

CLAMPING UNIT

HSK-B-K



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symbol explanation



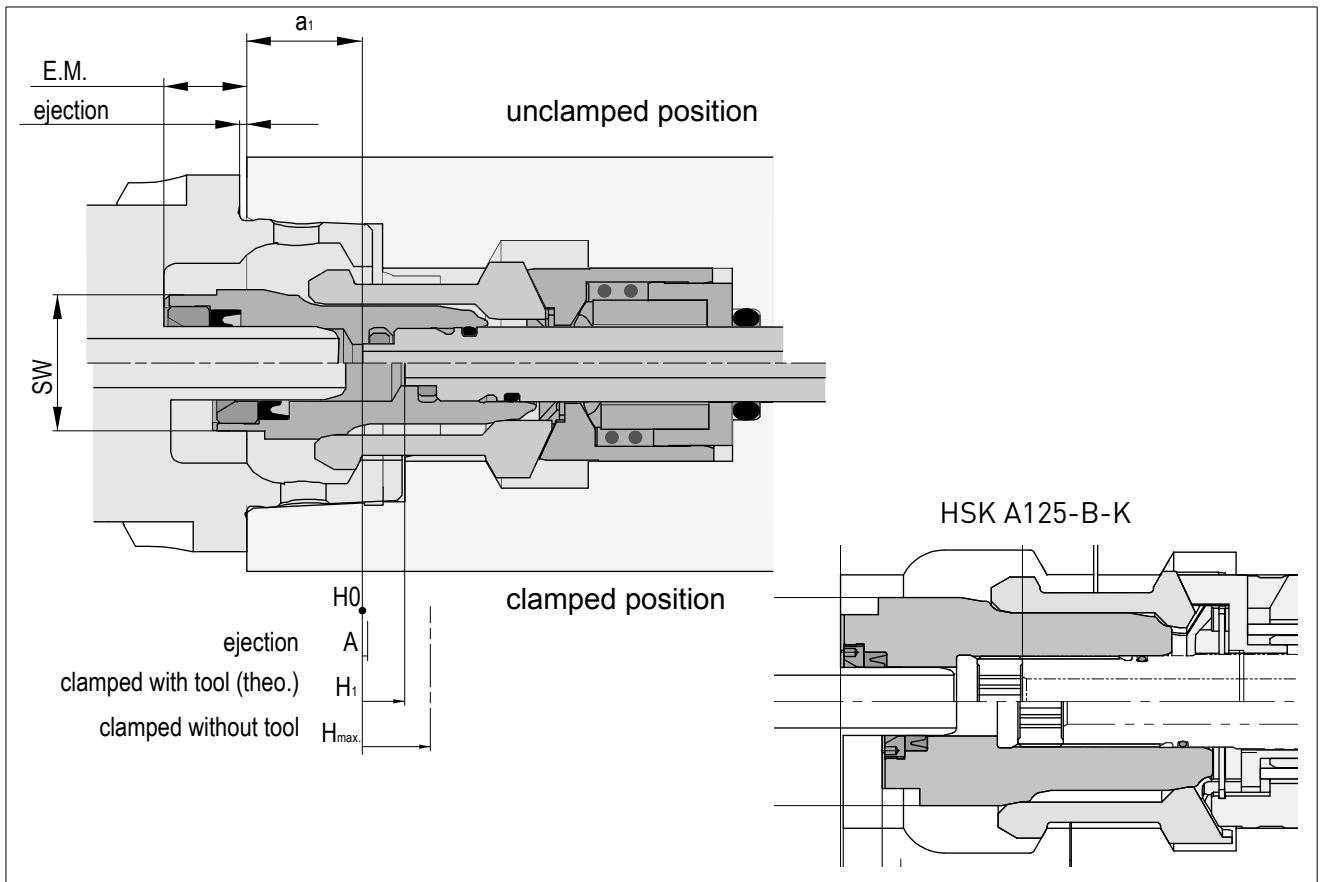
keep attention -
dangerous!



keep attention - malfunction!

1 PRODUCT DESCRIPTION

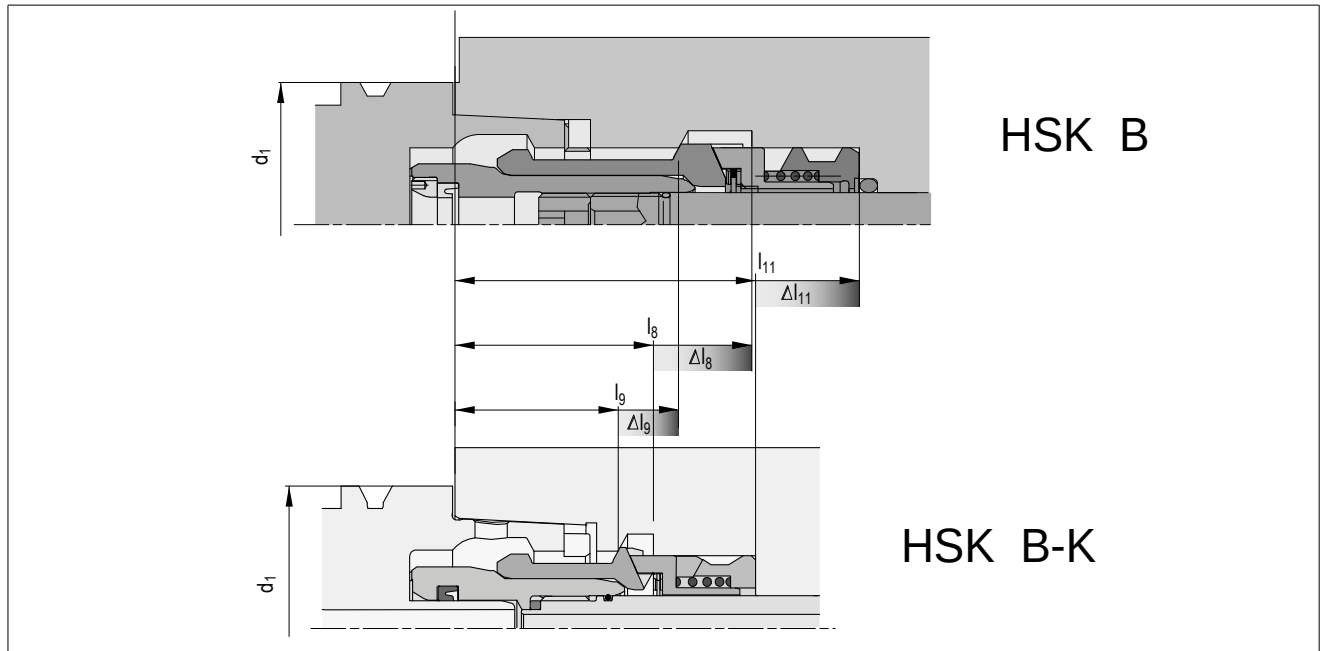
1.1 DIMENSIONS



d_1	32	40	50	63	80	100	125 *
E.M. $\pm 0,1$	8,5	8,5	10,5	10,5	13	13	16,5
a_1	13,5	14	15	16,5	14,5	15,5	31,5
A	0,5	0,5	0,5	0,5	0,5	0,5	0,5
H_1	5,1	5,6	6,4	7,4	8,3	9	10,8
$H_{max.}$	7,5	8	9	10	11	12,5	15,8
SW	12	15	18	24	27	36	46

* HSK A125-B-K: with lock screw (without distance piece)

1.2 ORDER NUMBERS



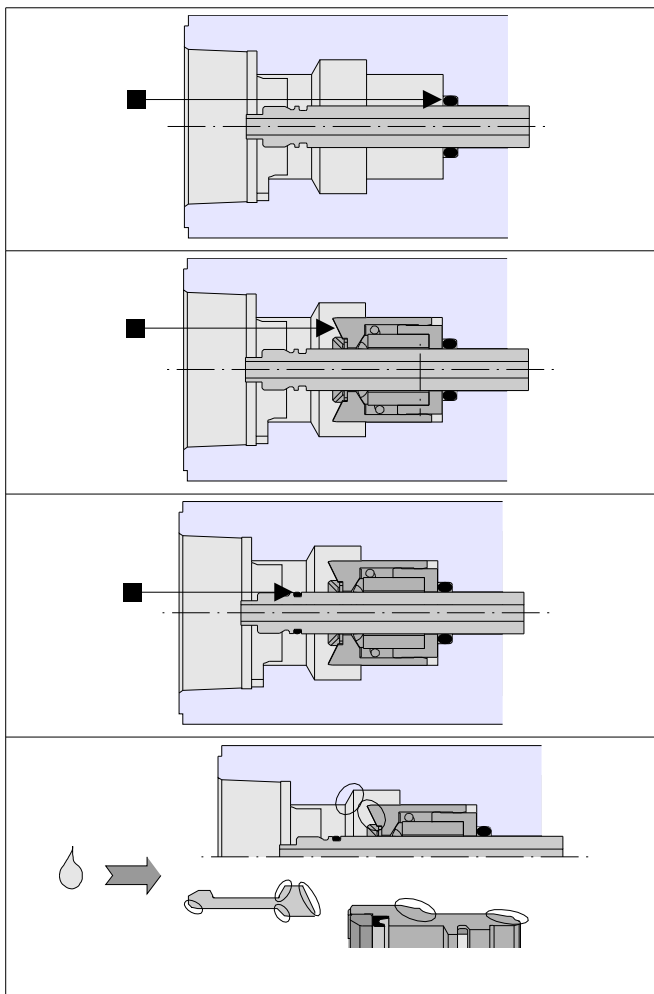
clamping unit	l_9	l_8	l_{11}	order-no.
HSK A32-B	30	43	62,5	95.600.113.3.6
HSK A32-B-K	25	38	57,5	95.600.045.3.6
HSK A40-B	44	58	78	95.600.034.3.6
HSK A40-B-K	25,5	35	50	95.600.173.2.6
HSK A50-B	45	61	84	95.600.035.3.6
HSK A50-B-K L64	31,5	45	64	95.600.118.3.6
HSK A50-B-K L53	30	37,5	53	95.600.176.2.6
HSK A63-B	52	69	94	95.600.033.2.6
HSK A63-B-K L82	40	57	82	95.600.051.2.6
HSK A63-B-K L65	38	46,5	65	95.600.172.2.6
HSK A80-B	56	72	98	95.600.036.2.6
HSK A80-B-K	45	59	77	95.600.152.1.6
HSK A100-B	70	93	124	95.600.037.2.6
HSK A100-B-K	55	73,5	92	95.600.156.1.6
HSK A125-B	86	112,5	149	95.600.182.1.6
HSK A125-B-K	70	88	107	95.600.159.1.6

1.3 FEATURES

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

2 ASSEMBLY

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



- ▲ mount o-ring in the spindle

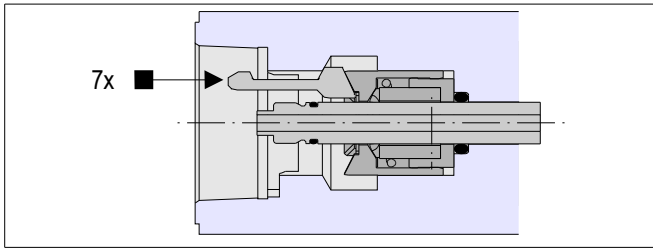
- ▲ grease spacer with mounting grease
- ▲ push spacer into spindle and check for ease of movement

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

- ▲ grease area of contact
- ➔ METAFLUX-Paste 70-8508
- or
- ➔ LÜBER-Paste ME 31-52
- do not mix the grease!

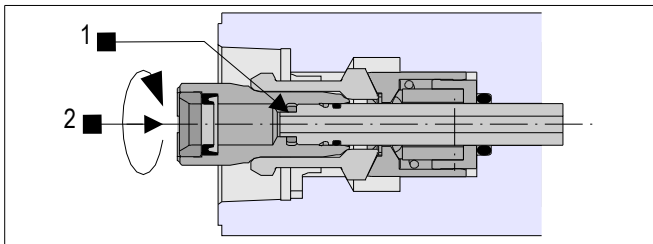
PRODUCT INFORMATION

HSK-B-K

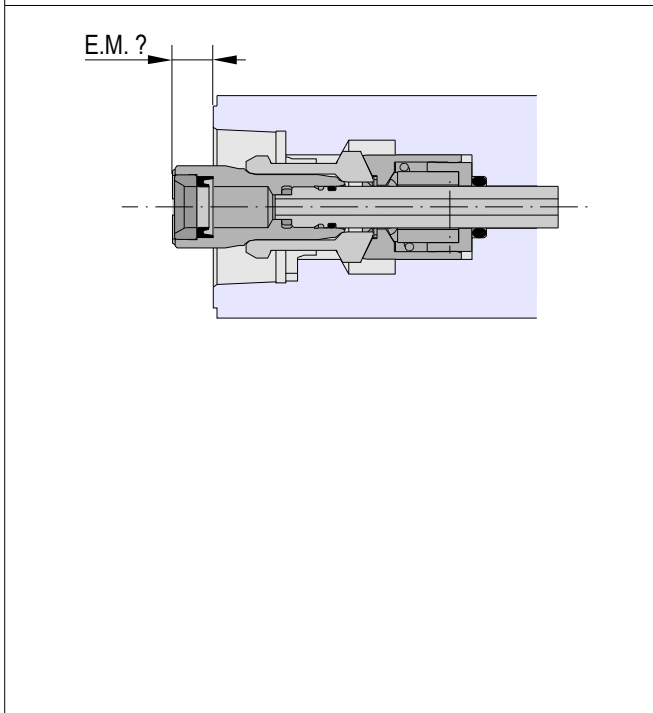


- ▲ snap gripper segments in the spacer;
ensure that the numbers match

with HSK A125-B-K: next step see next page



- ▲ put the distance piece / disc kit
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.

gauge dimension:

- A32: 8,5 mm
- A40: 8,5 mm
- A50: 10,5 mm
- A63: 10,5 mm
- A80: 13 mm
- A100: 13 mm
- A125: 16,5 mm

- ▲ 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

tightening torque:

- A32: 10 Nm
- A40: 10 Nm
- A50: 20 Nm
- A63: 30 Nm
- A80: 30 Nm
- A100: 50 Nm

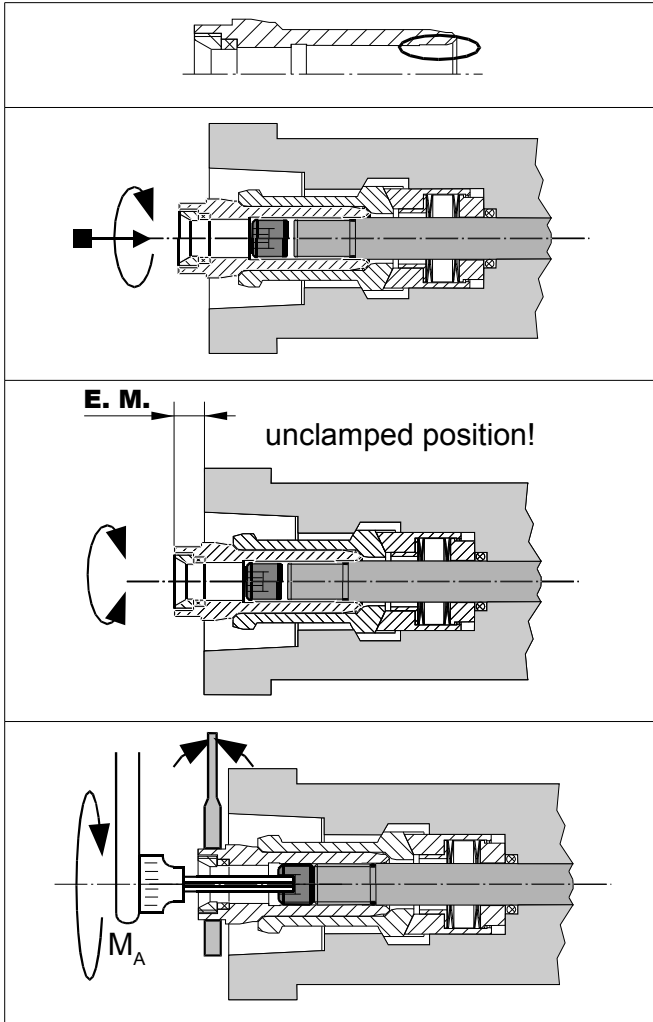
- ▲ check the gauge dimension E.M.

Check after approx. 100 strokes

In unclamped position:

- ▲ Check dimension gauge E.M.
- ▲ check the lock of the clamping cone

Different with HSK A125-B-K



- ▲ grease clamping cone with mounting grease
- ▲ screw clamping cone (pre-assembled with seal, protective sleeve and lock screw) onto the drawbar shaft at maximum to the setting dimension; do not continue to turn since otherwise the o-ring on the drawbar shaft will be damaged!

- ▲ adjust gauge dimension E.M.

gauge dimension:

- A125: 16,5 mm

- ▲ tighten the lock screw

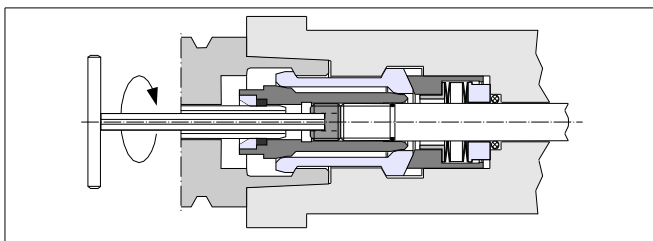
tightening torque::

- A125: 100 Nm

Check after approx. 100 strokes

In unclamped position:

- ▲ Check dimension gauge E.M.



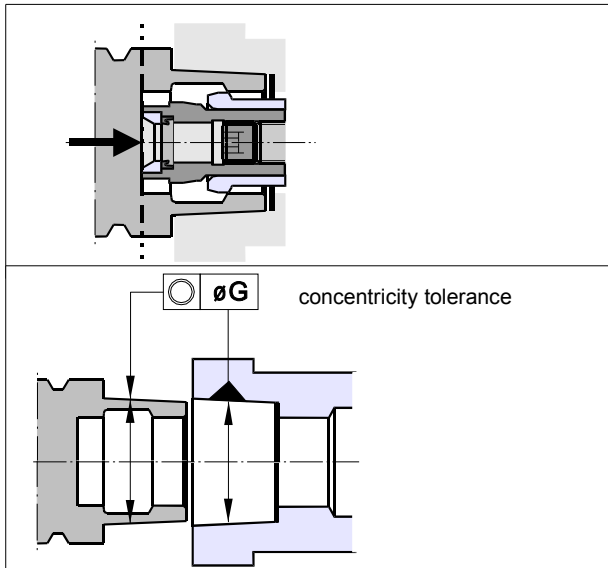
- ▲ re-tighten through a clamped tool

3 OPERATION



No rotation without clamped tool!
Only use technically perfect tools!

3.1 TOOL INSERTING



Do not insert tool into the spindle taper when rotating!

The tool has to be inserted all the way to the plane surface of the clamping cone to prevent misclamping!

Our recommendation for the concentricity tolerance for tool changing as well as the maximum force on the plane surface on the clamping cone is shown in the table below:

standard size	E 25	A 32 B 40 E 32	A 40 B 50 E 40 F 50	A 50 B 63 E 50 F 63	A 63 B 80 E 63 F 80	A 80 B 100	A 100 B 125	A 125 B 160	A 160
concentricity (øG) [mm]	0,6	0,7	0,7	0,8	0,8	1,0	1,0	1,0	1,2
tool changer force max. [kN]	1	1	1,4	2,2	3,6	5,6	9	9	9

3.2 OPERATING CONDITIONS



- Avoid additional stress contributed to force from brackets or any other connection and or support, proximity switches
- impact loads < 25 g
- the spring must be protected against corrosive media and dirt exposure
- the tool interface must be free of chips and substantial cooling lubricant residue
- allowable temperature 10° C (on the inside of the spindle)

3.3 INTERN COOLING SUPPLY



- Because of possible damage at the coolant tube interface (tube/seal) we recommend drainage holes in the tool interface area
- during installation of tool:
pressure in clamp chamber $p < 0,5 \text{ bar}$
- In order to minimize wear, the coolant tube at the interface of the gripper assembly and tool should be shaped as follows:
 - minimum and easy going and angular flexing (per ISO 12164-1)
 - ground
- Operation with coolant is only permitted if free flow is guaranteed. Therefore, you must only use tool holders with coolant tubes and tools with coolant thru holes. Otherwise, it is possible that the spindle gets flooded or the seals are damaged by the pressure spikes.

3.4 COOLANT



Guidelines and technical specifications for the coolant use in the machine:

Coolant use must conform to the current regulations of the legislation and the professional association.

Our products are to the greatest possible extent protected by the materials used or by means of a passivated surface against corrosion and therefore suited for use with water. The rate of corrosion is strongly dependent on the contents of the media (e.g. chlorine is very much increasing the rate of corrosion), as well as the environment in which the products are being operated (e.g. the difference in electrical potential between rotor and stator in spindles).

Suitable protective measures such as the utilization of corrosion inhibitors will extend the service life in every way.

Furthermore, you must only use coolants which conform with the specs listed on the table below.

Parameter / test procedure	Limited values
Corrosion protection according to DIN 51360 section 2	No corrosion after 2 hours
Elastomer compatibility	No change of the shore hardness and/or the elongation OTT-JAKOB applies FKM (VITON®)
Nonferrous metal compatibility	No corrosion on copper, brass and aluminum parts
Glue residue after slow evaporation at 50 degrees	Non sticky! No residue! Easily removable.

3.5 GENERAL



- Recommendation: install a limit switch for the drawbar
- Follow maintenance intervals!

4 MAINTENANCE

4.1 MAINTENANCE INTERVALS

To guarantee the function of the power drawbar the following maintenance intervals must be adhered to.

Every week

- ▲ Check the packing ring in the clamping unit (visual check)
- ▲ Check the clamping unit if it is polluted or damaged; is it sufficient greased? (visual check)

Please see below:

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

Regrease clamping unit → #4.2 // 12

Every six month or after 200.000 tool changes at the latest

- ▲ In unclamped position: Check dimension gauge E.M.
- ▲ check the lock of the clamping cone
- ▲ Test Pull-in-force (we recommend:use Power-Check):
If the pull-in-force is smaller than 70% of the nominal value, following procedures have to be performed in the following sequence:
 - regrease (→ #4.2 // 12) and test pull-in force again
 - exchange clamping unit and test again
 - exchange drawbar completely

Every year or after 500.000 tool changes at the latest

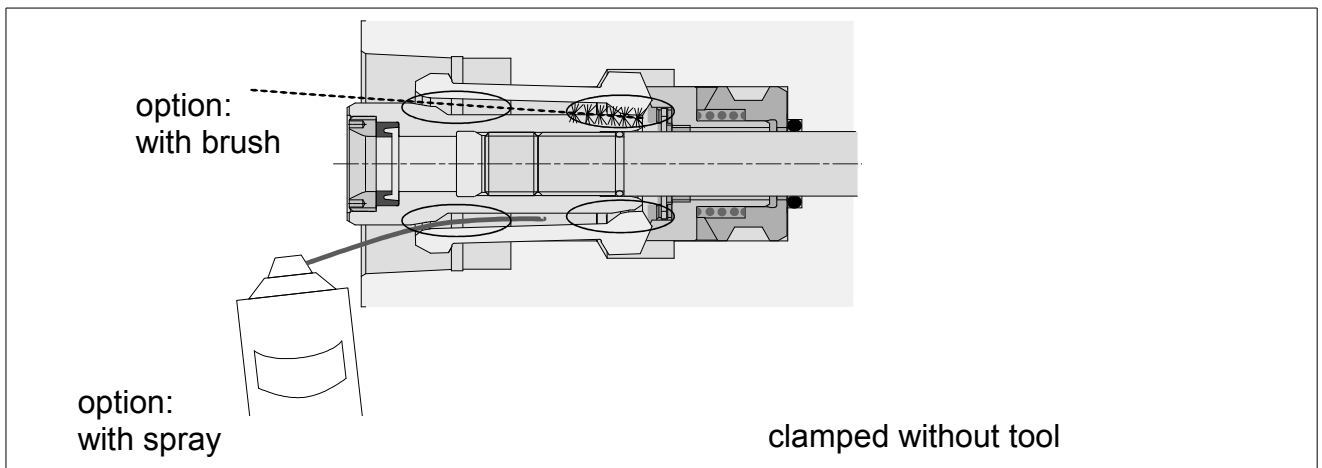
- ▲ Exchange the packing ring → #4.3 // 13

4.2 REGREASE CLAMPING UNIT



Note: take only grease of one company; do not mix the grease!

Regrease in assembled condition



If very dirty: take clamping unit out and clean.

Then grease clamping unit and reassemble → #2 // 5

Grease for HSK-clamping unit

designation	quantum	order-no.
* METAFLUX-Fett-Paste Nr. 70-8508	4 g	0.929100.012
METAFLUX-Moly-Spray Nr. 70-81	400 ml	06.21001.017
METAFLUX-Moly-Spray Nr. 70-82	400 ml	06.21001.010
KLÜBER-Fett-Paste ME 31-52	10 g	06.21001.014
KLÜBER-Spray ALTEMP Q NB 50	400 ml	06.21001.015

* first equipment



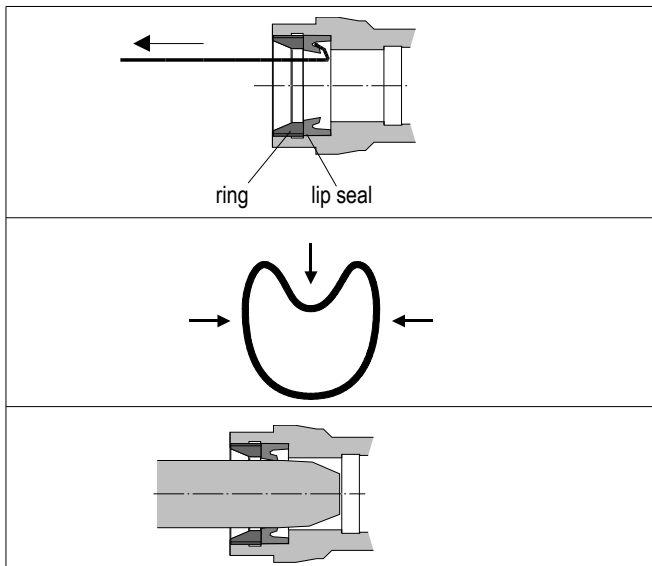
Note: take only grease of one company; do not mix the grease!

Aid for regreasing with paste in mounted state (clamped without tool):

designation	HSK-size	order-no.
brush	A32 - A100	06.16001.001

4.3 EXCHANGE OF THE LIP SEAL

For dismantling the lip seal it is not necessary to take away the ring. Only when the ring is damaged it must be exchanged.



▲ Take away the damaged lip seal with a hook or pliers

▲ Compress the lip ring and build in; look for the build in position

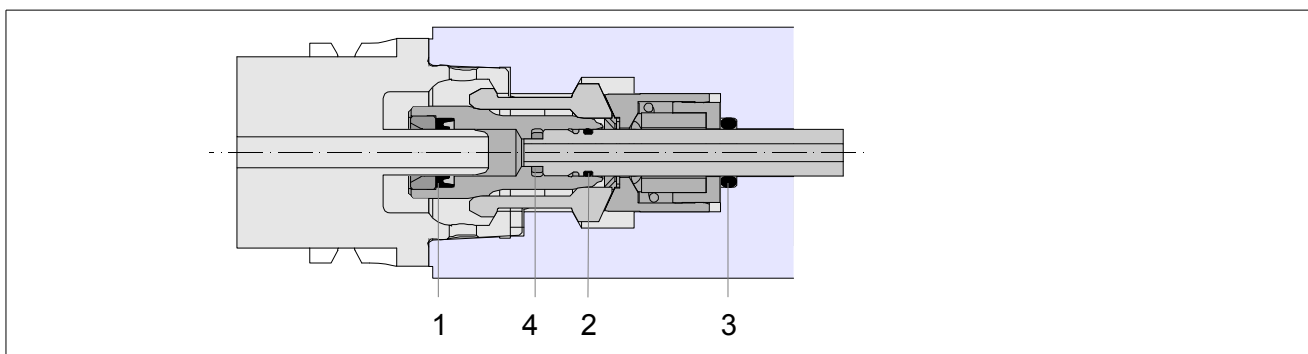
▲ press the seal with a blunt object against the lining

▲ take a mandrel to bring it in the final position

4.4 BREAK OF A GRIPPER SEGMENT

▲ If one of the gripper segments should break, the complete clamping unit needs to be replaced!

4.5 SPARE PARTS

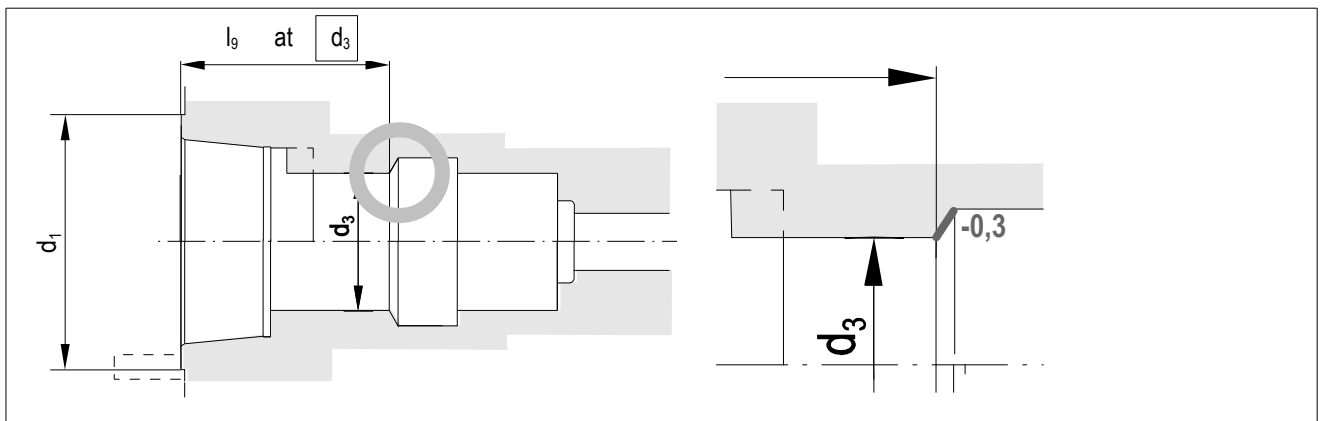


clamping unit	HSK	lip seal	O- ring			distance piece disc kit
			1	2	3	
nominal size	complete	1	2	3	4	
A32	95.600.045.3.6	0.926030.110 6 x 10 x 3,0	0.926010.205 4,5 x 1,0	0.926010.233 6,3 x 2,4		95.601971.4.1
A40	95.600.173.2.6	0.926030.112 8 x 14 x 4,0	0.926010.044 6,0 x 1,5	0.926010.047 8,0 x 3,0		95.603.718.9.2
A50	95.600.118.3.6 & 95.600.176.2.6	0.926030.111 10 x 15 x 3,5	0.926010.170 8,0 x 1,5	0.926010.172 10,0 x 3,0		95.601.426.4.1
A63 L82	95.600.051.2.6	0.926030.117 12 x 18,5 x 4,5	0.926010.321 11,5 x 1,5	0.926010.164 13,87 x 3,53		95.602.176.4.1
A63 L65	95.600.172.2.6	0.926030.117 12 x 18,5 x 4,5	0.926010.104 11,0 x 1,5	0.926010.164 13,87 x 3,53		95.602.176.4.1
A80	95.600.152.1.6	0.926030.108 14 x 20 x 4,8	0.926010.260 13 x 1,5	not included in delivery volume!		95.603.437.4.1
A100	95.600.156.1.6	0.926030.109 16 x 24 x 5,5	0.926010.168 16 x 2,5	not included in delivery volume!		95.603.373.4.1
A125	95.600.159.1.6	0.926030.114 18 x 26 x 5,5	0.926010.145 20,0 x 2	0.926010.295 20,0 x 2,5		---
material: Viton, 80 SHORE A						

4.6 REPAIR CLAMPING UNIT HSK B-K-E

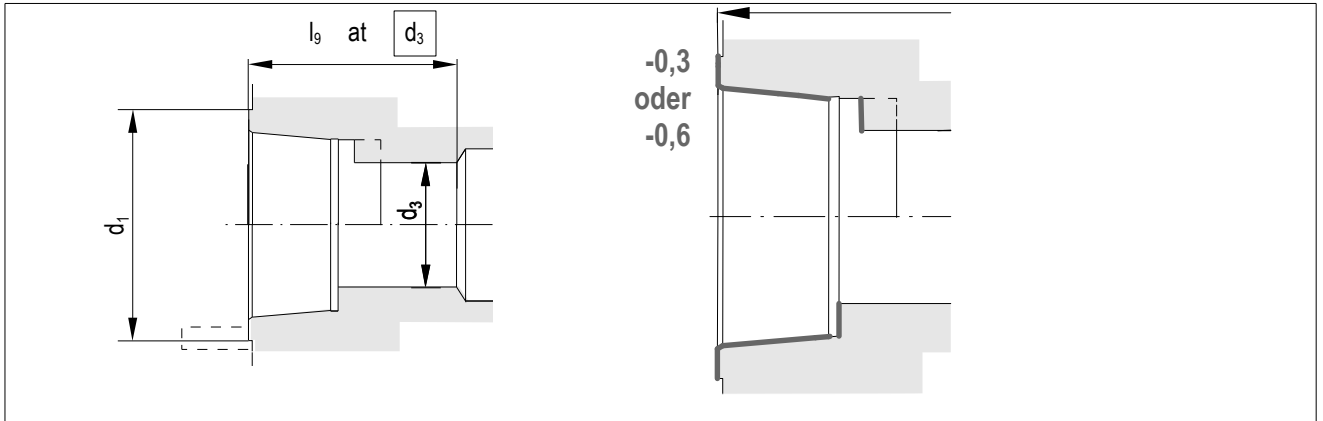
If fashioning necessary, we have repair-clamping-units.

Fashioning edge



nominal size	clamping unit HSK		repair-clamping-unit HSK B-K-E1	
	complete	l_9	complete	l_9
HSK A32-B-K	95.600.045.3.6	25	95.600.079.9.6	24,7
HSK A50-B-K L64	95.600.118.3.6	31,5	95.600.081.9.6	31,2
HSK A63-B-K L82	95.600.051.2.6	40	95.600.083.9.6	39,7
HSK A80-B-K	95.600.152.1.6	45	95.600.153.9.6	44,7
HSK A125-B-K	95.600.159.1.6	70	95.600.168.9.6	69,7

Fashioning receiver



nominal size	clamping unit HSK		repair-clamping-unit HSK B-K-E 0,3		repair-clamping-unit HSK B-K-E 0,6	
	complete	l_9	complete	l_9	complete	l_9
HSK A32-B-K	95.600.045.3.6	25	95.600.080.9.6	24,7	95.600.089.9.6	24,4
HSK A50-B-K L64	95.600.118.3.6	31,5	95.600.082.9.6	31,2	95.600.068.9.6	30,9
HSK A63-B-K L82	95.600.051.2.6	40	95.600.084.9.6	39,7	95.600.069.9.6	39,4
HSK A80-B-K	95.600.152.1.6	45	95.600.154.9.6	44,7	-	

4.7 TROUBLE SHOOTING HSK

trouble	reason
tool is not pulled in correctly:	gage dimension out of adjustment
	lock screw got loose
	wrong or faulty spindle-inside-contour
	wrong or faulty tool-inside-contour
	spring stack broken (travel not sufficient)
	clamping unit worn out
	tool feed not correct
	air blow off prevents tool from seating during tool change
tool is pulled out during work cycle:	gripper segments, clamping cone or drawbar broken
	tool shank broken
	springs broken
	pull-in force not sufficient
Loss of pull force:	lack of lubrication on clamping set