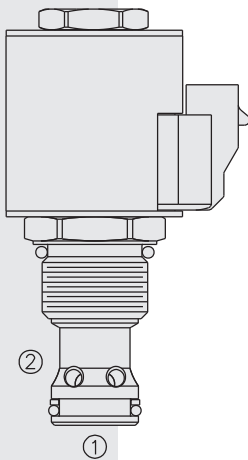
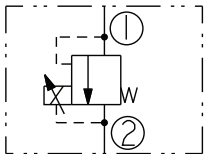


TS12-27 Proportional Pressure Relief Valve

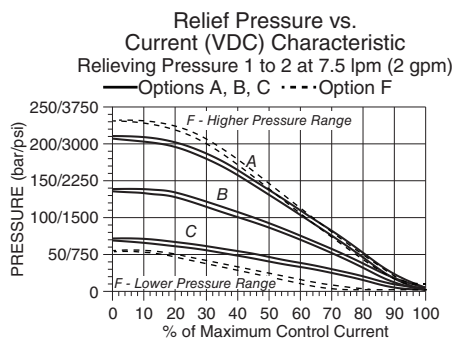
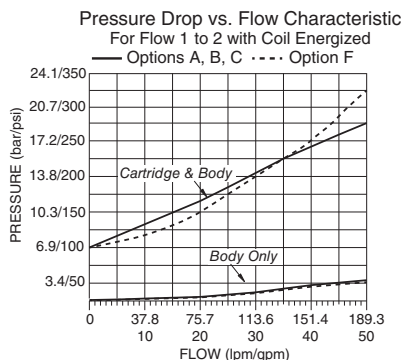
U.S. Patents
6,267,350
and
7,137,406



ISO SYMBOL



PERFORMANCE



DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type hydraulic 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. This valve is intended for use as a pressure limiting device in demanding applications.

OPERATION

The **TS12-27** blocks flow from 1 to 2 until sufficient pressure is present at 1 to open the pilot section by overcoming the induced spring force. With no current applied, the valve will relieve at maximum set pressure. Applying current to the coil proportionally decreases the pressure required to open the valve from 1 to 2.

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 ranges 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

Pressure Rating (For TS12-27 A, B and C): 248.2 bar (4000 psi) at Port 1; 68.9 bar (1000 psi) at Port 2. **(For TS12-27F):** 310 bar (4500 psi) at Port 1.

Proof Pressure (For TS12-27 A, B and C): 344.7 bar (5500 psi) at Port 1; 241.3 bar (3000 psi) at Port 2. **(For TS12-27F):** 413.7 bar (6000 psi) at Port 1; 206.8 bar (3000 psi) at Port 2.

Burst Pressure (For TS12-27 A, B and C): 758.4 bar (11,000 psi) **(For TS12-27F):** 814 bar (11,800) psi

Flow Rating: 190 lpm (50 gpm) $\Delta P = 15.1$ -18.9 bar (220-275 psi) (Cartridge only) Port 1 to 2 (Coil energized).

Adjustable Pressure Range from Zero to Maximum Control Current:

at 7.6 lpm (2 gpm)* **A:** 207–6.9 bar (3000–100 psi) **B:** 138–6.9 bar (2000–100 psi)

C: 69–6.9 bar (1000–100 psi)

*Note: Minimum pressure can be factory set to 6.2 -10.3 bar (90-150 psi)

Maximum Pilot Flow: 0.76 lpm (0.2 gpm)

Maximum Tank Pressure in Dynamic Condition: 103.4 bar (1500 psi)

Pressure Rise: **A:** 0.29 bar/lpm (16 psi/gpm); **B:** 0.24 bar/lpm (13 psi/gpm); **C:** 0.18 bar (10 psi/gpm)

Hysteresis (PWM): **A:** 2.5% **B:** 3.4% **C:** 6% **F:** 4%

Electrical Parameters (For A, B, and C):

Coil	*Maximum Control Current (A)		Coil Resistance at 20°C (68°F) (ohms)		Coil Inductance (mH)	
	12 VDC	24 VDC	12 VDC	24 VDC	12 VDC	24 VDC
D-Coil	1.15	0.57	6.7 ± 3%	25 ± 5%	134	500
E-Coil	1.20	0.60	7.32 ± 3%*	29.4 ± 5%	139	560

* **Note:** For **F**, the Control Current Range for E-coils is 1.4 to 0.9 amps for 12 VDC and 0.7 to 0.45 amps for 24 VDC. Coil Resistance for 12 VDC is 7.32 ± 5% and 29.4 ± 5% for 24 VDC. Consult factory for detailed current range for particular pressure setting.

Recommended Drivers: Dither Frequency: 200 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; -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

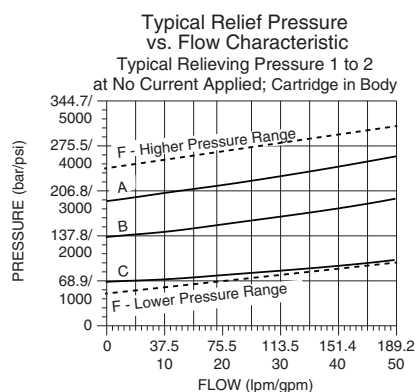
Cavity: VC12-2; See page 9.112.1; **Cavity Tool:** CT12-2XX; See page 8.600.1

Seal Kit: SK12-2X-B; See page 8.650.1

Coil Nut: Part No. 4540550;

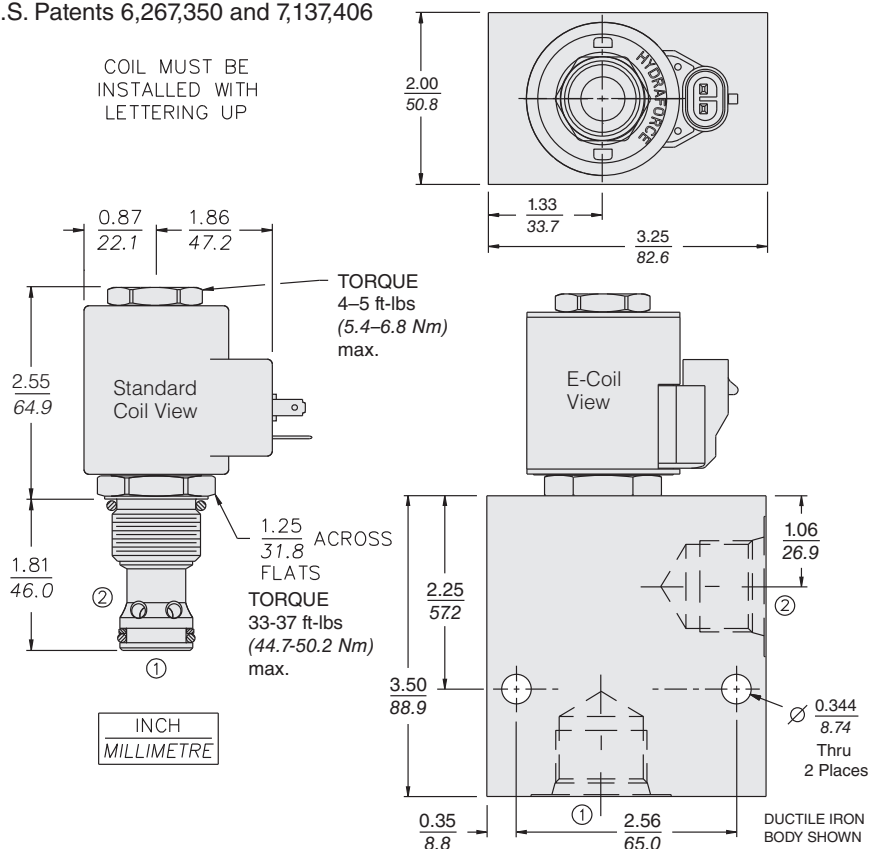
For E-coils manufactured prior to 1-1-04, see page 3.400.1 for coil nut info.

PERFORMANCE cont.



DIMENSIONS

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



MATERIALS

Cartridge: Weight: 0.25 kg (0.56 lb)
Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Buna N O-rings and TFE
back-ups standard.

Standard Ported Body: Weight:
0.36 kg (0.80 lb) Anodized high-strength aluminum alloy, rated to 207 bar (3000 psi). Ductile iron bodies available; dimensions may differ.
See page 8.012.1

10-Size Standard Coil: Weight: 0.32 kg (0.7 lb); Unitized thermoplastic encapsulated, Class H high temperature magnet-wire. See page 3.200.1.

10-Size E-Coil: Weight: 0.41 kg (0.9 lb) 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

[illegible]