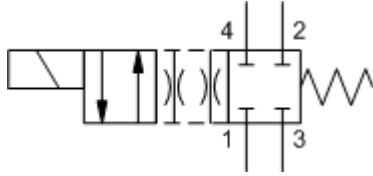
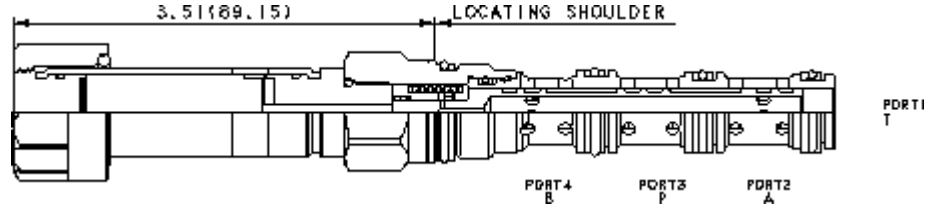


X-Control, N-Spool



X-Control, C-Spool



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

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

Cavity	T-31A
Series	1
Capacity	10 gpm
Maximum Operating Pressure	5000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Maximum Valve Leakage at 110 SUS (24 cSt)	10 in ³ /min. @3000 psi
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Solenoid Tube Diameter	.75 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Model Weight	0.75 lb.
Seal and nut kit - Coil	Viton: 990-770-006
Seal kit - Cartridge	Buna: 990-431-007
Seal kit - Cartridge	EPDM: 990-431-014
Seal kit - Cartridge	Viton: 990-431-006

- 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.

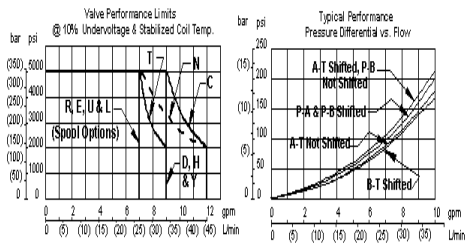
OPTION SELECTION EXAMPLE: DNDAXNN

CONTROL	(X)	SPOOL CONFIGURATION	(N)	SEAL MATERIAL	(N)	COIL
X No Manual Override		N Through, Shift to Cross		N Buna-N		No coil
D Twist/Lock (Dual) Manual Override		C Closed, Shift to Through		E EPDM		
L Twist/Lock (Detent) Manual Override		D Closed, Shift to Cross		V Viton		
M Manual Override		E Cross, Shift to Closed				
T Twist (Momentary) Manual Override		H Open, Shift to Cross				
		J Open, Shift to Through				
		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.
- 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.
- 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.
- 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.