



\*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 Standfast should be installed in a horizontal pipeline, ensuring that the direction of flow is correct, as part of a regulating station complete with high and low pressure stop valves, strainer and a safety valve sized to the maximum capacity of the Standfast.

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.

When a large pressure drop occurs across the valve on steam or gas duties, then the change in fluid density may require a low pressure main with a larger bore than the high pressure main. Under these conditions it may be advantageous to connect the remote sensing point of the valve to a point at least 10 pipe diameters downstream.

### Pipeline cleanliness at commissioning

Modulating control valves especially self-operated pressure reducing 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.

Fully open the downstream stop valve and then slowly open the upstream stop valve and allow pressure to build up at the PRV to the normal inlet pressure. There may be a tendency for the downstream pressure to overshoot the required pressure but this is normal and should quickly settle. This effect can be controlled by the slow opening of the upstream stop valve.

Check pressure reading on the downstream pressure gauge and if it requires adjustment it should be carried out as follows

- Remove valve bonnet by removing the two self tapping screws.
- Adjust compression on the pilot valve spring by turning the adjusting nut on the adjusting screw until the desired downstream pressure is achieved. (Increasing compression i.e. turning clockwise will increase the reduced pressure read at the downstream pressure gauge).
- Once the required pressure is attained, slowly close down the downstream stop valve to check that the Standfast closes off properly (this can be checked by noting the pressure on the downstream pressure gauge - it should not rise by more than 10% above the reduced set pressure).
- The downstream stop valve can now be opened again and the pressure checked - it should return to the new set reduced pressure.
- Replace valve bonnet to prevent accidental re-adjustment of valve.

It should be noted that the Standfast should always be set on flow conditions and to prevent damage to the valve diaphragm on start up, some compression should always be kept on the adjusting spring.

## 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 (4 off) and lift yoke clear. The top cover (2) can now be removed from the chest (1). This is done by removing the nuts (32). The PV spring can now be removed. Remove PV plug (17) and de-coupling spring (34) from the MV spring cap (15).

Remove diaphragm (20) then remove PV seat (18) by unscrewing anti-clockwise with special tool and then remove seat sealing ring (19). Check seat and PV plug for signs of wear and replace as necessary. Also check diaphragm for cracks or any signs of hardening.

Insert a new gasket into recess and place a suitable straight edge across it. Put PV plug through guide hole in the PV seat and check that the gap between plug and straight edge is between 0.43/ 0.51mm. This gap can be increased if necessary by carefully filing the top of the plug.

Place plug into the de-coupling spring and then into the MV spring cap and then lower the top cover over the plug, ensuring that it comes up through the hole in the PV seat.

### Main valve

Remove spring cap (15), MV spring (10), guide tube (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 excessively worn. Check the condition of the piston seal (13) and if damaged it will have to be replaced.

The piston seal must be prised from its groove. The groove can now be cleaned, taking care not to damage the bottom or sides and ensuring that there are no sharp edges. Warm new seal to 25/ 30°C and gently stretch over the piston body and into the bottom groove. Insert piston into the guide tube 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 the locknut, hollow screw (7) and piston cap (6) and then prise the face out of its groove. Check that there are no sharp edges on the body and piston cap. Clean out groove and insert a 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 the guide tube.

Ensure that the chest is free from any dirt or pipe debris and then re-assembly is a simple reversal of the above. Pull down cover evenly with nuts until face to face with the chest flange.

We recommend that all gaskets, seals, piston rings and diaphragm are replaced 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.
- The Standfast 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.