SV10-20  Poppet, 2-Way, Normally Closed

DESCRIPTION
A solenoid-operated, 2-way, normally closed, poppet-type, screw-in hydraulic cartridge valve, with standard and manual override options. This valve is intended to function as a load holding or blocking valve in applications requiring low internal leakage, or low-flow circuits with pull-only manual override requirements for handles or cable linkage.

OPERATION
When de-energized, the SV10-20 acts as a check valve, allowing flow to pass from 1 to 2, while blocking flow in the reverse direction. With the sensor option, the neutral sensor will signal ON or HIGH. When energized, the poppet lifts to open the 2 to 1 flow path. In this mode, flow from 1 to 2 is severely restricted. (If this path is required, see model SV10-22, page 1.044.1.) With the sensor option, the neutral sensor will signal LOW or OFF.

Operation of Manual Override Option: To override, push button in, twist counterclockwise 180° and release. In this position, the valve will remain open. To return to normal operation, push button in, twist clockwise 180° and release. Override will be detented in this position.

FEATURES
- Continuous-duty rated solenoid.
- Hardened seat for long life and low leakage.
- Optional coil voltages and terminations.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional waterproof E-Coils rated up to IP69K.

RATINGS
- Operating Pressure: 207 bar (3000 psi)
- Proof Pressure: 345 bar (5000 psi)  Burst Pressure: 896 bar (13,000 psi)
- Flow Rating: Up to 56.8 lpm (15 gpm); see performance chart
- Internal Leakage: 0.15 cc/minute (3 drops/minute) max. at 240 bar (3500 psi)
- Temperature: -40 to 100°C (-40° to 212°F) with Buna N seals; -26 to 204°C (-15°F to 400°F) with fluorocarbon seals; -54 to 107°C (-65°F to 225°F) with polyurethane seals.
- Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
- Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating: Energized: 40 msec.; De-energized: 32 msec.
- Response Time with Sensor: 53 ms pull-in, 110 ms drop-out
- Initial Coil Current Draw at 20°C: Standard Coil: 1.67 amps at 12 VDC; 0.18 amps at 115 VAC (full wave rectified).
- E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
- Minimum Pull-in Voltage: 85% of nominal at 240 bar (3500 psi)
- 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: No restrictions; See page 9.020.1
- Cavity: VC10-2; See page 9.110.1
- Cavity Tool: CT10-2XX; See page 8.600.1
- Seal Kit: SK10-2X-T; See page 8.650.1
- Coil Nut: Part No. 7004400

Typical Sensor Output & Flow vs. Valve Shift

Hatched Area: Overlapping Stroke, Leakage Flow
SV10-20

DIMENSIONS

COIL MUST BE INSTALLED WITH LETTERING UP

TORQUE 5-7 lbf•ft (6.8-9.5 N•m)

TO ORDER

SV10-(P)20(A)

Position Indicator
None (Blank)
Restricted Flow A

Screen
S

Manual Override
M

Manual Override
Y

Seals
N Buna N (Std.)
V Fluorocarbon
P Polyurethane

For Manual Override options see page 1.001.1

Porting
Cartridge Only 0
SAE 8 8T
3/8 in. BSP* 3B

Voltage
Std. Coil
0 Less Coil**
10 10 VDC†
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC

**Includes Coil Nut
† DS, DW or DL terminations only

E-Coils: 10, 12, 20 or 24 VDC only.

Sensor Option: See page 3.010.1

Sensor Type
None
N Neutral Sense/DIET-4P
M Neutral Sense/M12-4P

Mating Connectors:
DIET-4S: Part No. 4001953
M12-4S: available at www.turck.com
or www.binder-usa.com

Coil Termination
E-Coil
D-Coil
Deutsch DT04-2P ER (IP69K)
Metri-Pack® 150 EY (IP69K)
Dual Lead Wires DL (IP65)
Amp Jr. Timer EJ (IP67)
DIN 43650 EG (IP65)
Dual Spades — DG (IP65)

For Coils with Zener Diode, add "Z" to option code.
For example: "ERZ" Not available on all models.
See coil option info. on pages 3.200.1 & 3.400.1

Cartridge: Weight: 0.16 kg (0.36 lb); Weight with manual override M: 0.18 kg (0.39 lb) Weight with manual override J and Y: 0.17 kg (0.38 lb) Weight with sensor option: 0.49 kg (1.07 lb); Steel with hardened work surfaces. Zinc-plated exposed surfaces. Buna N O-rings and polyester elastomer back-up standard.

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.

D-Coil: Weight: 0.27 kg (0.60 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.

MATERIALS

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.

Dimensions will differ significantly with Sensor Option; see page 3.010.1.

Vinyl or polyester elastomer back-up standard.

Sensor/Connector
(Blank)
None
N Neutral Sense/DT04-4P
M Neutral Sense/M12-4P

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.

D-Coil: Weight: 0.27 kg (0.60 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.

MATERIALS

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.

D-Coil: Weight: 0.27 kg (0.60 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.

MATERIALS

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.

D-Coil: Weight: 0.27 kg (0.60 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.

MATERIALS

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.

D-Coil: Weight: 0.27 kg (0.60 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.

MATERIALS

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.

D-Coil: Weight: 0.27 kg (0.60 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.