

General Description

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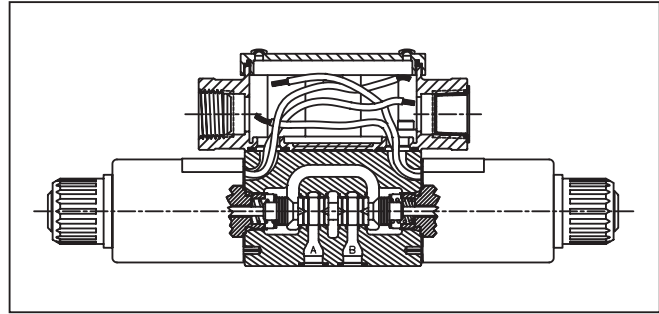
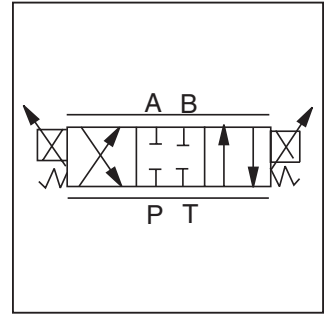
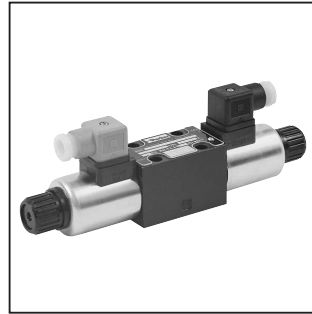
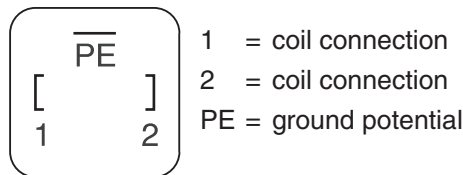
Series D*FW direct operated proportional directional control solenoid valves are available in sizes NG6 (CETOP 3) and NG10 (CETOP 5).

Typical applications include reproducible control of actuator speed in rapid/slow speed profiling, and smooth acceleration and deceleration performance.

Features

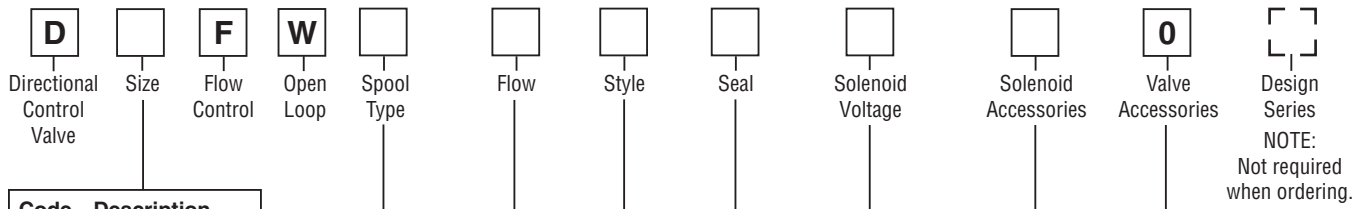
- Standard DIN/ISO/CETOP/NFPA interfaces.
- Progressive flow characteristics for improved low flow resolution.
- Spring centered spool.
- Wide selection of spool options and flow capacity.

Wiring D*FW — Solenoid Coil (without integrated electronics)



Specifications

Interface DIN			NG6 (CETOP 3)	NG10 (CETOP 5)
Flow Rating @10 Bar (150 PSI) Δp (P→A, B→T) (spool options up to)			20 (5.3)	60 (15.9)
Maximum Flow (refer to operating limit curves)			48 (12.5)	170 (45)
Step Response (time to reach 90% of a 100% step command)			100	165
Hysteresis	%	<8	Fluid Viscosity, Recommended	
Repeatability	%	<2	Fluid Temperature, Recommended	
Max. Operating Pressure	Port P, A, B	315 (4500)	Environmental Protection Class	
	Port T	35 (500)	Ambient Operating Temperature	
Fluid Cleanliness Level	ISO Class 16/13		NEMA 1 (IP54)	
			-20°C to +60°C (-4°F to +140°F)	



Code	Description
1	NG6/CETOP 3
3	NG10/CETOP 5

Code	Description
J ⁽²⁾	24 VDC
K	12 VDC
M ⁽²⁾	9 VDC

(2) Not for D3FW

Code	Description
0	Standard ⁽¹⁾

(1) Metal can coils

Code				
Spool Overlap				
Q _A > Q _B ⁽¹⁾		Q _A = Q _B		
10%	Spool Type	10%	20%	Spool Type
B31		E01	E81*	
B32		E02	E82*	
		E09	-	

Code	Description
F ⁽³⁾	Free Coil Lead Wires
W ⁽⁵⁾	Socket Connector DIN 43650 without Plug

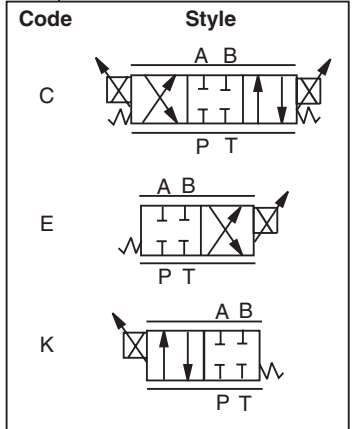
1) Reduced Flow Rate on Port B,
 Nominal Flow Rate on Port A
 Code A* for spool Q_B > Q_A optional
 Refer to factory for ratio spool options.
 * Use E01 or E02 for new applications.

Code	Description
N	Nitrile
V	Fluorocarbon

(3) D1FW, 9V overmolded coil only.
 (4) Contact factory for custom lead wire and connector options in OEM quantities.
 (5) Not available 9V coil.

Code	Flow at Δp 5 Bar (72.5 PSI) per metering edge	
	D1FW LPM (GPM)	D3FW LPM (GPM)
C	7.5 (2.0)*†	-
F	15 (4.0)	-
H	20 (5.3)†#	20 (5.3)*†
K**	-	30 (7.8)
M	-	40 (10.6)
S	-	60 (15.9)†#

Refer to factory for ratio spool options.
 * E09 spools only available where indicated.
 ** E01 spool only.
 † Type E spool only.
 # Not available with E81, E82.



Bolt Kits:
D1FW BK209 (4) 10-24x1.25 SHCS
D3FW BK98 (4) 1/4-20x1.62 SHCS

Weight:
D1FW 2.5 kg (5.5 lbs.)
D3FW 6.8 kg (15.0 lbs.)

Driver Cards

Refer to the Electronics section for driver cards and support electronics.

Mounting Interface

Refer to Mounting Interface Dimensions in the Proportional Directional Valve section of this catalog.

Accessories

Refer to the Accessories section for bolt kits, subplates and connectors.



Electrical Specifications

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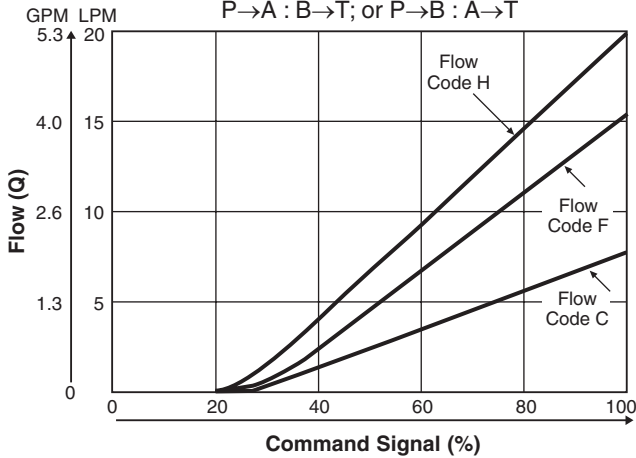
Series D*FW
 without integrated electronics

Interface DIN	NG6 (CETOP 3)			NG10 (CETOP 5)	
Solenoid Order Code	J	K	M	K	J
Nominal Resistance ohms	24	6	3.3	4	16
Nominal Current amps	0.9	1.8	2.5	2.5	1.25
Nominal Voltage voltage	24	12	9	12	24
Environmental Protection Class	NEMA 1 (IP54)				
Mating Connectors — Solenoid (DIN 43650)	Part #692914 (Black) Part #692915 (Gray)				

Performance Curves

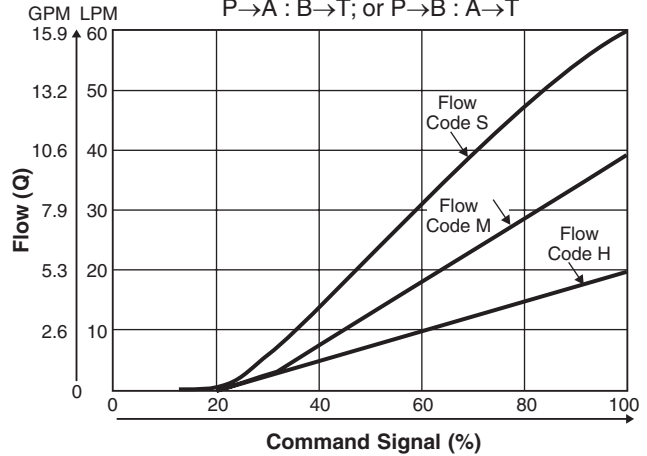
D1FW Flow Characteristics

at $\Delta p = 5$ Bar (72.5 PSI) per metering edge
 P→A : B→T; or P→B : A→T



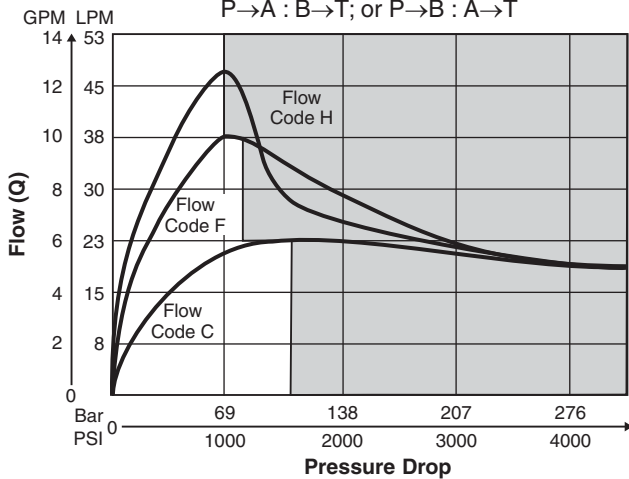
D3FW Flow Characteristics

at $\Delta p = 5$ Bar (72.5 PSI) per metering edge
 P→A : B→T; or P→B : A→T



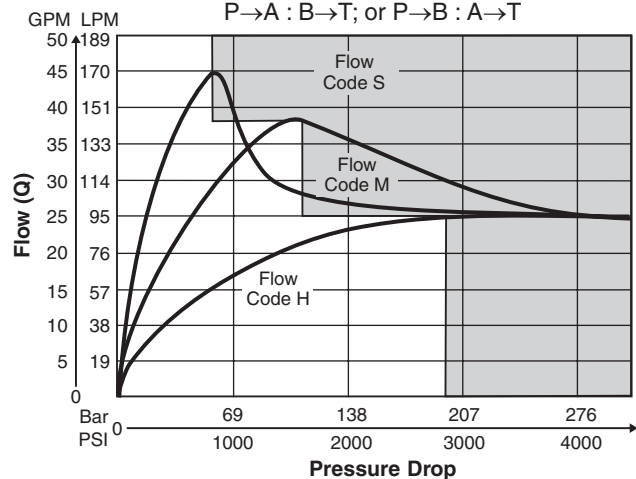
D1F* Operating Limits 1)

at 100% Command
 P→A : B→T; or P→B : A→T



D3F* Operating Limits 1)

at 100% Command
 P→A : B→T; or P→B : A→T

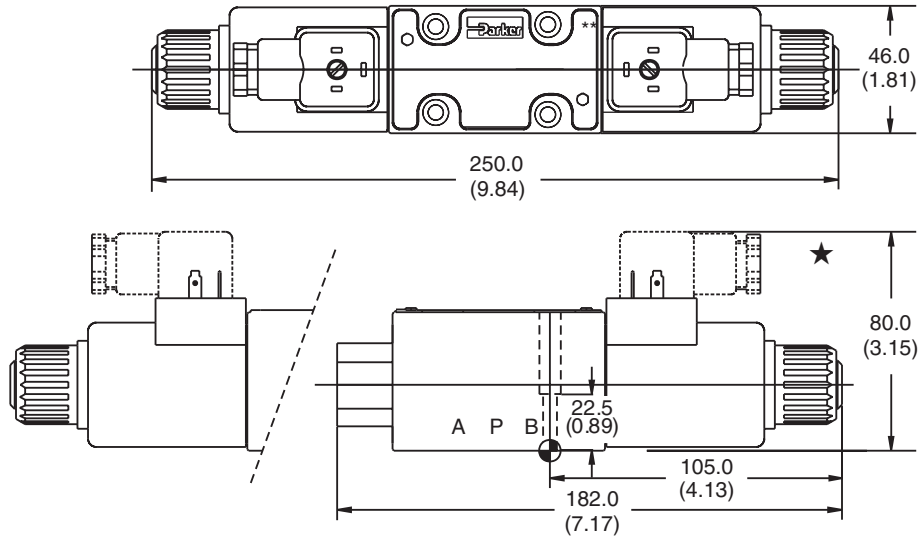


1) Shaded area: Actual flow subject to the system load dynamics
 Note: 81 and 82 spools - decrease limits by 15%



D1FW with Hirschmann Connectors

Inch equivalents for millimeter dimensions are shown in (**)



D3FW with Hirschmann Connectors

Inch equivalents for millimeter dimensions are shown in (**)

★ Order plugs separately.

