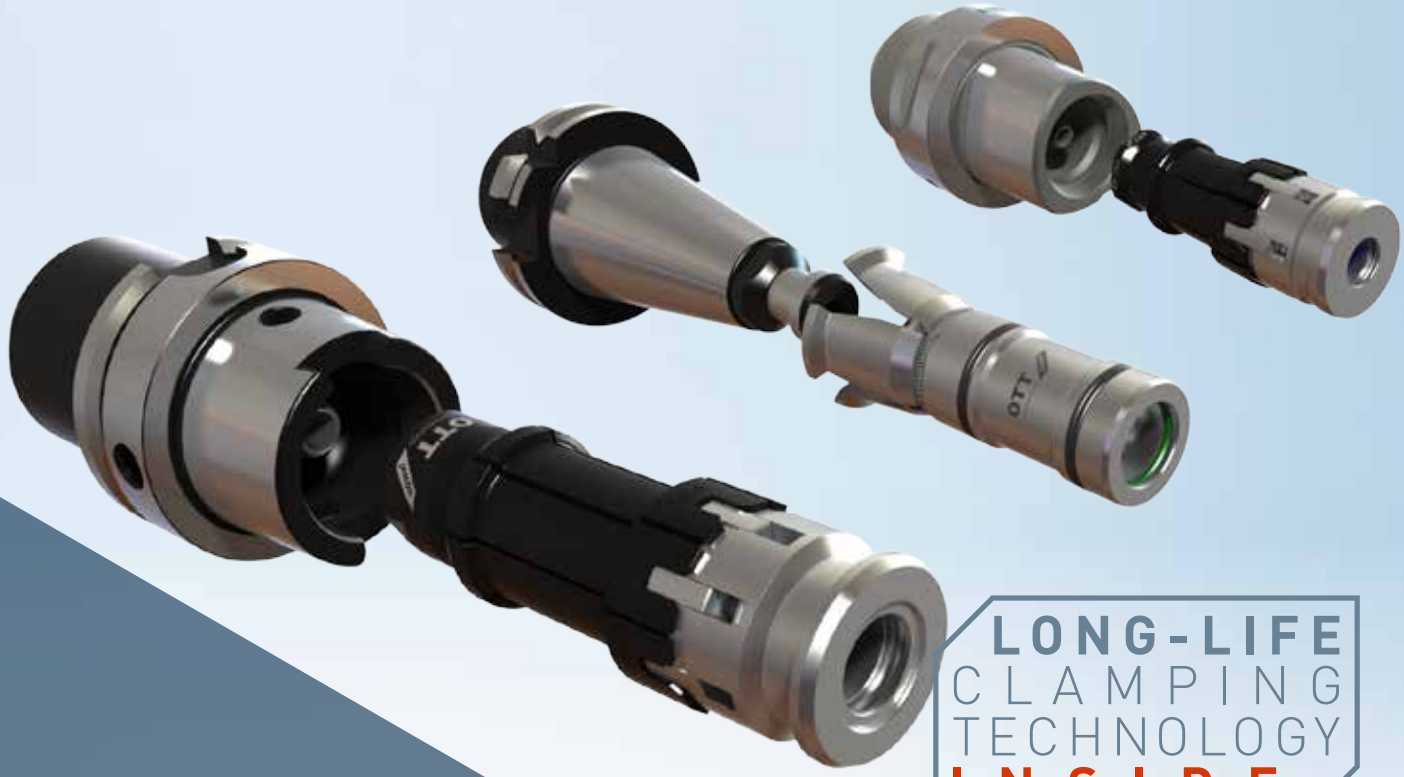
GRIPPERS & ACCESSORIES
CATALOGUE



LONG-LIFE
CLAMPING
TECHNOLOGY
INSIDE

OTT JAKOB
Spanntechnik

CONTENTS

TOOL STANDARDS 4

MEDIUM TRANSFER 5

STEEP TAPER 30 6

STEEP TAPER 40 8

STEEP TAPER 50 10

STEEP TAPER 50 REINFORCED 12

STEEP TAPER 60 14

MEASURING DEVICE STEEP TAPER CONTROL-EDGE 16

HSK 17

HSK STANDARD (TYPE K) 18

HSK BLACK (TYPE B) 20

HSK BLACK (TYPE BK) 22

HSK 2S (TYPE C) 23

HSK HIGHER TRANSFORMATION RATIO (TYPE D) 24

COMBINATION OPTIONS 25

REPAIR-CLAMPING-UNITS 26

PSC 27

MEASURING DEVICE HSK CONTROL-EDGE 28

MAINTENANCE HSK 29

ASSEMBLY TIPS 30

MOUNTING TOOLS HSK 31

INDIVIDUAL COMPLETE SOLUTIONS FROM ONE SOURCE.

FOR MORE THAN FOUR DECADES, THE NAME OTT-JAKOB HAS BEEN STANDING FOR TECHNICALLY DEMANDING SOLUTIONS IN THE FIELD OF TOOL CLAMPING TECHNOLOGY.

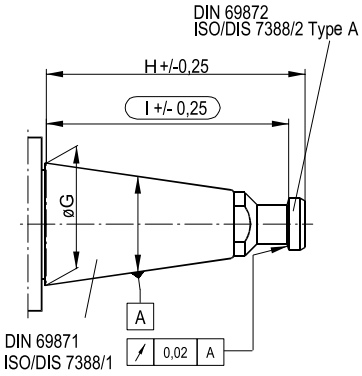
As a provider of complete systems and development partner of the world's leading spindle and machine tool manufacturers, we offer unique expertise in executing custom clamping system projects. The modular set up of our product range provides an almost unlimited variety of configuration possibilities. The result: custom-made clamping systems for all areas of application.

TOOL STANDARDS

CODE

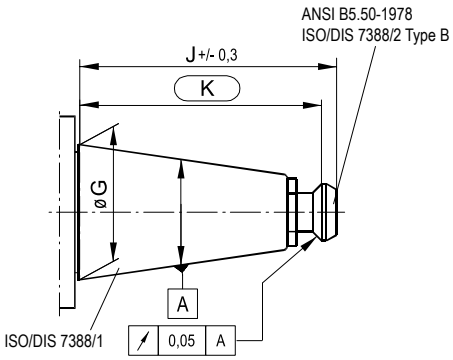
TOOL STANDARD

A



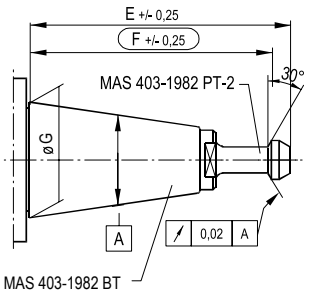
DIN 69871 / 69872		ISO 7388 / 1 / 2 type A	
	G	H +/- 0,25	I +/- 0,25
Steep Taper 30	31.75	71.65	66.65
Steep Taper 40	44.45	94.25	88.25
Steep Taper 50	69.85	135.60	126.60
Steep Taper 60	107.95	201.65	191.65

C



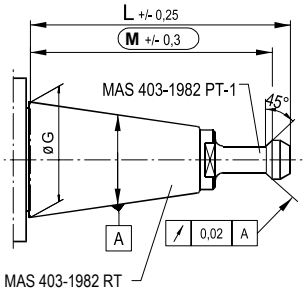
ANSI B5.50-1978		ISO 7388 / 1 / 2 type B	
	G	J +/- 0.30	K +/- 0.30
Steep Taper 30	31.75	59.30	55.65
Steep Taper 40	44.45	84.50	79.25
Steep Taper 50	69.85	127.00	119.40
Steep Taper 60	107.95	199.95	189.45

E



MAS 403-1982 BT/PT 2 (30°)			
	G	E +/- 0.25	F +/- 0.25
Steep Taper 30	31.75	71.35	66.35
Steep Taper 40	44.45	100.35	93.35
Steep Taper 50	69.85	146.75	136.75

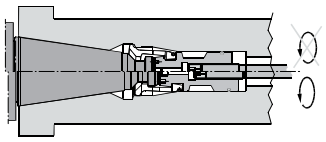
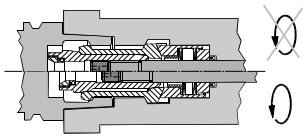
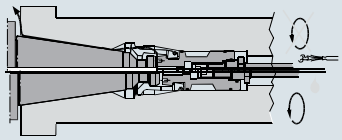
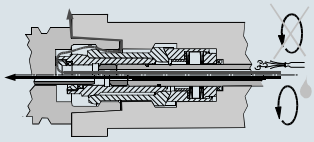
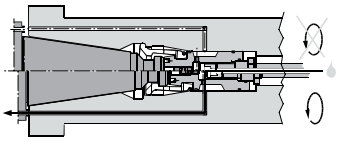
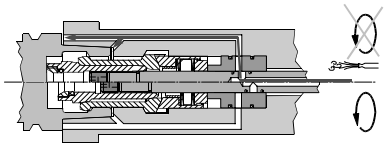
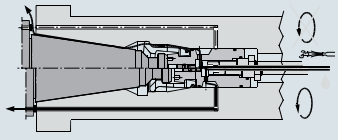
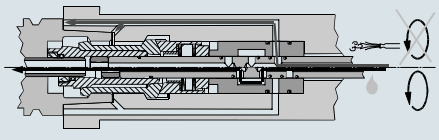
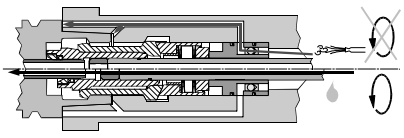
F



MAS 403-1982 BT/PT 1 (45°)			
	G	L +/- 0.25	M +/- 0.25
Steep Taper 30	31.75	71.35	66.35
Steep Taper 40	44.45	100.35	93.35
Steep Taper 50	69.85	146.75	136.75

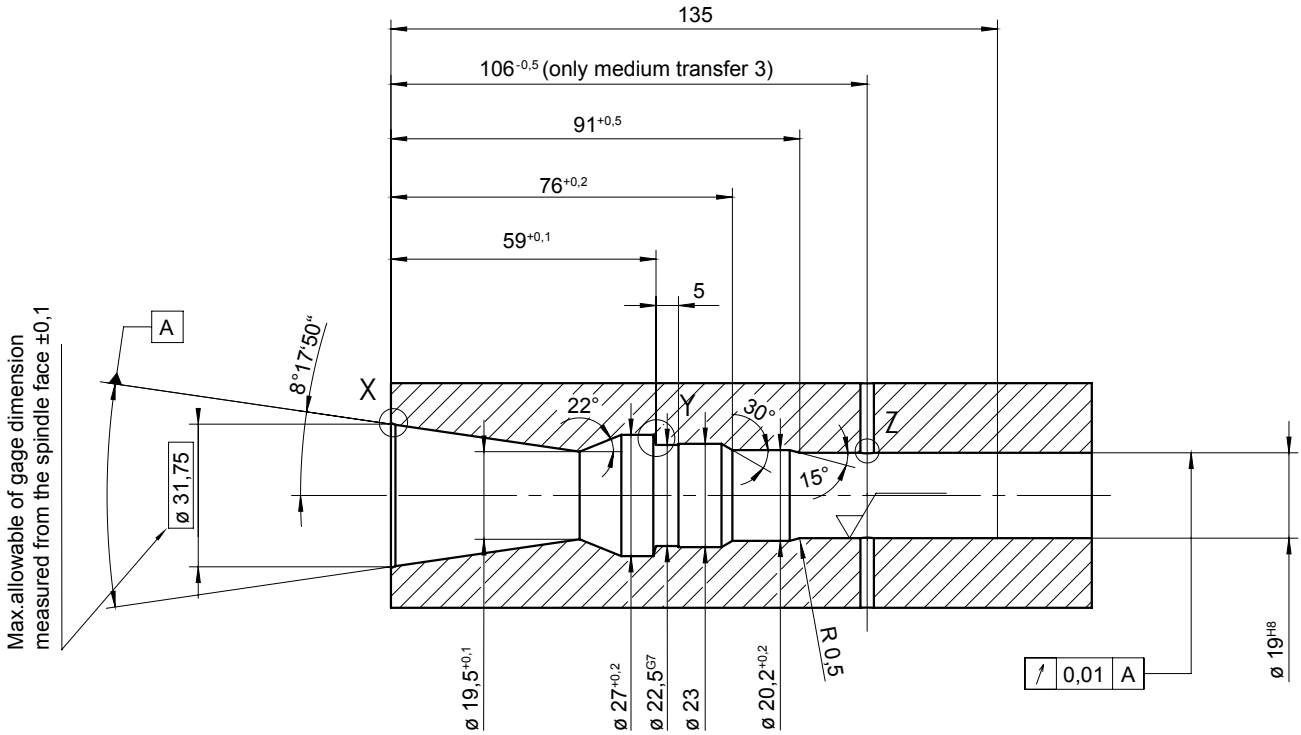
All OTT-JAKOB clamping systems allow the transfer of different types of media, such as coolant and cleaning air. Our product range includes solutions for radial and axial media supply, which are partially based on the specifications of the tool gripper's tool standard. There are mechanisms within the clamping system that enable different ways of feed through during rotation and standstill.

TYPES OF MEDIUM TRANSFER

STEEP TAPER	HSK	
		**1** Without transfer
		**2** Axial transfer
		**3** Radial transfer
		**4** Radial coolant transfer axial air transfer (transfer collar)
		**5** Radial transfer cleaning air via spring room

coolant | cleaning air | in rotation | during standstill

INNER CONTOUR



DETAILS

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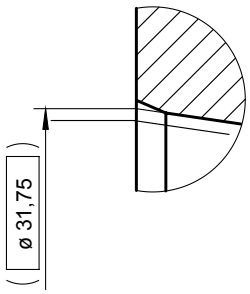
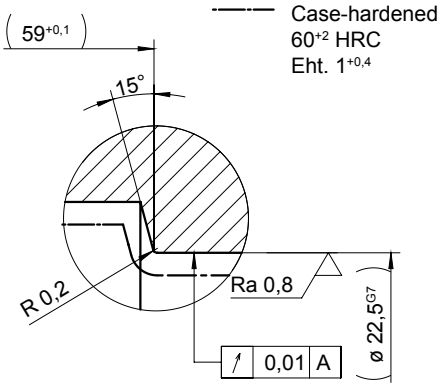
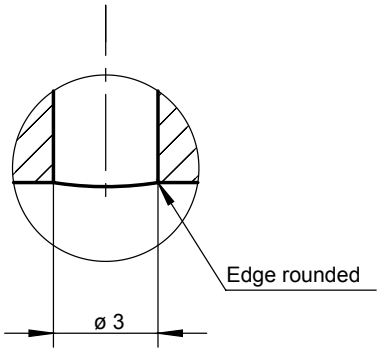


Y (5:1)

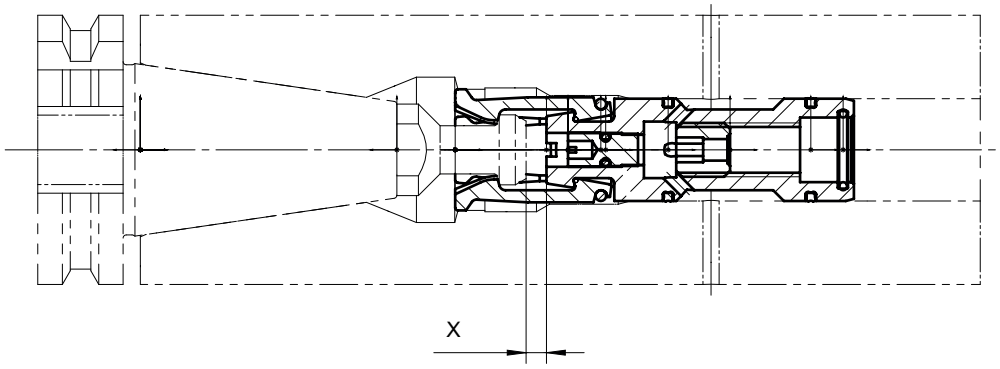


Z (5:1)
only medium transfer 3

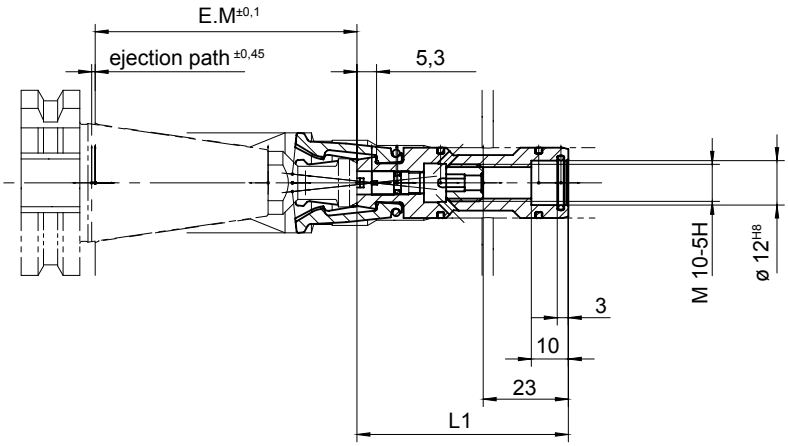


GRIPPER HOLDER FORM

FORM I



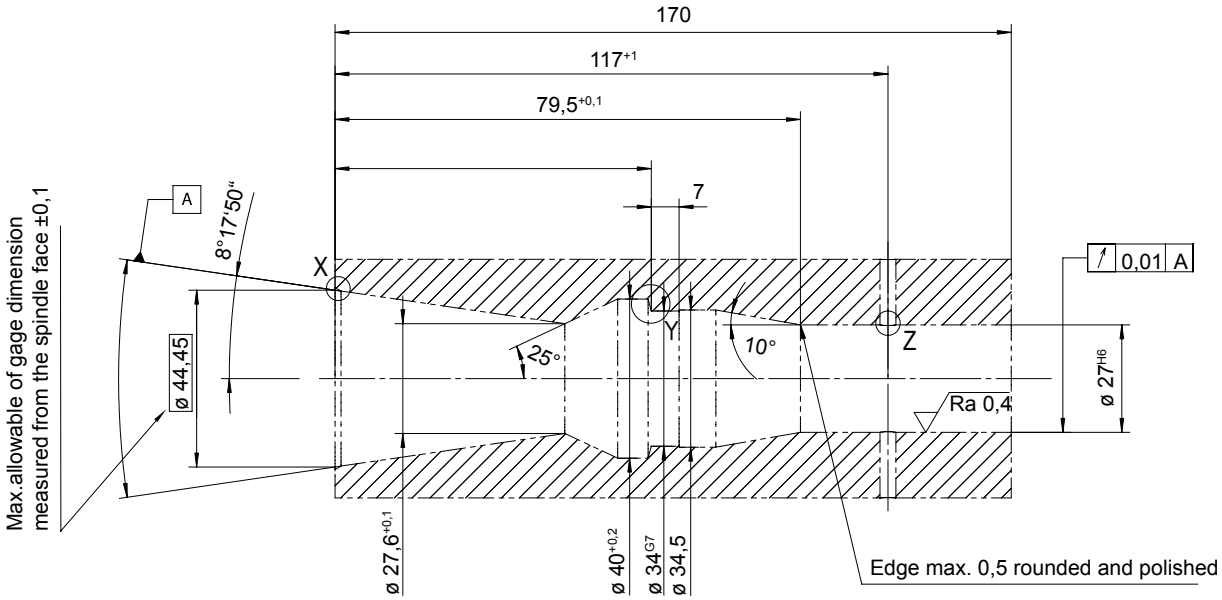
CLAMPED



UNCLAMPED

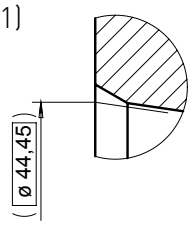
Tool Standard	A	C	E	F
Gripper holder form	I			
Medium transfer	1 / 2 / 3	1 / 2	1 / 2 / 3	
Pull force F_E max. (N)	6,000			
Stroke min. (mm)	5.5			
Ejection path (mm)	0.95	1.6	0.95	0.95
Gauge dimension E.M. (mm)	70.7	57.7	70.4	70.4
x	3.8	2.9	3.1	3.05
L_1	57.1	69.8	57.8	57.8
Order number				
Gripper with holder	95.101.452.3.2	95.101.450.3.2	95.101.453.3.2	95.101.451.3.2
Lock screw	included in delivery			
Mounting tool	95.101.280.9.2			

INNER CONTOUR

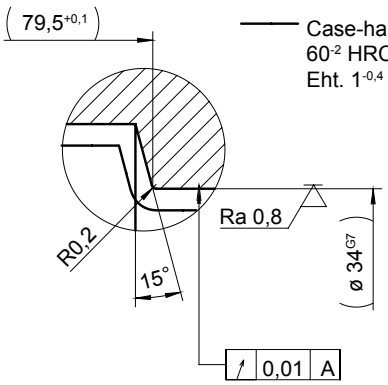


DETAILS

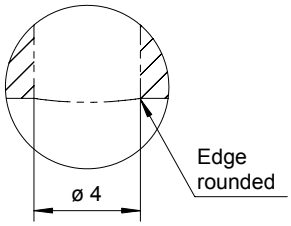
X (5:1)



Y (5:1)



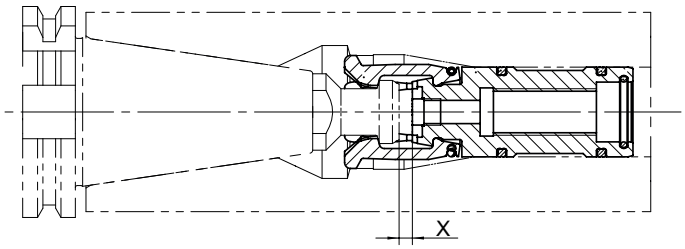
Z (5:1)



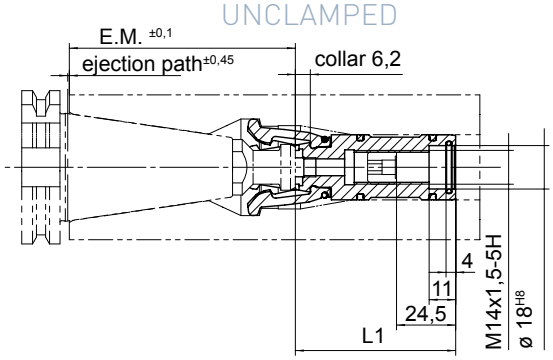
Tool Standard	A	A	A	A	A	A	
Gripper holder form	I	I	I	I	II	III	
Medium transfer	1	2	3	4	1/2	1/2	
Pull force F_E max. (N)	15,000						
Stroke min. (mm)	5.5						
Ejection path (mm)	0.65						
Gauge dimension E.M. (mm)	93.6						
x	4	4	4	4	4	4	
L_1	67.1	66.4	67.4	67.4	41.4	56.4	
Order number starting with 95.10 ...							
Gripper with holder	1.288.3.2	1.216.3.2	1.202.3.2	1.223.3.2	1.684.3.2	1.570.3.2	
Lock screw	1.372.5.1	1.372.5.1	1.372.5.1	1.372.5.1			
Mounting tool	1.281.9.2	1.281.9.2	1.281.9.2	1.281.9.2	0.975.4.2	0.975.4.2	

GRIPPER HOLDER FORM

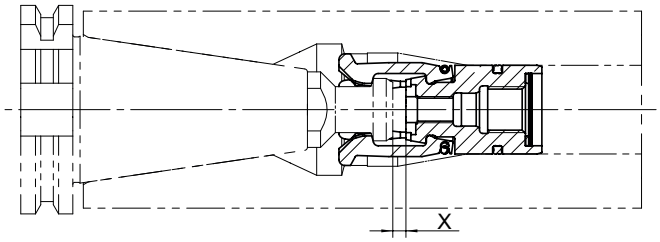
FORM I CLAMPED

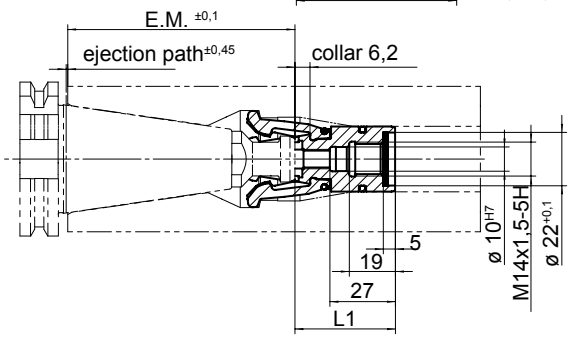


UNCLAMPED

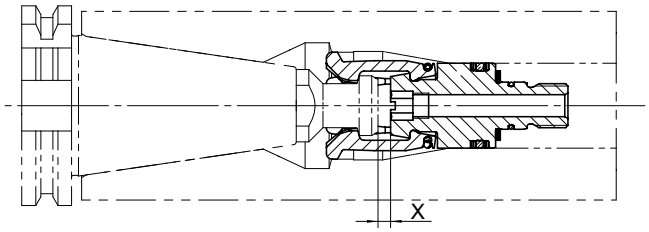


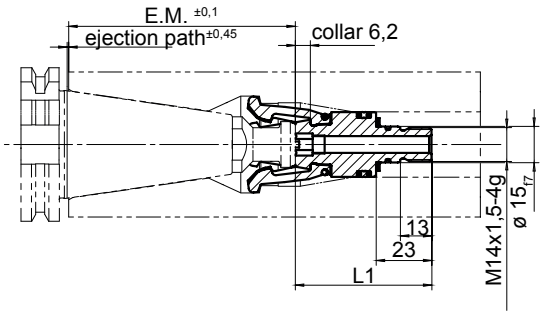
FORM II





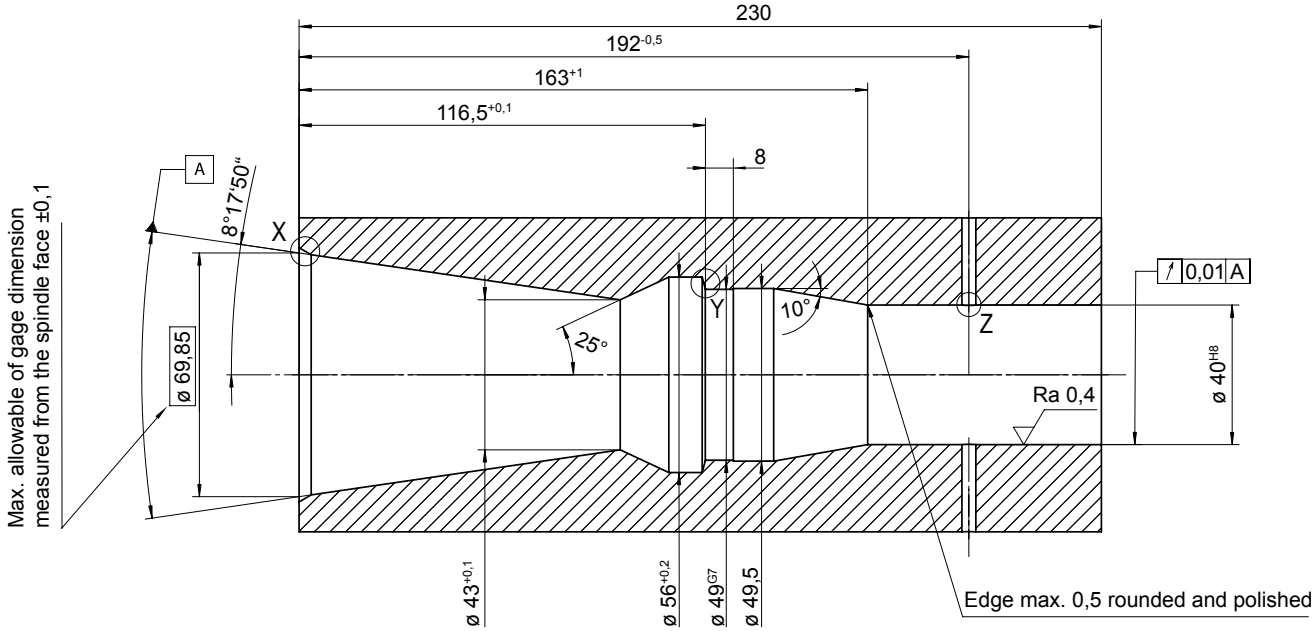
FORM III





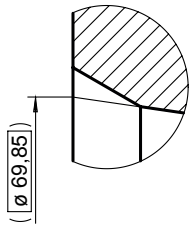
	C	C	C	C	C	C	E	E	F	F
	I	I	I	I	II	III	I	II	I	II
	1	2	3	4	1/2	1/2	1/2	1/2	1/2	1/2
	15,000									
	5.5									
	1.6						0.65			
	82.9						99.7			
	2.65	2.65	2.65	2.65	2.65	2.65	3.85	3.85	3.85	3.85
	77.9	77.5	77.9	78.2	51.6	67.3	60.3	35.3	60.3	35.3
	1.287.3.2	1.233.3.2	1.290.3.2	1.295.3.2	1.685.3.2	1.569.3.2	1.485.3.2	1.687.3.2	1.486.3.2	1.686.3.2
	1.372.5.1	1.372.5.1	1.372.5.1	1.372.5.1			1.372.5.1		1.372.5.1	
	1.281.9.2	1.281.9.2	1.281.9.2	1.281.9.2	0.975.4.2	0.975.4.2	1.281.9.2	0.975.4.2	1.281.9.2	0.975.4.2

INNER CONTOUR

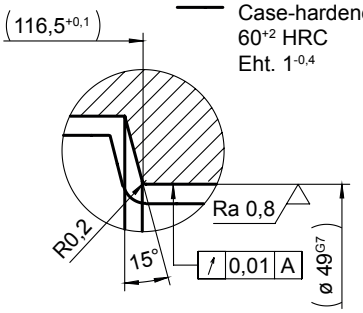


DETAILS

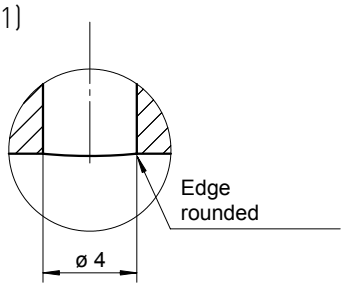
X (5:1)



Y (5:1)



Z (5:1)

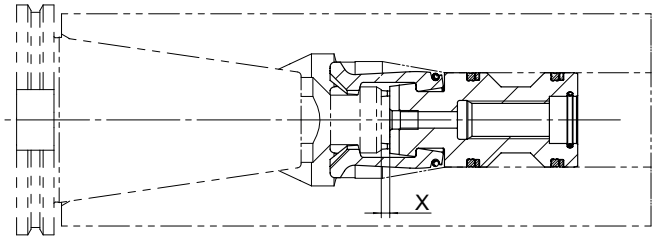


Tool Standard	A	A	A	A	A
Gripper holder form	I	I	I	II	III
Medium transfer	1/2	3	4	1/2	1/2
Pull force F_E max. (N)	25,000				
Stroke min. (mm)	6				
Ejection path (mm)	1				
Gauge dimension E.M. (mm)	134.6				
x	3.6	3.6	3.6	3.7	3.6
L_1	79.7	79.7	79.7	46.2	66.8
Order number starting with 95.10...					
Gripper with holder	1.297.3.2	1.298.3.2	1.356.3.2	1.540.3.2	1.386.3.2
Lock screw	3.636.5.1	3.636.5.1	3.636.5.1	3.636.5.1	
Mounting tool	1.337.9.2	1.337.9.2	1.337.9.2	1.337.9.2	0.421.4.2

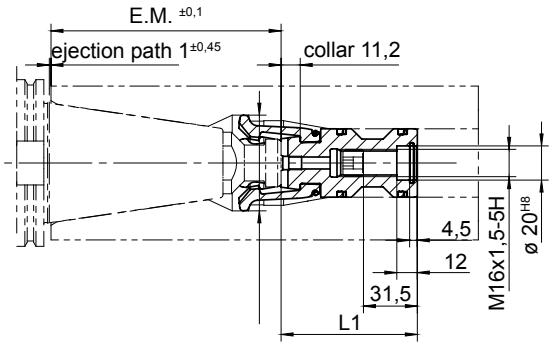
GRIPPER HOLDER FORM

FORM I

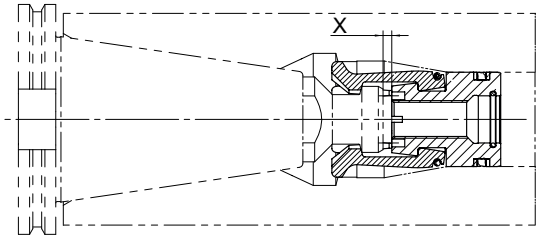
CLAMPED

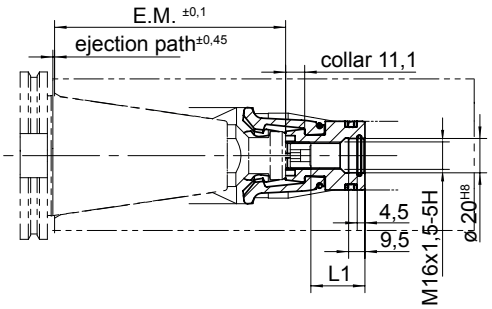


UNCLAMPED

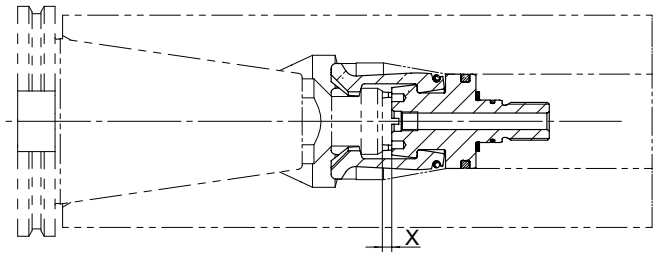


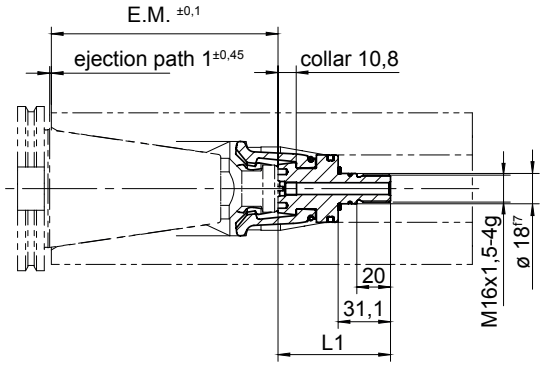
FORM II





FORM III

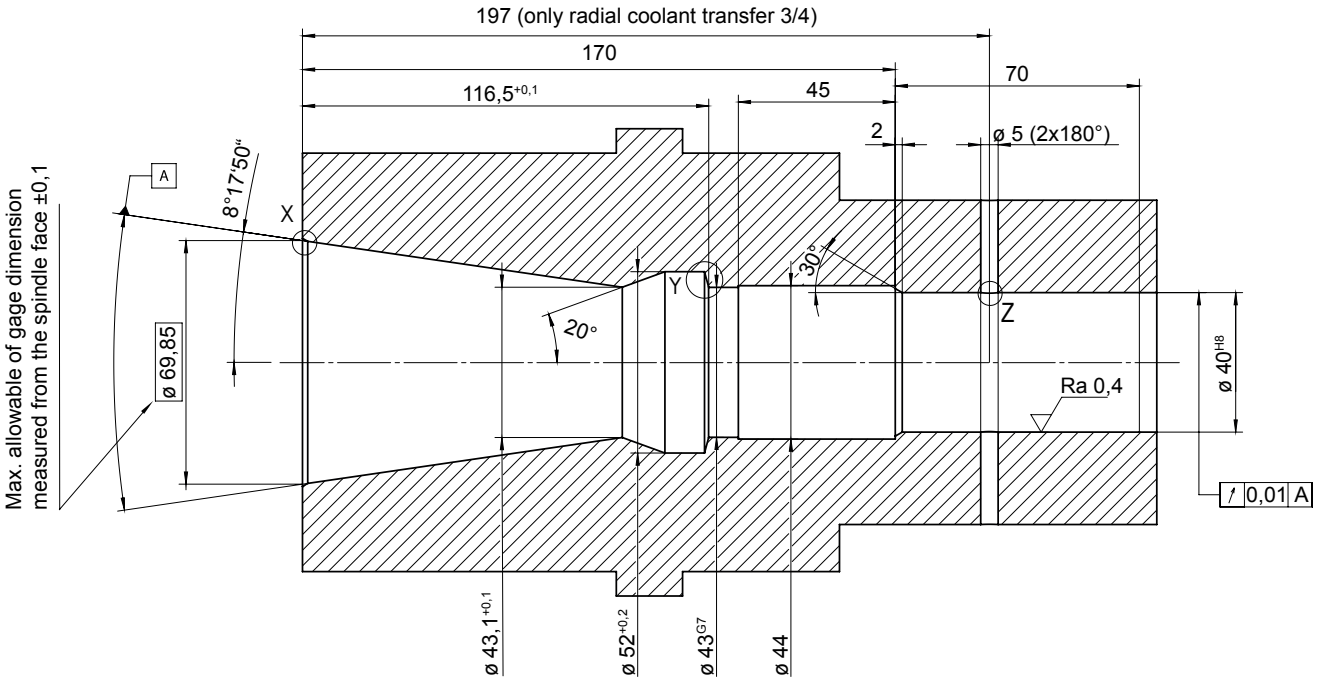




	C	C	C	C	E	F
	I	I	II	III	I	I
	1/2	4	1/2	1/2	1/2	1/2
	25,000					
	6					
	1					
	126				145.75	
	3.65	3.65	3.65	3.65	3.55	3.55
	87.9	87.9	55	75.9	68.8	68.8
	1.306.3.2	1.522.3.2	1.668.3.2	1.385.3.2	1.476.3.2	1.506.3.2
	3.636.5.1	3.636.5.1	3.636.5.1		3.636.5.1	3.636.5.1
	1.337.9.2	1.337.9.2	1.337.9.2	0.421.4.2	1.337.9.2	1.337.9.2

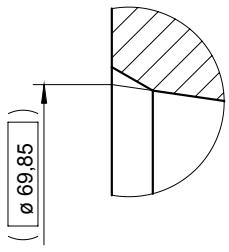
STEEP TAPER 50 REINFORCED

INNER CONTOUR

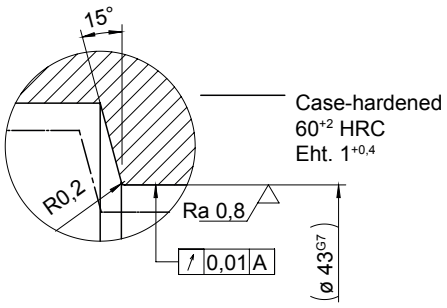


DETAILS

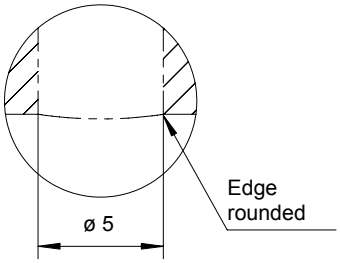
X (5:1)



Y (5:1)



Z (5:1)

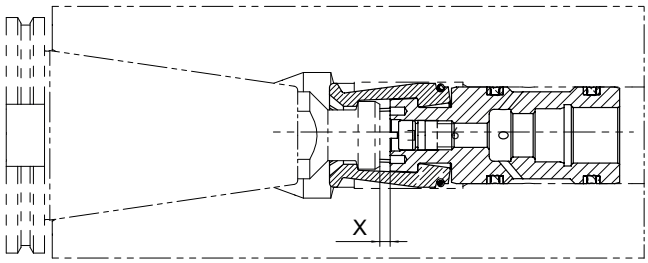


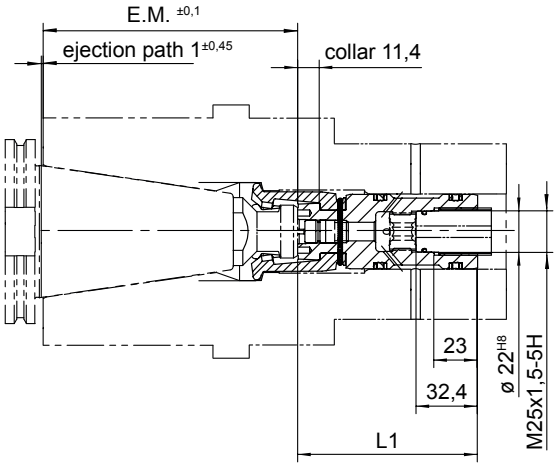
GRIPPER HOLDER FORM

CLAMPED

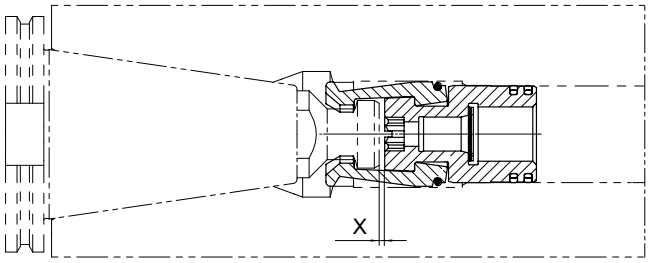
UNCLAMPED

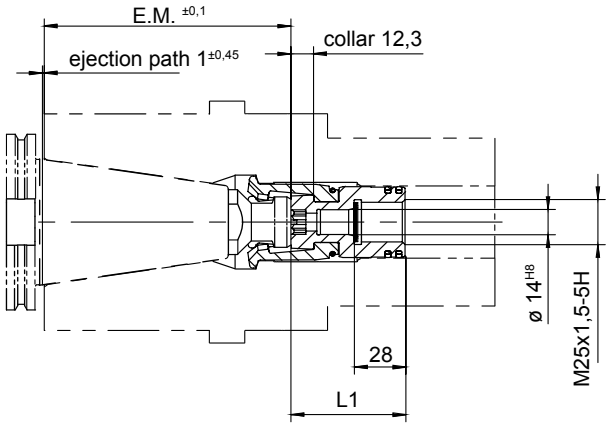
FORM I





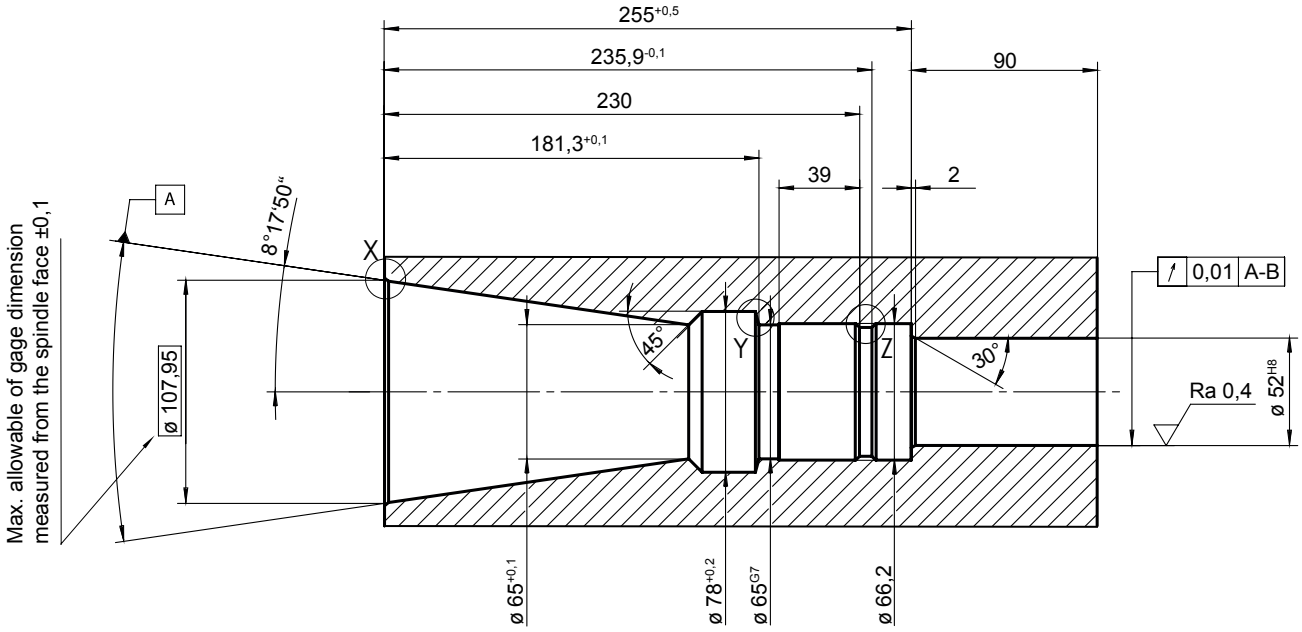
FORM II





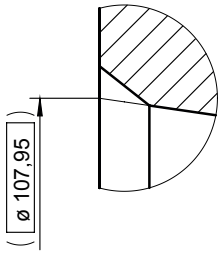
Tool Standard	A	C	A	C
Gripper holder form	I	I	II	II
Medium Transfer	1/2/3	1/2/3	1/2/3	1/2/3
Pull force F_E max. (N)	35,000			
Stroke min. (mm)	9			
Ejection path (mm)	1			
Gauge dimension E.M. (mm)	134.6	126	134.6	126
x	4.25	3.95	3.35	3.25
L_1	95	103.6	62.5	71.5
Order number				
Gripper with holder	95.101.781.3.2	95.101.782.3.2	95.102.161.32	95.102.237.32
Lock Screw	95.101.273.4.1	95.101.273.4.1		
Mounting tool	95.101.336.9.2	95.101.336.9.2		

INNER CONTOUR

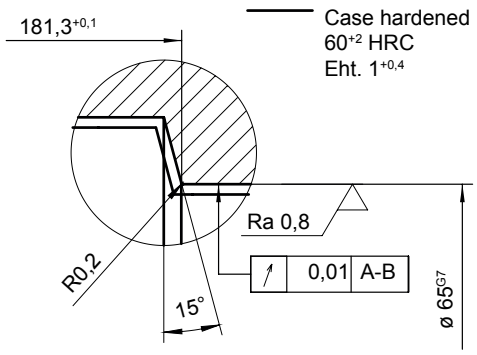


DETAILS

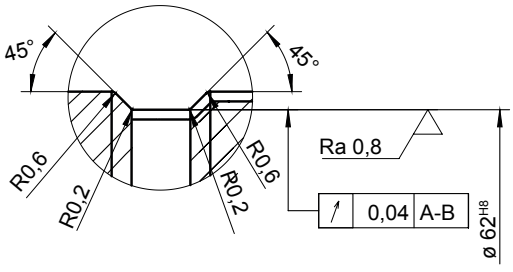
X (5:1)



Y (5:1)

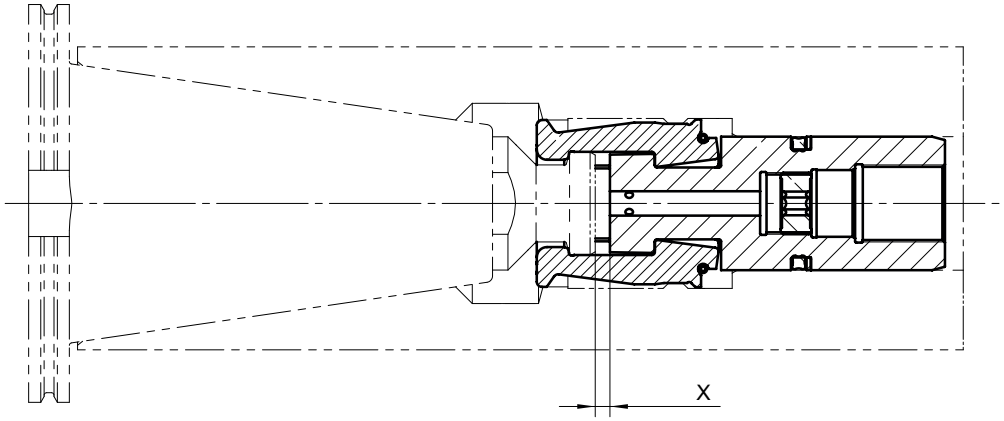


Z (5:1)

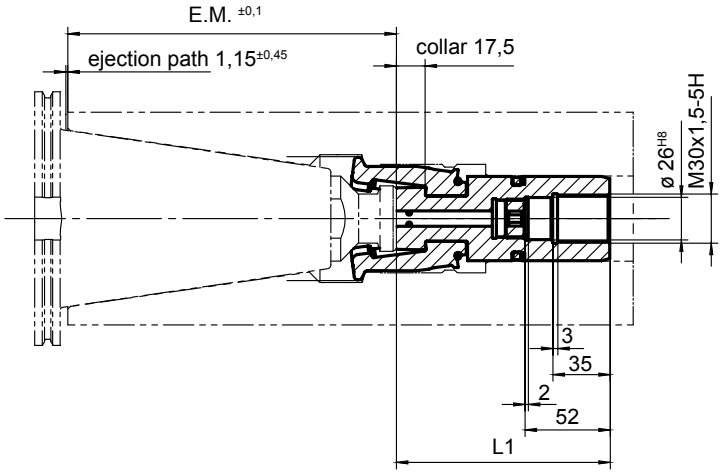


GRIPPER HOLDER FORM

FORM I - TOOL STANDARD A



CLAMPED



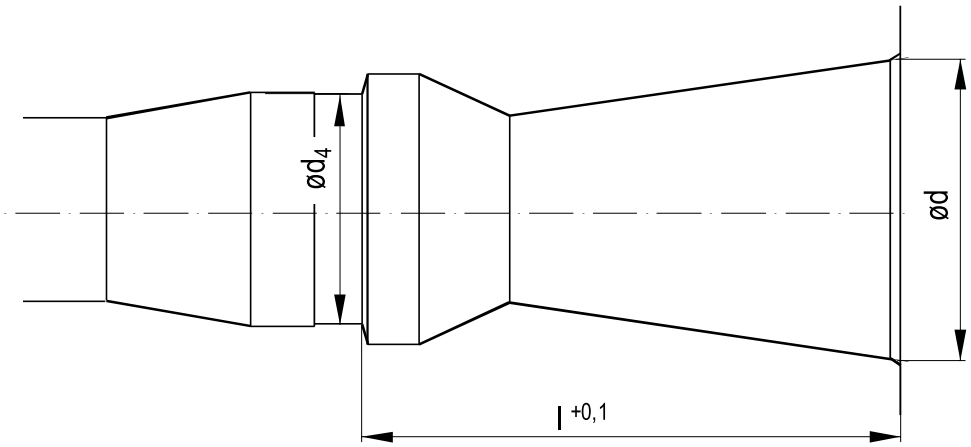
UNCLAMPED

Tool Standard	A	C	E
Gripper holder form	I	I	I
Medium Transfer	1/2		
Pull force F_E max. (N)	80,000		
Stroke min. (mm)	8.5		
Ejection path (mm)	1.15	0.95	1.1
Gauge dimension E.M. (mm)	200.5	199	225.65
x	5.75	5.6	5.75
L_1	130.5	132.2	106.2
Order number			
Gripper with holder	95.101.308.3.2	95.101.307.3.2	95.103.199.32
Lock screw	included in delivery		
Mounting tool	95.101.284.9.2	95.101.284.9.2	95.101.284.9.2

STEEP TAPER CONTROL-EDGE

Use the measuring device for measuring:

- the position of the diameter d
- the measure l



Max. allowable deviation of gage dimension measured from the spindle face: ±0,1 mm

Size	l	Ø d	Ød4	Tool Standard	Order number
Steep Taper 30 Universal contour	59	31.75	22.5	DIN 69871 / 69872 // ISO 7388 / 1 / 2 Type A	95.102.575.3.2
				ANSI B 5.50 – 1978 // ISO 7388 / 1 / 2 Type B	
				MAS 403-1982 BT/PT 30° / 45°	
Steep Taper 40 Universal contour	79.5	44.45	34	DIN 69871 / 69872 // ISO 7388 / 1 / 2 Type A	95.100.120.3.2
				DIN 2080 (OTT-Rille)	
				ANSI B 5.50 – 1978 // ISO 7388 / 1 / 2 Type B	
				MAS 403-1982 BT/PT 30° / 45°	
Steep Taper 50 Universal contour	116.5	69.85	49	DIN 69871 / 69872 // ISO 7388 / 1 / 2 Type A	95.101.270.3.2
				DIN 2080 (OTT-Rille)	
				ANSI B 5.50 – 1978 // ISO 7388 / 1 / 2 Type B	
				MAS 403-1982 BT/PT 30° / 45°	
Steep Taper 60 Universal contour	181.3	107.95	65	DIN 69871 / 69872 // ISO 7388 / 1 / 2 Type A	95.101.274.2.2
				ANSI B 5.50 – 1978 // ISO 7388 / 1 / 2 Type B	

HSK CLAMPING SYSTEM
FOR AUTOMATIC TOOL CHANGE
(DIN 69893 / ISO 12164)

Studies at the RWTH-Aachen and customer applications have shown significant advantages in precision and stiffness of the HSK-interface compared to the steep taper interface.

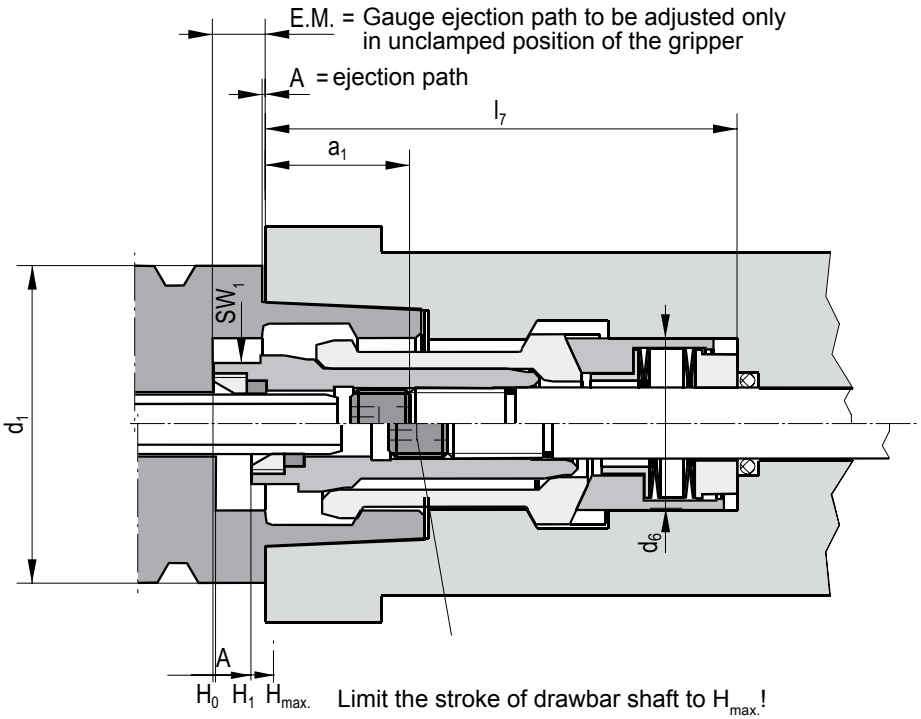
- Higher position accuracy of the tool due to axial face and taper position.
- Ideal for high speed machining.
- Easy tool handling due to low weight and dimensions of the short taper.
- Heavy duty chip removal can be achieved through total stiffness of the Interface, high pull forces and the resulting transmittable torque.

The automatic interfaces HSK 25 - HSK 160 are available in 4 forms:

- Form A
  Is the most common tool standard with internal drive keys.
- Form B
  Has external drive keys, a larger flange diameter, and is used mainly for heavy duty chip removal.
- Form E
  Without drive key, is used for high speed operation.
- Form F
  Has no sealing against coolant and is used mainly in the wood working and plastic industry.

All automatic tool clamping systems (Form A / B / E / F) are equipped with the patented OTT-JAKOB gripper geometry. This contour allows to triple the transmittance of the pull force. The forces therefore, occur mainly in the interface area of the spindle.

HSK STANDARD (TYPE K)



Features

- Parallel moving gripper segments
- High static and dynamic stiffness
- Large contact area

Type	E25	A32 B40 E32	A40 B50 E40 F50	A50 B63 E50 F63	A63 B80 E63 F80	A80 B100	A100 B125	A125 B160	A160
Clamping force F max. (N)*	2,800	5,000	6,800	11,000	18,000	28,000	45,000	70,000	115,000
Stroke max. (mm)	7.0	7.5	8.0	9.0	10.0	11.0	12.5	15.8	24.5
E.M. +/- 0.1 (mm)	6.5	8.5	8.5	10.5	10.5	13.0	13.0	16.5	17.0
Ejection (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
F_{Spring} (N)	980	1,750	2,400	3,850	6,000	9,200	15,000	24,500	40,000
Stroke with tool	4.6	5.1	5.6	6.4	7.4	8.3	9.15	10.8	17.5
Lock screw	SW 3	SW 3	SW 4	SW 4	SW 5	SW 6	SW 6	SW 14	SW 16
sw_1	SW 10	SW 12	SW 15	SW 18	SW 22	SW 27	SW 36	SW 46	SW 55
a_1	5.5	19.5	27	26.5	31.5	31.5	34.5	40.5	56
d_1 min. A / E	25	32	40	50	63	80	100	125	160
d_1 min. B / F		40	50	63	80	100	125	160	
d_6	14	17	21	26	34	42	53	67	85
l_7	40	62.5	78	84	94	98	124	149	188
Order number									
Clamping unit	95.600. 011.3.6	95.600. 008.3.6	95.600. 007.3.6	95.600. 004.3.6	95.600. 001.3.6	95.600. 002.3.6	95.600. 003.3.6	95.600. 009.3.6	95.600. 010.3.6
			F50 = 95.600. 016.3.6	F63 = 95.600. 083.3.2	F80 = 95.600. 015.3.6				
Lock screw	95.600. 271.4.1	95.600. 121.4.1	95.600. 122.4.1	95.101. 597.5.1	95.601. 475.4.1	95.103. 636.5.1	95.103. 636.5.1	95.600. 101.4.1	95.600. 372.4.1
Mounting tool	95.601. 561.3.2	95.601. 111.3.1	95.601. 112.3.1	95.601. 113.3.1	95.601. 114.3.1	95.601. 115.2.1	95.601. 116.2.1	95.601. 117.2.1	95.601. 118.2.1

* The clamping forces in this table correspond to the HSK standard ISO 12164. Our HSK clamping units can realise much higher clamping forces. Please contact us for further information.

HSK BLACK (TYPE B)

A shorter tool changing time represents a constant challenge, which even increased with HSC-manufacturing. In response to the increased technical requirements, OTT-JAKOB has developed a new generation of HSK clamping units for automatic clamping systems.

MEASURES TO MEET THE INCREASED REQUIREMENTS:

BRONZE BUSHING
to conserve the coolant pipe.

TRANSFER SEAL
long-life seal for secure sealing of the coolant pipe.

ADVANCED COATING TECHNOLOGY
ensures minimum friction, thus guaranteeing high pull forces in the long-term.

PERFORMED AN EXTENSIVE TEST
over 9 million cycles with a cycle time of only 0,13 seconds.

THE LOCKING GEOMETRY
guarantees trouble free clamping and unclamping.

Features

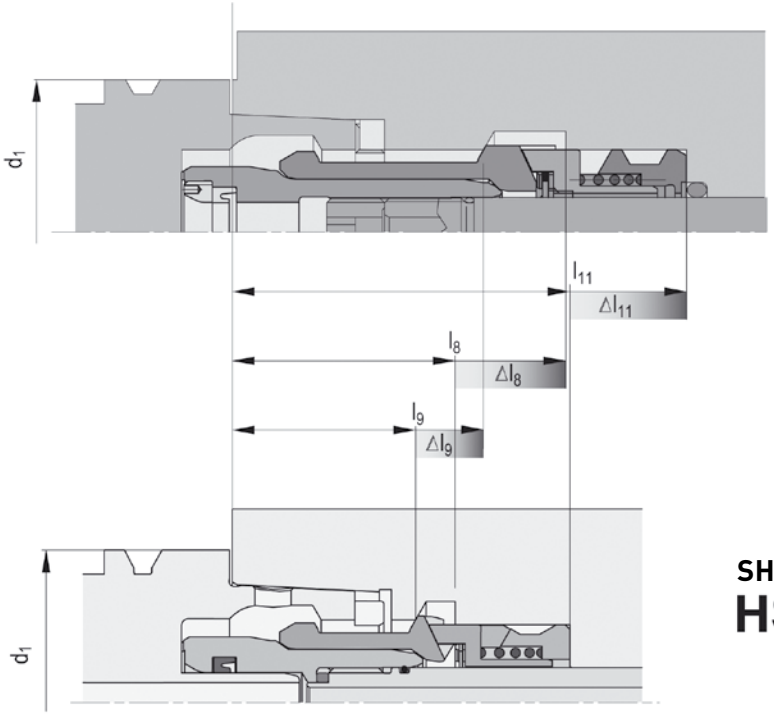
- Parallel moving gripper segments
- High static and dynamic stiffness
- Locking geometry
- High life expectancy

Type		E20	E25	A32 B40 E32	A40 B50 E40 F50	A50 B63 E50 F63	A63 B80 E63 F80	A80 B100	A100 B125	A125 B160	A160
Clamping force F max. (N)*		1,800	2,800	5,000	6,800	11,000	18,000	28,000	45,000	70,000	115,000
Stroke max. (mm)		6.5	7.0	7.5	8.0	9.0	10,.0	11.0	12.5	15.8	24.5
E.M. +/- 0.1 (mm)		5.5	6.5	8.5	8.5	10.5	10.5	13.0	13.0	16.5	17.0
Ejection (mm)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
F_{spring} (N)		600	980	1,750	2,400	3,850	6,000	9,200	15,000	24,500	40,00
Stroke with tool		3.5	4.6	5.1	5.6	6.4	7.4	8.3	9.15	10.8	17.5
Lock screw		SW 2	SW 3	SW 3	SW 4	SW 4	SW 5	SW 6	SW 6	SW 14	SW 16
sw_1		SW 8	SW 10	SW 12	SW 15	SW 18	SW 22	SW 27	SW 36	SW 46	SW 55
a_1		7	5.5	19.5	27	26.5	31.5	31.5	34.5	40.5	56
d_1 min.	A / E	20	25	32	40	50	63	80	100	125	160
	B / F			40	50	63	80	100	125	160	
d_6		11	14	17	21	26	34	42	53	67	85
l_7		32	40	62.5	78	84	94	98	124	149	188
Order number											
Clamping unit 95.600. ...		149.3.6	038.3.6	113.3.6	034.3.6	035.3.6	033.2.6	036.2.6	037.2.6	182.1.6	205.1.6
Lock screw 95. ...		603. 185. 4.1	600. 271. 4.1	600. 121. 4.1	600. 122. 4.1	101. 597. 5.1	601. 475. 4.1	103. 636. 5.1	103. 636. 5.1	600. 101. 4.1	600. 372. 4.1

* The clamping forces in this table correspond to the HSK standard ISO 12164. Our HSK clamping units can realise much higher clamping forces. Please contact us for further information.

HSK BLACK (TYPE BK)

Our HSK-clamping unit type B is also available in shorter versions. (Note: Not to be confused with repair-clamping-units on page 26)

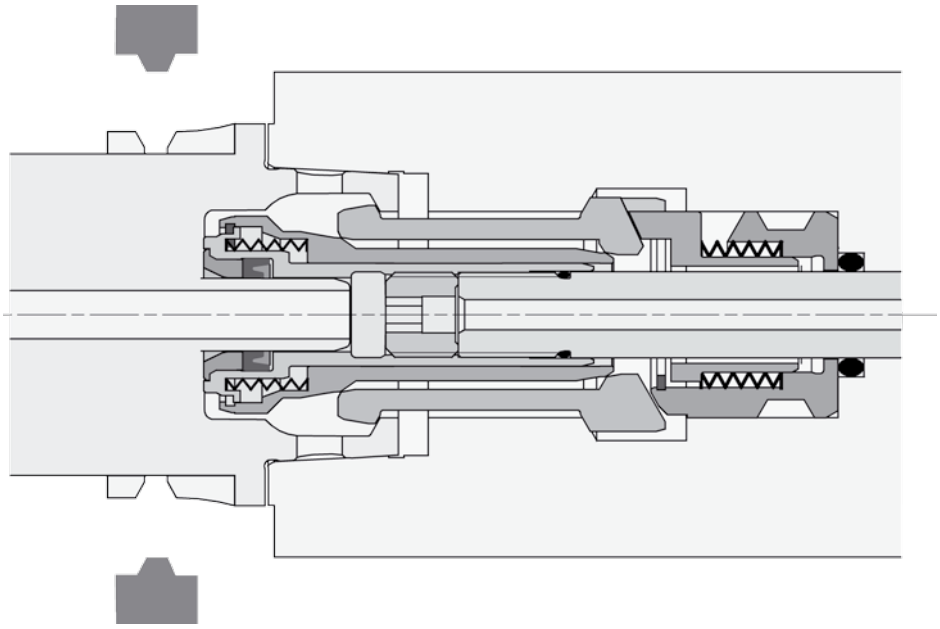


STANDARD VERSION
HSK B

SHORT VERSION
HSK B-K

Dimensions			l_9	l_8	l_{11}
A32	B	95.600.113.3.6	30	43	62.5
	B-K	95.600.045.3.6	25	38	57.5
A40	B	95.600.034.3.6	44	58	78
	B-K	95.600.173.2.6	25.5	35	50
A50	B	95.600.035.3.6	45	61	84
	B-K	95.600.118.3.6	31.5	45	64
	B-K	95.600.176.2.6	30	37.5	53
A63	B	95.600.033.2.6	52	69	94
	B-K	95.600.051.2.6	40	57	82
	B-K	95.600.172.2.6	38	46.5	65
A80	B	95.600.036.2.6	56	72	98
	B-K	95.600.152.1.6	45	59	77
A100	B	95.600.037.2.6	70	93	124
	B-K	95.600.156.1.6	55	73.5	92
A125	B	95.600.182.1.6	86	112.5	149
	B-K	95.600.159.1.6	68	88	107

The HSK clamping unit 2S (2 Step) is the next generation of OTT-JAKOB clamping units. This clamping unit features a holding function for the tool. When the clamping unit is positioned for tool change, the tools are held by a specified force in the tool change position. With automatic tool changing, the tool changer must be rigidly designed to withstand the tool pull forces.
All types of clamping units of the same size fit in the same spindle contour.

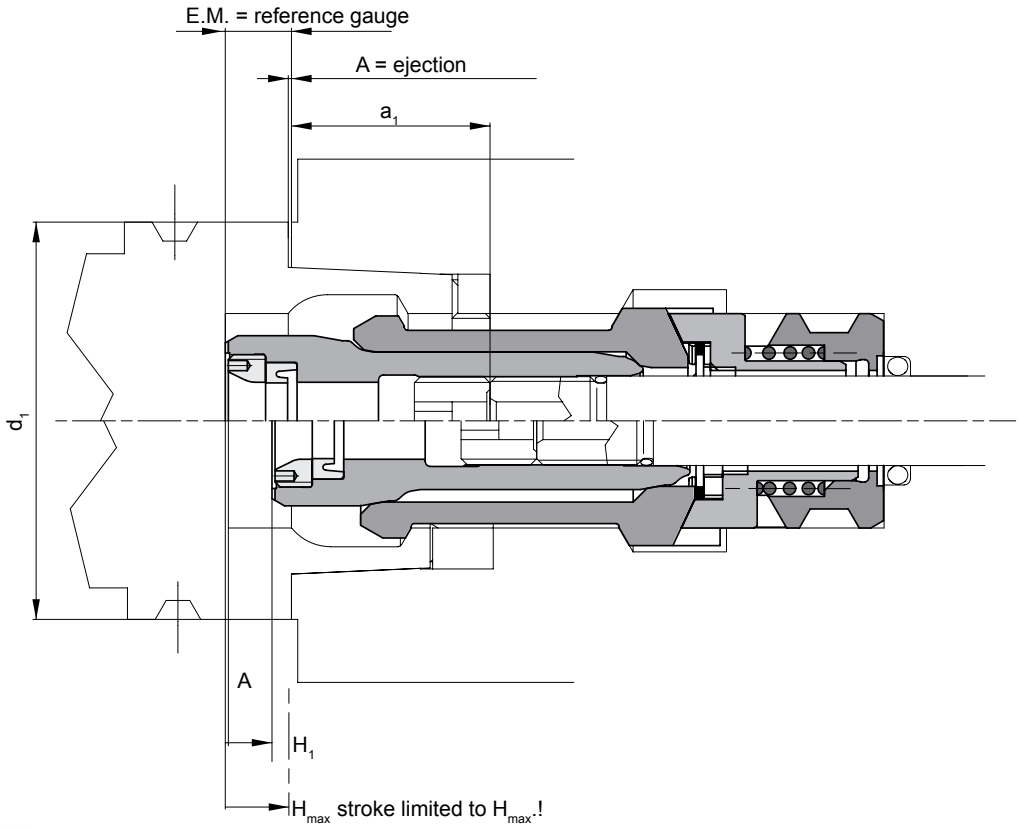


Features

- Parallel moving gripper segments
- High static and dynamic stiffness
- Locking geometry
- High life expectancy
- Tool holding function

HSK HIGHER TRANSFORMATION RATIO (TYPE D)

HSK Type D is based on Type B. Although having an identical inner contour, this clamping unit offers a higher transmission ratio. Type D is the right choice, when the spring force is lower than usually due to lack of space, but the normal pull force is required.



Features

- Higher transformation ratio
- High static and dynamic stiffness
- Parallel moving segments
- Positive guide
- Low-wear

COMBINATION OPTIONS

COMBINATIONS TO FIT YOUR NEEDS:

Every HSK type allows to combine the higher transmission ratio with either holding or short clamping units. This flexibility enables us to offer a variety of options and products that are tailored to our customer's needs. Many combination variants have already been realised successfully and are available on demand.

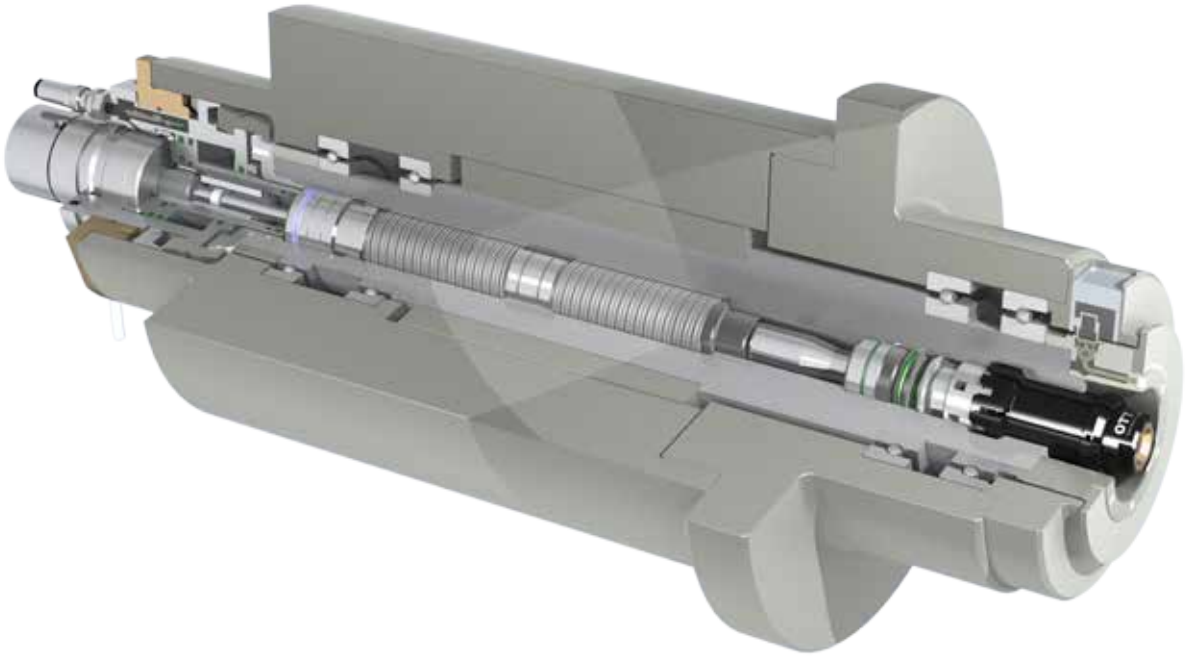
Type D

Type B

Type K

Type B-K

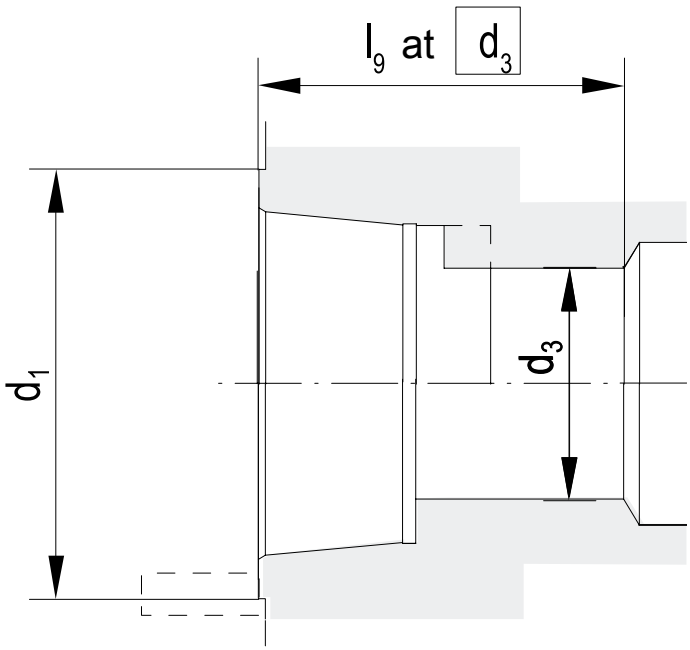
Type C

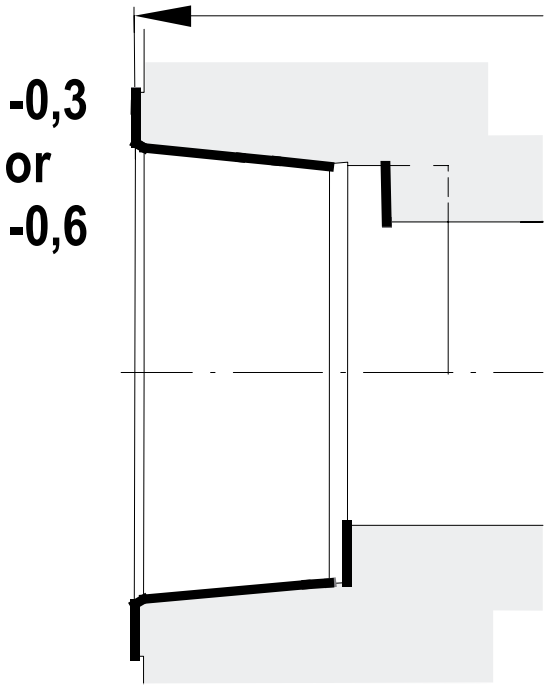


REPAIR-CLAMPING-UNITS

REGRINDING OF THE SPINDLE SHAFT:

If fashioning of the spindle inside contour in the tool holder area is necessary, special repair-clamping-units are available.



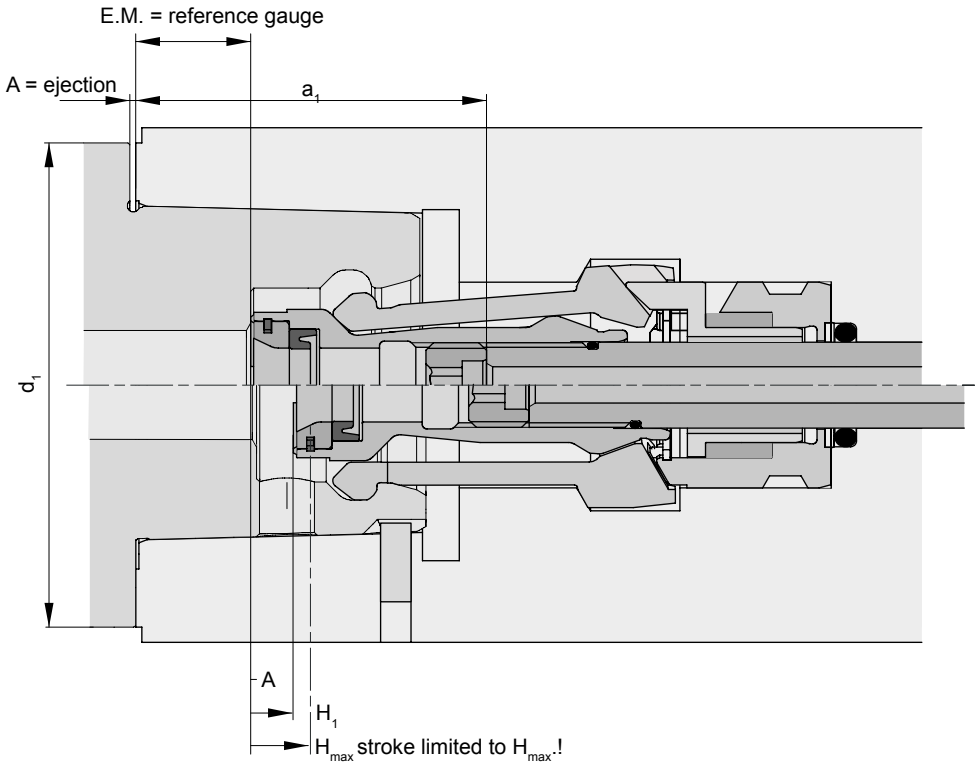


Nominal size	Clamping Unit HSK B		Repair-clamping-units HSK B-E 0.3		Repair-clamping-units HSK B-E 0.6	
	complete	l_9	complete	l_9	complete	l_9
E25	95.600.038.3.6	18.5	95.600.071.9.6	18.2	95.600.087.9.6	17.9
A32 / B40 / E32	95.600.113.3.6	30.0	95.600.072.9.6	29.7	95.600.088.9.6	29.4
A40 / B50 / E40	95.600.034.3.6	44.0	95.600.073.9.6	43.7	95.600.090.9.6	43.4
A50 / B63 / E50	95.600.035.3.6	45.0	95.600.074.9.6	44.7	95.600.091.9.6	44.4
A63 / B80 / E63	95.600.033.2.6	52.0	95.600.075.9.6	51.7	95.600.095.9.6	51.4
A80 / B100	95.600.036.2.6	56.0	95.600.076.9.6	55.7	95.600.096.9.6	55.4
A100 / B125	95.600.037.2.6	70.0	95.600.077.9.6	96.7	95.600.097.9.6	69.4

REGRINDING OF THE CONTROL-EDGE:

If fashioning of the control-edge is necessary, special repair-clamping-units with 0,3mm are available.
Please contact us for further information.

The polygon shank cone owes its name to its unique tapered polygonal shape. Its basic construction is identical to the HSK interface. The face contact ensures that the tool is held in position securely with no play. Also, PSC transmits high torques force- and form-fit without any additional elements, such as drive keys.



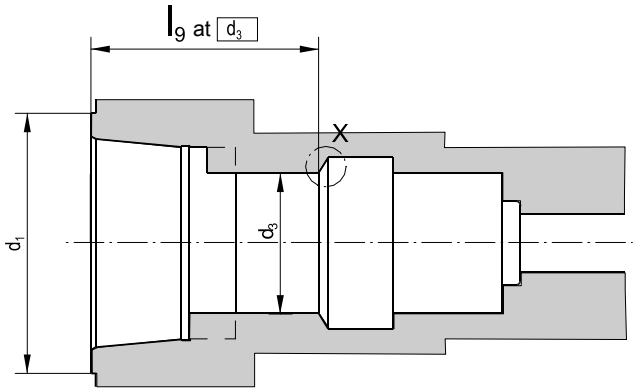
Features

- Part of the OTT-JAKOB modular system
- Mounting group including spindle sleeve for cleaning air and medium transfer
- Low wear
- Suitable for coolant operation

Nominal size	63	80	100
d1 min	63	80	100
A	0.8	1	1
E.M. ±0,1	10.2	19	19
Hmax.	9	10	11.5
H1	6.4	7.4	8.3
SW1	22	24	27
a1	41.5	58	64.5

HSK CONTROL-EDGE

The measuring device for the HSK control-edge is used to determine the measurement l_9:



Nominal size	„reference length“		$L_{1\ nominal}$	Order number
	$l_{9\ js8}$	(at d_3)		
E 20	15 ±0.003	(11)	15.577	95.601.923.3.2
E 25	18.5 ±0.0165	(14)	19.077	95.601.342.3.2
A 32 / B 40 / E 32	30 ±0.0165	(17)	30.577	95.601.340.3.2
A 40 / B 50 / E 40	44 ±0.0195	(21)	44.577	95.601.332.3.2
A 50 / B 63 / E 50 / F 63	45 ±0.0195	(26)	45.577	95.601.322.3.2
A 63 / B 80 / E 63 / F 80	52 ±0.023	(34)	52.866	95.600.760.3.2
A 80 / B 100	56 ±0.023	(42)	56.577	95.601.358.3.2
A 100 / B 125	70 ±0.023	(53)	70.866	95.601.361.3.2
A 125 / B 160	86 ±0.027	(67)	86.866	95.601.363.3.2
A 160	113 ±0.027	(85)	113.866	95.601.365.3.2
A 50 short / B 63 short / E 50 short / F 63 short	31.5 ±0.0195	(26)	32.077	95.601.329.3.2
A 63 short	40 ±0.0195	(34)	40.866	95.600.898.3.2
A 63 short - 38	38 ±0.0195	(34)	38.866	95.601.204.3.2
A 80 short - 45	45 ±0.0195	(42)	45.577	95.601.748.3.2
A 100 short - 55	55 ±0.023	(53)	55.866	95.601.723.3.2
A 125 short - 68	68 ±0.023	(67)	68.866	95.601.859.3.2

PREVENTIVE MAINTENANCE SCHEDULE

To guarantee the function of the power drawbar and comply with the warranty conditions, the following preventive maintenance schedule must be adhered to.

Every week

- Check the packing ring in the clamping unit (visual check)
- Check the gripper: is it damaged or dirty, is it sufficient greased (visual check)
  Pay attention to:
  The regrease cycle depends on the loss of lubrication of the clamping unit.
  Cause for the loss of lubrication:
  - Seal in the clamping cone is defective
  - Type of medium used can desolve grease
  - Cleaning spray from outside directly on the clamping unit etc.
- Note: METAFLUX Moly-Spray No. 70-82 is recommended for a quick regreasing of the clamping unit without gripper-disassembly

Every six month or after 200,000 tool changes at the latest

- In unclamped position: Check dimension gauge E.M.
- Counter again through a clamped tool
- Test pull-in-force (our recommendation: use pull force measurement device Power-Check 2):
  If the pull-in-force is lower than 70% of the nominal value, following procedures have to be performed in the following sequence:
  - regrease and test pull-in-force again
  - exchange gripper and test again
  - exchange drawbar completely

Every year or after 500,000 tool changes at the latest

- Exchange the packing ring

GREASE FOR HSK-CALMPING UNIT

Name	Quantity	Order number
METAFLUX-grease-paste Nr. 70-8508*	4 g	0.929100.012
METAFLUX-moly-spray Nr. 70-82	400 ml	06.21001.010
KLÜBER-grease-paste ME 31-52	10 g	06.21001.014
KLÜBER-spray ALTEMP Q NB 50	400 ml	06.21001.015

AID FOR REGREASING

with paste in mounted state (clamped without tool)

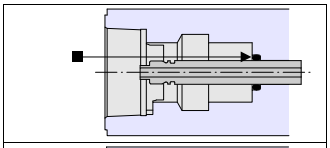
Name	HSK-size	Order number
brush	A50 - A100	06.16001.001

* original lubrication and first equipment.
Note: Do not mix greases of different manufacturers!

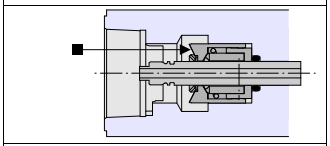
BONUS INFORMATION

ASSEMBLY

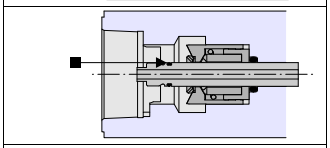
- Clean spindle inside contour
- make sure that edges are properly rounded
- grease O-rings



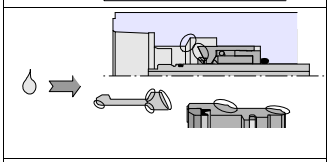
- mount o-ring in the spindle (where applicable)



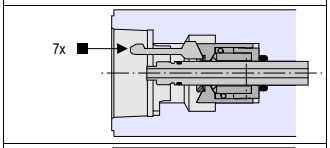
- grease spacer with mounting grease
- push spacer into spindle and check for ease of movement



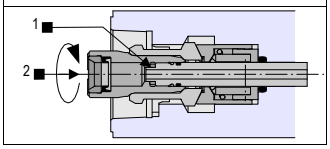
- mount o-ring on the drawbar; use protective sleeve for threaded drawbar end



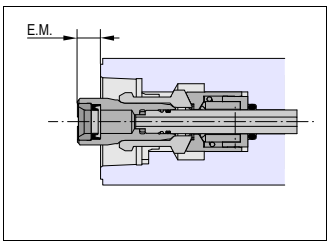
- grease area of contact
- METAFLUX-Paste 70-8508 or KLÜBER-Paste ME 31-52
  Do not mix the grease!



- snap gripper segments in the spacer; ensure that the numbers match



- put the distance piece into the clamping cone
- screw the clamping cone onto the drawbar and tighten it



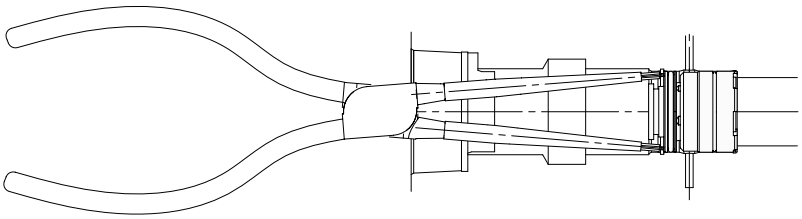
IN UNCLAMPED POSITION:

- detect the difference to the gauge dimension E.M.
- screw out the clamping cone
- match up the distance piece
- screw the clamping cone with the distance piece onto the drawbar again and tighten it
- MA = 10 Nm
  check the gauge dimension E.M

ASSEMBLY PLIERS

for sealing bushings and radial-axial-bushings

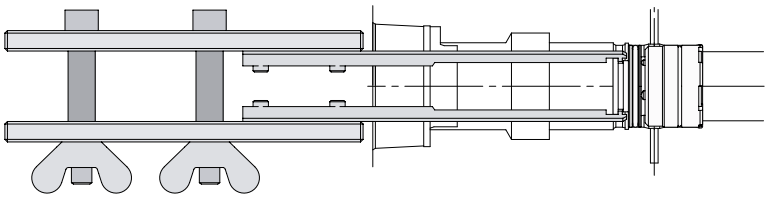
Size	Order number
A32-50	95.602.735.3.2
A63-A125	95.600.977.3.2



MOUNTING TOOL+ DISMOUNTING TOOL

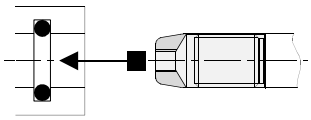
For bushings

Size	Order number
A32	95.602.617.3.2
A40-A100	95.601.609.3.2

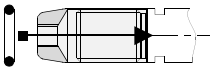


MOUNTING SLEEVE

- for assembly of drawbar to protect sealings of sealing bushings and radial-axial-bushings

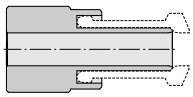


- for assembly of drawbar seal



MOUNTING TOOL

for easier assembly of HSK-Gripper segments



Nominal size	thread	L	Order number
A 32 / B 40 / E 32	M6		95.604.790.4.1
A 40 / B 50 / E 40 / F 50	M8		95.603.394.4.1
A 50 / B63 / E 50 / F 63	M10		95.603.795.3.1
	M12		95.604.590.4.1
A 63 / B 80 / E 63 / F 80	M14		95.601.169.4.1
A 80 / B 100	M16	29.4	95.605.252.4.1
A 100 / B 125: only for drawbar	M16	40	95.601.360.4.1
A 100 / B 125: only if HSK M20x1,5	M20		95.602.168.3.1
A 125 / B 160	M24		95.602.384.4.1

Nominal size	Order number	
	Type K (silver)	Type B (black)
E25	95.601.561.3.2	
A 32 / B 40 / E 32	95.601.111.3.1	
A 40 / B 50 / E 40 / F 50	95.601.112.3.1	
A 50 / B63 / E 50 / F 63	95.601.113.3.1	–
A 63 / B 80 / E 63 / F 80	95.601.114.3.1	–
A 80 / B 100	95.601.115.2.1	–
A 100 / B 125	95.601.116.2.1	–
A 125 / B 160	95.601.117.2.1	–
A 160	95.601.118.2.1	–

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