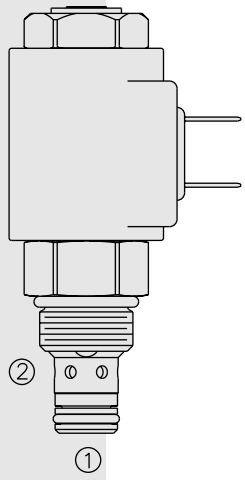
TS08-27 Proportional Electric Relief Valve

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.

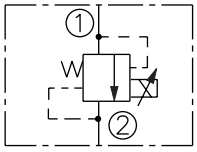
Note: This valve is ideal for hydraulic fan drive applications. Consult factory for electronic controllers specifically designed for fan drive applications.

FEATURES

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

SYMBOLS

USASI/ISO:



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; **C:** 28 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 ssu)

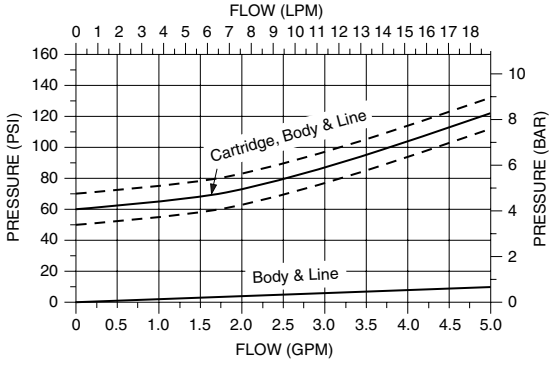
Installation Recommendation: When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.

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

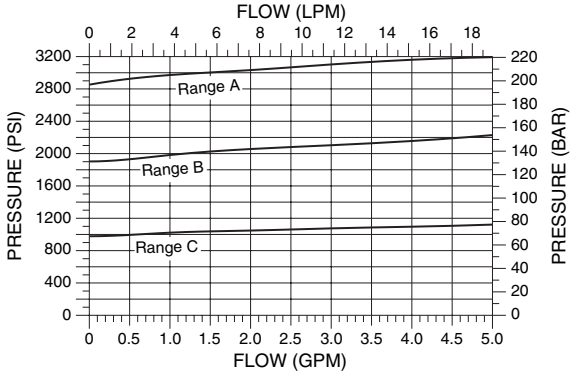
Seal Kit: SK08-2X-B; See page 8.650.1

PERFORMANCE

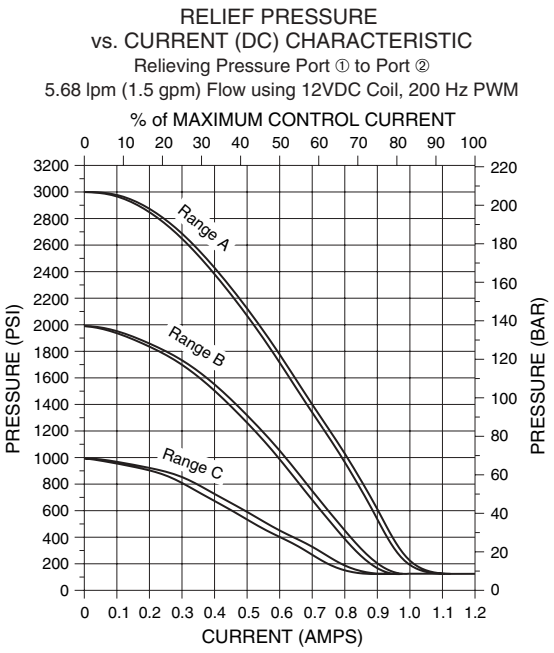
PRESSURE DROP VS. FLOW CHARACTERISTIC
Flow from Port ① to Port ② with Coil Energized, at Maximum Set Current



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



PERFORMANCE (continued)



Recommended Controllers (See Section 3)

Input Sig. w/12V or 24V Coil	DIN Coil Mount	PCB Board	Metal Box	DIN Rail Mount
0-5 VDC	4000161	4000194	4000174	4000136
0-10 VDC	4000165	4000141	4000182	4000137
4-20 mA	4000169	4000143	4000186	4000139
PWM	—	4000144	4000133	4000140

DIMENSIONS

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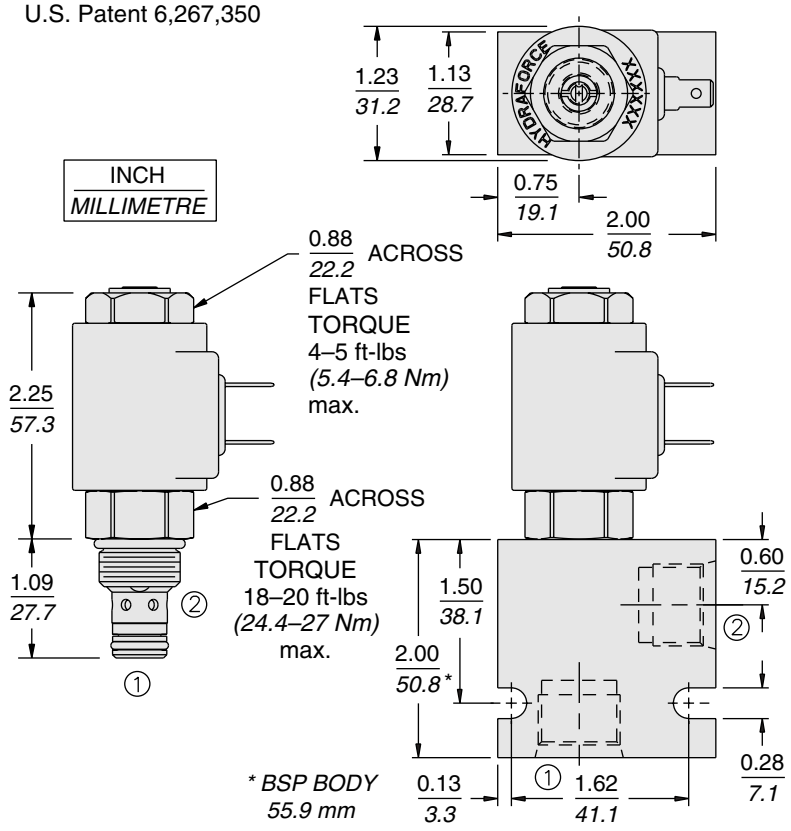

MATERIALS

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 240 bar (3500 psi); See page 8.008.1. Steel and ductile iron bodies available; dimensions may differ; consult factory.

EHPR Series Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized, thermoplastic encapsulated, Class H high temperature magnetwire; See page 3.200.1.

TO ORDER

TS08-27 ___ ___ - ___ - ___ ___

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

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
3/8 in. BSP* **3B**
1/2 in. BSP* **4B**
*BSP Body; U.K. Mfr. Only

Seals
N Buna N (Std.)
V Fluorocarbon

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

Coils with internal diode are available. Consult factory.

Terminations
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads w/Weatherpak® Connectors
DR Deutsch DT04-2P