

DPS17 Combined Pressure Reducing Valve and Surplussing Valve Installation and Maintenance Instructions

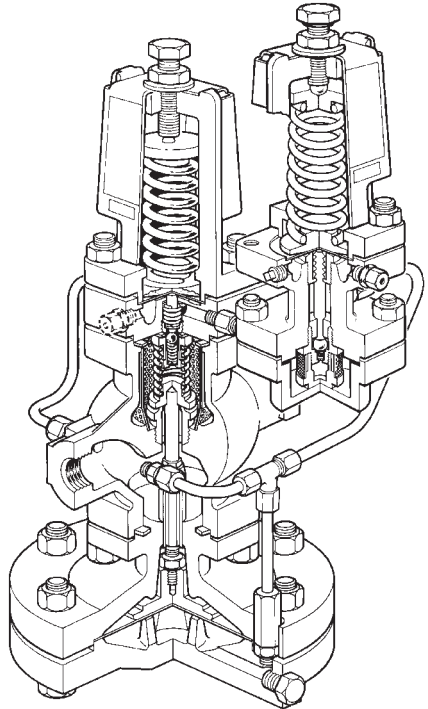
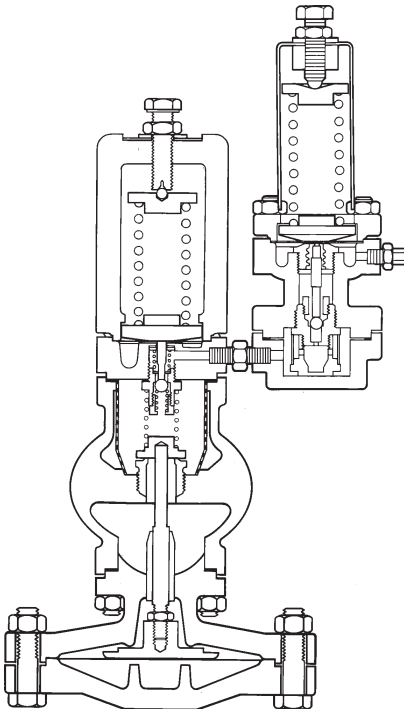
These instructions relate to the use of the valve on a steam system but can be used as a guide when the valve is used on compressed air.

Description

The DPS17 is a derivative of the Spirax Sarco DP17 pilot operated pressure reducing valve. It combines the function of a pressure reducing valve and a surplussing valve.

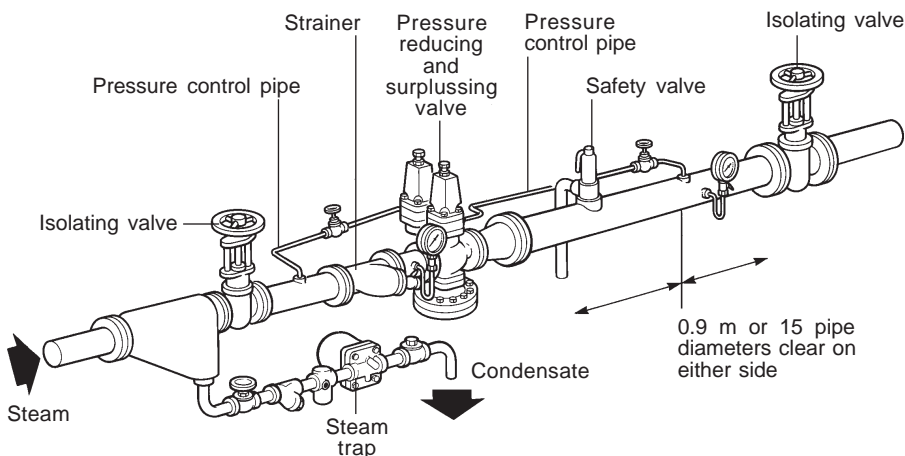
The main pilot is fitted onto the main valve body and controls the downstream pressure.

The surplussing pilot is fitted to the side of the valve. It closes the main valve when the upstream pressure falls below the minimum desired level. It facilitates the shutting down of non-essential downstream plant in order to either prevent overloading of the boiler, or maintain the supply pressure to essential upstream plant.



Supply

Each valve is supplied ready for fitting and has control springs suitable for the upstream and downstream pressures quoted on the order, but will not be preset.



Fitting

The valve should always be fitted in horizontal pipework with the main diaphragm chamber below the line. To meet high capacities or widely varying loads, or where stand-by facility is required, two or more valves may be used in parallel.

Pipeline sizing

The piping on each side of the valve must be sized so that velocities do not exceed 30 m/sec. This means that a properly sized valve will often be smaller than the upstream pipework and invariably the downstream pipework will be larger than the upstream pipework.

Pipeline stresses

Line stresses such as could be caused by expansion or inadequate support should not be imposed on the valve body.

Isolating valves

These should preferably be of the full-way type. All isolating valves must be capable of being opened slowly.

Removal of condensate

Ensure that the pipework is adequately drained so that the valve is supplied with dry steam. The ideal arrangement is to fit a separator in the steam supply. If, by closing downstream isolating valves the downstream pipework is likely to become flooded, a trap set should be installed to remove condensate forming as a result of radiation losses.

Preventing dirt

The valve should be protected by a pipeline strainer, the same size as the upstream pipework and fitted with a 100 mesh stainless steel screen. The strainer should be fitted on its side to prevent the accumulation of water.

Pressure sensing pipes pressure control

Valves are supplied with a balance pipe fitted directly onto the body. When precise control of pressure and / or the maximum capacity is not required, this assembly can be used.

When precise control of pressure under varying load conditions is needed, or where maximum capacity is essential, an external control pipe should be used.

Surplussing pilot

An external pressure sensing pipe should be fitted.

In each case the external sensing pipe should be arranged with a positive fall from the reducing valve to the sensing point. To achieve this the control pipe may need to be connected into the side of the steam main. This must be at a point where in either direction there is a length of straight pipe uninterrupted by fittings for at least 0.9 m or 15 pipe diameters, whichever is the greater.

Pressure gauges

It is essential to fit a pressure gauge upstream and downstream of the valve. This will allow the valve to be properly set-up, and its performance monitored.

Safety valve

The safety valve is intended to protect the downstream equipment from excessive pressure.

It should be set at, or below, the safe working pressure of the downstream equipment, and will normally be sized to pass the full capacity of the PRV should the PRV fail in the fully open position.

It should not be set too close to the setting of the PRV and should be arranged to discharge to a safe place. Any vertical discharge pipe should be adequately drained.

Maintenance / trouble tracing

Main pressure control valve

Refer to Installation and Maintenance Instructions, IM-P100-05 (1000026) covering DP17, DP17E and DP17R.

Surplussing pilot

Refer to Installation and Maintenance Instructions IM-P004-05 (0040225) SDP143.

Spare parts

Refer to both Installation and Maintenance Instructions IM-P100-05 (1000026) and IM-P004-05 (0040226).

Commissioning

1. Ensure that all connections are properly made and that all valves are closed.
2. Check that each pressure adjustment screw is turned fully anti-clockwise.
3. Open small valve in pressure control line.
4. Blow through the approach pipework by removing the cap and screen from the strainer protecting the steam trap draining the separator. Replace upon completion. Do not remove the screen from the main line strainer during this operation. Although this should remove most of the dirt which may be present, it may be necessary to examine and clean the main line strainer at regular intervals.
5. Open the upstream isolating valve and adjust the pressure control adjustment spring until the desired downstream pressure is reached. Tighten lock-nut.
6. Apply a light steady load to the PRV by opening the downstream isolating valve a small amount.
7. Throttle the upstream isolating valve until the minimum desired upstream pressure is reached.
8. Adjust the surplussing pilot adjustment screw until the valve just closes. This will be observed when the pressure gauges indicate an increase in upstream pressure and a decrease in downstream pressure. Tighten lock-nut.
9. Open the upstream isolating valve.
10. Open the downstream isolating valve.

