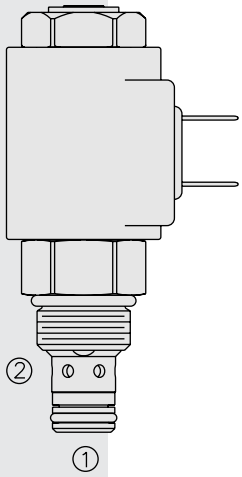
# ELECTRO-PROPORTIONAL VALVES—PRESSURE CONTROLS

## *TS08-27 Proportional Electric Relief Valve*

U.S. Patent 6,267,350




## DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type 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 ±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

- 12 and 24 volt coils standard.
- Industry common cavity.
- Hardened parts for long life.

## RATINGS

**Maximum Operating Pressure:** 241 bar (3500 psi)

**Maximum Control Current:** 1.20 amps for 12 VDC coil; 0.60 amps for 24 VDC coil

**Relief Pressure Range from Zero to Maximum Control Current:**
Minimum Pressure is factory adjusted.
**A:** 207–4.1 bar (3000–60 psi)
**B:** 138–4.1 bar (2000–60 psi)

**Rated Flow:** 19 lpm/5 gpm; ΔP = 7.8 bar (113.3 psi) ±10%, cartridge only, ① to ② coil energized

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

**Hysteresis:** Less than 3%

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

**Pressure Rise: A:** 40 psi/gpm; **B:** 50 psi/gpm

**Temperature:** -40 to 120°C (-40 to 250°F) with standard Buna N 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

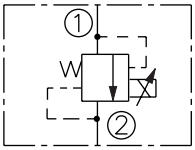
**Installation Recommendation:** When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.

**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

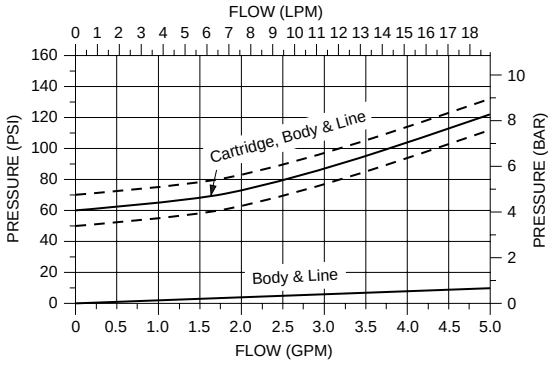
## SYMBOLS

### USASI/ISO:

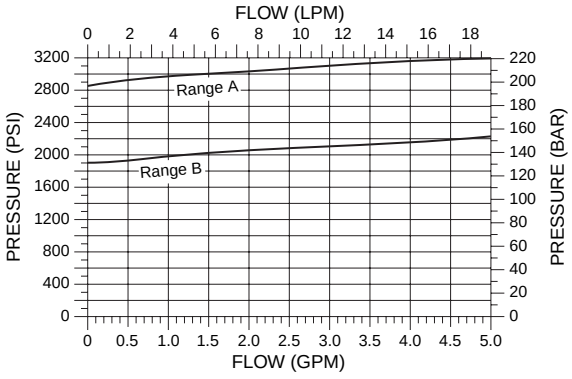



## PERFORMANCE

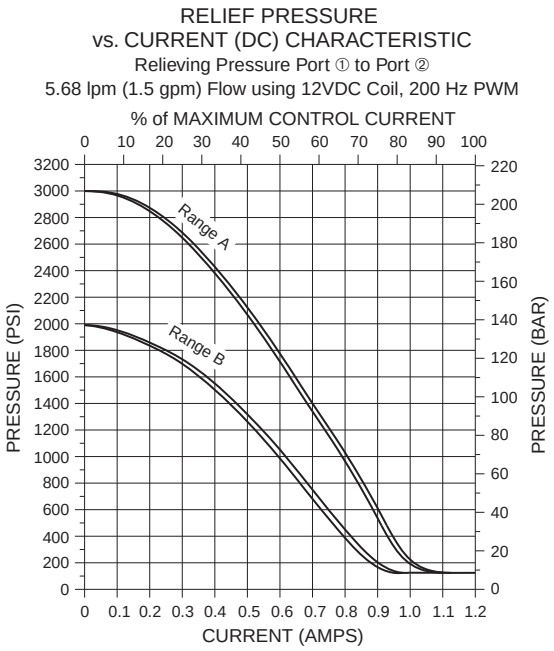
PRESSURE DROP VS. FLOW CHARACTERISTIC
Flow from Port ① to Port ② with Coil Energized, at Maximum Set Current




TYPICAL RELIEF PRESSURE VS. FLOW CHARACTERISTIC
Typical Relieving Pressure Port ① to Port ②; Cartridge in Body



## PERFORMANCE (continued)




**Recommended Electronic Controllers:**
Model **EFDR2** Multi-Input Fan Drive Controller.
For more information go to:
http://www.hydraforce.com/Electro/fandrive.htm
or
**Recommended Electronic Controllers**
catalog page 2.001.1 (Table 2)

## DIMENSIONS

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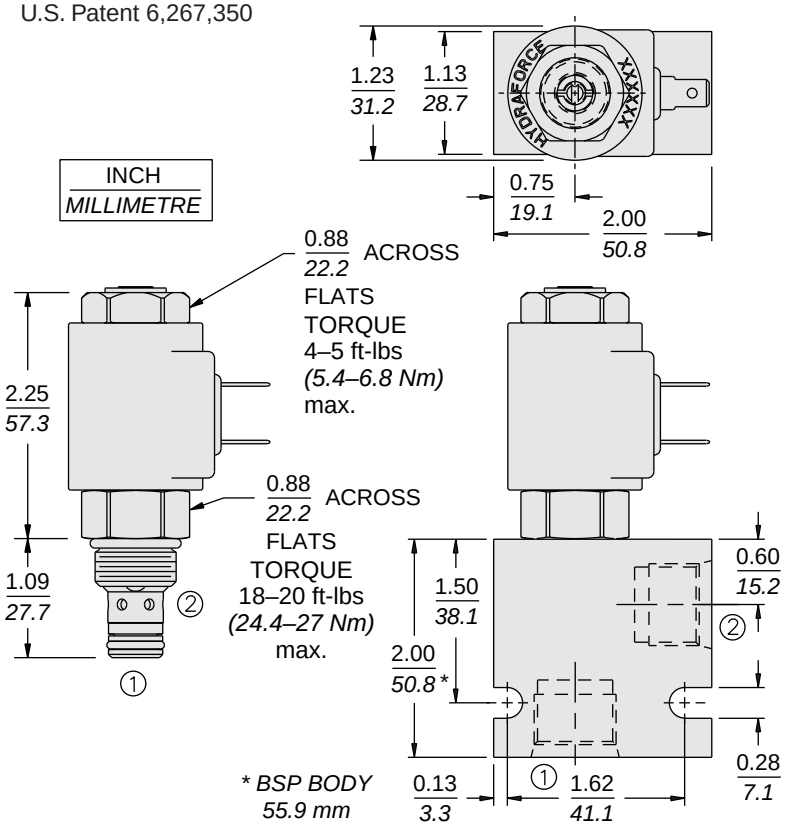


## MATERIALS

**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 6061 T6 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, Class H 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

**TS08-27 ___ - ___ - ___ ___**

**Maximum Operating Pressure**
207 bar (3000 psi) **A**
138 bar (2000 psi) **B**

**Porting**
Cartridge Only **0**
SAE 6 **6T**
3/8 in. BSP* **3B**
*BSP Body; U.K. Mfr. Only

**Seals**
Buna N (Std.) **N**
Fluorocarbon **V**

**Voltage**
**0** Less Coil
**12** 12 VDC (1.10 amps max.)
**24** 24 VDC (0.55 amps max.)

**D-Coil Terminations**
**DS** Dual Spades
**DG** DIN 43650
**DL** Leadwires (2)
**DL/W** Leads w/Weatherpak® Connectors

**E-Coil Terminations**
**ER** Deutsch DT04-2P (IP69K Rated)
**EY** Metri-Pak® 150 (IP69K Rated)

Coils with internal diode are available. Consult factory.