700ZDT & *700NDT*

"NAMUR" Solenoid Valve 3/2 – 5/2

INSTALLATION, OPERATION & MAINTENANCE MANUAL

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CHAPTER 1: PRODUCT DESCRIPTION

TUNING Fluid Solutions offers a complete range of direct mount Solenoid Valves (ZDT/NDT series). Each solenoid valve is available in single coil (700ZDT01/700NDT01) or dual coils (700ZDT02/700NDT02) and can be used on either lubricated or non-lubricated air.

TUNING Fluid Solutions 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.

TUNING Fluid Solutions Solenoid Valves are equipped in the standard configuration with the following unique features:

Field convertible for use on either double acting (5 way) or spring return (3 way) actuators through O-RING positionning;
Electroless nickel plated spool;
Easy-to-use metalic manual override;
Port sizes: inlet and exhaust ¼" BSP (700ZDT) or NPT (700NDT).

CHAPTER 2: METHOD of OPERATION

All ***TUNING Fluid Solutions*** direct mount Solenoid Valve (700ZDT and 700NDT) 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.

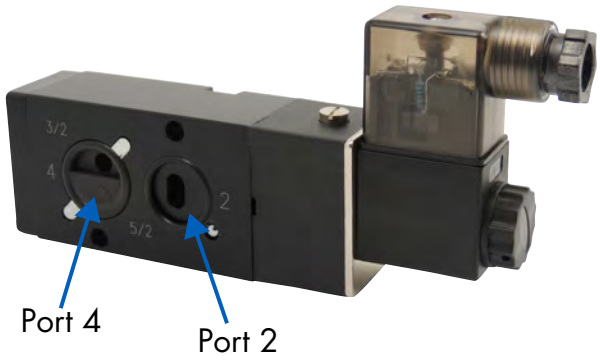


Figure 1

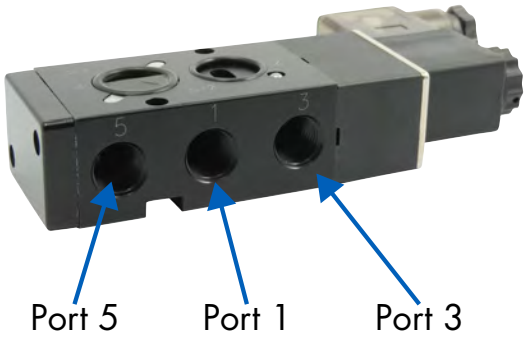


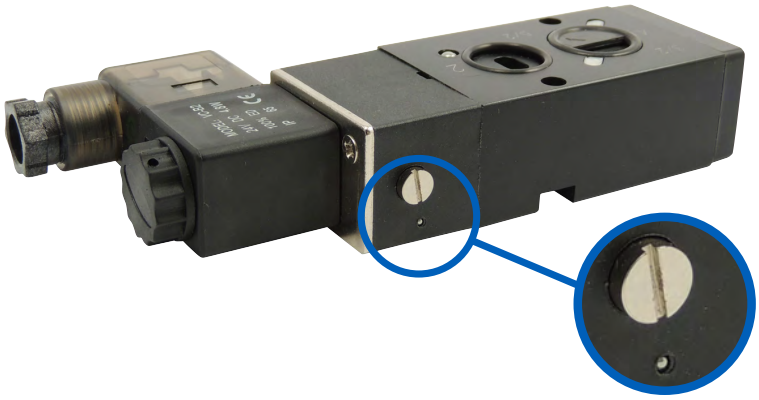
Figure 2

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

Manual Override:

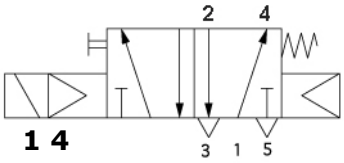
All ***TUNING Fluid Solutions*** solenoid valve comes equipped with a spring loaded manual override. A metal switch located between the valve body and the coil positioned perpendicular to the long axis of the valve body allows for the overriding of the solenoid if necessary. The normal position for the switch would be pointing toward the metallic ball inserted onto the pilot body. You can manually override the solenoid in two simple ways:

- Temporary override by pushing down the switch. Releasing the switch will put the SV back in service.
- Override and lock by pushing down and turning the switch by 90° using a screwdriver.

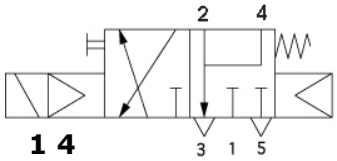


2 – 1 SINGLE COIL SOLENOID VALVE (700ZDT-01 / 700NDT-01)

Pneumatic Diagram:



5/2 way



3/2 way

During the solenoid activation (opening phase of the actuator) 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:

5 way (5/2) 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);
3 way (3/2) for Spring Return actuators: air is exhausted through Port 2 (see figure 2)

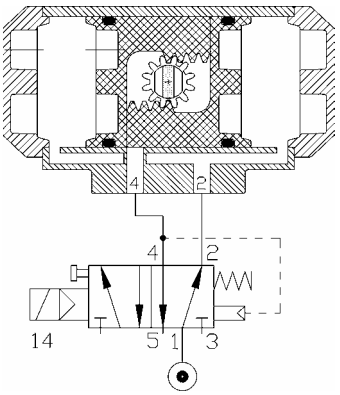


Figure 1

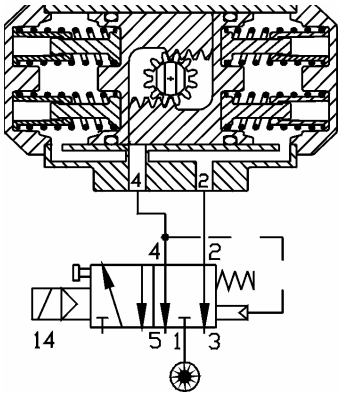
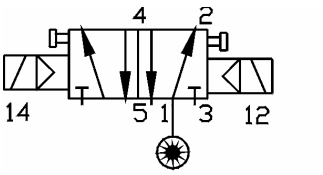


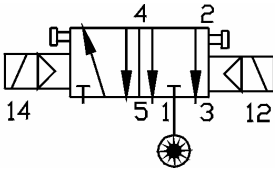
Figure 2

2 – 2 DUAL COIL SOLENOID VALVE (700ZDT-02 / 700NDT-02)

Pneumatic Diagram:



5/2 Way



3/2 Way

During the solenoid activation (opening phase of the actuator) 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:

5 way (5/2) 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);
3 way (3/2) for Spring Return actuators: air is exhausted through Port 2 (see figure 4)

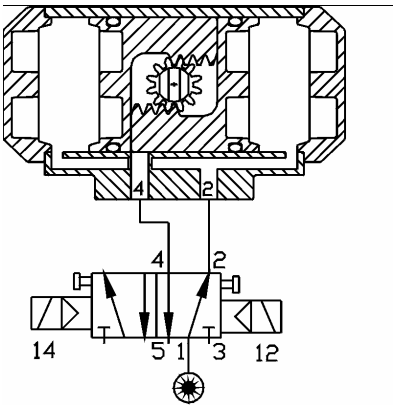


Figure 3

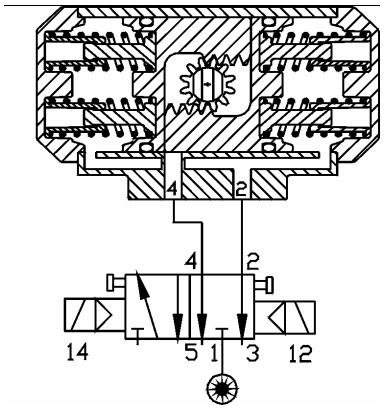


Figure 4

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.

CHAPTER 3: SOLENOID VALVE INSTALLATION

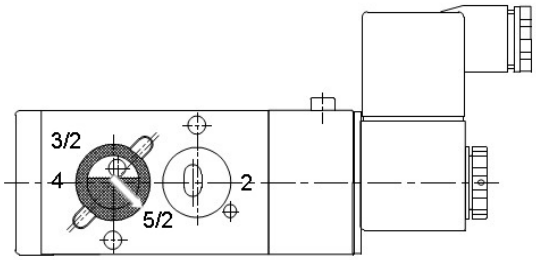
TUNING Fluid Solutions Solenoid Valves are designed according the NAMUR VDI/VDE 3845 standard; therefore they can be easily installed on all type of pneumatic actuators, both linear and rotary, with NAMUR connections. Our Solenoid Valves can be installed easily for use with 5/2 or 3/2 functions simply by switching the position of the supplied O-Ring/"position seal plate".

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

1. The O-Ring and "position seal plate" should be already positionned into the solenoid valve body when you open the packaging. If it's lossen, just place them back onto the body according the following positions:

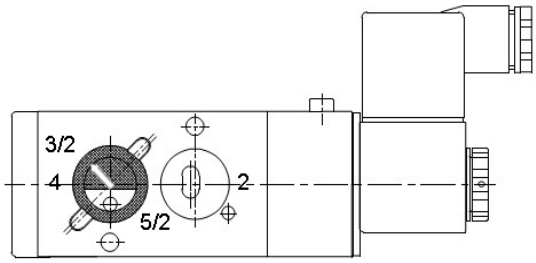
   A - 5/2 Way

   There are markings 3/2 and 5/2 on the SV body. When placing the "position seal plate", make sure the arrow points toward the 5/2 engraving.

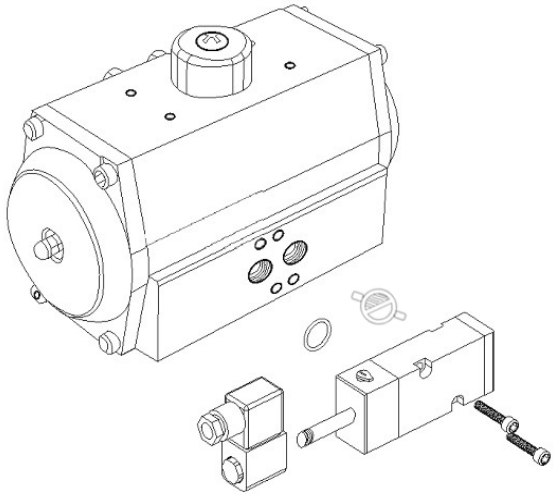


   B - 3/2 Way

   There are markings 3/2 and 5/2 on the SV body. When placing the "position seal plate", make sure the arrow points toward the 3/2 engraving.

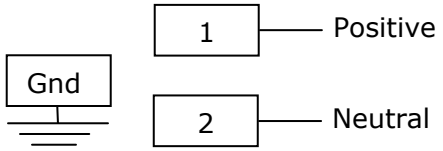


2. When all of the above as been executed, affix the Solenoid Valve to actuator and tighten the screws according to the drawing below. Pay attention to the ports and to the mounting positions. For better sealing use the two supplied SS bolts and tighten to seal.



CHAPTER 4: TECHNICAL DATA

4 – 1 WIRING DIAGRAM



The above wiring diagram is the same for all the voltages

4 – 2 SOLENOID CLASSIFICATION

Tuning Fluid Solutions Solenoid Valve is designed to IP65.

IP65: Watertight & Dust tight – indoor & outdoor. Protects against windblown dust rain, splashing water and hose directed water. Also corrosion resistant.

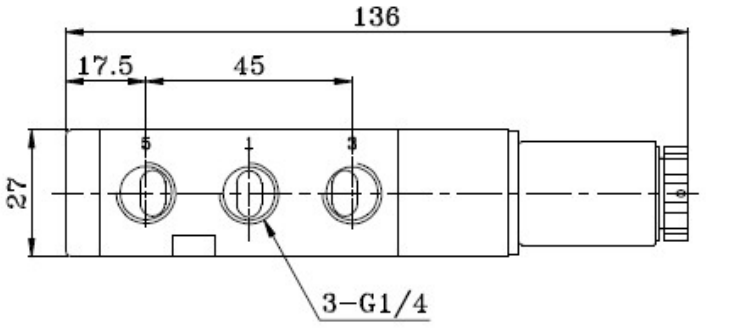
4 – 3 MATERIAL

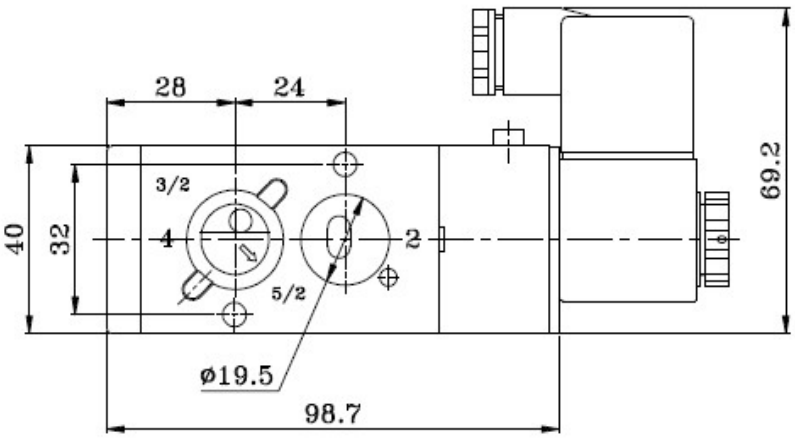
Body:	Aluminum Alloy	
Spool:	Aluminum Alloy	
Piston:	POM	
Spring:	Stainless steel	
Seals:	NBR & HNBR	
Screws:	Stainless steel	2 x CHC M5x30 mm for 700ZDT 2 x UNF 10-32 -1 1/8” for 700NDT
Other components:	Engineered Plastics	

4 – 4 SOLENOID SPECIFICATIONS

Inlet and exhaust	1/4” NPT (700NDT) or 1/4" BSP (700ZDT)
Outlet	NAMUR interface
DIN connector	M15 x x1,5
Pressure Range:	22 to 116 PSI / 1,5 - 8 bar
Flow factor:	5/2 way 1830 L/min - 3/2 way : 1090 L/min
Media Temperature:	14°F +140°F / -10°C + 60°C
Response Time /activation time:	< 0,05 sec.
Operating Voltages	12 V DC, 24 V DC 24 V AC, 48 V AC 110 V AC, 220 V AC
Voltage Tolerance:	± 10%
Power Consumption:	DC: 3 W AC: 5 VA inrush, holding 6 VA
Coil Insulation Class:	Class F standard
Max operating frequency:	4 cycles per second max.

4 – 5 DIMENSIONAL DRAWING (mm)





4 – 6 DIMENSIONAL DRAWING (in.)