

IMPORTANT : READ THIS MANUAL THOROUGHLY BEFORE INSTALLATION OR SERVICING

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1. DESCRIPTION :

Solenoid valve is a pilot device which on receiving signal, directs air supply to service ports 'A' or 'B'.

Generally 3/2 valve is used for Single Acting (Spring Return) Actuators and 5/2 for Double Acting Actuators.

Solenoid valves with NAMUR port configuration can be directly mounted on the Actuator using 2 nos. of M5 screws, thus eliminating the requirement of brackets, connectors and piping. Ensure the presence of O-rings on the interface of the valve and Actuator before assembly.

Compressed air supply connection is made to P (1) port of the Solenoid Valve.

2. OPERATION :

SINGLE ACTING : (SPRING RETURN)

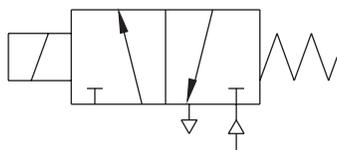
When the Solenoid (in standard version of a 3/2 spring offset fail close valve FIG. 1a) is energized, air supply is established to port "A" thereby pressurising the centre chamber of the Z Actuator. This results in the outward movement of the pistons. Air from the end chambers of the Actuator is pushed out through port 'B' of the Actuator and exhaust to the atmosphere.

When the Solenoid is de-energised reverse action takes place. Compressed springs push the piston inward. Air from the centre chamber is pushed out through port 'A' and in turn through the Solenoid Valve, exhaust to the atmosphere.

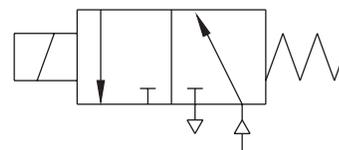
3. SPECIFICATIONS :

NO. OF POSITION	: 2/3
NO. OF PORTS	: 2/3/4/5
CONTROL ELEMENT	: POPPET / SPOOL
AIR CONNECTION	: 1/4", 3/8" OR 1/2" BSP / NPT
TYPE OF OPERATION	: ELECTRICAL / SPRING RETURN / SPRING CENTRED
ELECTRICAL SOLENOID VOLTAGE	: AC / DC VOLTAGE 12/24/110/220
ELECTRICAL CONNECTION	: FLYING LEAD / PLUG IN TERMINAL BOX / FLAMEPROOF ENCLOSURE
ENVIRONMENTAL PROTECTION	: IP 55/65/67 IIA / IIB, IIC, INTRINSICALLY SAFE

SYMBOL



a) NORMALLY CLOSE

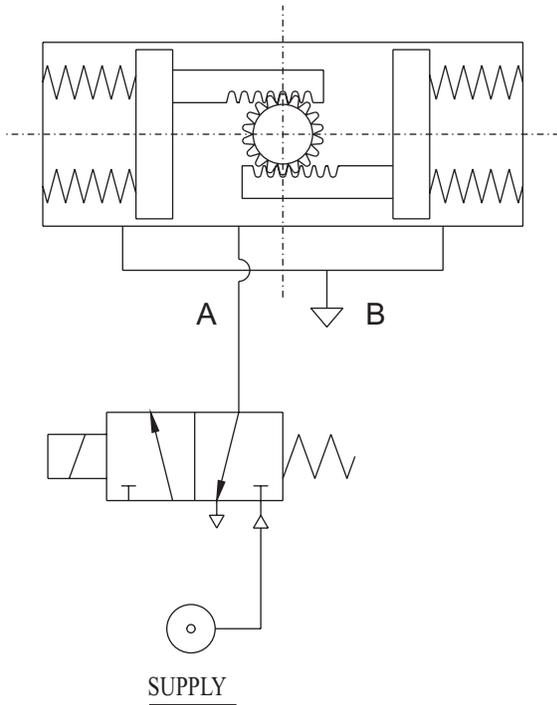


b) NORMALLY OPEN

FIG. 1
3/2 SOL VLV

4. LOGIC DIAGRAMS :

EXAMPLE



SPRING RETURN ACTUATOR AND 3/2 SOLENOID VALVE

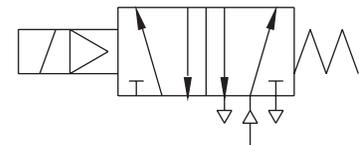
DOUBLE ACTING : (TWO POSITION)

When the Solenoid (in standard version of a 5/2 spring offset fail close valve, FIG. 2a) is energized, air supply is established to port 'A', thereby pressurising the centre chamber of the Actuator. This result in the outward movement of the pistons. Air from the end chambers of the Actuator is pushed out through port 'B' of the Actuator and in turn through the Solenoid Valve, exhausts to the atmosphere.

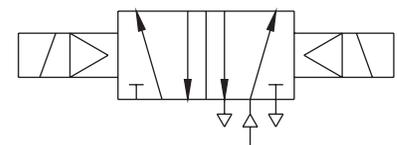
When the Solenoid is de-energised, reverse action takes place. Air supply is established to port 'B' pressurising the outer chamber of the Actuator. This results in the inward movement of the pistons. Air from the centre chamber is pushed out through port 'A' and in turn through the Solenoid valve exhaust to the atmosphere.

SYMBOL

**FIG. 2
5/2 SOL VLY**

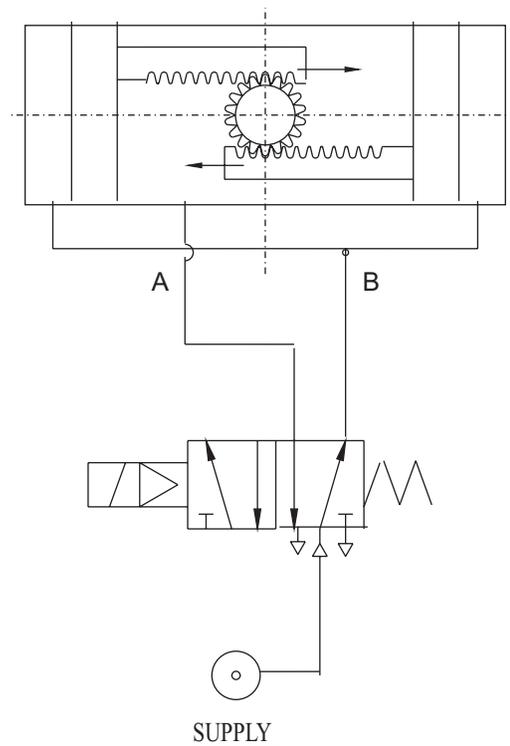


a) SINGLE COIL



b) DUAL COIL

EXAMPLE



DOUBLE ACTING ACUATOR AND 5/2 SOLENOID VALVE

DOUBLE ACTING : (THREE POSITION)

This Solenoid valve uses two Solenoids. When one of the Solenoids is energised, air supply is established to port 'A' there by pressurising the centre chamber of the Actuator. This results in the outward movement of the pistons. Air from the end chambers of the Actuator is pushed out through port 'B' of the Actuator and in turn through Solenoid Valve exhaust to the atmosphere.

When the Solenoid is de-energised, the valve comes to mid position and system will be in stay put condition in the case of fig 3a and in float condition in the case of FIG. 3b.

When the second solenoid is energised. reverse action takes place. Air supply is established to port 'B' pressurizing the outer chamber of the Actuator. This results in the inward movement of the pistons. Air from the centre chamber is pushed out through port 'A' and in turn through the solenoid valve exhaust to the atmosphere.

When the solenoid is de-energised. the valve comes to mid position.

SYMBOL

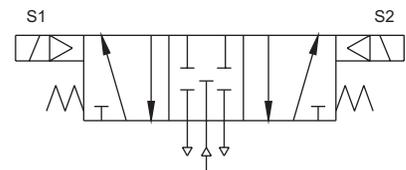
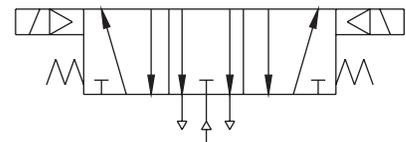


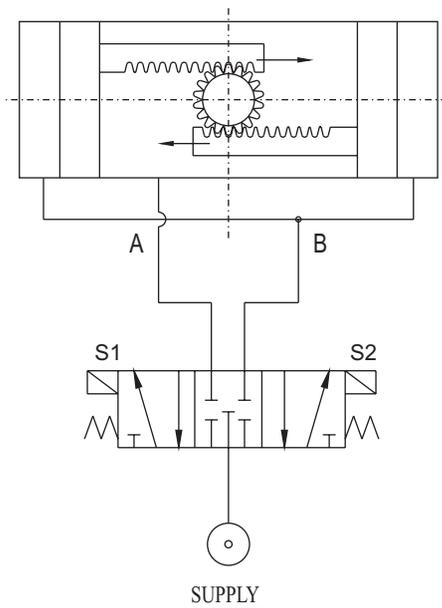
FIG. 3
5/3 SOL VLV

a) STAYPUT



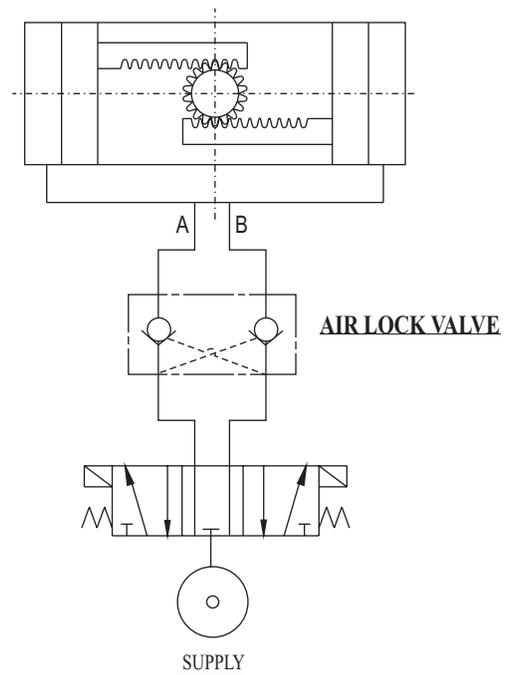
b) FLOAT

EXAMPLE



DOUBLE ACTING ACTUATOR
AND 5/3 SOLENOID VALVE
ELECTRICAL FAIL TO STAYPUT

EXAMPLE



DOUBLE ACTING ACTUATOR
AND 5/3 SOLENOID VALVE
AIR & ELECTRICAL FAIL TO STAYPUT