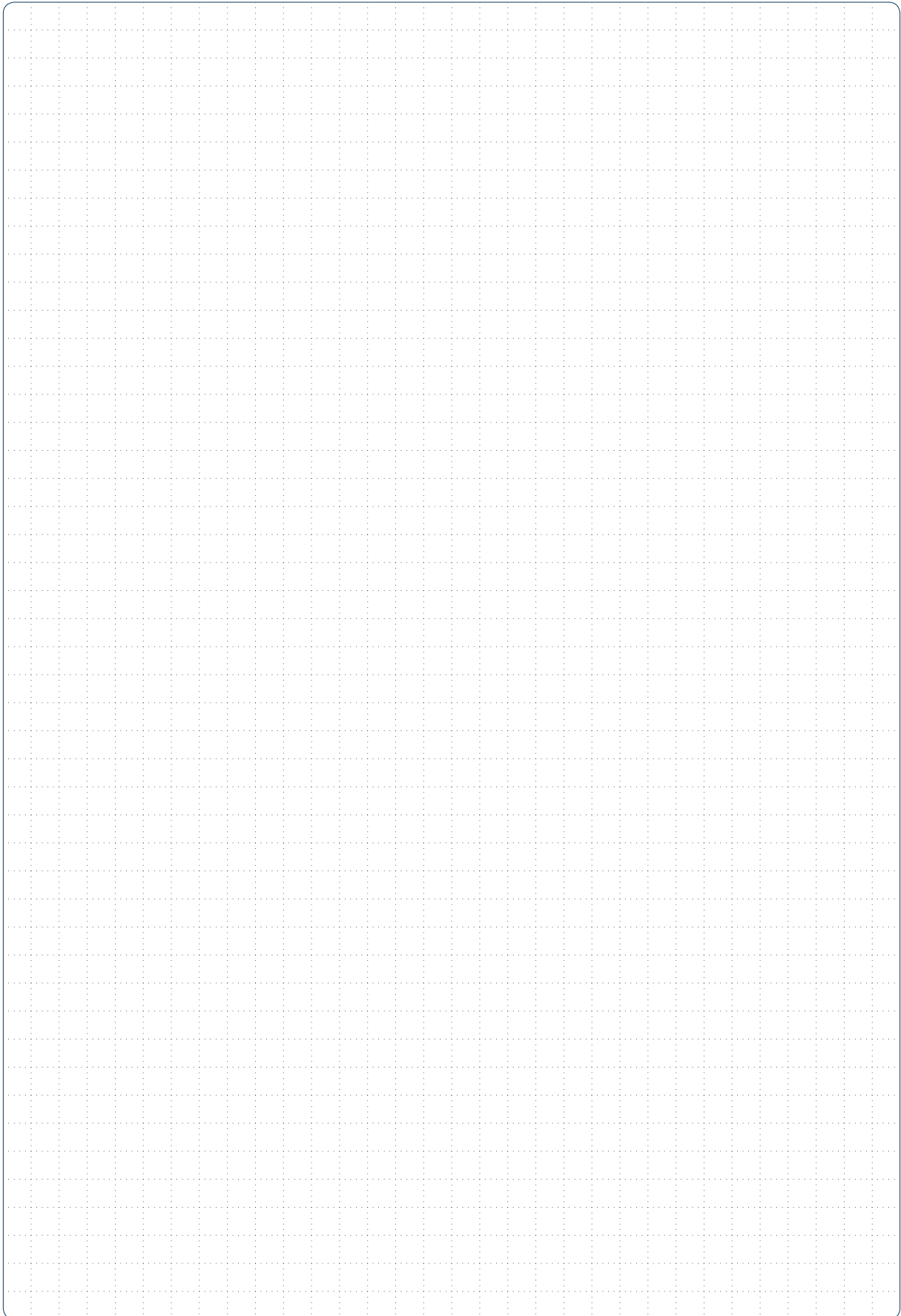
Machine design	Taper	Order number	Description	Dimensions (mm)									
				dm _t	D ₂₁	D ₂₂	l ₁	l ₃	l ₂₁	l ₂₂	l _{c1}		
Cat V	40	685470	HG-12/CAT40	12	43.5	22	56	36.95		18	40	●	
		685480	HG-12x100/CAT40	12	43.5	22	100	80.95		18	40	●	
		685490	HG-16/CAT40	16	48	26	86	66.95	19.5	28	50	○	
		685500	HG-16x125/CAT40	16	48	26	125	105.95	58.5	28	50	○	
		685510	HG-20/CAT40	20	52	30	88	68.95	21.95	30	52	●	
		685520	HG-20x125/CAT40	20	52	30	125	105.95	58.95	30	52	●	
		685530	HG-25/CAT40	25	59	35	93	73.95	24.05	34	56	●	
Cat V	50	685540	HG-12/CAT50	12	43.5	22	56	36.95		18	40	○	
		685550	HG-12x100/CAT50	12	43.5	22	100	80.95		18	40	○	
		685560	HG-16/CAT50	16	48	26	66	46.95		28	50	○	
		685570	HG-16x125/CAT50	16	48	26	125	105.95		28	50	○	
		685580	HG-20/CAT50	20	52	30	68	48.95		30	52	●	
		685590	HG-20x150/CAT50	20	52	30	150	130.95		30	52	●	
		685600	HG-25/CAT50	25	59	35	72	52.95		34	56	●	
		685610	HG-25x150/CAT50	25	59	35	150	130.95		34	56	●	
		685620	HG-32/CAT50	32	69.5	42	77	57.95		38	60	●	

● on stock ○ on request

Special solutions on request

l₁ = bracket length

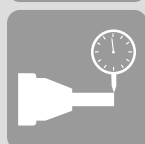
NOTES



Hydro-Grip

ETP HYDRO-GRIP® PENCIL

Pencil version

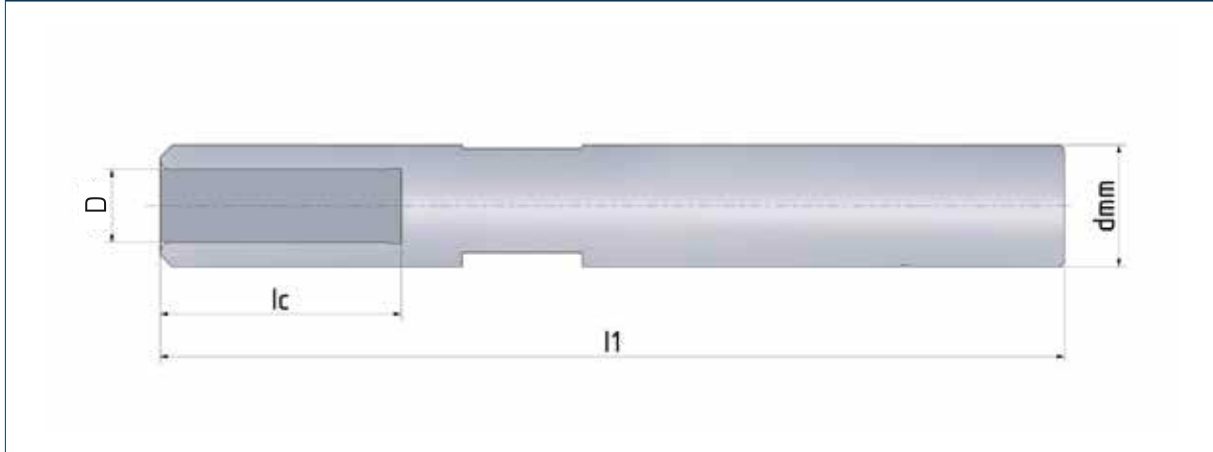


- For drilling to finishing
- Pencil design enables machining in deep cavities and complex components
- Special designs possibility
- High clamping force

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
< 0.007 mm at 2.5 x D at length $l_1 > 125$ mm
- Balancing grade: G 2.5 at 25 000 rpm for PSK C5 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Coolant through on all holders
- Drilling for data carriers - on request

Cylindrical shank

Cylindrical shank design



Technical specifications cylindrical shank

Order number	Description	Dimensions (mm)				
		d_{mm}	D	l_c	l_1	
336891	HG PENCIL-12/Rd20-150	20	12	40	150	●

● on stock ○ on request

Special solutions on request

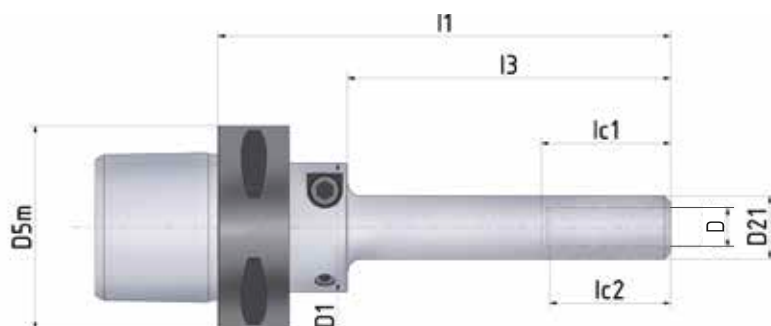
l_1 = bracket length

Hydro-Grip

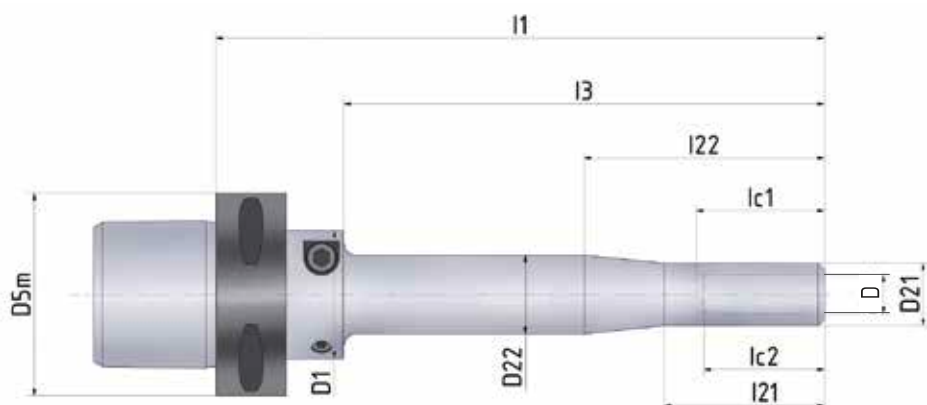
ETP HYDRO-GRIP® PENCIL

PSK form

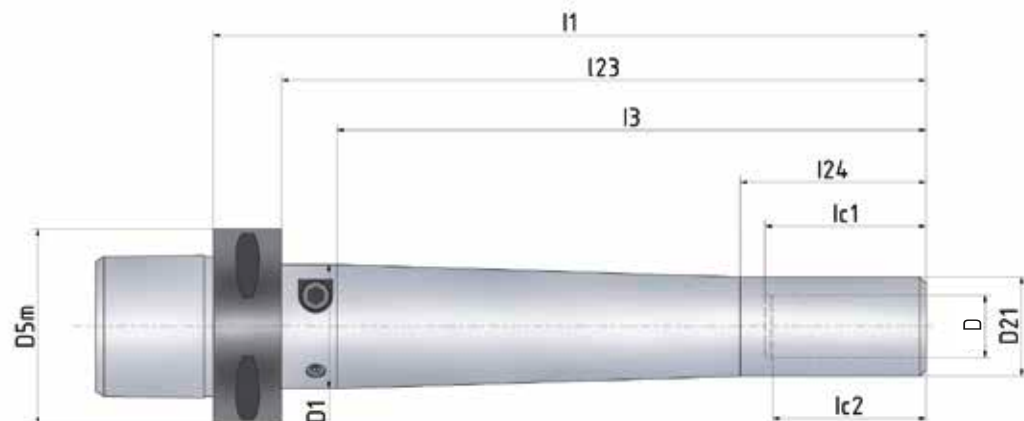
PSK form design 1



PSK form design 2



PSK form design 3



- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
< 0.007 mm at 2.5 x D at length $l_1 > 125$ mm
- Balancing grade: G 2.5 at 25 000 rpm for PSK C5 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Coolant through on all holders
- Drilling for data carriers - on request

Technical specification PSK form

Coupling size	Order number	Description	Dimensions (mm)														Design	
			D _{5m}	D	D ₁	D ₂₁	D ₂₂	l _{c1}	l _{c2}	l ₁	l ₃	l ₂₁	l ₂₂	l ₂₃	l ₂₄			
C4	683210	HG PENCIL-6x50/C4	40	6	40	12		40	30	88	50					1	●	
	683180	HG PENCIL-8x50/C4	40	8	40	14.5		40	30	88	50					1	○	
	683200	HG PENCIL-10x50/C4	40	10	40	17		40	37	88	50					1	○	
	683190	HG PENCIL-10x100/C4	40	10	40	17		40	37	138	100					1	○	
	683220	HG PENCIL-12x50/C4	40	12	40	19.5		40	37	88	50					1	●	
	683230	HG PENCIL-12x100/C4	40	12	40	19.5		40	37	138	100					1	●	
	683240	HG PENCIL-12x150/C4	40	12	40	19.5	24.5	40	37	188	150	50	75			2	●	
C5	683310	HG PENCIL-6x50/C5	50	6	40	12		40	30	88	50			68		1	●	
	683250	HG PENCIL-8x50/C5	50	8	40	14.5		40	30	88	50			68		1	○	
	683270	HG PENCIL-10x50/C5	50	10	40	17		40	37	88	50			68		1	○	
	683260	HG PENCIL-10x100/C5	50	10	40	19.5		40	37	138	100			118		1	○	
	683320	HG PENCIL-12x50/C5	50	12	40	19.5		40	37	88	50			68		1	●	
	683330	HG PENCIL-12x100/C5	50	12	40	19.5		40	37	138	100			118		1	●	
	683300	HG PENCIL-12x150/C5	50	12	40	19.5	24.5	40	37	188	150	50	75	168		2	●	
	683290	HG PENCIL-16x75/C5	50	16	40	26		50	47	113	75			93		1	○	
	683280	HG PENCIL-16x125/C5	50	16	40	26		50	47	163	125			143		1	○	
	683340	HG PENCIL-20x110/C5	50	20	40	32		52	49	148	110			128	60	3	●	
683350	HG PENCIL-20x190/C5	50	20	40	32		52	49	228	190			208	60	3	●		
C6	683430	HG PENCIL-6x50/C6	63	6	40	12		40	30	90	50			68		1	●	
	683360	HG PENCIL-8x50/C6	63	8	40	14.5		40	30	90	50			68		1	○	
	683380	HG PENCIL-10x50/C6	63	10	40	17		40	37	90	50			68		1	○	
	683370	HG PENCIL-10x100/C6	63	10	40	17		40	37	140	100			118		1	○	
	683440	HG PENCIL-12x50/C6	63	12	40	19.5		40	37	90	50			68		1	●	
	683450	HG PENCIL-12x100/C6	63	12	40	19.5		40	37	140	100			118		1	●	
	683410	HG PENCIL-12x150/C6	63	12	40	19.5	24.5	40	37	190	150	50	75	168		2	●	
	683400	HG PENCIL-16x75/C6	63	16	40	26		50	47	115	75			93		1	○	
	683390	HG PENCIL-16x125/C6	63	16	40	26		50	47	165	125			143		1	○	
	683460	HG PENCIL-20x110/C6	63	20	40	32		52	49	150	110			128	60	3	●	
683420	HG PENCIL-20x190/C6	63	20	40	32		52	49	230	190			208	60	3	●		
C8	683480	HG PENCIL-10x50/C8	80	10	40	17		40	37	102	50			72		1	○	
	683470	HG PENCIL-10x100/C8	80	10	40	17		40	37	152	100			122		1	○	
	683510	HG PENCIL-12x50/C8	80	12	40	19.5		40	37	102	50			72		1	●	
	683520	HG PENCIL-12x100/C8	80	12	40	19.5		40	37	152	100			122		1	●	
	683540	HG PENCIL-12x150/C8	80	12	40	19.5	24.5	40	37	202	150	50	75	172		2	●	
	683500	HG PENCIL-16x75/C8	80	16	40	26		50	47	127	75			97		1	○	
	683490	HG PENCIL-16x125/C8	80	16	40	26		50	47	177	125			147		1	○	
	683530	HG PENCIL-20x110/C8	80	20	40	32		52	49	162	110			132	60	3	●	
	683550	HG PENCIL-20x190/C8	80	20	40	32		52	49	242	190			212	60	3	●	

● on stock ○ on request

Special solutions on request

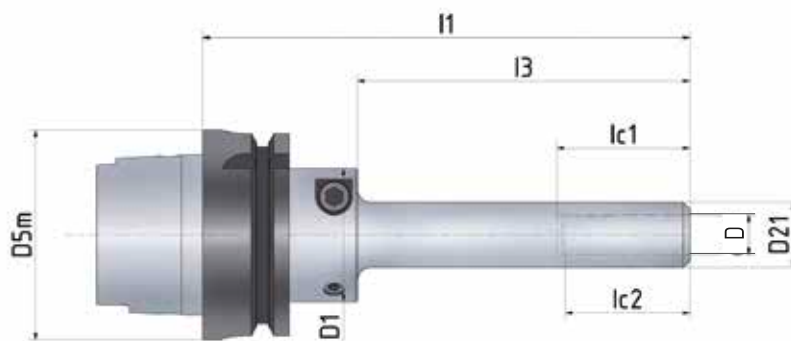
l_1 = bracket length

Hydro-Grip

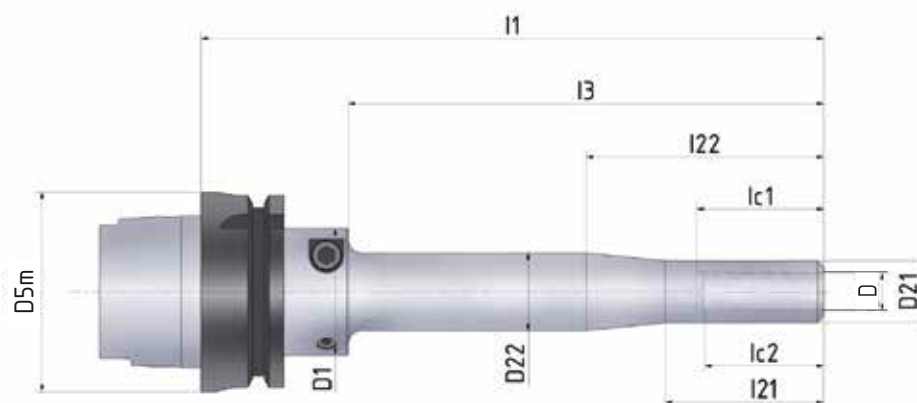
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HSK form

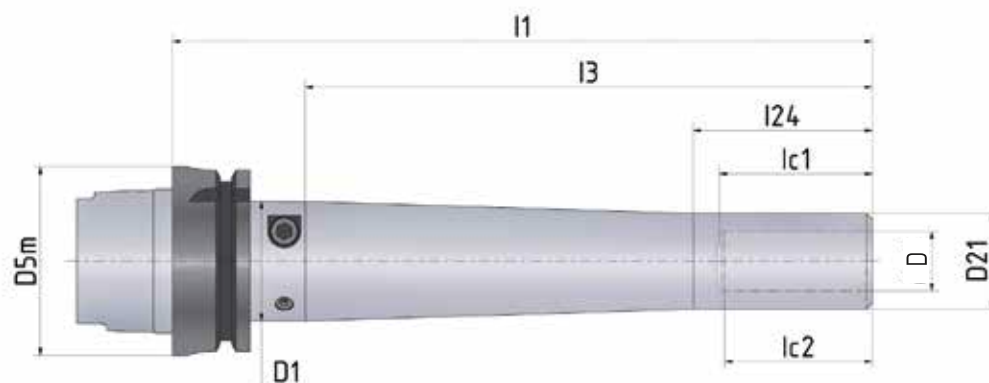
HSK form design 1



HSK form design 2



HSK form design 3



- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
< 0.007 mm at 2.5 x D at length $l_1 > 125$ mm
- Balancing grade: G 2.5 at 25 000 rpm for PSK C5 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Coolant through on all holders
- Drilling for data carriers - on request

Technical specification HSK form A/C

HSK size	Order number	Description	Dimensions (mm)												Design	
			D _{5m}	D	D ₁	D ₂₁	D ₂₂	l _{c1}	l _{c2}	l ₁	l ₃	l ₂₁	l ₂₂	l ₂₄		
63	683810	HG PENCIL-6x50/HSK63	63	6	40	12		40	30	96.5	50				1	●
	683740	HG PENCIL-8x50/HSK63	63	8	40	14.5		40	30	96.5	50				1	○
	683760	HG PENCIL-10x50/HSK63	63	10	40	17		40	37	96.5	50				1	○
	683750	HG PENCIL-10x100/HSK63	63	10	40	17		40	37	146.5	100				1	○
	683830	HG PENCIL-12x50/HSK63	63	12	40	19.5		40	37	96.5	50				1	●
	683840	HG PENCIL-12x100/HSK63	63	12	40	19.5		40	37	146.5	100				1	●
	683820	HG PENCIL-12x150/HSK63	63	12	40	19.5	24.5	40	37	196.5	150	50	75		2	●
	683780	HG PENCIL-16x75/HSK63	63	16	40	26		50	47	121.5	75				1	○
	683770	HG PENCIL-16x125/HSK63	63	16	40	26		50	47	171.5	125				1	○
	683790	HG PENCIL-20x110/HSK63	63	20	40	32		52	49	156.5	110				3	●
683800	HG PENCIL-20x190/HSK63	63	20	40	32		52	49	236.5	190				3	●	
100	683860	HG PENCIL-10x50/HSK100	100	10	40	17		40	37	117	50				1	○
	683850	HG PENCIL-10x100/HSK100	100	10	40	17		40	37	167	100				1	○
	683890	HG PENCIL-12x50/HSK100	100	12	40	19.5		40	37	117	50				1	●
	683920	HG PENCIL-12x100/HSK100	100	12	40	19.5		40	37	167	100				1	●
	683930	HG PENCIL-12x150/HSK100	100	12	40	19.5	24.5	40	37	217	150	50	75		2	●
	683880	HG PENCIL-16x75/HSK100	100	16	40	26		50	47	142	75			60	1	○
	683870	HG PENCIL-16x125/HSK100	100	16	40	26		50	47	192	125			60	1	○
	683900	HG PENCIL-20x110/HSK100	100	20	40	32		52	49	177	110				3	○
683910	HG PENCIL-20x190/HSK100	100	20	40	32		52	49	257	190				3	○	

● on stock ○ on request

Special solutions on request

l_1 = bracket length

Technical specification HSK form E

HSK size	Order number	Description	Dimensions (mm)												Design	
			D _{5m}	D	D ₁	D ₂₁	D ₂₂	l _{c1}	l _{c2}	l ₁	l ₃	l ₂₁	l ₂₂	l ₂₄		
50	683670	HG PENCIL-6x50/HSK50	50	6	40	12		40	30	94	50				1	○
	683680	HG PENCIL-8x50/HSK50	50	8	40	14.5		40	30	94	50				1	○
	683700	HG PENCIL-10x50/HSK50	50	10	40	17		40	37	94	50				1	○
	683690	HG PENCIL-10x100/HSK50	50	10	40	17		40	37	144	100				1	○
	683730	HG PENCIL-12x50/HSK50	50	12	40	19.5		40	37	94	50				1	○
	683710	HG PENCIL-12x100/HSK50	50	12	40	19.5		40	37	144	100				1	○
	683720	HG PENCIL-12x150/HSK50	50	12	40	19.5	24.5	40	37	194	150	50	75		2	○

● on stock ○ on request

Special solutions on request

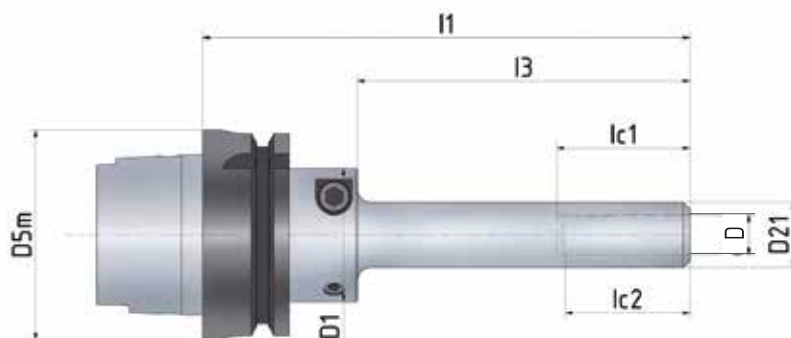
l_1 = bracket length

Hydro-Grip

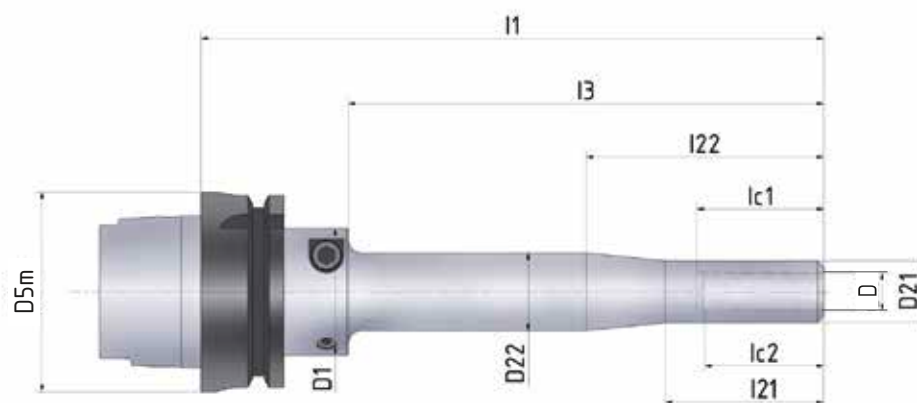
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HSK 63F

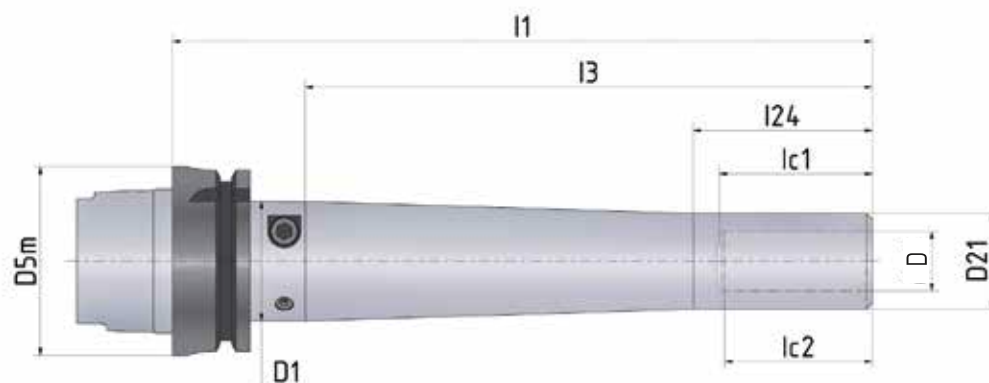
Design 1



Design 2



Design 3



- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
< 0.007 mm at 2.5 x D at length $l_1 > 125$ mm
- Balancing grade: G 2.5 at 25 000 rpm
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve

Technical specification HSK 63F

Order number	Description	Dimensions (mm)												Design	
		D _{5m}	D	D ₁	D ₂₁	D ₂₂	l _{c1}	l _{c2}	l ₁	l ₃	l ₂₁	l ₂₂	l ₂₄		
684400	HG PENCIL-6x50/HSK63F	63	6	40	12		40	30	94	50				1	●
684440	HG PENCIL-12x50/HSK63F	63	12	40	19.5		40	37	94	50				1	●
684450	HG PENCIL-12x100/HSK63F	63	12	40	19.5		40	37	144	100				1	●
684460	HG PENCIL-12x150/HSK63F	63	12	40	19.5	24.5	40	37	194	150	50	75		2	●
684490	HG PENCIL-20x110/HSK63F	63	20	40	32		52	49	154	110			60	3	●
684500	HG PENCIL-20x190/HSK63F	63	20	40	32		52	49	234	190			60	3	●

● on stock ○ on request

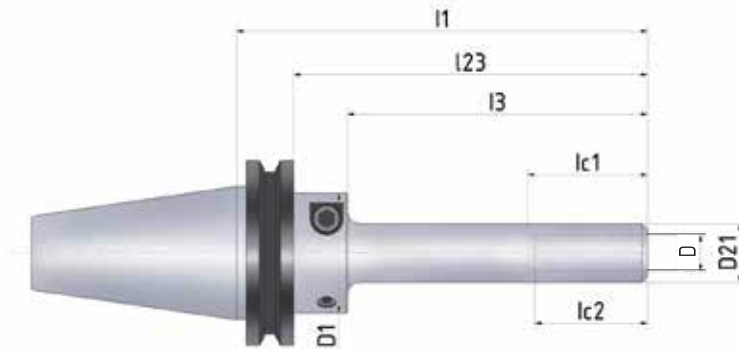
Special solutions on request

l_1 = bracket length

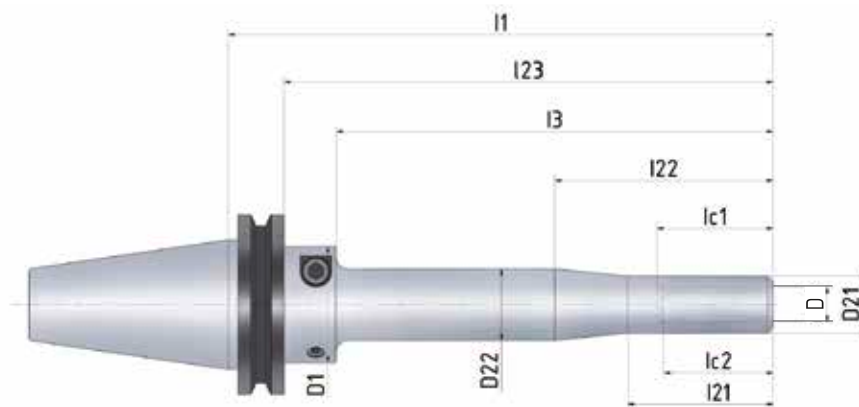
ETP HYDRO-GRIP® PENCIL

ISO form AD

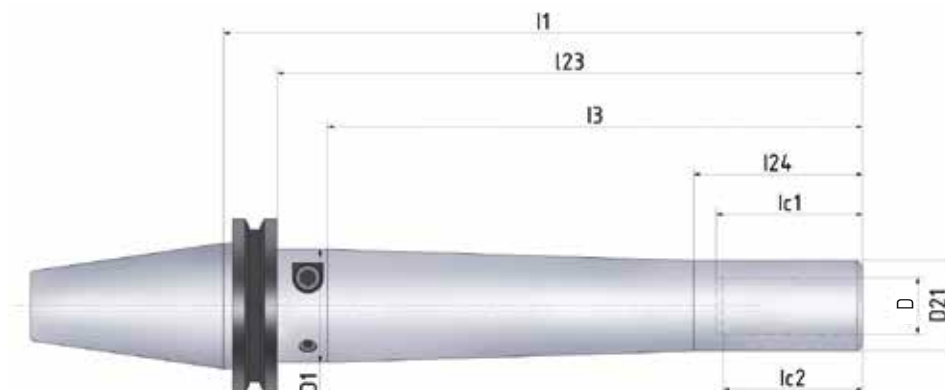
ISO form design 1



ISO form design 2



ISO form design 3



- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
< 0.007 mm at 2.5 x D at length $l_1 > 125$ mm
- Balancing grade: G 2.5 at 25 000 rpm for PSK C5 – C6, HSK 63 and ISO40
G 2.5 at 14 000 rpm for PSK C8, HSK 100 and ISO50
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Coolant through on all holders
- Drilling for data carriers - on request

Technical specification ISO form AD (A/B Coolant on all CAT40 and CAT50 holder)

Spindle design	Taper	Order number	Description	Dimensions (mm)												Design		
				D	D ₁	D ₂₁	D ₂₂	l _{c1}	l _{c2}	l ₁	l ₃	l ₂₁	l ₂₂	l ₂₃	l ₂₄			
ISO7388/1	ISO40	683940	HG PENCIL-6x50/ISO40	6	40	12		40	30	87	50			67.9		1	●	
		683950	HG PENCIL-8x50/ISO40	8	40	14.5		40	30	87	50			67.9		1	○	
		683970	HG PENCIL-10x50/ISO40	10	40	17		40	37	87	50			67.9		1	○	
		683960	HG PENCIL-10x100/ISO40	10	40	17		40	37	137	100			117.9		1	○	
		684000	HG PENCIL-12x50/ISO40	12	40	19.5		40	37	87	50			67.9		1	●	
		684010	HG PENCIL-12x100/ISO40	12	40	19.5		40	37	137	100			117.9		1	●	
		684030	HG PENCIL-12x150/ISO40	12	40	19.5	24.5	40	37	187	150	50	75	167.9		2	●	
		683990	HG PENCIL-16x75/ISO40	16	40	26		50	47	112	75			92.9		1	○	
		683980	HG PENCIL-16x125/ISO40	16	40	26		50	47	162	125			142.9		1	○	
		684020	HG PENCIL-20x110/ISO40	20	40	32		52	49	147	110			127.9	60	3	●	
	684040	HG PENCIL-20x190/ISO40	20	40	32		52	49	227	190			207.9	60	3	●		
	ISO50	684190	HG PENCIL-12x50/ISO50	12	40	19.5		40	37	87	50			67.9		1	●	
		684200	HG PENCIL-12x100/ISO50	12	40	19.5		40	37	137	100			117.9		1	●	
		684210	HG PENCIL-12x150/ISO50	12	40	19.5	24.5	40	37	187	150	50	75	167.9		2	●	
684240		HG PENCIL-20x110/ISO50	20	40	32		52	49	147	110			127.9	60	3	●		
684250		HG PENCIL-20x190/ISO50	20	40	32		52	49	227	190			207.9	60	3	●		
MAS-BT403	ISO30	683000	HG PENCIL-6x50/BT30	6	40	12		40	30	90	50			68		1	●	
		683010	HG PENCIL-8x50/BT30	8	40	14.5		40	30	90	50			68		1	○	
		683030	HG PENCIL-10x50/BT30	10	40	17		40	37	90	50			68		1	○	
		683020	HG PENCIL-10x100/BT30	10	40	17		40	37	140	100			118		1	○	
		683060	HG PENCIL-12x50/BT30	12	40	19.5		40	37	90	50			68		1	●	
		683040	HG PENCIL-12x100/BT30	12	40	19.5		40	37	140	100			118		1	●	
		683050	HG PENCIL-12x150/BT30	12	40	19.5	24.5	40	37	190	150	50	75	168		2	●	
		684360	HG PENCIL-20x110/BT30	20	40	32		52	49	150	110			128	60	3	○	
	684370	HG PENCIL-20x190/BT30	20	40	32		52	49	230	190			208	60	3	○		
	ISO40	683070	HG PENCIL-6x50/BT40	6	40	12		40	30	95	50			68		1	●	
		683080	HG PENCIL-8x50/BT40	8	40	14.5		40	30	95	50			68		1	○	
		683100	HG PENCIL-10x50/BT40	10	40	17		40	37	95	50			68		3	○	
		683090	HG PENCIL-10x100/BT40	10	40	17		40	37	145	100			118		3	○	
		683160	HG PENCIL-12x50/BT40	12	40	19.5		40	37	95	50			68		1	●	
		683170	HG PENCIL-12x100/BT40	12	40	19.5		40	37	145	100			118		1	●	
		683110	HG PENCIL-12x150/BT40	12	40	19.5	24.5	40	37	195	150	50	75	168		2	●	
		683130	HG PENCIL-16x75/BT40	16	40	26		50	47	120	75			93		1	○	
		683120	HG PENCIL-16x125/BT40	16	40	26		50	47	170	125			143		2	○	
		683150	HG PENCIL-20x110/BT40	20	40	32		52	49	155	110			128	60	3	●	
	683140	HG PENCIL-20x190/BT40	20	40	32		52	49	235	190			208	60	3	●		
	ISO50	684090	HG PENCIL-12x50/BT50	12	40	19.5		40	37	106	50			68		1	●	
		684100	HG PENCIL-12x100/BT50	12	40	19.5		40	37	156	100			118		1	●	
		684110	HG PENCIL-12x150/BT50	12	40	19.5	24.5	40	37	206	150	50	75	168		2	●	
		684140	HG PENCIL-20x110/BT50	20	40	32		52	49	166	110			128	60	3	●	
		684150	HG PENCIL-20x190/BT50	20	40	32		52	49	246	190			206.5	60	3	●	
	CAT V	ISO40	683560	HG PENCIL-6x50/CAT40	6	40	12		40	30	88	50			68.95		1	○
			683570	HG PENCIL-8x50/CAT40	8	40	14.5		40	30	88	50			68.95		1	○
683590			HG PENCIL-10x50/CAT40	10	40	17		40	37	88	50			68.95		1	○	
683580			HG PENCIL-10x100/CAT40	10	40	17		40	37	138	100			118.95		1	○	
683650			HG PENCIL-12x50/CAT40	12	40	19.5		40	37	88	50			68.95		1	●	
683600			HG PENCIL-12x100/CAT40	12	40	19.5		40	37	138	100			118.95		1	●	
683610			HG PENCIL-12x150/CAT40	12	40	19.5	24.5	40	37	188	150	50	75	168.95		2	●	
683630			HG PENCIL-16x75/CAT40	16	40	26		50	47	113	75			93.95		1	○	
683620			HG PENCIL-16x125/CAT40	16	40	26		50	47	163	125			143.95		1	○	
683660			HG PENCIL-20x110/CAT40	20	40	32		52	49	148	110			128.95	60	3	●	
683640		HG PENCIL-20x190/CAT40	20	40	32		52	49	228	190			208.95	60	3	●		
ISO50		684290	HG PENCIL-12x50/CAT50	12	40	19.5		40	37	88	50			68.95		1	●	
		684300	HG PENCIL-12x100/CAT50	12	40	19.5		40	37	138	100			118.95		1	●	
		684310	HG PENCIL-12x150/CAT50	12	40	19.5	24.5	40	37	188	150	50	75	168.95		2	●	
		684340	HG PENCIL-20x110/CAT50	20	40	32		52	49	148	110			128.95	60	3	●	
		684350	HG PENCIL-20x190/CAT50	20	40	32		52	49	228	190			208.95	60	3	●	

Hydro-Grip

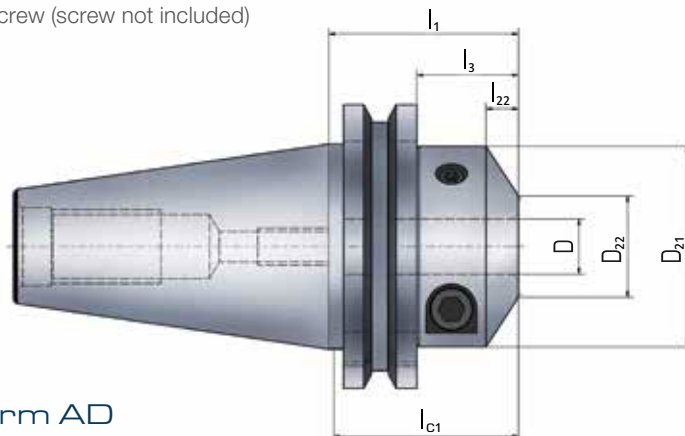
Special solutions on request ● on stock ○ on request

ETP ECOGRIP™



- For drilling and light machining
- Easy handling
- Short overhang

- Runout accuracy < 0.004 mm at 2.5 x D (max. 50 mm)
- Balancing grade: G 6.3 at 15 000 rpm
- Tool shank h6 or h7 can be used
- Can be used with reducing sleeve
- Center thread, M8, for axial length adjustment screw (screw not included)
- Coolant through on all holders
- Drilling for data carriers - on request



Technical specification ISO form AD
(A/B Coolant on all CAT40 and CAT50 holder)

Spindle	Taper	Order number	Description	Dimensions (mm)							
				D	D ₂₁	D ₂₂	l ₁	l ₃	l ₂₂	l _{c1}	
ISO 7388/1	ISO40	686660	ECOGRIP-12/ISO40	12	43.5	22	41.1	22	7	40	●
		686670	ECOGRIP-20/ISO40	20	52	30	58	38.9	7	52	●
	ISO50	686680	ECOGRIP-20/ISO50	20	52	30	41.1	22	7	52	●
		686690	ECOGRIP-32/ISO50	32	69.5	42	41.1	22	7	60	●
MAS BT403	ISO30	686600	ECOGRIP-12/ISO30	12	43.5	22	44	22	7	40	●
		686610	ECOGRIP-20/ISO30	20	52	30	51	22	7	52	●
	ISO40	686620	ECOGRIP-12/ISO40	12	43.5	22	49	22	7	40	●
		686630	ECOGRIP-20/ISO40	20	52	30	49	22	7	52	●
	ISO50	686640	ECOGRIP-20/ISO50	20	52	30	60	22	7	52	●
		686650	ECOGRIP-32/ISO50	32	69.5	42	60	22	7	60	●
CAT V	40	686780	ECOGRIP-12/CAT40	12	43.5	22	41.05	22	7	40	●
		686700	ECOGRIP-20/CAT40	20	52	30	63	22	7	52	●
	50	686710	ECOGRIP-20/CAT50	20	52	30	41.05	22	7	52	●
		686720	ECOGRIP-32/CAT50	32	69.5	42	41.05	22	7	60	●

● on stock ○ on request

Special solutions on request

l₁ = bracket length

ETP ECOGRIP™ ER

Hydraulic ER-toolholder



- Turning ER holders hydraulic
- Easy handling and precision
- Adjustability of run-out

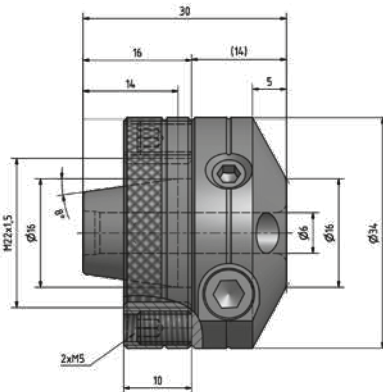
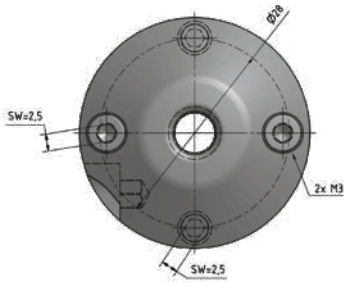
Instruction:

Simply replace the collet and nut from your existing ER holder with our ECOGRIP™ ER and you have a hydraulic holder ready for use.

Complete instructions available to download at www.etp.se

Hydraulic ER holder

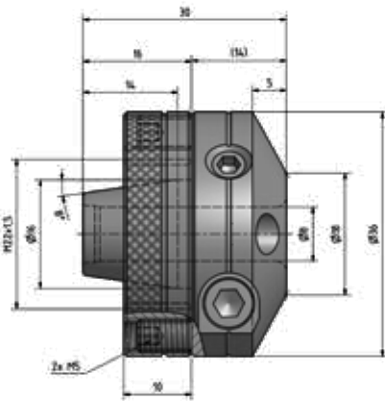
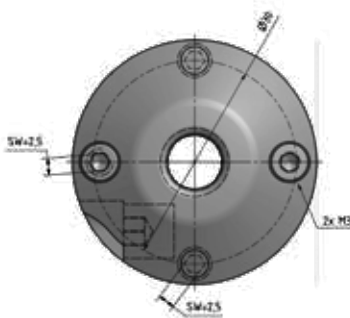
Threading fine



ETP ECOGRIP™ 6/ER16

Item description	Item no. (with nut)	thread
ECOGRIP-6/ER16*	686845	M22x1,5

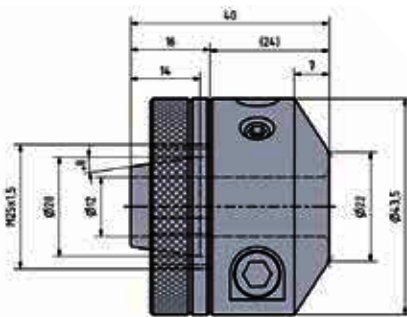
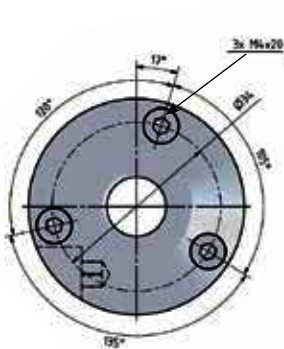
* ERM available on request



ETP ECOGRIP™ 8/ER16

Item description	Item no. (with nut)	thread
ECOGRIP-8/ER16*	704952	M22x1,5

* ERM available on request



ETP ECOGRIP™ 12/ER20

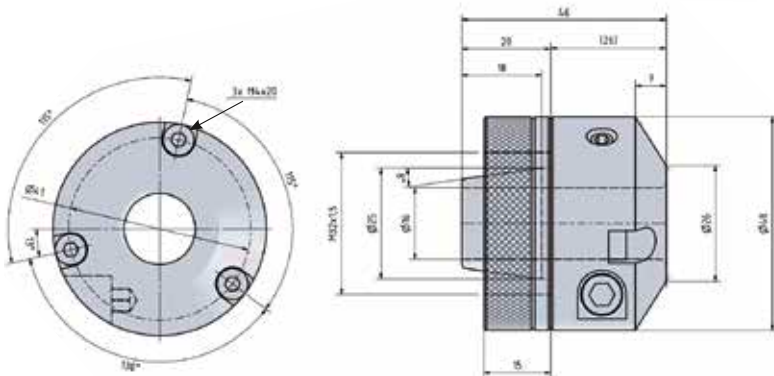
Item description	Item no. (with nut)	thread
ECOGRIP-12/ER20*	686855	M25x1,5

* ERM available on request

Hydro-Grip

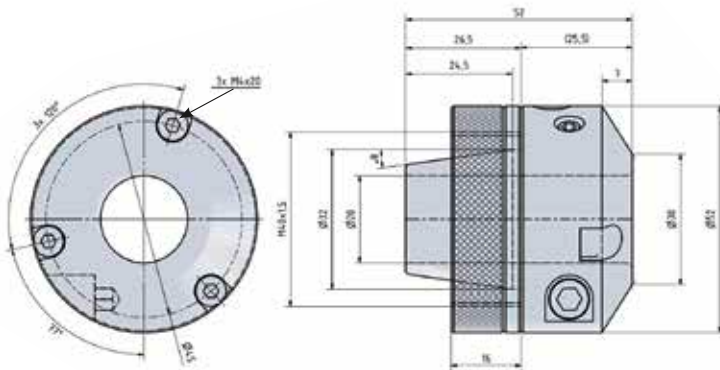
Hydraulic ER holder

Threading fine



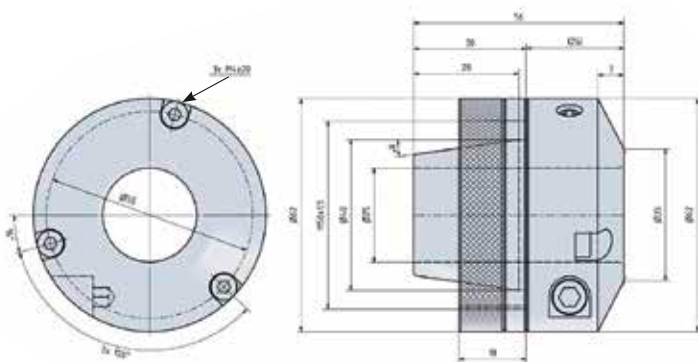
ETP ECOGRIP™ 16/ER25

Item description	Item no. (with nut)	thread
ECOGRIP-16/ER25*	686875	M3x1,5



ETP ECOGRIP™ 20/ER32

Item description	Item no. (with nut)	thread
ECOGRIP-20/ER20*	686865	M4x1,5

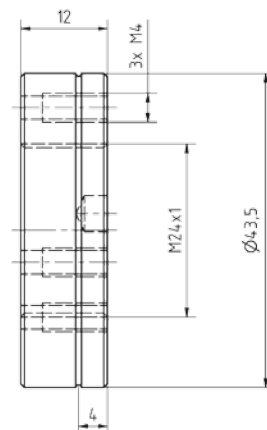
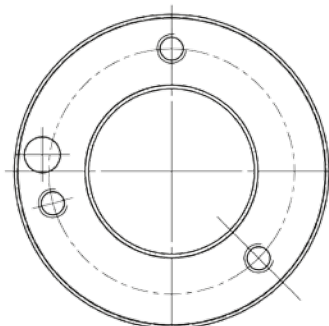
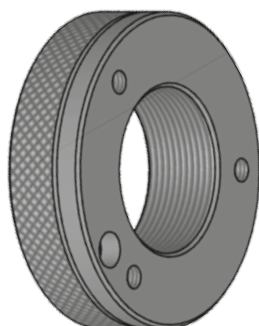


ETP ECOGRIP™ 25/ER40

Item description	Item no. (with nut)	thread
ECOGRIP-25/ER40*	686885	M5x1,5

* ERM available on request

Hydraulic ER holder Fine threaded ring

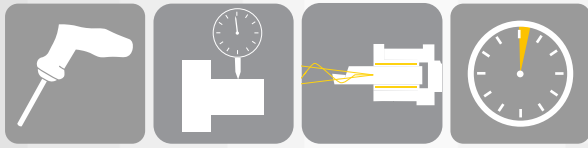


Picture shows threading M24x1

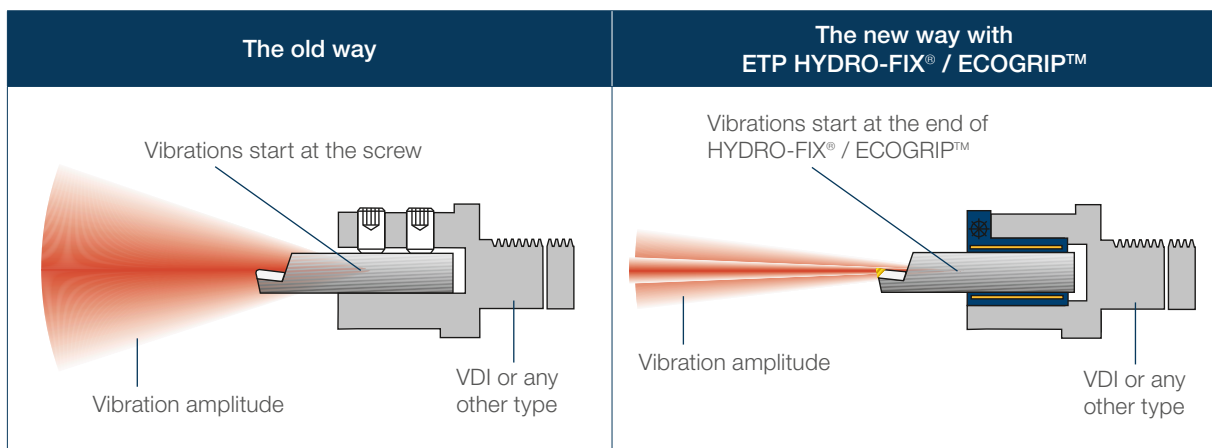
MAS-ID	Item no.	thread	holder
S00001343	GEW-M19x1-S1343	M19x1	ECOGRIP ER 16
S00001344	GEW-M24x1-S1344	M24x1	ECOGRIP ER 20
S00001345	GEW-M30x1-S1345	M30x1	ECOGRIP ER 25

ETP HYDRO-FIX® and ECOGRIP™

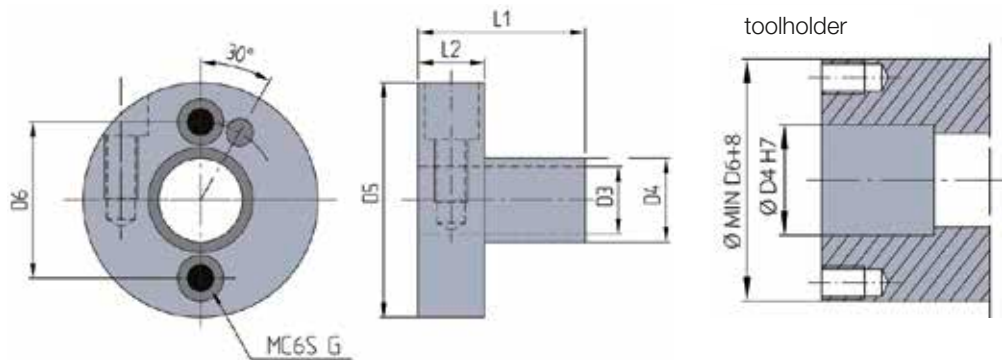
For boring bars and driven tools



HYDRO-FIX® and ECOGRIP™ hydraulic clamping system has successfully been used for over 15 years. The clamping system is excellent for boring bars for internal and external turning, driven toolholders and fine boring heads. With the one screw fix system it is quick and easy to handle. The clamping is uniform around the tool and therefore the tool life is improved. The clamping system absorbs and reduces vibration, improves surface quality and best of all increases your productivity.



- Runout accuracy < 0,006 mm
- D_3 = Toolbar (tolerance h7) or collet dimension to be used.
- D_4 = Toolholder bore tolerance H7
- We recommend the use of cylindrical toolbars.
For non-cylindrical toolbars always use a reducing sleeve to avoid plastic deformation of HYDRO-FIX®.



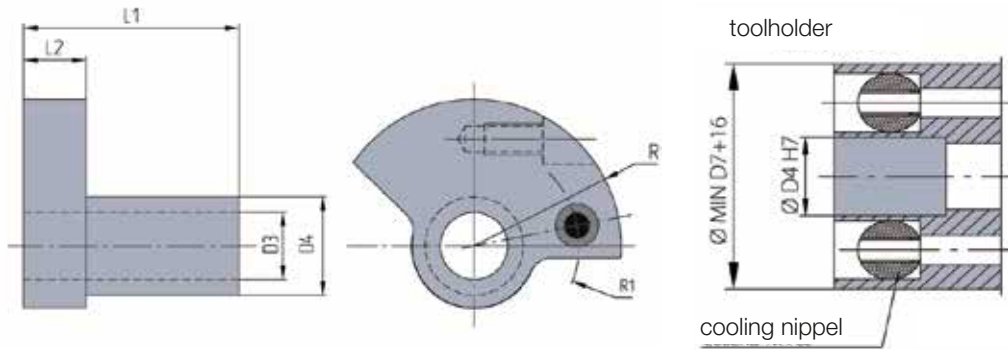
ETP HYDRO-FIX® NBC - for dynamic applications

Order number	Description	Dimensions (mm)						Screw DIN 915, 12.9		
		D_3	D_4	D_5	l_1	l_2	V°	G	D_6	
851210	NBC-12/16-40	12	16	57	40	16	60	M5	28	●
851610	NBC-16/20-46	16	20	59	46	16	30	M5	36	●
852010	NBC-20/25-46	20	25	59	46	16	30	M6	36	●
852510	NBC-25/32-50	25	32	67	50	16	30	M6	44	●
853210	NBC-32/40-55	32	40	75	55	16	30	M6	52	●
854010	NBC-40/50-62	40	50	94	62	18	30	M6	62	●
854210	NBC-42/50-62	42	50	94	62	18	30	M6	62	●
855010	NBC-50/60-70	50	60	100	70	18	30	M6	76	●
856010	NBC-60/80-100	60	80	117	100	20	30	2 x M6	98	●
858010	NBC-80/100-120	80	100	142	120	20	30	2 x M6	118	●

● on stock ○ on request
Special solutions on request
 l_1 = bracket length

Hydro-Grip

- Runout accuracy < 0,006 mm
- D_3 = Toolbar (tolerance h7) or collet dimension to be used.
- D_4 = Toolholder bore tolerance H7
- We recommend the use of cylindrical toolbars.
For non-cylindrical toolbars always use a reducing sleeve to avoid plastic deformation of HYDRO-FIX®.

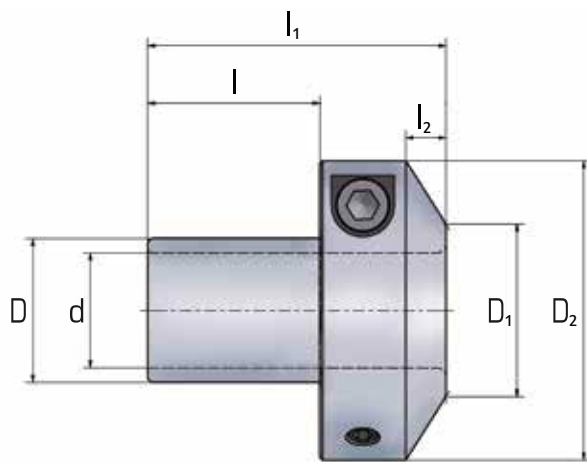


ETP HYDRO-FIX® NBE - for static applications

Order number	Description	Dimensions (mm)					Screw DIN 915, 12.9		
		D_3	D_4	R	l_1	l_2	G	R1	
852030	NBE-20/25-46	20	25	36	46	16	M5	18	●
852530	NBE-25/32-50	25	32	44	50	16	M5	22	●
853230	NBE-32/40-55	32	40	52	55	16	M6	26	●
854230	NBE-42/50-62	42	50	62	62	16	M6	31	●

● on stock ○ on request
Special solutions on request
 l_1 = bracket length

- Runout accuracy < 0,006 mm
- D_3 = Toolbar (tolerance h7) or collet dimension to be used.
- D_4 = Toolholder bore tolerance H7
- We recommend the use of cylindrical toolbars.
For non-cylindrical toolbars always use a reducing sleeve to avoid plastic deformation of HYDRO-FIX®.



ETP ECOGRIP™ - for static applications

Order number	Description	Dimensions (mm)							
		d	D	D_1	D_2	l	l_1	l_2	
686820	ECOGRIP-20/25-52	20	25	30	52	30	52	7	●
686825	ECOGRIP-25/32-56	25	32	35	59	34	56	7	●
686832	ECOGRIP-32/40-60	32	40	42	69.5	38	60	7	●

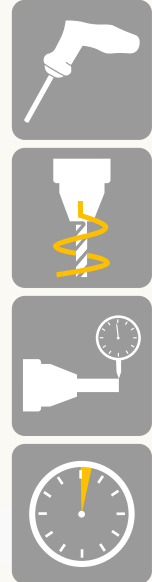
● on stock ○ on request

Special solutions on request

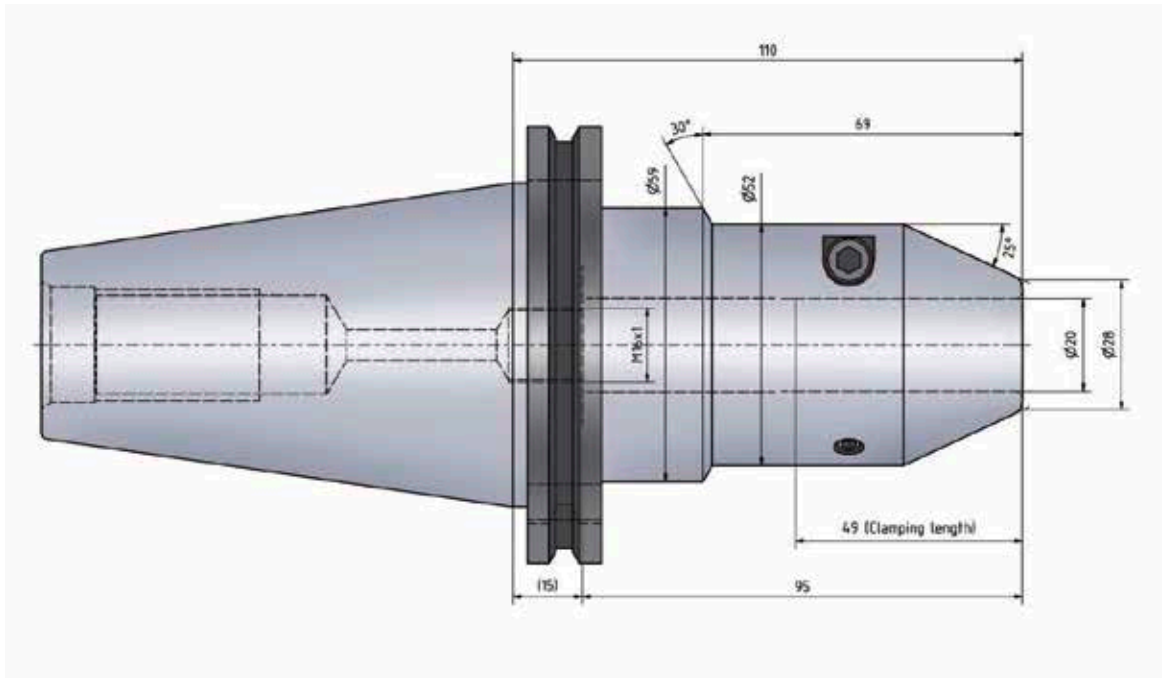
l_1 = bracket length

ETP HYDRO-GRIP®

Grinding holder



- High run-out accuracy $\leq 0,004$ mm.
- Easy handling and tool change.
- High clamping force.
- Vibration dampening.
- Flexibility in clamping range
- Use of reducing sleeves possible.



Technical specifications

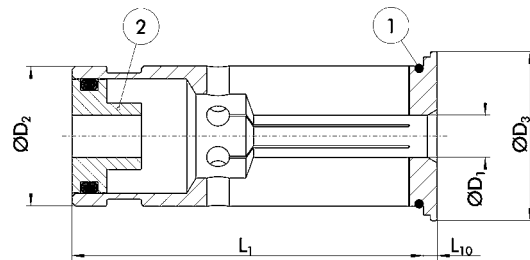
Order number	Description	
704378	ETP HGS-20x110/ISO50	●

● on stock ○ on request
 Special solutions on request
 l_1 = bracket length

- For more information and to receive your quote, contact ETP.
- Additional shank types available on request.

Accessories

MEX GD Reduction Sleeves - sealed



- ① O-ring seal
- ② Adjustable stop/Length adjustment

- Coolant for all holders

- Covenant closed

- Coolant seal

- High runout accuracy $< 3 \mu\text{m}$.

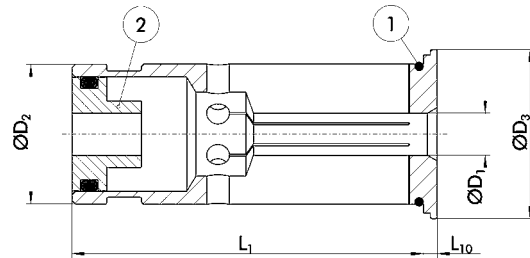
- Clamping different tool shank diameters. Four standard sizes: 12, 20, 25, 32 mm.

- The use of a reduction sleeve increases the transferable torque.

- Adjustable stop/Length adjustment

Accessories

MEX KM Reduction Sleeves - unsealed



- ① O-ring seal
- ② Adjustable stop/Length adjustment

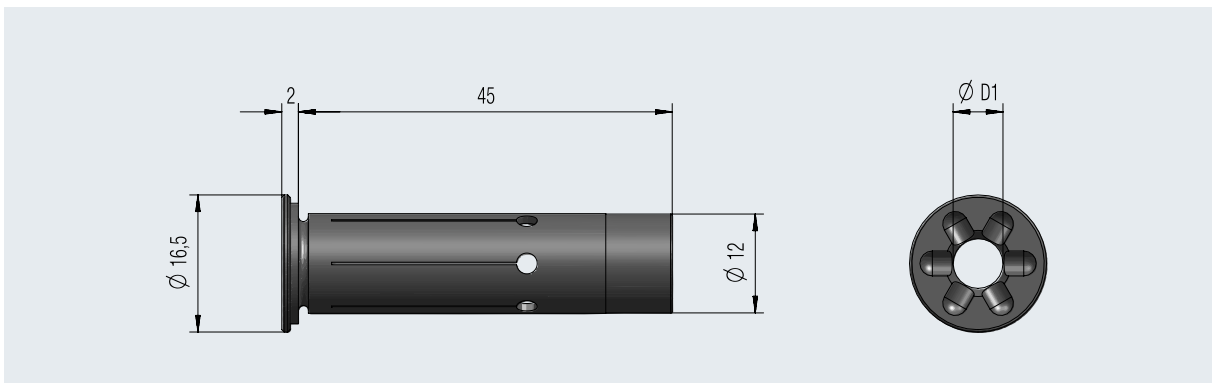
- With peripheral sealing
- Collar slitted
- Not coolant-tight
- High runout accuracy $< 3 \mu\text{m}$.
- Clamping different tool shank diameters.
- The use of a reduction sleeve increases the transferable torque.
- Adjustable stop/Length adjustment

Hydro-Grip

Accessories

Reduction sleeves D12

MEX tool holding fixture / clamp diameter D12



SEALED

MAS-ID	Order number	D1
M10 010 929	RED-MEX12-3-GD	3
M10 010 931	RED-MEX12-4-GD	4
M10 010 933	RED-MEX12-5-GD	5
S00 001 291	RED-MEX12-6-GD	6
M10 010 937	RED-MEX12-8-GD	8

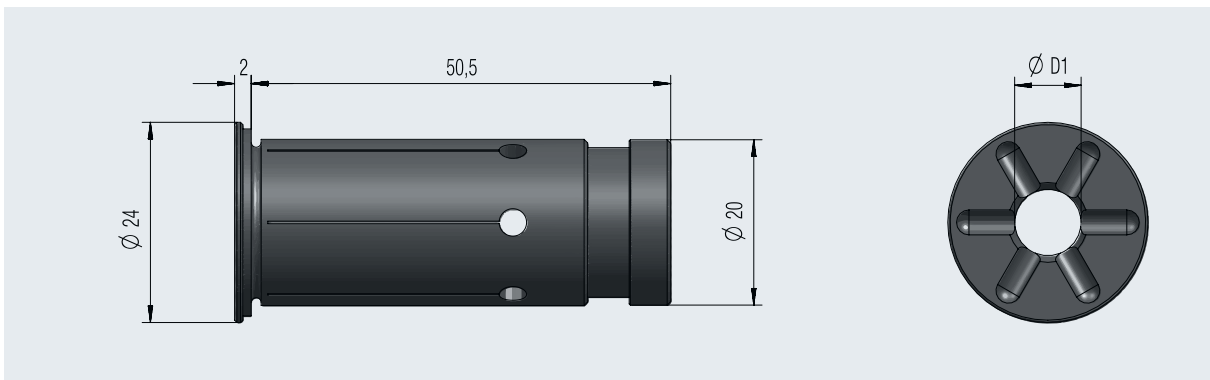
NOT SEALED

MAS-ID	Order number	D1
M10 010 930	RED-MEX12-3-KM	3
M10 010 932	RED-MEX12-4-KM	4
M10 010 934	RED-MEX12-5-KM	5
S00 001 290	RED-MEX12-6-KM	6
S00 001 270	RED-MEX12-8-KM	8

Accessories

Reduction sleeves D20

MEX tool holding fixture / clamp diameter D20



SEALED		
MAS-ID	Order number	D1
M10010953	RED-MEX20-3-GD	3
M10010955	RED-MEX20-4-GD	4
M10010957	RED-MEX20-5-GD	5
M10010959	RED-MEX20-6-GD	6
M10010961	RED-MEX20-7-GD	7
S00001136	RED-MEX20-8-GD	8
M10010927	RED-MEX20-9-GD	9
S00001504	RED-MEX20-10-GD	10
M10010941	RED-MEX20-11-GD	11
M10010943	RED-MEX20-12-GD	12
M10010945	RED-MEX20-13-GD	13
M10010947	RED-MEX20-14-GD	14
M10010949	RED-MEX20-15-GD	15
S00001505	RED-MEX20-16-GD	16

NOT SEALED		
MAS-ID	Order number	D1
M10010954	RED-MEX20-3-KM	3
M10010956	RED-MEX20-4-KM	4
M10010958	RED-MEX20-5-KM	5
M10010960	RED-MEX20-6-KM	6
M10010962	RED-MEX20-7-KM	7
M10010926	RED-MEX20-8-KM	8
M10010928	RED-MEX20-9-KM	9
M10010940	RED-MEX20-10-KM	10
M10010942	RED-MEX20-11-KM	11
M10010944	RED-MEX20-12-KM	12
M10010946	RED-MEX20-13-KM	13
M10010948	RED-MEX20-14-KM	14
M10010950	RED-MEX20-15-KM	15
M10010952	RED-MEX20-16-KM	16

Hydro-Grip

- Individual sizes between those specified and special-purpose solutions available on request.

Accessories

HYDRO-GRIP® Torque Wrench

Use torque wrench to ensure correct tightening independent on user. Should be used with all HYDRO-GRIP® holders.

Torque 6 Nm: HYDRO-GRIP®,
HYDRO-GRIP® PENCIL,
ECOGRIP™

Torque 10 Nm: HYDRO-GRIP® HD,
HYDRO-FIX®



Item no.	Description	Drehmoment
19050	HYDRO-GRIP® Torque wrench	6 Nm
19052	HYDRO-GRIP® HD Torque wrench	10 Nm
19053	HYDRO-FIX® Torque wrench	10 Nm

Digital Spirit Level

For easy toolbar alignment use the ETP Digital Spirit level.

Most NC operated turret lathes have a slide tilting 30 to 45 degrees. When the lathe is in operation the turret will move along its slide. Thus, if the turret is tilting 40 degrees, then the milled down reference surface of the tool bar must have the same tilt angle.

For this reason a quick and reliable method using the ETP Digital Spirit level equipped with a strong magnet, has been developed.



Item no.	Description
885010	ETP Digital Spirit Level

Technical information

Tightening torque

HYDRO-GRIP® torque wrench

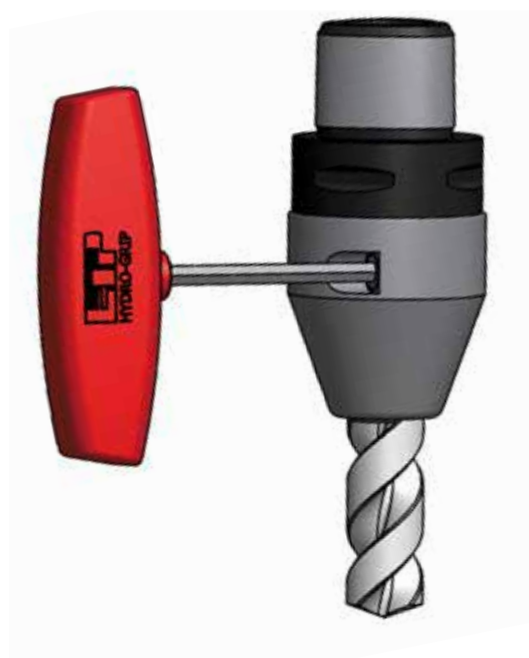
It is recommended to use an ETP HYDRO-GRIP® torque wrench to ensure correct tightening independent on user. Should be used with all HYDRO-GRIP® holders.



Recommended tightening torque	
HYDRO-GRIP® HD	10 Nm
HYDRO-GRIP®	6 Nm
HYDRO-GRIP® PENCIL	6 Nm
ECOGRIP™	6 Nm

Always use a torque wrench for best chuck performance and repeatability.

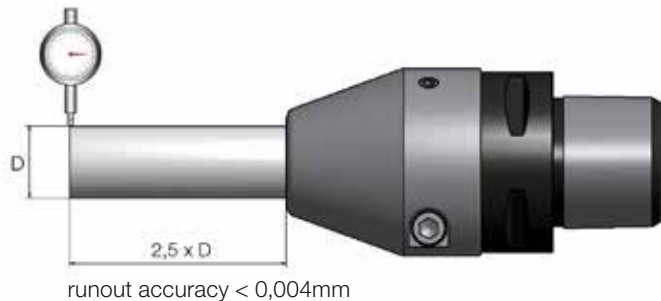
- **Torque too high** may cause screw damage.
- **Torque too low** may cause tool vibration, tool movement, affects surface and tool accuracy, balancing.



Hydro-Grip

Runout

- All ETP holders are delivered with a high runout accuracy at time of delivery.
- The runout value is measured at $2.5 \times D$.
- High runout accuracy guarantees good surface quality and increases tool life.



Balancing

- All holders are dynamically balanced.
- See corresponding product pages for details.

Handling

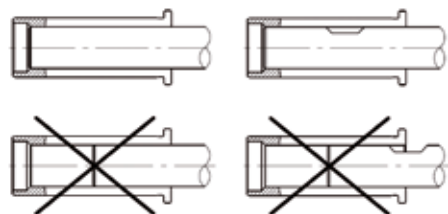
ETP HYDRO-GRIP® and ECOGRIP™ are high precision toolholders and should be handled with care for optimal performance.

- Before inserting tool, check for damages on tool and holder.
- Tools should be of correct dimension and tolerance (h6 or h7), and cleaned
- Do not use force to insert tool, it should easily slide in position
- Mount the tool by tightening the pressure screw to the recommended tightening torque, marked on the holder. Use a fixed torque wrench.
- When stored lubricate the holder with a thin oil for corrosion resistance.
- Do not use HYDRO-GRIP®/ECOGRIP™ at working temperatures above 85 degrees C / 185 degrees F.
- Do not use HYDRO-GRIP® HD at working temperatures above 70 degrees C / 158 degrees F. (This may increase the pressure in the holder and influence it negatively)

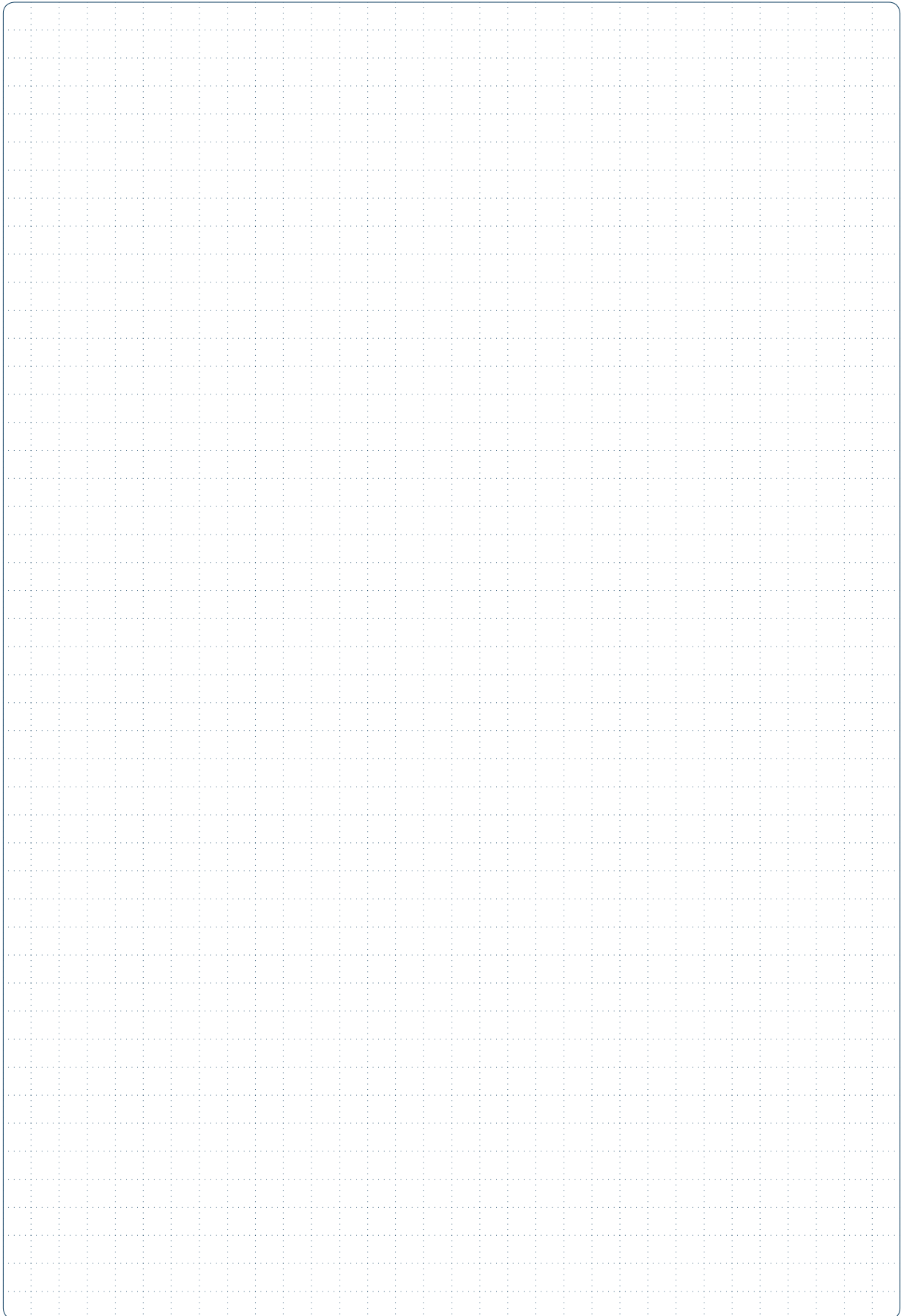


Reducing sleeves

- Improper assembly can damage the concentricity of the reduction sleeve.
- Insert tools the full length of the reduction sleeve.
- Tool shank h6 or h7 can be used.
- Do not clamp reduction sleeve without a tool.
- Reduction Sleeve will be damaged.



NOTES

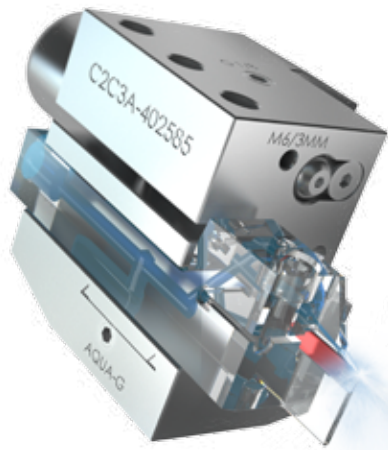


Hydro-Grip

AQUA-G®

VDI Tool holders for turning and cutting-off tools with internal cooling





AQUA-G®

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AQUA-G®

Benefits and Features

- direct coolant transfer by the VDI holder

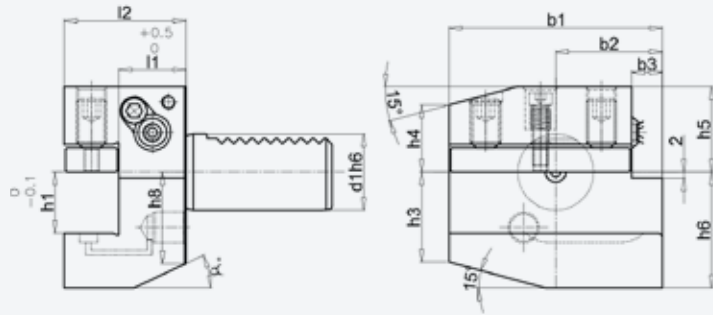
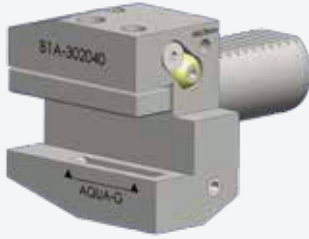
- no disturbing connections on the holder

- fast tool change

- up to 80 bar coolant pressure suitable

- ideally suited for MAS - PSI © turn and GND-lancing system

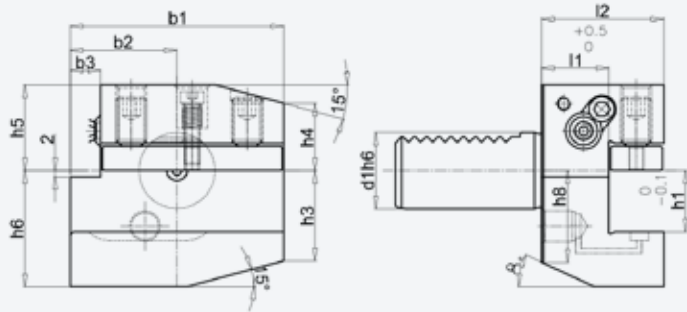
B1A Radial right short



- Type AQUA-G® for tools with internal cooling
- single-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar

Order no.	Description	d1	h1	l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B1A-161234	VDI 16 B1A - 16 x 12 x 34	16	12	34	42	23	5	23	15	15	20	22	19	30°	93Z3-8
92B1A-201640	VDI 20 B1A - 20 x 16 x 40	20	16	40	55	30	7	26	19	19	25	30	23	30°	93Z3-10
92B1A-252040	VDI 25 B1A - 25 x 20 x 40	25	20	40	70	35	10	22	29,5	22	31,5	38,5	30	25°	93Z3-12
92B1A-302040	VDI 30 B1A - 30 x 20 x 40	30	20	40	70	35	10	22	26	22	28	38	30	25°	93Z3-12
92B1A-402544	VDI 40 B1A - 40 x 25 x 44	40	25	44	85	42,5	12,5	22	35	30	32,5	48	-	-	93Z3-14
92B1A-502544	VDI 50 B1A - 50 x 25 x 44	50	25	44	85	42,5	12,5	22	35	30	32,5	48	-	-	93Z3-14

B2A Radial left short

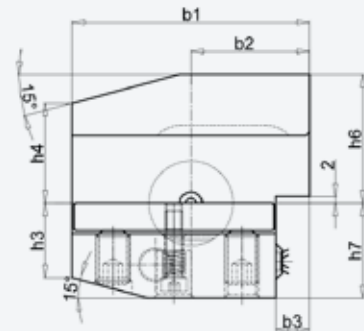
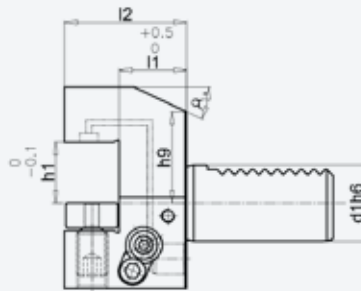
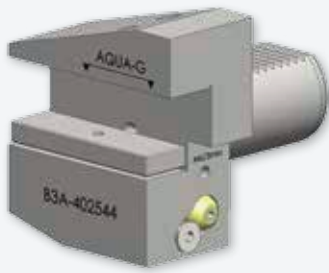


- Type AQUA-G® for tools with internal cooling
- single-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar

Order no.	Description	d1	h1	l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B2A-161234	VDI 16 B2A - 16 x 12x 34	16	12	34	42	23	5	23	15	15	20	22	19	30°	93Z3-8
92B2A-201640	VDI 20 B2A - 20 x 16 x 40	20	16	40	55	30	7	26	19	19	25	30	23	30°	93Z3-10
92B2A-252040	VDI 25 B2A - 25 x 20 x 40	25	20	40	70	35	10	22	29,5	22	31,5	38,5	30	25°	93Z3-10
92B2A-302040	VDI 30 B2A - 30 x 20 x 40	30	20	40	70	35	10	22	26	22	28	38	30	25°	93Z3-12
92B2A-402544	VDI 40 B2A - 40 x 25 x 44	40	25	44	85	42,5	12,5	22	35	30	32,5	48	-	-	93Z3-12
92B2A-502544	VDI 50 B2A - 50 x 25 x 44	50	25	44	85	42,5	12,5	22	35	30	32,5	48	-	-	93Z3-12

AQUA-G®

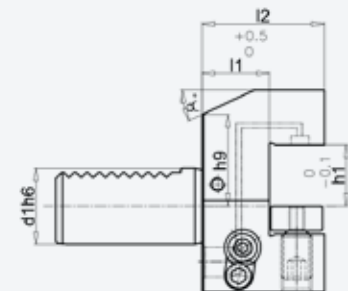
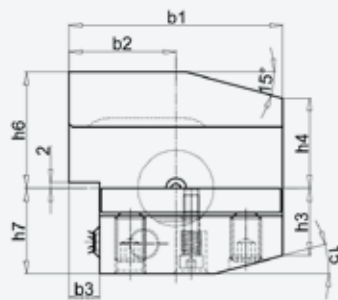
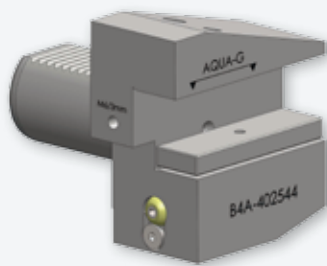
B3A Radial overhead right short



- Type AQUA-G® for tools with internal cooling
- single-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar

Order no.	Description	d1	h1	l2	b1	b2	b3	l1	h3	h4	h6	h7	h9	α	Ball nozzle
92B3A-161234	VDI 16 B3A - 16 x 12 x 34	42	23	5	23	15	15	22	20	19	30°	93Z3-8			
92B3A-201640	VDI 20 B3A - 20 x 16 x 40	55	30	7	26	19	19	30	25	23	30°	93Z3-10			
92B3A-302040	VDI 30 B3A - 30 x 20 x 40	70	35	10	22	26	22	38	35	28	25°	93Z3-12			
92B3A-402544	VDI 40 B3A - 40 x 25 x 44	85	42,5	12,5	22	35	30	48	42,5	-	-	93Z3-14			
92B3A-502544	VDI 50 B3A - 50 x 25 x 44	85	42,5	12,5	22	35	30	48	42,5	-	-	93Z3-14			

B4A Radial overhead left short



- Type AQUA-G® for tools with internal cooling
- single-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar

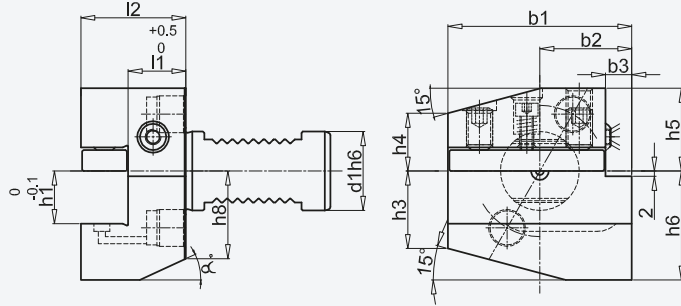
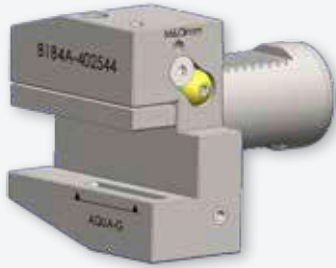
Order no.	Description	d1	h1	l2	b1	b2	b3	l1	h3	h4	h5	h6	h9	α	Ball nozzle
92B4A-161234	VDI 16 B4A - 16 x 12 x 34	42	23	5	23	15	15	22	20	19	30°	93Z3-8			
92B4A-201640	VDI 20 B4A - 20 x 16 x 40	55	30	7	26	19	19	30	25	23	30°	93Z3-10			
92B4A-302040	VDI 30 B4A - 30 x 20 x 40	70	35	10	22	26	22	38	35	28	25°	93Z3-12			
92B4A-402544	VDI 40 B4A - 40 x 25 x 44	85	42,5	12,5	22	35	30	48	42,5	-	-	93Z3-12			
92B4A-502544	VDI 50 B4A - 50 x 25 x 44	85	42,5	12,5	22	35	30	48	42,5	-	-	93Z3-12			

VDI holders | DIN 69880 VDI

1 holder
2 variants

B1A Radial right short

B4A Radial overhead left short



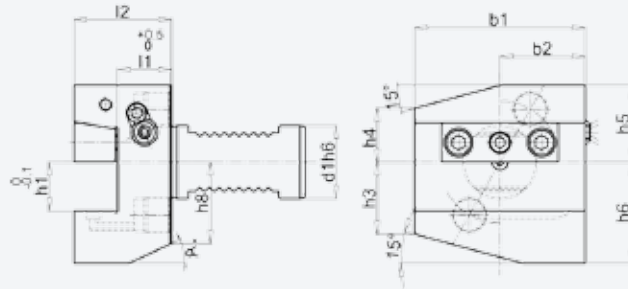
- Type AQUA-G® for tools with internal cooling
- double-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar

Order no.	Description	d1 x h1 x l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B1B4A-302040	VDI 30 B1B4A	- 30 x 20 x 40	70	35	10	22	29,5	22	31,5	41,5	30	25°	93Z3-12
92B1B4A-402544	VDI 40 B1B4A	- 40 x 25 x 44	85	42,5	12,5	22	35	30	38	48	-	-	93Z3-14
92B1B4A-502544	VDI 50 B1B4A	- 50 x 25 x 44	85	42,5	12,5	22	43	30	43	48	-	-	93Z3-14

1 holder
2 variants

B1AK Radial right short

B4AK Radial overhead left short



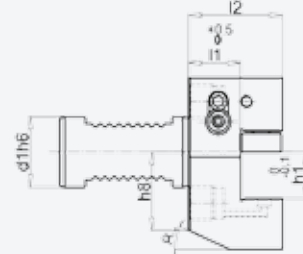
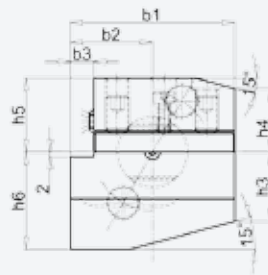
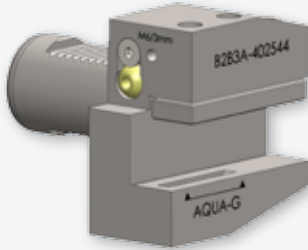
- Type AQUA-G® for tools with internal cooling
- double-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar
- clamping wedge tensioning
- increased clamping force
- lateral operation

Order no.	Description	d1 x h1 x l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B1B4AK-302040	VDI 30 B1B4AK	- 30 x 20 x 40	70	35	-	22	29,5	22	31,5	41,5	30	25°	93Z3-12
92B1B4AK-402544	VDI 40 B1B4AK	- 40 x 25 x 44	85	42,5	-	22	35	30	38	48	-	-	93Z3-14
92B1B4AK-502544	VDI 50 B1B4AK	- 50 x 25 x 44	85	42,5	-	22	43	30	43	48	-	-	93Z3-14

AQUA-G®

1 holder
2 variants

B2A Radial left short B3A Radial overhead right short

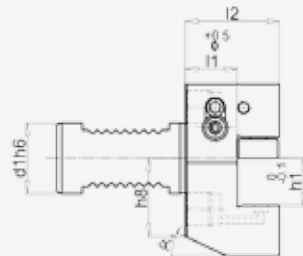
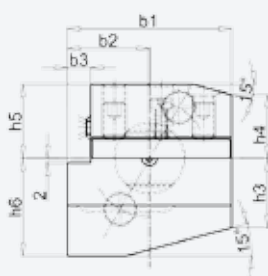


- Type AQUA-G® for tools with internal cooling
- double-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar

Order no.	Description	d1	x	h1	x	l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B2B3A-302040	VDI 30 B2B3A - 30 x 20 x 40	70	35	10	22	29,5	27	31,5	41,5	30	25°	93Z3-12					
92B2B3A-402544	VDI 40 B2B3A - 40 x 25 x 44	85	42,5	12,5	22	35	30	38	48	-	-	93Z3-14					
92B2B3A-502544	VDI 50 B2B3A - 50 x 25 x 44	85	42,5	12,5	22	35	38	43	48	-	-	93Z3-14					

1 holder
2 variants

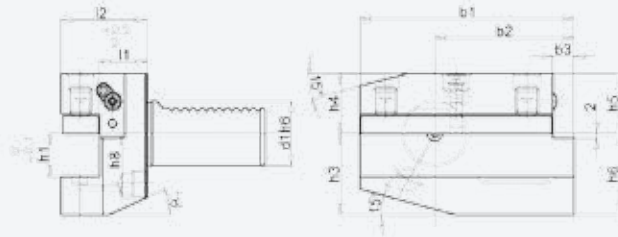
B2AK Radial left short B3AK Radial overhead right short



- Type AQUA-G® for tools with internal cooling
- double-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar
- clamping wedge tensioning
- increased clamping force
- lateral operation

Order no.	Description	d1	x	h1	x	l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B2B3AK-302040	VDI 30 B2B3AK - 30 x 20 x 40	70	35	-	22	29,5	27	31,5	41,5	30	25°	93Z3-12					
92B2B3AK-402544	VDI 40 B2B3AK - 40 x 25 x 44	85	42,5	-	22	35	30	38	48	-	-	93Z3-14					
92B2B3AK-502544	VDI 50 B2B3AK - 50 x 25 x 44	85	42,5	-	22	35	38	43	48	-	-	93Z3-14					

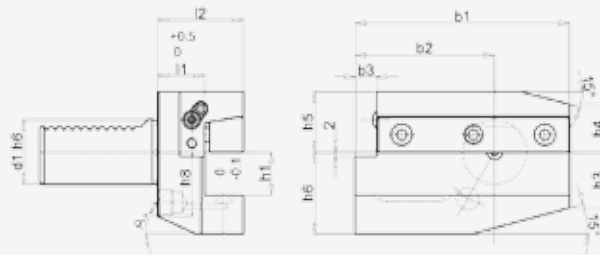
B5AK Radial right long



- Type AQUA-G® for tools with internal cooling
- single-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar
- clamping wedge tensioning
- increased clamping force
- lateral operation, long version
- increased service life, more stable operations

Order no.	Description	d1 x h1 x l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B5AK-302040	VDI 30 B5AK - 30 x 20 x 40		100	65	10	22	26	22	28	38	30	25°	93Z3-10
92B5AK-402544	VDI 40 B5AK - 40 x 25 x 44		118	75,5	12,5	22	35	30	32,5	48	-	-	93Z3-10
92B5AK-503255	VDI 50 B5AK - 50 x 32 x 55		130	80	16	30	42	35	35	60	-	-	93Z3-14
92B5AK-603260	VDI 60 B5AK - 60 x 32 x 60		145	82,5	16	30	46	42,5	42,5	62,5	-	-	93Z3-14

B6AK Radial left long

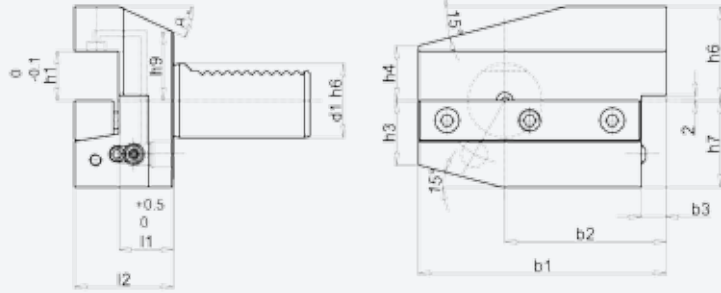


- Type AQUA-G® for tools with internal cooling
- single-toothed
- connection for external cooling G1/8"
- coolant proof to 80 bar
- clamping wedge tensioning
- increased clamping force
- lateral operation, long version
- increased service life, more stable operations

Order no.	Description	d1 x h1 x l2	b1	b2	b3	l1	h3	h4	h5	h6	h8	α	Ball nozzle
92B6AK-302040	VDI 30 B6AK - 30 x 20 x 40		100	65	10	22	26	22	28	38	30	25°	93Z3-10
92B6AK-402544	VDI 40 B6AK - 40 x 25 x 44		118	75,5	12,5	22	35	30	32,5	48	-	-	93Z3-10
92B6AK-503255	VDI 50 B6AK - 50 x 32 x 55		130	80	16	30	42	35	35	60	-	-	93Z3-14
92B6AK-603260	VDI 60 B6AK - 60 x 32 x 60		145	82,5	16	30	46	42,5	42,5	62,5	-	-	93Z3-14

AQUA-G®

B7AK Radial overhead right long

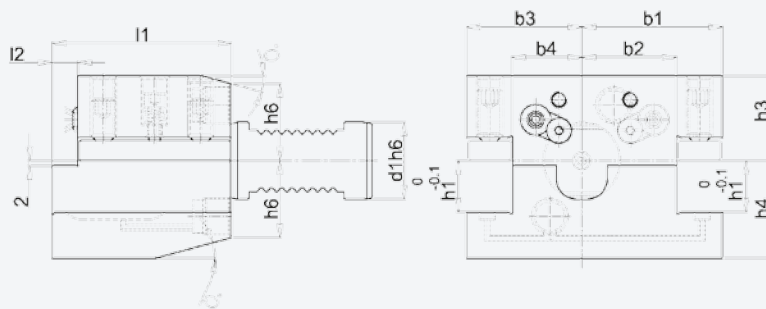


- Type AQUA-[®] for tools with internal cooling
- single-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar
- Clamping wedge tensioning
- increased clamping force
- lateral operation
- long version
- increased service life, more stable operation

Order no.	Description	d1 x h1 x l2	b1	b2	b3	l1	h3	h4	h6	h7	h9	α	Ball nozzle
92B7AK-302040	VDI 30 B7AK - 30 x 20 x 40		100	65	10	22	26	22	38	35	28	25°	93Z3-10
92B7AK-402544	VDI 40 B7AK - 40 x 25 x 44		118	75,5	12,5	22	35	30	48	42,5	-	-	93Z3-12
92B7AK-503255	VDI 50 B7AK - 50 x 32 x 55		130	80	16	30	42	35	60	50	-	-	93Z3-14
92B7AK-603260	VDI 60 B7AK - 60 x 32 x 60		145	82,5	16	30	46	42,5	62,5	62,5	-	-	93Z3-14

1 holder
2 variants

D1 A Axial double D2A Axial double overhead



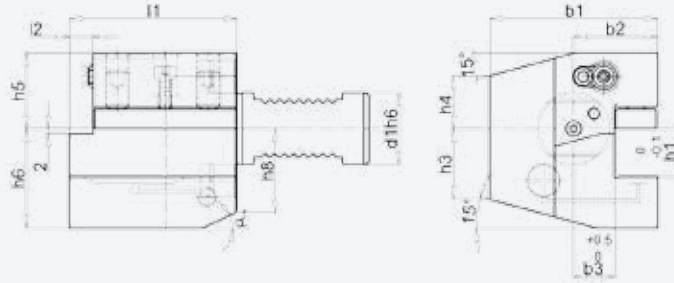
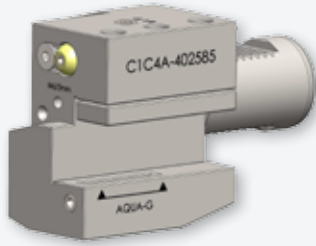
- Type AQUA-[®] for tools with internal cooling
- double-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar
- for machining on main spindle and counter spindle

Order no.	Description	d1 x h1 x l1	b1	b2	b3	b4	h3	h4	h6	l2	α	Ball nozzle
92D1D2A-302070	VDI 30 D1D2A - 30 x 20 x 70		55	37	45	27	33	38	30	10	15°	93Z3-12
92D1D2A-402585	VDI 40 D1D2A - 40 x 25 x 85		65	43	65	43	43,5	48	37	12,5	15°	93Z3-14

1 holder
2 variants

C1A Axial right short

C4A Axial overhead left short



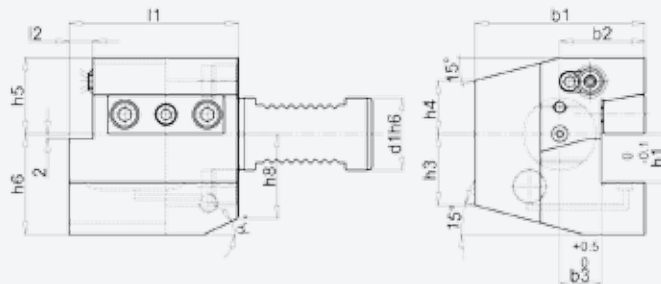
- Type AQUA-[®] for tools with internal cooling
- double-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar

Order no.	Description	d1xh1x1	b1	b2	b3	l2	h3	h4	h5	h6	h8	α	Ball nozzle
92C2C3A-161244	VDI 16	C2C3A - 16 x 12 x 44	43	24	13	5	15	15	20	22	19	30°	93Z3-8
92C2C3A-201655	VDI 20	C2C3A - 20 x 16 x 55	58	33	19	7	19	19	25	30	23	30°	93Z3-10
92C2C3A-252055	VDI 25	C2C3A - 25 x 20 x 55	62	37	19	7	38	28	30	36	26	15°	93Z3-12
92C2C3A-302070	VDI 30	C2C3A - 30 x 20 x 70	76	41	23	10	26	26	32	38	30	25°	93Z3-12
92C2C3A-402585	VDI 40	C2C3A - 40 x 25 x 85	90	47,5	25,5	12,5	35	30	38	48	40	15°	93Z3-14
92C2C3A-502585	VDI 50	C2C3A - 50 x 25 x 85	95	52,5	30,5	12,5	42	37	44	48	-	-	93Z3-14

1 holder
2 variants

C1AK Axial right short

C4AK Axial overhead left short



- Type AQUA-[®] for tools with internal cooling
- double-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar

- Connection for external cooling G1/8"

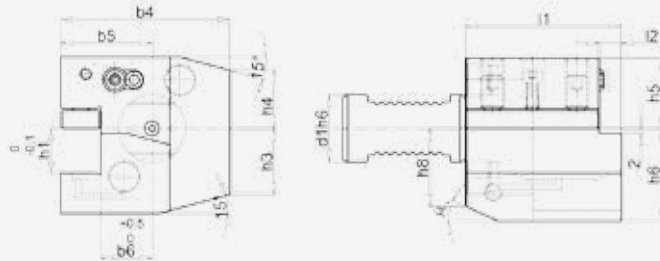
Order no.	Description	d1xh1x1	b1	b2	b3	l2	h3	h4	h5	h6	h8	α	Ball nozzle
92C1C4AK-302070	VDI 30	C1C4AK - 30 x 20 x 70	70	35	17	10	26	22	32	38	30	25°	93Z3-12
92C1C4AK-402585	VDI 40	C1C4AK - 40 x 25 x 85	85	42,5	21	12,5	35	30	38	48	40	15°	93Z3-14
92C1C4AK-502585	VDI 50	C1C4AK - 50 x 25 x 85	90,5	48	26	12,5	42	35	44	48	-	-	93Z3-14

AQUA-G[®]

1 holder
2 variants

C2A Axial left short

C3A Axial overhead right short



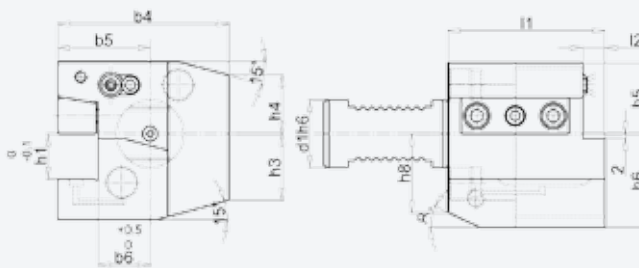
- Type AQUA-[®] for tools with internal cooling
- double-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar

Order no.	Description	d1	h1	l1	b1	b2	b3	l2	h3	h4	h5	h6	h8	α	Ball nozzle
92C2C3A-161244	VDI 16 C2C3A - 16 x 12 x 44	43	24	13	5	15	15	20	22	19	30°	93Z3-8			
92C2C3A-201655	VDI 20 C2C3A - 20 x 16 x 55	58	33	19	7	19	19	25	30	23	30°	93Z3-10			
92C2C3A-252055	VDI 25 C2C3A - 25 x 20 x 55	62	37	19	7	38	28	30	36	26	15°	93Z3-12			
92C2C3A-302070	VDI 30 C2C3A - 30 x 20 x 70	76	41	23	10	26	26	32	38	30	25°	93Z3-12			
92C2C3A-402585	VDI 40 C2C3A - 40 x 25 x 85	90	47,5	25,5	12,5	35	30	38	48	40	15°	93Z3-14			
92C2C3A-502585	VDI 50 C2C3A - 50 x 25 x 85	95	52,5	30,5	12,5	42	37	44	48	-	-	93Z3-14			

1 holder
2 variants

C2AK Axial left short

C4AK Axial overhead right short

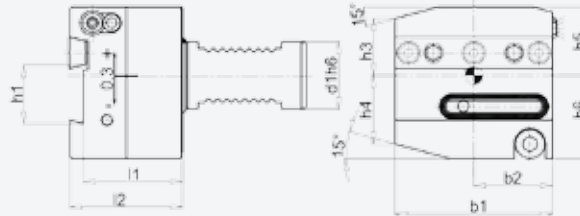


- Type AQUA-[®] for tools with internal cooling
- double-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar
- Clamping wedge tensioning
- increased clamping force
- lateral operation

Order no.	Description	d1	h1	l1	b4	b5	b6	l2	h3	h4	h5	h6	h8	α	Ball nozzle
92C2C3AK-302070	VDI 30 C2C3AK - 30 x 20 x 70	76	41	23	10	26	26	32	38	30	25°	93Z3-12			
92C2C3AK-402585	VDI 40 C2C3AK - 40 x 25 x 85	90	47,5	25,5	12,5	35	30	38	48	40	15°	93Z3-14			
92C2C3AK-502585	VDI 50 C2C3AK - 50 x 25 x 85	65	52,5	30,5	12,5	42	37	44	48	-	-	93Z3-14			

1 holder
2 variants

Cutting-off tool holder AR right ALU left overhead

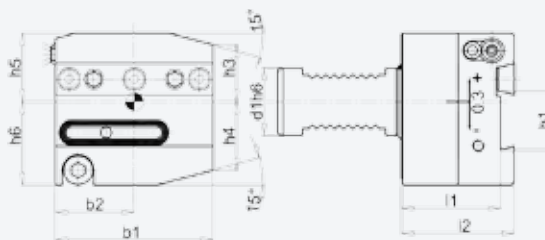


- Type AQUA-[®] for tools with internal cooling
- double-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar
- for grooving blades with internal cooling
- nominal sizes 26 and 32mm
- height-adjustable $\pm 0.3\text{mm}$

Order no.	Description d1 x h1	l1	l2	b1	b2	h5	h6	Ball nozzle	
92ARALUA-2526	VDI 25 ARALUA - 25 x 26	44	50	60	30	28	36	93Z3-10	
92ARALUA-3026	VDI 30 ARALUA - 30 x 26	44	50	70	35	32	37	93Z3-10	
92ARALUA-3032	VDI 30 ARALUA - 30 x 32	44	50	85	42,5	32	40	93Z3-10	
92ARALUA-4026	VDI 40 ARALUA - 40 x 26	44	50	85	42,5	43	40	93Z3-12	
92ARALUA-4032	VDI 40 ARALUA - 40 x 32	44	50	85	42,5	43	40	93Z3-12	
92ARALUA-5032	VDI 50 ARALUA - 50 x 32	44	50	100	50	43	45	93Z3-14	
93DICHTUNGAQUA-G	Seal Aqua-G [®] Quad-ring 26/32mm QRAR 04027 33,05 x 1,78 x 0,28 mm for blade height 26+32mm								

Cutting-off tool holder AL left ARU right overhead

1 holder
2 variants



- Type AQUA-[®] for tools with internal cooling
- double-toothed
- Connection for external cooling G1/8"
- coolant-proof to 80 bar
- for grooving blades with internal cooling
- nominal sizes 26 and 32mm
- height-adjustable $\pm 0.3\text{mm}$

Order no.	Description d1 x h1	l1	l2	b1	b2	h5	h6	Ball nozzle	
92ALARUA-2526	VDI 25 ALARUA - 25 x 26	44	50	60	30	28	36	93Z3-10	
92ALARUA-3026	VDI 30 ALARUA - 30 x 26	44	50	70	35	32	37	93Z3-10	
92ALARUA-3032	VDI 30 ALARUA - 30 x 32	44	50	85	42,5	32	40	93Z3-10	
92ALARUA-4026	VDI 40 ALARUA - 40 x 26	44	50	85	42,5	43	40	93Z3-12	
92ALARUA-4032	VDI 40 ALARUA - 40 x 32	44	50	85	42,5	43	40	93Z3-12	
92ALARUA-5032	VDI 50 ALARUA - 50 x 32	44	50	100	50	43	45	93Z3-14	
93DICHTUNGAQUA-G	Seal Aqua-G [®] Quad-ring 26/32mm QRAR 04027 33,05 x 1,78 x 0,28 mm for blade height 26+32mm								

AQUA-G[®]

Accessories

Coolant hose



- 200 / 300mm incl. 2 adapters G1/8"
- thread at both ends M12 x 1,5
- up to 150bar coolant-proof connection

Order no.	Description	l1
93KMS-SET200	Coolant hose with adapter G1/8" - M12 x 1,5	200
93KMS-SET300	Coolant hose with adapter G1/8" - M12 x 1,5	300



NOTE for coolant quantity:

Aperture of external coolant nozzle indicates the maximum quantity of coolant for internal cooling. Screw plug included in scope of delivery; screwed in the holder laterally next to coolant nozzle and labeled with thread size and wrench size.

CAUTION: Coolant nozzle is open on delivery.

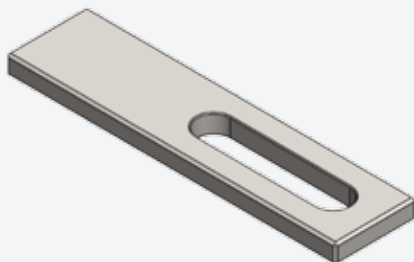


NOTE for cutting-off tool holder:

The grooving blades must not be 'drawn' over the sealing ring. The seal could be broken. It is better to open the clamping bar so that the blade can be inserted.

This ensures that the sealing ring fits exactly and functions properly.

Shim plate

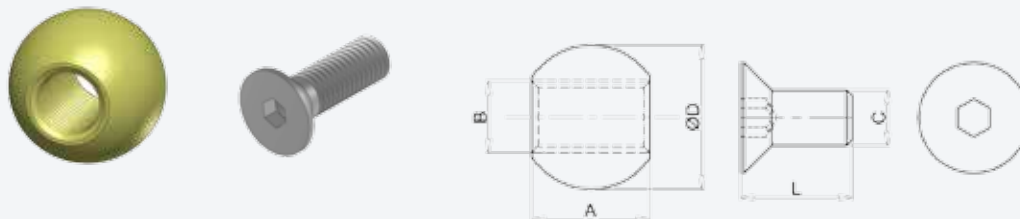


- Allows reduction to the next smallest insert holder
- no closing off the AQUA-G® slot
- smoothed
- metallic sealing

Order no.	Description		L	B	D
93UPAQUA-VDI25B	Reducer for B-holder VDI25	20mm to 16mm	69	17	4
93UPAQUA-VDI25C	Reducer for C-holder VDI25	20mm to 16mm	54	17	4
93UPAQUA-VDI30BC	Reducer for B+C-holder VDI30	20mm to 16mm	69	17	4
93UPAQUA-VDI30BK	Reducer for B-holder VDI30 BAK	20mm to 16mm	98	17	4
93UPAQUA-VDI40BC	Reducer for B+C-holder VDI40	25mm to 20mm	84	21	5
93UPAQUA-VDI40BK	Reducer for B-holder VDI40 BAK	25mm to 20mm	116	21	5
93UPAQUA-VDI50BC	Reducer for B+C-holder VDI50	25mm to 20mm	84	21	5
93UPAQUA-VDI50BK	Reducer for B-holder VDI50 BAK	32mm to 25mm	129	24	7
93UPAQUA-VDI60BK	Reducer for B-holder VDI60 BAK	32mm to 25mm	144	29	7

Accessories

Ball nozzle for Aqua-G®-holder



- Ball nozzle including clamping screw
- The internal thread ensures the nozzles's seal
- The internal thread allows for coolant pipes to be screwed in

Order no.	Description	øD	A	B	C x L
93Z3-8	D=8mm, A=7mm, inside-M05	8	7	M5	M3x10
93Z3-10	D=10mm, A=8mm, inside-M06	10	8	M6	M4x12
93Z3-12	D=12mm, A=10mm, inside-M06	12	10	M6	M5x12
93Z3-14	D=14mm, A=13mm, inside-M06	14	13	M6	M6x12

Ball nozzle für Aqua-G®- old version



Order no.	Description	øD	A	B	C x L
93KD-MB10	MB10, D = 10 mm x 7 mm x M4	10	7	M4	
93KD-MB12	MB12, D = 12 mm x 8 mm x M6	12	8	M6	
93KD-MB14	MB14, D = 14 mm x 10 mm x M8	14	10	M8	

AQUA-G®

Instruction Clamping wedge tensioning

Clamping: Mounting holder



1

- unscrew center screw to the upper edge of the wedge



2

- release clamping screws at wedge



3

- raise clamping wedge
- insert holder



4

- tighten both clamping screws
- holder is clamped

Instruction Clamping wedge tensioning

Releasing: Dismantling holder



1

- unscrew both clamping screws



2

- clamp center screw
- clamping wedge releases forwards



3

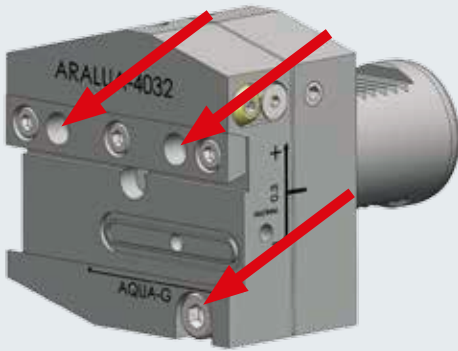
- raise clamping wedge
- remove holder

- Subject to alterations; no liability for errors including printing errors.
- Errors do not provide entitlement to lodge claims..
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AQUA-G®

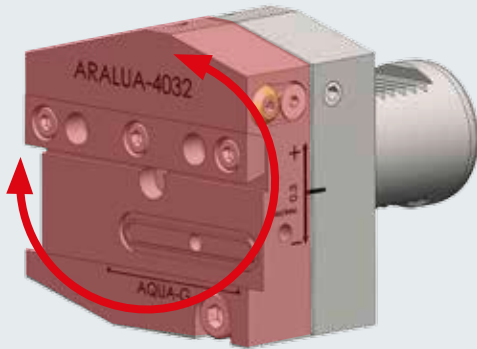
Instructions height setting

Height setting for tool holders [max.0,3mm]



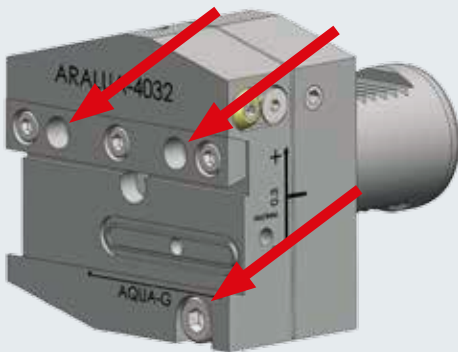
1

- release the 3 marked M8 screws
- no need to remove them



2

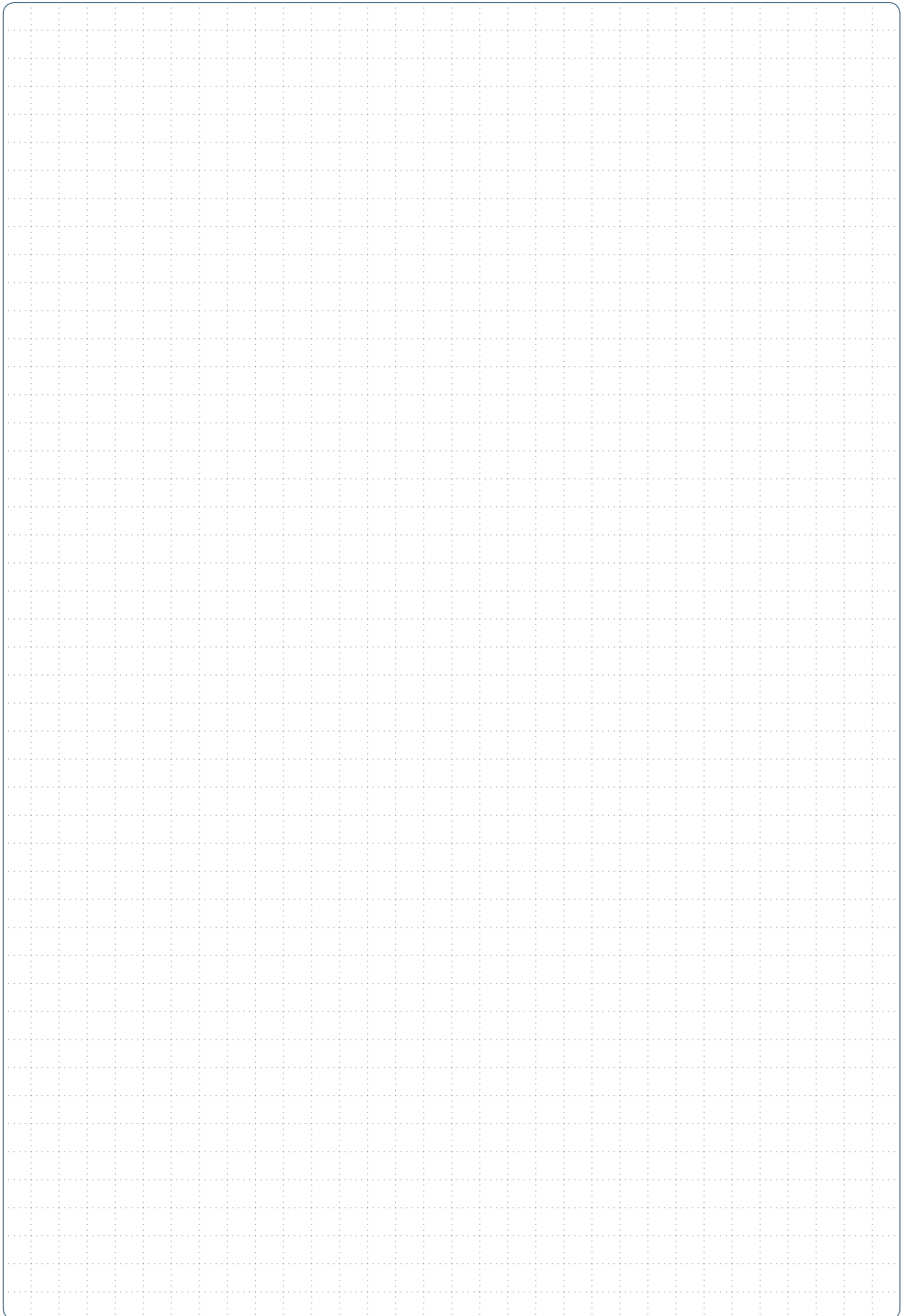
- Set up the holder as required ($\pm 0,3\text{mm}$ max.)



3

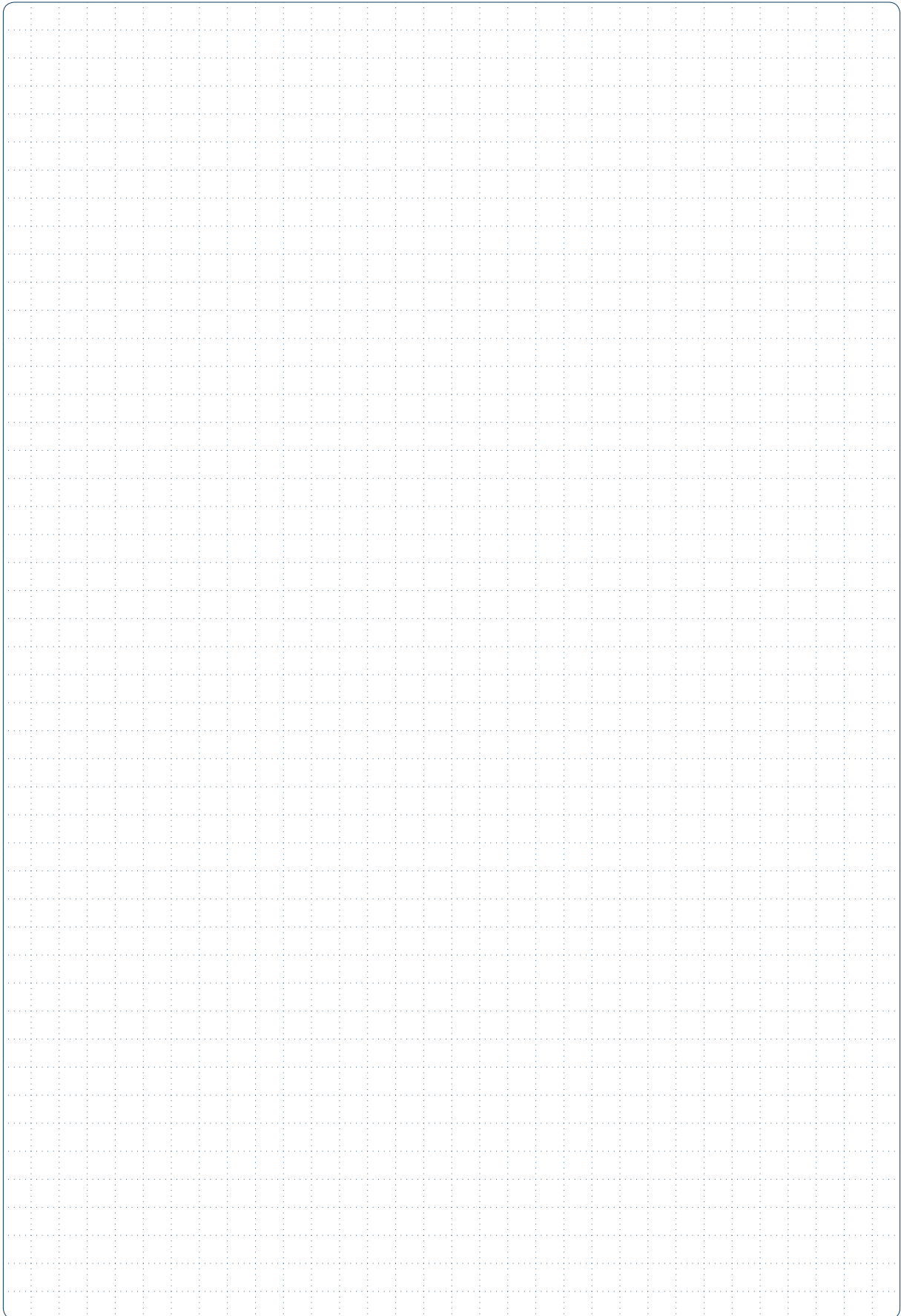
- tighten the 3 marked M8 screws
- insert holder

NOTES

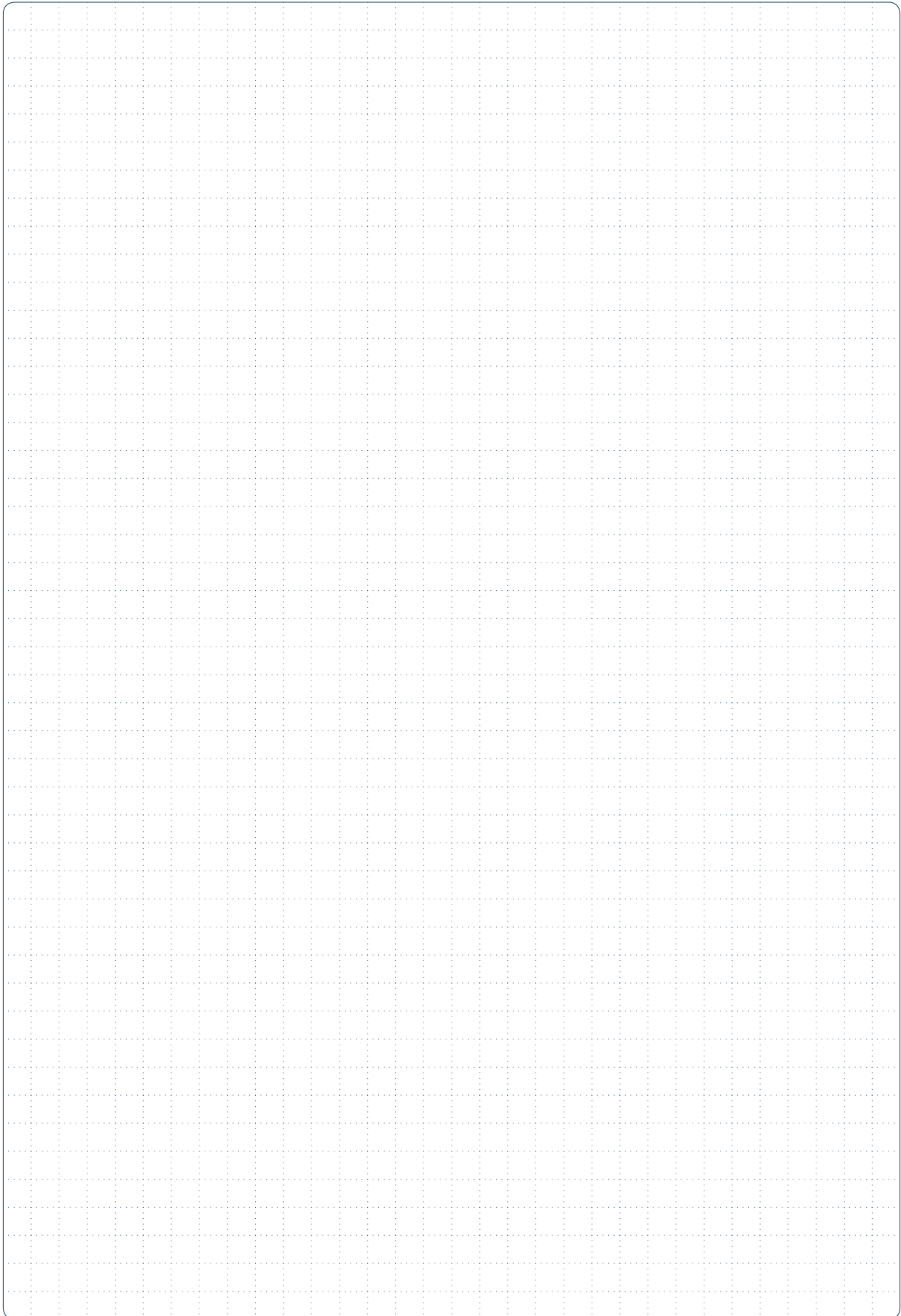


AQUA-G®

NOTES



NOTES





PEOPLE

Cooperate in fair partnership



AMBITION

Question yesterday's, in order to develop new solutions for today and tomorrow



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Tools

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Changes / Errors excepted