



This electro-proportional, direct-acting reducer/reliever valve reduces a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, with a full flow relief function from port 1 to tank (port 3). The valve is biased to the relieving mode. Energizing the coil connects port 2 to port 1. Increasing the current to the coil will proportionally increase the reduced pressure at port 1. If pressure at port 1 exceeds the setting induced by the coil, pressure at port 1 is relieved to port 3. Draining port 4 makes the valve insensitive to pressure at port 3. This valve is closed in the transition between reducing and relieving resulting in very low consumption of oil. Optional full manual control is available.

CONFIGURATION

M	Control	Manual Override (Standard)
D	Operating Range	50 - 485 psi (3,5 - 33,5 bar)
N	Seal Material	Buna-N
(none)	Coil	No coil

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	5 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2.5 in ³ /min.
Optimum Inlet Pressure	3000 psi
Adjustment - No. of CW Turns from Min. to Max. setting	5
Solenoid Tube Diameter	.75 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Adjustment Screw Internal Hex Size	5/32 in.
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Model Weight (with coil)	1.20 lb
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Seal and nut kit - Coil	Viton: 990770006
Model Weight	0.70 lb.

PROPORTIONAL PERFORMANCE DATA

Hysteresis (with dither)	6%
Hysteresis with DC input	<8%
Linearity (with dither)	<2%
Repeatability (with dither)	<2%
Recommended dither frequency	140 Hz

CONFIGURATION OPTIONS

Model Code Example: PSDPArray

CONTROL	(M)	OPERATING RANGE	(D)	SEAL MATERIAL	(N)	COIL *
M Manual Override (Standard)		D 50 - 485 psi (3,5 - 33,5 bar)		N Buna-N		No coil
L Standard Screw Adjustment		B 100 - 1125 psi (7 - 77,5 bar)		V Viton		212 DIN 43650-Form A, 12 VDC
		E 25 - 250 psi (1,7 - 18 bar)				224 DIN 43650-Form A, 24 VDC
						224NX01 DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
						224NX02 DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
						912 Deutsch DT04-2P, 12 VDC
						912NX01 Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
						912NX02 Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
						924 Deutsch DT04-2P, 24 VDC
						924NX01 Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
						924NX02 Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver

* Additional coil options are available

TECHNICAL FEATURES

- Maximum pressure at port 3 should be limited to 3000 psi (210 bar).
- All spring ranges are tested for correct operation with 5000 psi (350 bar) inlet pressure.
- Suitable for accumulator circuits since the absence of pilot control flow results in reduced secondary circuit leakage.
- Direct acting concept provides highly reliable operation in contaminated systems, especially at dead headed conditions.
- Leakage specified in Technical Data is out of port 3 with a supply pressure of 2000 psi (140 bar) and the valve set at mid range. This leakage is directly proportional to pressure differential and inversely proportional to viscosity expressed in centistokes.
- The transition from reducing to relieving is closed. The result is very low leakage. However, there is a transitional step increase in pressure between reducing and relieving modes. This step equals about 5% of the high end of the adjustment range, independent of the valve setting.
- For optimum performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Uses for the 'L' manual screw adjustment include: emergency valve setting during power failure or alternatively boosting the valve setting.
- With the 'L' adjustment screw, all ranges are factory set at zero (adjustment screw fully backed out). With the coil de-energized, clockwise adjustment of the screw will increase the spring bias load up to the maximum setting for that range. With the coil energized, any mechanical pressure setting is directly additive to the coil induced value.
- By controlling the pressure at the drain (port 4), the effective setting of the valve can be increased over the nominal valve setting.
- Pressure on the drain (port 4) is directly additive to the valve setting at a 1:1 ratio and should not exceed 3000 psi (210 bar).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES

