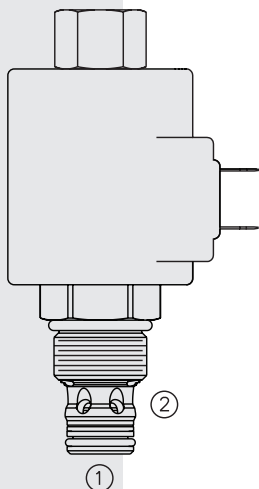


# TS10-26 Proportional Pressure Relief w/Internally

U.S. Patent  
 7,137,406



## 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. The regulated pressure is proportional to the input electrical current. This valve is intended for use as a pressure limiting device in demanding applications.

## OPERATION

The TS10-26 blocks flow from 1 to 2 until sufficient pressure is present at 1 to open the pilot section by offsetting the electrically induced solenoid force. With no current applied to the solenoid, the valve will relieve at approximately 6.9 bar (100 psi.)

The optional manual override allows the valve to be set when the electric supply is lost. The manual setting is added to the electric setting. To prevent the system from being over pressurized, the manual override should always be disengaged prior to applying power to the coil.

## FEATURES

- Optional manual override.
- Several adjustable pressure settings.
- Optional waterproof E-Coils rated up to IP69K.
- 12 and 24 volt coils standard.
- Industry common cavity.

## RATINGS

**Pressure Rating:** 241 bar (3500 psi) at Port 1; 207 bar (3000 psi) at Port 2

**Proof Pressure:** 344.7 bar (4000 psi)

**Burst Pressure:** 827.4 bar (12 000 psi) with coil assembled

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

**Pressure Range by Current Adjustment from Zero to Maximum Control Current:**

- A:** 6.9–207 bar (100–3000 psi)
- B:** 6.9–159 bar (100–2300 psi)
- C:** 6.9–117 bar (100–1700 psi)

**Flow Rating:** 94.6 lpm (25 gpm) at ΔP (Cartridge only) 9.6 bar (190 psi) Port 1 to 2 (coil de-energized)

**Maximum Pilot Flow:** 0.76 lpm (0.2 gpm)

**Electrical Parameters:**

COIL SERIES	NOMINAL VOLTAGE (VDC)	TYPICAL RESISTANCE AT 20°C (68°F) (OHMS)	VALVE INDUCTANCE (Mh)	MAXIMUM CONTROL CURRENT (A)
D	12	7.25 ± 5%	141	1.10
	24	28.35 ± 5%	626	0.55
E	12	7.3 ± 5%	139	1.20
	24	29.4 ± 5%	600	0.60

**Dither Frequency:** 200 Hz

**PWM Frequency:** 200 Hz

**Hysteresis:** Less than 3%

**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

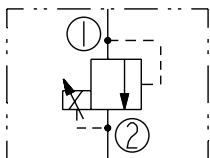
**Cavity Tool:** CT10-2XX; See page 8.600.1

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

**Coil Nut:** Part No. 4540560;

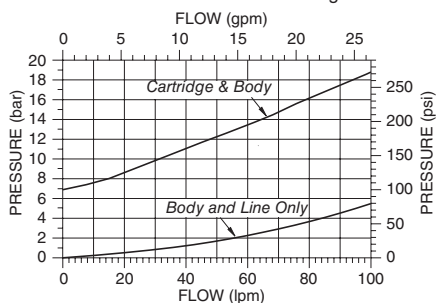
For E-coils manufactured prior to 1-1-04, see page 3.400.1 for coil nut info.

## ISO SYMBOL

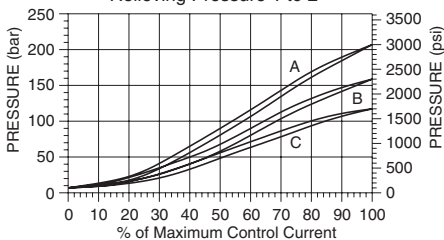


## PERFORMANCE

Pressure Drop vs. Flow Characteristic  
 For Flow 1 to 2 with Coil De-energized



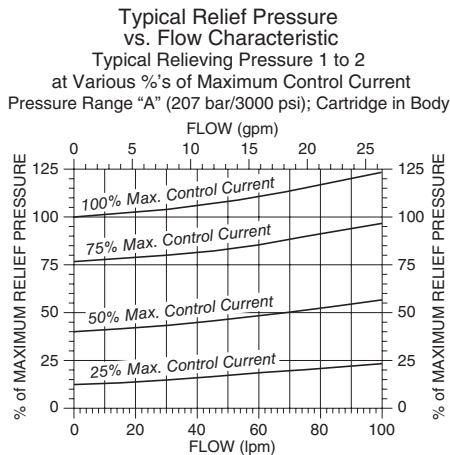
Relief Pressure vs.  
 Current (DC) Characteristic  
 at 7.6 lpm (2 gpm)  
 Relieving Pressure 1 to 2



# Piloted Spool

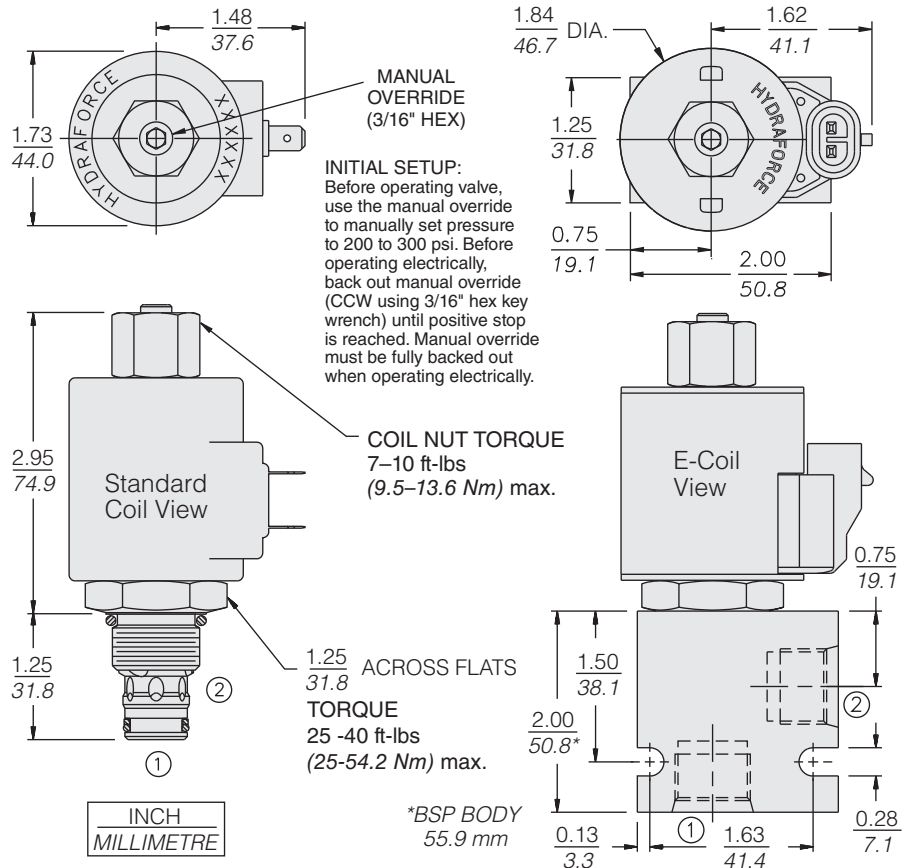
# TS10-26

## PERFORMANCE (continued)



## DIMENSIONS

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## MATERIALS

**Cartridge:** Weight: 0.25 kg (0.55 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 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: 0.32 kg (0.7 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. **Note: See page 3.400.1 for all E-Coil retrofit applications.**

## TO ORDER

### TS10-26

#### Maximum Relief Pressure

- 207 bar (3000 psi) **A**
- 159 bar (2300 psi) **B**
- 117 bar (1700 psi) **C**

#### Option

- None (Blank)
- Manual Override **M**

#### 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

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

#### Coil Termination

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

- 0** Less Coil
- 10** 10 VDC (1.30 amps max.)
- 12** 12 VDC (1.10 amps max.)
- 20** 20 VDC (0.65 amps max.)
- 24** 24 VDC (0.55 amps max.)