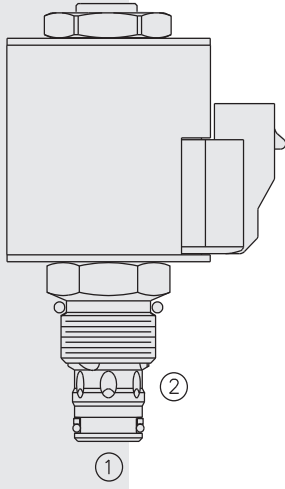
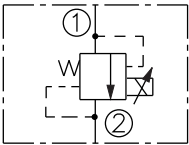


TS10-27 Proportional Pressure Relief Valve with

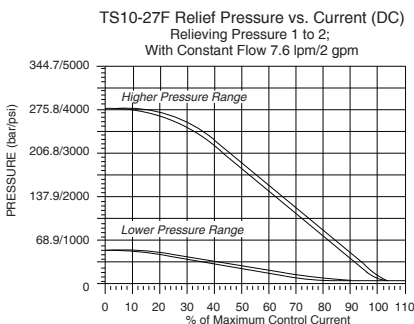
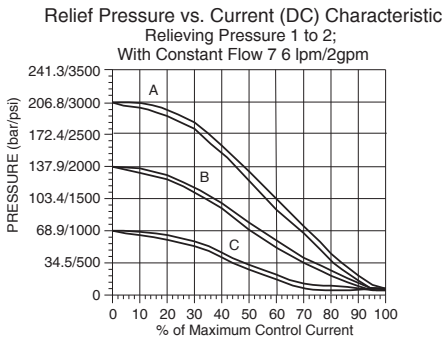
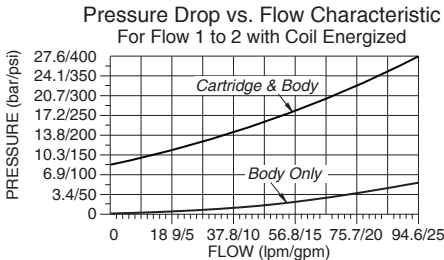
U.S. Patents
6,267,350
&
7,137,406



ISO SYMBOL



PERFORMANCE



DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type hydraulic 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 **TS10-27** 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 range maximum. Applying current to the coil decreases the induced spring force, thereby reducing the valve setting.

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.
- Adjustable or fixed relief pressure settings.
- Higher pressure 330.9 bar (4800 psi) factory-set model F available.

RATINGS

Pressure Rating: 275.8 bar (4000 psi) at Port 1; TS10-27F 330.0 bar (4800 psi)

Proof Pressure: 344.7 bar (5000 psi) at Port 1; 206.8 bar (3000 psi) at Port 2;
TS10-27F 413.7 bar (6000 psi) at Port 1 and 206.8 bar (3000 psi) at Port 2

Burst Pressure: 814 bar (11,800 psi) at all ports

Electrical Parameters:

Coil	*Typical Max. Current (A) at 0 gpm		Typical Resistance $\pm 5\%$ @ 20°C (ohms)		Typical Apparent Inductance (mH)	
	12 VDC	24 VDC	12 VDC	24 VDC	12 VDC	24 VDC
D-Coil	1.10	0.55	6.7 $\pm 5\%$	25 $\pm 5\%$	134 mH	500 mH
E-Coil	1.20	0.55	7.32 $\pm 5\%$	29.3 $\pm 5\%$	139 mH	560 mH

Relief Pressure Range from Zero to Maximum Control Current:

- A:** 206.8–6.9 bar (3000–100 psi) **B:** 138–6.9 bar (2000–100 psi)
C: 69–6.9 bar (1000–100 psi) **F:** Factory Set: 275.8–55.2 bar (4000–800 psi)

*Consult factory for detailed current range for particular pressure setting.

Note: Tank port pressure is additive to valve setting.

Rated Flow: 75.7 lpm (20 gpm), $\Delta P = 20.7$ to 24.1 bar (300 to 350 psi), cartridge only, 1 to 2 coil energized

Hysteresis (PMW 200 Hz): **A:** 3.2%; **B:** 3.0%; **C:** 4.8% **F:** 4%

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) **F:** 1.86 bar/lpm (27 psi/gpm)

Operating Fluid 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 225°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: VC10-2; See page 9.110.1

Cavity Tool: CT10-2XX; See page 8.600.1

Seal Kit: SK10-2X-B; See page 8.650.1

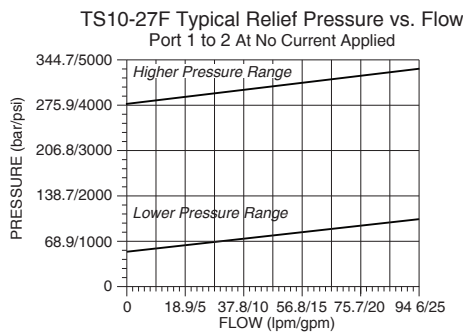
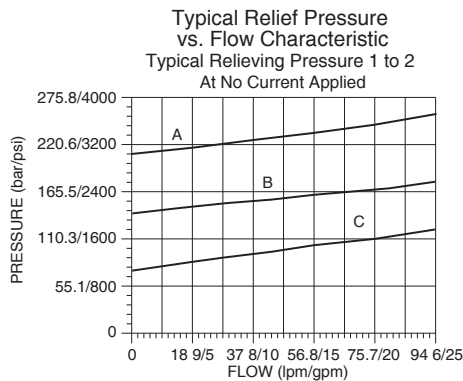
Coil Nut: Part No. 4540550;

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

Internally Piloted Spool

TS10-27

PERFORMANCE (continued)



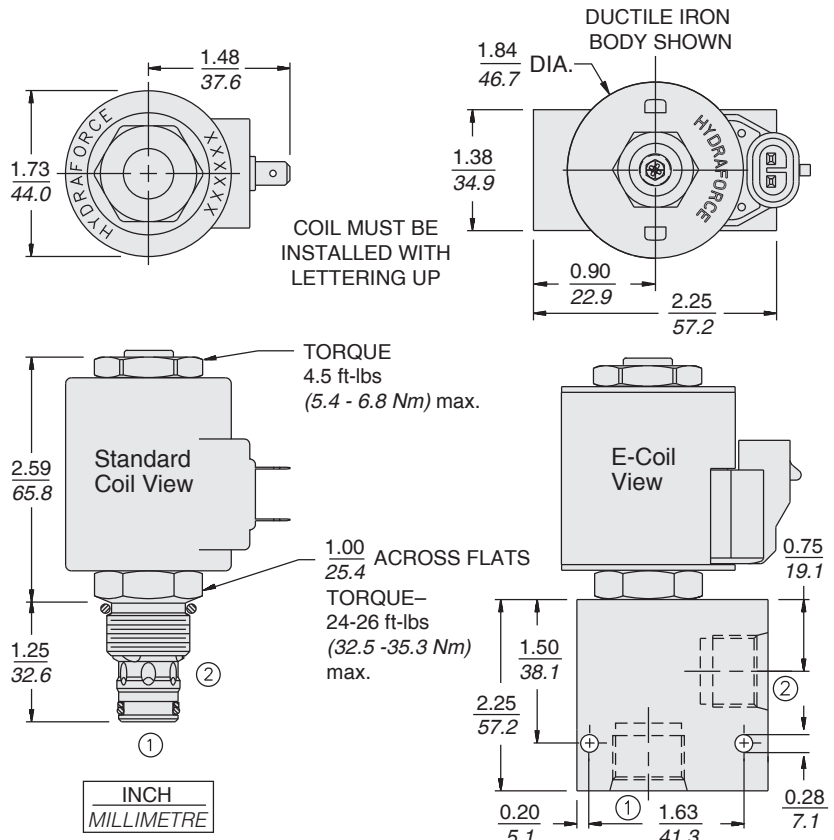
Recommended Electronic Controllers:

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

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



MATERIALS

Cartridge: Weight: 0.18 kg. (0.40 lbs.) Steel with hardened work surfaces. Zinc-plated exposed surfaces. Buna N O-rings and polyester elastomer back-ups standard. Optional polyurethane seals with fluorocarbon back-up recommended for pressures over 240 bar (3500 psi).

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 8.010.1

Standard Coil: Weight: 0.27 kg. (0.6 lbs.) Unitized thermoplastic encapsulated, Class H high temperature magnet-wire. See page 3.200.1

E-Coil: Weight: 0.41 kg. (0.9 lbs.) 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

TS10-27

Maximum Relief Pressure
207 bar (3000 psi) **A**
138 bar (2000 psi) **B**
69 bar (1000 psi) **C**
55.2-275.8 bar (800-4000 psi) **F**

Porting

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

Seals

Buna N (Std.) **N**
Fluorocarbon **V**
Polyurethane **P**

Pressure Setting
(X 100 psi [6,9 bar])
From 4000 psi [275,8 bar] to 5000 psi [344,7 bar] ONLY

Coil Termination

Deutsch DT04-2P **ER** (IP69K) **DR** (IP65)
Metri-Pack® 150 **EY** (IP69K) **DY** (IP65)
Dual Lead Wires **EL** (IP69K) **DL** (IP65)
Amp Jr. Timer **EJ** (IP67) —
DIN 43650 **EG** (IP65) **DG** (IP65)
Dual Spades — **DS** (IP65)

For Coils with Zener Diode, add "Z" to option code.
For example: "ERZ". Not available on all models.
See coil option info. on pages 3.200.1 & 3.400.1

Voltage

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