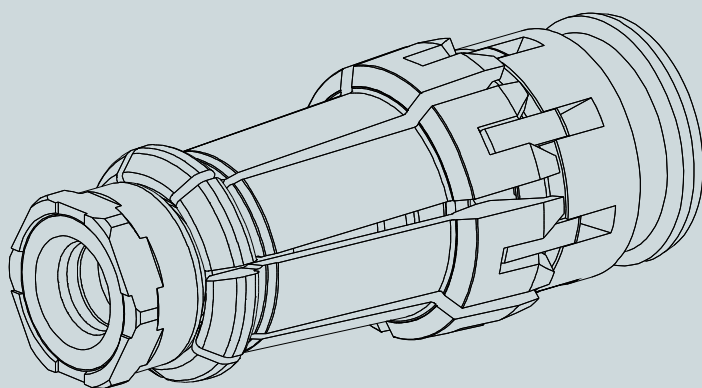


CLAMPING UNIT **PSC**



LONG-LIFE
CLAMPING
TECHNOLOGY
INSIDE

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symbol explanation:



keep attention -
dangerous!

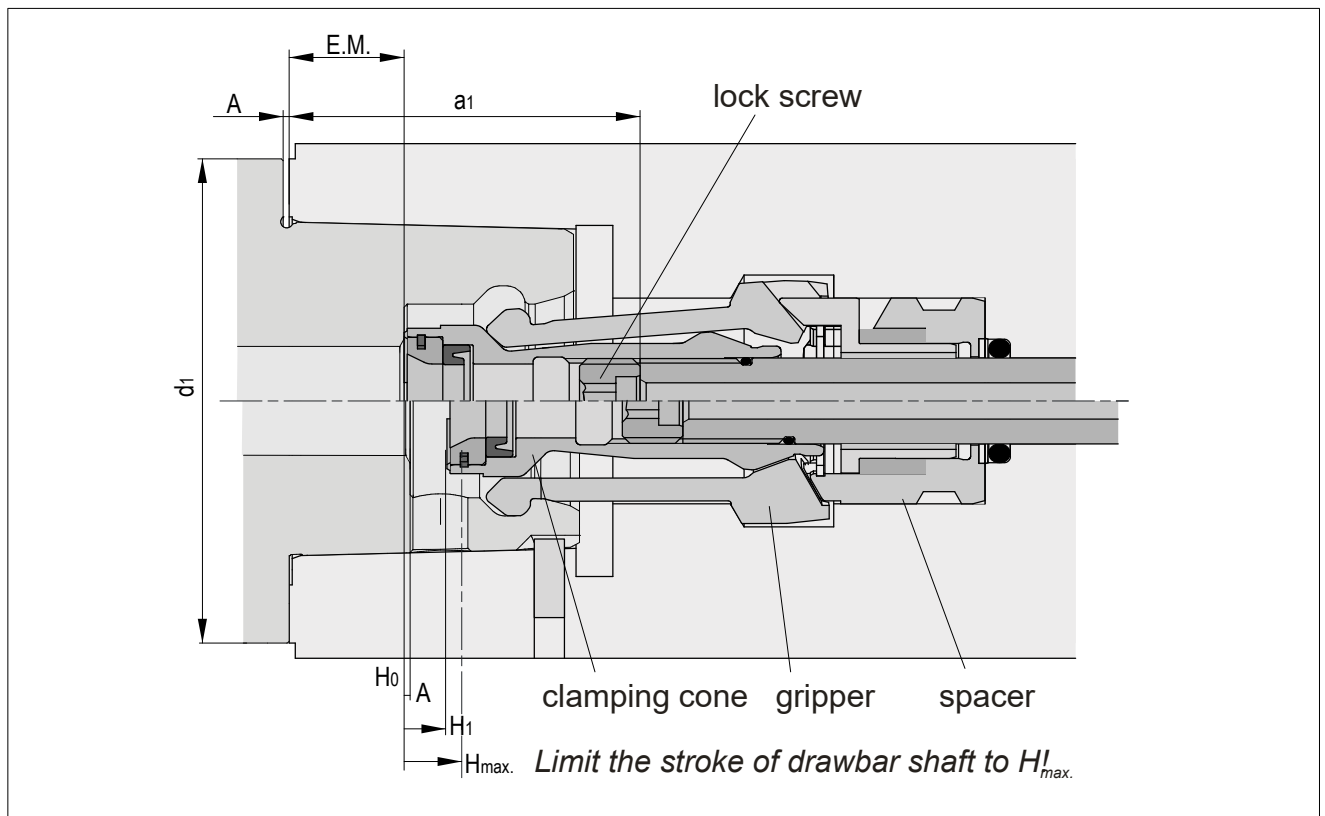


keep attention -
malfunction!

1 PRODUCT DESCRIPTION

1.1 DIMENSIONS

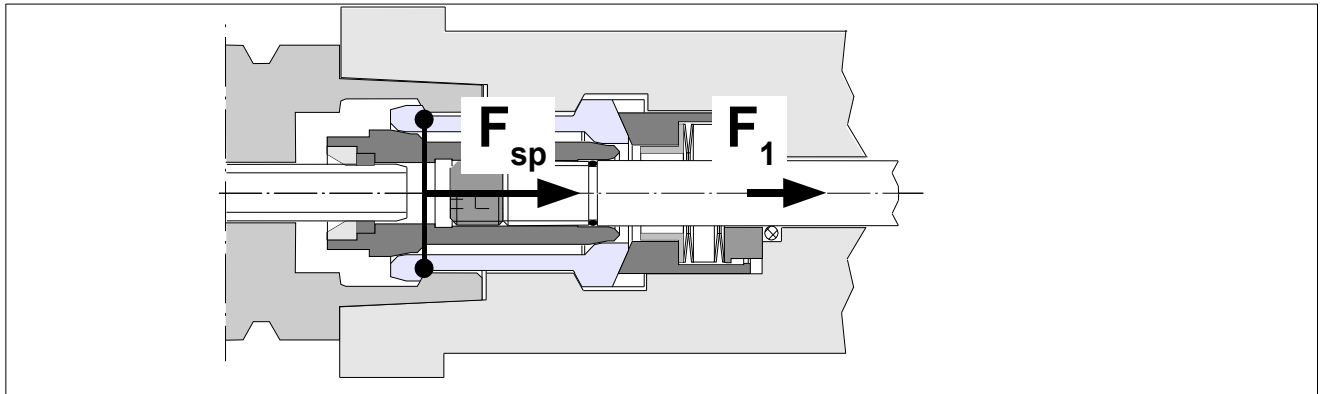
1.1.1 Clamping Unit PSC



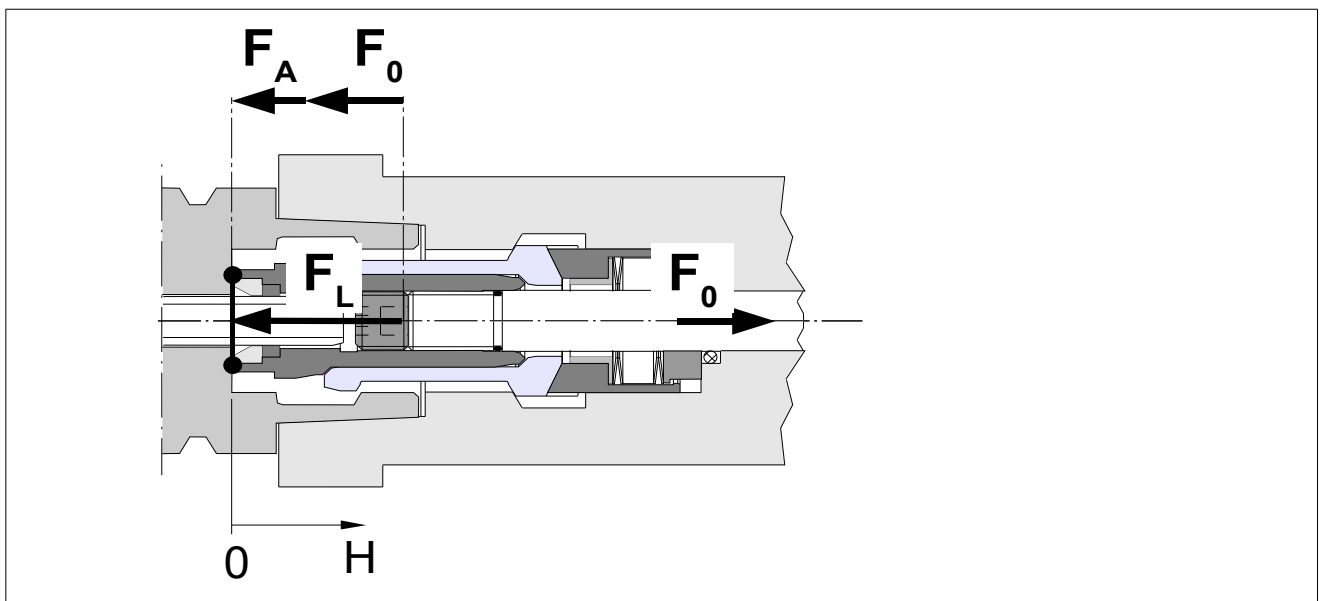
	nominal size	63	80	100
[mm]	d1 min	63	80	100
	A	0,8	1	1
	E.M. $\pm 0,1$	10,2	19	19
	Hmax.	10	10	11,5
	H1	7,4	7,4	8,3
	SW1	22	24	27
	a1	78,7	58	64,5

1.2 FORCES AT CLAMPING UNIT

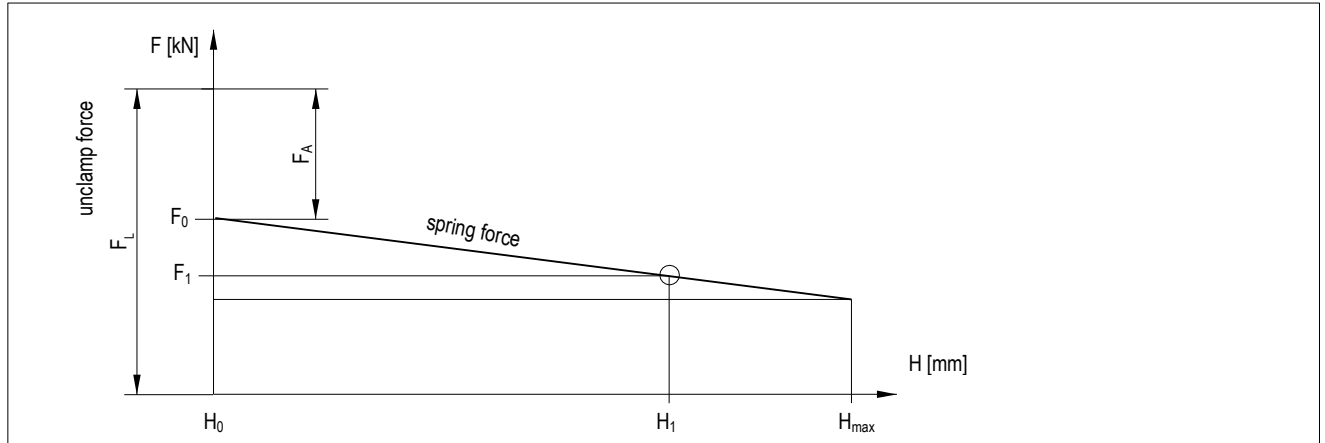
1.2.1 Clamped position



1.2.2 Unclamped position



1.2.3 Diagram



1.2.4 Table

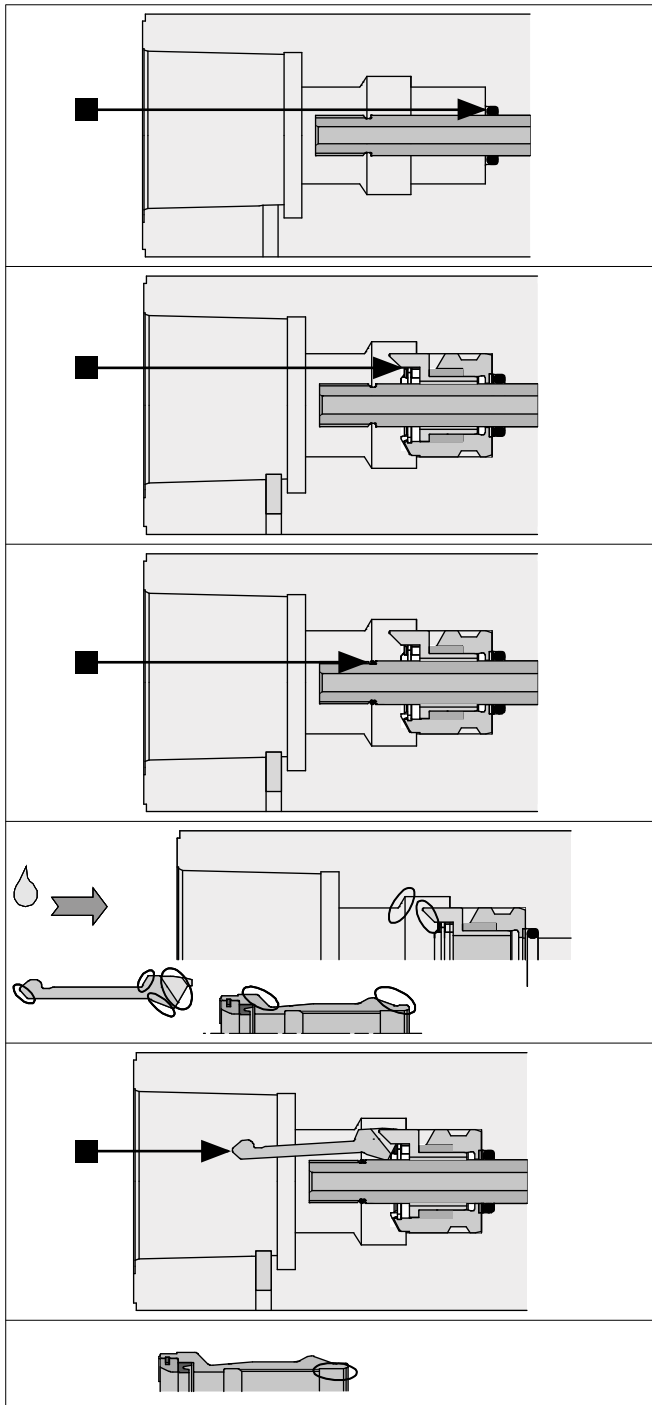
nominal size	63	80	100
F_{sp} [kN]	30	40	60
F_1 max. [kN]	7,5	10	15
F_A [kN]	18	25	25

1.3 ORDER NUMBER

nominal size	clamping unit	assembly tool	lock screw
PSC 63	9560021326	9560388892	included
PSC 80	9560017926	9560235992	9510066741
PSC 100	9560018826	9560243392	9560446041

2 ASSEMBLY

2.1 CLAMPING UNIT PSC



- ▲ 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

- ▲ grease area of contact

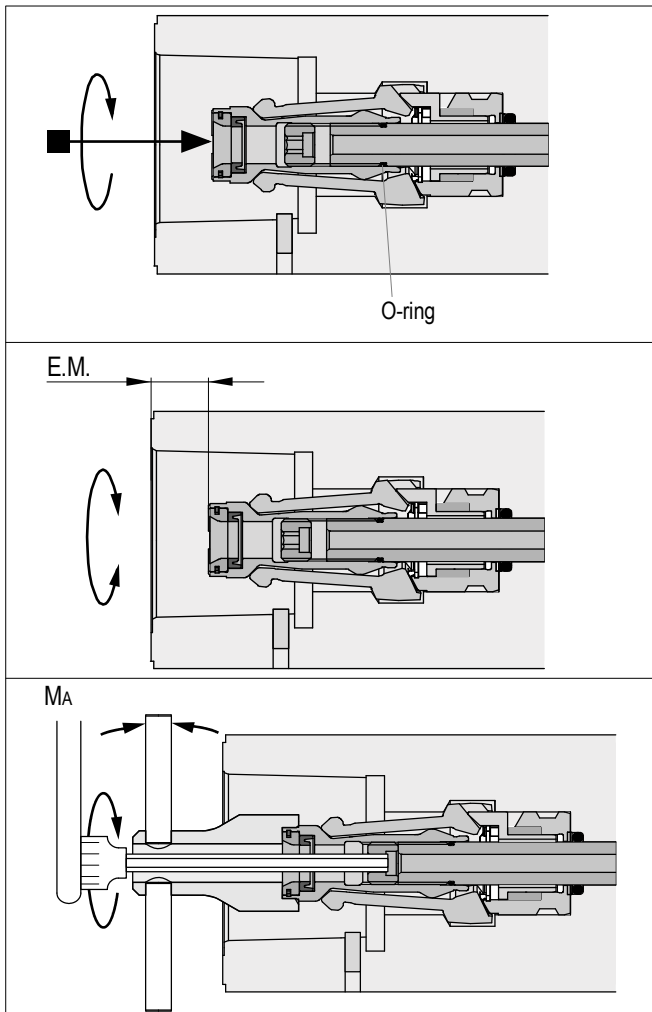
KLÜBER-Paste ME 31-52
do not mix the grease!

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

- ▲ grease clamping cone with mounting grease

PRODUCT INFORMATION

CLAMPING UNIT PSC



▲ 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!

in unclamped position:

▲ adjust gauge dimension E.M.

gauge dimension:

- PSC 63: 10,2 mm
- PSC 80: 19 mm
- PSC 100: 19 mm

▲ tighten the lock screw

tightening torque:

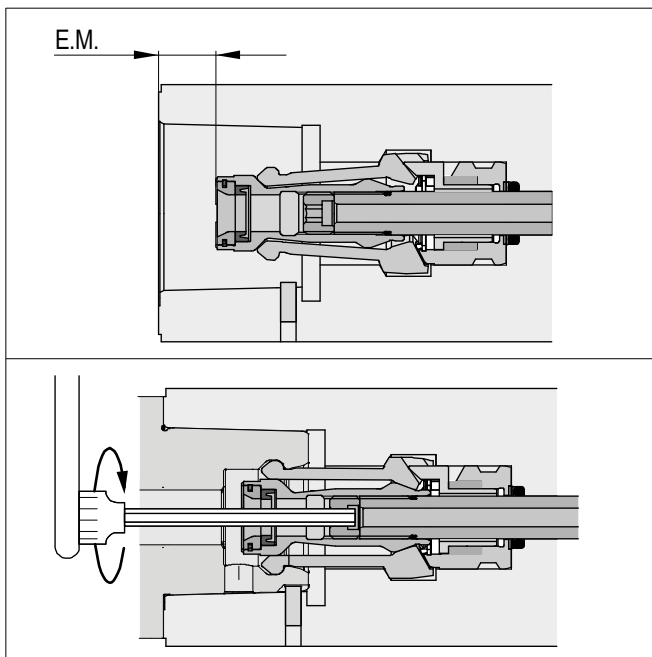
- PSC 63: 20 Nm
- PSC 80: 30 Nm
- PSC 100: 50 Nm

2.2 FINAL INSPECTION

Make sure the following are per print:

- maximum travel of clamping unit (equals clamping travel plus safety)
- the ejection path
- Make sure that when clamping a tool, there is still some travel possible

2.2.1 Check after approx. 100 strokes



In unclamped position

- ▲ Check dimension gauge E.M.

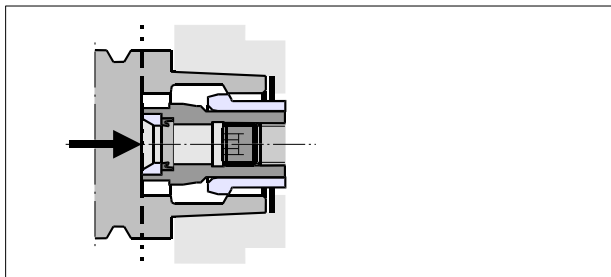
- ▲ re-tighten through a clamped tool

3 OPERATION



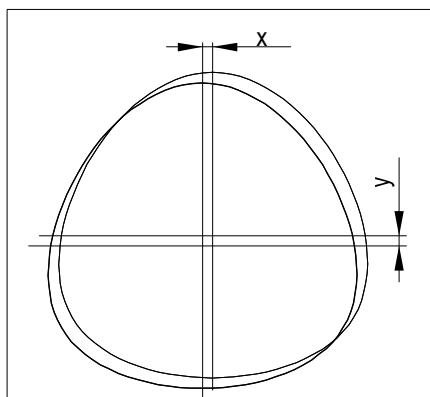
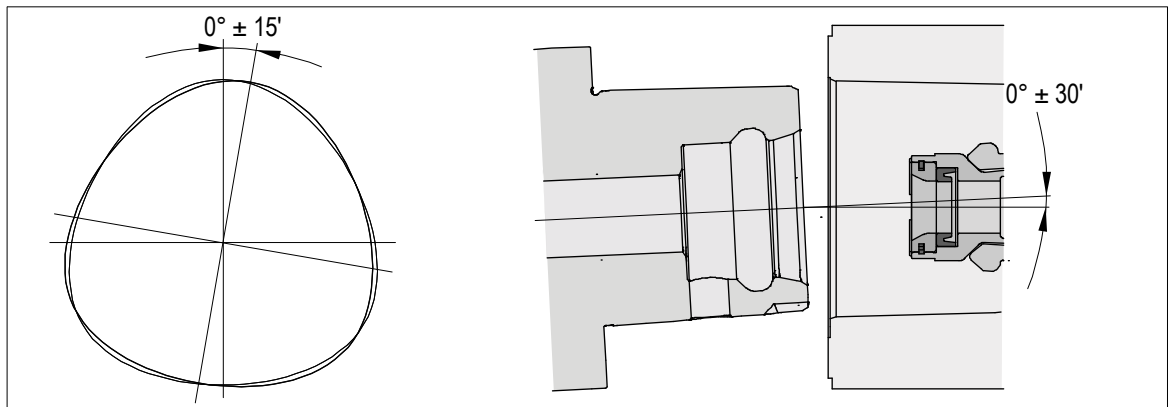
No rotation without clamped tool!
Only use technically perfect tools!

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 angular tolerances at insertion tool:



Our recommendation for the concentricity tolerance for tool changing:

nominal size	PSC 63	PSC 80	PSC 100
x (±) [mm]	0,23	0,3	0,3
y (±) [mm]	0,23	0,3	0,3

3.2 OPERATING CONDITIONS



- 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 PREVENTIVE MAINTENANCE SCHEDULE

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 // 13

Every six month but at the latest after 200.000 tool changes

- ▲ In unclamped position: Check dimension gauge E.M.
- ▲ counter through a clamped tool again.
- ▲ 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 // 13) and test pull-in force again
 - exchange clamping unit and test again
 - exchange drawbar completely

Every year but at the latest after 500.000 tool changes

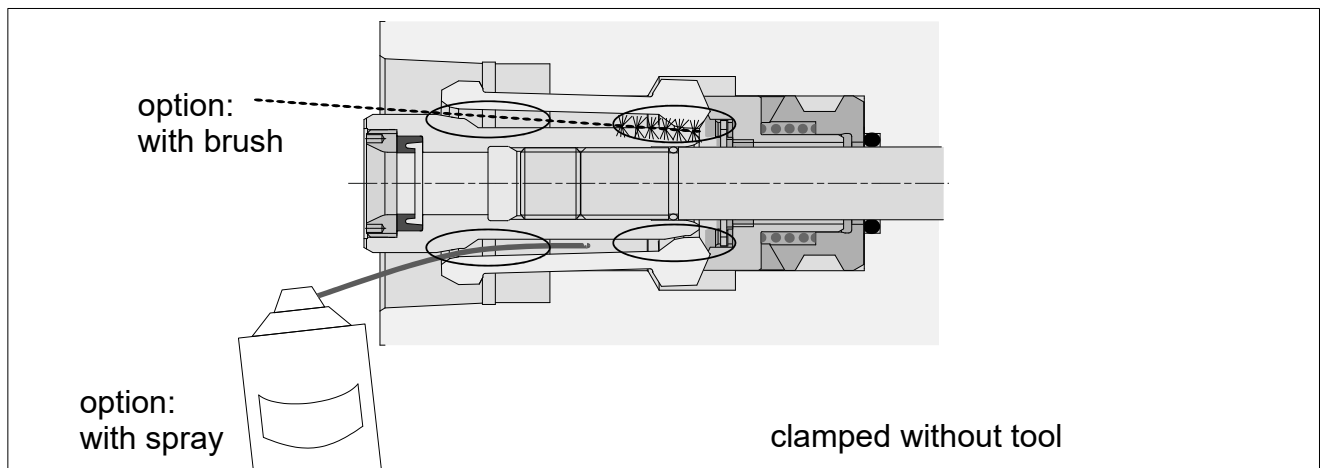
- ▲ Exchange the packing ring → #4.4 // 14

4.2 REGREASE CLAMPING UNIT



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

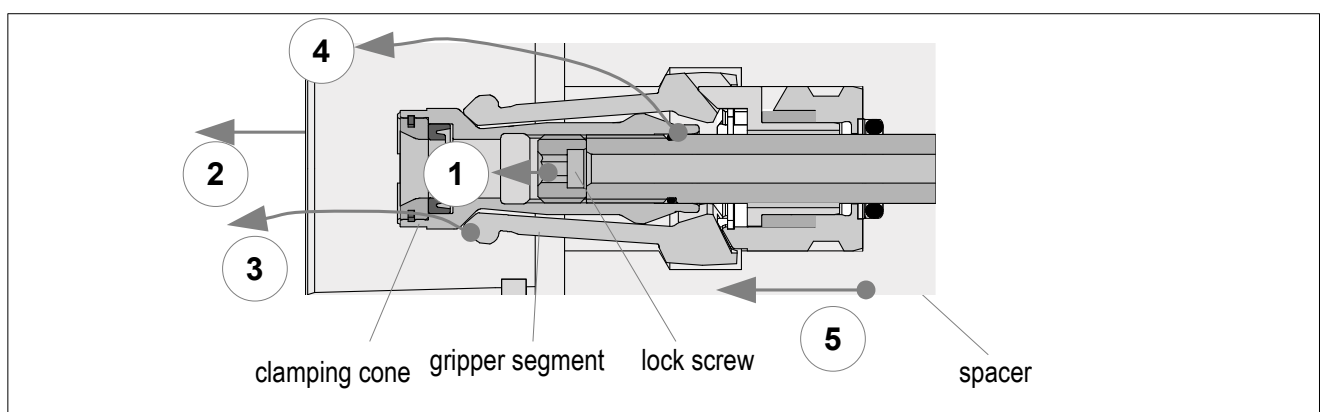
Regrease in assembled condition



If very dirty: take clamping unit out and clean.

Then grease clamping unit and reassemble → #2.1 // 6

4.3 DISASSEMBLE CLAMPING UNIT HSK

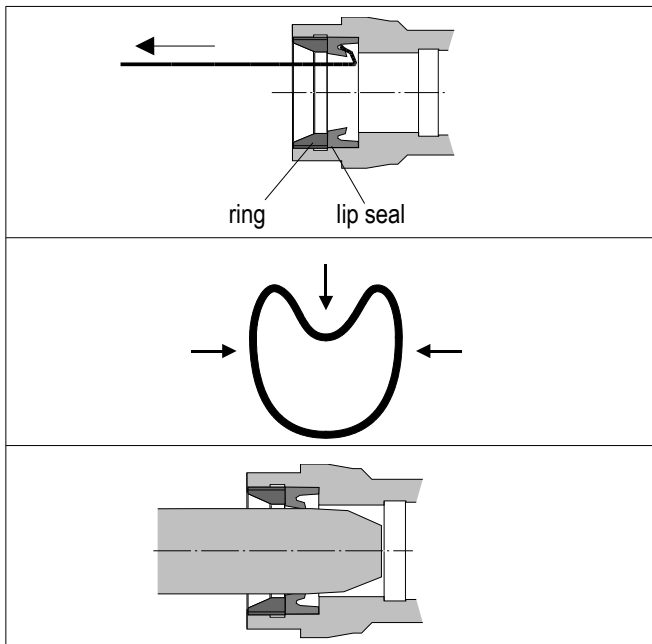


In unclamped position:

1. loosen lock screw
2. unscrew clamping cone
3. remove gripper segments with light tilting movements
4. remove O-ring from drawbar
5. remove spacer with it use 2 long nose pliers or tweezers

4.4 EXCHANGE OF THE LIP SEAL

For dismounting 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

4.5 BREAK OF A GRIPPER SEGMENT

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

4.6 WEARING PART LIST

4.6.1 Grease for calmping unit

name	quantity	order-no.
KLÜBER-Fett-Paste ME 31-52	10 g	0621001014
KLÜBER-Spray ALTEMP Q NB 50	400 ml	0621001015

KLüber Lubrication München KG, Postfach 701047, D-81310 München, Tel.: (0 89) 78 76 -0

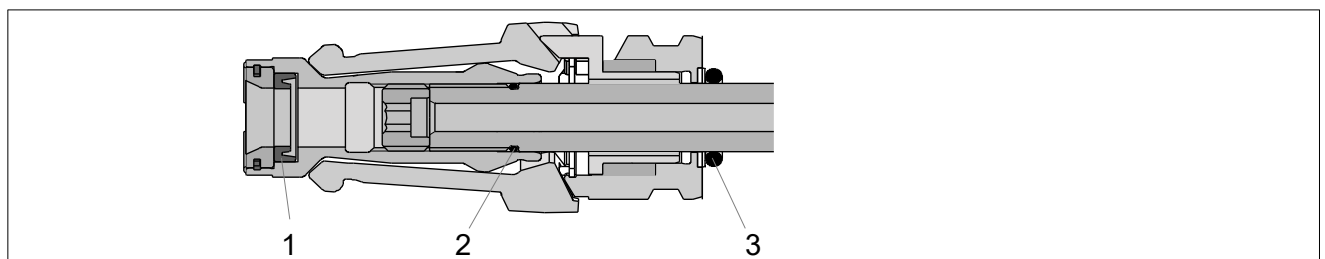


Note: take only grease of one company; do not mix the grease!

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

name	order-no.
brush	0616001001

4.6.2 O-rings and lip seal parts



clamping unit	PSC	lip seal	O- ring	
nominal size	complete	1	2	3
PSC 63	9560021326	0926030163	0926010048 9 x 1,5	0926010173 16 x 3,5
PSC 80	9560017926	0926030111	0926010156 12 x 1,5	0926010164 13,87 x 3,53
PSC 100	9560018826	0926030108	0926010167 14 x 1,5	0926010304 18 x 2,5
material: Viton, hardness 80 SHORE A				

4.7 TROUBLE SHOOTING PSC

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)
	wear of clamping unit
	tool feed not correct
	air blow or coolant 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