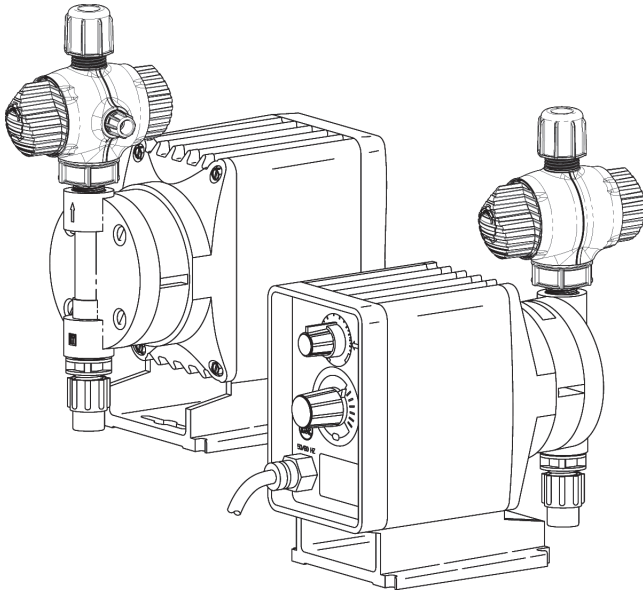


New 4-Function Valve Kits

For 300/400/700 Series Cartridge Valve Liquid Ends



LMI metering pumps using legacy 4-Function Valves are easily converted to the new 4-Function Valve designed with advanced features and new universal tubing connections for pumps using 300/400/700 series liquid ends.

- Ergonomic design for easy control of functions.
- A new mounting connection that swivels 360° to the position best suited for the installation.
- LMI's new tubing connection system for the most secure connection available with an electronic metering pump.
- Hardware is protected from chemicals.

The Four Functions:

Anti-Siphon

The discharge flow path goes through a port that only opens on the discharge stroke of the pump. This prevents the discharge line from siphoning liquid from the supply tank in most applications.

Back Pressure

The diaphragm that controls anti-siphoning creates approximately 20 psi (1.4 Bar) back pressure on the pump's discharge valve which improves system performance.

Pressure Relief

A second diaphragm protects the pump from overpressure by releasing fluid to a relief port in the event of excessive discharge line pressure.

Pressure Release

This function makes it easy and safe to depressurize the discharge line without loosening tubing or fittings.

Model Numbers

4-Function Valve Kit Descriptions					
Kit Number	Wetted Materials			Tubing Size	Max Pressure
	4FV Body	Diaphragm	"O" Ring		
49296	PVC	Fluorofilm™	POLYPREL	1/4" TUBE	250 PSI (10 Bar)
49297	PVDF		POLYPREL	1/4" TUBE	
49298	PVDF		PTFE	1/4" TUBE	
49299	PP		PTFE	1/4" TUBE	
49300	PVC		POLYPREL	3/8" TUBE	150 PSI (17 Bar)
49301	PVDF		POLYPREL	3/8" TUBE	
49302	PVDF		PTFE	3/8" TUBE	
49303	PP		PTFE	3/8" TUBE	
49304	PVC		POLYPREL	1/2" TUBE	
49305	PVDF		POLYPREL	1/2" TUBE	
49306	PVDF		PTFE	1/2" TUBE	
49307	PP		PTFE	1/2" TUBE	

4-Function Valve Kits contain:

- 4-Function Valve
- Universal Tubing Connection
- Blank cartridge P/N 37340

4-Function Valves with a solid black knob are rated for 150 PSI. 4-Function Valves with a black knob with a yellow insert are rated for 250 PSI.



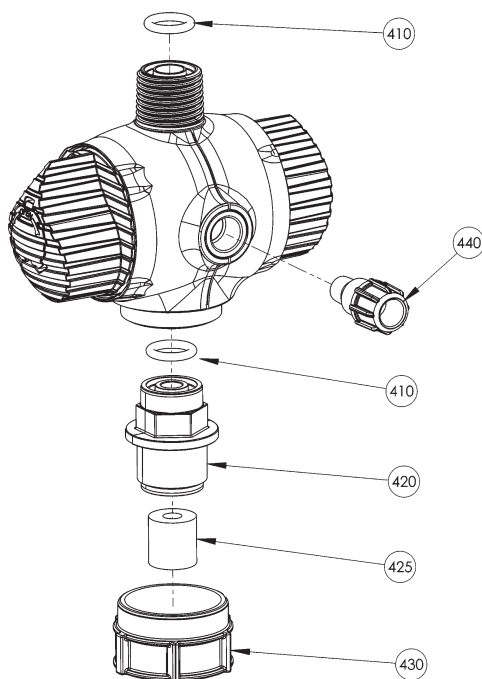
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New 4-Function Valve Kit

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Select the 4-Function Valve Kit number by valve body type and o-ring that is appropriate for contact with the process fluid and tubing size for the specific pump rating. Reference Tubing Connection System instruction sheet 2000 for tubing assembly.

The New 4-Function Valve is designed for double ball checks as used with Roytronic® Series chemical metering pumps. A second cartridge is required when mounting a new 4-Function Valve to an LMI pump to replace a legacy 4-Function Valve on a 300, 400 or 700 series liquid end. Your LMI pump should have an existing check valve cartridge on the pump head. The 4-Function Valve Kit allows for easy conversion to the new 4-Function Valve by providing a blank cartridge to take the place of the required second cartridge.



Connections

- To mount to a pump, remove the discharge fitting from the pump (if present) leaving the cartridge in the pump head. Add the blank cartridge (part 425 on diagram) from the kit and position it on top of the existing cartridge. NOTE: Orientation of the “Blank Cartridge” is not important. Position the coupling nut (part 430 on diagram) on pump head over cartridges with threads up, and insert 4FV fitting (part 420 on diagram) and thread into pump head over cartridges. Tighten the fitting to 50 in-lbs using a 13/16” or 20 mm socket. Insert the large opening on the 4-Function valve into the coupling knob and hand tighten. You can position the valve to have the bypass port in any convenient location by tightening the coupling nut with the bleed port positioned 90° CCW from desired location, then holding the nut stationary while turning the valve the final 90° to desired position.
- Connect 1/4” tubing to the bypass port and route to supply container.
- Connect discharge line using LMI tubing connection system or 1/2” pipe thread.

Method of Operation

A. Priming

1. Connect all tubing per instructions
2. Turn black knob about 1/8 turn CCW to stop point to open bypass port.
3. Set pump at 100% speed and 100% stroke length. Start pump. When fluid has been flowing through the bypass port tubing for 10-20 seconds, the pump is primed.
4. Stop pump and return black knob to normal position.

Note: The pumps are normally self priming if suction lift is less than 5 feet (1.5 meters), check valves are wet (there is usually water in the pump head when shipped from the factory), and the steps above are followed. If the pump does not self prime, you can choose one of 2 ways to help prime:

1. Remove the 4-Function valve and discharge cartridges and slowly pour water or solution into the pump head until it is filled. Replace cartridges and 4-Function valve and repeat steps above.
2. Or, temporarily improve suction conditions by pumping from a container closer to or above pump.

B. Depressurizing the Discharge Line

When preparing to maintain the pump or any component in the discharge line, the 4-Function valve is used to depressurize the line. Be sure an injection check valve is properly installed and is operating, and that all tubing connections on the 4-Function valve are secure.

1. Turn off the pump
2. If any valves have been installed downstream of the pump, close them.
3. If the supply tank for the pump is higher than the pump head, fluid will flow through unless a suction line valve is closed.
4. Turn the black knob on the 4 function valve about 1/8 turn CCW to its open position. This relieves pressure between the pump and the 4-Function valve.
5. To release line pressure, while the black knob is in the open position, turn the yellow knob and hold open until fluid flow through the bypass port stops.