

Installation and operating instructions for the specialized installer

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1 General information

1.1 Information regarding installation and operating instructions

These installation and operating instructions serve the installer to install the double regulating and commissioning valve professionally and to put it into operation. Other valid documents - manuals of all system components as well as valid technical rules - must be observed.

1.2 Keeping of documents

These installation and operating instructions should be kept by the user of the system.

1.3 Copyright

The installation and operating instructions are copyrighted.

1.4 Symbol explanation

Safety guidelines are displayed by symbols. These guidelines are to be observed to avoid accidents, damage to property and malfunctions.

2 Safety notes

2.1 Correct use

Safety in operation is only guaranteed if the valve is used correctly. Double regulating and commissioning valves are installed in hot water central heating and chilled water A/C systems with a closed water circuit and serve to achieve a hydronic balance between the various circuits of the system.

Any use of the valve outside of the above applications will be considered as non-compliant and misuse.

Claims of any kind against the manufacturer and/or his authorized representatives due to damages caused by incorrect use cannot be accepted.

The observance of the installation and operating instructions is part of the compliance terms.

3 Transport, storage and packaging

3.1 Transport inspection

Upon receipt check delivery for any damages caused during transit. Any damage must be reported immediately upon receipt.

3.2 Storage

The double regulating and commissioning valve must only be stored under the following conditions:

- Do not store in open air, but dry and free from dust.
- Do not expose to aggressive fluids or heat sources.
- Protect the valve from direct sunlight and mechanical agitation.
- Storage temperature: -20 up to +60°C / -4°F up to 140°F, max. relative humidity of air: 95 %

4 Technical data

4.1 Performance data

| | | |
|------------------------|------|------------------------|
| DN40 - DN 300 | | Static Balancing Valve |
| Operating temperatures | min. | -10 °C / 14 °F |
| | max. | 100 °C / 212 °F |
| Operating pressure ps | max. | 1600 KPa / 230 psi |

The double regulating and commissioning valves “DRV4000 “ sized DN40-150 can be used for a max. operating pressure up to 1600 KPa / 230 psi.

Fluids: Non-aggressive fluids (e.g. water and suitable water and glycol mixtures according to VDI 2035). Not suitable for steam or oily and aggressive fluids. The bronze double regulating and commissioning valves “4000“ can also be used for cold salt water (max. 38 °C / 100 °F) and domestic water.

Flow coefficient value

| SIZE/TURN | DN40 | DN 50 | DN 65 | DN80 | DN 100 | DN 125 | DN 150 |
|-----------|-------|-------|-------|-------|--------|--------|--------|
| 1 | 10.1 | 10.1 | 15.50 | 16.3 | 26 | 22 | 27.9 |
| 2 | 21.1 | 21.1 | 32.50 | 32.2 | 45 | 53 | 54.9 |
| 3 | 31.60 | 31.60 | 48.70 | 52.5 | 59 | 74 | 76.8 |
| 4 | 37.8 | 37.8 | 58.10 | 67.5 | 69 | 96 | 97.6 |
| 5 | 41.9 | 41.9 | 64.40 | 77.2 | 95 | 125 | 117.2 |
| 6 | 45.1 | 45.1 | 69.30 | 86.2 | 127 | 156 | 143.2 |
| 7 | 48.7 | 48.7 | 74.90 | 96.4 | 144.5 | 193 | 186.50 |
| 8 | 47.6 | 47.6 | 83.10 | 104.7 | 166.5 | 226 | 225.2 |
| 9 | 55.60 | 55.60 | 92.70 | 114.5 | 187.5 | 253.2 | 265.9 |
| 10 | | | | | | 286.5 | 321.5 |
| 11 | | | | | | | 362.6 |
| 12 | | | | | | | 395 |

4.2 Materials

Round flanges according to DIN EN 1092-2, PN 16 Valve body (DN40 – DN 150 made of ductile iron GGG 40) Bonnet (DN40 – DN 150 made of ductile iron GGG 40), disc made of GGG40, stem made of brass, disc with EPDM seal. stem with O-ring seal, no maintenance required.

4.3 Weight

| DN | Approx. weight |
|-------|----------------|
| | Kg |
| 40-50 | 10.5 |
| 65 | 15 |
| 80 | 19.5 |
| 100 | 28 |
| 125 | 37.5 |
| 150 | 52.5 |

5 Construction and function

5.1 Survey and functional description

The balance is achieved by a presetting with memory position. The calculated flow rate or pressure loss for each individual pipe can be preset centrally and be regulated precisely. The required values of presetting can be obtained from the flow charts. The flow charts are valid for the installation of the double regulating and commissioning valve in the supply or the return pipe provided the direction of flow conforms to the arrow on the valve body. All intermediate values are infinitely adjustable. The selected presetting can be read off two scales (basic setting longitudinal scale and fine setting peripheral scale, see (illustration 1.1).

The limit stop of the presetting is maintained even if the double regulating and commissioning valve is closed.

The double regulating and commissioning valves have two threaded ports which are equipped with the pressure test points for measuring the differential pressure.

5.2 Markings

| | |
|----------|---------------------|
| Bariq | Manufacturer |
| DN | Nominal size |
| PN/Class | Nominal pressure |
| GGG40 | Valve body material |

6 Installation

Before installing the valve, the pipe work has to be flushed thoroughly. Installation is possible in any position (horizontal, oblique or vertical, in ascending or descending sections). It is important to note that the direction of flow must conform to the arrow on the valve body and that the valve must be installed with $L = 5 \times \emptyset$ of straight pipe in the upstream side and with $L = 2 \times \emptyset$ in the downstream pipe. The double regulating and commissioning valve can be installed in either the supply or the return pipe.

After installation, the handwheel and measuring connection must be easily accessible.

CAUTION

- Do not use any lubricant or oil when installing the valve as these may destroy the valve seals. If necessary, all dirt particles and lubricant or oil residues must be removed from the pipe work by flushing the latter.
- When choosing the operating fluid, the latest technical development has to be considered
- A strainer has to be installed in front of the valve.
- Safeguard from external forces (e.g. impacts, or vibrations).
- Test point must be fixed after the valve is installed in the pipe in order to avoid to damage the test point.
- Correctly install test point (red = supply, blue = return) see illustration 1.2

7 Operation

7.1 Deaeration of the system

Before initial operation, the system has to be filled and bled with due consideration of the permissible working pressures.

7.2 Correction factors for water and glycol mixtures

The correction factors of the antifreeze liquid manufacturers have to be taken into consideration when setting the flow rate.

7.3 Presetting

1. The presetting value of the valve is set by turning the handwheel.

Operation methods:

- 1). Fully close the valve (See figure 1)
- 2). Open valve to the preset valve (See figure 2)
- 3). Tighten internal valve stem clockwise with allen wrench 4). Complete the valve setting.

How to check the preset value:

close the valve and the reading is 0.0 ring, Turn handwheel until stopping and the reading is default valve (It is 4.5 ring, see the figure 2).

2. How to set predetermined value? (see illustration 1.3)

Illustration1.4

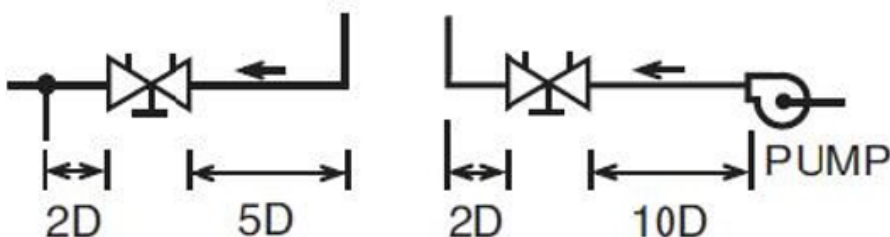


Illustration 1.1

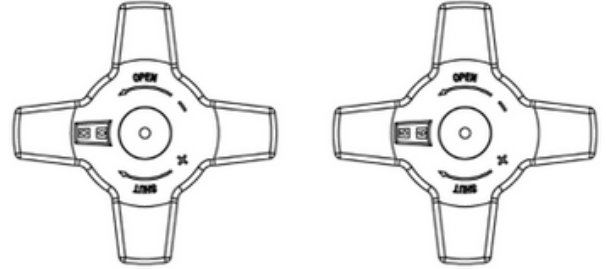
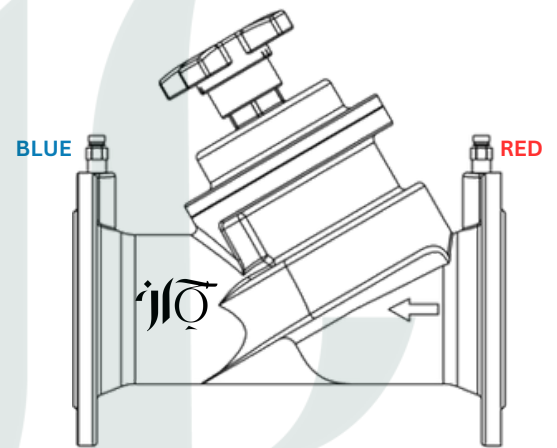


Figure 1 Close

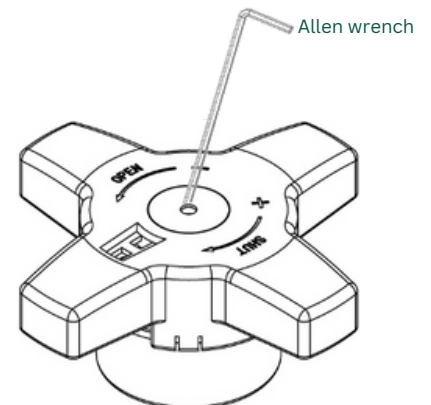
Figure 2 Preset value is 5.5

Illustration1.2



- Test point must be fixed after the valve is installed in the pipe in order to avoid to damage the test point.
- Correctly install test point (red = supply, blue = return)

Illustration1.3



8 Accessories

The instructions and test point

9 Maintenance

The valve is maintenance-free.



Read installation and operating instructions in their entirety before installing the double regulating and commissioning valve! Installation, initial operation, operation and maintenance must only be carried out by qualified tradesmen! The installation and operating instructions, as well as other valid documents must remain with the user of the system!



DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.



Suitable measures (e.g. safety valves) have to be taken to ensure that the maximum operating pressure and maximum and minimum operating temperature are not exceeded or undercut.



The warning notes under paragraph 2 (safety notes) must be observed!



Generally, when connected to an elbow or a pump, the valve must keep a certain distance from the elbow or the pump. The rule is shown in the right figure (see illustration 1.4)