



February 2020 UPDATE

**DIRECTIONAL**  
**PROPORTIONAL**  
**RELIEF**



# Sun FLeX™ Series Solenoid Valves

## Product Availability Chart & Accessories

### HIGH RELIABILITY

*Designed & tested to 10-million operational cycles at full rated pressure*

### LOW INTERNAL LEAKAGE

*As low as one drop per minute*

### USES 740 & 747 SERIES DC & AC COILS

*Low-power, high-power & hazardous location coils*



# Solenoid-Operated Directional

Symbol	Description	Model	Cavity	Pressure	Capacity (nominal)	Coil Options		
						Low-Power	High-Power	Exp. Proof
	2-way, direct-acting, solenoid-operated directional blocking poppet valve	DTAF-*C*	T-8A	5000 psi (350 bar)	7 gpm (28 L/min)	YES	YES	YES
		DTBF-*C*	T-162A	5000 psi (350 bar)	9 gpm (34 L/min)	YES	YES	YES
	2-way, direct-acting, solenoid-operated directional blocking poppet valve	DTAF-*H*	T-8A	5000 psi (350 bar)	7 gpm (28 L/min)		YES	YES
		DTBF-*H*	T-162A	5000 psi (350 bar)	9 gpm (34 L/min)		YES	YES
	2-way, 2-stage, solenoid-operated directional poppet valve	DFBD-*C*	T-162A	3000 psi (210 bar)	10 gpm (40 L/min)	YES		YES
		DFBF-*C*	T-162A	5000 psi (350 bar)	10 gpm (40 L/min)		YES	YES
	2-way, 2-stage, solenoid-operated directional poppet valve	DFBD-*H*	T-162A	3000 psi (210 bar)	10 gpm (40 L/min)	YES		YES
		DFBF-*H*	T-162A	5000 psi (350 bar)	10 gpm (40 L/min)		YES	YES
	2-way, 2-stage, solenoid-operated directional poppet valve	DFBE-*C*	T-162A	3000 psi (210 bar)	10 gpm (40 L/min)	YES		YES
		DFBG-*C*	T-162A	5000 psi (350 bar)	10 gpm (40 L/min)		YES	YES
	2-way, 2-stage, solenoid-operated directional poppet valve	DFBE-*H*	T-162A	3000 psi (210 bar)	10 gpm (40 L/min)	YES		YES
		DFBG-*H*	T-162A	5000 psi (350 bar)	10 gpm (40 L/min)		YES	YES
	3-way, direct-acting, solenoid-operated directional spool valve	DMBD-*A*	T-150A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DMBF-*A*	T-150A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES
	3-way, direct-acting, solenoid-operated directional spool valve	DMBD-*N*	T-150A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DMBF-*N*	T-150A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES
	4-way, direct-acting, solenoid-operated directional spool valve	DNBD-*C*	T-30A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DNBF-*C*	T-30A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES
	4-way, direct-acting, solenoid-operated directional spool valve	DNBD-*D*	T-30A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DNBF-*D*	T-30A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES
	4-way, direct-acting, solenoid-operated directional spool valve	DNBD-*E*	T-30A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DNBF-*E*	T-30A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES
	4-way, direct-acting, solenoid-operated directional spool valve	DNBD-*N*	T-30A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DNBF-*N*	T-30A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES
	4-way, direct-acting, solenoid-operated directional spool valve	DNBD-*V*	T-30A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DNBF-*V*	T-30A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES
	4-way, direct-acting, solenoid-operated directional spool valve	DNBD-*T*	T-30A	3000 psi (210 bar)	4 gpm (15 L/min)	YES		YES
		DNBF-*T*	T-30A	5000 psi (350 bar)	4 gpm (15 L/min)		YES	YES

## Solenoid-Operated Directional (continued)

Symbol	Description	Model	Cavity	Pressure	Capacity (nominal)	Coil Options		
						Low-Power	High-Power	Exp. Proof
	3-way, direct-acting, solenoid-operated directional blocking poppet valve	DWBF-*N*	T-150A	5000 psi (350 bar)	6 gpm (23 L/min)		YES	YES
	3-way, direct-acting, solenoid-operated directional blocking poppet valve	DWBF-*A*	T-150A	5000 psi (350 bar)	6 gpm (23 L/min)		YES	YES

## Solenoid-Operated Proportional

Symbol	Description	Model	Cavity	Pressure	Capacity (nominal)	Coil Options		
						Low-Power	High-Power	Exp. Proof
	Pilot-operated, normally closed, electro-proportional throttle - control flow 2-1	FPBD-XD*	T-162A	3000 psi (210 bar)	5 gpm (20 L/min)	YES		YES
		FPBF-XD*	T-162A	5000 psi (350 bar)	5 gpm (20 L/min)		YES	YES
	Pilot-operated, normally closed, electro-proportional throttle with reverse flow check - control flow 2-1	FPBE-XD*	T-162A	3000 psi (210 bar)	5 gpm (20 L/min)	YES		YES
		FPBG-XD*	T-162A	5000 psi (350 bar)	5 gpm (20 L/min)		YES	YES
	Pilot-operated, normally open, electro-proportional throttle - control flow 2-1	FPBM-XD*	T-162A	3000 psi (210 bar)	5 gpm (20 L/min)	YES		YES
		FPBI-XD*	T-162A	5000 psi (350 bar)	5 gpm (20 L/min)		YES	YES
	Pilot-operated, normally open, electro-proportional throttle with reverse flow check - control flow 2-1	FPBN-XD*	T-162A	3000 psi (210 bar)	5 gpm (20 L/min)	YES		YES
		FPBJ-XD*	T-162A	5000 psi (350 bar)	5 gpm (20 L/min)		YES	YES
	2-way, direct-acting, electro-proportional throttle blocking poppet valve	FPBU-XC*	T-162A	5000 psi (350 bar)	2.6 gpm (9,8 L/min)		YES	YES

## Solenoid-Operated Relief

Symbol	Description	Model	Cavity	Pressure	Capacity (nominal)	Coil Options		
						Low-Power	High-Power	Exp. Proof
	2-stage, normally vented, solenoid-operated adjustable relief valve	RVCK-LJ*	T-10A	5000 psi (350 bar)	25 gpm (100 L/min)		YES	YES
	2-stage, energize to vent, solenoid-operated adjustable relief valve	RVCL-LJ*	T-10A	5000 psi (350 bar)	25 gpm (100 L/min)		YES	YES
	2-stage, energize to block, solenoid-operated adjustable relief valve	RVCM-LJ*	T-10A	5000 psi (350 bar)	25 gpm (100 L/min)		YES	YES
	2-stage, normally blocked, solenoid-operated adjustable relief valve	RVCN-LJ*	T-10A	5000 psi (350 bar)	25 gpm (100 L/min)		YES	YES

The Sun FLeX Series family of solenoid valves offers high-performance components in flexible configuration options. In addition to the low- and high-power coils of the 740 Series, the FLeX family can be used with the the 747 Series hazardous environment (explosion-proof) coils.

For more details on all the 740 or 747 Series coils, refer to our website ([www.SunHydraulics.com](http://www.SunHydraulics.com)) or your local Sun Authorized Distributor for more information.

### Low-Power (17-W) & High-Power (25-W) Coils

Voltage	DIN 43650 Form A (IP65/IP67)		Deutsch DT04-2P (IP69K)		Resistance @20°C (ohms) ±10% (with diode*)		TVS Diode (Nominal Breakdown Voltage (with diode*))
	High-Power	Low-Power	High-Power	Low-Power	High-Power	Low-Power	
12 Vdc	740-212	740-212L	740-912	740-912L	5.8 Ω	8.5 Ω	68 Vdc
14 Vdc	740-214	740-214L	740-914	740-914L	7.8 Ω	11.5 Ω	68 Vdc
24 Vdc	740-224	740-224L	740-924	740-924L	23.0 Ω	33.9 Ω	68 Vdc
28 Vdc	740-228	740-228L	740-928	740-928L	31.4 Ω	46.1 Ω	68 Vdc
115 Vac	740-211	740-211L	N/A	N/A	416 Ω	612 Ω	250 Vac
230 Vac	740-223	740-223L	N/A	N/A	1686 Ω	2479 Ω	400 Vac

\* Above model codes are shown without transient voltage suppression (TVS) diodes.  
To order 740 Series coils with a TVS diode, append model code with "D" (Example: 740-212LD).

### Hazardous Location, Explosion-Proof (30-W) Coils

Voltage	M20 x 1.5 180°	M20 x 1.5 90°	1/2" NPT 180°	1/2" NPT 90°	Wattage @ 20°C	Circuitry
12 Vdc	747-JM12BD	747-JM12CD	747-JN12BD	747-JN12CD	29.6 W	With diode
24 Vdc	747-JM24BD	747-JM24CD	747-JN24BD	747-JN24CD	29.9 W	With diode
115 Vac	747-JM11BD	747-JM11CD	747-JN11BD	747-JN11CD	29.7 W	Rectified
230 Vac	747-JM23BD	747-JM23CD	747-JN23BD	747-JN23CD	28.9 W	Rectified

### XMD Single- and Dual-Output Drivers

The XMD is a single- or dual-output driver used with solenoid-operated valves for the mobile and industrial hydraulic industries. The driver can be mounted on a manifold using the standard mount clip or directly to the 740 Series low- and high-power coils using an optional coil-mount clip. Factory tuning is available for valve, coil and XMD configuration orders.

DESCRIPTION	PART NUMBER
Single-output PWM driver with standard mounting bracket	XMD-01
Dual-output PWM driver with standard mounting bracket	XMD-02



### Wire Harnesses

DESCRIPTION	PART NUMBER
Wire harness, 2-pin Deutsch-to-Metri-Pack Conversion	991-717
Wire harness, 2-pin Deutsch-to-Amp Jr. Timer Conversion	991-718
Wire harness, 2-pin Deutsch-to-Twin-Lead Conversion	991-719



Sun Hydraulics Headquarters  
Sarasota, Florida USA  
+1 941 362 1200

Sun Hydraulics Limited  
Coventry, England  
+44 2476 217 400  
[sales@sunuk.com](mailto:sales@sunuk.com)

Sun Hydraulik GmbH  
Erkelenz, Germany  
+49 2431 80910  
[sales@sunhydraulik.de](mailto:sales@sunhydraulik.de)

Sun Hydraulics Corp. (India)  
Bangalore, India  
+91 8028 456325  
[sunindiainfo@sunhydraulics.com](mailto:sunindiainfo@sunhydraulics.com)

Custom Fluidpower Pty Ltd  
(A Sun Hydraulics Company)  
Newcastle, Australia  
+61 2 4953 5777  
[sales@custom.com.au](mailto:sales@custom.com.au)

Sun Hydraulics Korea Corp.  
Incheon, Korea  
+82 3281 31350  
[sales@sunhydraulics.co.kr](mailto:sales@sunhydraulics.co.kr)

Sun Hydraulics China Co. Ltd.  
Shanghai, P.R. China  
+86 2162 375885  
[sunchinainfo@sunhydraulics.com](mailto:sunchinainfo@sunhydraulics.com)

Sun Hydraulics Corp. (S.America)  
Rosario, Argentina  
+54 9 341 584 3075  
[ventas@sunhydraulics.com](mailto:ventas@sunhydraulics.com)

February 2020