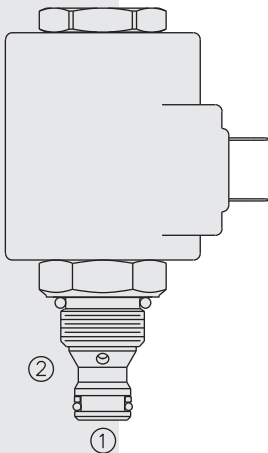


# ELECTRO-PROPORTIONAL VALVES—PRESSURE CONTROLS

## TS38-21 Proportional Electric Relief Valve

U.S. Patent  
6,267,350



### DESCRIPTION

A screw-in, cartridge-style, single-stage, poppet-type pressure relieving valve, which can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is inversely proportional to DC current input.

### OPERATION

The **TS38-21** blocks flow from ① to ② until sufficient pressure is present at ① to open the valve by overcoming the preset 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.

### FEATURES

- 12 and 24 volt coils standard.
- Optional waterproof E-Coils rated up to IP69K.
- Industry common cavity.
- Hardened parts for long life.

### RATINGS

**Maximum Operating Pressure:** 240 bar (3500 psi)

**Maximum Control Current:** 1.10 amps for 12 VDC coil; 0.55 amps for 24 VDC coil

**Relief Pressure Range from Zero to Maximum Control Current:**

Minimum Pressure is factory adjustable.

**(A)** 207–6.9 bar (3000–100 psi); **(B)** 138–6.9 bar (2000–100 psi)

**(C)** 69–6.9 bar (1000–100 psi); **(D)** 241–6.9 bar (3500–100 psi)

**Rated Flow:** 1.1 lpm/0.3 gpm;  $\Delta P = 10$  bar (150 psi), cartridge only,  
① to ② coil energized

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

**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

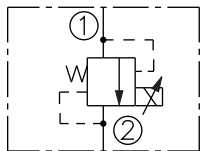
**Seal Kit:** SK08-2X-B; See page 8.650.1

**Coil Nut:** Part No. 4540550;

For E-coils manufactured prior to 1-1-04, see page 3.400.1 for coil nut info.

### SYMBOLS

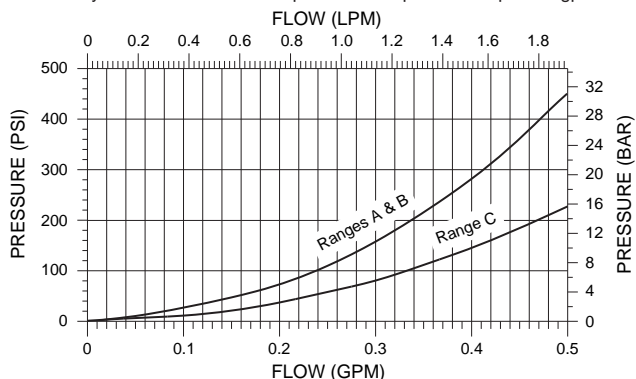
#### USAS/ISO:



### PERFORMANCE

#### PRESSURE DROP VS. FLOW CHARACTERISTIC

Flow from Port ① to Port ② with Coil Energized  
Body and Line Pressure Drop: 0.34 bar/5 psi at 1.90 lpm/0.5 gpm



#### TYPICAL RELIEF PRESSURE VS. FLOW CHARACTERISTIC

Typical Relieving Pressure Port ① to Port ②  
No Current Applied; Cartridge in Body

