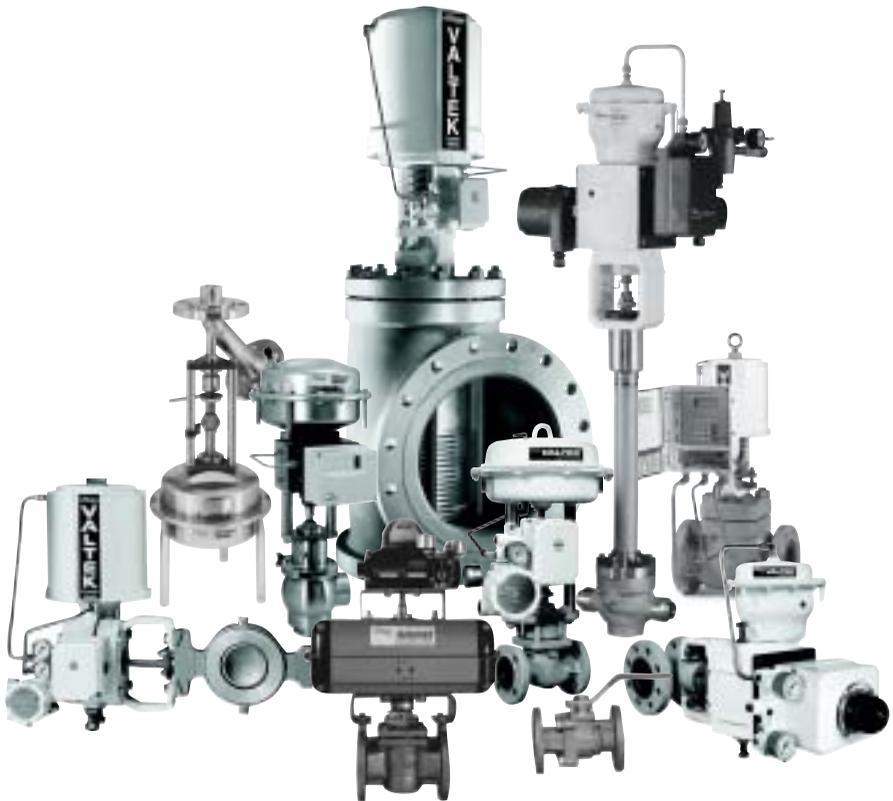


Operating Instructions General Safety Information

(applicable to Bättig, Kämmer, Sereg, Durco, Atomac, Automax and Valtek valves)



USING FLOWSERVE VALVES AND ACTUATORS CORRECTLY

Terms concerning safety

The safety terms **DANGER**, **WARNING**, **CAUTION** and **NOTE** are used in these instructions to highlight particular dangers and/or to provide additional information on aspects that may not be readily apparent.



DANGER: indicates that death, severe personal injury and/or substantial property damage will occur if proper precautions are not taken.



WARNING: indicates that death, severe personal injury and/or substantial property damage can occur if proper precautions are not taken.



CAUTION: indicates that minor personal injury and/or property damage can occur if proper precautions are not taken.



NOTE: indicates and provides additional technical information, which may not be very obvious even to qualified personnel. Compliance with other, not particularly emphasised notes, with regard to transport, assembly, operation and maintenance and with regard to technical documentation (e.g. in the operating instruction, product documentation or on the product itself) is essential, in order to avoid faults, which in themselves might directly or indirectly cause severe personal injury or property damage.

Using

The following instructions are designed to assist in unpacking, installing and performing maintenance as required on FLOWSERVE products. Product users and maintenance personnel should thoroughly review this bulletin prior to installing, operating or performing any maintenance.



DANGER: In most cases FLOWSERVE valves and actuators are designed for specific applications (e.g. with regard to medium, pressure, temperature). For this reason they should not be used in other applications without first consulting the manufacturer.

Protective clothing

FLOWSERVE products are often used in problematic applications (e.g. extremely high pressures, dangerous, toxic or corrosive mediums). In particular valves with bellows seals point to such applications. When performing service, inspection or repair operations always ensure, that the valve and actuator are depressurised and that the valve has been cleaned and is free from harmful substances. In such cases pay particular attention to personal protection (protective clothing, gloves, glasses etc.).

Qualified personnel

Qualified personnel are people who, on account of their training, experience and instruction and their knowledge of relevant standards, specifications, accident prevention regulations and operating conditions, have been authorised by those responsible for the safety of the plant to perform the necessary work and who can recognise and avoid possible dangers.

Spare parts

Use only FLOWSERVE original spare parts. FLOWSERVE cannot accept responsibility for any damages that occur from using spare parts or fastening materials from other manufactures. If FLOWSERVE products (especially sealing materials) have been on store for longer periods check these for corrosion or deterioration before using these products. Fire protection for FLOWSERVE products must be provided by the end user.

UNPACKING

Each delivery includes a packing slip. When unpacking, check all delivered valves and accessories using this packing slip.

Larger valves can be lifted using slings on the yoke or if present, using the lifting lugs or eyebolt connections provided for this purpose. If slings are used, attach them so that the outer tubing or attaching parts are not damaged.



WARNING: *If slings are used, be aware that the centre of gravity of the valve may be above the lifting point. In this case, secure or support the valve against rotating, to prevent damage or personnel injury.*

Report transport damage to the carrier immediately.

In case of discrepancies, contact your nearest FLOWSERVE sales office.

INSTALLATION



DANGER: *Before installation check the order-no, serial-no. and/or the tag-no. to ensure that the valve/actuator is correct for the intended application.*

Do not insulate extensions that are provided for hot or cold services.

Pipelines must be correctly aligned to ensure that the valve is not fitted under tension.

COMMISSIONING

Clean tubing prior to installing.

If possible, install the valve in an upright position (actuator on top), to ease maintenance. An upright installation position is important with low-temperature applications, in order to keep the distance between the packing material and the medium as large as possible. The packing material then retains the ambient temperature as much as possible.



NOTE: *Do not insulate extension bonnets that are provided for hot or cold services*

Make sure that sufficient overhead clearance above the actuator is maintained, to allow for disassembly of plug from the valve body. See Installation, Operating and Maintenance manual (IOM) for detailed information.

After installing, check direction of flow again. The direction of flow is shown by the arrow on the valve.

If the valve is to be welded into the line, make sure that the valve is shielded from excessive heat. Welding must be performed by qualified welders.

Connecting supply pressure and signal lines.

Control valves are supplied with a positioner. The end connections for supply pressure and signal are clearly marked. Actuator and positioner are suitable for max. supply pressure as detailed on the product and within the applicable IOM's. If the supply pressure exceeds the pressure specified, a pressure reducing station is required. If instrument air is not available, install an oil separator/air filter in the air inlet line as defined by ISA standard S7.3. All connections must be leak free.

QUICK CHECK

Before operating, check the valve as follows:

Open and close the valve, and observe the movement of the actuator stem. The movement must be smooth.

Check for maximum stroke through change of signal (ie pneumatic / electrical signal).

Check all air connections for leaks.

Check packing nut(s) for proper tightness. Packing nut(s) should be slightly over finger-tight; however, tighten only as necessary to prevent stem leakage (see appropriate IOM for details).



NOTE: *An excessively tightened packing can cause excessive packing wear and can hinder the free movement of the plug stem.*

Check fail-safe position. To do this, close supply pressure and / or electrical signal and observe whether the valve opens or closes as defined.

If temperature cycling occurs, re-tighten all bolt connections and packing as necessary and check for leaks.

GENERAL MAINTENANCE

To avoid possible injury to personnel or damage to products, safety requirements and local health and safety rules must be strictly adhered to. Modifying this product, substituting non-factory parts, or using maintenance procedures other than outlined in this instruction could drastically affect performance and be hazardous to personnel and equipment, and will void existing warranties.



DANGER: *Between actuator and valve there are moving parts. To avoid injury keep all hands, hair and clothing away from all moving parts when operating the valve.*

Welding to repair or to connect the valve may only be performed by trained and qualified welding personnel.

Apart from the operating instructions and the obligatory accident prevention directives valid in the country of use, all recognised regulations for safety and good engineering practices must be followed.



WARNING: *BEFORE products are returned to FLOWSERVE for repair or service FLOWSERVE must be provided with a certificate which confirms that the product has been decontaminated and is clean. Flowserve will not accept deliveries if a certificate has not been provided (a form can be obtained from FLOWSERVE).*

Storage

FLOWSERVE products are manufactured from various materials. Products not manufactured from corrosion resistant materials are provided with an appropriate protection. This means that FLOWSERVE products are well protected from corrosion. Nevertheless FLOWSERVE products must always be adequately stored in a clean, dry environment. Plastic caps are fitted to the flange faces to prevent the ingress of foreign materials. These caps should not be removed until the valve is actually mounted into the system.

Valve and actuator variations

These instructions cannot claim to cover all details of all possible product variations, nor in particular can they provide information for every possible example of installation, operation or maintenance. This means that the instructions normally include only the directions to be followed by qualified personnel where the product is being used for its defined purpose. If there are any uncertainties in this respect particularly in the event of missing product-related information, clarification must be obtained via the appropriate FLOWSERVE sales office.

PERIODIC MAINTENANCE

Check valves for correct functioning at regular intervals (depending on the application and criticality) as follows. This check can be made when installed and in many cases without interrupting production.

Examine gaskets for leaks and if necessary re-tighten fasteners.

Check bellows gasket and test connection - if present - for external leaks.

Check valve for damage caused by corrosive residues or corrosive vapours.

Clean valves and if necessary repaint.

Check glands for leakage. Adjust as necessary. See Installation, Operating and Maintenance manual (IOM) for detailed information.



NOTE: An excessively tightened gland nut can cause excessive packing wear and can hinder the free movement of the plug stem.

If possible, open and close valve and check for maximum stroke and smooth movement of the plug stem. Irregular movement of the plug stem may indicate internal defects.



NOTE: With graphite packing, irregular movement of the plug stem is possible.



DANGER: Keep hands, hair, clothing, etc. away from all moving parts. Failure to do so can lead to serious injury.

Check all accessories for firm seating.

If possible, close supply pressure and check the fail-safe position.

Check stem boot for wear.

Check actuator for leaks. To do this, spray housing, air connections and plug stem guide with leak spray and check for any bubble formation.

Clean plug stem.

Check air filter, if present, and if necessary replace insert.



NOTE: For further information please contact your nearest FLOWSERVE location. IOM's are available in English, German, French and various other languages.

NOTE !

This information is a supplement to the General Safety Instructions and has to be applied together with those.

Handling and storage instructions for valves intended to be used in oxygen applications (oxygen valves)**Handling of oxygen valves:**

Before shipment, oxygen valves are wrapped in plastic foil and are clearly marked with a tag stating that the content of the bag is intended to be used in oxygen applications.

During transport and storage, provisions have to be made not to damage the wrapping in order to maintain the cleanliness of the equipment.

The valves are packed into a transportation box. They shall not be extracted from this box before they have reached their final destination.

Storage of oxygen valves:

At the construction site, Flowserve suggests to set up a separate storage area for oxygen parts.

This storage area shall provide a clean, dry environment to securely shelve the valves.

Do not take the valves from the shelf before they need to be installed into the pipework. Flowserve does not recommend to temporarily store oxygen valves in the field, close to the final installation location.

Do not remove the wrapping before installation and take specific attention not to remove the end-caps fitted on the pipe connections of the valve. This way, a maximum protection against ingress of particles is ensured and cleanliness of the valve is maintained.

Additional safety information for valves intended to be used in oxygen applications (oxygen valves)

Based on the risk assessment for oxygen valves, the following topics have to be considered:

- Pipework layout has to provide sufficient equipotential bonding either by direct metal contact between valve body and process piping or, if this cannot be ensured, by providing additional measures.
- For soft seated valves utilizing PCTFE as sealing material, minimum stroking time of the valve needs to be longer than 3 seconds.
- Plant layout shall consider protective barriers for valves having an operating pressure of more than 10 bar. The decision to install a barrier has to be made based on the risk assessment of the oxygen plant.
- Before startup, the pipework needs to be cleaned thoroughly in order to avoid ingress of particles into the valve.