



Overview



Description

TS90-31 is a pilot operated, spool type, proportional pressure reducing / relieving valve. the regulated pressure is proportional to the input electrical current. protected by 50 x 50 mesh screen

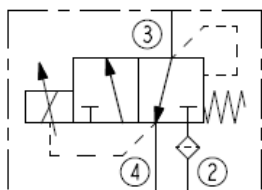
Operation

Without applied current, the TS90-31 allows bidirectional flow from port 3 to port 4, while blocking port 2. When the coil is energized, port 3 is connected to port 2, and pressure at port 3 is controlled proportional to the amount of current applied to the coil. if pressure at port 3 exceeds the setting induced by the coil, pressure is relieved to port 4.

Features

- 12 and 24 volt coils standard.
- Optional waterproof E-Coils rated up to IP69K.
- Valve spool protected by a 50x50 mesh screen.

Symbol



Ratings

Pressure Ratings

Pressure rating	241 bar (3500 psi) 207 bar (3000 psi) 69 bar (1000 psi)	- Note: Ports 2 - Note: Port 3 - Note: Port 4
Burst pressure	344.7 bar (5000 psi)	
Adjustable pressure range	0 to 207 bar (0 to 3000 psi)	
Note	Tank port pressure is additive to valve setting	

Flow Ratings

Flow rating	37.9 lpm (10 gpm)
Maximum pilot flow	1.00 lpm (0.26 gpm)

Temperature Ratings

Operating fluid temperature	-40 to 100 °C (-40 to 212 °F) -26 to 204 °C (-15 to 400 °F)	- Note: With buna N seals - Note: With fluorocarbon 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 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 (0.55 lb)
Internal wetted surface area	223 cm² (34.6 in²)



Electrical Parameters

COIL SERIES	NOMINAL VOLTAGE (VDC)	TYPICAL RESISTANCE AT 68°F [20°C] (ohms)	VALVE INDUCTANCE (mH)	MAXIMUM CONTROL CURRENT (A)
E	12	7.1±5%	137	1.20
	24	28.5±5%	580	0.60

Recommended Drivers

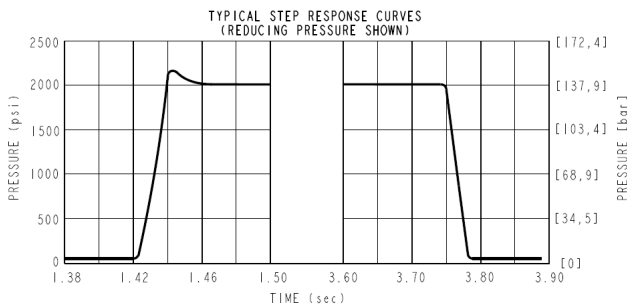
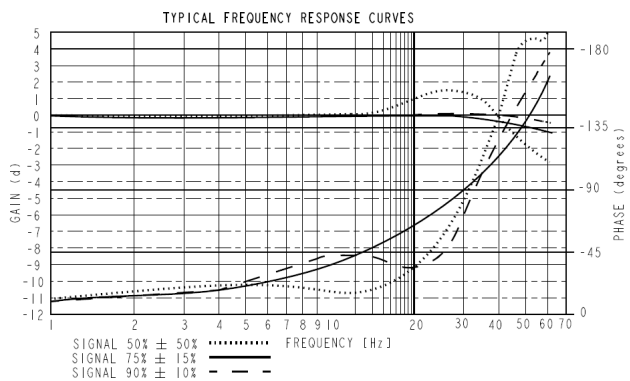
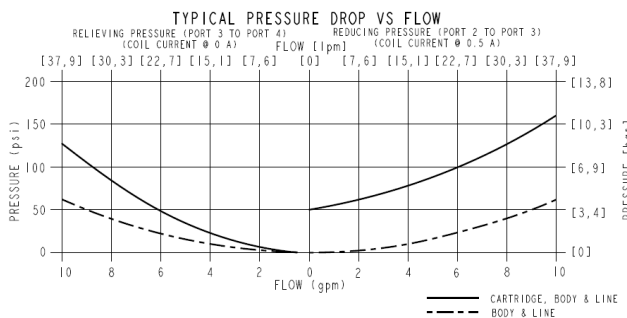
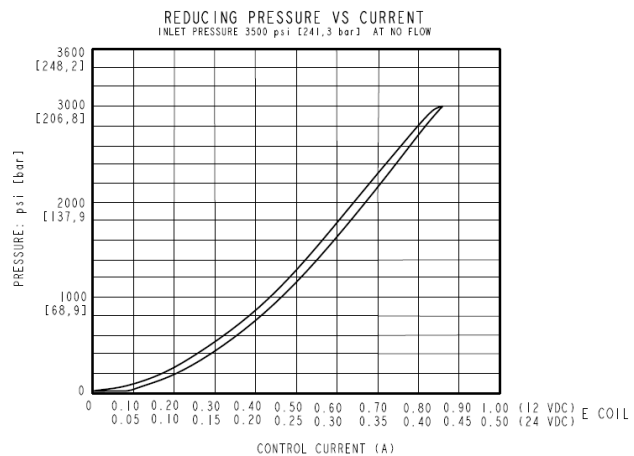
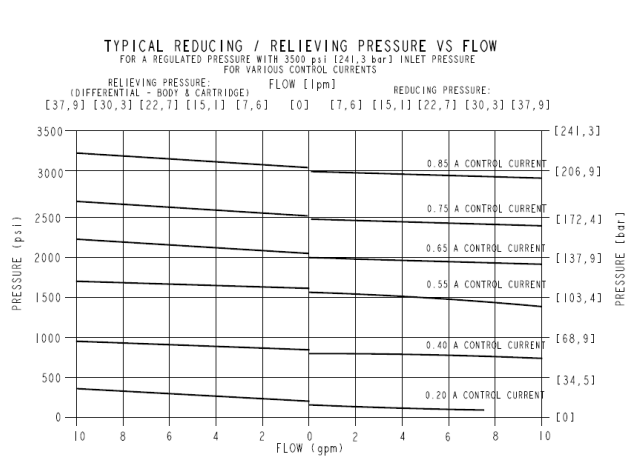
Dither frequency	350 Hz
PWN frequency	200 Hz

Performance

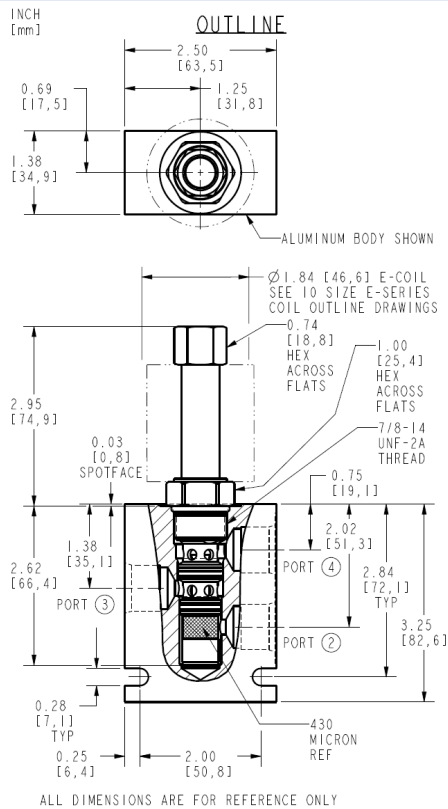
! Test conditions supporting valve upstream. Inlet pressure 2500 psi [172,4 bar]. Reduced port blocked. 12 vdc E-Series coil. Flow 0 gpm [0 lpm]

! 12 VDC E-Series coil used in all performance results.

! All tests done in lab with Mobil DTE24 32 cSt @ 40° C (104°F)



Dimensions



Installation Specifications

Cavity	VC98-3
Cartridge installation torque	32.5 to 33.9 N-m (24 to 25 ft-lb)
Coil nut torque	6.8 to 9.5 N-m (5 to 7 ft-lb)
Orientation restriction	None

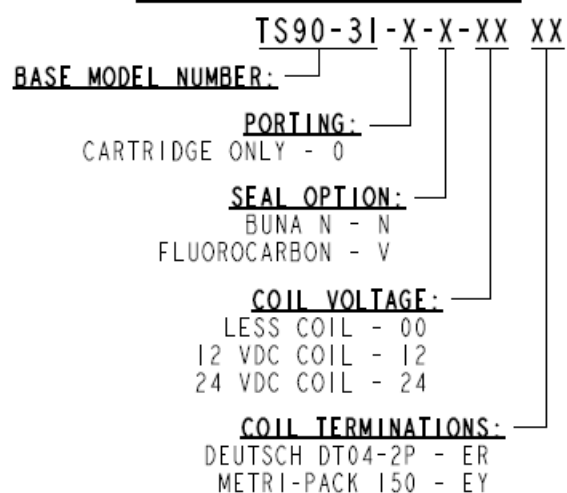
Accessories

Seal kit	SK90-3X-BM	- Note: X = seal option
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Order Code

ORDERING INFORMATION:



Model Options

TS90-31-H-J-L

H Line Body

CODE	DESCRIPTION
0	No Body

J Seal

CODE	DESCRIPTION
N	Buna-N
V	Fluorocarbon

L Coil

CODE	DESCRIPTION
0	No Coil
12ER	12 VDC, E-Coil, Deutsch
12EY	12 VDC, E-Coil, Metri-Pack 150
24ER	24 VDC, E-Coil, Deutsch
24EY	24 VDC, E-Coil, Metri-Pack 150