



*Adjust the nut on top of spring cap – not the adjusting screw head.

Installation

For best performance, long life and safety it is recommended that the valve should be installed in a horizontal pipeline, ensuring that the direction of flow is correct and that the sensing pipe is connected to the compression coupling in the valve top cover. This pipe should then be connected to the upstream pipework, preferably ten pipe diameters away, at a position where a stable flow is achieved (i.e. not on a pipe bend).

On **steam** duties the valve needs to be kept free of condensate by installing at a high point in the main and by fitting adequately sized steam traps in the adjacent high and low pressure lines.

Excessive flooding of the valve will lead to erratic control and shortened working life.

On **water** or similar liquid duties, the valve should be installed at a low point in the main, with appropriate air vents at a high point. Trapped air in the valve may cause erratic control and possible water hammer.

Pipeline cleanliness at commissioning

Modulating control valves especially self-operated valves are amongst the busiest valves in the pipelines and the most susceptible to having their performance impaired by dirt in the pipeline.

Despite the honest assurances of customers, pipelines are often not clean when new valves are installed. The first flows during commissioning bring the dirt and foreign bodies into the valves with a predictably impaired performance.

Sometimes the process collects condensate or air at the valve through poor design of the pipeline producing a similar 'foreign body' effect.

Thermal cycling, pigging and purging, strainers and traps, dead legs and pipeline gradients all help for a successful first function of control valves.

All experience warns : Commissioning times ought to allow some slack to recover from these situations.

Setting

Check that the main pipeline is clear of all foreign matter. If using steam temperature cycle several times to remove any scale or loose welding slag. It is recommended that a strainer be fitted.

- Ensure that the remote sensing pipe is connected to a suitable position in the **upstream** pipework.
- Fully open the downstream stop valve and raise the inlet pressure to the desired set point. The valve should open and begin to pass flow.
- If the pressure is not correct, adjust compression on the pilot valve spring by turning the adjusting nut on the adjusting screw until the desired surplus pressure is achieved. (Increasing compression i.e. turning clockwise will increase the set pressure read at the upstream pressure gauge).
- Once the required set pressure is attained, increase the inlet pressure to +10% and then decrease to -10% several times to check that the valve opens and closes properly.

- Replace valve bonnet to prevent accidental re-adjustment of valve.

Maintenance instructions

Warning

Ensure that all pressure has been relieved from the system before dismantling the valve.

Pilot valve

Remove bonnet (27) and relax PV spring (23). Remove yoke bolts (33) and lift yoke (24) clear. The top cover (2) can now be removed from chest (1) and the PV spring removed.

Grip PV piston (22) firmly and pull upwards to remove pilot assembly, ensuring that the small ball bearing (38) is not lost. Check that both plug seals (36) are in good order - if not, then replace. This is done by removing the locknut on top of the PV piston and then removing the PV piston, diaphragm (20) and upper and lower retaining rings (34/35) from the PV spindle (17). The PV piston seal (37) can now be examined and/or replaced. Break out the PV seat (18) by unscrewing anti-clockwise with special tool and remove seat sealing ring (19). The sealing ring should be replaced whenever a new PV seat is fitted to the valve. Ensure that PTFE thread sealing tape is used to seal the threads when PV seat is replaced. Re-assembly of the PV spindle is a reversal of the above, ensuring that the upper and lower retaining rings are free to rotate after the locknut is tightened.

Main valve

Remove MV spring (10), guide (9), piston assembly (4-8) and MV seat (3). Parts should now be examined, cleaned and where necessary replaced - see piston assembly below.

Piston assembly

Remove piston ring (14) from top groove and replace if extensively worn. Check the condition of the piston seal (13) and if damaged then it will also have to be replaced. The locknut (8) should be removed and the piston insert (4a) can then be lifted out. The old piston seal can then be pulled off the spigot. Clean insert and then a new seal, with the open end uppermost can be slipped over the spigot.

Insert piston into guide and move up and down several times. The piston assembly should move smoothly and easily in the guide tube.

To renew the soft face (5), remove locknut (8), hollow screw (7) and piston cap (6) then prise face out of the groove. Check that there are no sharp edges on the body (4) and piston cap. Clean out groove and insert new soft face. Ensure that the orifice hole in the hollow screw is free from obstructions and then re-assemble cap to body. Re-tighten locknut and replace assembly in guide tube.

Ensure that the chest is free from any dirt or pipeline debris and then re-assembly is a simple reversal of the above. Pull down cover evenly with yoke bolts (33) until face to face with the chest flange.

We recommend that all gaskets, seals, piston rings and soft face are renewed at the annual inspection.

Safety warnings

- Before stripping the valve the spring compression should be fully relaxed and the valve totally isolated from any pressure in the pipeline – beware leaking isolating valves.
- The bonnet is fitted to valve to prevent accidental resetting of controlled pressure and so this must be kept in place at all times. Direction of setting is given on top of bonnet.
- This is a high capacity valve and therefore downstream pipework should be protected by an adequately sized safety valve to prevent damage due to overpressure – see warning label affixed to bonnet.
- There is a possibility of contact with process fluid if the diaphragm is damaged. If fluid is dangerous/ toxic, consideration should be given to fitting a sealed top to the valve. Consult Auld about this feature.
- The valve may be heavy so care should be exercised when lifting the valve – check mass of valve before any attempts to lift it are made.
- Valve inlet and outlet ports are blanked off when leaving the factory – these coverings should be left in place until valve is ready to be fitted to the pipeline.
- Any external pipes that may be fitted to the valve are not handling points and valves should be lifted using safe slinging practice with slings fitted around the flange necks.