

Maxseal ICO4N

Installation, Operation and Maintenance Instructions

(MI0241 Rev.1)

READ ALL THE INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT.

INSTALLATION AND INSPECTION OF THIS EQUIPMENT SHALL BE CARRIED OUT BY SUITABLY TRAINED PERSONNEL IN ACCORDANCE WITH THE APPLICABLE CODE OF PRACTICE (E.G. EN 60079-14 AND EN 60079-17 WITHIN EUROPE).

REPAIR OF THIS EQUIPMENT SHALL BE CARRIED OUT BY SUITABLY TRAINED PERSONNEL IN ACCORDANCE WITH THE APPLICABLE CODE OF PRACTICE (E.G. EN 60079-19).

COMPONENTS TO BE INCORPORATED INTO OR USED AS REPLACEMENTS IN THE EQUIPMENT SHALL BE FITTED BY SUITABLY TRAINED PERSONNEL IN ACCORDANCE WITH THE MANUFACTURER'S DOCUMENTATION.

DO NOT MODIFY OR CHANGE ANY COMPONENTS.

IF YOU HAVE ANY QUERIES WITH REGARDS TO THE ICO4 PLEASE CONTACT MAXSEAL SALES.

Description

The ICO4N is a solenoid valve which can be used in potentially explosive atmospheres with the type of protection 'n'. It has been designed to operate under arduous conditions at a wide range of ambient temperatures. The valve is changed over by applying a known voltage to the solenoid.

Maxseal sales

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Maxseal products are manufactured by:
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 17 Balena Close, Creekmoor,
 Poole, Dorset, England. BH17 7EF

Specification / Construction / Options

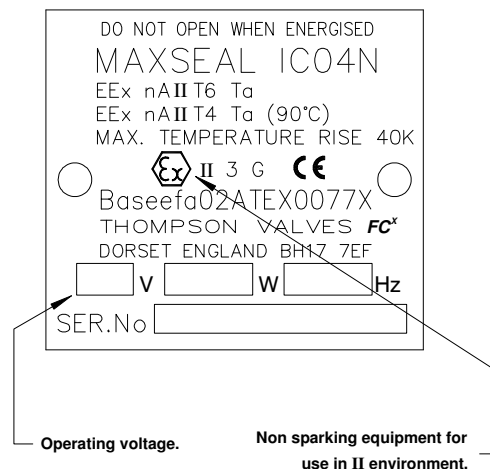
- CE marked (ATEX, EMC, PED).
- Maximum 12W rated for continuous duty.
- Designed to electrical safety standard IEC 1010.
- Ingress protection to IP66 / X8.
- H class (180°C) coil insulation as standard.
- Valves manufactured and tested under ISO 9001 accreditation.
- All valve assemblies feature double seal and safety vent.
- HNBR seals as standard, others available.
- Standard valve is an automatic, 0-20 bar valve, 1/4", (0.8 CV).
- Operating speed typically <120ms pull in, <80ms drop out.
- Standard Weight 5kg (1/4" 3/2 configuration).

THE ICO4 ENCOMPASSES A LARGE RANGE OF VARIANTS. (SEE CATALOGUE OR CONTACT MAXSEAL SALES FOR FURTHER DETAILS).

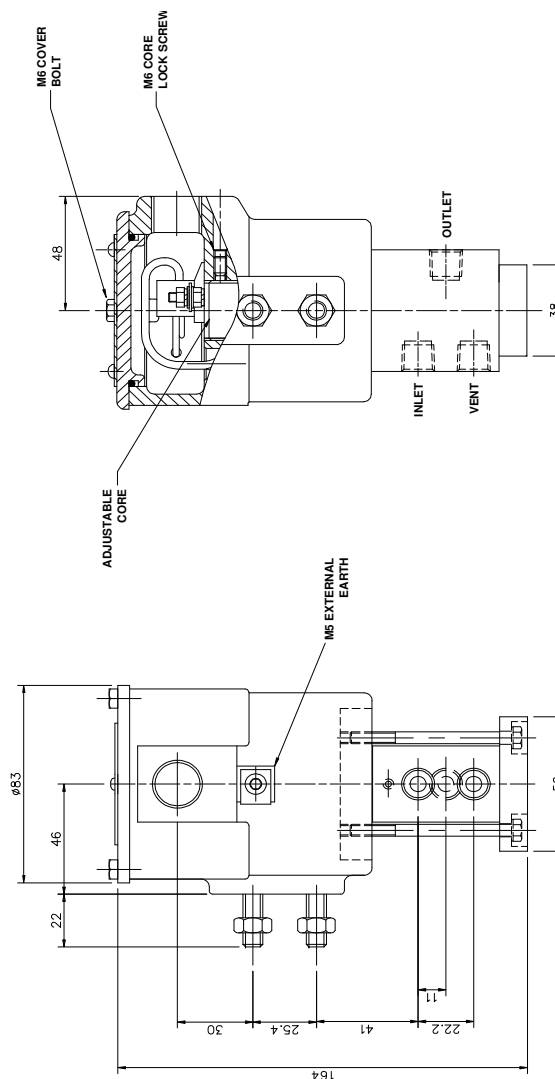
Ports	2/2 (E/O & E/C), 3/2 and 5/2.
Reset options	Automatic, manual override, automatic latching, manual reset and tamperproof manual reset
Operating Pressure	20 bar (0.8 CV), 50 bar (0.6 CV)

CONDITIONS	LIMITS
FUNCTION	The working pressure shall not exceed that marked on the pressure boundary. The working temperature shall not exceed the label rating or the capability of the parts.
ENVIRONMENT	All external conditions shall not exceed IP66. External conditions shall not degrade the EExd enclosure or pressure boundary.
MAINTENANCE PERIOD	5 years or 10,000 cycles. 6 month Proof Test Interval. For best practice exercise the valve once per month.
LIFE	20 years or 5million cycles. (Operate at < 6 cycles / min.)

Marking indicator



FEATURES AND DIMENSIONS



ICO4N standard variant 3/2 Auto 20 bar

GENERAL INSTRUCTIONS

Storage and Handling

The ICO4 should not be stored in a corrosive environment. All ports should remain sealed and the valve markings made visible.

Due attention should be paid to personal protection during handling.

Mounting

An ICO4 will function satisfactorily when mounted inclined from the vertical. However for maximum life and efficiency mount vertically. Do not invert.

Maintenance Tools

Electrical 3mm Screw driver
Allen Keys: 3/16", 2.5mm, 3mm, 4mm, 5mm, 6mm.
A/F sockets: 8mm, 10mm, 13mm.
5mm Tommy Bar.

Spares

Only Maxseal spares kits should be used. Contact Maxseal sales for further details.

Main valve kit: All soft parts and operating spring.

Lubrication

-20°C to 90°C: Molycote 111 grease
-60°C to 50°C: Molycote 33 medium grease

Removing an existing valve

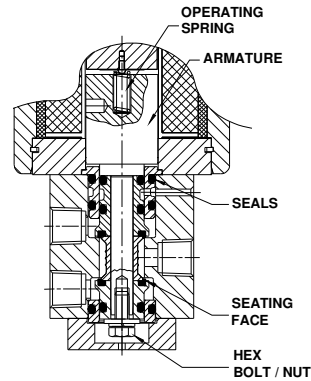
1. Obtain work permit and check area for hazards.
2. Isolate valve from all pipeline and electrical supplies.
3. Remove M6 cover bolts and cover.
4. Disconnect supply cable and remove.
5. Remove pipe connections from valve assembly.
6. Unscrew M8 mounting nuts and remove the valve.

Installing a valve

- Pipe work and media must be clean.
 - Inlet filters are recommended.
 - Prevent pipe sealant from entering the system.
 - Use only correct tools.
 - Do not use valve as a lever.
1. Make connections to the valve ports as required. DO NOT OVERTIGHTEN.
 2. Remove solenoid cover.
 3. Install cable using an appropriate certified gland.
 4. Make terminal connections as labelled. All terminals must be tightened before commissioning.
 5. Replace solenoid cover.

Operation

The valve should ideally be operated at least once a month.



Special conditions for safe use

If an external earth is not provided the cable gland used must be metallic and incorporate an earth tag clamped between the gland and the solenoid body. The gland must also maintain the ingress protection level of the solenoid.

Maintenance

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

The ICO4 should be maintained as appropriate to the application conditions (5 years maximum). Replace all seals and worn or damaged parts.

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. 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 contaminant, marks, scratches, etc.

Part C. Assembling a valve

Smear all seals with recommended grease. Build assemblies in reverse order shown in part A. Torque valve mounting bolts to 4 - 5 Nm.

Part D. Adjusting & testing a valve

1. Loosen M5 locking screw and remove solenoid cover.
2. Make connections to valve ports as per installation.
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 *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.

Certification notes

The ICO4N may be used with flammable gases and vapours with temperature classes T1, T2, T3, T4, T5 & T6 when used within the ambient temperature range -20°C to +40°C. The ICO4N may be used with flammable gases and vapours with temperature classes T1, T2, T3, & T4 when used within the ambient temperature range -20°C to +90°C.

The certification of this equipment relies upon the following materials used in its construction:

ICO4N solenoid pot cover, solenoid pot & pot base	Cast iron and carbon steel
Armature	Magnetic steel

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

Aggressive substances	e.g. acidic liquids or gases that may attack metals
Suitable precautions	e.g. regular checks as part of routine inspections or establishing from the material's data sheet that it is resistant to specific chemicals