

### CONFIGURATION

X Control	No Manual Override
Flow Rate	
Seal Material	
Coil	

This valve is a pilot-operated, normally closed, electro-proportional throttle with reverse free-flow check. Energizing the coil generates an opening force on the pilot stage which vents the main stage poppet to open proportionally. Metered flow is from port 1 to port 2 with reverse free flow from port 2 to port 1.

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

Cavity	T-16A
Series	3
Capacity	60 gpm
Recommended dither frequency	100 Hz
Deadband, nominal (as a percentage of input)	25%
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.06 in.
Maximum Valve Leakage at 110 SUS (24 cSt)	20 drops/min.@5000 psi
Solenoid Tube Diameter	.75 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Model Weight	1.50 lb
Model Weight (with coil)	2.00 lb
Seal and nut kit - Coil	Viton: 990-770-006
Seal kit - Cartridge	Buna: 990-016-007
Seal kit - Cartridge	EPDM: 990-016-014
Seal kit - Cartridge	Polyurethane: 990-016-002
Seal kit - Cartridge	Viton: 990-016-006

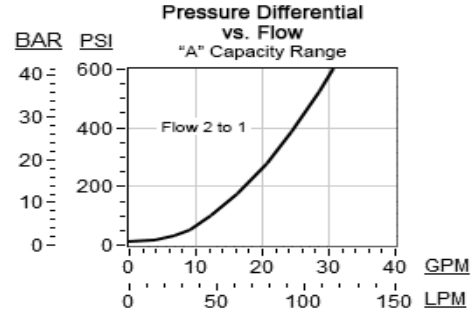
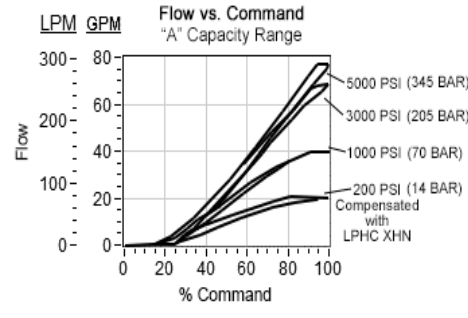
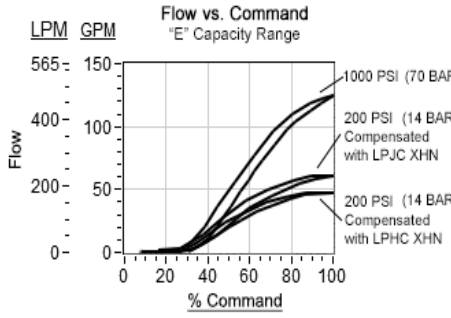
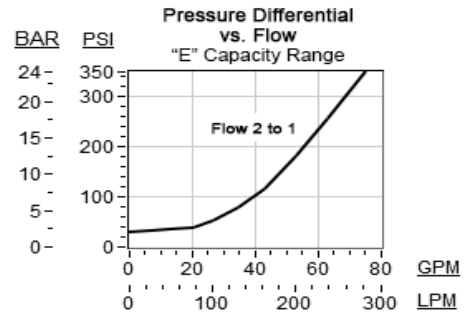
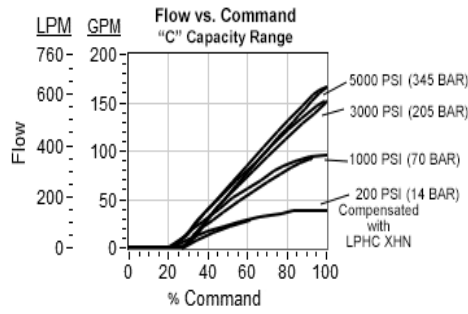
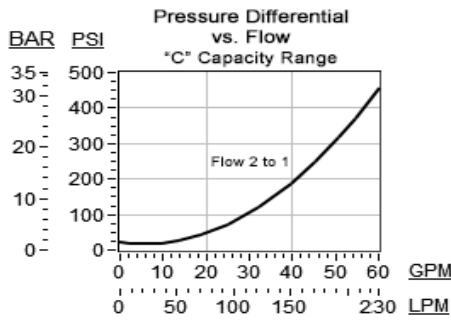
## OPTION SELECTION EXAMPLE: FPHKXN

CONTROL	(X)	FLOW RATE	(C)	SEAL MATERIAL	(N)	COIL	(212)
<b>X</b> No Manual Override		<b>C</b> Nominal 40 gpm @ 200 psi (14 bar) differential (160 L/min.)		<b>N</b> Buna-N		<b>212</b> DIN 43650-Form A, 12 VDC	
<b>E</b> Twist (Extended) Manual Override				<b>E</b> EPDM		No Coil	
<b>M</b> Manual Override		<b>A</b> Nominal 20 gpm @ 200 psi (14 bar) differential (80 L/min.)		<b>V</b> Viton		<b>224</b> DIN 43650-Form A, 24 VDC	
		<b>E</b> Nominal 60 gpm @ 200 psi (14 bar) differential (240 L/min.)				<b>224NX01</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver	
						<b>224NX02</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver	
						<b>912NX01</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver	
						<b>912NX02</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver	
						<b>924NX01</b> Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver	
						<b>924NX02</b> Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver	

### TECHNICAL FEATURES

- Capable of operating with pressures up to 5000 psi (350 bar).
- Coils are interchangeable with Sun's other full flow, solenoid-operated valves and can be mounted on the tube in either direction.
- This cartridge has several manual override choices, including no manual override. See Option Configuration.
- For optimum performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.
- The momentary/twist override option "E" allows the operator to shift the valve by twisting the manual override clockwise 90 degrees.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Capacities rated at 200 psi (14 bar) differential and maximum rated coil current.
- Maximum Deadband (as a percentage of command) A Flow Rate = 39% C Flow Rate = 30% E Flow Rate = 46%
- Maximum Hysteresis at 200 psid (14 bar) A Flow Rate = 5 gpm (20 L/min.) C Flow Rate = 6 gpm (23 L/min.) E Flow Rate = 13 gpm (49 L/min.)
- Minimum Capacity at 1000 psid (70 bar) A Flow Rate = 35 gpm (140 L/min.) C Flow Rate = 80 gpm (320 L/min.) E Flow Rate = 110 gpm (416 L/min.)
- Depending on circuit requirements, a reverse free flow check bypassing the compensator may be needed when using the FPHK with an external compensator.
- 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



## Example Circuit Using External Compensator

