



"NAMUR" Solenoid Valve 3/2 – 4/2 – 4/3



INSTALLATION, OPERATION & MAINTENANCE MANUAL

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CHAPTER 1: PRODUCT DESCRIPTION

Max-Air Technology offers a complete range of direct mount Solenoid Valves (SV series). Each solenoid valve is available in single coil (SV61), dual coils (SV62) or 3 positions configuration (SV3P) and can be used on either lubricated or non-lubricated air.

Max-Air Technology Solenoid Valves are designed according the NAMUR VDI/VDE 3845 standard; therefore they can be easily installed on all type of pneumatic actuators, both linear and rotary, with NAMUR connections.

Max-Air Technology Solenoid Valves are equipped in the standard configuration with the following unique features:

Field convertible for use on either double acting (4 way) or spring return (3 way) actuators through switches;

Electroless nickel plated spool;

Easy-to-use manual override;

Uniquely design air pressure pop up indicator which provides for a quick check to verify if the solenoid valve is pressurized or not;

Port sizes: inlet and exhaust 1/4" NPT.



CHAPTER 2: METHOD of OPERATION

All **Max-Air Technology** direct mount Solenoid Valve (SV61, SV62 and SV3P) come lubricated and designed for long life. The solenoids come equipped with BUNA O-Rings to seal the valve ports to the body of the actuators.



Port 1 is the supply port and ports 3 and 5 are the exhaust ports (Figure 2). The exhaust port may be equipped with silencers or speed controls to control the actuator time. Ports 2 and 4 are the actuator ports (Figure 1).

Manual Override:

All **Max-Air Technology** solenoid valve comes equipped with a manual override. A small red switch located between the valve body and the coil positioned perpendicular to the long axis of the valve body allows for the overriding of the solenoid if necessary. The normal position for the switch will be pointing toward "0". A 90° rotation of the switch in the clockwise direction will manually override the solenoid and lock the solenoid in the disengaged position until the switch is returned to its original position.





2 - 1 SINGLE COIL SOLENOID VALVE (SV61)

Pneumatic Diagram:



During the solenoid activation (<u>opening phase of the actuator</u>) air goes from the supply Port 1 to the Port 4, which is connected with the internal chamber between the pistons.

In the normal position (<u>actuator closed</u>) the flow will be different depending from the type of solenoid valve:

<u>4 way (4/2)</u> for Double Acting actuators: air goes from the supply Port 1 to the Port 2, filling up the chambers the cavity between the pistons and the end caps, closing the actuator (see figure 1);

<u>3 way (3/2)</u> for Spring Return actuators: air is exhausted through Port 2 (see figure 2)







Figure 2



2 – 2 DUAL COIL SOLENOID VALVE (SV62)

Pneumatic Diagram:



Dual Coil 4/2



Dual Coil 3/2

During the solenoid activation (<u>opening phase of the actuator</u>) air goes from the supply Port 1 to the Port 4, which is connected with the internal chamber between the pistons.

In the normal position (actuator closed) the flow will be different depending from the type of solenoid valve:

<u>4 way (4/2)</u> for Double Acting actuators: air goes from the supply Port 1 to the Port 2, filling up the chambers the cavity between the pistons and the end caps, closing the actuator (see figure 3);

<u>3 way (3/2)</u> for Spring Return actuators: air is exhausted through Port 2 (see figure 4)





Figure 4

Note: The dual coil solenoid valve requires a pulse to cause the actuator to move. To return the actuator the normal position a pulse must be sent to the 2nd coil.



2 – 3 3 POSITION SOLENOID VALVE (SV3P)

Max-Air Technology offers 3 position solenoid valve in 3 different configurations:

Pneumatic Diagram:







Open Centers



Centers in Pressure

Note: the above diagrams refer to the "0" position.

<u>Closed centers</u>: both the inlet and exhaust ports are closed.

<u>Open centers</u>: the inlet port is closed and air is exhausted through both the ports 3 and 5. <u>Centers in pressure</u>: air is supplied through the inlet port 1 to both the port 2 and 4.

During the solenoid activation (<u>opening phase of the actuator</u>, referred as 14 on the above diagrams) air goes from the supply Port 1 to the Port 4, which is connected with the internal chamber between the pistons.

In the normal position (actuator closed) the flow will be different depending from the type of solenoid valve:

<u>4 way (4/3)</u> for Double Acting actuators: air goes from the supply Port 1 to the Port 2, filling up the chambers the cavity between the pistons and the end caps, closing the actuator (see figure 5);

<u>3 way (3/3)</u> for Spring Return actuators: air is exhausted through Port 2 (see figure 6)

Note: The 3 position solenoid valve requires a pulse to cause the actuator to move. Then the solenoid valve returns to the center position (spring), causing the actuator to stop in its position. To return the actuator the normal position a pulse must be sent to the 2nd coil.





Figure 7



Figure 8



CHAPTER 3: SOLENOID VALVE INSTALLATION

Max-Air Technology Solenoid Valves are designed according the NAMUR VDI/VDE 3845 standard; therefore they can be easily installed on all type of pneumatic actuators, both linear and rotary, with NAMUR connections.

Note: The bracketed numbers refer to the below view of the solenoid valve.

- Select the needed Switches for the application (3 way or 4 way, ref 2)
 Note: a Switch marked with 5/2 will be always inserted into the port 4, either a 5/2 Switch (double acting actuator) or 3/2 (spring return) will be inserted into the port 2.
- 2. Insert the O-Rings (ref 1 and 3) into the proper grooves into the Switches;
- 3. Insert the Switches (ref 2) onto the Solenoid Valve;
- 4. Insert the screw (ref 5) into the actuator; this operation ensures the correct alignment between the solenoid valve and the actuator.



5. Affix Solenoid Valve to actuator and tighten screws.





CHAPTER 4: TECHNICAL DATA

4 – 1 WIRING DIAGRAM



The above wiring diagram is the same for all the voltages

4 – 2 SOLENOID CLASSIFICATION

Max-Air Technology Solenoid Valve is designed to NEMA 4, 4x standards. **Max-Air Technology** Solenoid Valve can be adapted to the NEMA 7 classification by installing a special adapter flange and a special solenoid on the standard valve body.

NEMA 4, 4x: Watertight and Dust tight – indoor & outdoor. Protects against windblown dust rain, splashing water and hose directed water. Also corrosion resistant. NEMA 7: All of the above plus: Class I & Class II, indoor hazardous locations, Explosion Proof

4 – 3 MATERIAL

Body:	Epoxy coated die cast aluminum	
Spool:	ENP aluminum	
Piston:	Aluminum	
Spring:	Stainless steel	
Seal:	Buna-N	
Screws:	Stainless steel	
Other components: Technopolymer		



4 – 4 SOLENOID SPECIFICATIONS

Inlet and exhaust Outlet DIN connector	1/4" NPT NAMUR interface 1/2" NPT
Pressure Range: Flow factor: Media Temperature: Response Time:	30 to 150 PSI 10.5 Cv -4°F +158°F On: 13 ms; Off: 38 ms (@ 90 PSI)
Operating Voltages	12 V DC, 24 V DC 24 V AC, 48 V AC 110 V AC, 220 V AC
Voltage Tolerance: Power Consumption:	± 10% DC: 6 W AC: 7.5 VA inrush, holding 6 VA
Coil Insulation Class:	Class F standard Class H optional
Max operating frequency:	600/1'



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