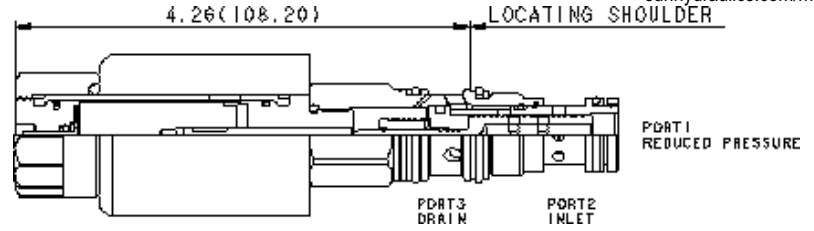


M-Control



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. This valve is open in the transition from reducing to relieving. It provides good pressure control and dynamic response. Optional full manual control is available.

**CONFIGURATION**

<b>M</b> Control	Manual Override (Standard)
<b>B</b> Operating Range	100 - 1125 psi (7 - 77,5 bar)
<b>N</b> Seal Material	Buna-N
<b>224</b> Coil	DIN 43650-Form A, 24 VDC

**TECHNICAL DATA**

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

Cavity	T-11A
Series	1
Capacity	20 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	330 cc/min.
Adjustment - No. of CW Turns from Min. to Max. setting	5
Solenoid Tube Diameter	19 mm
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Model Weight (with coil)	0,55 kg
Seal kit - Cartridge	Buna: 990511007
Seal kit - Cartridge	Viton: 990511006
Seal and nut kit - Coil	Viton: 990770006
Model Weight	0.50 kg.

**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

**NOTES**

Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

**CONFIGURATION OPTIONS**

**Model Code Example: PRDLMBN224**

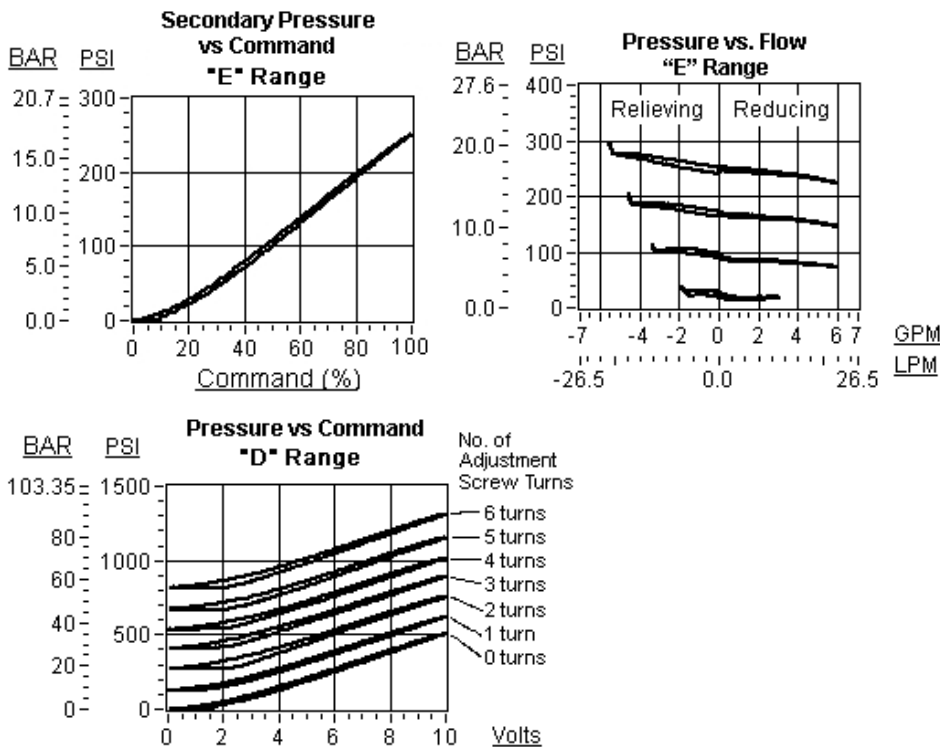
CONTROL	(M) OPERATING RANGE	(B) SEAL MATERIAL	(N) COIL *	(224)
<b>M</b> Manual Override (Standard)	<b>B</b> 100 - 1125 psi (7 - 77,5 bar)	<b>N</b> Buna-N	<b>224</b> DIN 43650-Form A, 24 VDC	
<b>E</b> Twist (Extended) Manual Override	<b>D</b> 50 - 485 psi (3,5 - 33,5 bar)	<b>E</b> EPDM	No coil	
<b>L</b> Standard Screw Adjustment	<b>E</b> 25 - 250 psi (1,7 - 18 bar)	<b>V</b> Viton	<b>212</b> DIN 43650-Form A, 12 VDC	
<b>X</b> No Manual Override	<b>S</b> 10 - 100 psi (0,7 - 7 bar)		<b>912</b> Deutsch DT04-2P, 12 VDC	
			<b>924</b> Deutsch DT04-2P, 24 VDC	

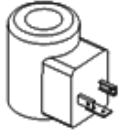
\* Additional coil options are available

## TECHNICAL FEATURES

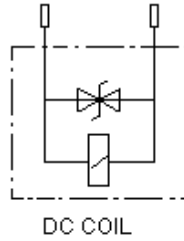
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 3000 psi (210 bar).
- Maximum pressure at port 3 should be limited to 3000 psi (210 bar).
- Direct acting concept provides highly reliable operation in contaminated systems, especially at dead headed conditions.
- 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.
- NOTE: There is no upper limit to the pressure setting when using the M control. The more force you exert on the manual override, the higher the resulting pressure.
- The 'E' manual control assembly has a mechanical life expectancy of approximately 7,000 cycles.
- The momentary/twist override option "E" allows the operator to shift the valve by twisting the manual override clockwise 90 degrees.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- The transition from reducing to relieving is slightly open. The result is very good pressure control with oil consumption of about 0.1 gpm (0,4 L/min.).
- For optimum performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.
- All three-port pressure reducing and reducing/relieving cartridges are physically interchangeable (i.e. same flow path, same cavity for a given frame size). When considering mounting configurations, it is sometimes recommended that a full capacity return line (port 3) be used with reducing/relieving cartridges.
- 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.
- 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

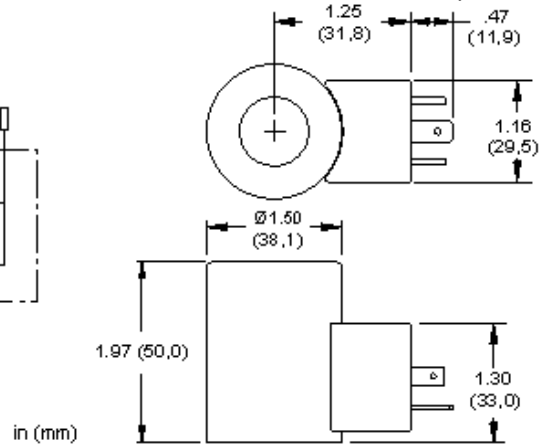




**CONFIGURATION**



DC COIL



**TECHNICAL DATA**

Maximum Coil Temperature at 68°F (20°C) Ambient	218°F (105°C)
Arc Suppression (TVS)	Included
Power Consumption (cold) - at rated voltage	22 watts
Maximum Ambient Temperature	50 °C
Voltage/Frequency	24 VDC
Operating Voltage Range	+/- 10% nominal
Duty Cycle Rating	100 %
Connector	ISO4400 - EN/DIN175301-803, Form A (ISO/DIN 43650) 3-pin
Connector Environment Rating	IP65/IP67
Solenoid Tube Diameter	19 mm
Coil Nut Torque	0,5 Nm
Model Weight	0.23 kg.

**PROPORTIONAL PERFORMANCE DATA**

Maximum Current	590 mA
Nominal Coil Resistance at 122°F (50°C) Stabilized	37.2 ±5% ohms
Nominal Coil Resistance at 68°F (20°C) Cold	26.2 ±5% ohms

**USED WITH**

DAAL	DAALS	DBAL	DBALS	DFCA	DFCB	DFDA	DFDB	DFEA	DFEB
DFFA	DFFB	DLDA	DLDAS	DLDAZ	DMDA	DMDAS	DMDAZ	DNCA	DNCAZ
DNDA	DNDAS	DNDC	DNDY	DNDYS	DTCA	DTCAZ	DTDA	DTDAS	DWDA
FMDA	FMDB	FPCC	FPCH	FPFK	FPHK	HDDA	PRDL	PRDM	PRDN
PRDP	PSDL	PSDP	RBAN	RBAP					

**TECHNICAL FEATURES**

- Coil windings utilize Class N, (392° F [200 °C] rated) magnet wire.
- A TVS surge suppression diode is built into DC coils. Nominal breakdown voltage: 68V. Model code 1.5 KE68CA Steady state power dissipation @ 75°C is 6.5 W and peak pulse dissipation is 1500 W for 1 ms, nonrepetitive.
- Power cable with mating connector is required and is not included with product.
- This coil is CE compliant. It meets the requirements of the Low Voltage Directive (2006/95/EC) and EN 60204-1:2006.
- The coil is magnetically symmetrical and can be mounted in either direction on the solenoid tube without affecting performance.
- For optimum proportional performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.
- IP rating is dependent on the coil connector and the mating connector used.
- RoHS compliant. Restricted materials less than 0.1% total by weight.
- The external steel shell is plated with clear zinc trivalent.