

## CONFIGURATION

<b>X</b>	Control	No Manual Override
<b>E</b>	Flow Rate	Nominal 60 gpm @ 200 psi ( 14 bar) differential (240 L/min.)
<b>N</b>	Seal Material	Buna-N
<b>(none)</b>	Coil	No 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
Maximum Valve Leakage at 110 SUS (24 cSt)	20 drops/min.@5000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Deadband, nominal (as a percentage of input)	25%
Manual Override Stroke	.06 in.
Solenoid Tube Diameter	.75 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Model Weight (with coil)	2.00 lb
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006
Seal and nut kit - Coil	Viton: 990770006
Model Weight	1.45 lb.

## CONFIGURATION OPTIONS

### Model Code Example: FPHKXEN

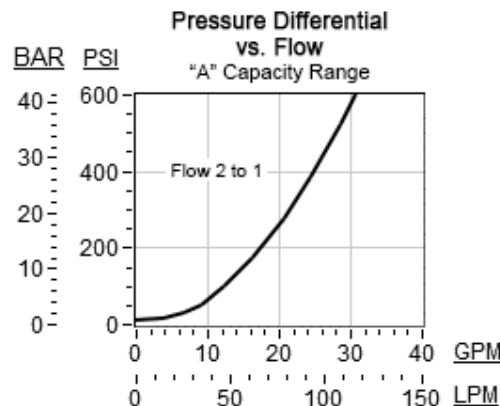
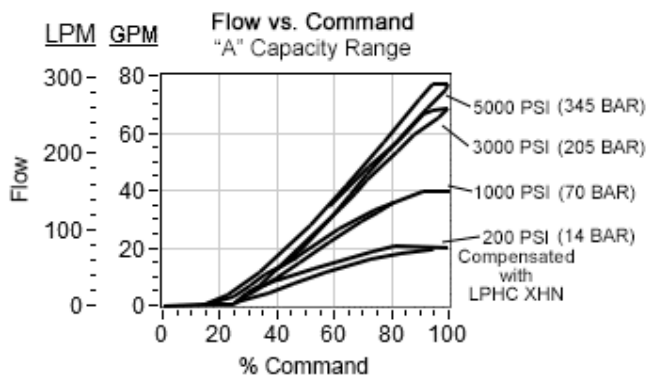
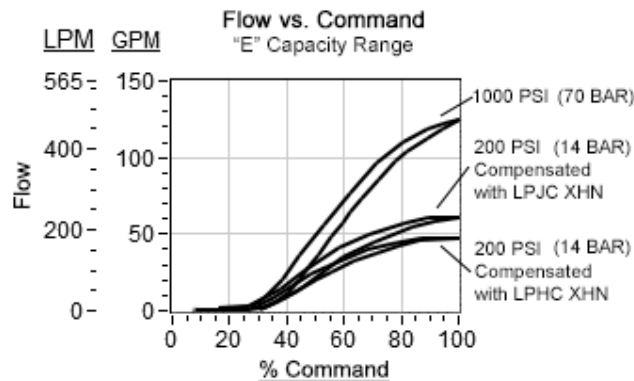
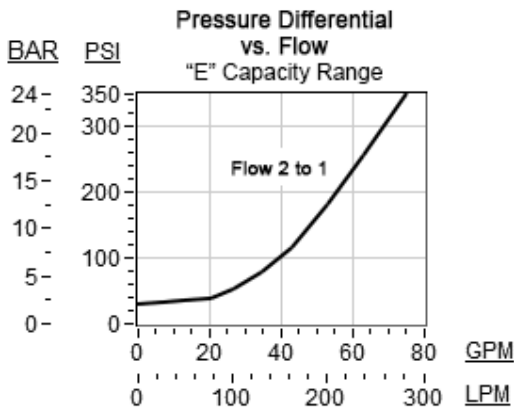
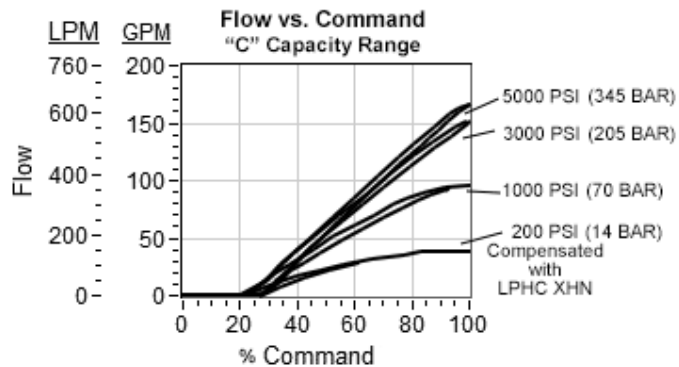
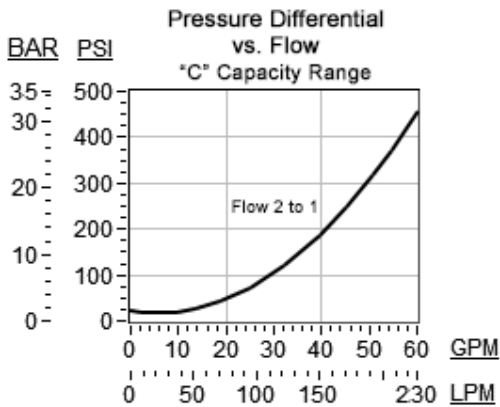
CONTROL	(X) FLOW RATE	(E) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>E</b> Nominal 60 gpm @ 200 psi ( 14 bar) differential (240 L/min.)	<b>N</b> Buna-N	No coil
<b>E</b> Twist (Extended) Manual Override	<b>C</b> Nominal 40 gpm @ 200 psi (14 bar) differential (160 L/min.)	<b>E</b> EPDM	<b>212</b> DIN 43650-Form A, 12 VDC
<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>912</b> Deutsch DT04-2P, 12 VDC
			<b>924</b> Deutsch DT04-2P, 24 VDC

\* Additional coil options are available

## 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

