

# MI0349 IVP L08 Type

## Pressure Maintaining Valve

### Installation, Operation and Maintenance Instructions

#### GENERAL NOTES

- THESE INSTRUCTIONS APPLY ONLY TO THE L08 SERIES.
- THESE INSTRUCTIONS MUST BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWING. (SEE ASSOCIATED DOCUMENTS)
- THE PRESSURES SUPPLYING AND CONTROLLED BY THIS PRESSURE MAINTAINING VALVE ARE SUFFICIENTLY HIGH TO ENDANGER HUMAN LIFE. SUITABLY TRAINED, QUALIFIED AND AUTHORISED PERSONNEL MUST CARRY OUT ALL INSTALLATION AND MAINTENANCE PROCEDURES. UNAUTHORISED PERSONS MUST BE PROHIBITED FROM TAMPERING WITH, OR OPERATING THIS EQUIPMENT.
- IT IS ASSUMED THAT THE SYSTEM INTO WHICH THIS PRESSURE MAINTAINING VALVE IS TO BE SET, IS PROVIDED WITH ADEQUATE ISOLATION AND SAFETY DEVICES.
- SHOULD THE PRESSURE MAINTAINING VALVE BE PLACED INSIDE A CONTAINER OR CABINET, THEN THE CONTAINER/CABINET MUST INCORPORATE A VENTING SYSTEM.

#### TECHNICAL INFORMATION

##### Stainless Steel version

- Maximum Inlet pressure – 420 Bar
- Hydraulic Test pressure – 630 Bar
- Set pressure ranges:
  - 10 - 150 Bar
  - 150 – 270 Bar
  - 270 – 400 Bar

##### Aluminium version

- Maximum Inlet Pressure – 420 Bar
- Hydraulic Test Pressure – 621 Bar
- Set pressure ranges
  - 10 - 150 Bar
  - 150 – 270 Bar
  - 270 – 400 Bar

#### TEMPERATURE GUIDELINES

|                 |                |
|-----------------|----------------|
| VITON VERSION   | -20 TO +150 °C |
| NITRILE VERSION | -10 TO +100 °C |
| EPDM VERSION    | -30 TO +115 °C |

#### MARKING INDICATOR

| MARKING (STANDARD)   | DESCRIPTION   |
|----------------------|---|
| ex II 2 G D          | EQUIPMENT IS SUITABLE FOR USE IN NON MINING, EX ENVIRONMENTS, GAS AND DUST        |
| Exc IIC              | NON ELECTRICAL EQUIPMENT SUITABLE FOR AN EX ENVIRONMENT                           |
| T4 Ta (-10 - +100°C) | T RATED EX EQUIPMNET NOT TO BE USED OUTSIDE THE SPECIFIED TEMPERATURE RANGES (Ta) |
| INLET, OUTLET, VENT  | PIPEWORK SHOULD BE CONNECTED SUCH THAT IT FUNCTIONS AS PORT MARKINGS              |
| SERIAL No.           | FOR YEAR OF MANUFACTURE REFER TO CERTIFICATE OF CONFORMITY                        |

#### 1.0 DESCRIPTION

- The L08 is a single stage, spring loaded, Pressure Maintaining Valve of 0.66 CV.
- The Pressure Maintaining valve is suitable for use with high pressure fluids or gases and will relieve with extreme accuracy over a wide variable range.
- Internal sealing is achieved with “O” rings.
- The Inlet/Outlet connections are suitable for mounting into lines of DN5 (nom.).
- It is recommended that connecting pipe-work be suitably supported.
- An optional panel mounting kit is available.
- Approximate weight of the equipment is, for Stainless Steel version, 2.5Kg. Therefore, the equipment may be regarded as portable.

#### 1.1 FUNCTION

With the cap (6) removed and the spring adjuster (4) wound fully anti-clockwise, all pressure on the main loading spring will be relaxed. Therefore the introduction of pressure through the inlet port will act upon the underside of the valve and raise it from its seat permitting flow to take place to the outlet port.

Turning the spring adjuster clockwise loads the spring. This load prevents pressure passing to the outlet port until such time as the load exceeds that of the main spring thus permitting the valve to rise from its seat and relieve off excess pressure past the set point of the valve.

Flow will continue to take place until the inlet pressure drops sufficiently to allow the greater pressure exerted by the loading spring to close the main valve on its seat thereby stopping flow taking place to the outlet port.

To increase the desired relief pressure, turn the spring adjuster clockwise, conversely to decrease relief pressure turn the control knob anti-clockwise. Always remember to replace the cap (6) once the pressure has been set correctly.

#### 2.0 INSTALLATION

BEFORE COMMENCEMENT OF ANY INSTALLATION WORK, IT IS IMPORTANT THAT ANY SOURCE OF PRESSURISED MEDIA BE TURNED OFF OR ISOLATED FROM THE POINT AT WHICH THE PRESSURE MAINTAINING VALVE WILL BE INSTALLED. AT ALL TIMES, IT IS ESSENTIAL THAT ISOLATING VALVES MUST BE ACTUATED SLOWLY TO AVOID THE RISK OF EXPLOSION DUE TO DIESELING.

- Remove packaging and ensure that there are no obviously loose parts or visual signs of damage.
- Check that the information listed on the “DATA LABEL” confirms that the Pressure Maintaining Valve supplied is suitable for the intended service.

- Wind the spring adjuster fully anti-clockwise to ensure that the load spring is “off load”.
- The system into which the Pressure Maintaining Valve is to be set, must be clean and free of any solid inclusion which could be a source of damage to soft seated components.
- The Pressure Maintaining Valve is set directly into the line using the threaded inlet and outlet connections. CARE SHOULD BE TAKEN WHEN USING ANY FORM OF SEALING TAPE THAT ANY LOOSE FRAGMENTS ARE NOT ALLOWED TO COME INTO CONTACT WITH THE SEATING AREAS OF THE PRESSURE MAINTAINING VALVE.
- The two ports are set 90° to each other and it is important that the Pressure Maintaining Valve is correctly oriented into the pipe-work. A “FLOW DIRECTION” arrow is visible on the body. Other than for ease of maintenance, the ANGULAR orientation of the Pressure Maintaining Valve in the line is not important.
- Two mounting holes, M6x1, are located in the base of the Pressure Maintaining Valve.
- If the Pressure Maintaining Valve is to be panel mounted, it is recommended that a factory supplied kit be used; this is specifically designed for use with the L08.

#### 2.1 SETTING TO WORK

- Ensure that inlet and outlet connections are leak-tight. Check with “leak detection” fluid if necessary.
- Ensure that supply and outlet isolation valves are closed.
- SAFETY NOTE “OPEN AND CLOSE ALL ISOLATING VALVES SLOWLY!”
- Check that the spring adjuster is wound fully anti-clockwise, ensuring that the “load spring” is unloaded. Apply load to spring by turning the spring adjuster clockwise. Apply inlet pressure to determine valve setting. Adjust the spring adjuster until the valve closes. WARNING – ANY DOWNSTREAM EQUIPMENT SHOULD BE ISOLATED FROM OVERPRESSURISATION.
- Once the valve has been set correctly, replace the cap for protection.
- An inlet gauge must be provided, in line in order that the relieving pressures may be monitored during setting up.

#### 3.0 MAINTENANCE

- Having few moving parts, the L08 will require only periodic inspection of those items subject to wear, or deterioration to ensure long service and reliability. When servicing or repair becomes necessary, it is recommended that the Pressure Maintaining Valve be returned for factory refurbishment. However, the design of the L08 does enable it to be serviced in the field, with minimal inconvenience, to satisfy plant operations and minimise down times. It is recommended that all repairs and servicing be carried out using only quality assured spares supplied by the manufacturer.

#### 3.1 PREVENTATIVE MAINTENANCE

- In a clean system, the L08 will continue to deliver trouble free service over long periods of time. Under these conditions, maintenance intervals may be as long as 24-36 months. In more arduous conditions or in aggressive media service, the periods may be shorter, 6-12 months. It is however, important that units in safety related applications be inspected more frequently. During these preventative maintenance periods, the following procedure is suggested :
- Inspect all “O” seals for wear, brittleness or other signs of damage. All those displaying any indication of damage or deterioration should be replaced. However, it is recommended that all seals, regardless of any damages should be routinely replaced.

- The valve (1) and valve seat (3) should be removed and inspected closely, for wear or other damages. Typical signs of damage will be nicks or raised burrs around the seating edge of the valve seat (3), or indentations, abrasions and hard particle inclusions on the seating area of the valve (1).
  - Severe wear and/or very apparent nick's burrs or particle inclusion would indicate that replacement is necessary. Light wear and the presence of a clean, continuous seating ring on both parts would indicate that they are suitable for re-use.
- a) Any components showing signs of corrosion should be inspected for indications of permanent damage (i.e. pitting etc.) and replaced if any are present.

### 3.2 REMEDIAL MAINTENANCE

- If the L08 is maintained to a planned program, it is unlikely, unless the system becomes contaminated or an operating system problem causes damage to one of the control elements, that the Pressure Maintaining Valve will malfunction, and the need for remedial service arise. In general it is recommended that damaged Pressure Maintaining Valves' be returned to the factory for repair. To facilitate field repair, and minimise plant down-time, Table 1. Lists some possible faults and probable causes/solutions. The following recommendations are also made:
- It is preferable that the Pressure Maintaining Valves be repaired or serviced under workshop conditions, as the opened equipment must be protected from ingress of dirt and other foreign material. Should operational requirements make it necessary to service the Pressure Maintaining Valves in the pipe-line, then precautions should be taken to avoid contamination of the unit or parts.
- **SAFETY NOTE: WHEN UNDERTAKING ANY REPAIR OR SERVICING IN WHICH THE PRESSURE MAINTAINING VALVES REMAINS IN THE LINE, IT IS ESSENTIAL THAT THE EQUIPMENT IS ISOLATED FROM THE PRESSURISED MEDIA, AND THAT ALL ISOLATING VALVES ARE ACTUATED SLOWLY TO AVOID THE RISK OF EXPLOSION THROUGH DIESELING.**

Table 1.

| SYMPTOM   | CAUSE   | SOLUTION                                     |
|---|---|--|
| Valve will not relieve at set point.  | Spring adjuster setting incorrect.                    | Re-adjust set pressure.                      |
|   | Valve sticking when attempting to move valve by hand. | Clean part(s) and lubricate<br>Replace part. |
| Continuous leak on outlet before pressure reaches set relief point reached. | Damaged seat or stem.                                 | Re-Adjust.                                   |
|   | Contamination on seat.                                | Replace part(s).<br>Clean part(s).           |
| Loss of control in pressure regulation.                                     | Damaged spring (14)                                   | Replace part.                                |

### 4.0 STRIPPING AND RE-ASSEMBLY

Having few parts, stripping and re-assembly of the L08 may be regarded as straightforward, provided certain conditions are observed.

- **SAFETY NOTE: IF THE PRESSURE MAINTAINING VALVE IS TO BE WORKED ON WHILST REMAINING IN THE PIPE-LINE, IT MUST AT ALL TIMES BE TOTALLY ISOLATED FROM HIGH PRESSURE MEDIA.**

- Cleanliness is of the up most importance; even the smallest of inclusions may seriously affect the operation of the PRESSURE MAINTAINING VALVES.
- Tool List:  
Adjustable Wrench (large – up to 50mm. a/f opening.)  
Screwdriver - for adjusting the spring adjuster.  
Two 3mm Dia pins – used to un-screw cap.
- Re- assembly should be made using only sparing amounts of grease. That recommended for rubbers is “Dow Corning MS4” and for threads etc. “Bostic Never-Seez”, any alternatives should be checked carefully. Use of lubricants AT ALL with media other than air, MUST BE VERIFIED WITH LUBRICANT SUPPLIERS!
- For safety, all tightening torque values must be adhered to.

### 4.1 STRIPPING

- Using the two 3mm Dia pins remove the Protection Cap (6)
- With the screwdriver, rotate the spring adjuster anti clockwise until it is free from the thread.
- Remove the spring adjuster (4), retainer (top) (7), spring (9), and retainer (bottom) (8).
- At the opposite end – unscrew the body plug (5) using the adjustable wrench.
- Now remove the valve seat (3) and the valve (1).
- On completion of strip down, all parts should be cleaned, using a suitable proprietary cleaner, and dried. Whether the PRESSURE MAINTAINING VALVES is fully or only partially stripped will depend upon the level of servicing being undertaken. In all cases, parts should be examined as described in 3.1 and 3.2, and those selected for re-use should be stored under clean conditions until required.

### 4.2 RE-ASSEMBLY

- This is a direct reversal of stripping.
- **SAFETY REMINDER: IF THE PRESSURE MAINTAINING VALVES IS TO BE RE-ASSEMBLED IN THE PIPE-LINE, IT MUST BE FULLY ISOLATED FROM HIGH PRESSURE MEDIA WHILST WORK TAKES PLACE AND UNTIL THE PRESSURE MAINTAINING VALVES IS SET BACK TO WORK (SEE 2.1). ALL LUBRICANTS MUST BE USED SPARINGLY AND BE APPROVED FOR THE SERVICE MEDIA; FAILURE TO OBSERVE THIS COULD RESULT IN FIRE OR EXPLOSION. ISOLATION VALVES MUST BE ACTUATED SLOWLY TO AVOID DIESELING AND THE RISK OF EXPLOSION.**
- Ensure that all parts are available to complete assembly, and that they are clean and free of damage. It is recommended that all “O” rings be replaced regardless of damages, and that they are smeared sparingly with a suitable lubricant (see warning note above).
- The PRESSURE MAINTAINING VALVE is ready to return to work (see 2.1).

