



This valve is a 3-way, meter-in, electro-proportional throttle. The flow path, unenergized, has the supply blocked at port 1 and port 2 is drained to tank at port 3. Energizing the coil generates a closing force on the spool, creating a metering orifice in the 1 to 2 direction that is proportional to the coil command current. The valve self-compensates in the 1-to-2 direction and with the addition of an external compensator will provide pressure compensated flow control. Flow in the 2-to-3 direction is not proportional and is limited in the interest of increased resolution and capacity. Flow capacity in the 2-to-3 direction is about 1.5 gpm (6 L/min). This valve is meant to be used in a circuit that has a separate passage to tank such as a cushion lock circuit. Two FMDFs in conjunction with a cushion lock circuit create a meter-in/meter-out 3-position 4-way.

PROPORTIONAL PERFORMANCE DATA

Hysteresis (with dither)	<4%
Hysteresis with DC input	<8%
Linearity (with dither)	<2%
Repeatability (with dither)	<2%
Recommended dither frequency	140 Hz

TECHNICAL DATA NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	9 gpm
Maximum Operating Pressure	5000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in ³ /min.@1000 psi
Solenoid Tube Diameter	.63 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft

- NOTES:**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

OPTION SELECTION EXAMPLE: FMDFXCDN

CONTROL	(X) FLOW RATE	(C) SEAL MATERIAL	(N) COIL
X No Manual Override	C .1 - 6 gpm (0,4 - 23 L/min.)	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	A .1 - 1.6 gpm (0,4 - 6.1 L/min.)	V Viton	
L Twist/Lock (Detent) Manual Override	B .1 - 4 gpm (0,4 - 15 L/min.)		
M Manual Override	D .1 - 9 gpm (0,4 - 34 L/min.)		
T Twist (Momentary) Manual Override			

TECHNICAL FEATURES

- Note: Flow in the 2 to 3 direction is limited to about 1.5 gpm (5 L/pm).
- The transition between positions is closed.
- Using 2 3-ways to create a 4-way allows one to choose existing flow ranges instead of cutting a special spool.
- These valves may be pressure compensated by an external, modulating, logic element. Use LR_C-XHN for a bypass circuit or LP_C-XHN for a restrictive circuit.
- The valve provides a degree of self-compensation and may be used as a flow control. To increase the accuracy of flow control, an external, modulating, logic element can be used to maintain a constant flow over a wider range of flows and pressures. See performance curves for additional information.
- For optimum performance, an amplifier with current feedback and adjustable dither (100 - 250 Hz) should be used.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



