

Technical Product Information No. 1140 EN

Hydraulically released brake Series 0 128

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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!

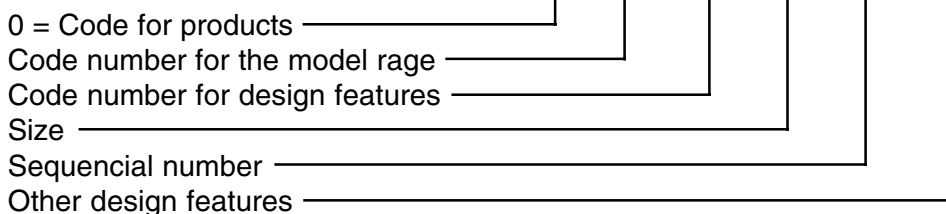


This symbol indicates sections of text to which particular attention must be paid.

The Ortlinghaus numbering system

Example:

0 111 - 222 - 33 - 444 555



Pass this TPI on to your customers ! You can either order further copies of this TPI from us or you are free to make copies, for use by your customers.

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.

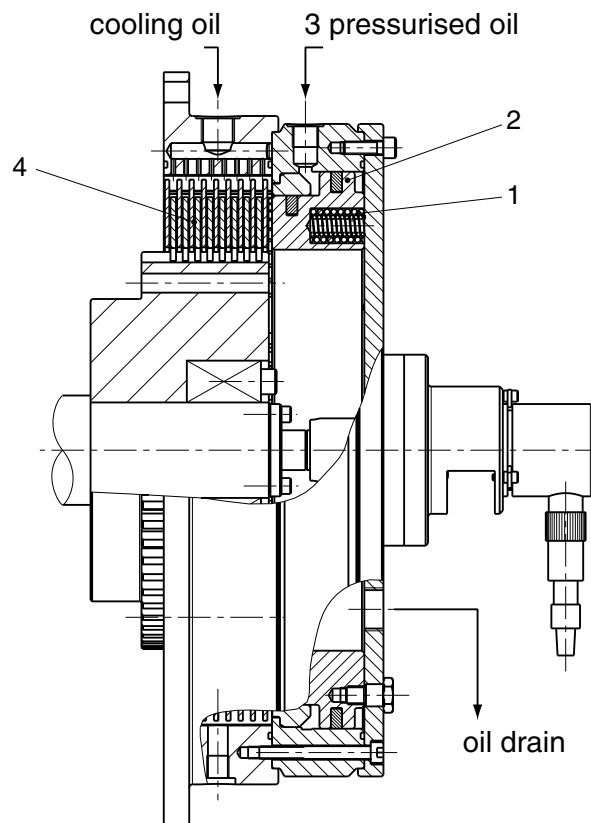


Figure 1a: The function of the brake

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**.

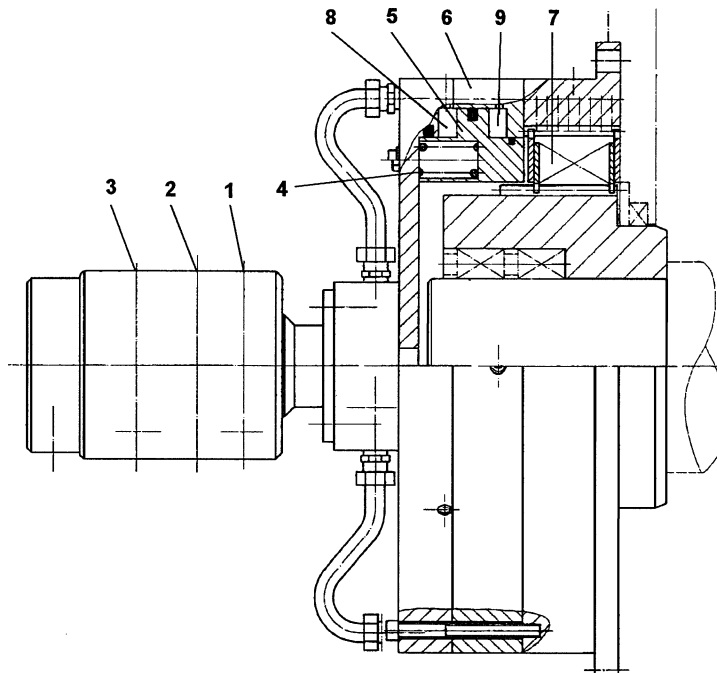


Figure 1b: The function of the brake with auxiliary actuation

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 **50 + 5 bar**, maximum permissible pressure is **60 bar**. 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 **50 +5 bar**. 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 **60 bar**.



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

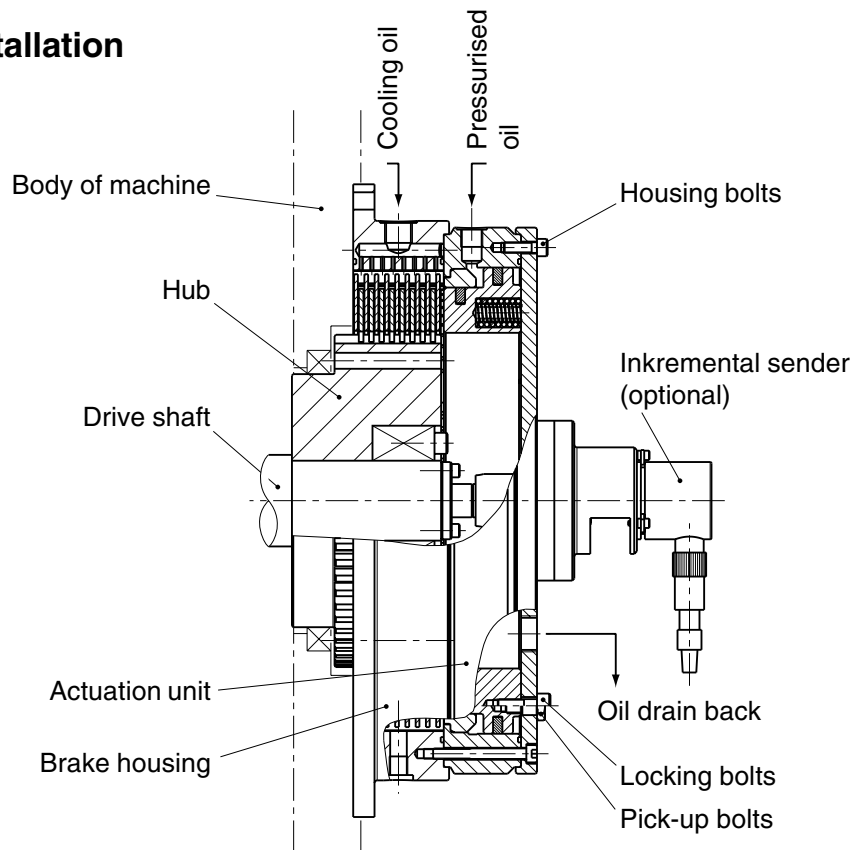


Figure 2a: Installation of the brake

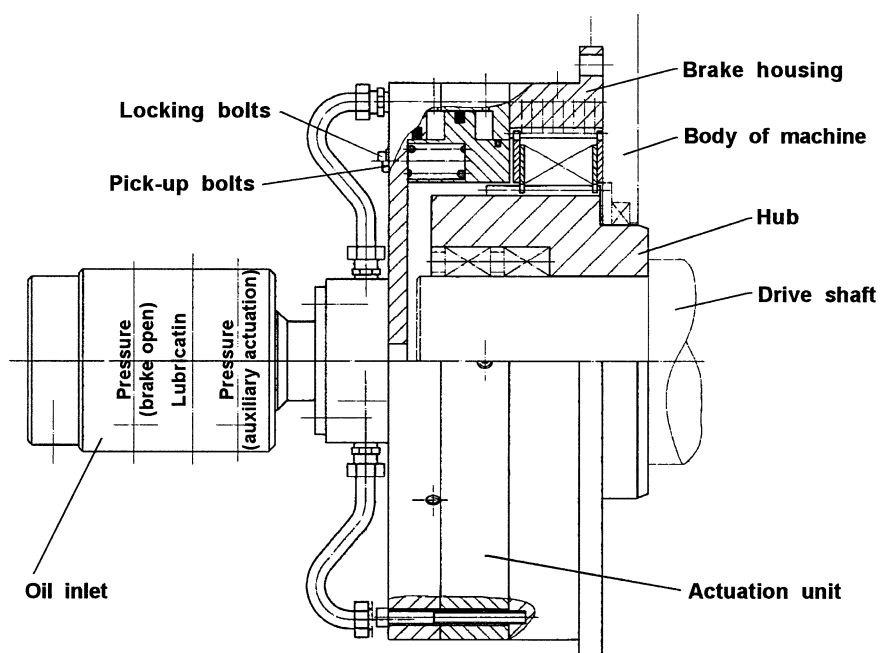


Figure 2b: Installation of the brake with auxiliary actuation

- Unbolt the brake housing from the actuator unit, bolt it to the body of the machine and fit the split pins.
- 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 (also for version with auxiliary actuation) are marked. Identification must have the same alignment!

Table of housing bolts

Size	80	86	90	94	Unit
Thread	M8	M10	M12	M14	-
Torque	37	75	130	205	Nm

- 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!

- In place of the locking bolts insert the pick-up bolts supplied. Use the correct torques for the housing bolts.

Table of locking bolts / pick-up bolts

Size	80	86	90	94	Unit
Locking bolts	M8x25 10.9	M10x45 10.9	M12x50 10.9	M16x70 10.9	-
Pick-up bolts	1 128-500-size-000 000				-
Torque	37	75	130	205	Nm

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 2a and 2b: 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			94		
RF	12	16	20	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	2,5	3,4	4,2
After running in process [mm]	2,2	2,9	3,6	2,4	3,2	4,0	2,8	3,7	4,6	3,1	4,2	5,2
Max. value [mm]	3,7	4,9	5,8	4,2	5,6	6,7	4,9	6,6	7,6	5,4	7,2	8,6

The maximum possible opening clearance dimensions (max. value) give the piston stroke, determined by the design. 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 Machine fault	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

- If the actuation unit malfunctions it should be sent back to the Ortlinghaus factory for checking.
- If required trained service engineers are available on site.

Disassembly



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**

Carry out the disassembly in reverse order to the assembly.



Note: The brake is under spring pressure! The parts will fly apart when the actuation unit is released, so first of all:

- Remove the pick-up bolt. Keep it safe for later re-assembly.
- In place of the pick-up bolts insert the locking bolts used for the delivery. Use the correct torques for the bolts!
- Continue the disassembly in reverse order to the assembly.

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