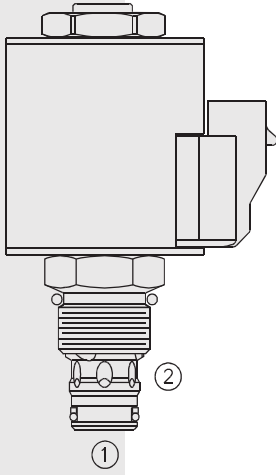


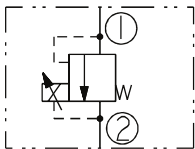
ELECTRO-PROPORTIONAL VALVES—PRESSURE CONTROLS

TS10-27 Proportional Pressure Relief Valve with

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

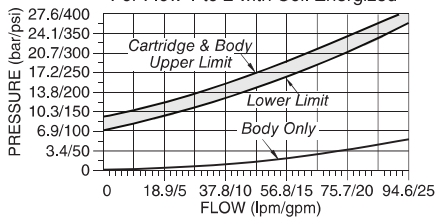


ISO SYMBOL

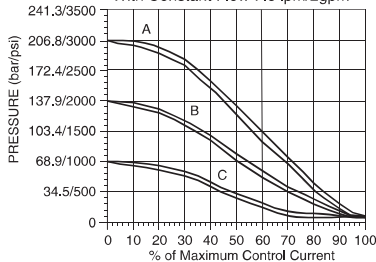


PERFORMANCE

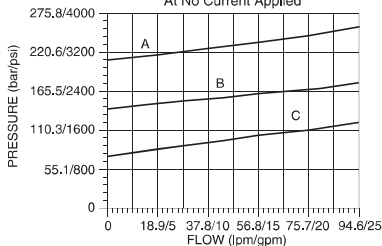
Pressure Drop vs. Flow Characteristic
For Flow 1 to 2 with Coil Energized



TS10-27 A, B, C Relief Pressure vs. Current (DC)
Relieving Pressure 1 to 2;
With Constant Flow 7.6 lpm/2gpm



TS10-27 A, B, C
Typical Relief Pressure vs. Flow
Typical Relieving Pressure 1 to 2
At No Current Applied



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

- Several adjustable pressure settings plus factory preset fixed pressure model.
- Higher pressure 330.9 bar (4800 psi) factory-set model F available.
- 12 and 24 volt coils standard.
- Industry common cavity.

RATINGS

Pressure Rating (For TS10-27A, B and C): 275.8 bar (4000 psi) at Port 1;
(For TS10-27F): 330.9 bar (4800 psi) at Port 1

Proof Pressure (For TS10-27A, B and C): 344.7 bar (5000 psi) at Port 1; 206.8 bar (3000 psi) at Port 2; (For 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

Relief Pressure Range at Zero Current - A: 206.8-6.9 bar (300-100 psi);
B): 138-6.9 bar (2000-100 psi); **C:** 69-6.9 bar (1000-100 psi); **F:** 275.8 to 27.6 bar (4000 to 400 psi)

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	1.15	0.57	6.7 $\pm 5\%$	25 $\pm 5\%$	134 mH	500 mH
E-Coil	1.20	0.60	7.32 $\pm 5\%$	29.4 $\pm 5\%$	139 mH	560 mH

* For TS10-27F, Max. Current Range for 12 VDC D-coils is 1.25 to 0.95 and E-coils is 1.35 to 1.05. For 24 VDC D-coils it is 0.63 to 0.47 and E-coils 0.68 to 0.52. Consult factory for current range of specified pressure setting.

Pressure Range by Current Adjustment 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: Can be factory set for any range between 275.8–27.6 bar (4000–400 psi)
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:** 0.38 bar/lpm (21 psi/gpm); **B:** 0.36 bar/lpm (20 psi/gpm);
C: 0.46 bar/lpm (25 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

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

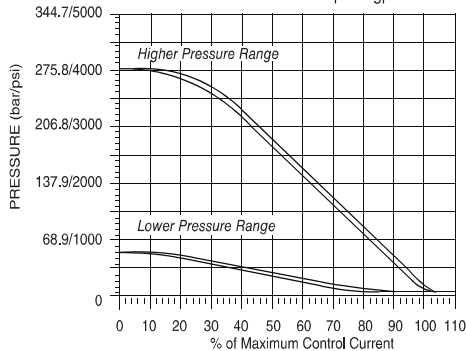
Coil Nut: Part No. 4540550; For E-coils manufactured prior to 1-1-04, see page 3.400.1 for coil nut info.

Internally Piloted Spool

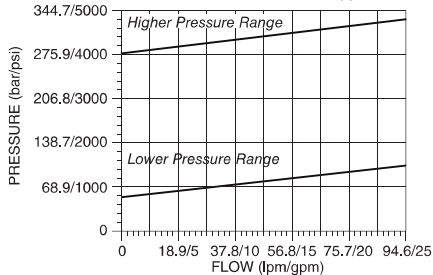
TS10-27

PERFORMANCE (continued)

TS10-27F Relief Pressure vs. Current (DC)
Relieving Pressure 1 to 2;
With Constant Flow 7.6 lpm/2 gpm

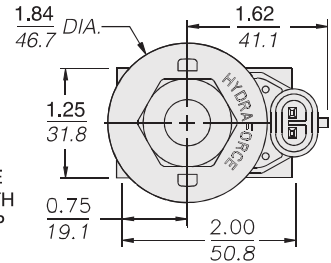
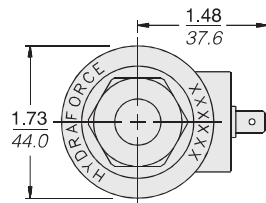


TS10-27F Typical Relief Pressure vs. Flow
Port 1 to 2 At No Current Applied

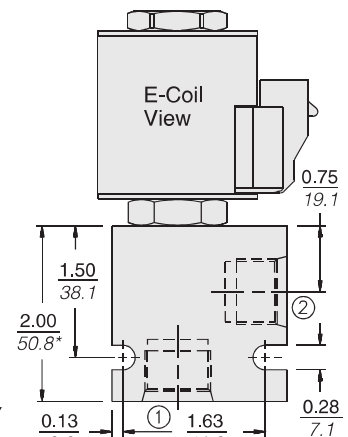
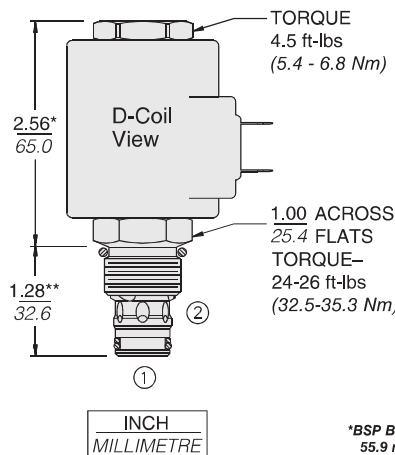


DIMENSIONS

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



COIL MUST BE
INSTALLED WITH
LETTERING UP



* Dimensions for F are 2.589 (65.76)

** Dimensions for F are 1.25 (31.8)

ALUMINUM BODY SHOWN FOR A, B, C;
FOR F, THE HIGHER PRESSURE
DUCTILE IRON BODY IS RECOMMENDED.
DIMENSIONS WILL DIFFER.

▶ **TS10-27 A- 0 - N - 0 0**

MATERIALS

Cartridge: Weight: 0.18 kg (0.40 lb) 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 lb) 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 lb) Unitized thermoplastic encapsulated, Class H high temperature magnet wire. See page 3.200.1

E-Coil: Weight: 0.41 kg (0.9 lb) Fully encapsulated with rugged external metal shell. Rated up to IP69K with integral connectors. See page 3.400.1.

TO ORDER

TS10-27

Pressure Code
207 bar (3000 psi) **A**
138 bar (2000 psi) **B**
69 bar (1000 psi) **C**
Factory-Set **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 (For TS10-27F)
(in psi)
2650 psi 26.5
(in bar)
100 bar M100

Coil Termination **E-Coil** **D-Coil**
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: "ER/Z". Not available on all models.
See coil option info. on pages 3.200.1 & 3.400.1

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