

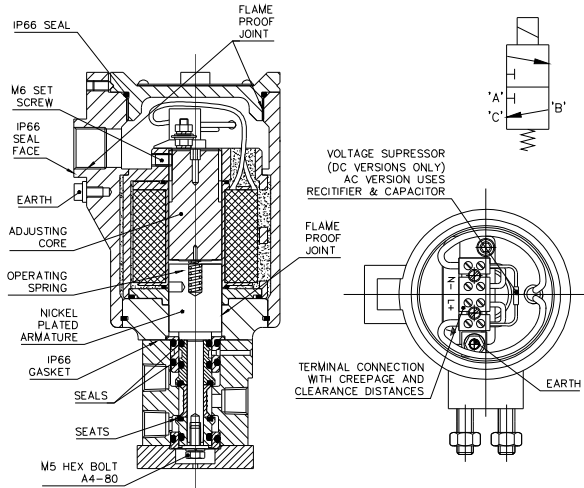
Storage and Handling

The ICO4 should not be stored in a corrosive environment. All ports should remain sealed and the valve markings made visible. Recommended storage temperature 5 to 25 °C, relative humidity <75%. Storage areas shall not contain ozone producing equipment (eg. welding equipment, mercury vapour lamps). Due attention should be paid to personal protection during handling.

Operation

All ICO4 solenoid valves consist of an Exd enclosure. In order for the enclosure to provide flameproof protection:

- None of the flameproof joints shall be damaged.
- All flameproof joints with threads shall be fully engaged.



The pressurised media is retained within the valve assembly (pressure boundary) by the mechanical strength of all its metal parts, seats and seals. Degradation of any of these components will cause the valve to leak.

The flow path of the media is altered by moving the spool assembly and engaging / disengaging the seats. The spool assembly can be moved by either:

- Energising the coil to produce an electromotive force.
- Applying a pressure to a piston.
- Applying a mechanical force to a linkage.
- Compressing a mechanical spring.

Restricting the spool movement or allowing the seats to degrade will not allow the flow to be re-directed.

The ICO4 has an IP66 rating. Degradation of the IP66 seals / gaskets / sealing faces or failure to tighten all sealing joints, will allow water to leak inside the enclosure.

For best practice, the valve should ideally be exercised at least once a month.

Removing an existing valve

Tools

Electrical 3mm Screw Driver

Allen Keys: 3/16", 2.5mm, 3mm, 4mm, 5mm, and 6mm.

A/F sockets: 8mm, 10mm, and 13mm. 5mm Tommy Bar.

1. Obtain work permit and check area for hazards.
2. Isolate valve from all pipeline and electrical supplies.
3. Loosen M5 locking screw and unscrew cover (ICO4S) or remove M6 cover bolts and cover (ICO4D).
4. Disconnect supply cable and remove.
5. Remove pipe connections from valve assembly.
6. Unscrew M8 mounting nuts (or M8 bolts) and remove the valve.

Installing a valve

General requirements

- Pipe work and media must be clean.
- Inlet filters are recommended (e.g. <10 microns).
- Prevent pipe sealant from entering the system.
- Use only correct tools. (i.e. as listed above)
- Do not use valve as a lever.
- Earth equipment to prevent the build up of an electrostatic charge.
- Ensure all interfacing equipment is rated to the expected duty conditions and will not degrade the integrity of the ICO4.

Mounting

Mount ICO4 using M8 mounting flange. Ensure M8 mounting bolts enter ICO4 mounting flange **TO A MAXIMUM DEPTH OF 8mm**.

An ICO4 will function satisfactorily when mounted inclined from the vertical. However for maximum life and efficiency mount vertically. The ICO4 is not designed for use in high vibration applications. Do not invert. Do not mechanically stress the equipment.

High temperature applications

In applications where the media is > 90 °C, a high temperature spacer shall be used. The high temperature spacer provides a thermal barrier between the media and the Exd enclosure. To ensure that the spacer performs its intended function:

- The user shall provide ventilation around the valve assembly, Exd enclosure and spacer.
- The valve assembly, Exd enclosure and spacer shall not be lagged.

Additionally, ensure all associated parts, including cable glands and cabling is fit for rated duty.

Low temperature applications

Contact Maxseal Sales for special operating conditions.

Procedure

1. Make connections to the valve ports as required. **DO NOT OVERTIGHTEN**.
2. Loosen M5 locking screw and remove solenoid cover.
3. Install cable using an appropriate certified gland fit for duty.
4. Make terminal connections as labelled. All terminals must be tightened before commissioning.
5. Replace solenoid cover and lock M5 locking screw.

Maintenance

It is recommended that all products be returned to Thompson Valves for refurbishment.

Spares

Only Maxseal spares kits should be used.

Main valve kit includes all seals, seats and operating spring.

Lubrication

-20°C to 90°C: Molycote 111 grease

-60°C to 50°C: Molycote 33 medium grease

Part A. Disassembling a valve

1. Remove manual reset lever retaining clip (if fitted).
2. Remove the Hex Head Bolts at the base of the valve body and remove valve body and armature assembly.
3. Secure armature with a *Tommy bar* and remove Hex Bolt/Nut at the base of the armature.
4. Separate all valve assembly components, noting orientation, sequence and position of parts,

Part B. Examining a valve's components

Examine and replace all worn or damaged parts.

The flameproof joints will retain their original certified clearances provided they are not damaged.

Replace all seals and operating springs with Maxseal spare parts kit. All seals should be lubricated and have no deformation. All seating and sealing faces should be free from contamination, marks, scratches, etc.

DO NOT MODIFY OR RECLAIM FLAMEPROOF JOINTS.

Part C. Assembling a valve

Smear all seals with recommended grease. Build assemblies in reverse order shown in part A.

Torque M5 bolts to 5Nm.

Part D. Adjusting & testing a valve

1. Loosen M5 locking screw and remove solenoid cover.
2. Make connections to valve ports as per markings.
3. Remove the M5 socket screw on the terminal plate and slide out terminal assembly to reveal core adjuster.
4. Loosen M6 core set screw.
5. Apply air to valve body and energise coil.
6. Screw down core to the point *just before* ports leak.
7. Screw core back a further 1/10 of a turn.
8. Lock M6 core set screw.
9. Ensure valve operates correctly at Nom Voltage \pm 12%

Part E. Problems

If the ICO4 does not function as intended, do not install valve. Repeat the maintenance procedures Parts A to D. If the problem persists contact Maxseal Sales.

If you are not sure about any application, maintenance or technical issue, contact Maxseal Sales for advice.