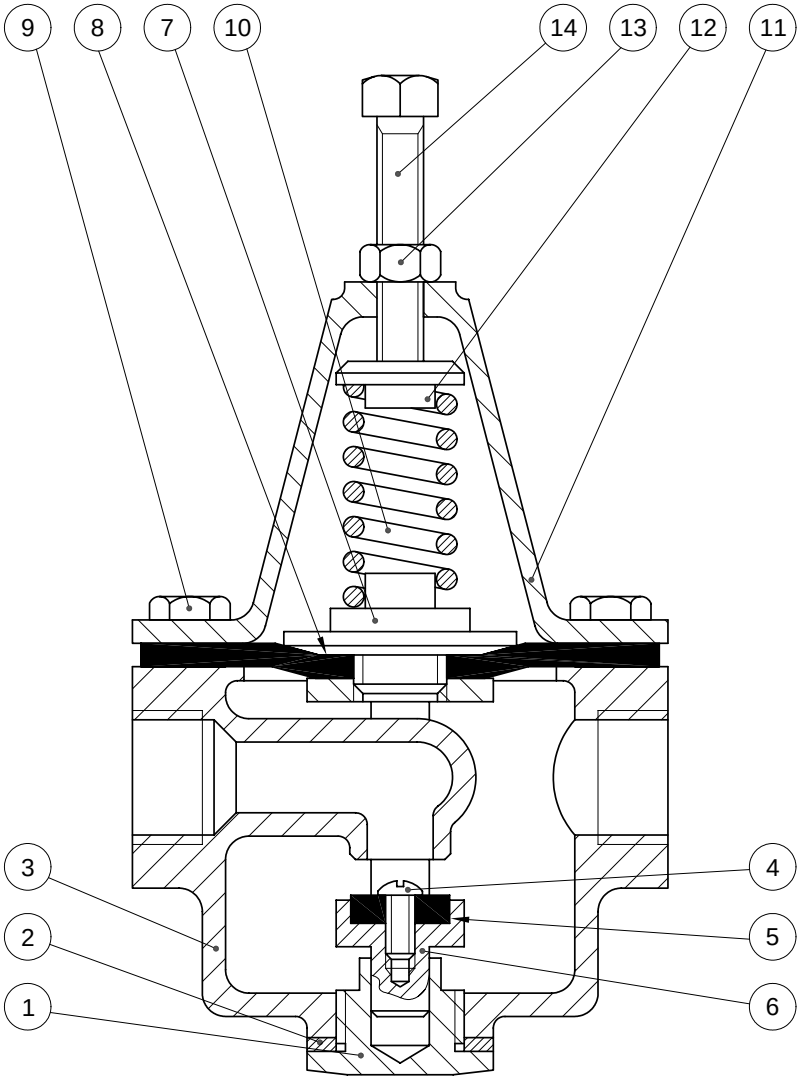

Before any work is carried out on the valve ensure that the valve is totally isolated from any pressure in the pipeline. Do not attempt to strip valve without first relaxing the compression on the spring.

Fitting Instruction for AD10 pressure reducing valves

Advantages of the Direct Acting design

The AD10 design uses the simple direct acting principle for trouble free operating. In domestic and industrial water supply systems, reliability, durability and maintenance-free operation are usually of prime importance.

The other advantages are:

- tight shut off
- unaffected by scaling
- operational simplicity
- strainers are unnecessary

Choice of type & valve size

See general data leaflet as regards the working principle and the main features and pressure limits of the valve. For water supply system and domestic or industrial applications it is usually possible to choose an AD10 PRV to fit the size of the pipe provided that the pipe itself has been accurately sized.

Temperature and use with other fluids

The valves may be used with any liquids or gases compatible with neoprene rubber compound and bronze i.e. compressed/ inert gases, air, water up to 80°C or heating oil up to 40°C. Oxygen is unsuitable as it damages rubber.

When other fluids than water, are considered it is up to the users to decide as to the compatibility with the valve materials, in the light of their specialised knowledge of the fluids involved.

Location and fitting of AD10 pressure reducing valves

The AD10 pressure-reducing valve can be fitted in any attitude, i.e. horizontal, vertical, head upwards head downwards or inclined, etc. but In all cases the direction of flow must be correct as shown by the arrow on the valve body pointing downstream.

In houses they are generally fitted in the entrance hall just after the meter, but in certain cases, they may also be fitted just after a garden hose, connection for example, for which maximum pressure is required.

In apartment buildings and in particular high-rise blocks, sometimes with booster pumps, fitting a pressure-reducing valve at the foot of each rising main will not ensure satisfactory pressure distribution owing to the static pressure differentials at each floor. The only way to ensure equal pressure distribution on all floors is to fit pressure-reducing valves to each apartment. In apartment blocks fitted with a communal hot water supply, both hot and cold water supply systems should be protected by pressure reducing valves.

In industrial or community supply systems each installation should be treated as a special case, with regard to the equipment supplied and operating pressures involved.

Setting or changing the reducing pressure on site

AD10 pressure reducing valves should always be set under "no flow" conditions that is with all downstream valve and taps closed. AD10 pressure reducing valves can be fitted as supplied from the factory without using a pressure gauge or any further adjustments if they have been factory preset.

A wide range of reduced pressure adjustment is possible. To adjust the setting, release the locknut (13) on the adjusting screw (14).

To increase the pressure, turn the adjusting screw clockwise.

To reduce the outlet pressure, unscrew the adjusting screw completely turning anticlockwise, briefly open a tap or valve then close it, and then tighten them, screw until the required pressure setting is obtained. Tighten the locknut at the new setting.

Variations in inlet pressure only affect the outlet pressure by about 7% of the inlet pressure variation. e.g. with an original setting 8 to 3 bar, if the inlet pressure rises to 10 bar i.e. an increase of 2 bar, the outlet pressure will increase by 7% of 2 bar, i.e. 0.14 bar. The outlet pressure is 3 bar + 0.14 bar = 3.14 bar.

Caution

Even water back-flow or water hammer on downstream side can damage the PRV. It is preferable to avoid water hammer. Taps on downstream side should be operated slowly.

During initial operation of system, gradually open gate valves located upstream of the PRV.

Apparent causes of malfunctioning

Most cases of malfunctioning can be traced to causes other than a fault in the valve itself.

Frost damage

- Frost damage is the main cause of problems and usually requires replacement of the damaged valve. With the smaller sizes repairs often cost more than replacements.

Pressure reducing valve stops the flow

- The valve has been fitted the wrong way round. Refit in line with the arrow on the valve pointing downstream.

Outlet pressure is below setting

- Adjustment made in the wrong direction.
- Inlet pressure is below the set value, or has dropped since it was set.
- Pressure gauge is faulty.
- Outlet pressure drops when there is flow. This is quite normal and is due to the head loss in the circuit on the inlet side and the valve's own inherent head loss. If the pressure drop is too big, the valve is too small for the flow required or the pipe bore is not large enough.

Outlet pressure is above setting

- The outlet pressure setting lies outside the possible range of setting, as given by the "pressure ranges" diagram, in our general data leaflet.
- Setting was adjusted under flow: reset correctly i.e. slacken adjusting screw completely, briefly open a tap on the downstream side to bleed the circuit, close tap and re tighten screw to obtain the required setting.
- Pressure gauge is faulty
- Back pressure in the system.

Back pressure

For instance, if there is an electric water heater or boiler in the outlet circuit it will cause back pressure due to the fact that water expands when heated. Normally this back pressure is stopped by the check valves, particularly those on safety systems, but often these are worn or not 100% efficient, or only work intermittently. Our pressure reducing valves themselves act as check valves in the event of a return flow, the pressure rises (generally slowly) on the outlet side until it reaches the setting of the safety valves. The diaphragm may then be damaged or the internal mechanism distorted. In certain (rare) cases this distortion may lead to a stoppage of the flow. This may happen even if the PRVs are not near the hot water supply. It disappears when flow is resumed.

Back pressure caused by hot water expansion may occur when there is a mixer tap, equipped on the hot and cold water pipes with leaky or non existing check valves. The same phenomenon may also occur even without a boiler in the circuit, if for example a cold water pipe is next to a hot water pipe, causing the cold water to warm up. It may also occur under certain conditions with a geyser type gas water heater.

Inlet and outlet pressures are equal

- Incorrect pressure setting adjustment: the spring is screwed hard down and the valve cannot close. Reset the valve correctly.
- Valve has been damaged by frost, severe back pressure or has been fitted back to front and subjected to high pressure.
- Distortion of components may result or the stirrup may be broken or the disc may be pushed out and replacement will be necessary.
- Inlet pressure passes into outlet circuit: this mainly happens when the pressure reducing valve is fitted to a by-pass and the isolation valves are leaky. A few drips a day may be enough. In view of the sturdiness and reliability of AD10 pressure reducing valves it is almost never necessary to use a by-pass.
- Only the hot water pipe is fitted with a pressure reducing valve, (none provided on cold water pipe). The upstream pressure may leak through a mixer tap, (if the check valve is leaky or no check valve fitted), or if the mixer tap is leaky (porosity in the body). The same is true whenever leaks may occur between hot and cold water circuits, for example, when a mixer tap supplies a pipe fitted with a tap which is closed.