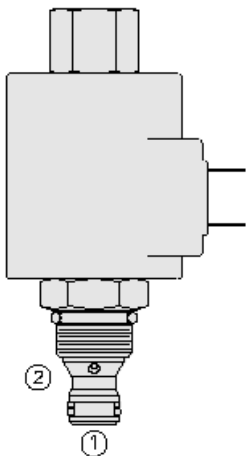




## Overview



### Description

TS38-20 is a direct-acting, single stage, poppet-type, proportional, pressure relieving valve. The regulated pressure is proportional to the input electrical current.

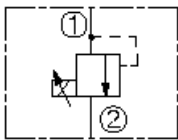
### Operation

The TS38-20 blocks flow from port 1 to port 2 until sufficient pressure is present at port 1 to offset the electrically induced solenoid force. With no current applied, the valve will free flow from port 1 to port 2.

### Features

- Industry common cavity.
- Manual override option.

### Symbol



## Ratings

### Pressure Ratings

Pressure rating	248.2 bar (3600 psi)
Proof pressure	268.9 bar (3900 psi)
Burst pressure	751.5 bar (10900 psi)
Pressure drop	20 bar (290 psi) - <b>Note:</b> Cartridge only (a) 10.3 bar (150 psi) - <b>Note:</b> Cartridge only (b) 5.5 bar (80 psi) - <b>Note:</b> Cartridge only (c)
Adjustable pressure range	0 to 206.8 bar (0 to 3000 psi) - <b>Note:</b> (a) 0 to 137.9 bar (0 to 2000 psi) - <b>Note:</b> (b) 0 to 68.9 bar (0 to 1000 psi) - <b>Note:</b> (c)

### Flow Ratings

Flow rating	11.4 lpm (3 gpm) - <b>Note:</b> Port 1 to port 2 (coil de-energized)
Maximum internal leakage	1 ml/min (20 drops/min) - <b>Note:</b> Port 2-1, at 3000 psi

### Temperature Ratings

Operating fluid temperature	-40 to 100 °C (-40 to 212 °F)	- <b>Note:</b> With buna N seals
	-26 to 204 °C (-15 to 400 °F)	- <b>Note:</b> With fluorocarbon seals
	-54 to 107 °C (-65 to 225 °F)	- <b>Note:</b> 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
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## Operating Parameters

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

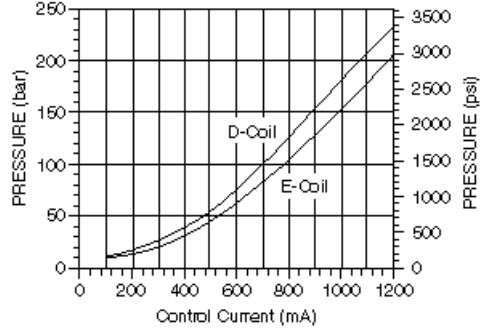


## Properties

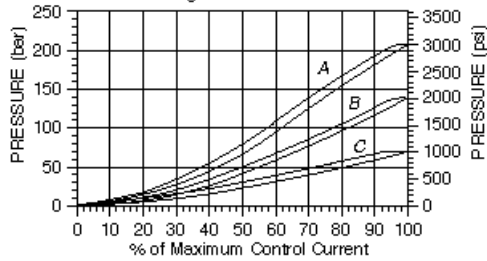
Unit weight	0.18 kg (0.39 lb)
Internal wetted surface area	130 cm <sup>2</sup> (20.2 in <sup>2</sup> )

## Performance

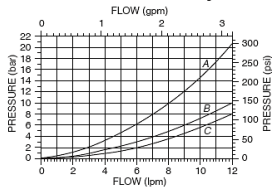
Relief Pressure vs. Current  
D-Coil vs. E-Coil



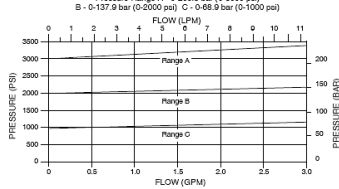
Relief Pressure vs. Current (DC) 250 Hz Dither  
Relieving Pressure ① to ②



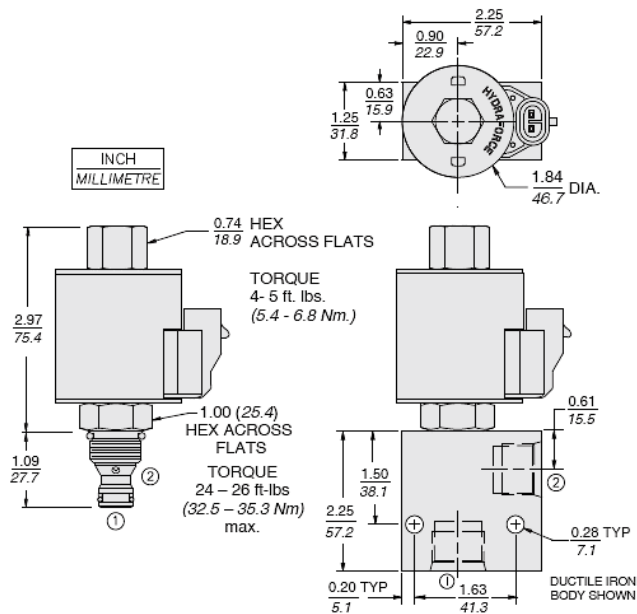
Pressure Drop vs. Flow Characteristic  
For Flow 1 to 2 with Coil De-energized



TYPICAL RELIEF PRESSURE VS. FLOW CHARACTERISTIC  
Typical Relieving Pressure Port 1 to Port 2



## Dimensions



## Installation Specifications

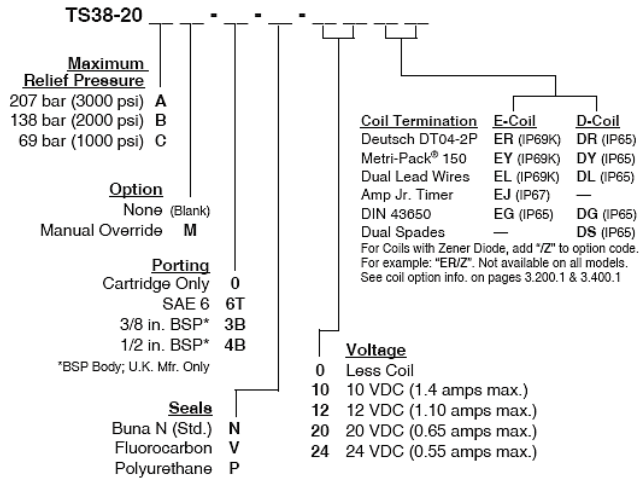
Cavity	VC08-2
Cartridge installation torque	25.8 to 28.5 N-m (19 to 21 ft-lb)
Coil nut torque	5.4 to 6.8 N-m (4 to 5 ft-lb)
Orientation restriction	None



Accessories

Seal kit SK08-2X-B - Note: Seal option)

Order Code



Model Options

TS38-20DE-H-J-L

D Regulating Pressure Range

CODE	DESCRIPTION
A	0 to 206.8 bar (0 to 3000 psi) Pressure Range
B	0 to 138.0 bar (0 to 2000 psi) Pressure Range
C	0 to 68.9 bar (0 to 1000 psi) Pressure Range

E Manual Override

CODE	DESCRIPTION
BLANK	NONE
M	Minimum Regulated Pressure Override, 3/16" Internal Hex

H Line Body

CODE	DESCRIPTION
0	No Body
4T	Aluminum SAE 4
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)
3BD	Ductile Iron BSPP 3/8" (3)

J Seal

CODE	DESCRIPTION
N	Buna-N
V	Fluorocarbon
P	Polyurethane



CODE	DESCRIPTION
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