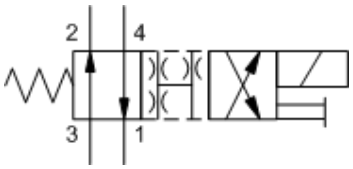
MODEL
DNDF

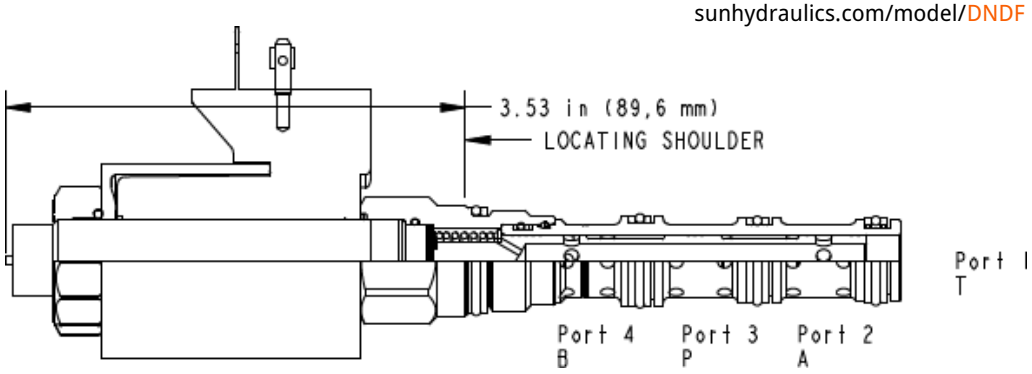
4-way, 2-position, solenoid-operated directional spool valve (740 Series)

SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-31A

sunhydraulics.com/model/DNDF



M or S-Control, N-Spool



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

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	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	16 mm
Valve Hex Size	22,2 mm
Coil Nut Torque	4,8 - 5,3 Nm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	Viton: 990431006
Seal and nut kit - Coil	Viton: 990740006
Model Weight	0.55 kg.

CONFIGURATION OPTIONS

Model Code Example: DNDFArray

CONTROL (M)

- **M** Manual Override
- **D** Twist/Lock (Dual) Manual Override
- **L** Twist/Lock (Detent) Manual Override
- **T** Lever (Momentary) Manual Override
- **X** No Manual Override

SPOOL CONFIGURATION (N)

- **N** Through, Shift to Cross
- **C** Closed, Shift to Through
- **D** Closed, Shift to Cross
- **E** Cross, Shift to Closed
- **T** Tandem, Shift to Through
- **X** Closed, Shift to Through
- **Y** Motor, Shift to Cross

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

COIL * (224)

- **224** DIN 43650-Form A, 24 VDC
- No coil

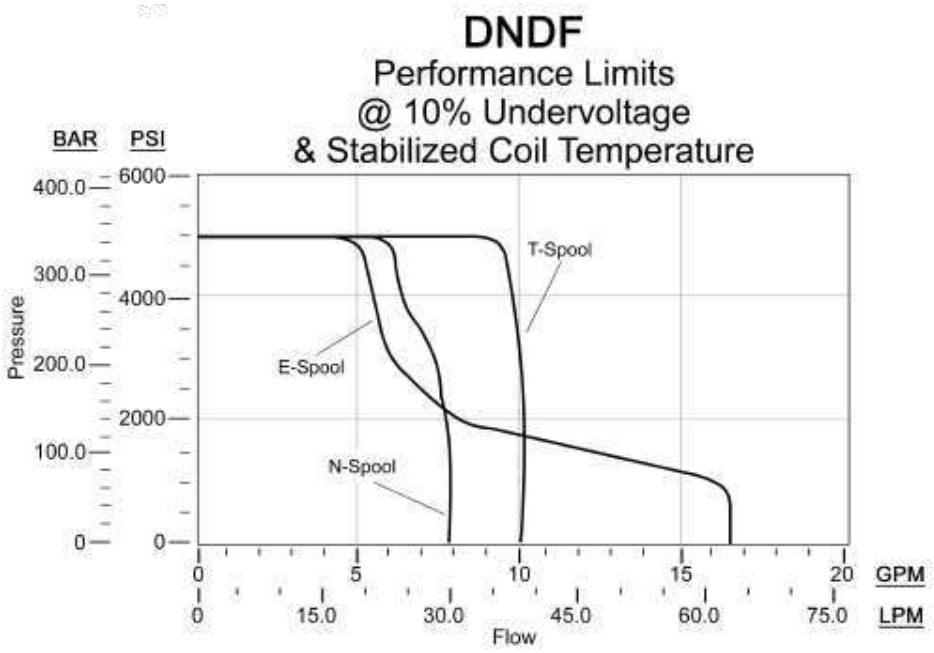
* Additional coil options are available

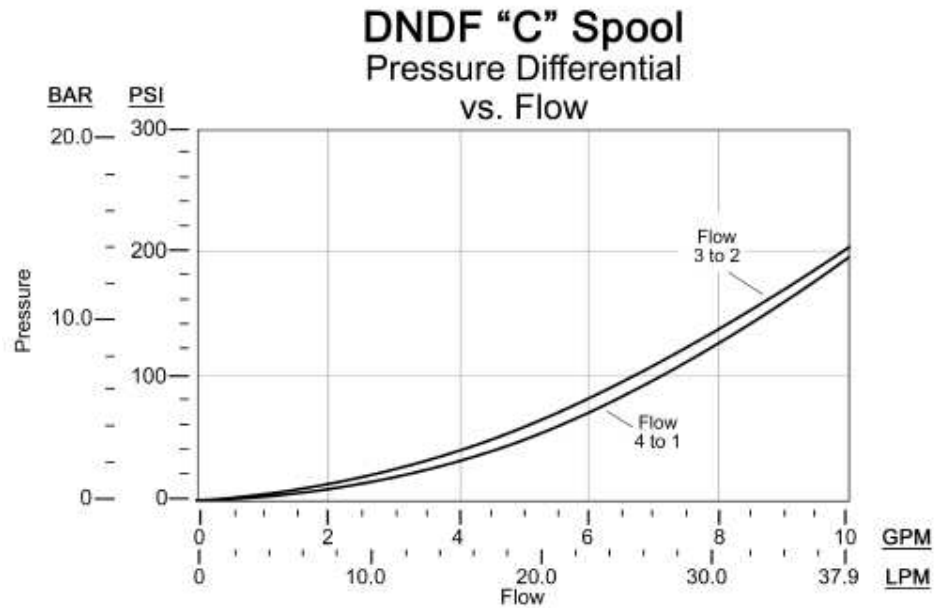
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TECHNICAL FEATURES

- 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.
- All configurations of this valve include zinc-nickel plating as standard for 1000-hour salt fog protection.
- Coil connector options offer ratings up to IP69K. See individual coil product pages for details.
- 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.
- 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 can be mounted on the tube in either direction.
- 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.

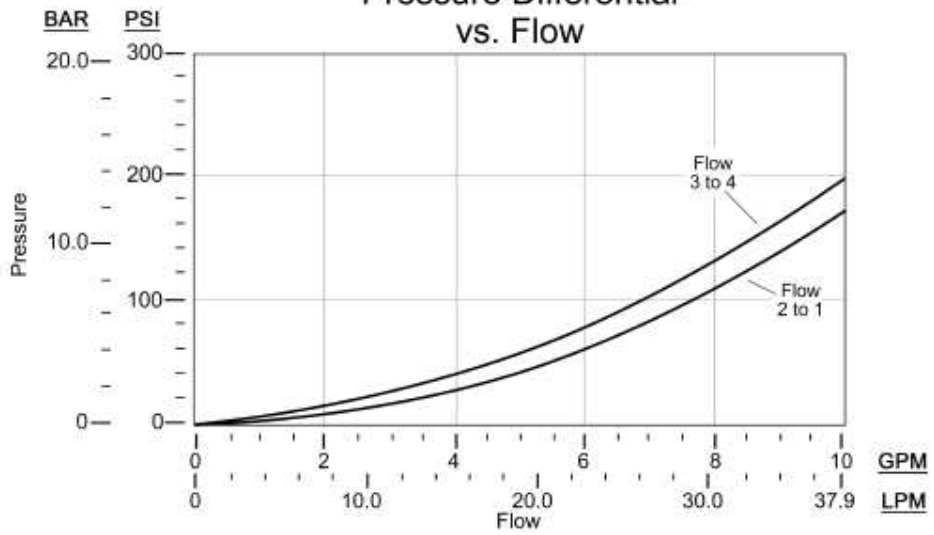
PERFORMANCE CURVES



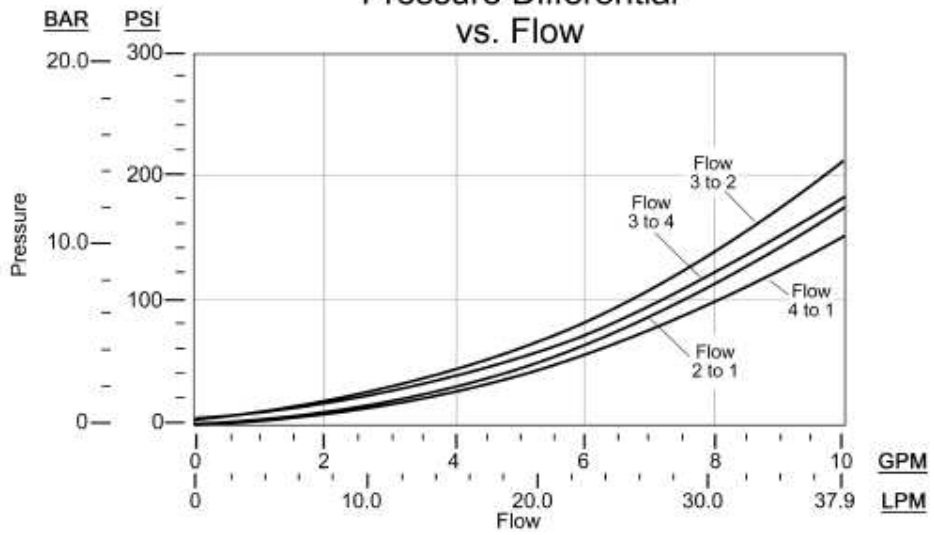


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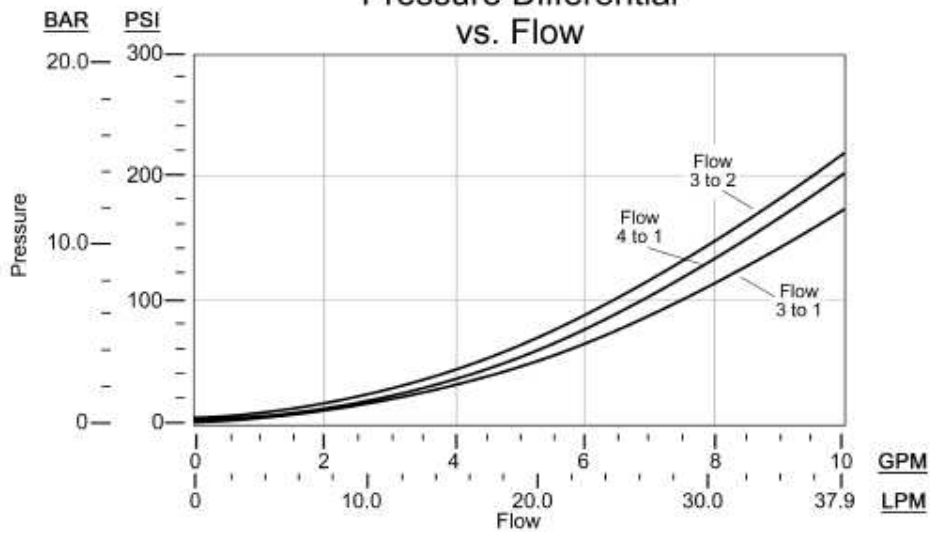
DNDF “E” Spool
Pressure Differential
vs. Flow



DNDF “N” Spool
Pressure Differential
vs. Flow

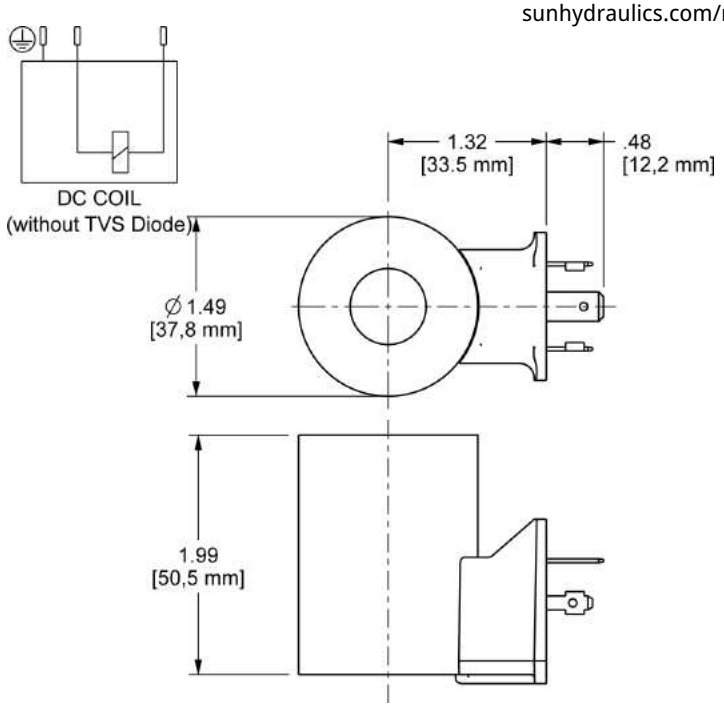


DNDF “T” Spool
Pressure Differential
vs. Flow



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CONFIGURATION

TECHNICAL DATA

Operating Temperature Range	-40 to 110 °C
Arc Suppression (TVS)	None
Power Consumption (cold) - at rated voltage	25 Watts
Maximum Ambient Temperature	50 °C
Voltage/Frequency	24 VDC
Operating Voltage Range	+10%/-15%
Duty Cycle Rating	100 %
Connector	ISO4400 - EN/DIN175301-803, Form A (ISO/DIN 43650) 3-pin
Solenoid Tube Diameter	15,7 mm
Coil Nut Torque	0,5 Nm
Model Weight	0.27 kg.

PROPORTIONAL PERFORMANCE DATA

Resistance at 20° C	23.0 ohms ±10%
Maximum Current - FLeX Valves (100% Duty Cycle at Maximum Ambient Temperature)	580 mA
Maximum Current - Non-FLeX Valves (100% Duty Cycle at Maximum Ambient Temperature)	650 mA

USED WITH

DBAF DBAFS DFBF DFBG DFCI DFCJ DFDI DFDJ DFEI DFEJ

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DFFI	DFFJ	DLDF	DLDFS	DMBF	DNBF	DTAF	DTAFS	DTBF	DTCF
DTDF	DTDFS	DWBF	DWDF	FDEP	FMDF	FMDG	FPBF	FPBG	FPBI
FPBJ	FPBU	FREP	PRDF	PRDG	RPEI	RVCK	RVCL	RVCM	RVCN
991711300	991711600	991712300	991712600	991713030	991713060	991740001	XMD-01	XMD-02	

TECHNICAL FEATURES

- Coil windings utilize Class N, (392° F [200 °C] rated) magnet wire.
- Power cable with mating connector is required and is not included with the coil.
- The coil is magnetically symmetrical and can be mounted on the solenoid tube in either direction for best cable access without affecting performance.
- Coil is fully RoHS compliant. Restricted materials less than 0.1% total by weight.
- The external steel shell is zinc-nickel plated and provides 1000-hour salt fog protection.
- 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 for this coil is IP65/IP67.
- This coil does not include a transient voltage suppression (TVS) diode and should only be used when surge suppression is included elsewhere in the electrical system. If no surge suppression is included in the circuit, the coil version with TVS diode should be used.
- This coil is CE compliant. It meets the requirements of the Low Voltage Directive (2006/95/EC) and EN 60204-1:2006.

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