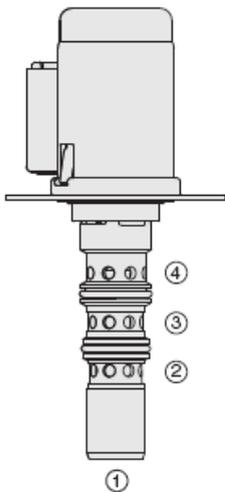




Overview



Description

This is a pilot operated, spool-type proportional pressure reducing/relieving valve. It is a drop-in, flange mounted cartridge type valve for use with mineral based or synthetic (with lubricating properties) hydraulic fluids. Back pressure at port 4 becomes additive to the pressure setting at a 1:1 ratio. The coil is an integral part of the valve and is not serviceable. The regulated pressure is proportional to the input electric current in the pressure range shown below.

Operation

Without applied current, the TS98-31 allows flow from 3 to 4 while blocking 2. When the coil is energized, 3 is connected to 2, and pressure at 3 is controlled proportional to the amount of current applied to the coil. If pressure at 3 exceeds the setting induced by the coil, pressure is relieved to 4. Back pressure on port 4 becomes additive to the pressure setting at a 1:1 ratio. Note: consult factory for special OEM variations of this product.

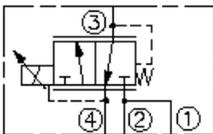
Features

- 12 and 24 volt coils standard.
- Economical drop-in style.
- Optional lock-down flange
- Several push-on termination options.
- Optional 233 micron mesh screen.
- Integral waterproof coil standard.

Application Notes

- Newer G3 products have better pull-in/drop-out performance, lower current draw, and improved hysteresis.
- G3 products install into a new cavity, however an adapted mounting plate is available for use with the T cavity.
- For new applications consider using [TS90-G34](#)

Symbol



Ratings

Pressure Ratings

Maximum inlet and regulated pressure	30 bar (435 psi)
Note	Regulated pressures up to 29.3 bar (425 psi) CAN be attained with increased current values and 30 bar (430 psi) inlet pressure
Regulated pressure range	0 to 20 bar (0 to 291 psi) - Note: With 20.7 bar (300 psi) - Note: Inlet

Flow Ratings

Flow rating	30.1 lpm (8 gpm)
Maximum internal leakage	0.55 lpm (0.15 gpm) - Note: With 20.7 bar (300 psi) inlet

Other Ratings

Cycle life	5 million cycles
Environmental rating	Ip69k (deutsch and Metri-Pack) Ip65 (amp)
Corrosion protection	960 hour salt spray per ASTM b117

Temperature Ratings

Operating fluid temperature	-40 to 149 °C (-40 to 300 °F) - Note: With HNBR seals
Storage temperature	-40 to 70 °C (-40 to 160 °F)
Ambient temperature	-40 to 90 °C (-40 to 194 °F)



Operating Parameters

Fluids	Mineral based or synthetic hydraulic fluid with lubricating properties
Fluid viscosity range	7.4 to 420 cSt
Maximum operating contamination level	20/18/14 per ISO 4406

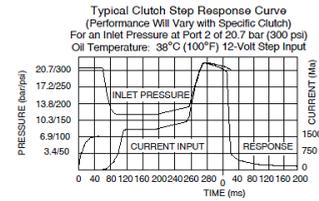
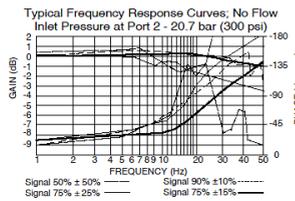
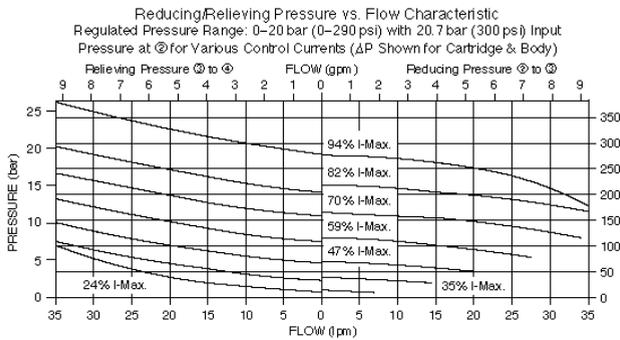
Properties

Unit weight	0.24 kg (0.51 lb)
Internal wetted surface area	260 cm ² (40.17 in ²)

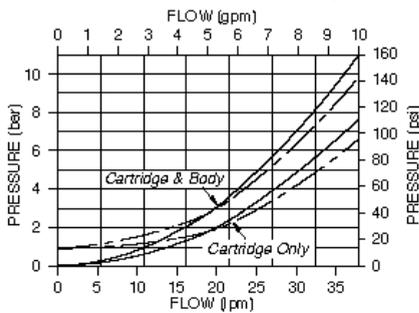
Electrical Parameters

Maximum control current	0.85 A Vdc	- Note: To achieve regulated pressure with coil 20 bar (290 psi) 12
	0.43 A Vdc	- Note: To achieve regulated pressure with coil 20 bar (290 psi) 24
Valve inductance	70 mH	- Note: At (coil) 20 °C (68 °F) 12 Vdc
	330 mH	- Note: At (coil) 20 °C (68 °F) 24 Vdc

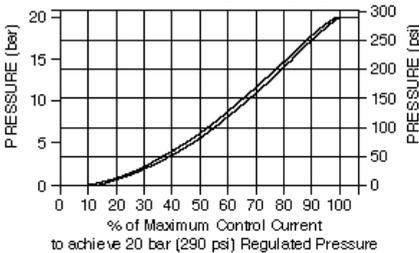
Performance



Pressure Drop vs. Flow Characteristic
- - - For Flow ③ to ④ with Coil De-energized
— For Flow ③ to ③ with Coil Energized



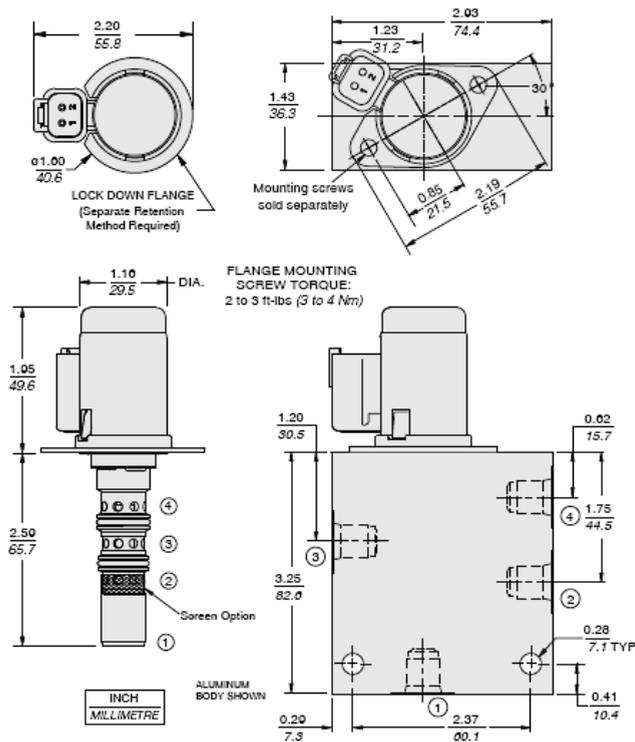
Reduced Pressure vs. Current Characteristic
With Inlet Pressure at ② of 0–20.7 bar (0–300 psi)
Control Current: 200 Hz Dither



Note: Regulated pressures up to 29.3 bar (425 psi) can be attained with increased current values and 30 bar (435 psi) inlet pressure.



Dimensions



Installation Specifications

Cavity	VC-T003
Installation type	Flange mounted (see "drop-in coil outline drawing" for flange options)
Orientation restriction	None
Mounting screw torque	3 to 4 N-m (2.2 to 3 ft-lb)

Accessories

Mounting screw	M5 x 8, hf p/n: 4000039 (sold separately)
Valve body	Hf p/n 71501x0 (sold separately)
Seal kit	SK98-T3N

