

# Technical Manual

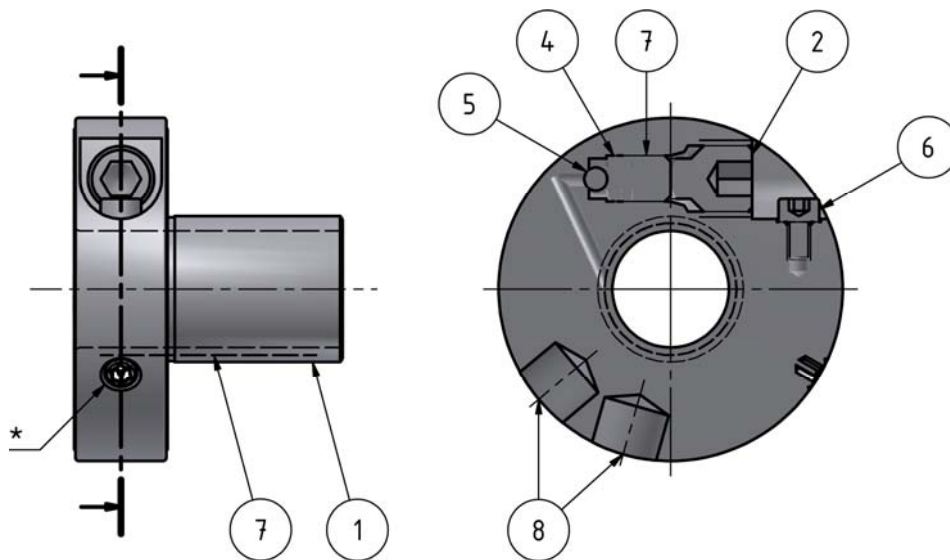
## ETP-TECHNO



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## Technical parts description



<p><b>1.</b></p>	<p><b>Double-walled hardened steel sleeve</b> With the same characteristics as for the ETP-CLASSIC.</p> <p>* The radial bore in the flange, with a special screw, is used only for filling of pressure medium in our production, - never open it!</p>
<p><b>2.</b></p>	<p><b>Pressure setting screw</b> This is a non-standard screw, which we manufacture ourselves. It is available as a spare part from us.</p>
<p><b>3.</b></p>	<p><b>Pressure setting piston</b> Special high precision piston manufactured by us. Not possible to change by the customer. ETP-TECHNO has to be sent to us for repair.</p>
<p><b>4.</b></p>	<p><b>Special sealing</b> Consisting of a plastic back-up ring and a rubber o-ring Not possible to change by the customer. ETP-TECHNO has to be sent to us for repair.</p>
<p><b>5.</b></p>	<p><b>Steel ball</b> Assembled as an integrated part of the piston. At the recommended tightening torque the ball is pressed against a spherical seating and works as a seal.</p>
<p><b>6.</b></p>	<p><b>Stop-screw</b> To prevent complete loosening of the pressure setting screw.</p>
<p><b>7.</b></p>	<p><b>Pressure medium</b> A special type of grease which is carefully selected to give the correct performance for ETP-TECHNO. Not possible to refill by the customer. ETP-TECHNO has to be sent to us for repair.</p>
<p><b>8.</b></p>	<p><b>Balance bores</b> ETP-TECHNO is design balanced to approx. 50 gmm/kg. More accurate balancing, to G 2.5 at a certain rpm can be done on request.</p>

## Mounting/dismantling tips

### Mounting

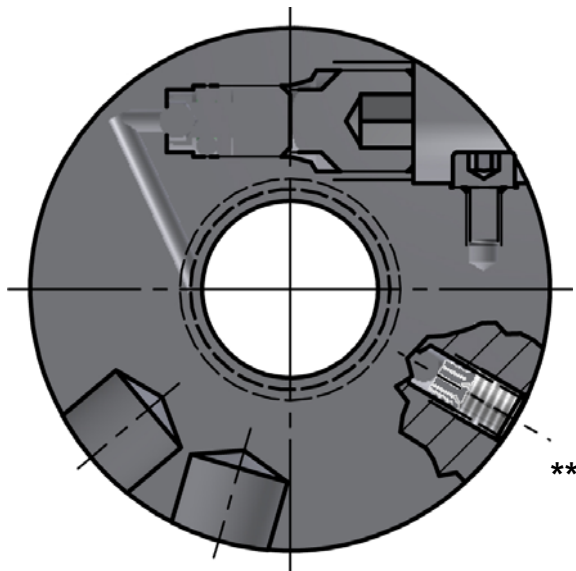
- Comments to the instruction which is enclosed with each ETP-TECHNO:
- All the contact surfaces should be cleaned with a solvent for max. torque capacity.
- A thin oil on the surfaces will reduce the torque capacity slightly, but make the mounting easier.
- Use a torque wrench if the full torque capacity is going to be used, or if the extra safety sealing created by the steel ball should be working.
- The tightening torque will also ensure a pressure is built up between the steel ball and the spherical seating. When the recommended tightening torque is reached the steel ball has reached the bottom and any extra tightening does not increase the pressure in the sleeve. Do not overtighten.
- The pressure setting screw, only, is available as a spare part from us. If anything else is damaged and needs to be changed, ETP-TECHNO has to be sent to us for repair.
- If there is a keyway in the shaft or hub it has to be filled, in the same way as described for ETP-CLASSIC.
- If the steel ball reaches the bottom (sudden rise in the tightening torque without moving the screw) long before recommended tightening torque is reached, the following could be the reason:
  - too wide tolerance on the shaft or in the bore of the hub
  - too thin hub or too weak material in the hub
  - something wrong with ETP-TECHNO itself
- If mounting is done frequently, put some grease on the threads of the screw regularly. To avoid damaging the allen key grip in the screw, a part of an allen key could be brazed into the grip and an ordinary socket wrench could be used.
- There is no risk the screw loosens by itself because of vibrations as the hydraulic pressure constantly acts on the piston.
- For repair or service of ETP-TECHNO, please send it to us.
- If frequent mounting is done, an allen key with a T-handle is very handy to use.
- ETP-TECHNO is rough balanced for use up to 6000 rpm.

- For higher rpm or better accuracy it has to be dynamically balanced by us to G 2,5 at a certain rpm, with the screw tightened to the correct torque.
- In order not to damage the allen key grip in the screw, make sure that the key is inserted to the bottom before tightening.

## Dismantling

- Just untighten the screw until ETP-TECHNO loosens its grip on shaft and hub, max. until the screw hits the stop screw.
- The sleeve should loosen from shaft and hub immediately when loosening the screw.
- Never try to dismantle the pressure setting screw or the piston.
- If refilling of grease should be necessary, send the sleeve to us for service. If, for some reason ETP-TECHNO can't be dismantled, you can depressurize ETP-TECHNO by loosening the screw \*\*) in the radial bore of the flange. Use a 3 mm allen key. Remove the screw and the steel ball with seals the pressure medium channel. Grease will come out and ETP-TECHNO will loosen.

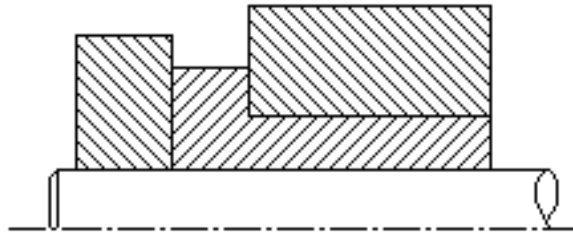
**Note: Do not try to refill ETP-TECHNO, send it to us for service.**



## Design examples/tips

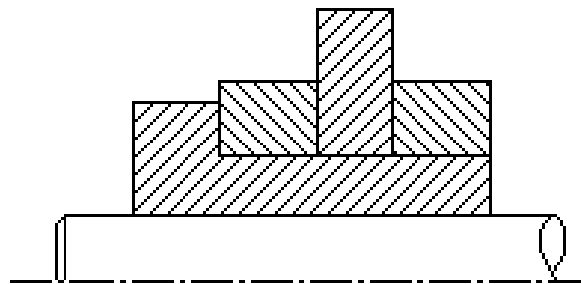
For more examples see also the corresponding section for ETP-CLASSIC.

Another machine part can be mounted up against the flange because of the radial location of the pressure setting screw.



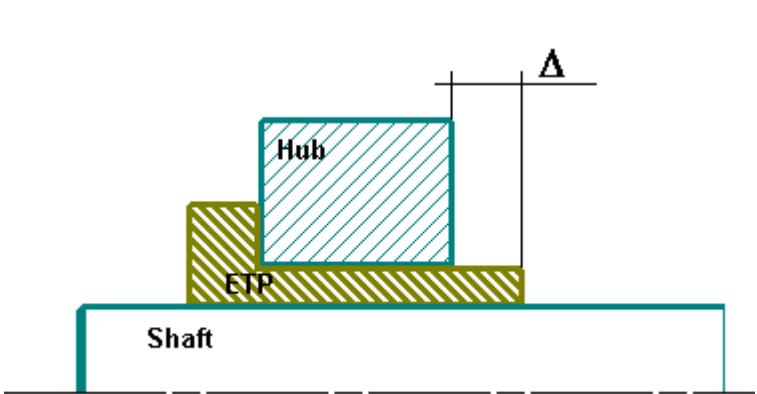
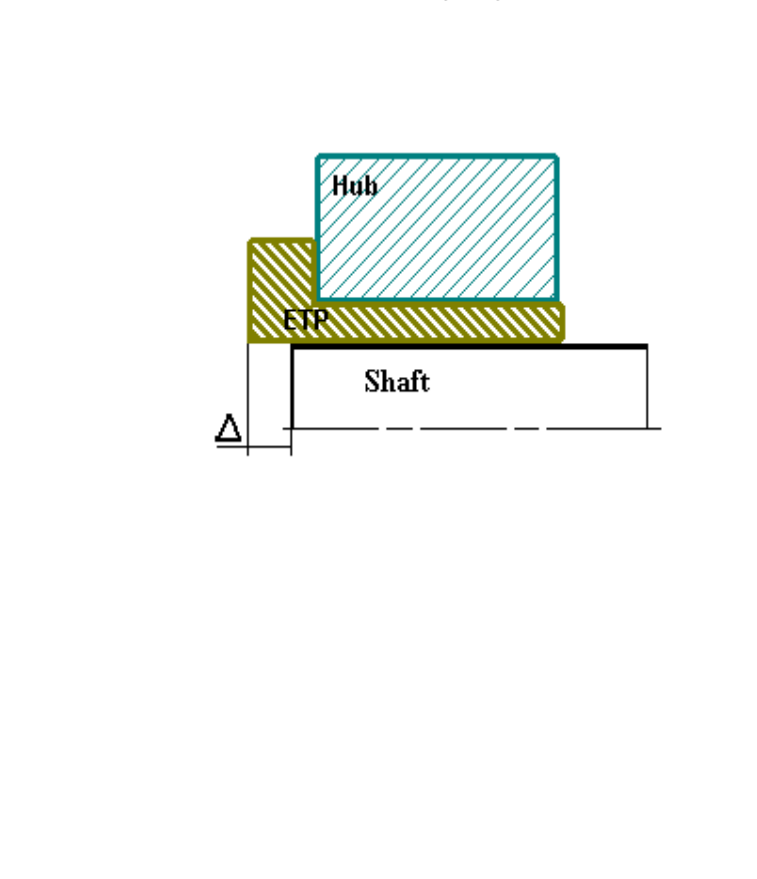
By varying the tightening torque the slip torque will change. In this way ETP-TECHNO can be used as a torque limiter, if the slippage only occurs very shortly and only for a part of a revolution.

If you mount a small hub, put it as central as possible and use extra support rings to avoid deformation.



Don't subject ETP-TECHNO to extreme high radial loads or bending torque. See brochure for values.

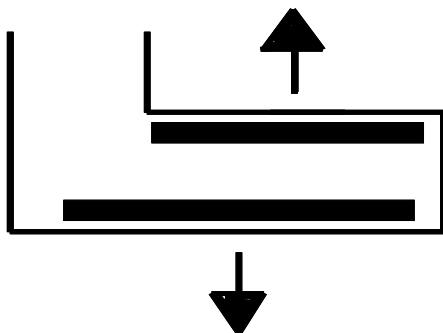
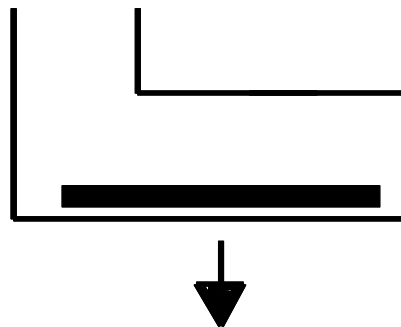
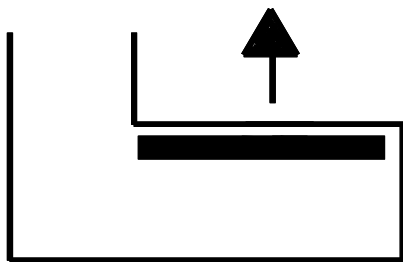
**ETP-TECHNO can be allowed to protrude from the hub/shaft according to the following:**

ETP-TECHNO size	$\Delta$	
15	5 mm	
20	5 mm	
25	6 mm	
1"	6 mm	
30	6 mm	
1 ¼"	6 mm	
32	6 mm	
35	6 mm	
1 ½"	6 mm	
40	7 mm	
45	7 mm	
50	8 mm	
60	9 mm	
70	10 mm	
75	10 mm	
80	10 mm	
90	10 mm	
100	10 mm	
110	10 mm	
120	10 mm	
130	10 mm	

## Customized designs

ETP-TECHNO is suitable for any customer made solutions, where a hydraulic double-walled sleeve can fill the purpose of locating something precise and quick on the shaft. We are open for any customized designs where the potential makes it feasible for the customer.

Following are some examples.



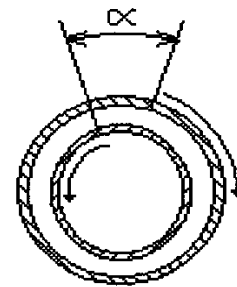
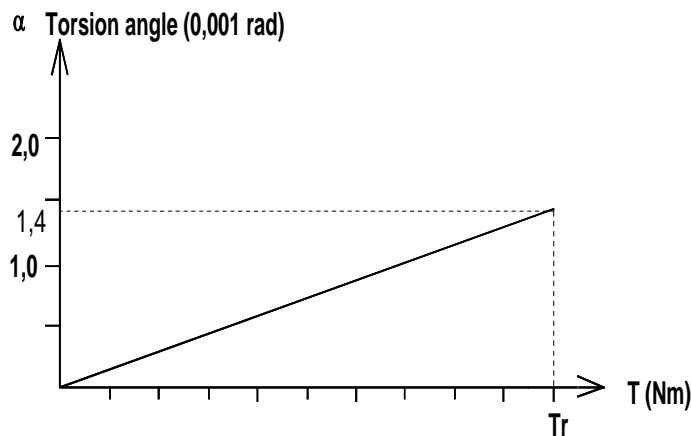
## Technical data

### Torsional stiffness

When torque is applied to ETP-TECHNO with its double walled sleeve there will be a - for most – neglectable torsion angle between the two sleeves (inner and outer).

The torsion angle (in degrees) is practically the same for all sizes at the rated torque. This is because the different sizes are dimensioned in the same way. As a guide figure the torsion is less than 0,0014 rad (approx. 0,08°) when the transmitted torque is equal to the rated torque.

The torsion angle is of no interest unless the accuracy between the shaft and the hub is in the same range 0,0014 rad.



### Tolerances

Recommended tolerances for ETP-TECHNO are **h8** (shaft) and **H7** (hub).

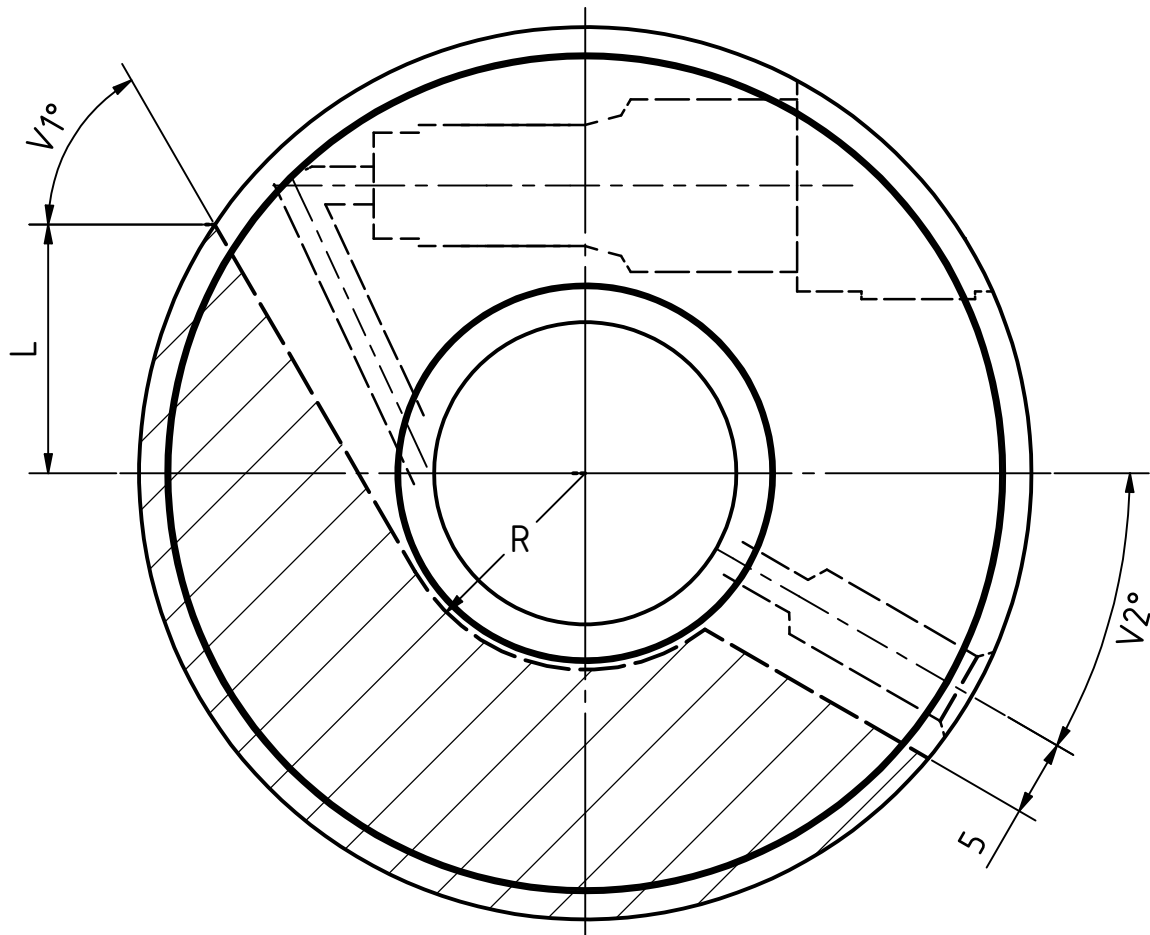
ETP-TECHNO , recommended tolerances in inch					
ETP-TECHNO	Shaft		ETP-TECHNO	Hub	
	from	to		from	to
15	0	-0,0011	15	0	0,0007
20-30	0	-0,0013	20-30	0	0,0008
32-50	0	-0,0015	32-50	0	0,0010
60-80	0	-0,0018	60-80	0	0,0012
90-120	0	-0,0021	90-120	0	0,0014
130	0	-0,0025	130	0	0,0016



## Machining in the flange

On these drawings. (see next pages, S-5743 and S-5744) you can see where it is possible to machine in the flange without getting in contact with the grease channels. When doing this the axial runout of the flange might change slightly because the "stress picture" in the flange will be changed.

To machine 1 to 3 bores for axial screws is OK but if more is to be machined away please contact us first.




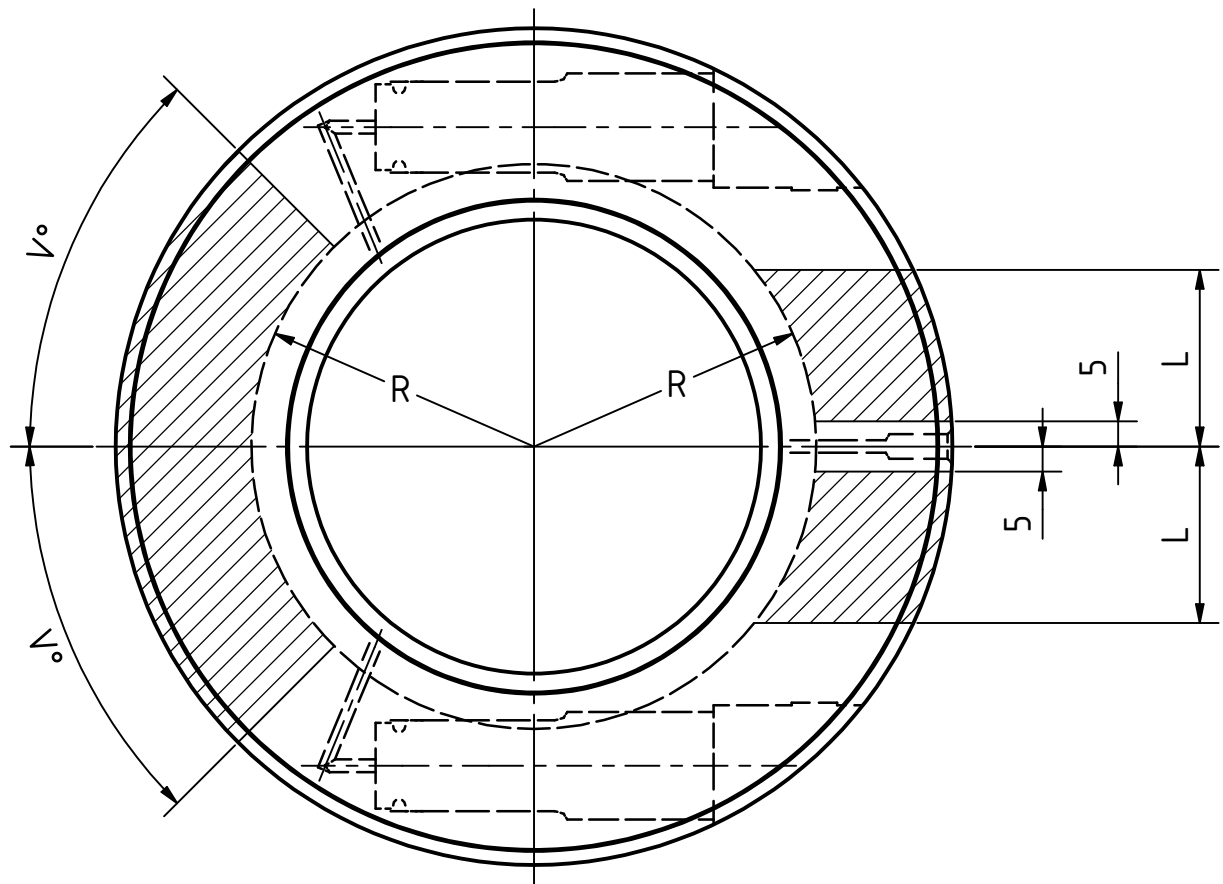
### ETP-TECHNO

	15	20	25	1"	30	1 1/4"	32	35
L	10,7	11,9	19	19	26,9	26,9	26,9	27,7
V1°	48°	50°	60°	60°	75°	75°	75°	75°
R	10	13	16	16	19	21	21	22
V2°	30°	30°	0°	0°	0°	0°	0°	0°


### ETP-TECHNO

	1/2"	40	45	50	60	70	75	80
L	29,9	29,9	30,4	40,8	47,7	51	55	58,6
V1°	75°	75°	75°	90°	90°	90°	90°	90°
R	25	26	28	33	38	45	48	50
V2°	0°	0°	0°	0°	0°	0°	0°	0°

Designed by CJ	Initial approved by CJ	Latest rev appr. by	Prod. checked by	Status Approved	Scale	Where tolerance not mentioned
					Date 2014-04-24	SS2768 MEDEL
Title ETP-TECHNO Dimensions <=80 Allowed machining in flange.					S-5743	A



ETP-TECHNO					
	90	100	110	120	130
L	35	45	50	55	60
V°	45°	45°	50°	55°	55°
R	56	63	69	75	82

Designed by CJ	Initial approved by CJ	Latest rev appr. by	Prod. checked by	Status Approved	Scale	Where tolerance not mentioned
 Title ETP-TECHNO Dimensions >80 Allowed machining in flange.					Date 2014-04-25	SS2768 MEDEL
					S-5744	

## FAQ

### **Can the screw be overtightened?**

At and above the recommended tightening torque, the steel ball will have reached the bottom of the cylinder and further tightening of the screw will only press the steel ball harder on to the spherical seating. Too high overtightening could cause damage to the screw and piston and also cause excessive wear to the allen key grip in the screw as well as the threads.

### **Do you need to use a torque wrench?**

If the torque to be transmitted is close to the rated torque in the brochure we recommend the use of a torque wrench. Also if mounting/dismantling is going to be done frequently, as it prevents overtightening and excessive wear to the screw.

### **What is the pressure medium?**

For ETP-TECHNO a special type of grease is used. It has to be of a certain type, which is less sensitive to temperature changes, easy to seal off, but which can flow easily in the grease channels.

### **Does the pressure medium need to be refilled?**

If ETP-TECHNO is mounted/dismantled very often, it might be necessary to add some grease. To be sure that it is made correctly you have to send it to us. It is important to fill in the correct amount and avoid dirt and air enclosures.

### **Do the sealing rings need to be replaced?**

See under refilling of pressure medium. To do this the piston has to be taken out and the sleeve has to be refilled with grease.

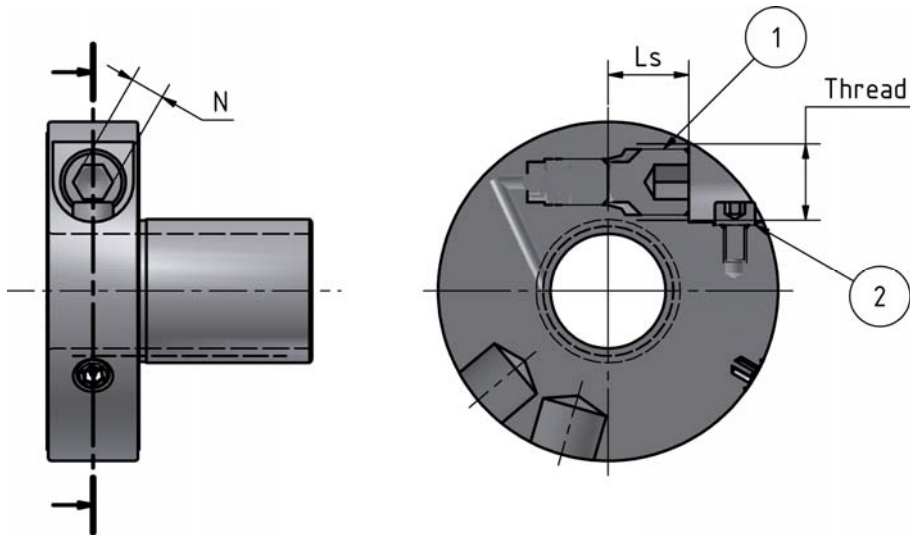
### **Does the screw need to be replaced?**

After many mountings (~more than 1000) the grip for the allen key in the screw sometimes gets worn out – then you only need to change the screw. The reason for this is usually that the allen key is not pushed to the bottom of the grip before tightening. The screw is available as a spare part and can be changed by the customer. For max number of mountings see technical data in the brochure.

## Spare parts

The following parts can be delivered as spare parts:

1. Pressure setting screw
2. Stop screw



When ordering, please just tell us for which size of ETP-TECHNO you need the parts.

ETP	Thread	Ls (mm)	N (mm)
TECHNO 15	M12x1,25	13	6
TECHNO 20	M12x1,25	14	6
TECHNO 25	M14x1,5	14	6
TECHNO 1 "	M14x1,5	14	6
TECHNO 30	M14x1,5	15	6
TECHNO 1 ¼"	M14x1,5	17	6
TECHNO 32	M14x1,5	17	6
TECHNO 35	M16x1,5	17	8
TECHNO 1 ½"	M16x1,5	17	8
TECHNO 40	M16x1,5	18	8
TECHNO 45	M16x1,5	19,5	8
TECHNO 50	M20x1,5	19,5	10
TECHNO 60	M20x1,5	24	10
TECHNO 70	M20x1,5	28	10
TECHNO 75	M20x1,5	31	10
TECHNO 80	M22x1,5	32	10
TECHNO 90	M22x1,5	32	10
TECHNO 100	M22x1,5	32	10
TECHNO 110	M22x1,5	32	10
TECHNO 120	M22x1,5	32	10
TECHNO 130	M22x1,5	32	10