PENTAIR

RAIMONDI

Before installation these instructions must be fully read and understood.

Storage / protection / selection

State of delivery
Our valves are delivered with protection according to customer's specification, or in accordance with the standard Quality Control Plan. To protect the valve end from damage wrapping and/or covers should be left in place until immediately before fitting to the pipe.

Storage
When the valves are to be stored for some time before being fitted, storage should be in the original delivery crates with any waterproof lining and/or desiccant remaining in place. Storage should be off the ground in a clean, dry, indoor area.
If storage is for a period exceeding six months the desiccant bags (if supplied) should be changed at this interval. If valves are stored for longer than 12 months our personnel should inspect them before installation whenever feasible or practical.

Selection
Ensure the materials of construction of the valve and pressure/temperature limits shown on the identification plate are suitable for the process fluid and conditions. If in doubt contact supplier.

Limitations
- Do not use valve for end-of-line function. Std safety practice requires in all instances at the end of pipe 2 valves or one valve plus blind flange.
- Do not use open/close valves for regulating duties.
- Do not use process valves as stop valves for flushing.
- Suggested allowable max pipeline flow velocity is:
  6 m/s for liquid
  80 m/s for gas or steam.

Operating and routine maintenance

!! Read all warning labels fitted to the valve before operation or maintenance!!

Operation
Our valves are operated manually, automatically or by an external operator (Electric/Pneumatic/Hydraulic).
All handwheel operated valves, including valves operated by electric actuator, are "clockwise to close" The position open/close is indicated by a position indicator on valve (if fitted) as well as the indicator arrow on the electric actuator (if fitted). Actuator torque/travel switches are set at the factory prior to shipment. These must be checked prior to operation according the actuator sizing sheet (if applicable) and actuator instructions. Torque settings must not be altered. Do not use additional force, for example the use of wrench on the handwheel, to operate a valve.
During start-up of the plant check gland packing and bonnet flange bolts.

Maintenance
If valves are fitted with grease nipples then grease should be applied at 3 month intervals. Exposed, threaded, operating stems should have grease applied at similar intervals. Lubricate any actuators, gearboxes according to individual manufacturer instructions.
No other routine maintenance is required other than periodic inspection to ensure satisfactory operation and sealing. Any sign of leakage from the gland packing should be addressed immediately by depressurising the valve and tightening the gland screws gradually and evenly.
If no further adjustment is possible or seat leakage is suspected, the valve will require a complete overhaul. This should be carried out after depressurisation and in accordance with the relevant maintenance instruction. It is strongly recommended to use only original spares.

Spare parts
Our valves are identified by a Serial Number, which is stamped on the identification plate.
This reference should be quoted in respect of any after sales queries, spare parts or repair enquiries/orders. The valve may be lifted only by slings attached to the flange holes or valve body; never to the actuator or the valve opening.

Installation

WARNING!

For safety reasons, it is important to take the following precautions before you start work on the valve:

1. Read all labels fitted to the valve and this sheet before installation, operation and maintenance
2. Use valves only for the intended purpose (according contract)
3. Additional mounting/modifications on valves are not allowed without approval from our technical department
4. Personnel making any adjustments to the valve should utilise equipment and clothing normally used to work with the process where the valve is installed.
5. The line must be depressurised, drained, vented and cooled down before installing the valve.
6. Handling of all valves, operators and actuators must be carried out by personnel trained in all aspects of manual and mechanical handling/lifting techniques, if applicable follow lifting procedures.
7. Ensure the valve pressure/temperature limitations marked on the identification label are above or equal to service conditions.
8. It is possible, in some valve designs, for sealed cavities within the valve body to be filled with liquid, for example during hydrostatic test. If this liquid is not released, by partially opening the valve or some other means, and it is subject to a temperature increase; excessive pressure sufficient to cause pressure boundary failure can be generated. Where such a condition is possible, it is the responsibility of the purchaser to provide, or require to be provided, means in design, installation, or operating procedure to assure that the pressure in the valve will note exceed that allowed by the pressure rating of the valve.
9. Check correct electric connection of actuator if any, wrong connection may be cause danger and heavily damage the valve
10. If the actuator is required to reposition on the valve, it is necessary after this operation recalibrate the limit switches (this operation is described in the actuator maintenance manual). Non calibrated actuators are a cause of danger and may cause irreparable damage to the valve.

Installation

1. Our valves are bi-directional unless fitted with a Flow Direction Arrow. If a directional arrow is fitted then the valve must be installed with the arrow pointing in the direction of the flow (and/or pressure, refer to the general arrangement drawing). In case of check valves arrow direction opens the valve.
2. Unless specifically stated on the General Arrangement Drawing, installation may be carried out with stem displaced vertical-upwards through horizontal.
3. Check valves (Non-Return valves) / Stop Check valves can be fitted into a horizontal and vertical pipeline except the T-type piston check / Stop check valve which is only suitable for horizontal pipelines. In case of horizontal and vertical pipelines the valve cover / stem must be uppermost.
4. Remove protective covers from valve end faces and any transport-protection applied to the valve stem (if applicable)
5. It is responsibility of the customer to arrange extra support if necessary for the valves.
6. For flanged valves ensure that mating flanges and gaskets are clean and undamaged.
   For buttweld valves ensure that the weld profile is clean and in suitable condition for welding.
7. Should there be any possibility of abrasive particles (weld slag, sand, chemical cleaning residue etc.) within the piping system, this could damage valve seating. The system needs to be thoroughly flushed and cleaned prior to operation.
8. If valve ends are flanged, ensure pipe-mating flanges are aligned correctly, bolting should be easily inserted through mating flange holes. Tighten the flange bolts in a diagonal pattern.
9. Fit the valve into pipework ensuring easy access of the operating mechanism (Handwheel, Actuator) if applicable and ensure a stress-free installation at the valve ends.
10. Welding and heat treatment temperature limitations for the valve will be stated on the general arrangement drawing (if applicable). Consideration must be given to these limitations. Preheat/PWHT locally and according relevant WPS/PQR (customer responsibility).
11. All valves must be partially opened prior to welding.
12. Refer to point 7 re. flushing/cleaning: usually used valve materials are resistant against pickling fluids (as the pipe material is). If required, check resistance to pickling with pickling company. If necessary, disassemble valve inserts and replace by special pickling inserts. Protect sensitive places by varnish or coverplates.
    Note: Damage can occur during flushing with high speed particles, e.g. on valve seats. Move valve into open position and do not actuate during pickling and flushing. The pickling process has to take place uninterrupted. Prevent unnecessary long impingement of the pickling fluid. Remove pickling fluid completely, e.g. by flushing. Take special care in the dead spaces in the valves and dead pipe sections (perform inspection if necessary).
    Replace gaskets and gland packing coming in touch with the pickling fluid, carefully clean sealing areas before replacement.
13. Check gland/pressure bolts before operation (during start up, or even in service, bolt tension may decrease).
14. In case of insulation the valve bonnet/gland has to be maintainable.