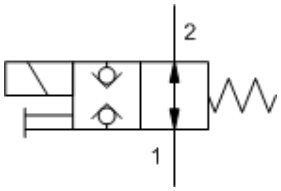
MODEL
DTDF

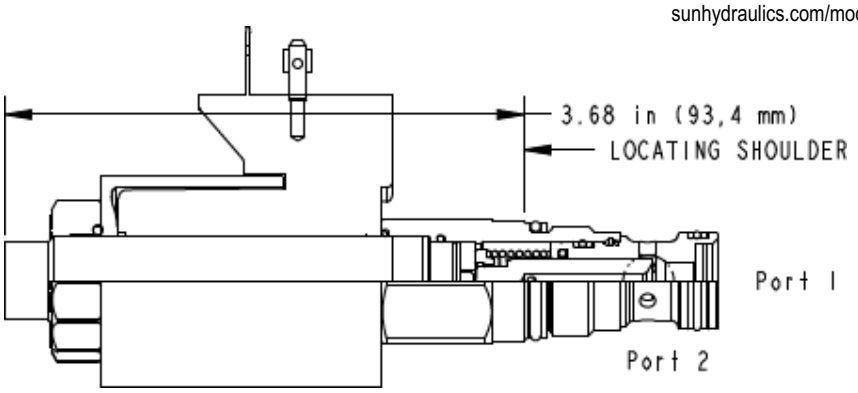
2-way, direct-acting, solenoid-operated directional blocking poppet valve (740 Series)

SERIES 1 / CAPACITY: 10 gpm / CAVITY: T-13A

sunhydraulics.com/model/DTDF



M-Control, H-Poppet



CONFIGURATION

M	Control	Manual Override
H	Poppet Configuration	Normally Open
N	Seal Material	Buna-N
224	Coil	DIN 43650-Form A, 24 VDC

This solenoid-operated 2-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is available in either a normally open or normally closed configuration and is designed to be used with 740 and 747 Series coils.

Due to the poppet style construction, this valve has extremely low leakage.

TECHNICAL DATA

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

Cavity	T-13A
Series	1
Capacity	10 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Solenoid Tube Diameter	.63 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006
Model Weight	1.15 lb.

NOTES

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

CONFIGURATION OPTIONS

Model Code Example: DTDFMHN224

CONTROL (M)	POPPET CONFIGURATION (H)	SEAL MATERIAL (N)	COIL * (224)
M Manual Override	**H** Normally Open	**N** Buna-N	**224** DIN 43650-Form A, 24 VDC
D Twist/Lock (Dual) Manual Override	**C** Normally Closed	**E** EPDM	No coil
L Twist/Lock (Detent) Manual Override		**V** Viton	
T Twist (Momentary) Manual Override			* Additional coil options are available
X No Manual Override			

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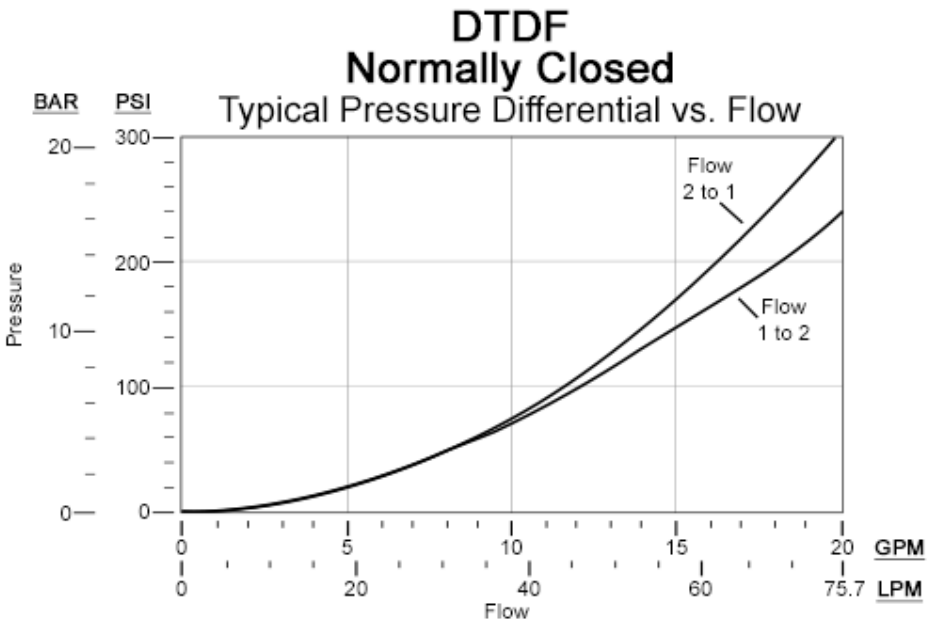
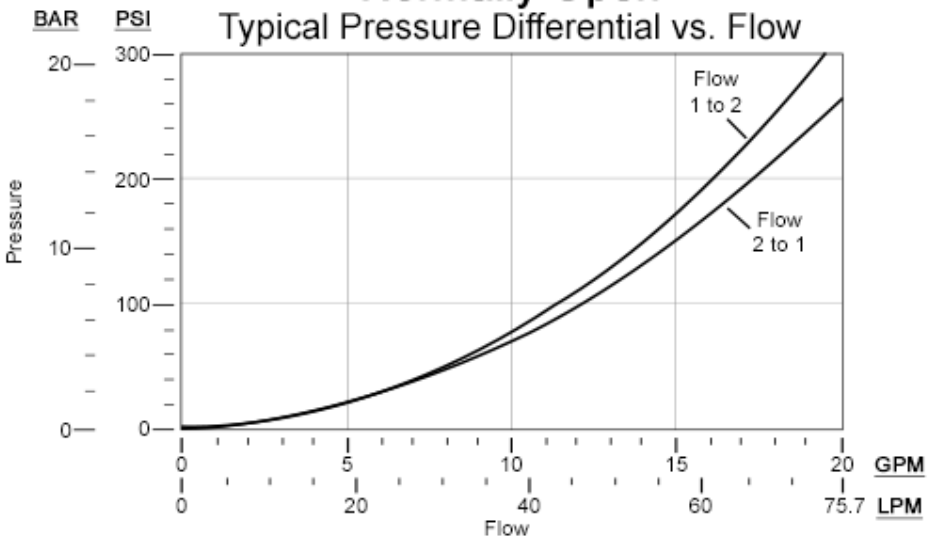
TECHNICAL FEATURES

- 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.
- This valve is suitable for load holding applications when using the Normally Closed option. In the event of power failure, the valve will spring closed.
- 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.
- 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.
- This cartridge utilizes both 740 Series high-power and 747 Series hazardous location coils.
- This cartridge has an option for manual override. See the CONFIGURATION section.
- Valves exhibit extremely low leakage rates; less than 10 drops/min. @ 5000 psi (0,7 cc/min @ 350 bar).
- 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.
- A FULL DATA SHEET is available for this model using the link at the top of the page.
- 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 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.

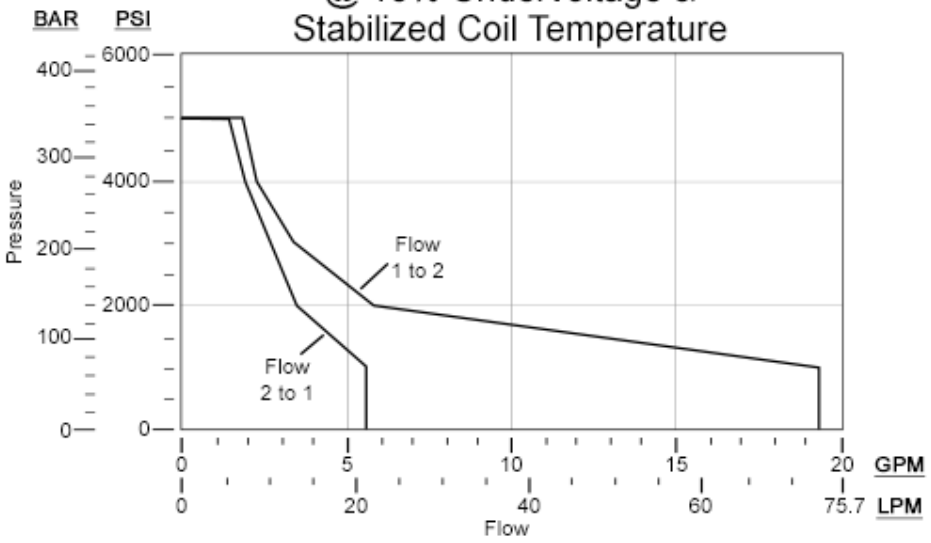
PERFORMANCE CURVES



DTDF
Normally Open
Typical Pressure Differential vs. Flow



DTDF
Normally Closed
Valve Performance Limits
@ 10% Undervoltage &
Stabilized Coil Temperature



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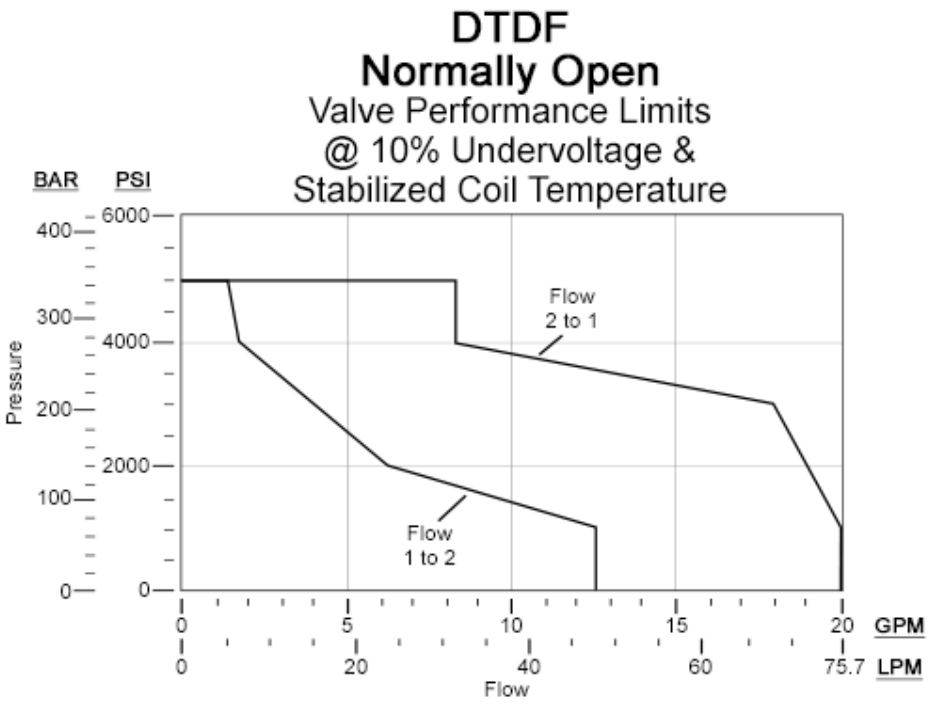

RELATED MODELS

- DTDFS 2-way, direct-acting, soft shift, solenoid-operated directional blocking poppet valve (740 Series)

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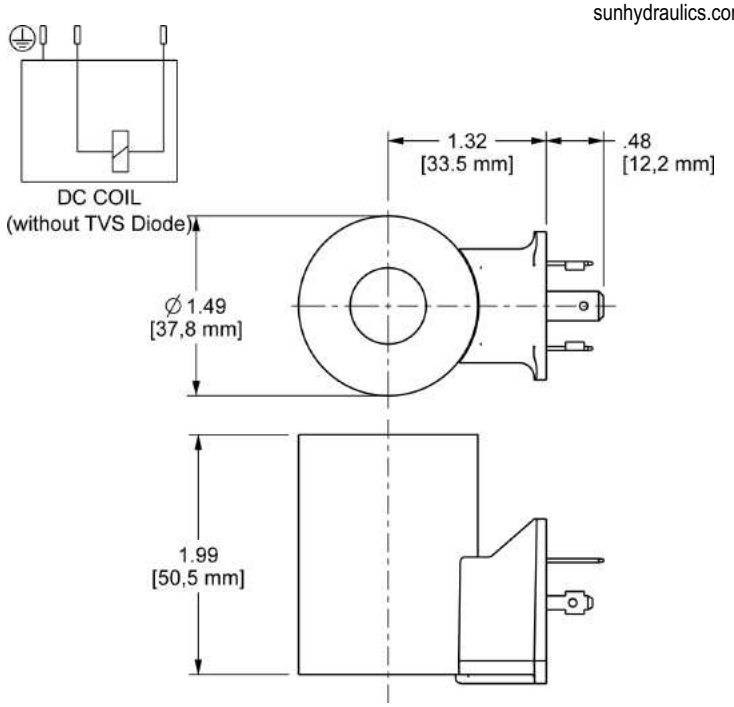

CONFIGURATION

TECHNICAL DATA

Operating Temperature Range	-40 to 230 °F
Arc Suppression (TVS)	None
Power Consumption (cold) - at rated voltage	25 Watts
Maximum Ambient Temperature	122 °F
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	.62 in.
Coil Nut Torque	4.5 lbf in.
Model Weight	0.60 lb.

PROPORTIONAL PERFORMANCE DATA

Resistance at 20º 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
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	

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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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