

## Technical Product Information No. 1240 EN

### Hydraulically released brake Series 0128- . . . - . . . - . . . 100

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## About this Technical Product Information (TPI)

### Who is this TPI directed at?

This TPI is directed at qualified personnel who

- are entrusted with the assembly, commissioning and operation of the product and who
- have obtained the necessary qualifications by reading and understanding the instructions by training or instruction

It is intended for

- Fitters at the manufacturer of the machine / plant
- Maintenance fitters at the machine users.

### What will you find in the TPI?

The TPI provides all the necessary information for the assembly and maintenance of the product described on the title page

### Notes on the symbols used in the text

On the pages which follow, important sections of text are highlighted with the following symbols.



This symbol means:

There is a risk of injury during the activity described or in operational running!



This symbol means:

There is a risk of material damage during the activity described or in operational running!

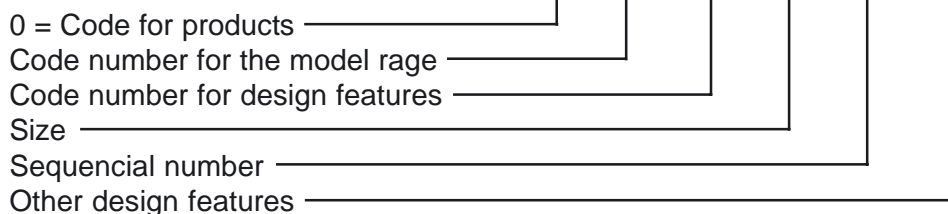


This symbol indicates sections of text to which particular attention must be paid.

### The Ortlinghaus numbering system

#### Example:

**0 111 - 222 - 33 - 444 555**



Please pass on this product information to your customers! If required you can download our TPIs via the Internet from [www.ortlinghaus.com](http://www.ortlinghaus.com) in the directory 'Service'. However you may also duplicate the copy you have.

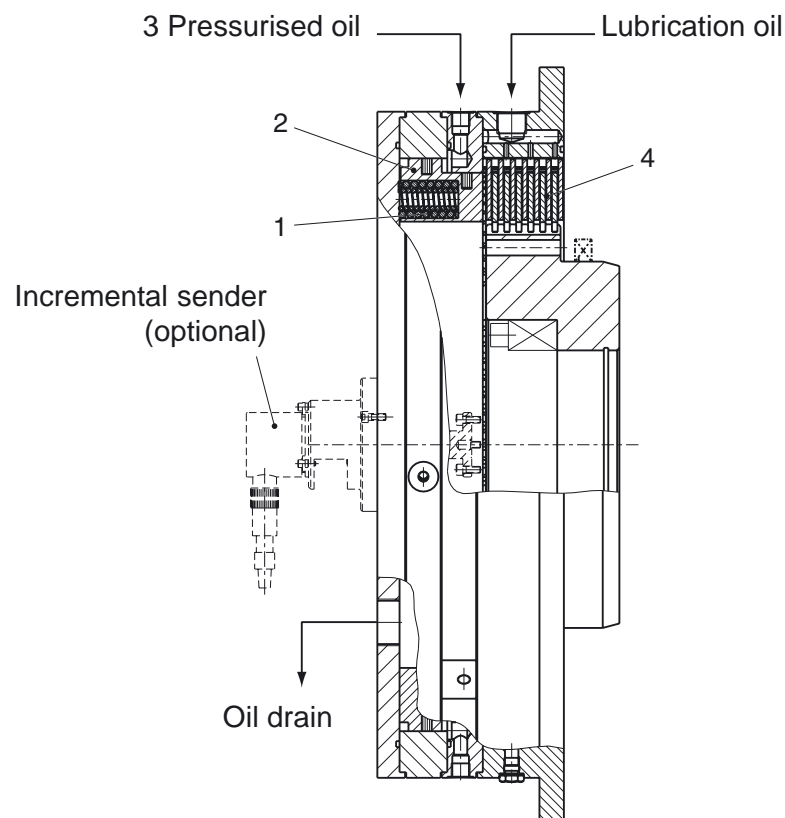
## About the product

### Purpose of use and function of the brake

Spring loaded hydraulically opened brakes are excellent for use in presses due to their small space requirements, low moment of inertia and high permissible number of actuations. They are largely maintenance free. In addition, due to their multi-disc construction they permit the braking of higher torques at lower thermal loadings.

Due to their low actuation noise of around 85 dB (A) the brakes also operate without the extra expense of noise protection.

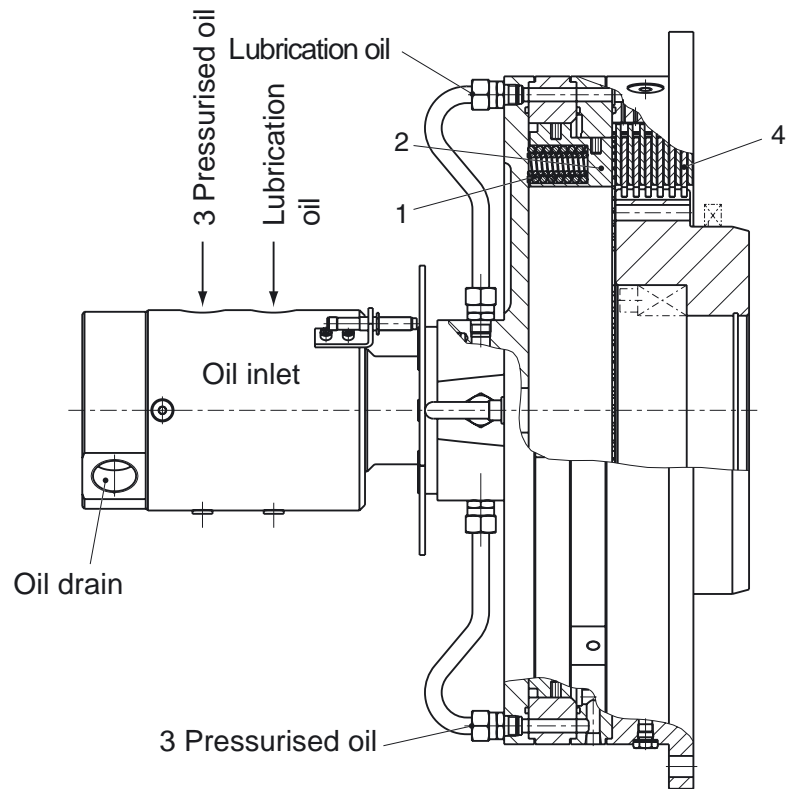
The brakes with auxiliary actuation also offer the possibility of increasing the contact pressure of the brake piston using pressurised oil and thus increasing the brake torque. Due to this they are also suitable for slow motion operation.



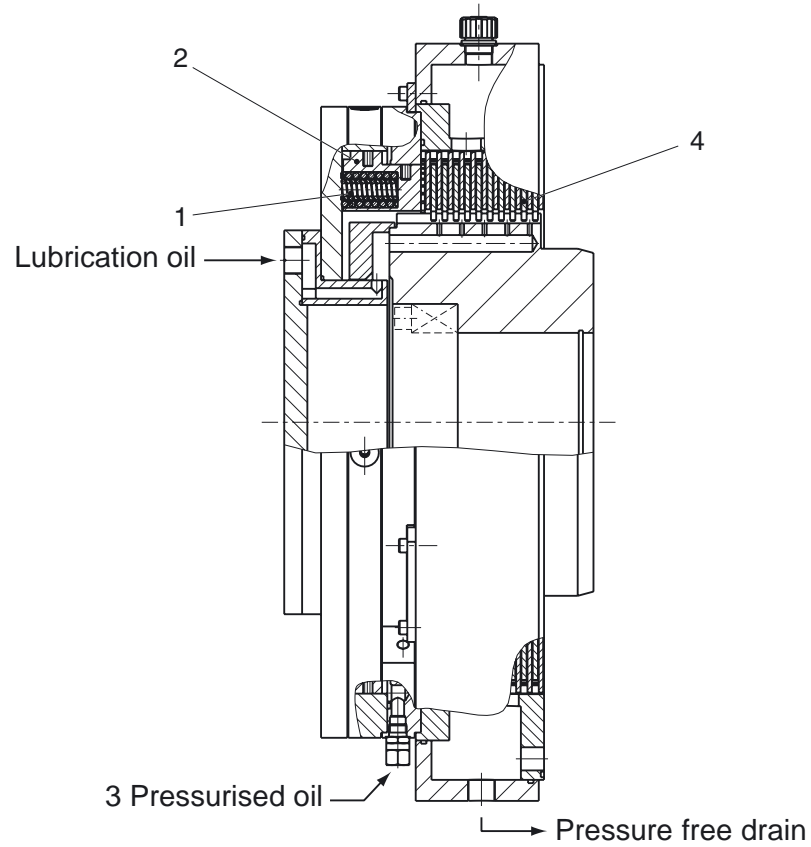
**Figure 1: The function of the brake**

**Normal braking:** Compression springs 1 load piston 2 in the cylinder. The brake plates 4 are pressed together by this and thus the brake is activated.

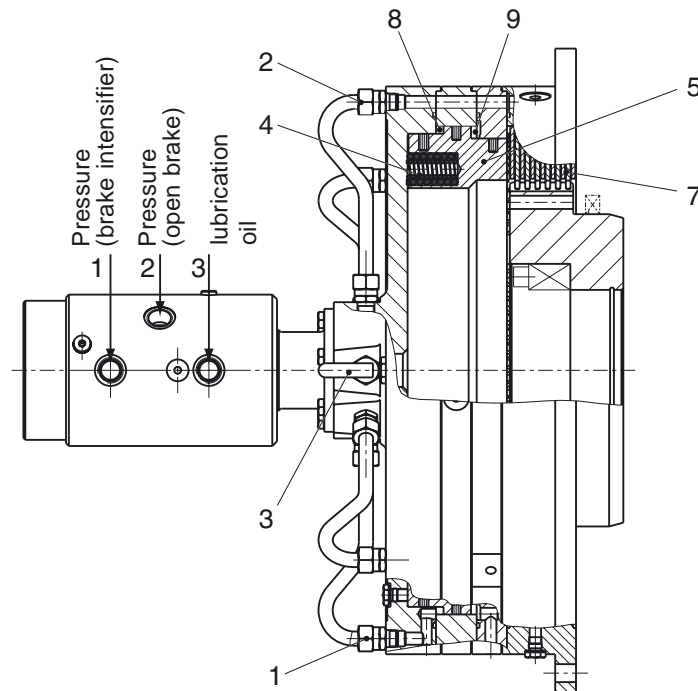
**Normal opening the brake:** Pressure 3 moves the piston against the force of the compression springs. This releases the brake plates 4.



**Figure 2: The function of the brake “rotatable”**



**Figure 3: The function of the brake with internal oiling**



**Figure 4: The function of the brake with auxiliary actuation**

**Brakes with auxiliary actuation:** The piston **5** is pressurised with oil through port **1** (piston chamber **8**) and increases braking torque.

**Opening the brake with auxiliary actuation:** The port for the pressure oil **1** (piston chamber **8**) must be switched to a depressurised state. Pressurised oil at port **3** (piston chamber **9**) will move the piston against the force of compression spring **4**. This will release the plates **7**.

The normal opening pressure is **80 +5 bar** size **80, 86, 90**  
**90 +5 bar** size **94, 98**

Never open the brakes **at a higher pressure** as otherwise there is the risk of the bolts breaking.

The oil pressure for auxiliary actuation is adjustable and can be **80 bar** or **90 bar** (size 94, 98).

Applying oil pressure to ports **1** and **3** simultaneously must be avoided due to the danger of malfunction.

Fit a throttle directly before the main valve to prevent short term pressure peaks above **85 bar** (size 80, 86, 90) or **95 bar** (size 94, 98).

### Delivered state of the brake

The brake is supplied with the housing bolted and the plates inserted. The hup is supplied loose. For the version with "internal oiling" or with auxiliary actuation the plates are also supplied loose.

### Transport

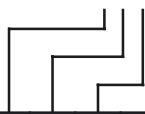
Avoid any hard impacts during transportation. There are transport threads for DIN 580 ring bolts provided in all components and units to be assembled.



### Design variants

Type code:

0 128 - . . . . - Size - . . . . .

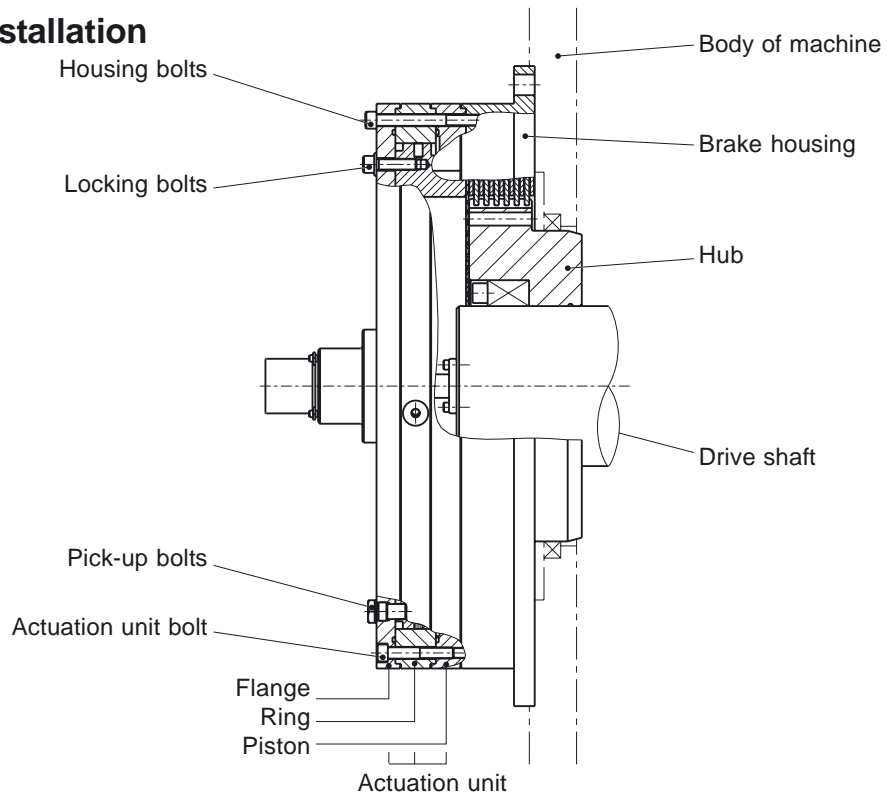


0		12 friction faces
1		16 friction faces
2		20 friction faces
3		24 friction faces
4		Anormal number of friction faces
5		12 friction faces with incremental encodes
6		16 friction faces with incremental encodes
7		20 friction faces with incremental encodes
8		24 friction faces with incremental encodes
9		Abnormal number of friction faces with speed sender unit
	0	Normal design 36/36 springs
	1	Normal design 30/30 springs
	2	Normal design 24/24 springs
	3	Normal design 18/18 springs
	4	
	5	Normal design 36/36 springs with auxiliary actuation
	6	Normal design 30/30 springs with auxiliary actuation
	7	Normal design 24/24 springs with auxiliary actuation
	8	Normal design 18/18 springs with auxiliary actuation
	9	
	0	Hub with recess for locking device
	1	Hub with keyway
	2	Hub with turned recess for clamping set and internal oiling
	3	Hub with keyways and internal oiling
	4	Hub with spline
	5	Hub prebored
	6	
	7	
	8	
	9	

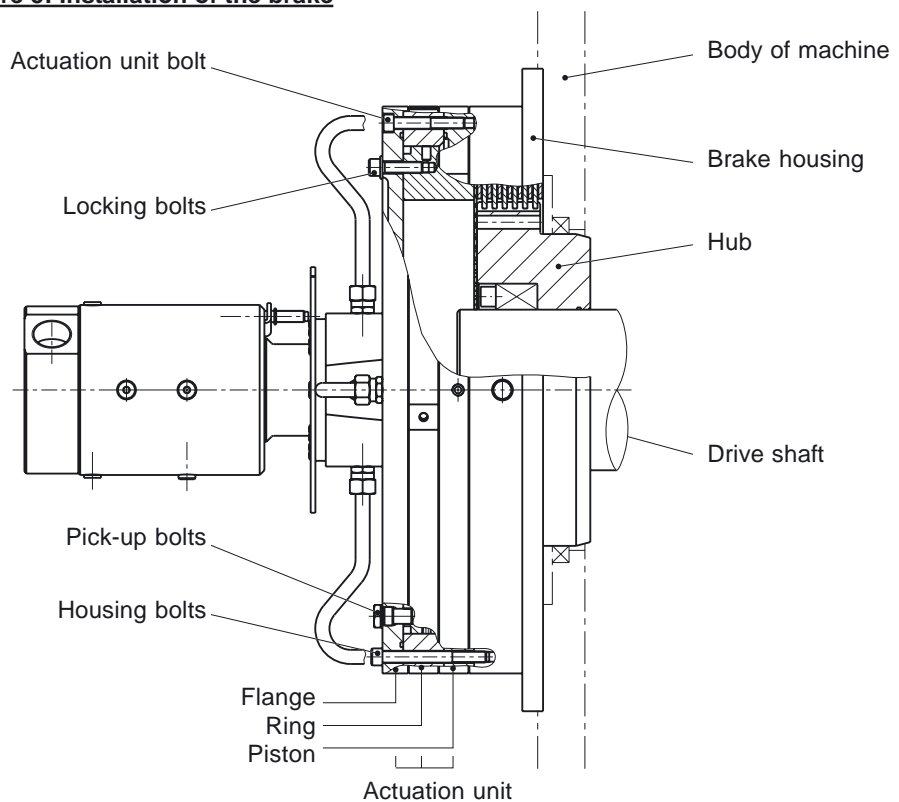
## Initial assembly and commissioning

It is not possible here to go into special built-in versions which depend on the construction of the machinery in question. Normally the brake is fitted onto the body of the machine.

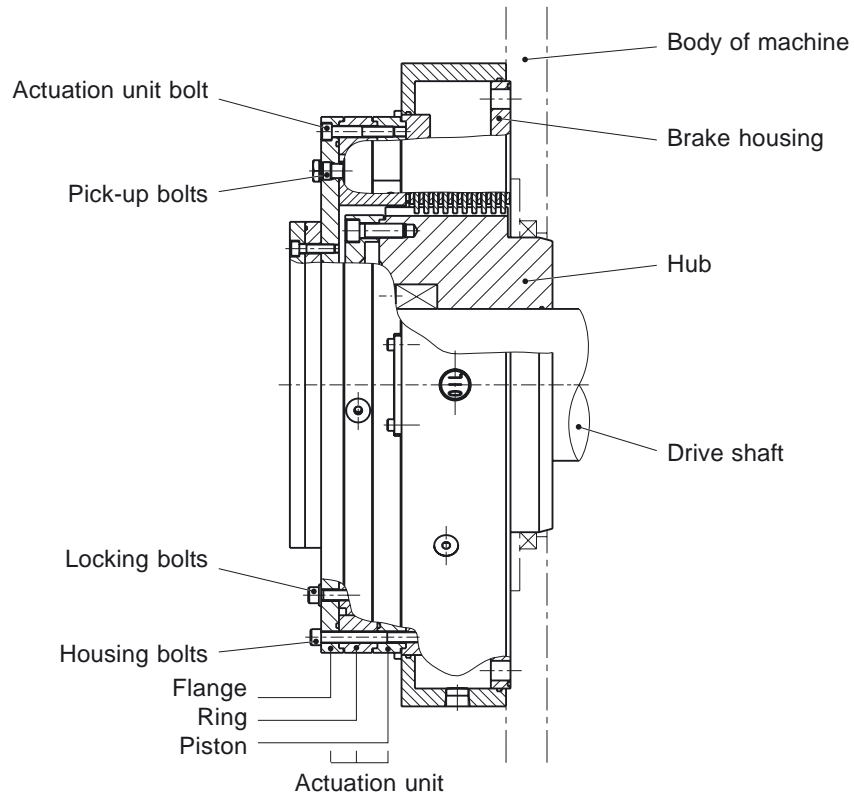
### Installation



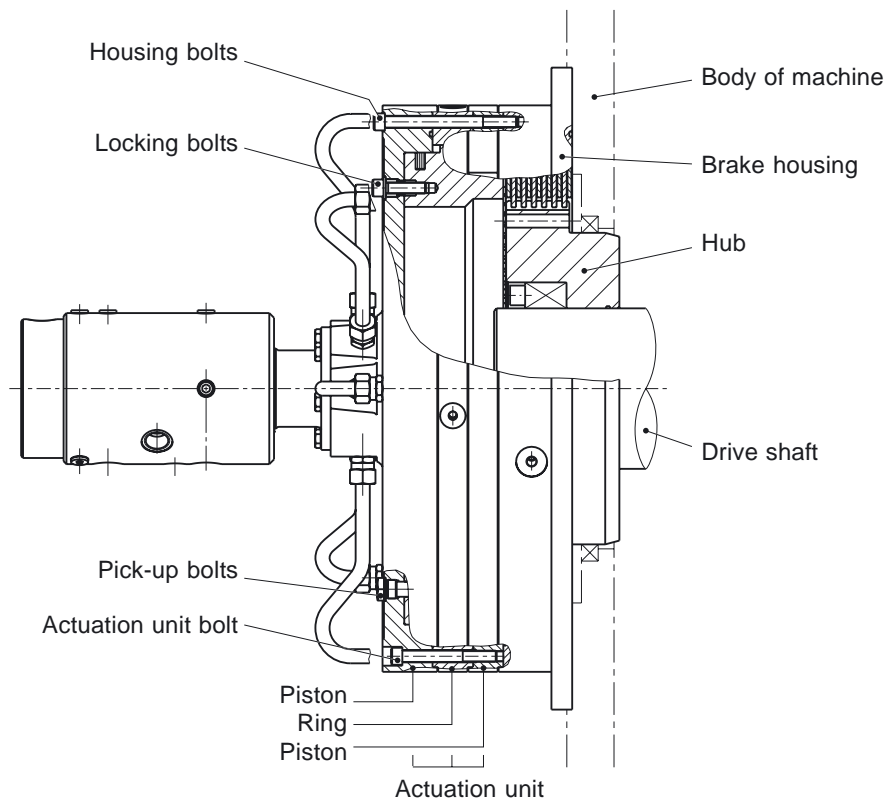
**Figure 5: Installation of the brake**



**Figure 6: Installation of the brake "rotatable"**



**Figure 7: Installation of the brake with internal oiling**



**Figure 8: Installation of the brake with auxiliary actuation**

- Unbolt the brake housing from the actuator unit, bolt it to the body of the machine and fit the split pins.

### Torques for the housing / machine bolts DIN 912-10.9

Size	80	86	90	94	98
Thread	16xM12	16xM16	16xM20	16xM30	24xM36
Torque [Nm]	130	310	620	2100	3700

- Fix the hub onto the shaft. Ensure the correct axial position! When fixing with clamping set always comply with the manufactures' assembly instructions and remove any plastic plugs fitted.
- Insert the plates to suit the delivered state, alternating an outer with an inner plate. The first and last plate is always an outer plate.
- Bolt the actuation unit to the brake housing. Use the correct torques for the housing bolts. Secure housing bolts with LOCTITE 262.



**Note:** Actuation unit, brake housing and oil inlet (oil inlet optional) are marked. Identification must have the same alignment!

### Table of housing bolts DIN 912-10.9 (Actuation unit / housing)

Size	80	86	90	94	98
Thread	M8	M10	M12	M14	M20
Torque [Nm]	37	75	130	205	620

- Remove the locking bolts.



**Note:** The brake springs will become effective and will press the piston of the actuation unit against the plates. The locking bolts should be carefully retained for use during disassembly!

- Instead of securing bolts, use the DIN 906 sealing plugs supplied loose
- On the version with internal oiling the bell housing is to be fitted last. The ventilator and air vent is to be positioned in the top position. The securing straps are to be fitted.

Size	80	86	90	94	98
Locking bolts	M8x25 10.9	M10x40 10.9	M12x45 10.9	M12x50 10.9	M20x80 10.9

### Trial run of the brake

The brake must run for at least 20 hours as a trial run. As a rule there will be no more plate wear after this. When initially commissioning of the system the basic contamination must be filtered out of the system before opening the brake for the first time. When working with Ortlinghaus hydraulic components the relief tap of the accumulator group should be opened for this and the hydraulics run for around 2 hours depressurised.

## Maintenance

### Checks during operation of the machine

The brake will be largely free of wear and will thus require no maintenance. Improper operation (excessively high operating temperature ....) however can lead to wear on the plates. Plate wear will show up in altered operating characteristics of the brake:

- The braking angle will increase, i.e. the press slide will travel past top dead centre before coming to a standstill.

If you find that the brake angle has increased you must immediately stop the machine. Call for Customer Service.



### Checking the state

The opening travel of the piston can be measured without disassembling it.

For this ensure that the no unintentional movement of the machine can occur due to it being necessary to neutralise the function of the brake:

- Move the press slide to bottom dead centre
- **Shut off the drive**
- Remove **one** pick-up bolt from the actuation unit (see illustration in Figure 5, 6, 7 and 8: Installation of the brake).
- Measure the depth dimension on the piston.
- Open the brake (comply with the safety instructions).
- Measure the depth dimension on the piston again.

The difference between the depth measurements gives the opening travel of the piston. It is possible to assess this from the table below:

### Clearance dimensions (RF = friction faces)

Size	80			86			90		
RF	12	16	20	12	16	20	12	16	20
New state min. [mm]	1,6	2,1	2,6	1,8	2,4	3,0	2,2	2,9	3,6
After running in process [mm]	2,2	2,9	3,6	2,4	3,2	4,0	2,8	3,7	4,6
Max. value [mm]	3,7	4,9	5,8	4,2	5,6	6,7	4,9	6,6	7,6

Size	94			98					
RF	12	16	20	12	16	20			
New state min. [mm]	2,5	3,4	4,2	3,0	4,0	5,0			
After running in process [mm]	3,1	4,2	5,2	3,6	4,8	6,0			
Max. value [mm]	5,4	7,2	8,6	7,0	9,3	11,6			

The maximum possible clearance dimensions (max. value) give the max. permissible piston stroke. In the normal running in process of the friction faces an increase in the opening travel of 0.05 mm per friction face can occur (after the running in process).

If the value for the running in process are considerably exceeded it is recommended that an inspection be carried out.

## Fault finding

Fault	Reason	Remedy
Brake slips (brake angle increases)	Friction linings worn out (maximum permissible size of air gap reached)	Call in Customer Service to replace the discs
	Cannot be determined <b>Machine fault</b>	Call in Customer Service



If wear is found on the plates the brake must have been operated improperly (excessively high operating temperature ....). In order to rule out further wear in the future you should ensure proper operation of the brake.

## Disassembly/assembly

When working on the brake ensure that the no unintentional movement of the machine can occur due to it being necessary to neutralise the function of the brake:



- Move the press slide to bottom dead centre
- **Shut off the drive**

### Disassembling the actuation unit.

**N.B.:** the internal components of the actuation unit are spring-loaded. This means that before any work is done on the brake, the piston must be pulled down against the flange using the securing bolts supplied. This secures the springs.



- Remove the actuation unit by releasing the housing bolts from the housing (on the version with internal oiling first remove the bell housing). There are transport threads provided on the circumference for this.
- Place the actuation unit on the workbench with the cylinder downwards.
- Release the securing bolts uniformly.
- Release the "actuation" bolts.

### Assembling the actuation unit.

- The assembly is done in reverse order to the disassembly.
- Care must be taken to ensure the same angular position of the flange (cylinder) to the piston.



**N.B.** Never pressurise the actuation unit unless the housing is bolted down firmly.

#### Torques for the "actuation" bolts DIN 912 - 10.9

Size	80	86	90	94	98
Thread	4 x M8	4 x M10	4 x M12	4 x M14	4 x M20
Torque [Nm]	37	75	130	205	620

### Disassembly/assembly of housing, plates and carrier.

- See Page 7 Initial Assembly and Commissioning.



**Note:** Actuation unit, brake housing and oil inlet (for version with auxiliary actuation) are marked. Identification must have the same alignment!

- When re-assembling care should be taken to ensure that the plates are fitted in their original location and position, otherwise the running in process will have to be repeated.

## Spare Parts

We will only give a warranty on our products if you use genuine spare parts from the Ortlinghaus company. Please only order your spares in writing.

On the outside of the brake you will find the fabrication number under which the brake was manufactured. Always quote this number. It consists of a two digit year number and a sequential number, e.g. 00/12345. Also quote the article number for the brake wherever possible.

## Approved types of oil

We have cleared the following types of oil for operation of the brake. They have been tested by us and give an optimal performance.

Oil type	Manufacturer	Trade name
HL/CL	Agip	Agip OTE 32...68
	ARAL	Kosmol TF 32...68
		Vitam UF 46, 68
	BP	BP Energol HL 46
	DEA	Astron HI 22...68
	FINA	CIRKAN 22...68
	MOBIL	Mobil Turbine Oil Light
		Mobil Turbine Oil Medium
SHELL	Morlina 22, 46, 68	
ATF	Aral	ATF 33
	BP	Autran G
	Esso	Glide
	FUCHS	ATF TF M2C 33-F
	MOBIL	ATF 210
	SHELL	ATF Donax TF
Synthetic oils	CASTROL	Alphasyn T 32-68
	MONSANTO	Santotrac 20-50