

The maximum power consumption of the coil is stated in the Alcon catalogue. As a general guide:

S4 Solenoid AC inrush = 60VA  
S4 Solenoid DC power = 14.5W

When converting a valve from AC to DC operation or from DC to AC please consult the manufacturer as some valves require the internals to be changed.

All Alcon solenoids are designed for continuous service (100% ED) at  $\pm 10\%$  of the rated voltage.

## 4. TEMPERATURE

**WARNING** If energised for long periods of time the outer surface of the solenoid will be hot to the touch. This is a safe operating temperature and the solenoid is designed to withstand it. The temperature reached will depend on the media passing through the valve and the ambient temperature.

Unless otherwise stated in the Alcon catalogue, all Alcon solenoids have Class H insulation to BS2757 (180°C)

Although the Alcon solenoids are designed to withstand high operating temperatures we recommend that they are mounted away from hot surfaces.

## 5. SERVICING

We recommend that valves are regularly inspected to check the condition of the valve internals. This is particularly important where an application involves high temperatures and/or rapid cycling. Servicing should only be carried out by suitably qualified persons.

When carrying out inspection and servicing work on the valve:  
Isolate the electrical supply to the valve for safety,  
Relieve and isolate the pressure from the inlet side of the valve.  
Ensure that the outlet side of the valve is free from pressure.  
If the valve is being used on a high temperature media (e.g. steam), allow time for the valve to cool down before carrying out work.

Inspect all parts for wear and replace parts when necessary with manufacturers recommended spare parts. When ordering spare parts kits state the type, valve code and voltage.

When replacing a solenoid coil ensure that the solenoid components are replaced in the order that they were removed. The coil retaining nut is to be tightened to 11Nm (8lbf-ft).

After completion of any service work and prior to re-commissioning, the valve should be leak tested and cycled to ensure correct operation.

If the application requires that the valve be left in one state for very long periods of time then periodically the valve should be checked for correct operation.

## 6. FAULT FINDING

**Valve not opening** - Check electrical supply is reaching the terminals on the valve coil and that the voltage matches the rating of the coil. When energised, the valve will quietly 'click'. If no sound is heard check the coil for open-circuit and replace as necessary.

**Burned-out coil** - Check for open circuit coil and replace as necessary. Check for moisture in the coil.

**Faulty electrical DIN plug** - Check for loose connections. If a rectifying plug check that the diodes are not open or short-circuit. Replace as necessary.

**Leakage through valve** - Check correct pressure is being applied. Replace internals with a spare parts kit.

**Leakage to atmosphere** - Check correct pressure is being applied. Replace 'O' rings and gaskets.



Registered Office: The BSS Group Ltd,  
BOSS Court, 7 Barton Close  
Leicester LE19 1SJ England  
Telephone: 0116 245 5500  
E-mail: reception@bssgroup.com

# PRODUCT INFORMATION

## GENERAL INSTALLATION AND SERVICING INSTRUCTIONS

## WIRING INSTRUCTIONS FOR PLUG RECTIFIER DIN SOCKETS

**Read these instructions carefully before installing the valve. Failure to do so could damage the valve or cause a hazardous situation.**

IP7301A

# 1. INSTALLATION

**IMPORTANT** Before fitting the valve the following checks should be made:

## Valve Information

Check that the details on the valve nameplate correspond with your requirements.

### Type

The valve type and code number are marked on the nameplate. For full details on valve types and code numbers consult the Alcon catalogue.

### Media

Valves must **ONLY** be used with the media stated on the valve nameplate. If in doubt contact the Alcon sales office for clarification.

### MOPD (Maximum Operating Pressure Differential)

This indicates the working pressure range within which the valve can safely operate.

**IMPORTANT** Some valves have a minimum operating differential.

### Pmax

This indicates the maximum pressure the valve can withstand in a static situation without suffering permanent damage. **NOTE** The valve **WILL** be damaged if operated in excess of the MOPD.

### Voltage and Frequency

The valve nameplate will carry the specific voltage and frequency at which the valve is designed to operate.

## Pre-installation checks

Care should be taken to ensure that all foreign material has been removed from the valve pipework prior to installation of the valve.

Ensure that enough space is left for removal and service of the valve.

Pipe sealant should be applied to male pipe threads only and not to the internal threads of the valve as sealant could enter the valve and cause it to malfunction.

If PTFE (Teflon) pipe sealant or similar compound is used take care when tightening as reduced friction may lead to over-tightening.

Ensure that the pipework is suitably aligned and supported to avoid straining the joints.

The correct size spanner **MUST** be used on the flats of the valve body to avoid damaging the valve. Do not over-tighten the pipe connections.

Do not use the solenoid enclosure as a lever when installing the valve. This will damage the valve.

All valves are to be installed with the solenoid vertical above the pipeline unless otherwise stated in the Alcon catalogue. This will ensure optimum life and performance.

# 2. SPECIFIC INFORMATION FOR PARTICULAR VALVE TYPES

## FACHL, FACHO, ACHL

Manual Reset Solenoid Valves

Provision must be made to ensure that the inlet pressure is relieved before manually opening the valve. For safe operation, manual reset valves should not be opened against pressures exceeding:

½" to 3" valves - 300 mBar  
4" to 8" valves - 50 mBar

This range of valves is suitable for horizontal pipelines only with the valve mounted such that the solenoid is vertically above the pipe.

## ACF, ACD, ACP, HP, ACDN, ACPN, DCA, DCP, DCAN

Pilot Assisted General Purpose Solenoid Valves

All valves for steam and hot water applications.

To ensure trouble-free operation on steam and liquid applications an Alcon strainer should be fitted as close as possible to the inlet side of the valve. The Alcon strainer is fitted with a 40 mesh screen as standard.

## 31, 32, 33 series

3/2 Way Solenoid Valves

See 3/2 flow diagrams for porting arrangement.

## 67,70, 74 series 3/2

3/2 Way Solenoid Valves

See 3/2 flow diagrams for porting arrangement.

## 67 series 5/2

5/2 Way Solenoid valves

See 5/2 flow diagrams for porting arrangement.

## Namur

3/2 way and 5/2 way Solenoid Valves

See 3/2 and 5/2 flow diagrams for porting arrangement.

When servicing these valves ensure that the 'O' rings fitted to the Inlet and Outlet are not lost.

## G, GB, MV and 51 series

EN161 Approved Valves for 2nd and 3rd family gases (Natural gas, Butane, Propane)

We recommend that only the coils on these valves are replaced in service. Specify the valve type, code number and voltage when ordering.

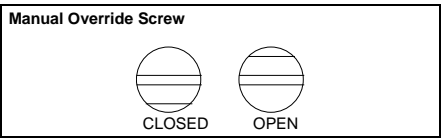
## 68 series

Cryogenic Solenoid Valves

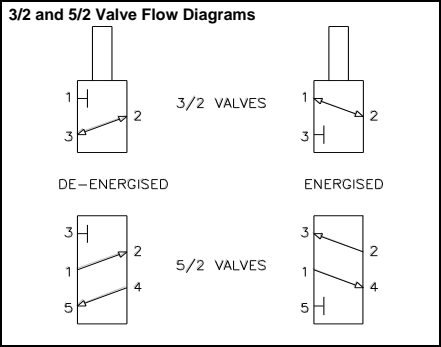
The complete valve should be thoroughly de-greased after servicing.

## Manual Override (MO)

21 series, ACD, ACP, 67 series 5/2, Namur 3/2 and 5/2



The manual override device allows manual operation of the valve when in the de-energised state. With the electrical supply off to open the valve turn the override screw from the horizontal position to the vertical position. Return the screw to the closed position before energising the valve.



# 3. ELECTRICAL

All wiring must comply with local and national codes of practice.

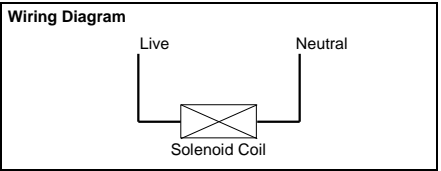
Ensure all valves are correctly earthed.

Isolate power supply before commencing wiring.

The solenoid coil can be rotated to suit a particular electrical installation by slackening the solenoid retaining nut and re-tightening.

Coils fitted with black flying leads are not polarity dependant and may be connected either way around.

Coils fitted with 'spade' connectors will be supplied with a DIN plug connector ISO 4400 / DIN 43650 to suit Pg11 cable.

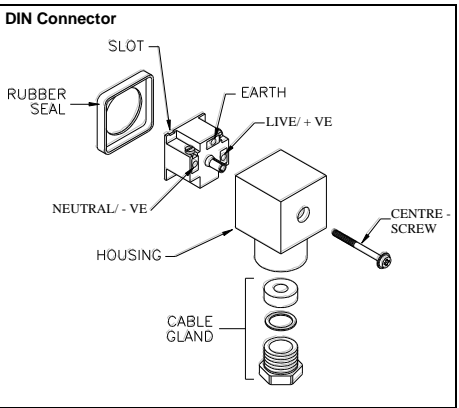


## Wiring Instructions for DIN sockets


- Remove the electrical socket by undoing the centre-screw. Take care not to lose the rubber seal.
- To remove the socket insert, use a small screwdriver in the slot at the edge of the insert and lever outwards. Note: the centre-screw must be removed in order to remove the insert.

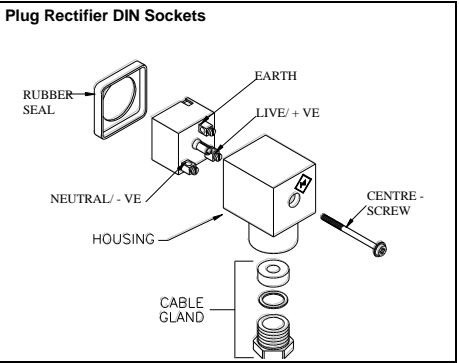
- Pass the cable through the housing and wire to the screw terminals:

Terminal	Marking	Wire
1		Neutral / -ve
2		Live / +ve
E		Earth
- The terminal insert may now be fitted back into the housing in any orientation.
- Re-fit the rubber seal and the centre-screw and ensure that the cable gland has been tightened to prevent straining of the connections and to prevent the ingress of moisture



## Wiring Instructions for Plug Rectifier DIN sockets

Plug rectifier sockets are marked with the  symbol. All valves marked with this symbol **MUST** be fitted with rectifying plugs.



## Notes

All AC solenoid valves have some AC hum during operation. For silent operation, DC rectified valves should be used. Consult the Alcon sales office with details of the application.

Valves for use in potentially explosive atmospheres are supplied with a separate leaflet detailing their specific requirements. The Alcon encapsulated coil when correctly fitted with a DIN plug connector will meet the requirements of IP65 to BS5420 IEC144.