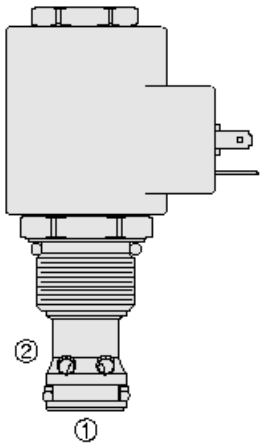




Overview



Description

TS12-27X is a pilot-operated, spool-type, proportional, pressure relieving valve which CAN be infinitely adjusted across a prescribed range using a variable electric input. The regulated pressure is inversely proportional to the input electrical current. The valve is intended for use as a pressure limiting device in demanding applications.

Operation

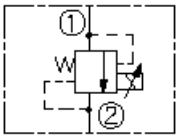
The TS12-27X blocks flow from port 1 to port 2 until sufficient pressure is present at port 1 to open the pilot section by overcoming the induced spring force. With no current applied, the valve will relieve at maximum set pressure. Applying current to the coil proportionally decreases the pressure required to open the valve from port 1 to port 2.

Features

- Several adjustable pressure ranges plus factory preset fixed pressure model.
- Hardened parts for long life.
- 12 and 24 volt coils standard.
- Industry common cavity.
- Optional waterproof E-Coils rated up to IP69K.

Symbol

USAS/ISO:



Ratings

Pressure Ratings

| | | |
|--------------------------|---|--|
| Pressure rating | 275.8 bar (4000 psi) 103.4 bar (1500 psi) 103.4 bar (1500 psi) condition | - Note: Port 1 - Note: Port 2 - Note: Maximum tank port pressure dynamic |
| Proof pressure | 413.7 bar (6000 psi) 206.8 bar (3000 psi) | - Note: Port 1 - Note: Port 2 |
| Burst pressure | 813.6 bar (11800 psi) | |
| Pressure rise | 0.29 bar/lpm (16 psi/gpm) 0.24 bar/lpm (13 psi/gpm) 0.18 bar (10 psi/gpm) | - Note: A - Note: B - Note: C |
| Operating pressure range | 6.9 to 207 bar (100 to 3000 psi) 6.9 to 138 bar (100 to 2000 psi) 6.9 to 69 bar (100 to 1000 psi) | - Note: Tested at range A 7.5 lpm (2 gpm) - Note: Tested at range b 7.5 lpm (2 gpm) - Note: Tested at range c 7.5 lpm (2 gpm) |
| Note | Minimum pressure CAN be factory set to 6.2 to 10.3 bar (90 to 150 psi) | |

Flow Ratings

| | | |
|---------------------|-----------------------|--|
| Flow rating | 189 lpm (50 gpm) | - Note: Delta-p (cartridge only) port 1-2 (coil de-energized) 15.1 to 18.9 bar (220 to 275 psi) |
| Maximum pilot flow | 0.76 lpm (0.2 gpm) | |
| Hysteresis per cent | 2.5 % 3.4 % 6 % | - Note: (a) - Note: (b) - Note: (c) |

Temperature Ratings

| | | |
|-----------------------------|---|--|
| Operating fluid temperature | -40 to 100 °C (-40 to 212 °F) -26 to 204 °C (-15 to 400 °F) -54 to 107 °C (-65 to 225 °F) | - Note: With buna N seals - Note: With fluorocarbon seals - Note: With polyurethane seals |
| Storage temperature | -40 to 70 °C (-40 to 160 °F) | |
| Ambient temperature | -40 to 70 °C (-40 to 160 °F) | |

Other Ratings

| | |
|----------------------|---------------------------------|
| Corrosion protection | 960 hr salt spray per ASTM b117 |
|----------------------|---------------------------------|



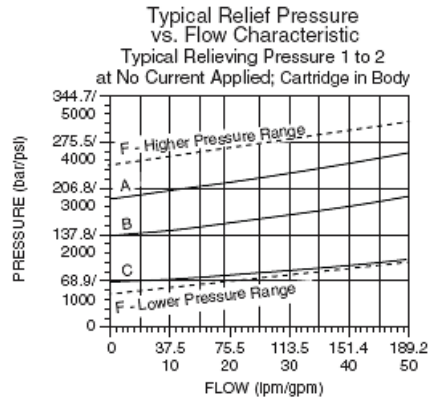
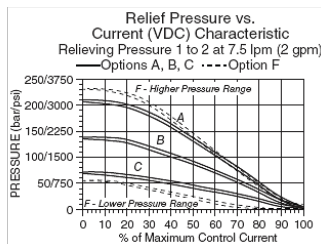
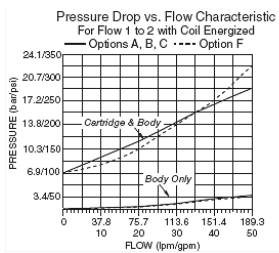
Operating Parameters

| | |
|---------------------------------------|--|
| Fluids | Mineral based or synthetic with lubricating properties |
| Fluid viscosity range | 7.4 to 420 cSt |
| Maximum operating contamination level | 18/16/13 per ISO 4406 |

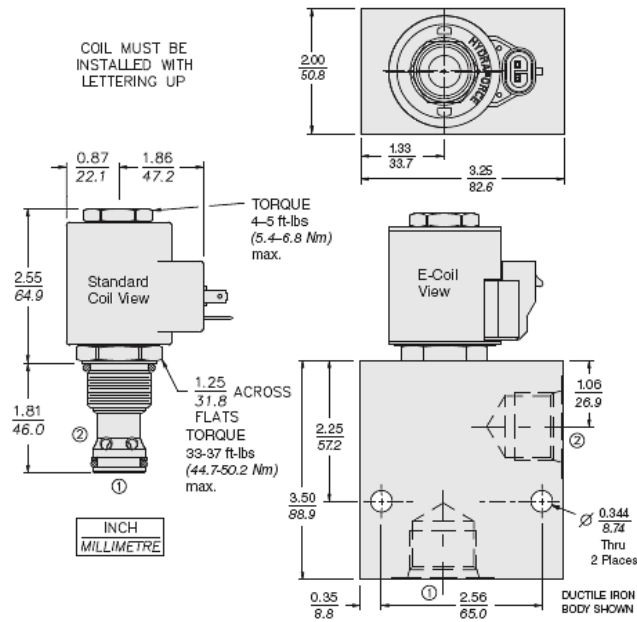
Properties

| | |
|------------------------------|---|
| Unit weight | 0.25 kg (0.56 lb) |
| Internal wetted surface area | 244 cm ² (37.8 in ²) |

Performance



Dimensions



Installation Specifications

| | |
|-------------------------------|-----------------------------------|
| Cavity | VC12-2 |
| Cartridge installation torque | 44.7 to 50.2 N-m (33 to 37 ft-lb) |
| Coil nut torque | 5.4 to 6.8 N-m (4 to 5 ft-lb) |
| Orientation restriction | None |

Accessories

| | | |
|----------|-----------|-------------------------|
| Seal kit | SK12-2X-B | - Note: X = seal option |
|----------|-----------|-------------------------|

Order Code



| | | | |
|--------------------------------|--|--|-----------------------------|
| TS12-27 | | | |
| Maximum Relief Pressure | | Pressure Setting (For TS12-27E) | |
| 207 bar (3000 psi) A | | (in psi) | 2650 psi 26.5 |
| 138 bar (2000 psi) B | | (in bar) | 100 bar M100 |
| 69 bar (1000 psi) C | | | |
| Factory Pre-Set F | | | |
| Porting | | Coil Termination | E-Coil D-Coil |
| Cartridge Only 0 | | Deutsch DT04-2P ER (IP69K) | DR (IP65) |
| SAE 12 12T | | Metri-Pack® 150 EY (IP69K) | DY (IP65) |
| SAE 12 12TD | | Dual Lead Wires EL (IP69K) | DL (IP65) |
| SAE 16 16T | | Amp Jr. Timer EJ (IP67) | — |
| 3/4 in. BSP* 6B | | DIN 43650 EG (IP65) | DG (IP65) |
| 1 in. BSP* 8BD | | 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 | |
| *BSP Body; U.K. Mfr. Only | | Voltage | |
| Seals | | 0 | Less Coil |
| Buna N (Std.) N | | 12 | 12 VDC (1.10 amps max.) |
| Fluorocarbon V | | 24 | 24 VDC (0.55 amps max.) |
| Polyurethane P | | | |

Model Options

TS12-27D-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 |
| F | 248.2 to 55.2 bar (3600 to 800 psi) Crack Pressure at Zero Current |

H Line Body

| CODE | DESCRIPTION |
|------|--------------------------|
| 0 | No Body |
| 10T | Aluminum SAE 10 |
| 12T | Aluminum SAE 12 |
| 16T | Aluminum SAE 16 |
| 12TD | Ductile Iron SAE 12 |
| 16TD | Ductile Iron SAE 16 |
| 8B | Aluminum BSPP 1" (8) |
| 8BD | Ductile Iron BSPP 1" (8) |

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 |



| CODE | DESCRIPTION |
|---------|--|
| 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 |