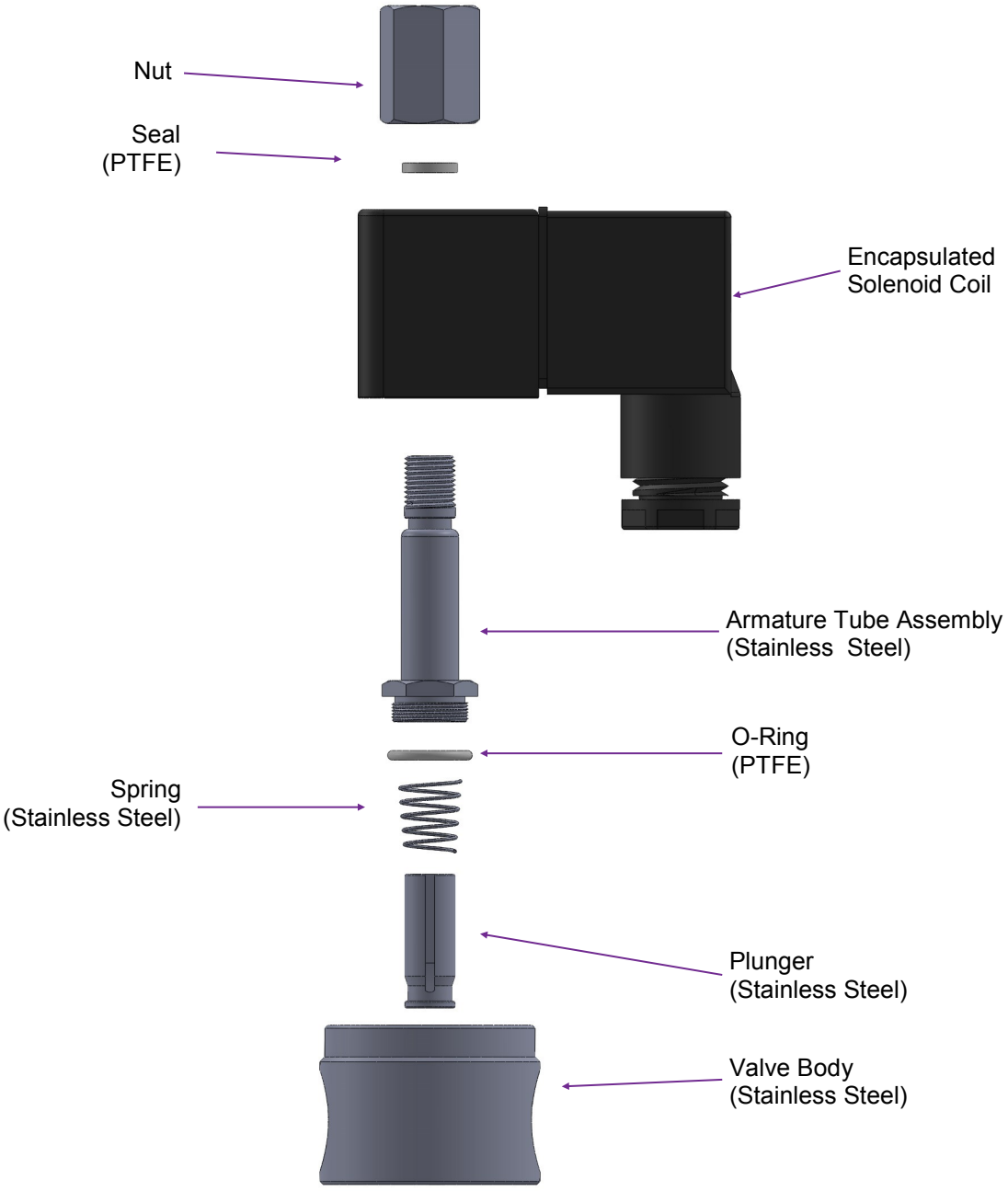
STC 3S010-035 Series 3-Way Stainless Steel Direct Acting Solenoid Diverter Valve

3S010-035 Series Specifications

Valve Model	3S010	3S020	3S035
Valve Type	3 Way Universal, Normally Closed (NC) or Normally Open (NO)		
Action	Direct Acting		
Orifice (Cv)	1.0mm	2.0mm	3.5mm (0.5)
Operating Pressure	0 to 150psi	0 to 100psi	0 to 50 psi
Operating Temperature	NBR Seal: -20 to 80°C Option 1: Viton (FKM): -10 to 120°C Option 2: EPDM: -40 to 100°C		
Port Size (NPT)	1/8”	1/4”	1/4”
Wetted Surfaces	Valve Body: 316 Stainless Steel Seals: NBR (Buna) & Teflon (PTFE); Option: Viton (FKM), EPDM Armature Assembly: Stainless Steel		
Coil Duty	H Class, IP65, 100% ED		
Voltage	Options: 12, 24 VDC; 24,110/120 (50/60Hz), 220/240 VAC (50/60Hz)		
Voltage Tolerance	±10% of Specified voltage		
Coil Power	14 to 20W		
Electrical Connections	DIN or Grommet		
Installation	No Orientation Requirement (Optimum Position: Flow Horizontal & Solenoid Vertical)		
Service	Air, Inert Gas, Liquid, Vacuum, Steam (with Viton Seal)		

3S010-035 Series Solenoid Valve Components

(shown with DIN Coil)



Installation & Operation

To Connect the Valve Inlet & Outlet:

- Connect the inlet & outlet to the valve ports according to the flow direction arrow marked on the valve

To Install the Coil:

- Put the coils on to the armature tube of the valve. Place the lock washer & nut on to the armature tube. Hand tighten the nut, then use a wrench to tighten the nut another quarter-turn. Do not over-tighten the nut, as it may cause the armature tube to fail prematurely.

To Connect a DIN Coil:

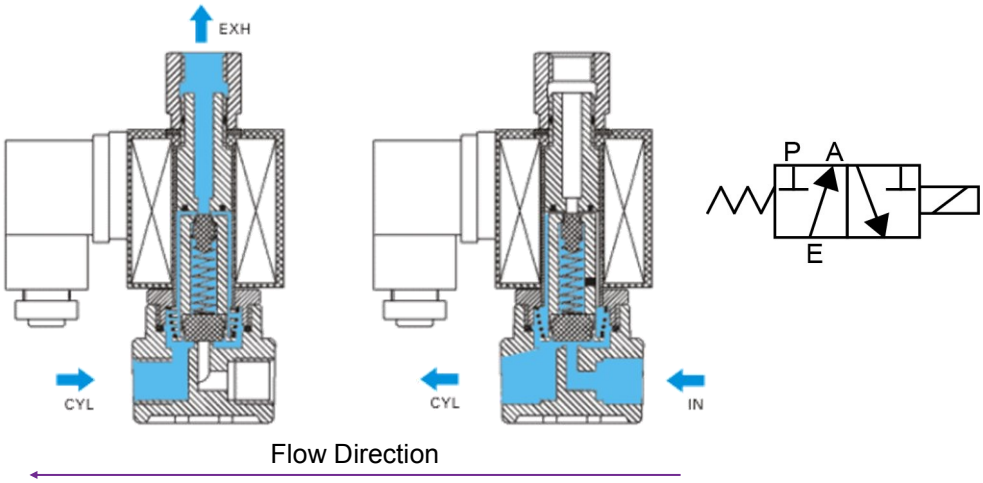
1. Remove the Philips-head screw from the plastic DIN housing & unplug it from the DIN coil
2. From the screw opening, push the terminal block out from the plastic DIN housing.
3. Note the "1", "2", and ground "⏚" symbols on the underside of the DIN enclosure.
4. For DC DIN Coils, connect "1" to your Positive Lead & "2" to your Negative lead.
5. For AC DIN Coils, connect "1" to your HOT lead, "2" to your Neutral lead, & "⏚" to your ground if required.

Do not energize the coil without installing it onto the valve or connect the coil to a different voltage than specified. This will burn the coil and could create fire hazards.

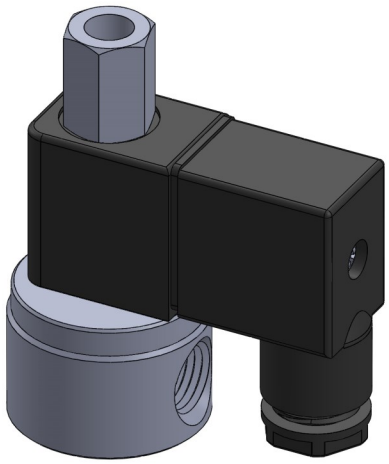
Safety Note: Standard valves are supplied with continuous duty coils. The proper class of insulation for the service is indicated on the coil body. The coil temperature may rise significantly if energized for extended periods—this is normal. Although the coil is made of flame-retardant material, misuse of the coil could create fire hazards & generate smoke and/or a burning odor. If these conditions are encountered, the coil temperature has risen above safe levels and the power should be disconnected immediately.

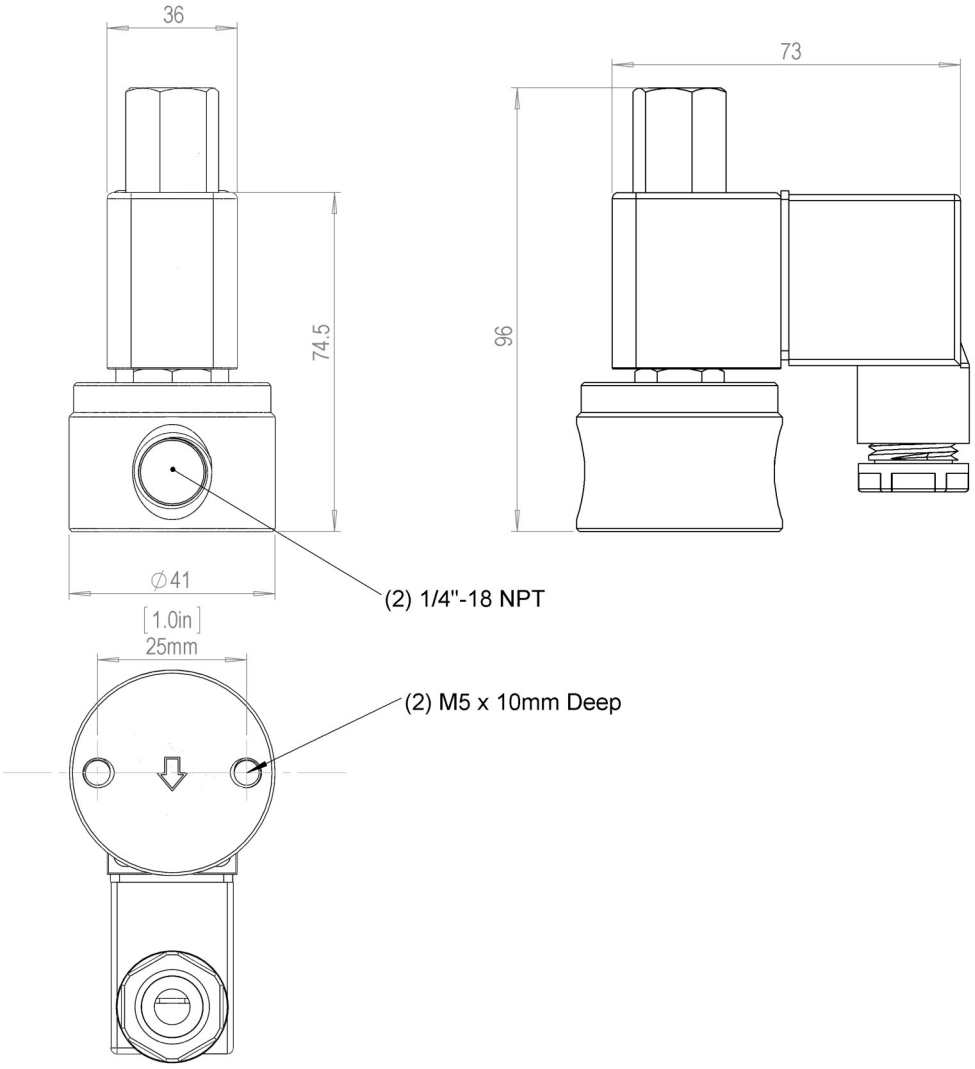
Operation: This valve is a three-way, direct-acting valve & does not require a minimum differential pressure to operate. It can be configured as either normally open or normally closed. As shown in the diagrams below, when the coil is de-energized (left diagram), the plunger rests on the main orifice & is held in place by the plunger spring force, sealing the valve at the P port. During this time, the exhaust port is connected to the A port. When the coil is energized (right diagram), the solenoid lifts the plunger & allows the working medium to flow from the P to A port, with the exhaust port sealed. The working medium & flow direction are indicated in purple in the diagrams.

De-Energized (Closed) **Energized (Open)**



3S035 Solenoid Valve Dimensions





Scale: NTS

3-Way Direct Acting Valves

Maintenance & Troubleshooting Guide

Warning: DO NOT over tighten the nut holding the coil to the armature tube. Over tightening may result in damage to the welded joint.

Attaching a Coil to a Valve:

- After wiring the coil, fit the coil assembly over the armature tube. Ensure that the threads of the tube are accessible.
- Fit the spring or lock washer over the assembly.
    - For spring washers, the concave side should be oriented toward the coil.
- Tighten the nut over the washer by hand.
    - For standard washers, tighten the nut an additional ¼ turn with a wrench if necessary.
    - For spring washers, continue to tighten the nut until the spring washer is almost completely compressed.

Installation Procedure:

- For Normally Open configuration, connect the default inlet to the port marked “A”.
- For Normally Closed configuration, connect the default inlet to the port marked “P”.
- The port located above the coil is the Exhaust port.
- Ensure that the nut is tightly connected above the coil, ensuring that the exhaust port is sealed.

Notes:

- After an extended period of operation, the solenoid coil may burn out. This commonly occurs when input voltages are higher than the coil’s specifications. If the valve does not make a clicking sound when energized/de-energized, the coil likely needs to be replaced.
- If you are using the valve at a low temperature, it may exhibit a small leak when first activated. To fix this, cycle the valve at the highest available operating pressure until there is no longer a leak. This process will create a proper mating surface between the seal and the orifice.

Maintenance Procedure:

1. Turn off the power supply to the valve & ensure it is safely locked-out.
2. Remove any coils attached to the valve.
3. Unscrew the holding plate (if applicable) and the armature tube assembly and remove it from the valve body. The plunger & spring are not fastened to the tube and will fall out.
4. Check for any debris that may have collected on the plunger & the hole in the center of the valve. Clean any dirty surfaces or debris with clean water.
5. Place the spring back in the plunger & insert the plunger back into the armature tube.
6. Screw the armature tube & holding plate back into the valve.
7. Please refer to the diagram on Page 2 of this document for a breakdown of individual components.

For tips, maintenance guides, & procedural videos, visit us at www.youtube.com/users/STCValves

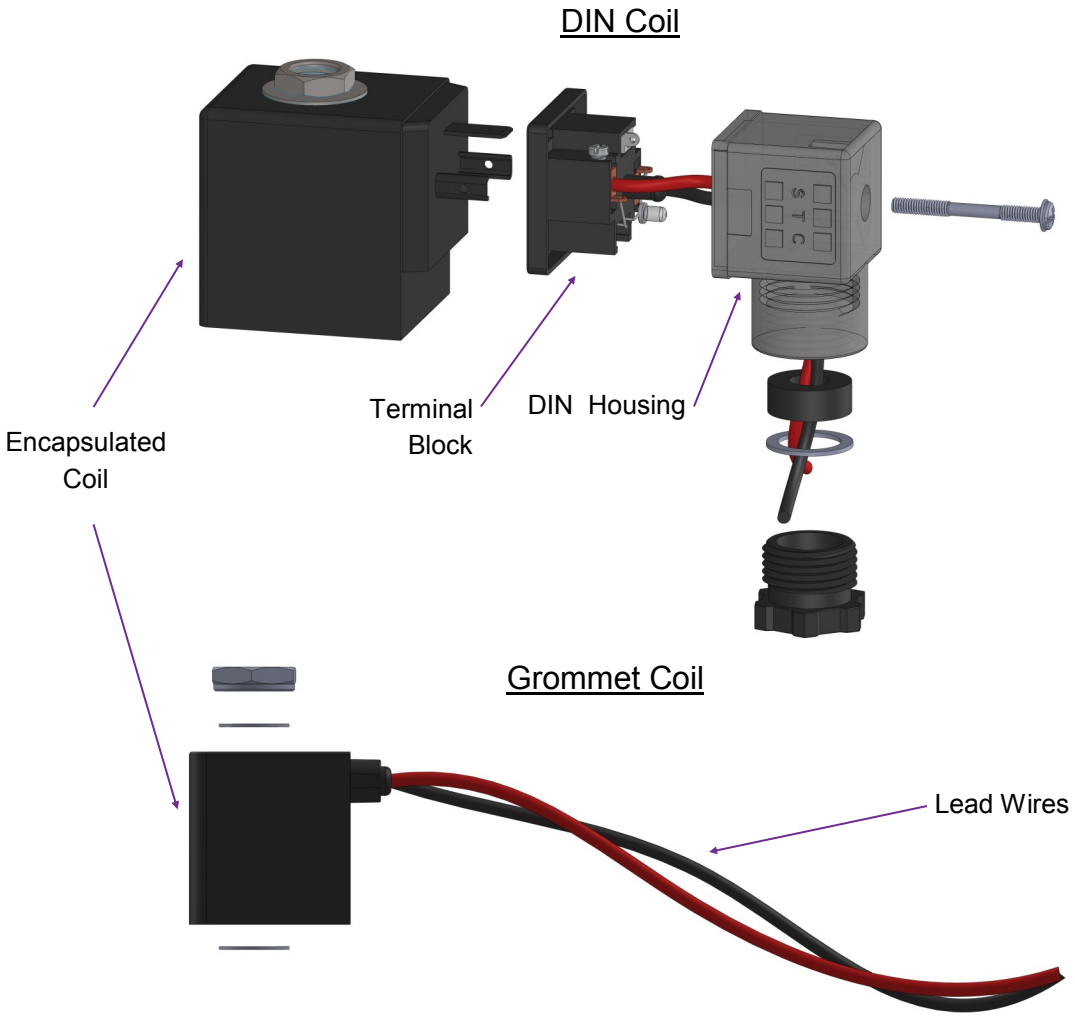
Electrical Connections

To Connect a DIN Coil:

- Remove the Philips screw from the plastic housing & unplug from the DIN coil.
- Use the removed screw to push the terminal block out of the plastic DIN housing.
- Note the “1”, “2”, and ground “⏚” symbols.
    - For DC DIN Coils, connect “1” to your positive lead & “2” to your negative lead.
    - For AC DIN Coils, connect “1” to your HOT lead, “2” to your NEUTRAL lead, and “⏚” to your ground lead, if required.

To Connect a Grommet Coil:

- For DC Coils, connect the red wire to your positive lead & the black wire to your negative lead.
- For AC Coils, connect the black wire to your HOT lead & the white wire to your NEUTRAL lead.
- For Coils provided with Molded Cables, the color of the wire indicates the type of lead:
    - GREEN = Ground Wire
    - BLUE = Positive or HOT Wire
    - BROWN = Negative or Neutral Wire



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