PENTAIR

KEYSTONE

Complete installation and commisioning for:

- F634 light duty slurry valves
- F637 medium duty slurry valves
- F638 heavy duty slurry valves

Storage Instructions

The valve faces should be adequately protected against damage and coated with corrosion inhibitor even when stored under cover.

Flange and Pipe Compatibility

Keystone valves are suitable for installation into most piping systems. The standard end connections are:
F638 – Flanged ANSI Class 150, 300, 600
F634,F637 – Flanged ANSI Class 150
Refer valve literature sheet for standard drillings.
Weld neck flanges (flange ID approximates valve bore) are recommended to ensure maximum valve performance. However slip on flanges may be used.

These valves are not recommended for dead end service.

Safety Precautions

Whenever a valve is being installed or removed from the pipeline, ensure the line is not pressurised and any hazardous medium is drained away.
When used for line fluids with a temperature of 80°C or higher, the valve body can become very hot and should not be handled without appropriate protection.
Do not weld near the valve, as this will result in serious damage to the valve.

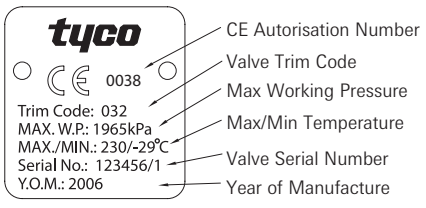
General

The F634 and F637 are bi-directional valves and will control flow in either direction.
The F638 040-300mm is a uni-directional valve and will only control flow in one direction.
The F638 350-600mm is a bi-directional valve and will control flow in either direction.
In most horizontal pipe installations it is recommended that the valve be installed with its shaft horizontal and the lower disc edge opening downstream, particularly on slurry or sedimentary duties. Flange gaskets are required to ensure effective sealing. Check that the gasket material is suitable for the service.

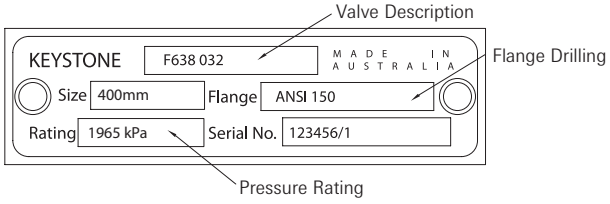
Name plates

All Keystone valves will be tagged with a valve I.D. plate. All PED certified valves will also be tagged with a CE I.D. plate. See diagram:

CE I.D. plate



Valve I.D. plate



Note: Example tags, data is typical only.

WARNING

For safety reasons, it is important to take the following precautions before working on the valve.

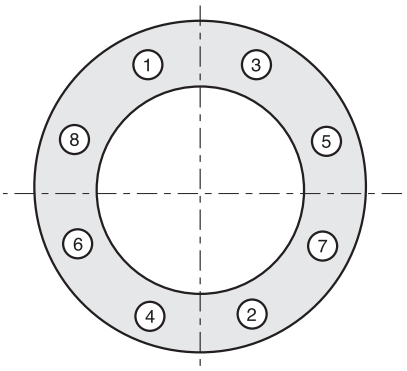
1. Ensure that the procedures below meet or agree with the site procedures, if not review with your site safety officers.
2. Personnel making any adjustments to the valve arrangement should utilise all necessary equipment and clothing normally used to work with the process where the valve is installed.
3. The line must be depressurised, drained and vented before installing or maintenance on the valve.
4. Handling and installation of all valves, operators and actuators must be carried out by personnel trained in all aspects of installation and manual/ mechanical handling techniques using site occupational health and safety procedures.
5. Ensure the valve pressure/temperature limitations marked on the name plate comply with the service application.

Installation Instructions

1. Ensure that the flanges are clean, undamaged and compatible with the valve.
2. Spread the flanges to allow sufficient clearance for the valve and gaskets.

   DO NOT USE THE VALVE AS A CROWBAR.

3. Loosely fit two bolts at the bottom of the flanges to bear the weight of the valve.
   Note: F638 300-600mm use short flange bolts, for F634, F637 & F638 040-250mm use thru bolts.
4. For F638 040-300mm check that the flow arrow on the side of the valve agrees with the direction of flow. (Longest end of the valve must face downstream).
5. Insert the valve between the flanges with gaskets either side.
6. Loosely fit the remainder of the flange bolts.
7. Centre the valve and ensure the gaskets are properly positioned.
8. Hand tighten all the flange bolts.
9. Open the valve fully and check that the valve cycles correctly. (The disc is in line with the parallel flats or keyway in the stem).
10. Cross tighten all the flange bolts. (See flange diagram for tightening sequence and bolt torque table for torques).
11. After the pipeline is pressurized, check for flange leaks and adjust the gland as necessary.

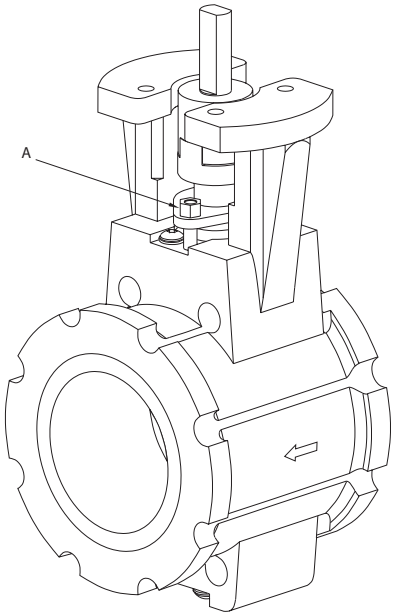


Typical Flange Showing Tightening Sequence

Actuator Mounting Instructions

The Keystone F79U pneumatic actuator is mounted directly to the valve to top plate with four Studs, nuts and washers. The actuator is normally installed parallel to the pipeline. Other actuators may require mounting brackets.

1. Ensure that the valve and actuator are in the fully closed position (the drive shaft keyway perpendicular to the actuator piston-cylinder axis). The valve shaft flats should be parallel to the disc and the keyway in line with the disc.
2. Check that the actuator mounting studs are tightly installed in the actuator housing. (On models with two mounting bolt circles, check that the mounting studs correspond to the valve top plate mounting holes).
3. Install a lockwasher and nut on each mounting stud and tighten.
4. Connect an appropriate air supply to the actuator, this unit normally requires a 550kPa clean, dry air supply.
5. The Keystone F79U Pneumatic Actuator is factory lubricated and requires no maintenance.



Note: F638 valve shown

Maintenance

The gland will require periodic checking. If gland leakage occurs, tighten gland nuts (A) equally until leaking ceases. No lubrication is required. Do not over tighten as this could result in breakage.

Bolt Torques for Lubricated and PTFE Coated Bolts

Lubricated B7/2H, L7/GR4			PTFE Coated B7/2H, L7/GR4, B16/GR4		
Stud Size (Inches)	Torque lbf ft	Nm	Stud Size (Inches)	Torque lbf ft	Nm
½" UNC	89	120	½" UNC	29	39
⅝" UNC	119	161	⅝" UNC	57	77
¾" UNC	211	286	¾" UNC	99	134
⅞" UNC	338	458	⅞" UNC	158	214
1" UN8	485	657	1" UN8	236	320
1 ⅛" UN8	716	970	1 ⅛" UN8	339	459
1 ¼" UN8	1042	1412	1 ¼" UN8	468	634
1 ⅜" UN8	1414	1917	1 ⅜" UN8	625	848
1 ½" UN8	1863	2525	1 ½" UN8	816	1107
1 ⅝" UN8	2398	3251	1 ⅝" UN8	1044	1416
1 ¾" UN8	3030	4108	1 ¾" UN8	1301	1764
1 ⅞" UN8	3512	4761	1 ⅞" UN8	1602	2172
2" UN8	4218	5718	2" UN8	1949	2643

Note:
1. Above torques are based on B7/2H, L7/GR4 and B16/GR4 Stud Bolts/Nuts only to produce 60% of the yield stress.
2. Please contact a Pentair sales representative prior to using anything other than the above torque values on stud bolts B7 and B16.