

**Description**

The Triac® TVSS Solenoids are design to mount directly to the Triac® pneumatic actuators which eliminates tubing and fittings. The Triac® TVSS Solenoid has a 5-port design that makes it field convertible from a 3-way (for Spring Return actuators) to a 4-way (for Double Acting actuators) by simply relocating a port plug. When the 3-way function is utilized, the unused exhaust port becomes an actuator vent where a filter/muffler can be installed to prevent contaminants from entering either the valve or the actuator.

The 5-port design allows the user to independently control actuator speed in either open or close direction by utilizing speed or bleed controls. Single or double solenoid 2-position models are available. Single solenoid spring return models utilize an air assisted spring return feature, assuring a positive return. Double solenoid valves may be used in applications where a momentary signal is required or in a “fail in last shifted position” actuator application. Double solenoid models are equipped with a detent that maintains the valve in the last shifted position, even in high vibration applications. All Triac® TVSS Solenoids are leakfree and bubbletight.



**Material**

| Part Description                                  | Material                        |
|---|---------------------------------|
| Valve Body & Plunger                              | 316L Stainless Steel            |
| Actuating Caps – Solenoid                         | 316L Stainless Steel            |
| Actuating Caps – Spring Cap                       | 316L Stainless Steel            |
| Plunger, Body & Valve to Actuator Seals           | FKM (Fluorocarbon)              |
| Solenoid Internal Parts: Sleeve, Plunger & Spring | 304, 430F & 302 Stainless Steel |

**Porting Size**

Inlet & Exhaust = 1/4" NPT

**Flow Rates**

Cv = 1.6 (Kv = 23.5)

**Ambient Temp**

-5°F to 200°F (-20°C to 93°C)  
-55°F to 200°F (-48°C to 93°C)  
(Low Temp option -44°)

**Pressure -**

411 Model: 25 PSI Minimum / 150 PSI Maximum  
421 Model: 15 PSI Minimum / 150 PSI Maximum



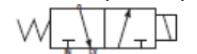
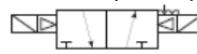
**Part Numbers & Coil Data**

| Operator Type                          | AC Voltage                     | Inrush amps | Holding amps | ohms | Nominal Power |
|--|--------------------------------|-------------|--------------|------|---------------|
| TVSS-xxxx-4N-A24                       | 24VAC / 60HZ                   | 0.63        | 0.50         | 26   | 8.5 Watt      |
| TVSS-xxxx-4N-E110<br>TVSS-xxxx-4N-A120 | 110VAC / 50HZ<br>120VAC / 60HZ | 0.13        | 0.10         | 647  | 8.5 Watt      |
| TVSS-xxxx-4N-E220<br>TVSS-xxxx-4N-A240 | 220VAC / 50HZ<br>240VAC / 60HZ | 0.06        | 0.05         | 2790 | 8.5 Watt      |
| TVSS-xxxx-7N-A24                       | 24VAC / 60HZ                   | 0.42        | 0.33         | 41   | 5.6 Watt      |
| TVSS-xxxx-7N-E110<br>TVSS-xxxx-7N-A120 | 110VAC / 50HZ<br>120VAC / 60HZ | 0.08        | 0.06         | 1138 | 5.6 Watt      |
| TVSS-xxxx-7N-E220<br>TVSS-xxxx-7N-A240 | 220VAC / 50HZ<br>240VAC / 60HZ | 0.04        | 0.03         | 4550 | 5.6 Watt      |

4N - Watertight, NEMA 4, CSA Approved

7N – Flameproof, NEMA 7 & 9, UL Listed & CSA Approved

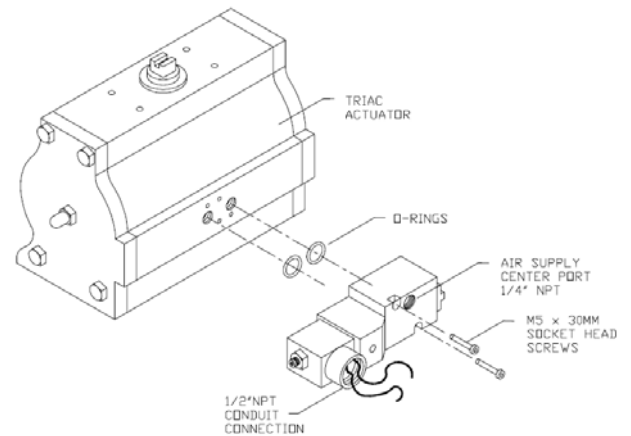
### Flow Pattern Schematics

| FUNCTION       | PORT SIZE | CV (Kv)    | SINGLE SOLENOID/ SPRING RETURN, 2 POSITION  | DOUBLE SOLENOID/ DETENT 2 POSITION  |
|----------------|-----------|------------|---|---|
| 4-way<br>5/2 & | 1/4 NPT   | 1.6 (23.5) | <b>TVSS-X411-(coil code)</b><br> | <b>TVSS-X421-(coil code)</b><br> |
| 3-way**        | 1/4 NPT   | 1.6 (23.5) | <b>TVSS-X411-(coil code)</b><br> | <b>TVSS-X421-(coil code)</b><br> |

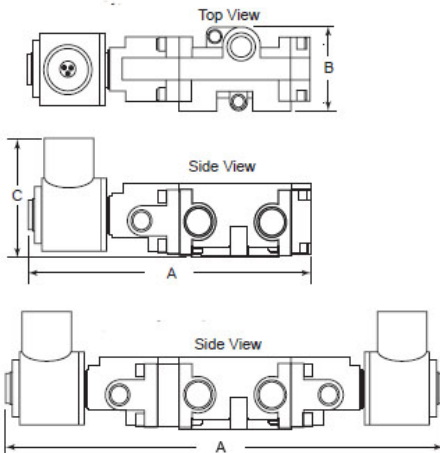
\*\*3-way is the same as 4-way, but provided with a relocated cylinder port plug.

### Installation Instructions

1. Place the o-rings provided into the o-ring bores on the face of the solenoid valve. Each o-ring should be completely seated in the bore.
2. Place the actuator with the two ports facing you, and the stem pointing up. Orient the TVSS Solenoid Valve with the (2) o-rings toward the actuator and the operator towards the left.
3. The solenoid valve is then mounted to the actuator with the two screws provided.
4. Connect the air supply to the center port and wire solenoid per local and national electrical codes. The assembly is now ready for operation.
5. Optional bronze vents or adjustable speed controls can be added to the exhaust ports.



### Dimensions



| Dimensions (in) | Weight   | - N4 |      |      | - N7 |      |      |
|-----------------|----------|------|------|------|------|------|------|
|                 |          | A    | B    | C    | A    | B    | C    |
| Model           | Lbs.     |      |      |      |      |      |      |
| TVSS-X411       | 1.7 lbs  | 5.56 | 1.63 | 2.15 | 5.56 | 1.63 | 2.32 |
| TVSS-X421       | 2.3 lbs. | 5.56 | 1.63 | 2.15 | 8.78 | 1.63 | 2.32 |

A-T Controls product, when properly selected, is designed to perform its intended function safely during its useful life. However, the purchaser or user of A-T Controls products should be aware that A-T Controls products might be used in numerous applications under a wide variety of industrial service conditions. Although A-T Controls can provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser / user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of A-T Controls products. The user should read and understand the installation operation maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of A-T Controls products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only. Because A-T Controls is continually improving and upgrading its product design, the specifications, dimensions and information contained in this literature are subject to change without notice. Should any question arise concerning these specifications, the purchaser/user should contact A-T Controls.

For product specifications go to <http://download.a-tcontrols.com/>

A-T Controls, Inc. • 9955 International Boulevard, Cincinnati, OH 45246 • Phone: (513) 530-5175 • Fax: (513) 247-5462 • [www.a-tcontrols.com](http://www.a-tcontrols.com)