

Zero-Leak Directional Solenoid Valves

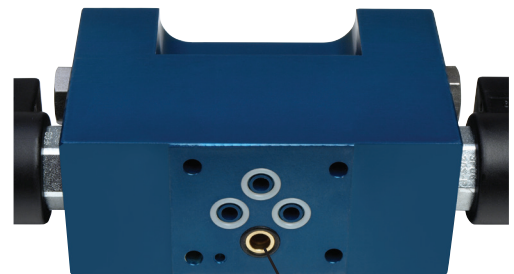
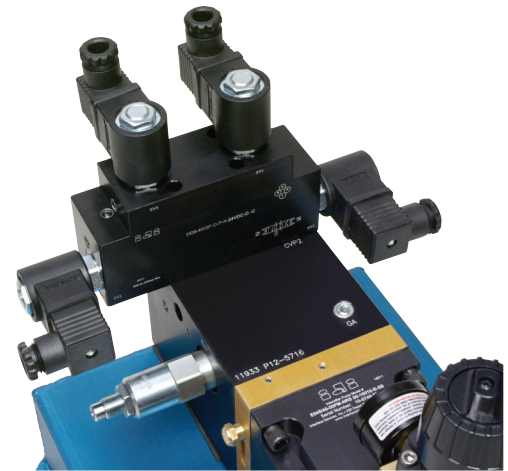
Interface Devices' D03 Series valves are cost-effective solutions for reliable actuation of single- or double-acting cylinders. These poppet-style zero-leak 3- and 4-way directional control valves are solenoid actuated and can be used with most hydraulic pumps to maintain pressure while preventing the hydraulic supply from consuming energy or generating heat. Mounts to international standard valve subplate (D03, NG6, ISO 03).

Specifications:

- Manifold mounting with a size 03 interface to ISO 4401-03-02
- 5,000 psi (340 bar) maximum operating pressure
- 3.0 GPM (11.4 lpm) nominal flow
- 1.93-inch (49 mm) width allows for mounting multiple valves on standard 2.0-inch (50.8 mm) centers

Premium Construction Materials:

- Body – 7075-T651 extruded aluminum bar
- Poppets and seats – hardened and ground steel
- O-ring seals and backup rings – polyurethane and PTFE



P Port Check Valve

Standard Options:

- Pressure port check valve
- EPR, Viton or other seal materials
- Solenoids, connectors and bolt kits

Applications

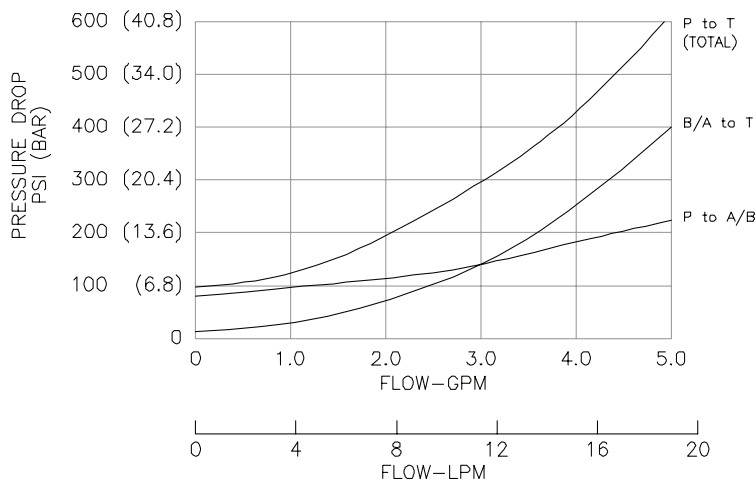
- Up to 5000 psi (340 bar) applications where pressure and flow are intermittent
- Maintain loads for very long periods of time without replenishing pressure supply



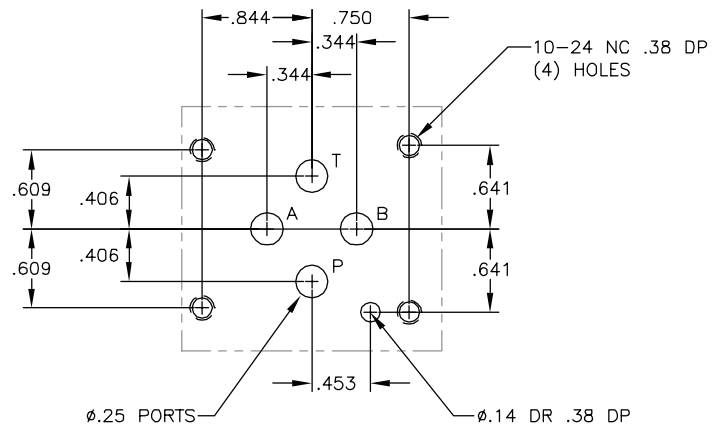
D03 Poppet-Type Directional Solenoid Valves Technical Data

Hydraulic Characteristic	Description
Designation	4-way 2-position, 4-way 3-position, 3-way 2-position, Double 3-way 2-position
Mounting	NFPA D03/NG6/ISO 3 standard subplate. Four 10-24 mounting holes (bolt lengths vary)
Weight	D03-4WPSV: 3.4 lb (1.5 kg) D03-3W2P: 3.6 lb (1.6 kg) D03-4W3P, D03-23W2P: 4.9 lb (2.3 kg)
Temperature range	-65° to 225°F (-54° to 104°C) with standard polyurethane seals
Maximum pressure	5000 psi (340 bar)
Nominal flow rate	3 GPM (11.4 lpm)
Fluid compatibility	Most standard industrial grade hydraulic fluids. For other fluids, consult factory.
Fluid filtration/cleanliness	Minimum ISO 20/18/15
Leakage	3 drops/minute (0.15 cc/minute) max. at 5000 psi (340 bar)
Electrical Characteristic	Description
Available solenoid voltages	12, 24 VDC. 120, 240 VAC
Classification	NEMA 4, IP 65
Coil current draw per coil (max.)	Standard Coil: 1.2 amps at 12 VDC; 0.13 amps at 115 VAC (full wave rectified). E-Coil (IP69K): 1.4 amps at 12 VDC; .7 amps at 24 VDC
Electrical connection	DIN 43650
Coil rating	Continuous from 85% to 115% of nominal voltage

Flow vs Pressure Drop
(With P Port Check Valve)
Shell Tellus 32 @ 70°F



D03-PAD
Standard Dimensions (Inches)



Solenoid Valve Schematic Details

P = Hydraulic Pressure Line

T = Tank

A = Hydraulic Line A

B = Hydraulic Line B

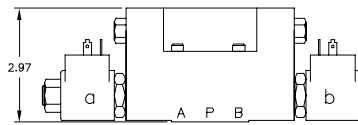
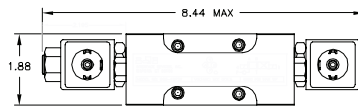
D03-4WPSV – 2-Position, 4-Way Solenoid Actuated Directional Control Valve

Apply current to **coil a** results in **P** to **A** while **B** is open to **T**.

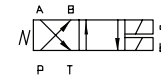
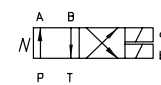
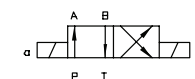
Apply current to **coil b** results in **P** to **B** while **A** is open to **T**.

Removing current from both **coil a** and **b** blocks **P**.

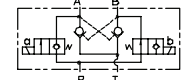
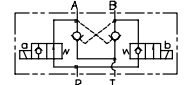
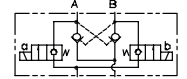
For a spring offset function, when no current is applied, **P** is open to **A** or **B** depending on “spool” designation (**A** or **B**) and **B** or **A** is open to **T**. This is the default or “failsafe” position. When current is applied to **coils a** and **b**, **P** is open to **B** or **A** and **A** or **B** is open to **T**.



NFPA EQUIVALENT



ACTUAL FUNCTION



D03-4W3P – 3-Position, 4-Way Solenoid Actuated Directional Control Valve

Apply current to **coils 2** and **4** results in **P** to **A** while **B** is open to **T**.

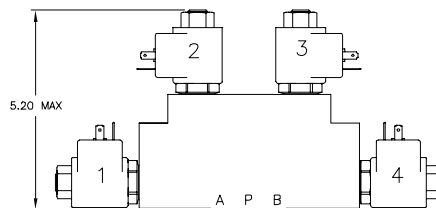
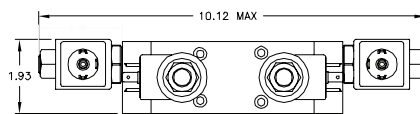
Apply current to **coils 1** and **3** results in **P** to **B** while **A** is open to **T**.

Removing current from all coils defaults to the center position:

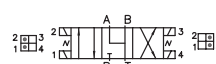
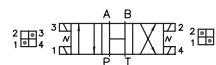
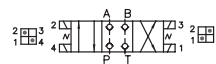
“C”=All ports closed

“H”=All ports common

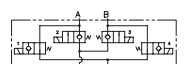
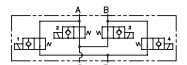
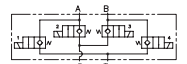
“O”=P port blocked, A and B ports open to T



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ACTUAL FUNCTION



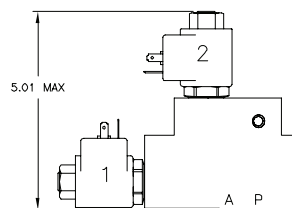
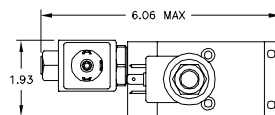
D03-3W2P – 2-Position, 3-Way Solenoid Actuated Directional Control Valve

For a normally open valve, applying current to **coils 1** and **2** results in **P** being blocked. When current is removed from **coils 1** and **2**, **P** is open to **A** and **T** is blocked.

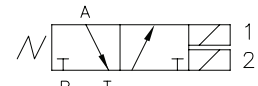
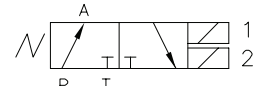
For a normally closed valve, apply current to **coils 1** and **2** to bring **P** to **A**.

“Y”=Normally open

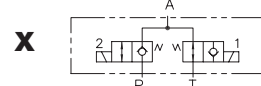
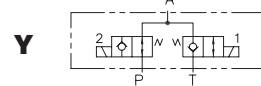
“X”=Normally closed



NFPA EQUIVALENT



ACTUAL FUNCTION



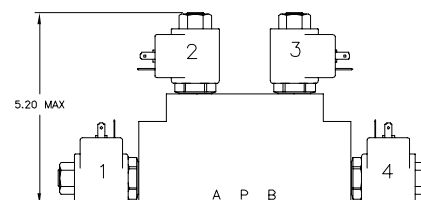
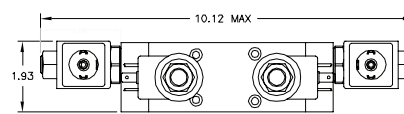
D03-23W2P – Two 2-Position, 3-Way Solenoid Actuated Directional Control Valves

Functions as two D03-3W2P valves using **A** and **B** from the valve pad as independently actuated hydraulic lines. A **P** port check valve isolates each side of the 3-way valves so no pressure decay occurs when either valve is actuated. This valve can be configured as two separate 3-way valves:

“YY” – Both valves normally open

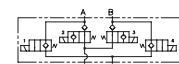
“XX” – Both valves normally closed

“XY” – One valve normally open, one normally closed

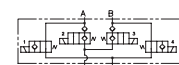


ACTUAL FUNCTION

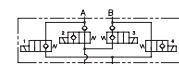
YY



XX



XY



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