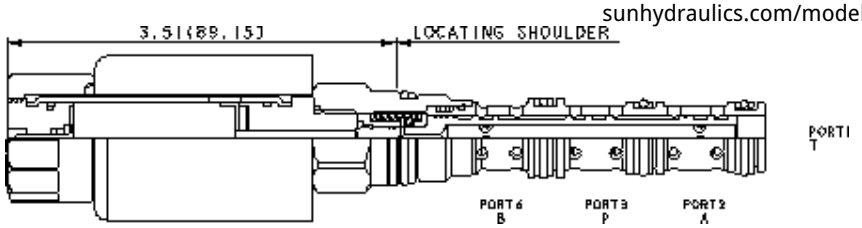


M or S-Control, N-Spool



This solenoid-operated 4-way, 2-position cartridge is a direct-acting, balanced spool directional valve.

CONFIGURATION

M	Control	Manual Override
N	Spool Configuration	Through, Shift to Cross
N	Seal Material	Buna-N
224	Coil	DIN 43650-Form A, 24 VDC

TECHNICAL DATA

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

Cavity	T-31A
Series	1
Capacity	40 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	160 cc/min.@210 bar
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Solenoid Tube Diameter	19 mm
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	EPDM: 990431014
Seal kit - Cartridge	Viton: 990431006
Seal and nut kit - Coil	Viton: 990770006
Model Weight	0.57 kg.

NOTES

- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
- An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

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CONFIGURATION OPTIONS

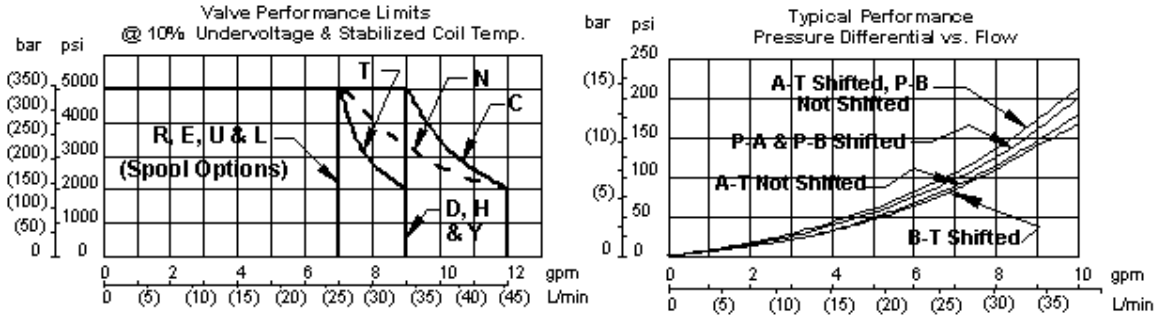
Model Code Example: DNDAArray

CONTROL (M)	SPOOL CONFIGURATION (N)	SEAL MATERIAL (N)	COIL * (224)
M Manual Override	**N** Through, Shift to Cross	**N** Buna-N	**224** DIN 43650-Form A, 24 VDC
X No Manual Override	**C** Closed, Shift to Through	**E** EPDM	No coil
D Twist/Lock (Dual) Manual Override	**D** Closed, Shift to Cross	**V** Viton	**212** DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override	**E** Cross, Shift to Closed		**912** Deutsch DT04-2P, 12 VDC
T Twist (Momentary) Manual Override	**H** Open, Shift to Cross		**924** Deutsch DT04-2P, 24 VDC
	J Open, Shift to Through		* Additional coil options are available
	L Cross, Shift to P to A, B and T Blocked		
	R Regen, Shift to Cross		
	S Regen, Shift to Through		
	T Tandem, Shift to Through		
	U Through, Shift to Tandem		
	X Cross, Shift to Through		
	Y Motor, Shift to Cross		
	Z Motor, Shift to Through		

TECHNICAL FEATURES

- The solenoid tube assembly is fatigue rated for 5000 psi (350 bar) service.
- This valve is direct actuated and requires no minimum hydraulic pressure for operation.
- 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.
- This cartridge has several manual override choices, including no manual override. See the CONFIGURATION section. Please note: Manual override functionality is not compatible with weatherized coils.
- On models equipped with the D or L control, the detent mechanism in the manual override is meant for temporary actuation. The D, L and T manual control assemblies have a mechanical life expectancy of approximately 7,000 cycles.
- This valve utilizes a wet armature design. This means that the working fluid surrounds the armature and is exposed to the heat generated by the coil. This can be a factor if the coil is energized for long periods of time. Some fluids, notably water/glycol mixtures, break down at these temperatures over time and form varnishes that will affect the function of the cartridge.
- A wide variety of coil termination and voltage options are available, with and without surge protection. See the CONFIGURATION section.
- The solenoid's unique magnetic design results in a high efficiency solenoid, yielding high spool actuating force per Watt expended, leading to reliable valve shifting.
- Coils are interchangeable with other Sun Series 1 solenoid products and can be mounted on the tube in either direction.
- Coil connector options offer ratings up to IP69K. See individual coil product pages for details. Additional weatherized coils and kits are available for more complete environmental protection.
- 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

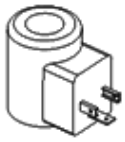


Note: Performance limits are derived with 4-way operation and symmetrical flow. For valve applications where either asymmetrical flow or 3-way operation is present, these performance limits may be reduced.

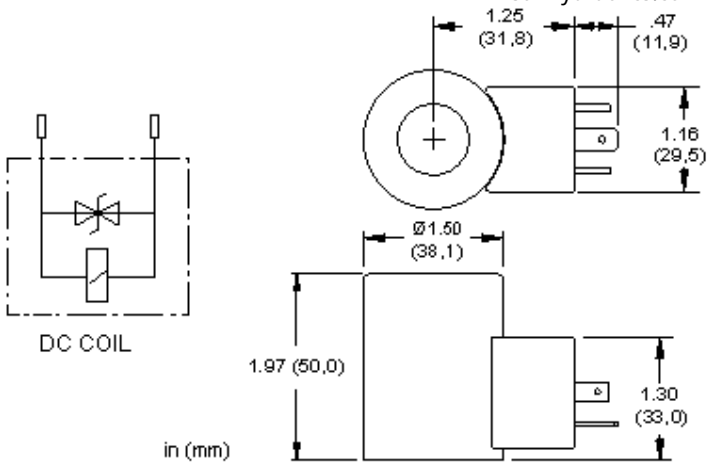
RELATED MODELS

- DNDAS 4-way, 2-position, soft shift, solenoid-operated directional spool valve

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CONFIGURATION



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

DMDA DMDAS DNCA DNDA DNDAS DNDC DNDY DNDYS FMDA FMDB FPCC FPCH FPFK FPHK HDDA PRDM PRDN PSDL PSDP RBAN RBAP

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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.
- 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.
- This coil is CE compliant. It meets the requirements of the Low Voltage Directive (2006/95/EC) and EN 60204-1:2006.
- 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.

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