

Installation and Maintenance Instruction Manual

Valves and Manifolds

for industrial application in the following configuration:

- ###V02=1V### Gauge valve
- ###V02=2V### Block and Bleed valve
- ###V02=3V### 3-way Manifold
- ###V02=5V### 5-way Manifold
- ###V02=MV### Multiport gauge valve



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1 General remarks

1.1 Purpose of this Manual

This Operating Manual contains fundamental and essential advice to be followed for the installation, operation and servicing of the device. It must be read without fail before assembly and start-up of the device by the fitter, the operator and the specialist personnel responsible for the device. This Operating Manual must be available at the point of use at all times.

The following sections about general safety information (2) and also the following specific advice regarding the intended purposes (2.2) and through to disposal (10.3) contain important safety information which, if not followed, may result in risks for people and animals, or to property and buildings.

1.2 Symbols



Warning!

This indicates a possibly hazardous situation where failing to follow advice may result in risks to people, animals, the environment and buildings.



Information!

This emphasizes key information for efficient, fault-free operation.

1.3 Limits of liability

Failure to respect this safety information, the envisaged uses or the limit values relating to use indicated in the technical data for the device may result in risk or to injury to people, the environment or the plant.

Claims for compensation for damage against the device supplier are excluded in such an eventuality.

1.4 Copyright

This Operating Manual may only be copied and passed on as a complete document without the special permission of the publisher.

1.5 Warranty

For the product described here, we offer a warranty pursuant to Section 6 Guarantee in Respect of Defects in our General Terms and Conditions of Delivery and Payment.

1.6 Manufacturer's address, customer services

Ashcroft Instruments GmbH
Max-Planck-Strasse 1
D-52499 Baesweiler. Germany

Tel.: +49 (0) 2401/808-888
Fax.: +49 (0) 2401/808-999
E-mail: customer.service@ashcroft.com
Web: www.ashcroft.eu

2 Safety

2.1 General sources of hazards

Manifolds are pressurized parts where failure can result in hazardous situations.

2.2 Use in accordance with intended purpose

The devices are only to be used for the intended purpose as described by the manufacturer.

The devices are used for the connecting measuring devices and for shutting off differential pressure pipes. For each use scenario, the corresponding set-up regulations must be respected.

2.3 Operator's responsibility



Shut-off valves and manifolds with E program valve head units are used for shutting off different media. They can be poisonous, explosive, irritant, very hot or very cold. Installation and maintenance work must only be performed by qualified staff.

In addition to these operating instructions are also the general safety and accident prevention regulations as well as the operating instructions of the plant and the measuring device used to Note.

The permissible operating conditions should be taken in accordance with the valve drawing. The respective pressure / temperature diagrams represent the permissible operating conditions.

2.4 Staff qualifications (target group assessment)

The device may only be installed and started up by specialist staff who are familiar with installation, start-up and operation of the product.

Specialist staff are people who are able to assess the work assigned to them on the basis of their specialist training, their knowledge and experience and their knowledge of the relevant standards, and can identify possible risks.

2.5 Signs/Safety markings

The manifolds and its surrounding packaging carry markings. These markings show the article number, pressure rating and manufacturer. The manifold can be provided with additional signs and safety markings advising on special conditions:

- Oil-can deleted (if oxygen is used)

2.6 Environmental protection

This device does not contain any environmental critical component.

3 Technical data

The detailed technical information can be found in the documents in the Appendix, Chapter 11.

4 Labeling on the device

The label with the serial number and type designation is located on the valve body. The materials identifier is encoded in the type designation.

5 Construction and function

5.1 Description of function

Shut-off valves and manifolds with E program valve head units are used for connecting measuring devices and for shutting off differential pressure pipes in chemical plants, power plants and similar facilities.

The permissible operating pressure depends on the temperature of the medium, materials and seals used. The respective pressure-temperature diagram shows the operating pressure.

Any other use and unauthorized changes are not permitted and will relieve the manufacturer of all liability for any resulting damage.

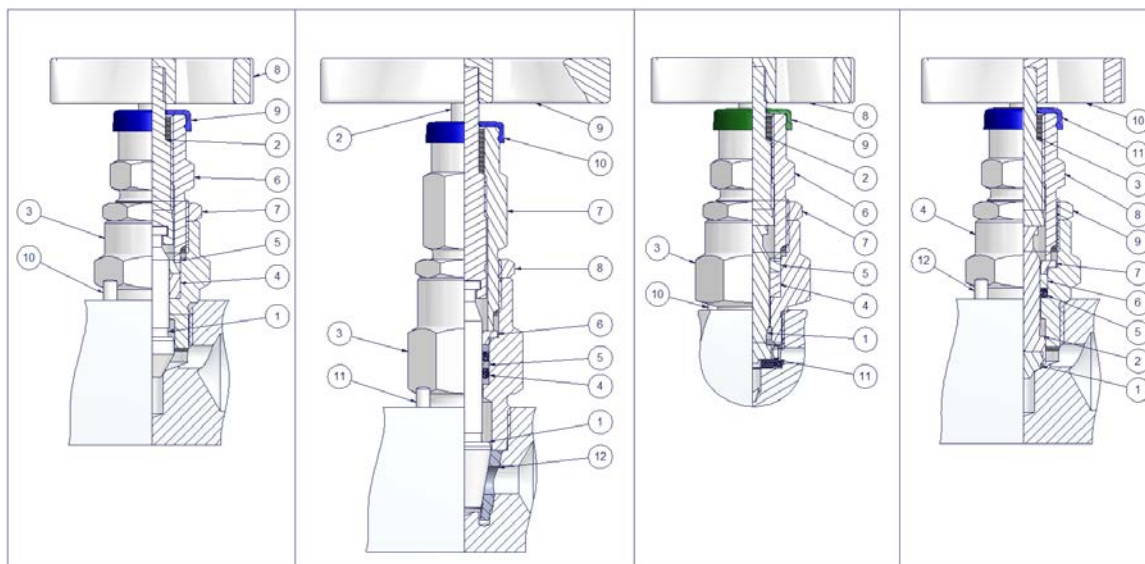
5.2 Material Suitability

In particular, it must be ensured that the selected materials for the wetted parts of the shut-off valve for the media being used are appropriate. The manufacturer is not responsible for damage caused by corrosive media on the shut-off valve.

Failure to observe this precaution can mean danger for the user and the damage to the pipe system.

5.3 Information on the pressure equipment

The permissible operating pressure depends on the temperature of the medium and of the materials used and seals. This can be found in the corresponding catalogue sheets or drawings.



Model Standard Packing	Model O-ring + soft seat (cone design)	Model soft seat (cup design)	Model O-ring + soft tip																																																																																										
<table border="1"> <tr><td>1</td><td>Needle</td></tr> <tr><td>2</td><td>Valve stem</td></tr> <tr><td>3</td><td>Bonnet</td></tr> <tr><td>4</td><td>Packing</td></tr> <tr><td>5</td><td>Gland</td></tr> <tr><td>6</td><td>Gland nut</td></tr> <tr><td>7</td><td>Hexagon nut</td></tr> <tr><td>8</td><td>T-handle with pin</td></tr> <tr><td>9</td><td>Dust cap</td></tr> <tr><td>10</td><td>Lock pin</td></tr> </table>	1	Needle	2	Valve stem	3	Bonnet	4	Packing	5	Gland	6	Gland nut	7	Hexagon nut	8	T-handle with pin	9	Dust cap	10	Lock pin	<table border="1"> <tr><td>1</td><td>Needle</td></tr> <tr><td>2</td><td>Valve stem</td></tr> <tr><td>3</td><td>Bonnet</td></tr> <tr><td>4</td><td>O-ring</td></tr> <tr><td>5</td><td>Supporting ring</td></tr> <tr><td>6</td><td>Gland</td></tr> <tr><td>7</td><td>Gland nut</td></tr> <tr><td>8</td><td>Hexagon nut</td></tr> <tr><td>9</td><td>T-handle with pin</td></tr> <tr><td>10</td><td>Dust cap</td></tr> <tr><td>11</td><td>Lock pin</td></tr> <tr><td>12</td><td>Soft seat</td></tr> </table>	1	Needle	2	Valve stem	3	Bonnet	4	O-ring	5	Supporting ring	6	Gland	7	Gland nut	8	Hexagon nut	9	T-handle with pin	10	Dust cap	11	Lock pin	12	Soft seat	<table border="1"> <tr><td>1</td><td>Needle</td></tr> <tr><td>2</td><td>Valve stem</td></tr> <tr><td>3</td><td>Bonnet</td></tr> <tr><td>4</td><td>Packing</td></tr> <tr><td>5</td><td>Gland</td></tr> <tr><td>6</td><td>Gland nut</td></tr> <tr><td>7</td><td>Hexagon nut</td></tr> <tr><td>8</td><td>T-handle with pin</td></tr> <tr><td>9</td><td>Dust cap</td></tr> <tr><td>10</td><td>Lock pin</td></tr> <tr><td>11</td><td>valve seat</td></tr> </table>	1	Needle	2	Valve stem	3	Bonnet	4	Packing	5	Gland	6	Gland nut	7	Hexagon nut	8	T-handle with pin	9	Dust cap	10	Lock pin	11	valve seat	<table border="1"> <tr><td>1</td><td>Needle</td></tr> <tr><td>2</td><td>Cone holder</td></tr> <tr><td>3</td><td>Valve stem</td></tr> <tr><td>4</td><td>Bonnet</td></tr> <tr><td>5</td><td>O-ring</td></tr> <tr><td>6</td><td>Supporting ring</td></tr> <tr><td>7</td><td>Gland</td></tr> <tr><td>8</td><td>Gland nut</td></tr> <tr><td>9</td><td>Hexagon nut</td></tr> <tr><td>10</td><td>T-handle with pin</td></tr> <tr><td>11</td><td>Dust cap</td></tr> <tr><td>12</td><td>Lock pin</td></tr> </table>	1	Needle	2	Cone holder	3	Valve stem	4	Bonnet	5	O-ring	6	Supporting ring	7	Gland	8	Gland nut	9	Hexagon nut	10	T-handle with pin	11	Dust cap	12	Lock pin
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Note: Spindle seals, packing and O-ring can be used with the various valve seats combined may occur.

5.4 Accessories

Please contact the manufacturer regarding special tools and accessories.

6 Transport and storage

The valve may be used only in original packed status stored to avoid soiling or damage. The transport of the valve may only be carried out in a pressure-free condition.

7 Assembly/Installation

7.1 Safety

To ensure safe working during installation and servicing, suitable shut-off valves must be installed in the plant, enabling the device:

- To be depressurized or taken out of operation;
- To be disconnected from the mains supply for repair or checks within the relevant plant;
- Or to enable function tests of the device to be performed “on site”.

During the works to mount/install the manifold, the plant must be protected against being switched back on.

7.2 Preparations (requirements for the installation location)

- A check on suitability of the device for the medium, pressure and temperature range

7.3 Mounting/Installation

7.3.1 Installation conditions

The following installation conditions apply to the industrial valves:

Industrial valves must be installed so that employees or third parties are not compromised.

The required safety distances for installation in accordance with the applicable national legal provisions shall be complied with.

The industrial valves must be so positioned or installed, that

- they are accessible for any necessary inspection and are clearly visible,
- the labelling is clearly legible,
- Operation of the industrial valve is possible from a safe distance.
- Connection to be undertaken by authorized and qualified specialist staff only
- Use only with the mechanical process connection provided – regarding the configuration, see order code on the device type label, with a matching threaded seal.
- When connecting the device, the pipes must be depressurized.

The valve must be protected against mechanical impact from outside as far as protected so that damage to the valve is not expected to occur.

The industrial valve must be protected from tampering by unauthorized staff.

The industrial valve must be connected via the inlets and outlets provided. Additional forces, bending moments on track support through pipe connections are to be avoided. Welding seams on connections must be in a valid and recognized weld procedures implemented and checked. Steel welded connections must be painted after welding to prevent corrosion.



Safety notice: Only mount using the correct open-jawed wrench, and do not twist the device itself.

7.3.2 Operation

The valves are operated with a T-handle.

The valves are closed in the clockwise direction.

The closing torque is approximately 3 - 5 Nm.

The valve is equipped with a metal back seal between the valve tip or the valve stem and bonnet. The valve head units must therefore always be opened completely.



This back seal is pressure supported. The higher the system pressure, the greater the force with which the tip is pressed into the back seat.

Do not increase the closing torque when the valve tip is in the back seat position. This is unnecessary and could cause damage in the stem-tip connection.

8 Servicing

8.1 Resealing of the packing (not for O-Ring Type)

The factory setting for the packing (4; spindle seal to the outside) is 1.5 times the nominal pressure on the test stand. Due to long-term storage, the packing that is not under pressure may lose its leak tightness. In this case, it must be readjusted.

Readjustment is as follows:

Open the stem (2), release the hexagon nut (7) and retighten the gland nut (6). Usually, 1/4 to 1/2 a rotation is enough. If that is not enough, repeat the procedure. After this, secure the hexagon nut (7) again and check that the stem moves easily.

Necessary tools: A/F 16, A/F 19 and A/F 22 flat wrench.

If resealing is not successful, you must replace the valve head unit.

8.2 Maintenance and repair

The valves are regularly for leaks and damage to check.



The valves must only be disassembled when they are pressure free! Even when depressurized, the components can stay very hot for a long time! Small amounts of medium may escape during disassembly! Protective goggles and gloves must be worn!

8.3 Replacing the valve head unit / valve seat

Necessary tools: A/F2.5 hex. socket wrench, A/F19 socket wrench, Combination pliers, A/F16 and A/F22 torque wrench; hammer, punch.

To do this, proceed as follows:

1. Depressurize the pipe;
2. Open the valve stem counter clockwise completely. In the case of valves with a T-handle or hand wheel, then take off the T-handle or hand wheel;
3. Remove the lock pin;
4. Screw out the valve head unit. If necessary, remove the seat too;
5. Grease the thread of the new valve head unit before remounting. (For the oil- and fat-free version for oxygen operation is a suitable lubricant to use!) Turn the stem to the top position;
6. It is important to make sure that all of the sealing surfaces in valve body and on valve head unit (if necessary also on valve seat) are free of contamination;
7. If necessary places the new valve seat in valve body;
8. Screw the valve head unit into the body and tighten it with torque of 100 Nm;
9. Plug the lock pin again;
10. In the case of valves with a T-handle / Hand wheel, then remount the T-handle / hand wheel;
11. Apply pressure to the pipe;
12. Check the tightness of packing and that the stem moves smoothly.

8.4 Safety

When undertaking servicing work on the device, the pressure lines must be depressurized and the plant secured against being switched on again.

8.5 Check on function

The check on function is carried out at regular intervals, depending on the application. The precise testing cycles should be adjusted in line with the operating conditions and ambient conditions. In the event of various device components interacting, the operating instructions for all other devices should also be taken into account.

- Check on function, in conjunction with downstream components.
- Check of pressurized connection pipes for seal condition.

8.6 Cleaning and maintenance

Cleaning is carried out using a non-aggressive cleaning agent, with the ventilation valve closed and respecting the protection category of the device.

9 Faults

9.1 Safety

Defective or faulty manifolds put the operational safety and process safety of the plant at risk, and can lead to a risk or injury to persons, the environment or the plant.

9.2 Conduct in the event of faults

All defective or faulty devices must be taken out of service. If a repair is required, the device must be sent directly to our Repairs Department. We request that all returns of devices are agreed with our Service Department.

9.3 Fault table

Possible situations indicating a fault:

- Leaks
- Damage to valve body

In these instances, replacement of the manifold is always required.

10 Removal, disposal

10.1 Safety



Residues of measuring media in and on removed gauges can constitute a risk to people, the environment and equipment. Adequate precautionary measures must be adopted. If necessary, the devices must be cleaned thoroughly (see advice in safety data sheets).

10.2 Removal

- When undertaking servicing work on the device, the pressure lines must be depressurized and the plant secured against being switched on again.
- Demount the manifold using a suitable tool

10.3 Disposal



Please help to protect the environment and dispose of or recycle the devices and components used in accordance with the applicable regulations.

11 Appendix

11.1 Data sheets for Valves and Manifolds

Detailed data sheet is available from supplier's website (see 1.6 Manufacturer's address, customer services)
This Table refers to specific documents:

Model	Description	Document
V02=1V	Gauge Valve	DS V02-1V EN
V02=2V	Block and Bleed Valve	DS V02-2V EN
V02=3V	3-way Manifold	DS V02-3V EN
V02=5V	5-way Manifold	DS V02-5V EN
V02=MW	Multiport gauge valve	DS V02-MV EN