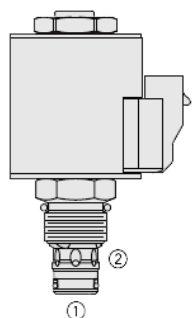
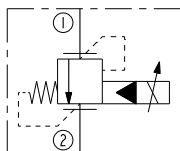


Pressure relieving proportional cartridge valve

Overview



SYMBOL



Description

TS10-27X is a pilot operated spool type, proportional pressure relieving valve. The regulated pressure is inversely proportional to the input electrical current.

Operation

The TS10-27X blocks flow from port 1 to port 2 until sufficient pressure is present at port 1 to open the valve by overcoming the preset induced spring force. Applying current to the coil decreases the induced spring force, thereby reducing the valve setting.

Ratings

Hysteresis: 3.2% note: A

3.0% note: B

4.8% note: C

note: 200 Hz PWM

Pressure Ratings

Pressure rating: 4000 psi [275.8 bar] note: At Port 1

Proof pressure: 5000 psi [344.7 bar] note: Port 1

3000 psi [206.8 bar] note: Port 2

Burst pressure: 11.800 psi [814 bar] note: At All ports

Pressure rise: 21 psi/gpm [0.38 bar/lpm] note: A

20 psi/gpm [0.36 bar/lpm] note: B

25 psi/gpm [0.46 bar/lpm] note: C

Regulated pressure range: 6.9 to 206.8 bar (100 to 3000 psi) note: A

6.9 to 138 bar (100 to 2000 psi) note: B

6.9 to 69 bar (100 to 1000 psi) note: C

note: from zero to maximum control current

Flow Ratings

Flow rating: 20 gpm [75.7 lpm] note: $\Delta P=300-350$ psi [20.7-24.1 bar] (cartridge only) port 1 to port 2 (coil energized)

Maximum pilot flow: 0.76 lpm (0.2 gpm)

Temperature Ratings

Operating fluid temperature: 40 °f to 212 °f [-40 °c to 100 °c] note: Buna N

15 °f to 400 °f [-26 °c to 204 °c] note: Fluorocarbon

65 °f to 225 °f [-54 °c to 107 °c] note: Polyurethane

Storage temperature: -40 °f to 160 °f [-40 °c to 70 °c]

Ambient temperature: -40 °f to 160 °f [-40 °c to 70 °c]

Pressure relieving proportional cartridge valve

Operating Parameters

Fluids: Mineral based or synthetic with lubricating properties

Fluid viscosity range: 7.4-420 cSt

Maximum operating contamination level: 18/16/13 per ISO 4406

Properties

Corrosion protection: 960 Hr salt spray per ASTM B117

Unit weight: 0.40 lb [0.18 kg]

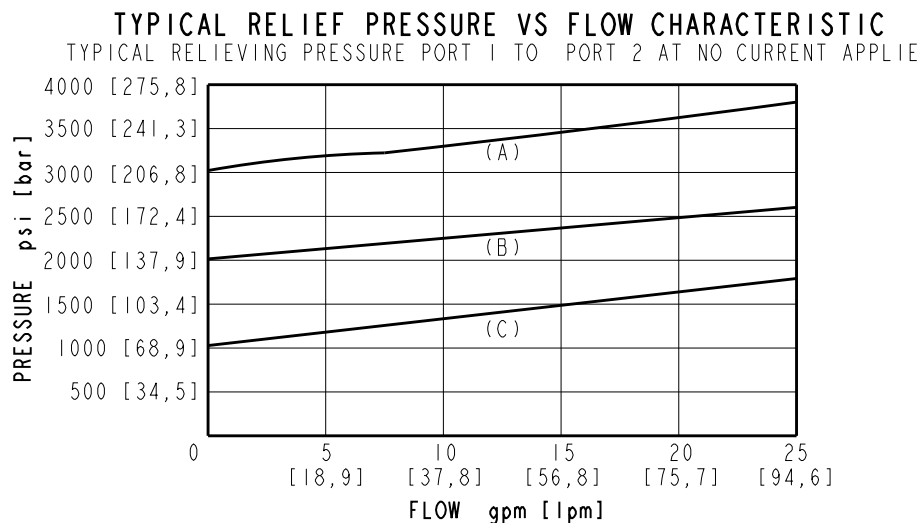
Internal wetted surface area: 22.9 in² [147.7 cm²]

Electrical Specifications

Dither PWM frequency: 200 Hz

Coil	Coil resistance at 68°F [20°C]	Valve inductance	Maximum control current
D-Coil 12 VDC	6.7 ohms ±5%	134 mH	1.15 A
D-Coil 24 VDC	25 ohms ±5%	500 mH	0.57 A
E-Coil 12 VDC	7.32 ohms ±5%	139 mH	1.20 A
E-Coil 24 VDC	29.4 ohms ±5%	560 mH	0.60 A

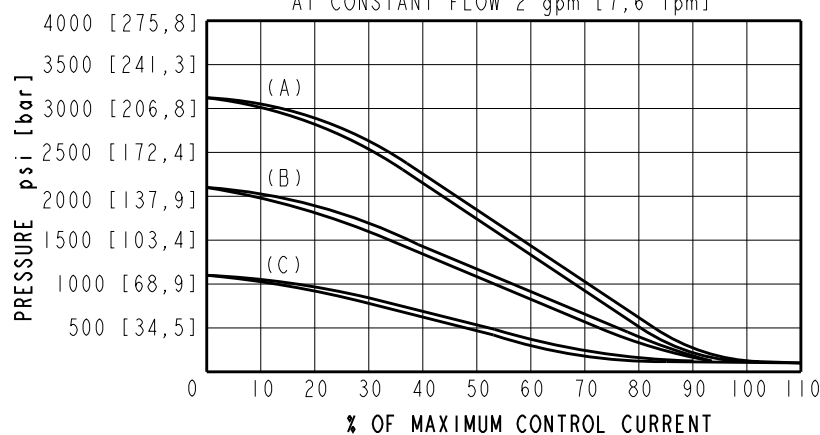
Performance



Pressure relieving proportional cartridge valve

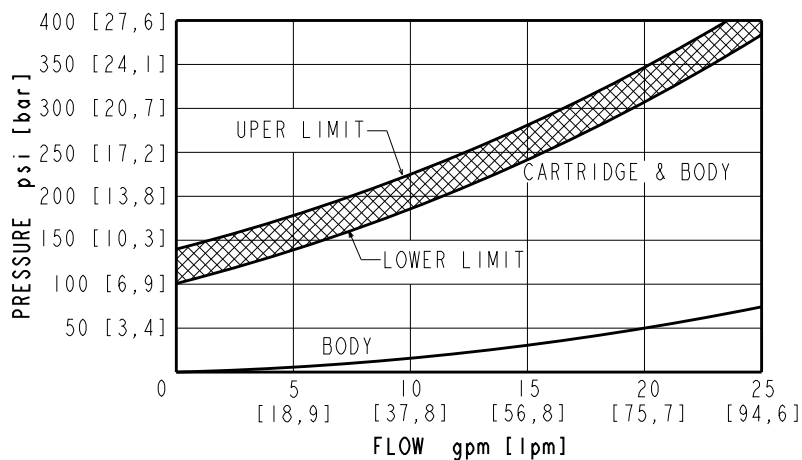
RELIEF PRESSURE VS CURRENT CHARACTERISTIC

RELIEVING PRESSURE PORT 1 TO PORT 2
AT CONSTANT FLOW 2 gpm [7,6 lpm]



PRESSURE DROP VS FLOW CHARACTERISTIC

FOR FLOW PORT 1 TO PORT 2 COIL ENERGIZED

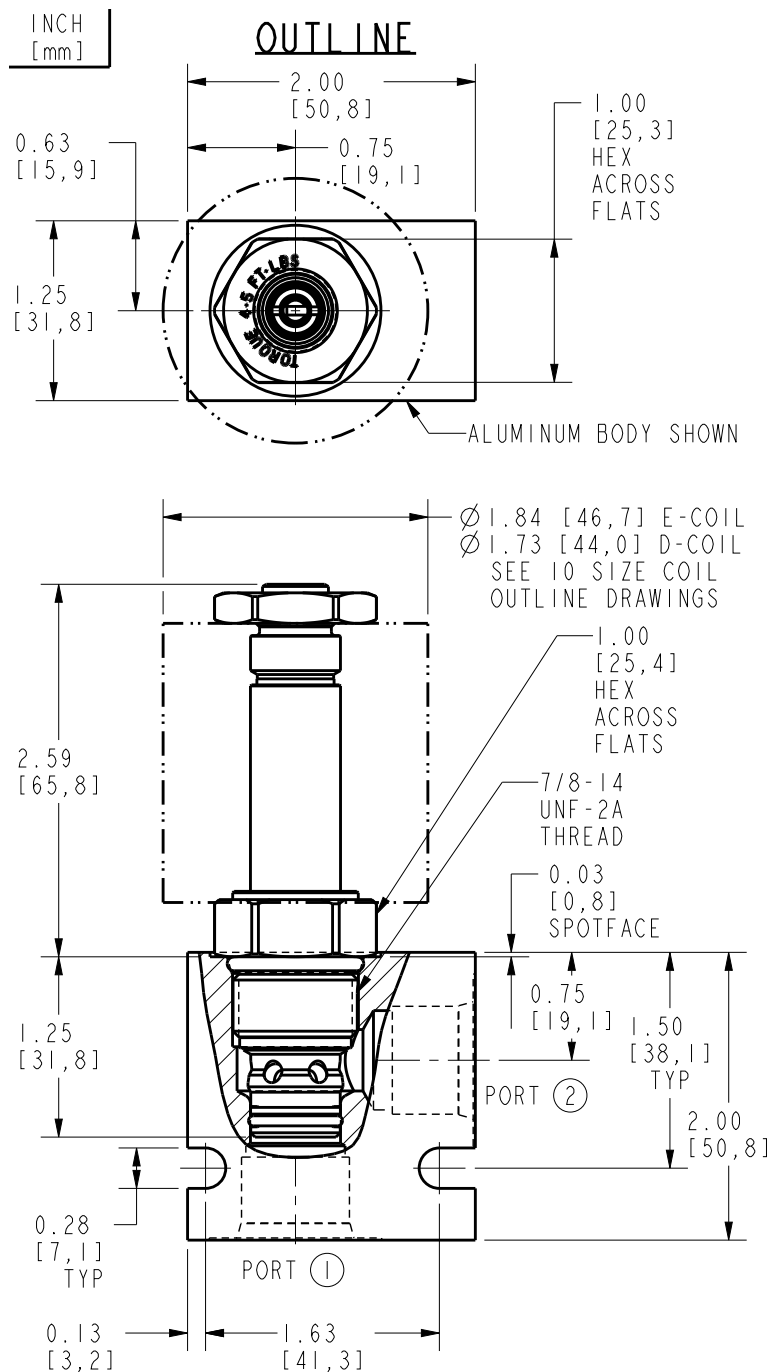


NOTES:

1. ALL TESTS DONE IN LAB WITH DTE24 (32 cSt) AT 95°F-105°F [35°C-41°C].
2. TOLERANCE OF MAXIMUM PRESSURE SETTING AT CRACK AND 0A CURRENT $\pm 2\%$.
3. MINIMUM PRESSURE SETTING AT MAXIMUM CURRENT BETWEEN 100-140 psi [6,9-9,6 bar].

Pressure relieving proportional cartridge valve

Dimensions



ALL DIMENSIONS ARE FOR REFERENCE ONLY

Installation Specifications

Cavity: VC10-2

Cartridge installation torque: 24-26 ft-lb [32.5-35.3 N-m]

Coil nut torque: 4-5 ft-lb [5.4-6.8 N-m]

Orientation restriction: None

Pressure relieving proportional cartridge valve

Accessories

Seal kit: SK10-2X-B note: X = seal option

Order Code

ORDERING INFORMATION:

TS10-27X-X-X-XXXX

BASE MODEL NUMBER:

PRESSURE CODE:

3000-100 psi [206,7-6,9 bar] - A
2000-100 psi [138-6,9 bar] - B
1000-100 psi [69-6,9 bar] - C

PORTING:

CARTRIDGE ONLY - 0

SEAL OPTION:

BUNA N - N
FLUOROCARBON - V
POLYURETHANE - P

COIL VOLTAGE:

LESS COIL - 00
12 VDC - 12
24 VDC - 24

COIL TERMINATIONS:

D-COIL OPTION:

DUAL SPADES - DS
DIN 43650 - DG

E-COIL OPTION:

DEUTSCH DT04-2P - ER
METRI-PACK 150 - EY

Model Options

TS10-27D-H-J-L

D Regulating Pressure Range

CODE	DESCRIPTION
A	206.8 to 6.9 bar (3000 to 100 psi) Pressure Range
B	137.9 to 6.9 bar (2000 to 100 psi) Pressure Range
C	68.9 to 6.9 bar (1000 to 100 psi) Pressure Range
E	Adjustable Crack Pressure at Zero Current
F	275.8 to 27.6 bar (4000 to 400 psi) Crack Pressure at Zero Current

H Line Body

CODE	DESCRIPTION
0	No Body
6T	Aluminum SAE 6
8T	Aluminum SAE 8
6TD	Ductile Iron SAE 6
8TD	Ductile Iron SAE 8
2B	Aluminum BSPP 1/4" (2)
3B	Aluminum BSPP 3/8" (3)
4B	Aluminum BSPP 1/2" (4)
4BD	Ductile Iron BSPP 1/2" (4)

Pressure relieving proportional cartridge valve

J Seal

CODE	DESCRIPTION
N	Buna-N
V	Fluorocarbon
P	Polyurethane
U	PPDI Urethane

L Coil

CODE	DESCRIPTION
0	No Coil
10DG	10 VDC, D-Coil, DIN 43650
10DL	10 VDC, D-Coil, Dual Lead Wires
10DS	10 VDC, D-Coil, Dual Spade
10EL	10 VDC, E-Coil, Dual Lead Wires
10ER	10 VDC, E-Coil, Deutsch
12DG	12 VDC, D-Coil, DIN 43650
12DL	12 VDC, D-Coil, Dual Lead Wires, 18 inches long
12DL/36	12 VDC, D-Coil, Dual Lead Wires, 36 inches long
12DL/W	12 VDC, D-Coil, Dual Lead Wires with Weatherpak
12DR	12 VDC, D-Coil, Deutsch
12DS	12 VDC, D-Coil, Dual Spade
12EG	12 VDC, E-Coil, DIN 43650
12EJ	12 VDC, E-Coil, AMP Jr.
12EL	12 VDC, E-Coil, Dual Lead Wires, 18 inches long
12EL/36	12 VDC, E-Coil, Dual Lead Wires, 36 inches long
12ER	12 VDC, E-Coil, Deutsch
12EY	12 VDC, E-Coil, Metri-Pack 150
20DS	20 VDC, D-Coil, Dual Spade
20ER	20 VDC, E-Coil, Deutsch
24AG	24 VDC, D-Coil, DIN 43650
24AP	24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires
24DG	24 VDC, D-Coil, DIN 43650
24DL	24 VDC, D-Coil, Dual Lead Wires
24DL/W	24 VDC, D-Coil, Dual Lead Wires with Weatherpak
24DP	24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires
24DR	24 VDC, D-Coil, Deutsch
24DS	24 VDC, D-Coil, Dual Spade
24EG	24 VDC, E-Coil, DIN 43650
24EJ	24 VDC, E-Coil, AMP Jr.
24EL	24 VDC, E-Coil, Dual Lead Wires, 18 inches long
24EL/36	24 VDC, E-Coil, Dual Lead Wires, 36 inches long
24ER	24 VDC, E-Coil, Deutsch
24EY	24 VDC, E-Coil, Metri-Pack 150
36DS	36 VDC, D-Coil, Dual Spade