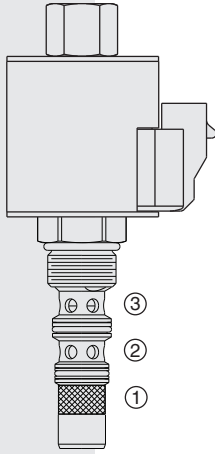


TS90-31 Proportional Reducing/Relieving Valve



DESCRIPTION

A proportional, pilot-operated, spool-type, proportional pressure reducing/relieving screw-in, cartridge valve, which can be infinitely adjusted across a prescribed range using a variable electric input. The regulated pressure is proportional to the inpput electrical current. Comes standard with a 50 x 50 protective mesh screen.

OPERATION

Without applied current, the **TS90-31** allows bidirectional flow from 2 to 3 while blocking 1. When the coil is energized, 2 is connected to 1, and pressure at 2 is controlled proportional to the amount of current applied to the coil. If pressure at 2 exceeds the setting induced by the coil, pressure is relieved to 3.

FEATURES

- Protective mesh screen is standard.
- Bi-directional operation.
- Optional waterproofed E-Coils rated up to IP69K.

RATINGS

Maximum Operating Pressure: 207 bar (3000 psi) at ports 1 and 2; 69 bar (1000 psi) at port 3

Burst Pressure: 345 bar (5000 psi)

Flow Rating: 38 lpm (10 gpm)

Maximum Pilot Flow: 0.85 lpm (0.23 gpm)

Adjustable Pressure Range: 0 to 138 bar (2000 psi)

Electrical Parameters:

Coil	Typical Max. Current (A) at 0 gpm		Typical Resistance \pm 5% @ 20°C (ohms)		Typical Apparent Inductance (mH)	
	12 VDC	24 VDC	12 VDC	24 VDC	12 VDC	24 VDC
E-Coil	0.68	0.34	7.1 \pm 5%	28.5 \pm 5%	137	580

Recommended Drivers: Dither Frequency 350 Hz; PWM Frequency 200 Hz

Temperature: -40 to 100°C (-40 to 212°F) with standard Buna N seals; -26 to 204°C (-15 to 400°F) with Fluorocarbon seals

Filtration: See page 9.010.1

Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus); See Temperature and Oil Viscosity, page 9.060.1

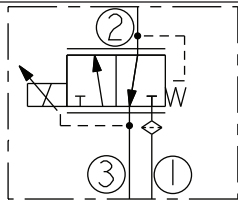
Installation Recommendation: When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.

Cavity: VC98-3; See page 9.110.1

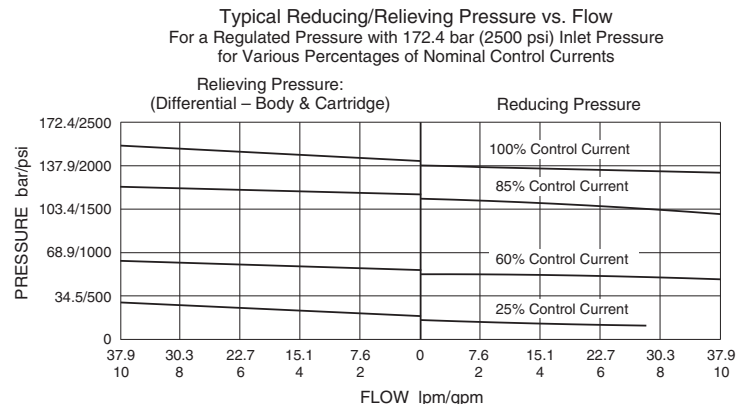
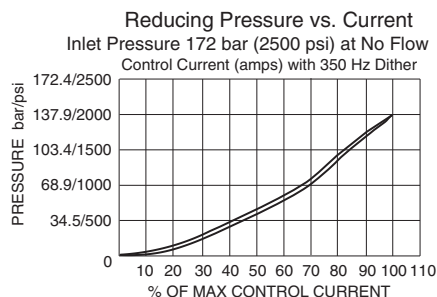
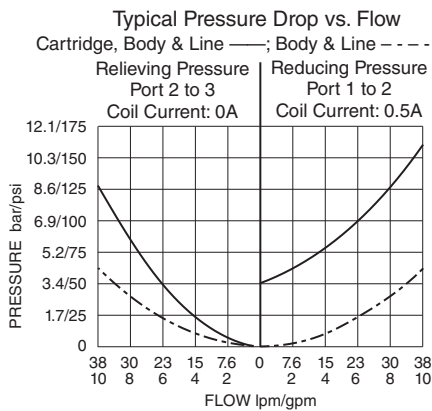
Cavity Tool: CT98-3XX; See page 8.600.1

Seal Kit: SK90-3X-BM; See page 8.650.1; **Coil Nut:** Part No. 4540560

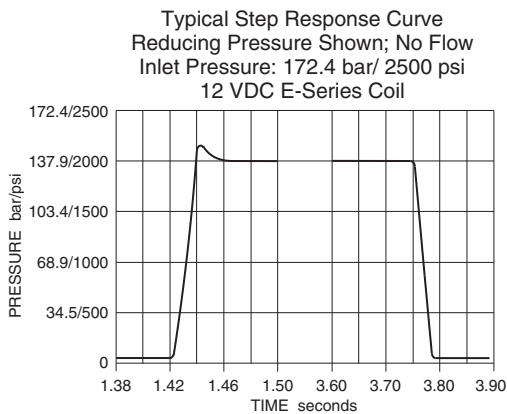
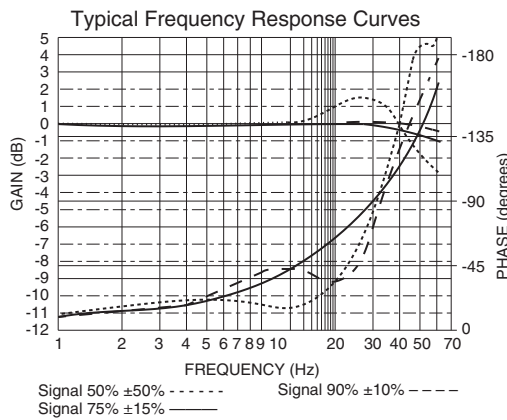
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PERFORMANCE

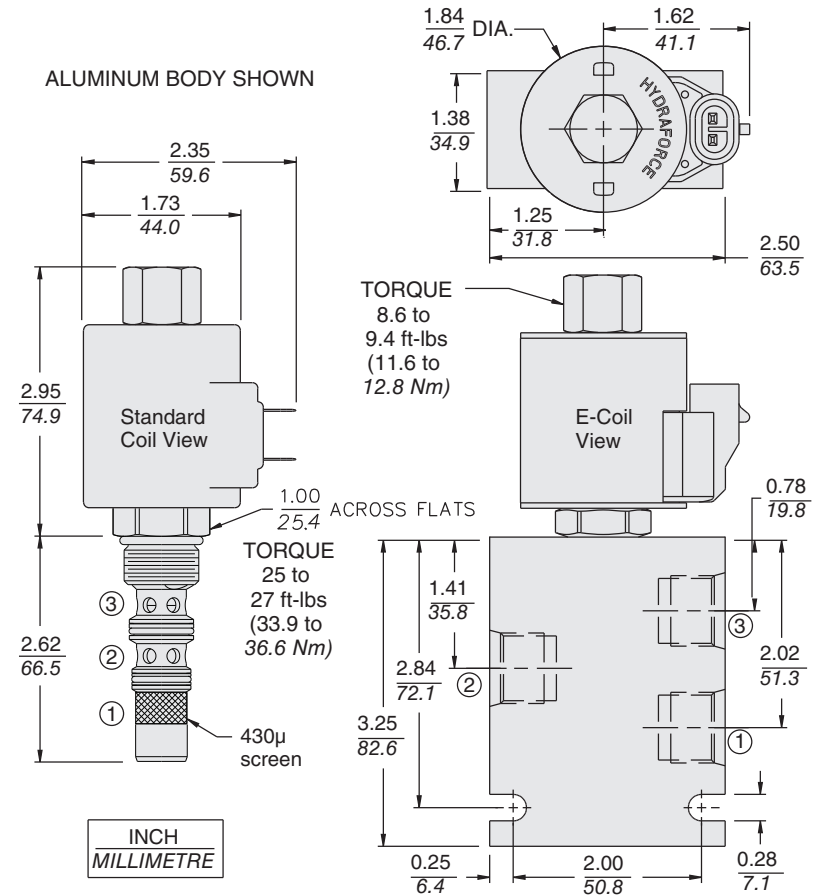


PERFORMANCE (continued)



Recommended Electronic Controllers:
See page 2.001.1 or our Electronics catalog.

DIMENSIONS



MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. O-rings standard.

Standard Ported Body: Weight: 0.34 kg. (0.75 lbs.) Anodized high-strength aluminum alloy, rated to 207 bar (3000 psi). Ductile iron bodies available; dimensions may differ. See page 8.010.1.

10-Size E-Coil: Weight: 0.41 kg. (0.9 lbs.) Perfect wound, fully encapsulated with rugged external metal shell. Rated up to IP69K with integral connectors.

Note: See page 3.400.1 for all E-Coil retrofit applications.

TO ORDER

TS90-31 -			
Porting		Termination E-Coil	
Cartridge Only	0	EG	DIN 43650 (IP65 Rated)
SAE 6	6T	EL	Leadwires (2) (IP69K Rated)
SAE 8	8T	ER	Deutsch DT04-2P (IP69K Rated)
		EY	Metri-Pack® 150 (IP69K Rated)
		EJ	Amp Jr. Timer (IP69K Rated)
Seals			
Buna N	N		
Fluorocarbon	V		
Voltage			
Less Coil	0		
12 VDC (0.88 amps max.)	12		
24 VDC (0.44 amps max.)	24		

Coils with internal diode are available. Consult factory.

Note: This valve uses a 10-size coil and the VC98-3 cavity, which is a variation of a 10-size cavity.