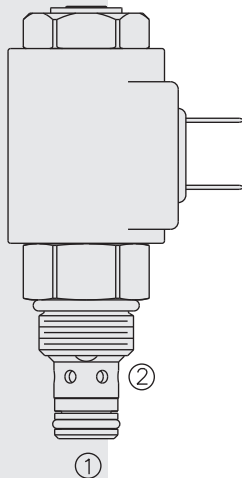


# TS08-27 Proportional Electrohydraulic Relief Valve

U.S. Patents  
6,267,350  
&  
7,137,406



## DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type proportional electrohydraulic pressure relief valve, which can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is inversely proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.

## OPERATION

The **TS08-27** blocks flow from 1 to 2 until sufficient pressure is present at 1 to open the valve by overcoming the preset induced spring force. With no current applied, the valve will relieve at  $\pm 50$  psi of the spring maximum. Applying current to the coil reduces the induced spring force thereby reducing the valve setting. The regulated pressure is inversely proportional to the input electrical current.

Note: This valve is ideal for hydraulic fan drive applications. Consult factory for electronic controllers specifically designed for fan drive applications.

## FEATURES

- Several adjustable pressure settings plus factory preset fixed pressure model.
- Hardened parts for long life.
- 12 and 24 volt coils standard.
- Industry common cavity.
- Optional waterproof E-coils rated up to IP69K.

## RATINGS

**Maximum Operating Pressure (For TS08-27 A, B and C):** 241 bar (3500 psi)

**(For TS08-27F):** 290 bar (4200 psi) at Port 1.

**Proof Pressure (For TS08-27F):** 414 bar (6000 psi) at Port 1; 207 bar (3000 psi) at Port 2.

**Burst Pressure (For TS08-27F):** 814 bar (11,800 psi) at all ports

**Electrical Parameters:**

	D-Coil				EHPR-Type E-Coil	
	10 VDC	12 VDC	20 VDC	24 VDC	12 VDC	24 VDC
<b>Max Control Current (amperes)*</b>	1.50	1.31	0.85	0.65	1.40	0.70
<b>Resistance (Nominal) (ohms)</b>	3.1	5.4	12.2	21.7	5.4	21.7

\*Note: For F, the Maximum Control Current for EHPR-coils is 1.3 amps for 12 VDC and 0.65 amps for 24 VDC. Coil Resistance for 12 VDC is  $5.4 \pm 8\%$  and  $21.7 \pm 5\%$  for 24 VDC. Consult factory for detailed current range for particular pressure setting.

**Pressure Range by Current Adjustment from Zero to Maximum Control Current:**  
**A:** 207–6.9 bar (3000–100 psi) **B:** 138–6.9 bar (2000–100 psi) **C:** 68.9–6.9 bar (1000–100 psi)

**Rated Flow:** 24.6 lpm/6.5 gpm;  $\Delta P = 13.8$ -17.2 bar (200-250 psi), cartridge only; port 1 to 2 coil energized

**Maximum Pilot Flow:** 0.76 lpm (0.2 gpm)

**Hysteresis at PWM 200 Hz (% of max pressure):** **A:** 3.2 **B:** 3.0 **C:** 4.8 **F:** 4.0

**Flow Path:** Free Flow: 1 to 2 coil energized; Relieving: 1 to 2 coil de-energized

**Pressure Rise:** **A:** 0.48 bar/lpm (26.5 psi/gpm); **B:** 0.36 bar/lpm (20 psi/gpm);

**C:** 0.46 bar/lpm (25 psi/gpm)

**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; -54 to 107°C (-65 to 224°F) with polyurethane seals.

**Filtration:** See page 9.010.1

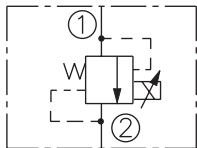
**Fluids:** Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus); See Temperature and Oil Viscosity, page 9.060.1

**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:** VC08-2; See page 9.108.1; **Cavity Tool:** CT08-2XX; See page 8.600.1

**Seal Kit:** SK08-2X-B; See page 8.650.1

## ISO SYMBOL

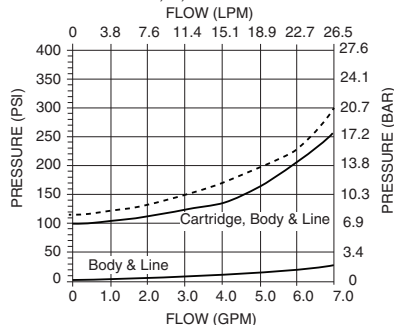


## PERFORMANCE

### PRESSURE DROP VS. FLOW CHARACTERISTIC

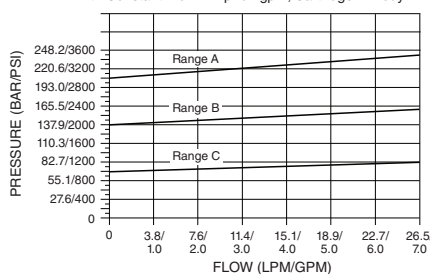
Flow from Port 1 to Port 2 with Coil Energized,

— A, B, C    - - - F

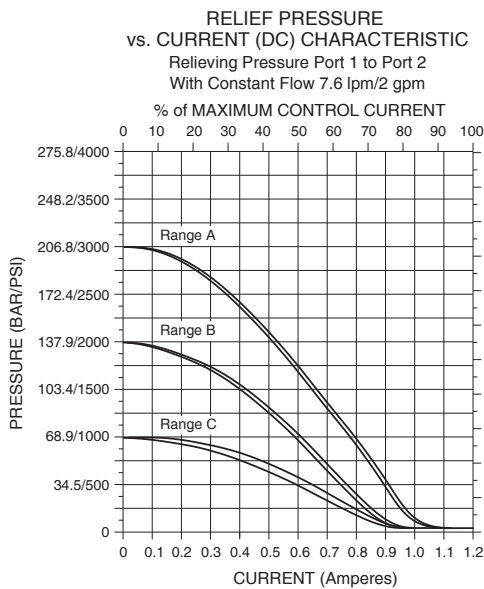


### TYPICAL RELIEF PRESSURE VS. FLOW CHARACTERISTIC

Typical Relieving Pressure Port 1 to Port 2 at No Current Applied  
With Constant Flow 7.1 lpm/2 gpm; Cartridge in Body

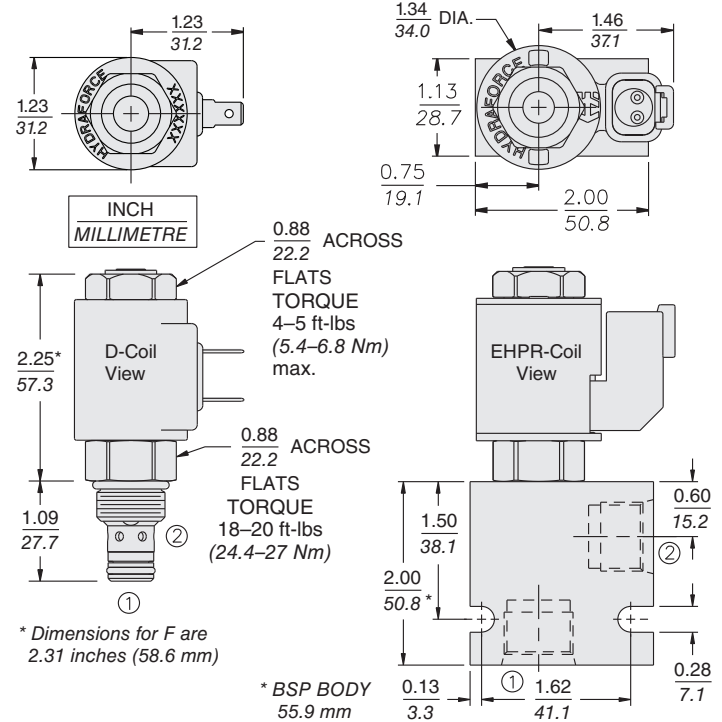


**PERFORMANCE** (continued)



**DIMENSIONS**

U.S. Patents 6,267,350 and 7,137,406



ALUMINUM BODY SHOWN FOR A, B, C.  
FOR F, THE HIGH PRESSURE DUCTILE IRON  
BODY IS RECOMMENDED. DIMENSIONS WILL DIFFER.

**MATERIALS**

**Cartridge:** Weight: 0.15 kg. (0.33 lbs.)  
Steel with hardened work surfaces.  
Zinc-plated exposed surfaces.  
Buna N O-rings and polyester elastomer back-ups standard.

**Standard Ported Body:** Weight: 0.16 kg. (0.35 lbs.) Anodized high-strength aluminum alloy, rated to 207 bar (3000 psi). Ductile iron bodies available; dimensions may differ. See page 8.008.1

**EHPR Series Coils:**  
**D-Coil:** Weight: 0.11 kg. (0.25 lbs.)  
Unitized thermoplastic encapsulated, high temperature magnetwire. See page 3.200.1

**E-Coil:** Weight: 0.14 kg. (0.3 lbs.)  
Fully encapsulated with rugged external metal shell. Rated up to IP69K with integral connectors. See page 3.400.1

**TO ORDER**

<b>TS08-27</b>		-	-	-	-	-
<b>Maximum Operating Pressure</b>						
207 bar (3000 psi)	<b>A</b>					
138 bar (2000 psi)	<b>B</b>					
70 bar (1000 psi)	<b>C</b>					
Factory Pre-Set	<b>F</b>					
<b>Porting</b>						
Cartridge Only	<b>0</b>					
SAE 6	<b>6T</b>					
3/8 in. BSP*	<b>3B</b>					
*BSP Body; U.K. Mfr. Only						
<b>Seals</b>						
Buna N (Std.)	<b>N</b>					
Fluorocarbon	<b>V</b>					
Polyurethane	<b>P</b>					
<b>D-Coil Terminations</b>						
<b>DR</b>	Integral Deutsch					
<b>DS</b>	Dual Spades (J858a)					
<b>DG</b>	DIN 43650					
<b>DL</b>	Leadwires (2)					
<b>DL/W</b>	Leads w/Weatherpak® Connectors					
<b>EHPR Coil Terminations</b>						
<b>ER</b>	Deutsch DT04-2P (IP69K Rated)					
<b>EY</b>	Metri-Pack® 150 (IP69K Rated)					
Coils with internal diode are available. Consult factory.						
<b>Voltage</b>						
Less Coil	<b>0</b>					
10 VDC	<b>10</b>					
12 VDC	<b>12</b>					
20 VDC	<b>20</b>					
24 VDC	<b>24</b>					