

# Technical Manual

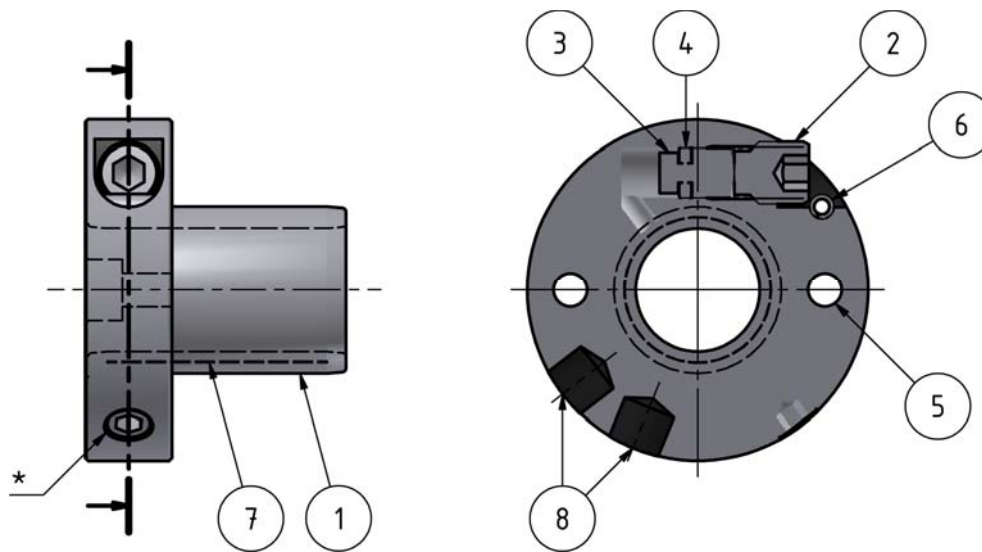
## ETP-POWER



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## Technical parts description



1.	<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>
2.	<p><b>Pressure setting screw</b> This is a standard screw acc to DIN 915, quality 12.9. It is also available as a spare part from us.</p>
3.	<p><b>Pressure setting piston</b> Special high precision piston manufactured by us. Not possible to change by the customer. ETP-POWER has to be sent to us for repair.</p>
4.	<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-POWER has to be sent to us for repair.</p>
5.	<p><b>Two bores</b> Can be used for locking of another machine component up against the flange. Fits to MC6S screws.</p>
6.	<p><b>Stop-pin</b> To prevent complete loosening of the pressure setting screw.</p>
7.	<p><b>Pressure medium</b> A special type of pressure medium which is carefully selected to give the correct performance for ETP-POWER. Not possible to refill by the customer. ETP-POWER has to be sent to us for repair.</p>
8.	<p><b>Balance bores</b> ETP-POWER is design balanced to approx. 75 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-POWER:

- 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.
- When the recommended tightening torque is reached the piston is at the bottom and any extra tightening does not increase the pressure in the sleeve. Do not over tighten.
- The pressure setting screw, only, is available as a spare part from us. If anything else is damaged and needs to be changed, ETP-POWER 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 piston reaches the bottom (sudden rise in the tightening torque without turning the screw) long before the recommended tightening torque is reached, the following could be the reason:

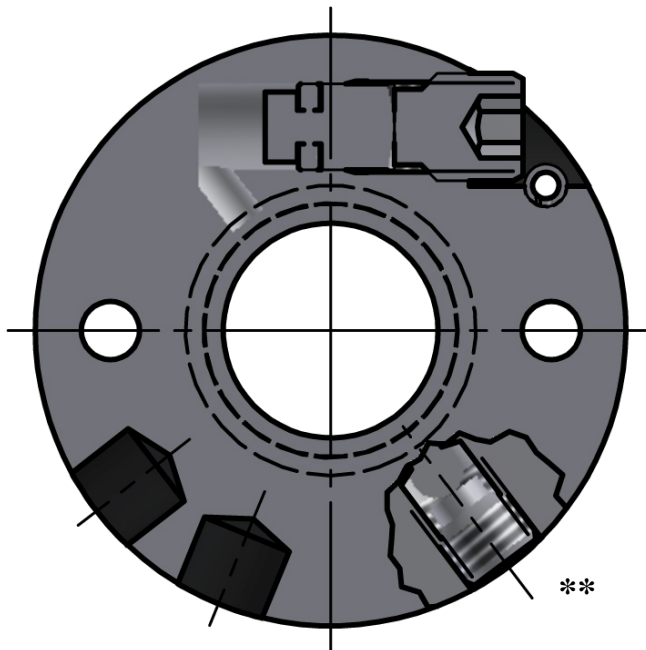
too wide tolerance on the shaft or in the bore of the hub  
too thin hub or too weak material in the hub  
something wrong with POWER itself

- If mounting is done frequently, put some lubricant 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-POWER, please send it to us.
- If frequent mounting is done, an allen key with a T-handle is very handy to use.
- For a high rpm or better accuracy ETP-POWER can 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

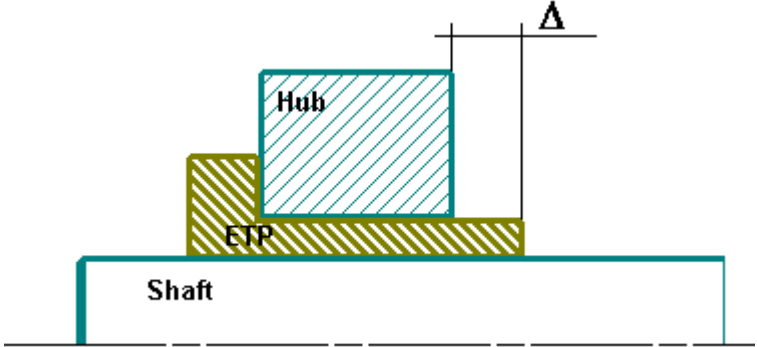
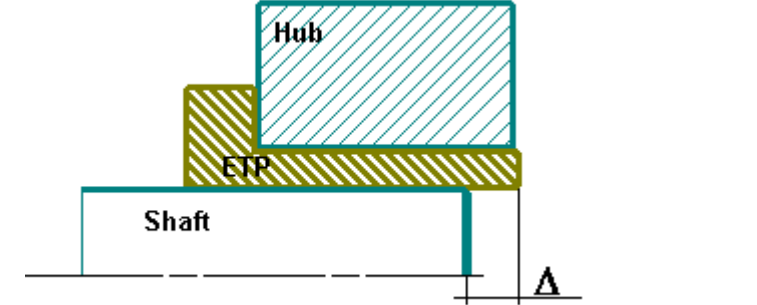
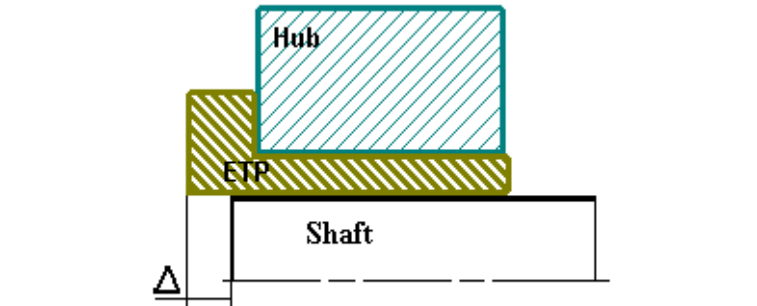
- Just untighten the screw until ETP-POWER loosens its grip on shaft and hub, max. until the screw hits the stop pin.
- The sleeve should loosen from shaft and hub immediately when loosening the screw.
- Never try to dismantle the pressure setting screw or the piston.
- If refilling of pressure medium should be necessary, send the ETP-POWER to us for service.
- If, for some reason ETP-POWER 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. A grey pressure medium might come out and ETP-POWER will loosen.

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



## Design examples/tips

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

ETP-POWER size	$\Delta$	
15	5 mm	
19	5 mm	
3/4"	5 mm	
20	5 mm	
22	5 mm	
24	5 mm	
25	5 mm	
1"	5 mm	
28	5 mm	
30	5 mm	
1 1/4"	6 mm	
32	6 mm	
35	6 mm	
38	6 mm	
1 1/2"	6 mm	
40	6 mm	

## Technical data

### Tolerances

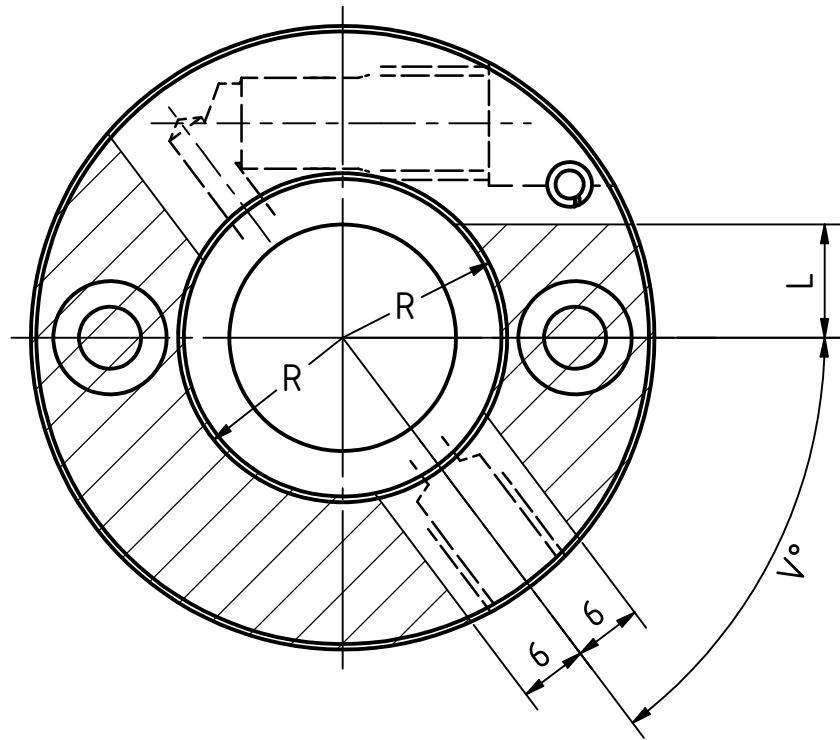
Recommended tolerances for ETP-POWER are **k6-h7** for d=19, 22, 24, 28, 32, 38 mm for all other **h8** (shaft) and **H7** (hub).

ETP-POWER , recommended tolerances in inch					
ETP-POWER	Shaft		ETP-POWER	Hub	
	from	to		from	to
15	0	-0,0004	15- 22	0	0,0008
19	0,0006	-0,0008	24-1 ½"	0	0,0010
¾", 20	0	-0,0013	40	0	0,0012
22, 24	0,0006	-0,0008			
25, 1"	0	-0,0013			
28	0,0006	-0,0008			
30	0	-0,0013			
1 ¼"	0	-0,0015			
32	0,0007	-0,0010			
35	0	-0,0015			
38	0,0007	-0,0010			
1 ½", 40	0	-0,0015			

### Machining in the flange

On these drawings, (see next pages, S-5750 and S-5751), 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 for example axial screws is OK but if more is to be machined away please contact us first.




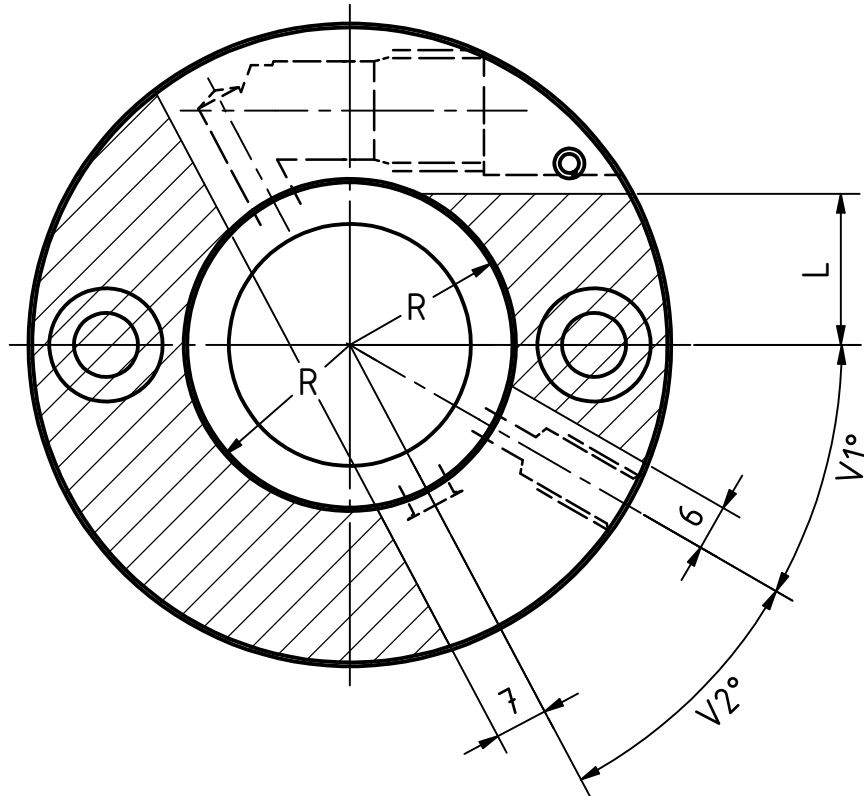
### ETP-POWER

	15	19	3/4"	20	22	24	25
R	11	14	14	15	15	17	17
V°	60°	54°	54°	53°	58°	52°	55°
L	8	9	9	9	11	13	13

### ETP-POWER


	1"	28	30
R	17	19	20
V°	55°	59°	60°
L	13	15	16

Designed by CJ	Initial approved by CJ	Latest rev appr. by	Prod. checked by	Status Approved	Scale	Where tolerance not mentioned
 <b>ETP Transmission AB</b>					Date 2014-04-29	SS2768 MEDEL
					<b>S-5750</b>	
Title <b>ETP-POWER</b> Dimensions <=30 <b>Allowed machining in flange.</b>						



### ETP-POWER

	1 1/4"	32	35	38	1 1/2"	40	
R	22	22	24	26	26	27	
V1°	30°	30°	30°	30°	30°	30°	
V2°	32°	32°	32°	33°	33°	32°	
L	20	20	21	22	22	23	

Designed by CJ	Initial approved by CJ	Latest rev appr. by	Prod. checked by	Status Approved	Scale	Where tolerance
 <b>ETP Transmission AB</b>					Date 2014-04-30	SS2768 MEDEL
					<b>S-5751</b>	
Title <b>ETP-POWER Dimensions &gt;30</b> <b>Allowed machining in flange.</b>						



## FAQ

### **Can the screw be over tightened?**

At and above the recommended tightening torque, the piston will have reached the bottom of the cylinder and further tightening of the screw will only press the piston harder against the bottom. Too high over tightening 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 over tightening and excessive wear to the screw.

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

For ETP-POWER a special type of pressure medium made by ourself is used. It has to be of a certain type, which has a low sensitivness to temperature changes, easy to seal off, can support in transmitting radial forces and bending torque and also can flow easily in the grease channels.

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

If ETP-POWER is mounted/dismantled very often, it might be necessary to add some pressure medium. 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.

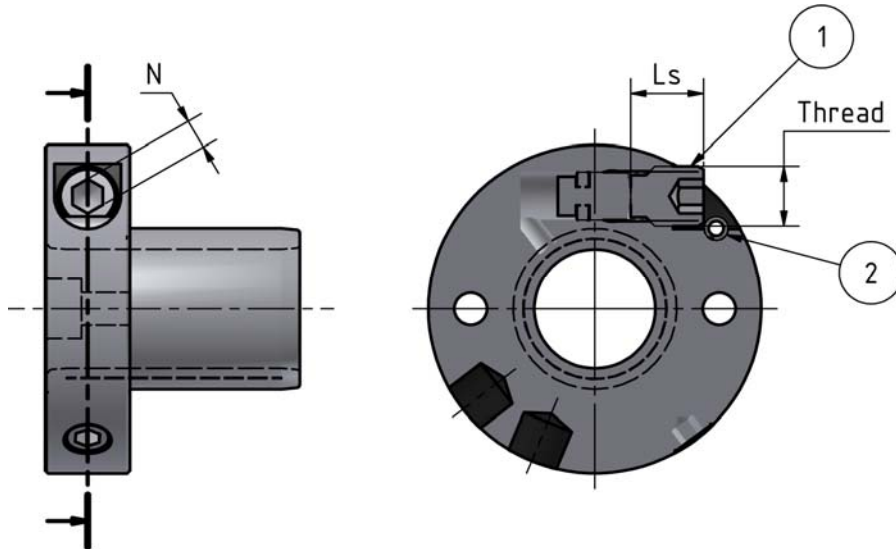
### **Does the screw need to be replaced?**

After several hundreds of mountings the grip for the allen key in the screw might get 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 (also a standard screw on the market) 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 pin



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

ETP-POWER	Thread	Ls (mm)	N (mm)
15	M10	10	5
19	M10	12	5
3/4"	M10	12	5
20	M10	12	5
22	M10	12	5
24	M10	18	5
25	M10	18	5
1"	M10	18	5
28	M10	18	5
30	M10	18	5
1 1/4"	M16	16	8
32	M16	16	8
35	M16	16	8
38	M16	16	8
1 1/2"	M16	16	8
40	M16	16	8