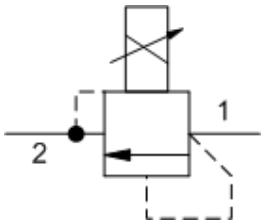
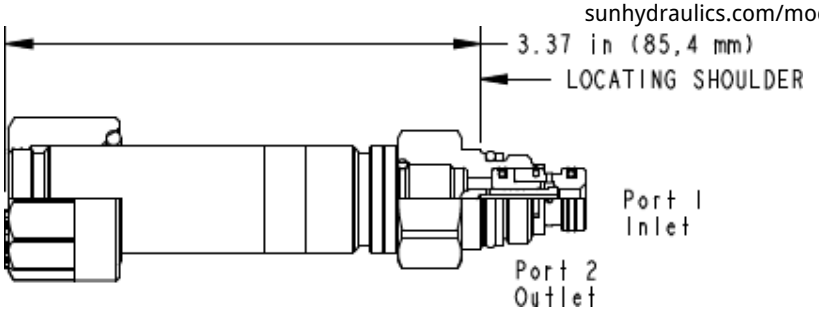
MODEL
RBAP

Electro-proportional relief valve - pilot capacity
SERIES P / CAPACITY: .25 gpm / CAVITY: T-8A

sunhydraulics.com/model/RBAP





CONFIGURATION

X	Control	No Manual Override
A	Adjustment Range	300 - 3000 psi (20 - 210 bar)
N	Seal Material	Buna-N
(none)	Coil	No coil

This 2-port, pilot-stage, direct-acting relief cartridge is an electro-proportionally controlled, pressure regulating valve. The proportional control allows for infinite, step-less adjustability within the selected pressure range. When the pressure at port 1 (inlet) is sufficient to overcome the solenoid forces, as determined by the analog input signal, the poppet lifts and allows flow from port 1 to port 2 (outlet). This pilot control cartridge utilizes the T-8A cavity so it can be used in conjunction with Sun's main stage, pressure control elements.

TECHNICAL DATA

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

Cavity	T-8A
Series	P
Capacity	.25 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at Reseat	1.5 in³/min.
Manual Override Force Requirement	10 lbs/1000 psi @ Port 1
Reseat	>85% of setting
Solenoid Tube Diameter	.75 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	20 - 25 lbf ft
Model Weight (with coil)	1.00 lb
Seal kit - Cartridge	Buna: 990208007
Seal kit - Cartridge	EPDM: 990008014
Seal kit - Cartridge	Viton: 990208006
Seal and nut kit - Coil	Viton: 990770006
Model Weight	0.56 lb.

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

NOTES

Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

© 2024 Sun Hydraulics

CONFIGURATION OPTIONS

Model Code Example: RBAPXAN

CONTROL (X)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	COIL *	
X No Manual Override	**A** 300 - 3000 psi (20 - 210 bar)	**N** Buna-N		No coil
E Twist (Extended) Manual Override	**B** 150 - 1500 psi (10,5 - 105 bar)	**E** EPDM	**212**	DIN 43650-Form A, 12 VDC
L Manual Override - Adjustable	**D** 50 - 750 psi (3,5 - 50 bar)	**V** Viton	**224**	DIN 43650-Form A, 24 VDC
T Tuning Adjustment	**W** 500 - 5000 psi (35 - 350 bar)		**224NX01**	DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
			224NX02	DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
			912	Deutsch DT04-2P, 12 VDC
			912NX01	Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
			912NX02	Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
			924	Deutsch DT04-2P, 24 VDC
			924NX01	Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
			924NX02	Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver

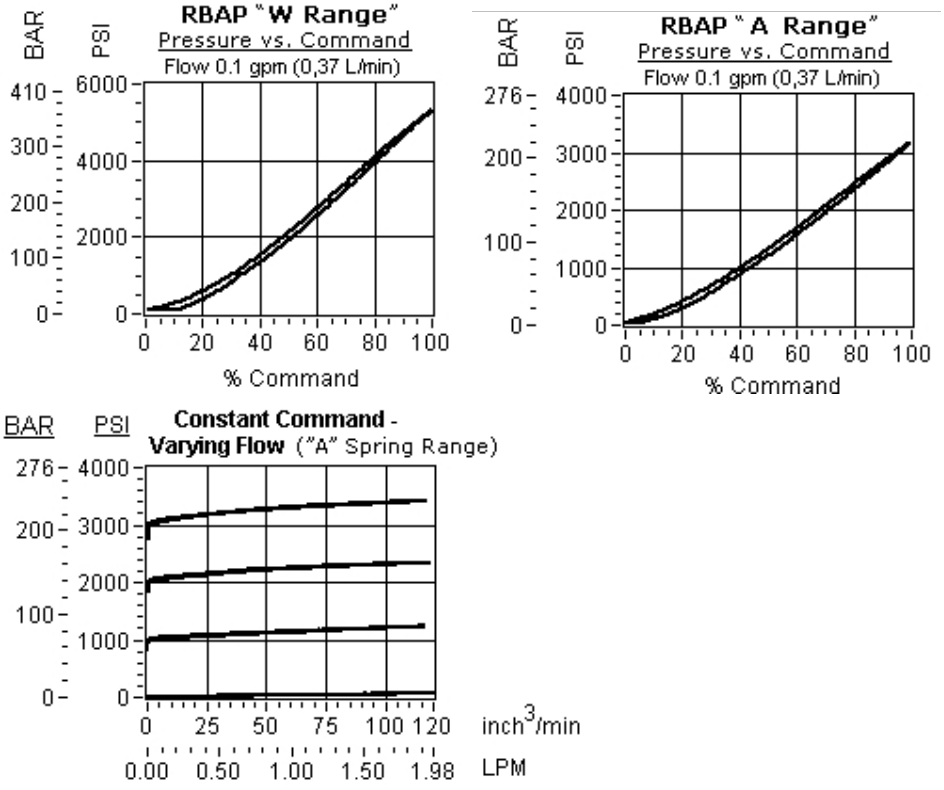
* Additional coil options are available

© 2024 Sun Hydraulics

TECHNICAL FEATURES

- Varying the analog input signal to the proportional solenoid provides a step-less control of pressure.
- This electro-proportional cartridge utilizes the Sun T-8A, 2-port cavity making it the ideal choice to use in conjunction with Sun's main stage cartridges. Separate pilot lines are eliminated and only one cavity needs to be machined to accommodate both the control and primary function. Note: All 2-port pilot stage control cartridges utilize the same cavity and are physically interchangeable. Functionality is the only consideration.
- All pressure ranges will drop to a setting of 0 with no analog input signal. The pressure ranges indicate the valve's area of acceptable performance.
- The L control (Manual Override - Adjustable) allows one to manually adjust the valve in case of an electrical failure. The L control also allows one to offset the pressure range. For instance, if an A range valve is mechanically offset to a setting of 1500 psi (105 bar), the new maximum will be 4500 psi (310 bar).
- The 'E' manual control assembly has a mechanical life expectancy of approximately 7,000 cycles.
- Damped construction provides stable operation over a wide range of operating conditions. Note: Models equipped with an 'M' control do not incorporate the dampening orifice in the solenoid armature.
- 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.
- Note: The main stage valve should first be installed to the correct torque value followed by the T-8A pilot control section into the main stage valve to its required torque value.
- For optimum performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.
- NOTE: There is no upper limit to the pressure setting when using the M control. The more force you exert on the manual override, the higher the resulting pressure.
- High pilot capacity allows for operation of larger size main stage elements.
- Capable of operating with pressures up to 5000 psi.
- Low leakage levels in the closed position. (Reseat occurs at 85% of cracking pressure.)
- Coils are interchangeable with Sun's other full flow, solenoid operated valves and can be mounted on the tube in either direction.
- 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



© 2024 Sun Hydraulics