1.3A-48001-A00

# *Pneumatically Operated Change-over Valve Model MP1*

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## Safety Instructions

### Appropriate Use

- The change-over valve is exclusively designed for use in centralized lubrication systems.
- Do not exceed the maximum ratings mentioned in the Technical Data, particularly the maximum operating pressure.
- Any other use will not be conform.
- The manuafacturer is not responsible for damage resulting from incorrect use.

### Operation of the Change-over valve

- The change-over valve should be used only if it is in a good state.
- Defects which impair the function and the safety must be remedied to immediately.
- The function of the change-over valve is only guaranteed if clean hydraulic oil and lubricant are used.
- If you require more information than mentioned in this Owner's Manual, Please contact us (see address at the bottom of the page).

### Maintenance and Repairs

- Before executing maintenance and repair work at the change-over valve read the Owner's Manual and the Safety Instructions.
- The Owner's Manual must be available at the place where the unit is in operation.
- Alterations or modifications of the change-over valve are only allowed if approved by the manufacturer.
- Use only original spare parts for repair work.
- If other parts are used, the manufacturer may be released from his liability for the resulting damage.

### Structure and Mode of Operation

The change-over valve operates like a hydraulically operated 4/2-way valve which alternately discharges the lubricant fed by the pump into one of both main lines, while the other main line is connected to the return line connection of the pump.

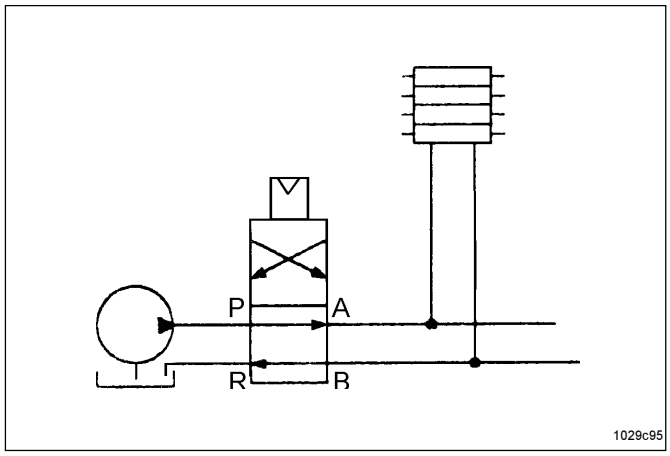


Fig. 1: MP1 used as a change-over valve for two-line systems





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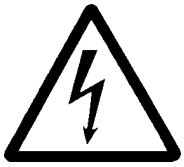
## Erection and Assembly

**Requirements on the installation site:**

- even, solid and vibration-free installation site
- protected from dust and dirt
- safe from atmospheric influences
- position of installation: any

**Electric connection**



- Before connecting the unit, disconnect the system from the power supply.
- The assembly and installation of electrical devices should be carried out only by an electrician!
- Observe the relevant rules of engineering and the respective safety provisions (rules, standards).
- Perform the electrical connection of the solenoid in accordance with the connection diagram.

**CAUTION** **The supply voltage and the voltage of the solenoid valve must agree.**

## Operating Instructions

**Putting into operation**

- After connection of the tube lines and the electric lines, the change-over valve is ready for operation.

**Maintenance and repairs**

- Repair work should be carried out only by qualified personnel using original replacement parts. Provided that only clean lubricant is used, the change-over valve does not need any particular maintenance.
  The reversing piston is subject to natural wear which depends on the operating time and the adjusted operating pressure. For repairs, the complete reversing block must be replaced because the piston is fit to precise tolerances in the factory.

**Before carrying out electrical repair work at the change-over valve, please observe the following:**

* Disconnect the system from the power supply and take the necessary measures to avoid it being switched on again by accident.
* Reduce the system pressure to zero
* Risk of lubricant splashing off

## Technical Data

| | |
|---|---|
| Threaded connection: | G 3/4 |
| Flow rate: | $Q_{max}$ = 65 $dm^3h^{-1}$ |
| Operating pressure, lubricant: | $p_{max}$ = 400 bar |
| Drive medium: | |
| Oiled compressed air | $p_{max}$ = 10 bar |
| Operating temperature: | -20°C up to +70°C |
| Sound pressure level: | < 70 dBA |
| Weight: | 7.7 kg |
| Position of installation: | any |

Data for solenoid valve:

| | |
|---|---|
| Voltages: | see page 4 |
| Power consumption, AC operate voltage: | 2 VA |
| Power consumption, DC operation: | 8.2 W |
| Power consumption, AC operation: | 10.08 VA |
| Voltage fluctuations: | 10 % |
| Type of protection: | IP 65 |
| Insulation class: | F |
| Electrical connection: | connector plug DIN 43650 B cable entry PG 11 |





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## Troubleshooting

In case of defects, first check whether the pump operates with full pressure.

| • **Fault: No changing-over is initiated** | |
|---|---|
| • **Cause** | • **Remedy** |
| • Solenoid valve defective | • Replace solenoid valve |
| • No air pressure available or air presssure too low | • Check the air pressure supply |
| • No voltage supply or voltage supply too low | • Check the voltage supply and the coil |
| • End-of-line pressure switch does not transmit signal | • Check function, adjustment and electric cable of end-of-line pressure switch |
| • **Fault: no pressure build-up or pressure build-up too slow** | |
| • **Cause** | • **Remedy** |
| • Leakage in the line system or in the two-line metering devices | • Check the main lines and the two-line metering devices |
| • Piston in reversing housing worn | • Replace the complete reversing housing (item 1, fig.4) |

**Part numbers of standard change-over valves**

| Description | Supply voltage | Part no. |
|---|---|---|
| Model MP1-24DC change-over valve | 24 V DC | 618-28965-1 |
| Model MP1-110AC/50-60Hz change-over valve | 110V, 50/60 Hz | 618-28964-1 |
| Model MP1-110VDC change-over valve | 110V DC | 618-28963-1 |
| Model MP1-220AC change-over valve | 220V, 50/60 Hz | 618-28966-1 |





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## Single Parts of the Change-over Valve

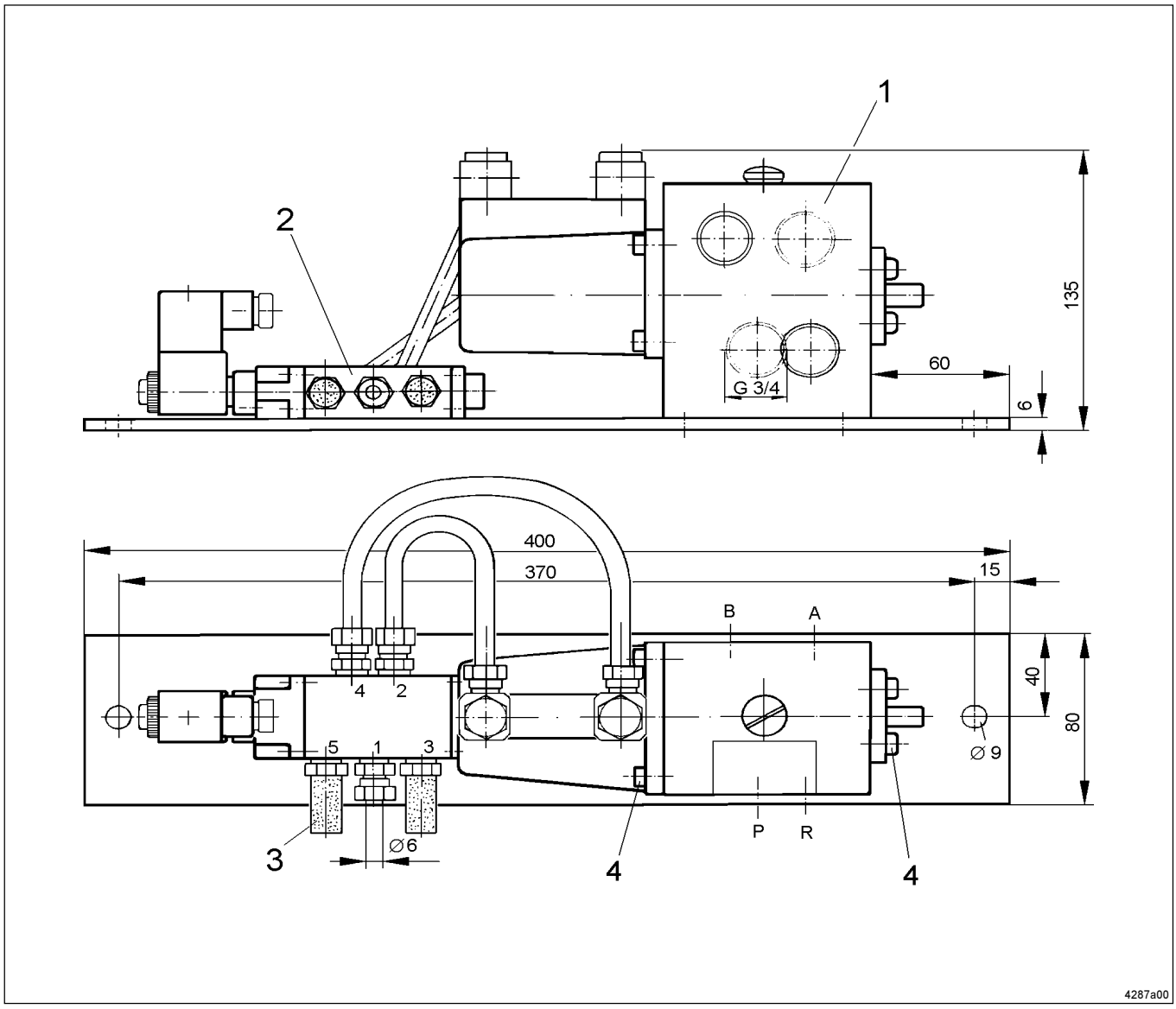


Fig. 2: Structure of the MP1 change-over valve

| Item | Designation | Qty. | Part no. |
|---|---|---|---|
| 1 | Reversing housing assy. with cylinder (see next page for single parts) | 1 | 518-32230-1 |
| 2 | 5/2-way solenoid valve 24 VDC | 1 | 253-14071-5 |
| | 220 V AC | 1 | 253-14071-6 |
| | 110 V AC | 1 | 253-14058-2 |
| | 110 V DC | 1 | 253-14072-6 |
| 3 | Muffler U 1/8 | 1 | 253-14055-1 |
| 4 | Hexagon socket head screw M 5 x 16 Tightening torque: 6 Nm blocked with Loctite 270 | 8 | 201-12546-4 |

## Single Parts of Reversing Housing with Cylinder 518-32230-1

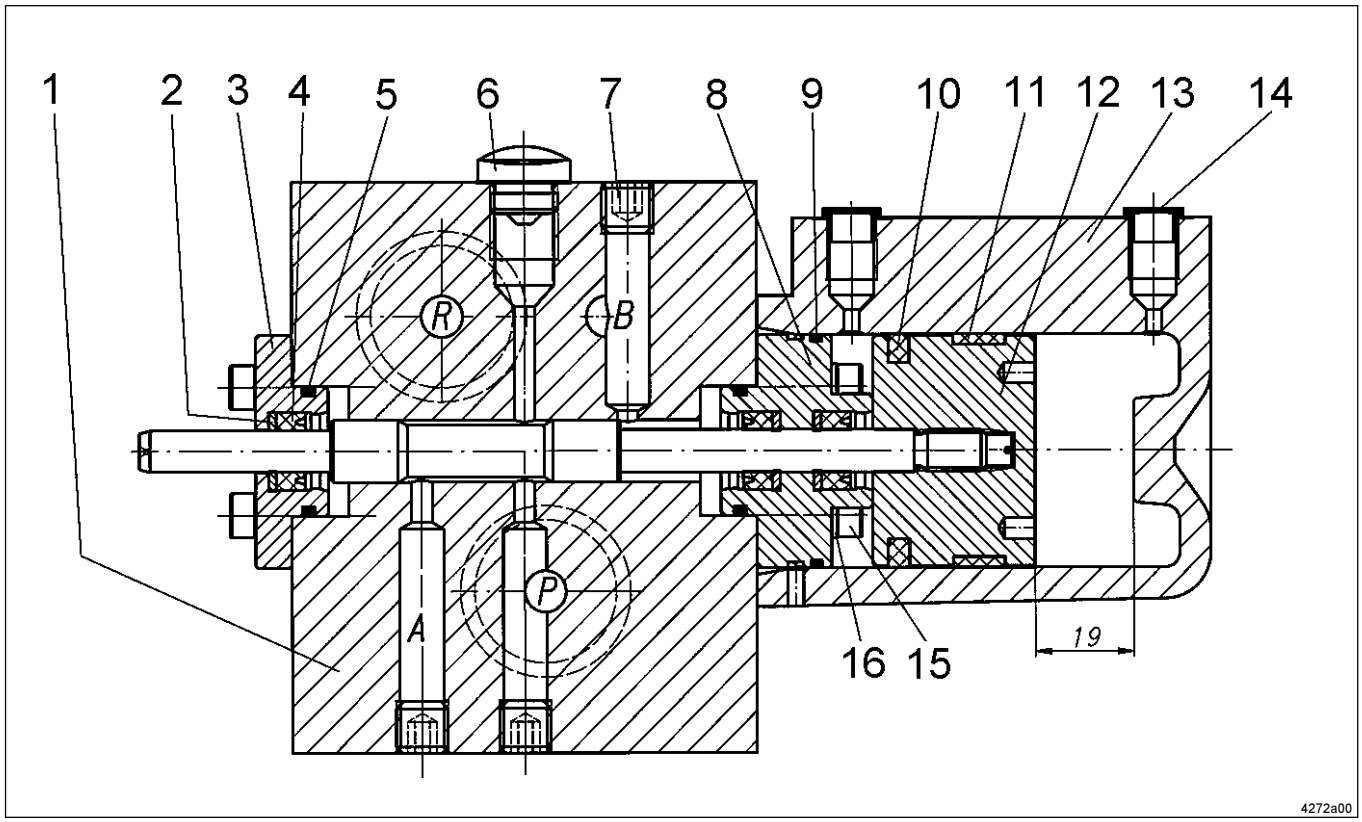


Fig. 4: Single parts of reversing housing

| Item | Description | Qty. | Part no. |
|---|---|---|---|
| 1 | Reversing housing assy. with piston | 1 | 525-31478-1 |
| 2 | Sealing ring, leather 7,8x15,3x1,5 | 3 | 306-17805-1 |
| 3 | Sealing flange, housing | 1 | 418-24847-1 |
| 4 | U-cup sealing ring 8x15x5,7x3,8 | 3 | 220-12236-9 |
| 5 | O-ring 21x2 | 2 | 219-12224-1 |
| 6 | Closure plug R 1/4x8 | 1 | 303-17476-1 |
| 7* | Set screw M10 | 4 | 204-12112-2 |
| 8 | Sealing flange, cylinder | 1 | 418-24846-1 |
| 9 | O-ring 41x1,78 | 1 | 219-14138-4 |
| 10 | Compact seal | 1 | 220-13782-2 |
| 11 | Piston guiding ring EKF 45 | 1 | 220-13782-3 |
| 12 | Piston D45 | 1 | 310-19802-1 |
| 13 | Cylinder | 1 | 314-19804-1 |
| 14 | Closure plug | 2 | 233-13100-8 |
| 15 | Hexagon socket head screw M 5x25C | 4 | 201-12017-8 |
| 16 | Screw head sealing ring | 4 | 220-14101-2 |
| | Set of sealing rings consisting of items 2, 4, 5, 9 | 1 | 518-31019-1 |
| * | blocked with Loctite 270 | | |

Note:
A pressure gauge (option) can be connected to item 6 (closure plug).

Tightening torques:
Item 6: 30 Nm
Item 15: 6 Nm





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## Manufacturer's declaration as defined by EU machinery directive 89/392/EEC, Annex II B

We hereby declare that the supplied model

## Change-over Valve Type MP1 ...

in the version supplied by us is intended to be incorporated into machinery covered by this directive and that is may not be put into operation until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the EU machinery directive as amended 91/368/EEC.

**Applied harmonized standards, in particular:**

| | |
|---|---|
| **EN 292-1** | Safety of machinery, part 1<br>Basic terminology, methodology |
| **EN 292-2** | Safety of machinery, part 2<br>Technical guiding principles and specifications |
| **prEN 809** | Pumps and pump units for liquids, safety requirements |
| **EN 60204-1** | Safety of machinery<br>Electric equipment of machines<br>Part 1: General requirements |

*Walldorf, May, 2000 , Dr. Ing. Z. Paluncic*





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