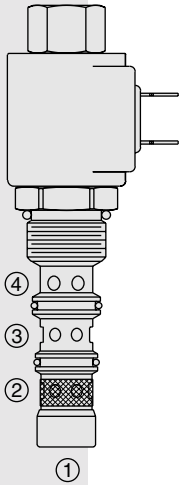


## TS98-30 Proportional Electric Reducing/Relieving



### DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type reducing/relieving valve, which can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is proportional to DC current input. This valve is intended for use as a pressure control device in demanding applications.

### OPERATION

Without applied current, the **TS98-30** allows bidirectional flow from ③ to ④ while blocking ②. When the coil is energized, ③ is connected to ②, and pressure at ③ is controlled proportional to the amount of current applied to the coil. If pressure at ③ exceeds the setting induced by the coil, pressure is relieved to ④.

Back pressure on port ④ becomes additive to the pressure setting at a 1:1 ratio.

Note: This product may be customized for special OEM performance characteristics. Consult factory.

### FEATURES

- 12 and 24 volt coils standard.
- Optional waterproofed E-Coils rated up to IP69K.

### RATINGS

**Maximum Inlet Pressure at Port ②:** 24 bar (350 psi)

**Maximum Control Current:** 0.70 amps for 12 VDC coil; 0.35 amps for 24 VDC coil

**Deadband:** 0.150 amps @ 12 VDC; 0.075 amps @ 24 VDC

**Hysteresis:** 3.0% PWM

**Reducing/Relieving Pressure Range from Zero to Maximum Control Current:** 0–20.7 bar (0–300 psi)

**Rated Flow:** 30 lpm (8 gpm) at 45 psid port ③ to ④ with coil de-energized

**Maximum Pilot Flow:** 0.4 lpm (0.12 gpm)

**Flow Path:** Free Flow: ③ to ④ bidirectional coil de-energized; Reduced: ② to ③ coil energized; Relieving: ③ to ④ coil energized; Port ① is not plumbed externally

**Temperature:** -30 to 175°C (-20 to 350°F), with standard Fluorocarbon 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 ssu)

**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:** VC98-3; See page 9.110.1; **Cavity Tool:** CT98-3XX; See page 8.600.1

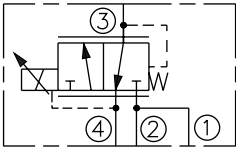
**Seal Kit:** SK90-3V; See page 8.650.1

**Coil Nut:** Part No. 7004410;

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

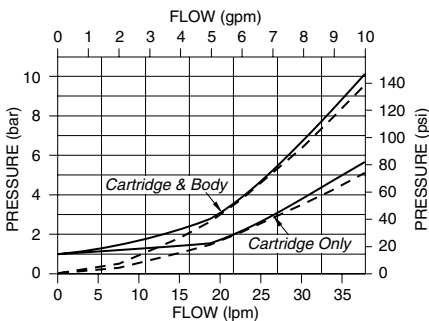
### SYMBOLS

#### USAS/ISO:

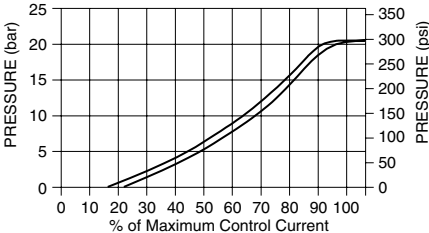


### PERFORMANCE

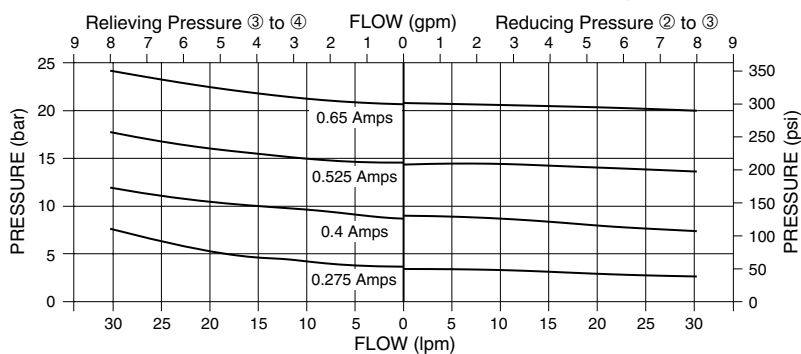
Pressure Drop vs. Flow Characteristic  
For Flow ③ to ④ with Coil De-energized



Reduced Pressure vs. Current Characteristic  
For a Regulated Pressure Range of  
0–20 bar (0–300 psi) with Input Pressure at ②  
Control Current: 300 Hz



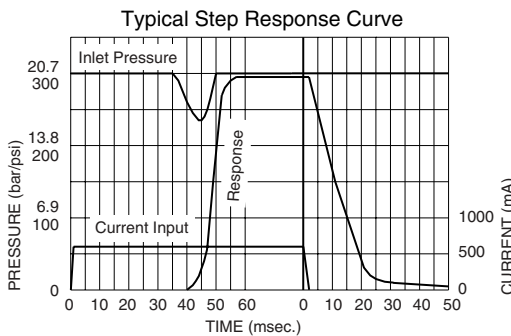
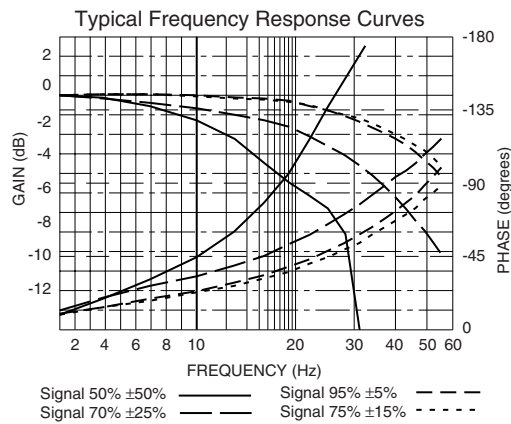
Reducing/Relieving Pressure vs. Flow Characteristic  
Regulated Pressure Range: 0–20 bar (0–290 psi) with 24 bar (350 psi) Input  
Pressure at ③ for Various Control Currents ( $\Delta P$  Shown for Cartridge & Body)



# Valve w/Internally Piloted Spool

# TS98-30

## DIMENSIONS (continued)



### Recommended Controllers (See Section 3)

Input Sig. w/12V or 24V Coil	DIN Coil Mount	PCB Board	Metal Box	DIN Rail Mount
0-5 VDC	4000161	4000194	4000174	4000136
0-10 VDC	4000165	4000141	4000182	4000137
4-20 mA	4000169	4000143	4000186	4000139
PWM	—	4000144	4000133	4000140

## MATERIALS

**Cartridge:** Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. O-rings standard.

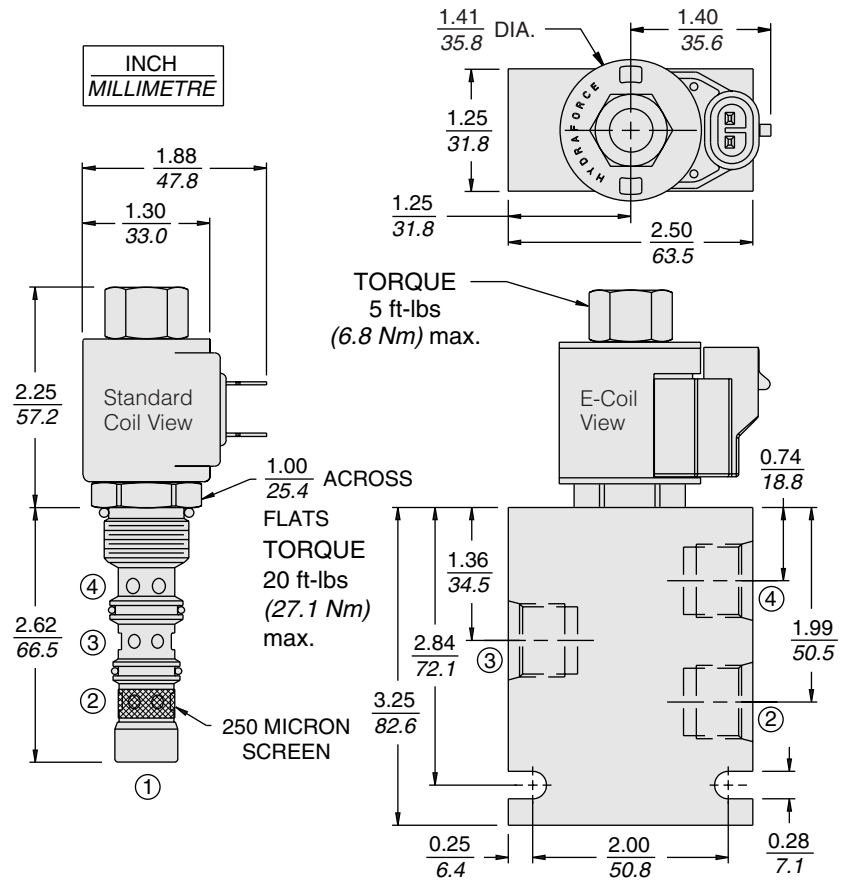
**Standard Ported Body:** Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); See page 8.010.1. Ductile iron and steel bodies available; dimensions may differ; consult factory.

**Standard Coil:** Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnet-wire; See page 3.200.1.

**E-Coil:** Weight: 0.14 kg. (0.3 lbs.); Perfect wound, 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.

## DIMENSIONS



## TO ORDER

<b>TS98-30 - - -</b>		
<b>Porting</b>		<b>Termination Std. Coil</b>
Cartridge Only	<b>0</b>	<b>DS</b> Dual Spades
SAE 6	<b>6T</b>	<b>DG</b> DIN 43650
SAE 8	<b>8T</b>	<b>DL</b> Leadwires (2)
		<b>DL/W</b> Leads w/Weatherpak® Connectors
<b>Seals</b>		<b>DR</b> Deutsch DT04-2P
Fluorocarbon	<b>V</b>	<b>Termination E-Coil</b>
		<b>ER</b> Deutsch DT04-2P (IP69K Rated)
<b>Voltage</b>		<b>EY</b> Metri-Pack® 150 (IP69K Rated)
Less Coil	<b>0</b>	
10 VDC (0.84 amps max.)	<b>10</b>	
12 VDC (0.70 amps max.)	<b>12</b>	
20 VDC (0.42 amps max.)	<b>20</b>	
24 VDC (0.35 amps max.)	<b>24</b>	
Consult factory for other voltages		Coils with internal diode are available. Consult factory.