

## Installation Operation and Maintenance Manual

# GENERAL INSTRUCTIONS DOME LOADED PRESSURE REDUCING VALVE



**THIS DOCUMENT** is applicable to all dome loaded pressure reducing valves. For service and valve setting instructions specific to your product, please refer to the product specific manual and datasheet.

## **DESCRIPTION.**

The Dome Loaded Pressure Reducing Valve is designed to provide a reduced and constant outlet pressure from any given inlet pressure within the valves working range. Both internally and externally charged dome loaded pressure reducing valves control outlet pressure by means of a pressure sensing diaphragm and a control valve. Pressure contained within the dome is known as the reference pressure. This pressure acts on the topside of the diaphragm. The pressure at the outlet port acts on the underside of the diaphragm. As the outlet pressure rises the reference pressure will eventually be overcome and the valve will close.

Unlike externally loaded valves, internally loaded valves are not suitable for hydraulic applications. Externally loaded valves must be charged with a separate external gas supply.

The standard inlet and outlet ports are stated in the installation drawing, alternative thread sizes and forms can be supplied.

For Maximum Working Pressure and other information, please refer to the product specific datasheet.

*Note: 'Pressure Reducing Valves' are also known as and can be referred to as 'Pressure Regulators'.*

## **PERFORMANCE DATA.**

The maximum flow rate, and flow performance under given criteria through the Dome Loaded Pressure Reducing valve can be supplied by BiS Wells Ltd. See valve datasheet / installation drawing for capacity factor (Cv). The control pressure will vary slightly with a change in the inlet supply pressure in a reverse direction. This variation can be calculated as follows: -

**Fall** in supply pressure x sensitivity = **Rise** in outlet pressure.

*See product specific datasheet for sensitivity values. Sensitivity is also known as 'Outlet Rise / Unit Inlet Fall'.*

## **CONSTRUCTION.**

The standard valve is constructed using aluminium alloy, brass and stainless steel. A high-performance soft seat is manufactured from an engineering plastic. Alternative materials such as brass, bronze and stainless steel are available.

## **INSTALLATION, OPERATION AND MAINTENANCE**

### **IMPORTANT**

1. Products must not be modified in any way.
2. Do not use a valve if you suspect it leaks or if its performance is hindered in some way. The valve must be removed from the line and serviced accordingly.
3. Ensure that these instructions are made available to the operator or end user.

### **INSTALLATION.**

Please ensure these instructions are read and understood before installing your product.

1. Only trained and experienced personnel should install this product.
2. Poor installation of the product can cause death or serious injury.
3. Consult the product specific datasheet for flow direction, mounting points and other information such as the location of the dome loading needle valves (if applicable).
4. Always check that the system medium is compatible with the wetted valve materials.
5. Always check that the external valve materials are suitable for the ambient conditions.
6. Dome Loaded Pressure Reducing Valves can be installed in any orientation. However to prolong valve life, ensure optimum performance, and allow for access to the needle valves and ports it is recommended that valves are mounted vertically.
7. Thread lubricants and/or sealants must be used on tapered threads.
8. Gas or Fluid cleanliness is vital to ensure optimum performance and prolonged valve life.
9. Pressure supplied to the valve must be isolated before installation, and when installing gauges and similar components.
10. It is recommended that a safety relief valve is positioned downstream of the regulator.
11. Ensure vent outlets are not blocked.
12. All parallel female threads are designed to accept a bonded seal.
13. A 25-micron filter is recommended on the inlet supply to avoid damage to the valve seat from debris and other potential contamination. This is most advisable on new installations.
14. All Dome Loaded Pressure Reducing Valves are supplied as standard with mounting holes on the lower face of the valve body. See product specific installation drawing.

## **MAINTENANCE**

Please ensure these instructions are read and understood before maintaining your product.

1. Only trained and experienced personnel should service this product.
2. Poor service of the product can cause death or serious injury.
3. Before maintenance work is undertaken, it is vital that any pressure stored within the dome and valve is vented. This is applicable to pressure regulators that are currently installed in a line and to ones that have already been removed. To vent the dome chamber, open the dome needle valve one full turn and allow all gas to escape, then fully remove needle valve to ensure the dome is completely de-pressurised. Replace the needle valve but do not tighten. See product specific datasheets for location of needle valves.
4. Valves can be returned to BiS Wells Ltd for maintenance and service.
5. Spares kits are available for purchase. When ordering spares kits please state model and serial numbers of the valve and, if possible, the gas or fluid in the system.
6. It is advisable to hold a Spares Kit for planned maintenance.
7. All maintenance work undertaken should be carried out in clean conditions.
8. Service intervals are the responsibility of the user.
9. A preventative maintenance plan should be put in place to ensure safe and continuous operation
10. If a filter has been fitted upstream of the valve it should be regularly cleaned or replaced.
11. Only use lubricants compatible with the valves materials of construction and the system medium.

## **OPERATION**

Please ensure these instructions are read and understood before using your product.

1. During use ensure the maximum working pressure (MWP) is not exceeded. MWP is marked on the valve / tag and, also on the product specific datasheet. If unsure, please contact BiS Wells Ltd.
2. Misuse of the product can cause death or serious injury.
3. Regularly inspect the product for signs of damage before use.
4. Apply pressure in a controlled manner. Pressure spikes and/or shocks must be avoided.
5. Gas or Fluid cleanliness is vital to ensure optimum performance and prolonged valve life.
6. Remove excess moisture from the gas. Excess moisture can cause icing.
7. Ensure that vented fluids and gasses are done so in a safe and controlled manner. Some gasses can cause suffocation.