

RE 07 300/12.02

Replaces: 02.01

**Installation, commissioning and
maintenance of industrial valves****1. General**

Before commissioning industrial valves, observe the notes in the following data sheets:

- Related data sheet
- German standard DIN 24 346
- ISO standard ISO 4413

2. System flushing

With external pilot oil supply, ensure that this connection is also flushed.

The hydraulic fluid volume contained in the system should be flushed through the filter at least 150 to 300 times.

As a rule, the recommended flushing time can be calculated as follows:

$$t = \frac{V}{q_v} \times 2.5 \text{ to } 5$$

Where:

t = flushing time in hours

V = tank capacity in litres

q_v = pump flow in l/min

A decisive factor for the flushing time is the degree of contamination of the hydraulic fluid according to section 4.3. To achieve the required minimum cleanliness the hydraulic system must be flushed sufficiently long. This can be ensured only through continuous monitoring using a particle counter.

If the hydraulic fluid is changed over to special fluids that are **not** compatible or miscible with the hydraulic fluids used before, considerably longer flushing times may be required.

During the flushing process, all filters must be checked at short intervals and the filter elements replaced as required.

3. Installation**3.1 Rules for the installation**

Before installing the valve on the system, compare the type designation of the valve with the order data.

Make sure that the connection surfaces of the valve and the subplate are dry and free from oil.

– Cleanliness:

- When installing the component, make sure that the industrial valve and the surroundings are clean
- The tank must be sealed against external contamination
- Pipes and tank must be freed from contamination, scale, sand, chips, etc. prior to the installation.
- Warm-bent or welded pipes must be pickled, flushed and oiled.
- For cleaning use only lint-free cloth or special paper.

– Sealing materials such as hemp, putty or sealing tape are not permitted.

– For pipework use seamless precision steel pipes to DIN 2391/ parts 1 and 2.

– The mounting face must feature a surface quality of $R_{t \max} \leq 4 \mu\text{m}$ and a flatness of $\leq 0.01 \text{ mm}/100 \text{ mm}$ length.

– Fixing screws must comply with the dimensions and the strength class specified in the data sheet and must be tightened at the specified tightening torque.

– As filler/breather filter we recommend a filter with the same mesh width as the filter in the hydraulic system!

3.2 Valve installation

When installing the valve, make sure that the mounting face and the subplates are dry and free from oil. If the presence of oil on the connecting faces cannot be avoided, the fixing screws must be tightened manually, **not** with the aid of power tools. In the case of more than 4 fixing screws, care should be taken that the central screws are tightened first.

This measure ensures that the seal rings seal properly against the valve connection face.



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3.3 Installation position

Optional, preferably horizontal for directional valves!

For valve versions such as, for example,

- without spring centring of the spool
 - or with solenoids hanging downwards,
- other installation positions can lead to malfunction or restrictions with regard to the specified technical data.

In the case of pressure switches with drain port the installation position must be selected so that the max. permissible pressure of 2 bar is not exceeded.

3.4 Electrical connection

For circuit examples and pin assignments, see the relevant data sheet.

4. Commissioning

4.1 Hydraulic fluid

Observe the recommendations given in the data sheet!

Observe pressure and temperature ranges!

In general, the following fluids can be used:

- Mineral oil (HL; HLP) to DIN 51 524 ¹⁾

Fast bio-degradable fluids to VDMA 24 568 (see also RE 90 221)

- HETG (rape seed oil) ¹⁾
- HEPG (polyglycols) ²⁾
- HEES (synthetic esters) ²⁾

(other hydraulic fluids on enquiry)

The maximum temperatures recommended by the fluid supplier should not be exceeded. To ensure constant response characteristics it is recommended that the hydraulic fluid temperature be kept constant (± 5 °C).

4.2 Is the sealing material used suitable?

For hydraulic fluids (e.g. HEPG and HEES) and in the case of temperatures > 80 °C FKM seals must be used (identified with "V" in the type code).

¹⁾ Suitable for NBR **and** FKM seals

²⁾ Suitable for FKM seals **only**

4.3 Filtration

- Reliable filtration prolongs the service life of valves.

Please also observe the recommendations with regard to the max. permissible degree of contamination of the hydraulic fluid according to NAS 1638 in our data sheet.

- The max. permissible differential pressure across the filter element must not be exceeded.

- We recommend the use of filters with clogging indicator.

- Observe strict cleanliness when changing the filter.

Contamination on the outlet side of the filter is flushed into the system and causes malfunction.

Contamination on the inlet side reduces the useful life of the filter element.

4.4 Bleeding

- Bleeding of the valves is not necessary!

- However, to ensure proper operation of the valves, draining of the tank line must be avoided (installation of a precharge valve).

5. Maintenance

- 5.1 The valves are basically maintenance-free; since seals are subject to natural wear and aging, they must be replaced as required.

6. Storage

Storage requirements:

- Dry, dust-free room, free of corrosive substances and vapours

When storing for periods of more than 6 months:

- Fill the valve with preserving oils and seal it.

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