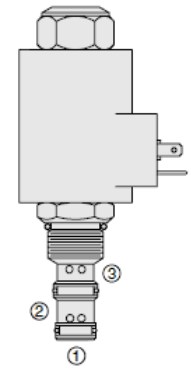
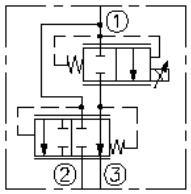
NORMALLY CLOSED PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR

Overview



SYMBOL



Description

The PV70-30 is a solenoid operated, pressure compensated, spool type, normally closed, priority type proportional flow control regulator. It also CAN be used as a restrictive type, 2-way, pressure compensated proportional flow regulator (with port 2 blocked).

Operation

With inlet flow at port 1 the valve will regulate priority flow out of port 3 regardless of system working pressure with flow rate proportional to current applied to the solenoid. The excessive flow will bypass out of port 2. The bypass flow CAN be used for auxiliary function control. Note: avoid dead heading of priority line by external valving to prevent blocking of bypass line. In restrictive mode applications bypass port 2 has to be blocked, flow rate out of port 3 remains proportional to current applied to the solenoid regardless of load (pressure) applied to port 3.

Features

- Excellent linearity and hysteresis characteristics.
- Hardened spool and cage for long life.
- Optional coil voltages and terminations.
- Efficient wet-armature construction.
- Cartridges are voltage-interchangeable.
- Unitized, molded coil design.
- Coil waterproofing standard.
- Manual Override option.

Ratings

Pressure Ratings

Pressure rating: 241 bar (3500 psi) note: Inlet
207 bar (3000 psi) note: Regulated (port3)
207 bar (3000 psi)
Proof pressure: 345 bar (5000 psi)
Burst pressure: 896 bar (13000 psi)

Flow Ratings

Flow rating: 26.5 lpm (7.0 gpm) note: Regulated, range a, 2-ported
30.3 lpm (8.0 gpm) note: Regulated, range a, 3-ported
17.0 lpm (4.5 gpm) note: Regulated, range b, 2-ported
17.0 lpm (4.5 gpm) note: Regulated, range b, 3-ported
37.9 lpm (10.0 gpm) note: Nominal input, range a, 3-ported
18.9 lpm (5.0 gpm) note: Nominal input, range b, 3-ported
49.2 lpm (13.0 gpm) note: Maximum input, range a, 3-ported
26.5 lpm (7.0 gpm) note: Maximum input, range b, 3-ported
Maximum internal leakage: 197 ml/min (12 in^3/min)
Hysteresis per cent: %

Temperature Ratings

Operating fluid temperature: -40 to 100 °C (-40 to 212 °F) note: With buna N seals
-26 to 204 °C (-15 to 400 °F) note: With fluorocarbon seals
-54 to 107 °C (-65 to 225 °F) note: With polyurethane seals

Storage temperature: -40 to 70 °C (-40 to 160 °F)
Ambient temperature: -40 to 70 °C (-40 to 160 °F)

Other Ratings

Corrosion protection: 960 hr salt spray per ASTM b117

Operating Parameters

Fluids: Mineral based or synthetic hydraulic fluid with lubricating properties
Fluid viscosity range: 7.4 to 420 cSt
Maximum operating contamination level: 18/16/13 per ISO 4406

Properties

Unit weight: 0.70 lb (0.32 kg) note: PV70-30X
0.8 lb (0.37 kg) note: Pv70-30mx
1.00 lb (0.45 kg) note: Pv70-30gx
Internal wetted surface area: 202.2 cm^2 (31.3 in^2) note: PV70-30X
205.5 cm^2 (31.9 in^2) note: Pv70-30mx and pv70-30gx

Electrical Parameters

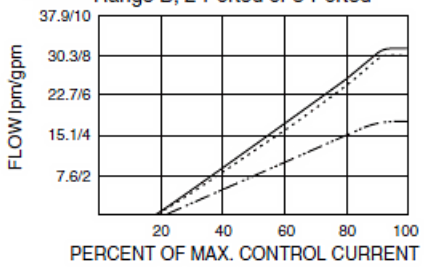
Note: (nominal values with size 70 e-series and d-series coil)
Dither PWM frequency: 100 to 250 Hz

	Coil, flow range A 12 V	Coil, flow range b 12 V	Coil, flow range A 24 V	Coil, flow range b 24 V
Maximum control current	1500 mA	1350 mA	750 mA	675 mA
Threshhold current	335 mA	165 mA		
Valve inductance	240 mH	200 mH	700 mH	600 mH

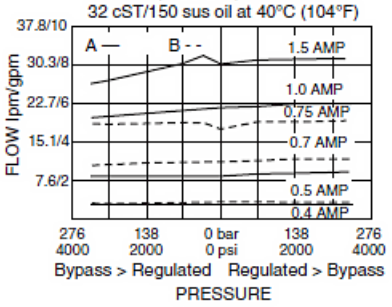
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Performance

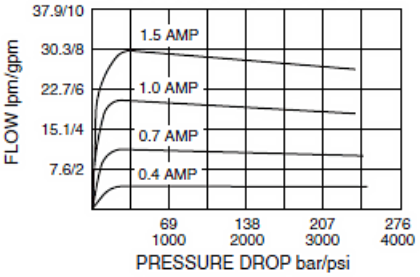
Flow vs. Current
207 bar/3000 psi; 12V Coil; 110 Hz PWM
32 cSt/150 sus oil at 40°C (104°F)
Range A, 2-Ported
Range A, 3-Ported
Range B, 2-Ported or 3-Ported



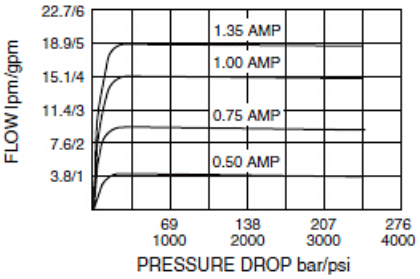
Regulated Flow vs. Load Pressure
Input Flow at Port 1
3-Ported, 12V Coil; 110 Hz PWM
32 cST/150 sus oil at 40°C (104°F)



Flow vs. Pressure Drop
2-Ported; Flow Range A
240 bar/3500 psi Inlet at Port 1
12V Coil; 110 Hz PWM
32 cSt/150 sus oil at 40°C

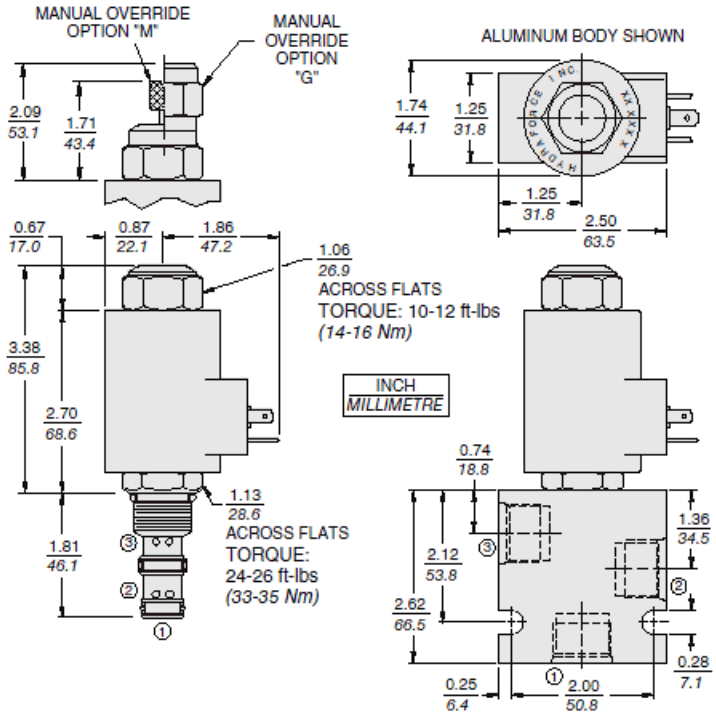


Flow vs. Pressure Drop
2-Ported; Flow Range B
240 bar/3500 psi Inlet at Port 1
12V Coil; 110 Hz PWM
32 cSt/150 sus oil at 40°C



NORMALLY CLOSED PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR

Dimensions



Installation Specifications

NOTES: Cartridge Installation Instructions and Torque Values

Cavity: VC10-3

10-size-3-way Cavities

Cartridge installation torque: 33 to 35 N-m (24 to 26 ft-lb)

Maximum allowable torque: 68 N-m (50 ft-lb)

Coil nut torque: 14 to 16 N-m (10 to 12 ft-lb)

Cover cap torque: 7 to 9 N-m (5 to 7 ft-lb)

Orientation restriction: None

Accessories

Seal kit: SK10-3X-MM

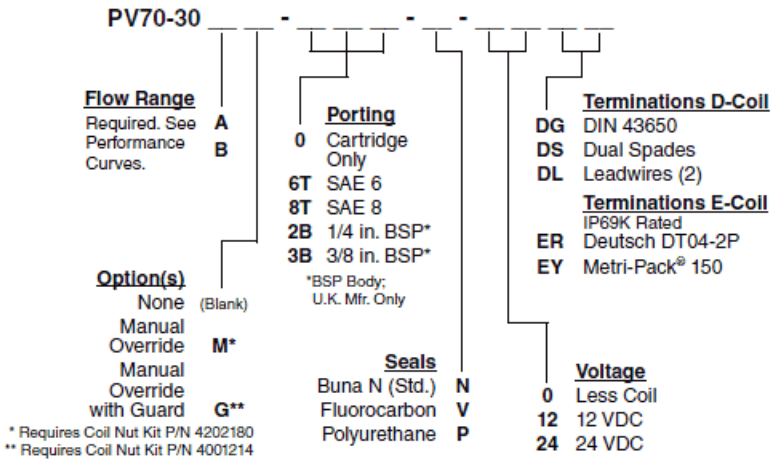
Seal kit installation instructions

Housings: Available 10-3w valve bodies

Coils: 70 size D coils; 70 size E coils

NORMALLY CLOSED PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR

Order Code



Model Options

PV70-30DE-H-J-L

D Max Regulated Flow

CODE	DESCRIPTION
A	30.3 lpm (8.0 gpm) Max Regulated Flow
B	17.0 lpm (4.5 gpm) Max Regulated Flow

E Manual Override

CODE	DESCRIPTION
BLANK	NONE
G	Variable Position Override, Red Knurled Knob with Cover Cap
M	Variable Position Override, Red Knurled Knob

H Line Body

CODE	DESCRIPTION
0	No Body
6T	Aluminum SAE 6
8T	Aluminum SAE 8
6TD	Ductile Iron SAE 6
8TD	Ductile Iron SAE 8
3B	Aluminum BSPP 3/8" (3)
3BD	Ductile Iron BSPP 3/8" (3)

J Seal

CODE	DESCRIPTION
N	Buna-N
V	Fluorocarbon
P	Polyurethane
U	PPDI Urethane

L Coil

CODE	DESCRIPTION
0	No Coil
12DG	12 VDC, D-Coil, DIN 43650
12DL	12 VDC, D-Coil, Dual Lead Wires
12DL/W	12 VDC, D-Coil, Dual Lead Wires with Weatherpak
12DS	12 VDC, D-Coil, Dual Spade
12ER	12 VDC, E-Coil, Deutsch
12EY	12 VDC, E-Coil, Metri-Pack 150

NORMALLY CLOSED PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR

CODE	DESCRIPTION
24DG	24 VDC, D-Coil, DIN 43650
24DL	24 VDC, D-Coil, Dual Lead Wires
24DS	24 VDC, D-Coil, Dual Spade
24ER	24 VDC, E-Coil, Deutsch