Frequently Asked Questions

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What is the function of a directional control valve?

A directional control valve is the extend and retract control for your hydraulic cylinders. It provides a flow path from the pump to the cylinders and a return path from the cylinders to the fluid reservoir.

What is the flow pattern for a double acting system?

A four port valve is normally required for double acting systems. Let's look at the two control positions first. In the advance position pressure flows from the pump through the valve from "P" to "A", "B" flows back to "T". In the retract position "P" is flowing to "B", "A" is returned to "T". You need to be aware that when shifting between positions, there is a transitional state. During this transition, there is some "cross-talk" between ports allowing pressure to drop in the pressurized circuit and return to tank. The importance of this information is that you cannot pressurize a system and shift back to the closed center position to hold it clamped. Using the center position to hold is inappropriate because it removes the pump from the circuit and defeats the purpose of a live hydraulic system.

NOTE: Maximum system flow rate 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves.

Excess flow voids warranty



What is the purpose of the center position?

The center position on 3-Position, 4-Port solenoid valves is the resting position with both solenoids de-energized. On manual valves the center position is transitional and is often unused.

Closed center solenoid valves are used to assure that no movement takes place upon power failure (though a small amount of pressure will be lost in transition). The closed center manual valve makes no change in circuit direction in the center position.

"P" blocked center in either a manual or solenoid valve is commonly used for decoupling of palletized double acting systems. This allows the pressure to be dropped from both the "A" and "B" hoses for disconnect and reconnect under no pressure. In the center position of this valve "P" is blocked, "A", "B" and "T" are connected.

What is the flow pattern for a single acting system?

Single acting systems typically have only two valve positions. In the advance position "P" is connected to "A." In the retract position, "A" is connected to "T" and "P" is blocked, allowing the cylinder springs to push the fluid back to tank.

What do I need to watch for when I'm plumbing a system?

You should watch for proper flow paths among other things. Remember that hydraulic fluid, like water, will take the path of least resistance. Plan your fluid distribution manifolds and fittings to provide for the smoothest possible flow to and from your cylinders. The best schematically designed control system can be ruined by poor plumbing implementation.

I can get a spool valve locally for a lot less money than your valve. Will it work?

You are responsible for the appropriate use of all devices. The use of spool valves invalidates the warranty on any VektorFlo® pump. If you are using a suitable industrial pump and valve, they may work. The use of spool valves, especially when attempting to use a "center" (or de-energized) function can cause unusual flows and pressures, resulting in unpredictable actions of clamps. The use of a pump with excess flow invalidates the warranty on any VektorFlo® item. If you choose to use non-Vektek pumps and valves, you assume the responsibility for selecting appropriate sizes.

The use of spool valves invalidates the warranty on any VektorFlo® Pump.

All VektorFlo® directional control valves are rated at 5,000 psi working pressure. They typically incorporate international standard mounting and fluid flow patterns (NFPA D03/ISO 44011). This allows one valve sub-plate to serve as the mounting platform for any of these valves. Plumbing lines are connected to ports on the sides of the sub-plate while four hold-down screws secure the top valve.

Removal and replacement is easily accomplished without disturbing system plumbing; greatly reducing chances of system contamination. Valve changeovers can be accomplished in minutes, not hours: a tremendous advantage as production downtime costs mount up.

Standardized mounting patterns also mean that valve operation can easily be upgraded from manual to electric, again without having to change system plumbing. Our electric solenoid valves are direct bolt-on replacements for our manually operated versions.

VektorFlo® D03 style valves may be positioned in either of two ways:

1. Mounted away from the power source on one of our remote valve subplates(perhaps mounted directly on your fixture or machine tool).
2. Mounted directly on our large capacity power supply using a direct mount sub-plate. This further simplifies plumbing and eliminates the need for each individual fixture to have its own valves.

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2-Position, 3-Port Manually / Solenoid Operated

Control Valves: 2-Position, 3-Port, D03 Mount

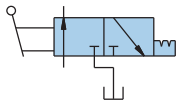
- For use with single acting systems.
- Heat treated rotor and poppets provide positive fluid control.
- Detented internal rotor.
- All valves ship with short and long handles.
- Handle orientation can be adjusted in 45° increments.
- Standard length mounting bolts provided (#10-24).

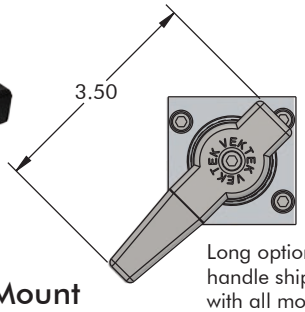
NOTE: Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves.

Excess flow voids warranty.

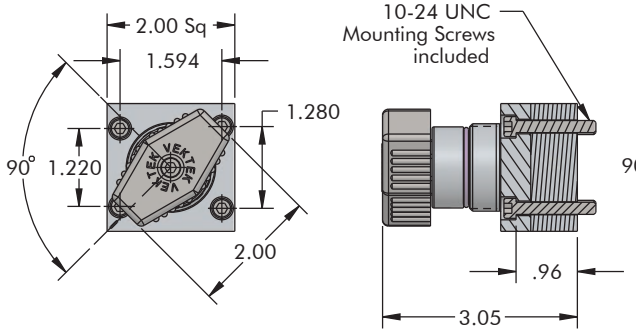
Model No.	Valve Configuration
71-1422-04	D03 Mount
71-1422-05	Panel Mount



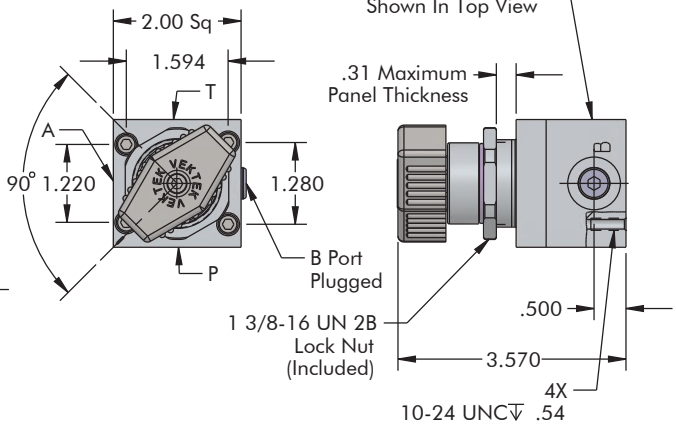




D03 Mount

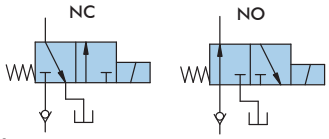


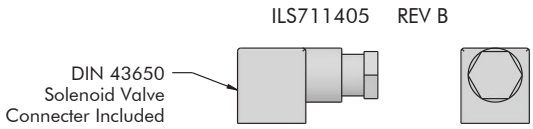
Panel Mount

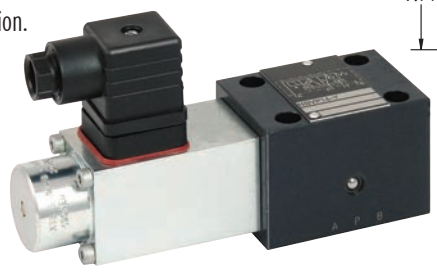


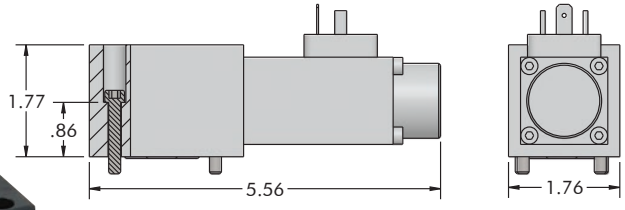
Solenoid Valves: 2-Position, 3-Port, D03 Mount

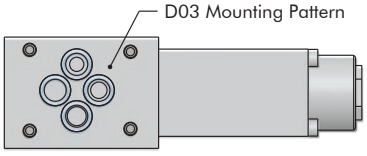
- Provide improved control of clamping circuits with true poppet design.
- Multiple coil voltages available.
- Internal design promotes improved service life.
- Narrow width allows mounting of multiple valves on standard D03 manifolds.
- All valves have built-in P-Block check for fail safe multi-valve operation.
- Coils can be easily replaced.











ILS711103 REV H

2-Position, 3-Port Solenoid

Model No.	Valve Function	Replacement Valve Connector Part No.	Solenoid Voltage	Power Consumption (Watts)	Duty Rating
71-1122-54	Normally Open	85-5342-91	24 VDC	27.6	100%
71-1122-13*	Normally Open	87-1123-00	115 VAC	28.6	
71-1150-03	Normally Closed	85-5342-91	24 VDC	27.6	
71-1150-05*	Normally Closed	87-1123-00	115 VAC	28.6	

* Supplied with rectified connectors that must be used to ensure proper valve function and warranty. Use of any other connector will void the valve warranty.

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Directional Control Valves

3-Position, 4-Port Manually Operated

Control Valves: 3-Position, 4-Port

- These valves can be used to control a double acting workholding system. (May also be used to control single acting systems)
- Heat treated rotor and poppets to provide positive fluid control.
- Rotary handle motion uses a rotary bearing.
- Detented internal rotor.
- All valves ship with short and long handles.
- Handle orientation can be adjusted in 45° increments.
- Standard length mounting bolts provided. (#10-24)

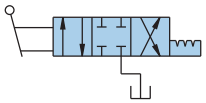
Model No.	Valve Configuration	Fluid Flow Maximum	Tank Port Pressure
DO3 Mount			
71-1472-02 71-1474-02	Closed Center P-Blocked Center	1.5 gpm	250 psi max
Panel Mount			
71-3472-01 71-3474-01	Closed Center P-Blocked Center	1.5 gpm	250 psi max

Handle shown in A-side position.

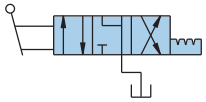


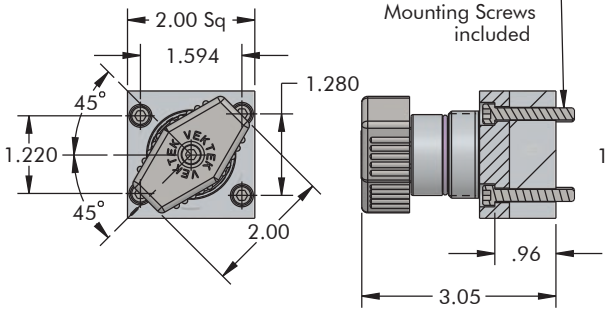
D03 Mount

71-1472-02 Closed Center



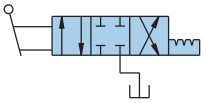
71-1474-02 P-Blocked Center



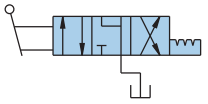


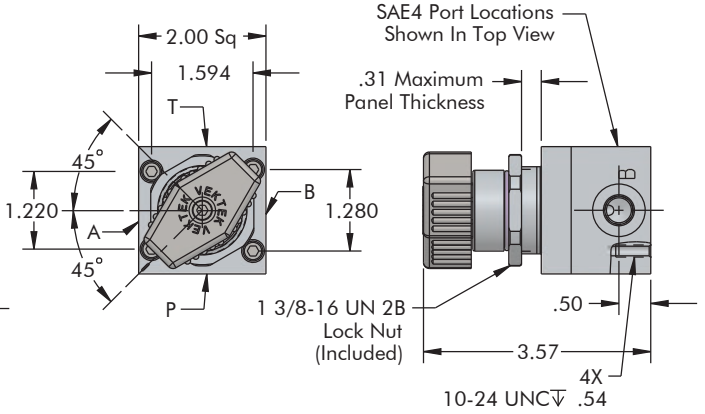
Panel Mount

71-3472-01 Closed Center



71-3474-01 P-Blocked Center





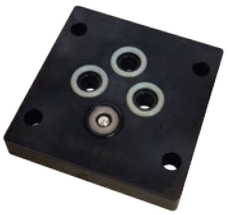
Handle shown in A-side position.

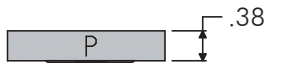
ILS711404 REV B

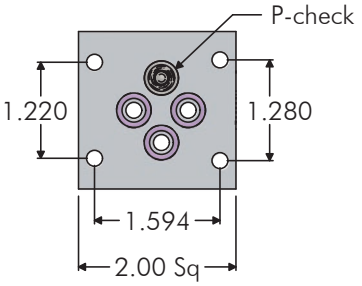
D03 Mounted Pressure Check Valve Sandwich Plate

- P-Check Valve prevents pressure drop in the pressure line of the valve.
- Valve plate is installed between the valve and the supply manifold.
- Only available for D03 configurations.

Model No.	Contents
70-3425-51	Contains P-Check Valve Plate and new mounting bolts.







ILS711406 REV A

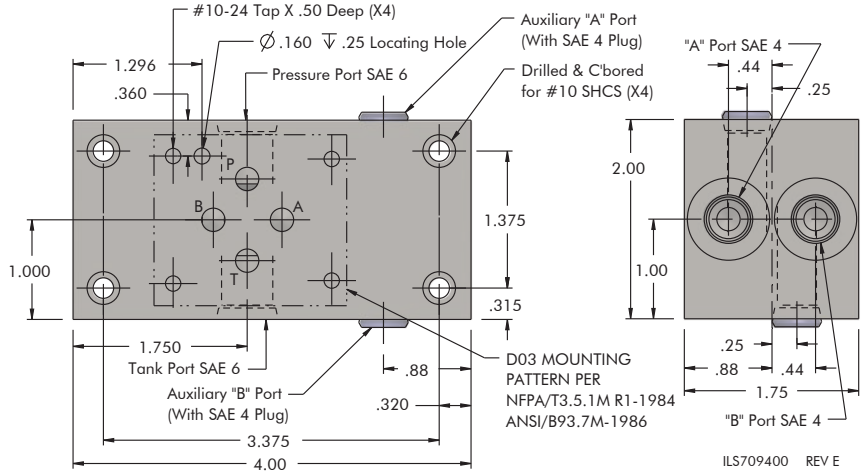
N-3

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NFPA D03

- Contains all plumbing connections for "P", "T", "A" and "B" connections.
- Simplifies "at the fixture" valve mounting for 1, 2 or 4 valve plumbing.
- Makes valve changes simple, just remove four cap screws to change valves.
- All VektorFlo® valves fit the D03 pattern except panel mount model.

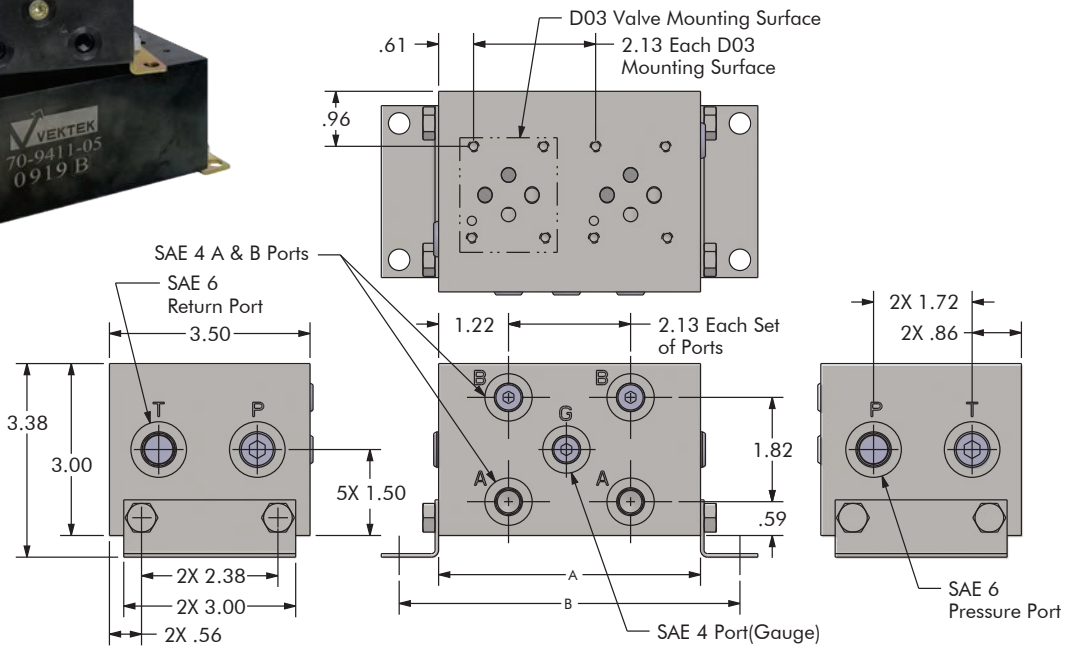




Subplate Model No.
70-9411-00

For use with the following valves:
2-Position 3-Port Valve Manual, Model No. 71-1422-02
2-Position 3-Port Valves Solenoid Model Nos. 71-1122-54, 71-1122-13, 71-1150-03, 71-1150-05
3-Position 4-Port Valves Manual Model Nos. 71-1472-00, 71-1474-00
3-Position 4-Port Valves Solenoid Model Nos. 71-1235-21, 71-1235-22, 71-1235-40, 71-1235-41





Model No.	Description	A	B
70-9411-03	Two Valve Manifold	4.57	5.95
70-9411-05	Four Valve Manifold	8.83	10.21

These subplates are used with the following valves:
2-Position 3-Port Manual Valve Model No.: 71-1422-04
2-Position 3-Port Solenoid Valves Model No.: 71-1122-54, 71-1122-13, 71-1150-03, 71-1150-05
3-Position 4-Port Manual Valves Model No.: 71-1472-02, 71-1474-02
3-Position 4-Port Solenoid Valves Model No.: 71-1235-21, 71-1235-22, 71-1235-40, 71-1235-41

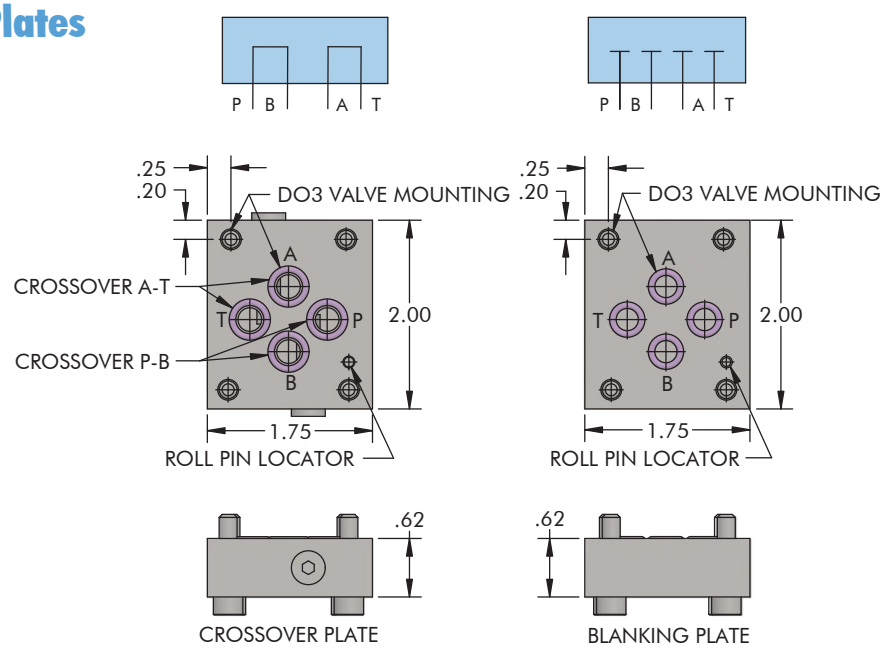
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Valve Subplates

Crossover and Blanking Plates





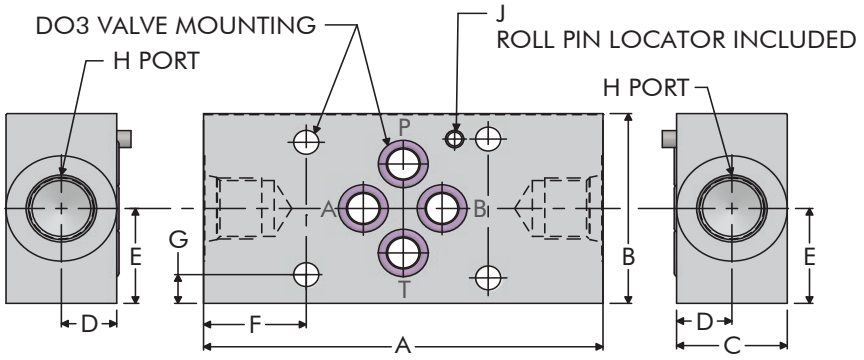


ILS709402 REV B

Plate Model No.
93-1989-00 Crossover Plate
93-1989-01 Blanking Plate

A-B Tapping Plates





ILS709403 REV C

Model No.	A	B	C	D	E	F	G	H	J
70-9425-00	3.50	1.70	1.70	.85	.85	.90	.24	SAE 4	NO
70-9425-11		1.75	.97	.49	.88		.27	SAE 6	YES

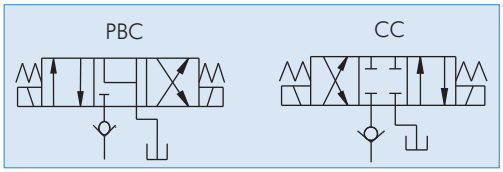
* Supplied with rectified connectors that must be used to ensure proper valve function and warranty. Use of any other connector will void the valve warranty.

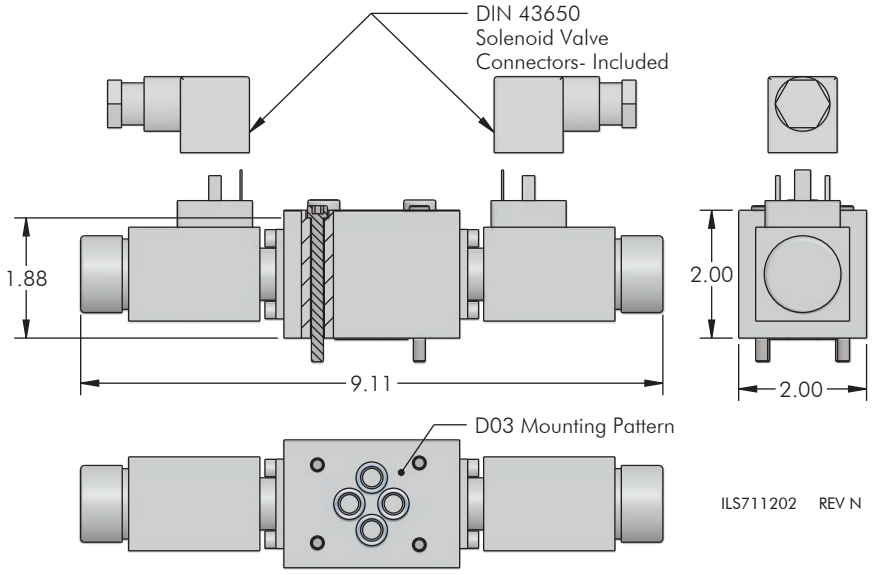
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Control Valves
3-Position, 4-Port

- Provide improved control of clamping circuits with true poppet design.
- Multiple coil voltages available.
- Internal design promotes improved service life.
- Narrow width allows mounting of multiple valves on standard D03 manifolds.
- All valves have built-in P-Block check for fail safe multi-valve operation.
- Coils can be easily replaced.







Control Valves: 3-Position, 4-Port Solenoid

Model No.	Valve Function	Replacement Valve Connector Part No.	Solenoid Voltage	Power Usage (Watts)	Duty Rating
7I-1235-21	Closed Center	85-5342-91	24 VDC	27.6	100%
7I-1235-22*	Closed Center	87-1123-00	115 VAC	28.6	
7I-1235-40	P-Blocked Center	85-5342-91	24 VDC	27.6	
7I-1235-41*	P-Blocked Center	87-1123-00	115 VAC	28.6	

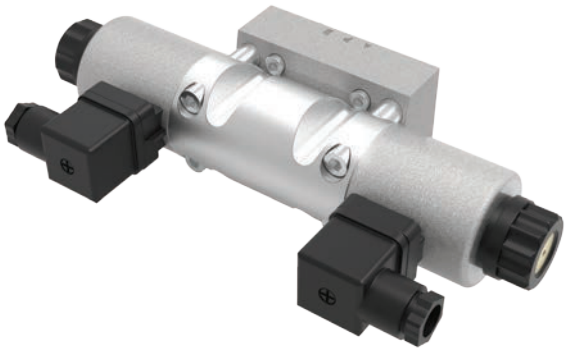
* Supplied with rectified connectors that must be used to ensure proper valve function and warranty. Use of any other connector will void the valve warranty.

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Solenoid Control Valves 4-Port, 3-Position

NEW

Solenoid Control Valves 4-Port, 3-Position

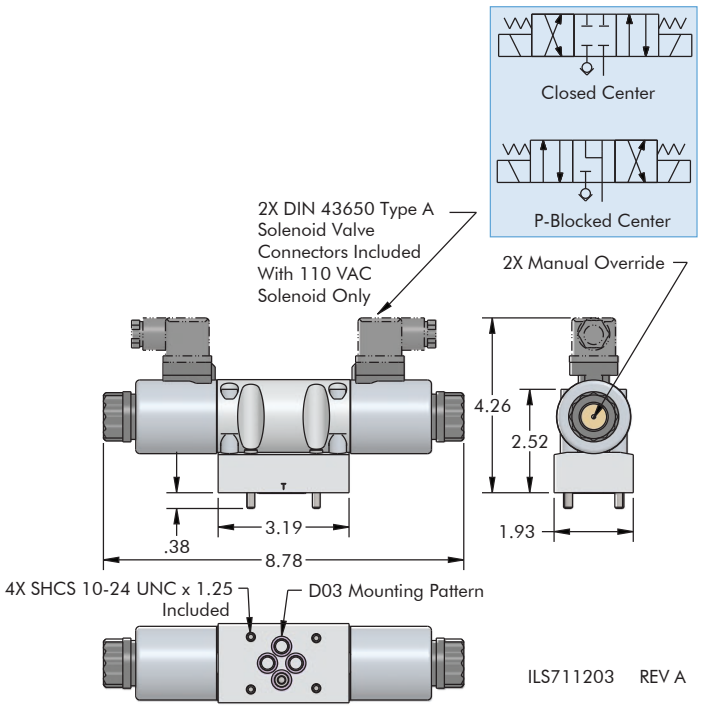


- Provide improved control of clamping circuits with true poppet design.
- Multiple coil voltages available.
- Internal design promotes improved service life.
- Narrow width allows mounting of multiple valves on standard D03 manifolds.
- All valves have built-in P-Check for fail safe multi-valve operation.
- Seals and Coils can be easily replaced.
- Max Flow Rate is 6.6 gpm.
- Max Pressure is 5800 psi.

Solenoid Control Valves: 4-Port, 3-Position

Model No.	Valve Function	Valve Connector Part No.	Solenoid Voltage	Power Usage (Watts)	Duty Rating
71-1235-26	Closed Center	85-5342-91	24 VDC	30	100%
71-1235-28*	Closed Center	87-1123-00	110 VAC	30	
71-1235-46	P-Blocked Center	85-5342-91	24 VDC	30	
7I-1235-48*	P-Blocked Center	87-1123-00	110 VAC	30	

* Supplied with rectified connectors that must be used to ensure proper valve function and warranty. Use of any other connector will void the valve warranty.

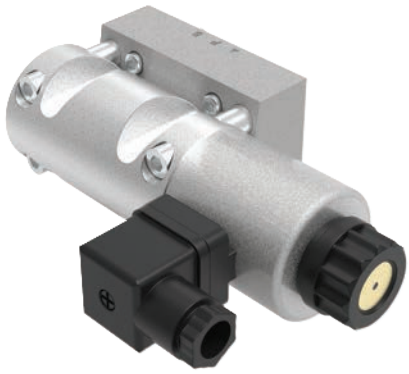


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NEW

Solenoid Control Valves 3-Port, 2-Position

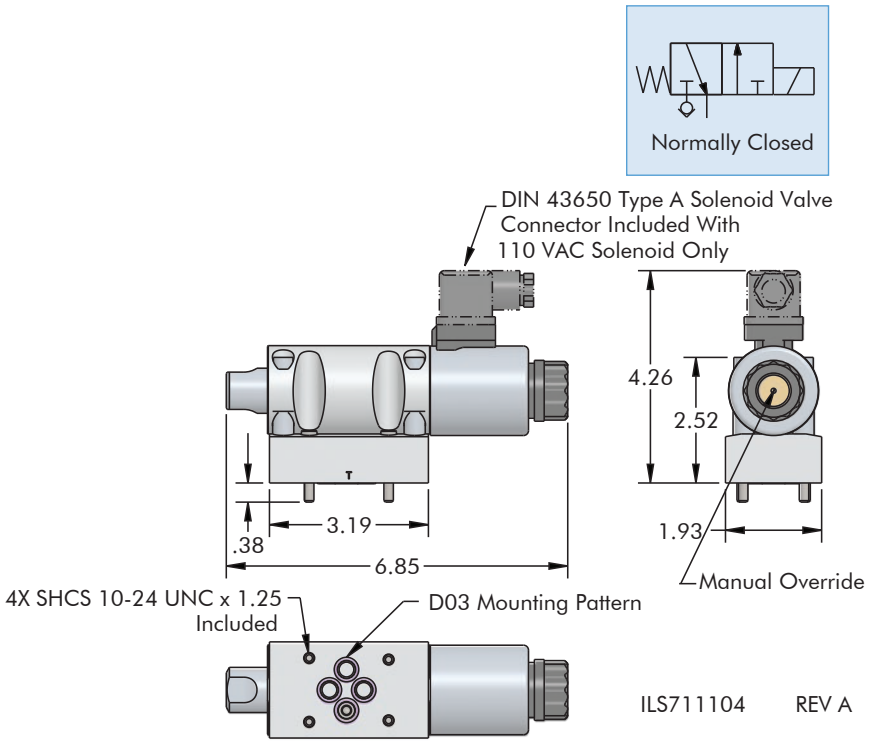
- Provide improved control of clamping circuits with true poppet design.
- Multiple coil voltages available.
- Internal design promotes improved service life.
- Narrow width allows mounting of multiple valves on standard D03 manifolds.
- All valves have built-in P-Check for fail safe multi-valve operation.
- Seals and Coil can be easily replaced.
- Max Flow Rate is 6.6 gpm.
- Max Pressure is 5800 psi.



Solenoid Control Valves: 3-Port, 2-Position

Model No.	Valve Function	Valve Connector Part No.	Solenoid Voltage	Power Usage (Watts)	Duty Rating
71-1155-02	Normally Closed	85-5342-91	24 VDC	30	100%
7I-1155-04*	Normally Closed	87-1123-00	110 VAC	30	

* Supplied with rectified connectors that must be used to ensure proper valve function and warranty. Use of any other connector will void the valve warranty.



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