

General Description

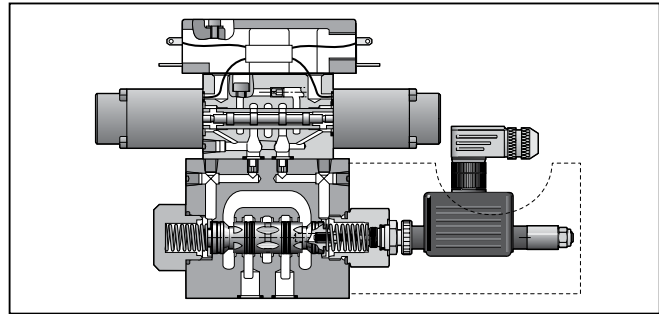
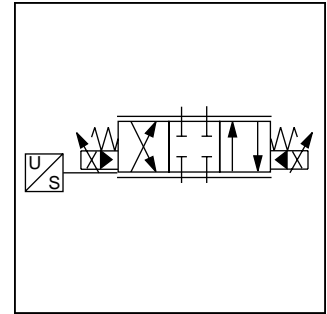
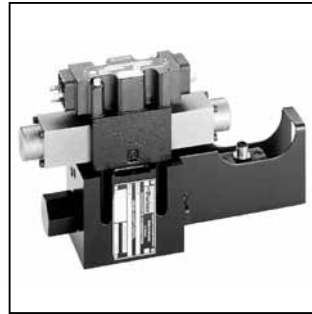
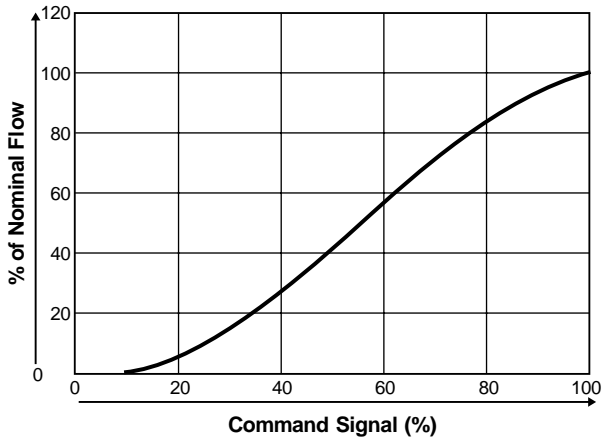
Series D*1FS proportional directional control valves are high performance, two stage pilot operated solenoid valves with electronic spool position feedback. Valves are controlled by 'PWD' Series DIN electronics. Valves are available in sizes NG10 (CETOP 5), NG16 (CETOP 7), NG25 (CETOP 8) and NG32 (CETOP 10).

D*1FS valve performance is characterized by high resolution flow control, repeatability and good dynamic performance. Typical applications include precise and reproducible control of actuator speed in rapid / slow speed profiling, and smooth acceleration and deceleration performance.

Performance Curve

Flow Characteristics

at 5 Bar (72.5 PSI) per metering edge
 Typical flow curve



Features

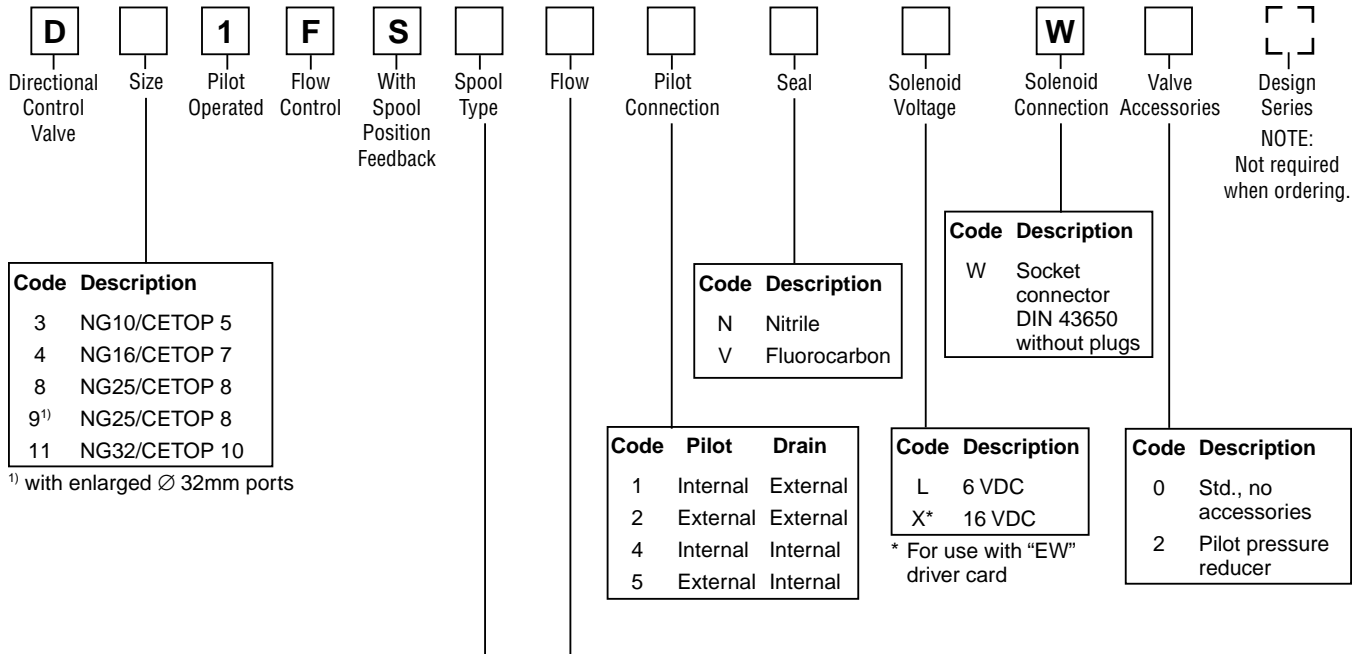
- Standard DIN/ISO/CETOP/NFPA interfaces.
- Spool position feedback.
- High Frequency response.
- Spring centered main stage spool.
- LED functional diagnostic indicator.
- Wide selection of spool options, and flow capacity.
- 2:1 ratio, and Regeneration spool options.

Specifications

Interface DIN		NG10 (CETOP 5)	NG16 (CETOP 7)	NG25 (CETOP 8)	NG32 (CETOP 10)
Flow Rating @10 Bar (150 PSI) Δp (P→A, B→T) LPM (GPM)		45 (12)	120 (32)	300/400 (79/106)	1000 (264)
Maximum Flow		389@ 1500 PSID	1208@ 2700 PSID	193@ 1500 PSID	
Step Response (time to reach 90% of a 100% step command) ms		35	60	80	200
Repeatability %	<0.5	Fluid Cleanliness Level		ISO Class 16/13	
Hysteresis %	<0.5	Fluid Temperature, Recommended		0°C to +60°C (+32°F to +140°F)	
Pilot Flow Continuous LPM (GPM)		<1.2 (0.3)		Ambient Operating Temperature -20°C to +60°C (-4°F to +140°F)	
Operating Pressure Port P, A, B Bar (PSI)		345 (5000) max.		Electronic Driver Boards (refer to electronics section)	
Port P, internal pilot		20 (290) min.		PWD Series Drivers	
Port T, internal drain		10 (150) max.		Mating Connector	
Port T, external drain		345 (5000) max.		Solenoid (DIN 43650)	
Port Y, pilot drain		10 (150) max.		LVDT (M12, 5 pin)	
Port X, external pilot		20-345 (290-5000)		Part #692914 (black) Part #692915 (gray) included w/valve	
Fluid Viscosity, Recommended		80 – 1000 SSU		Environmental Protection Class	
				NEMA 1 (IP54)	



A



V-Notch Spool Options - Spool Type and Flow Codes							
Code		Spool Type	Flow: LPM (GPM) at Δp 5 Bar (72.5 PSI) per metering edge				
Q _A =Q _B	Q _A >Q _B ²⁾		D31	D41	D81	D91	D111
E01	B31		45 (12)	-	-	-	-
E02	B32		-	120 (32)	-	-	-
-	-	-	-	-	300 (79)	-	-
-	-	-	-	-	-	400 (106)	-
-	-	-	-	-	-	-	1000 (264)

2) Reduced flow rate on port B, nominal flow at port A
 Code A* for spool Q_B > Q_A optional

Weight:
 D31FS 7.1 kg (15.7 lbs.)
 D41FS 10.8 kg (23.8 lbs.)
 D81/91FS 19.0 kg (41.9 lbs.)

Accessories

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

Driver Cards

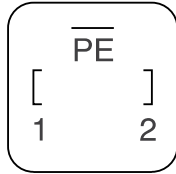
Refer to the Electronics section for driver cards and support electronics.

Mounting Interface

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

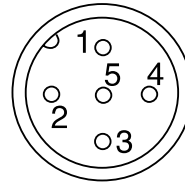
Wiring

Solenoid Coil



- 1 = coil connection
- 2 = coil connection
- PE = ground potential

Spool position sensor (LVDT)

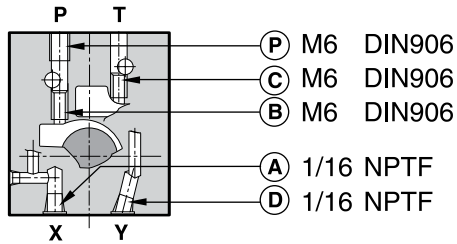


- 1 = output, spool position
- 2 = supply (+24V)
- 3 = GND (0V)
- 4 = not used
- 5 = protective ground



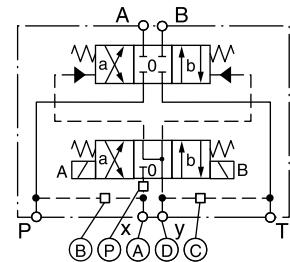
Pilot Connection

D31FS

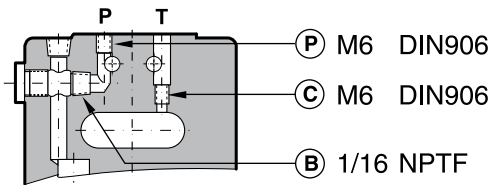


○ open, ● closed

Pilot oil		A	B	C	D
Inlet	Drain				
internal	external	●	○	●	○
external	external	○	●	●	○
internal	internal	●	○	○	●
external	internal	○	●	○	●

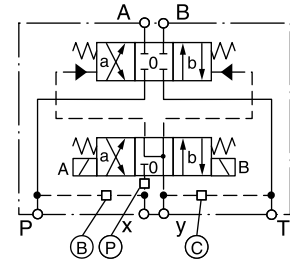


D41FS

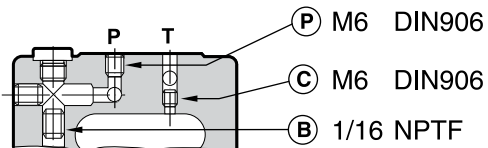


○ open, ● closed

Pilot oil		B	C
Inlet	Drain		
internal	external	○	●
external	external	●	●
internal	internal	○	○
external	internal	●	○

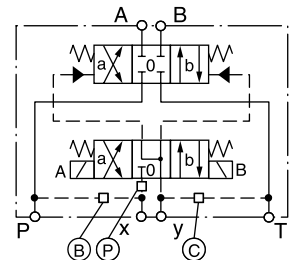


D91FS

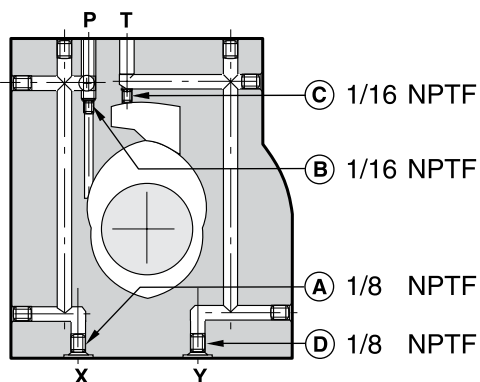


○ open, ● closed

Pilot oil		B	C
Inlet	Drain		
internal	external	○	●
external	external	●	●
internal	internal	○	○
external	internal	●	○

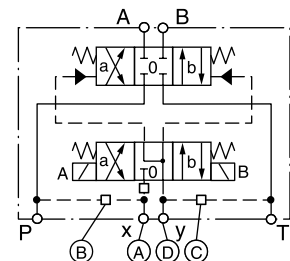


D111FS



○ open, ● closed

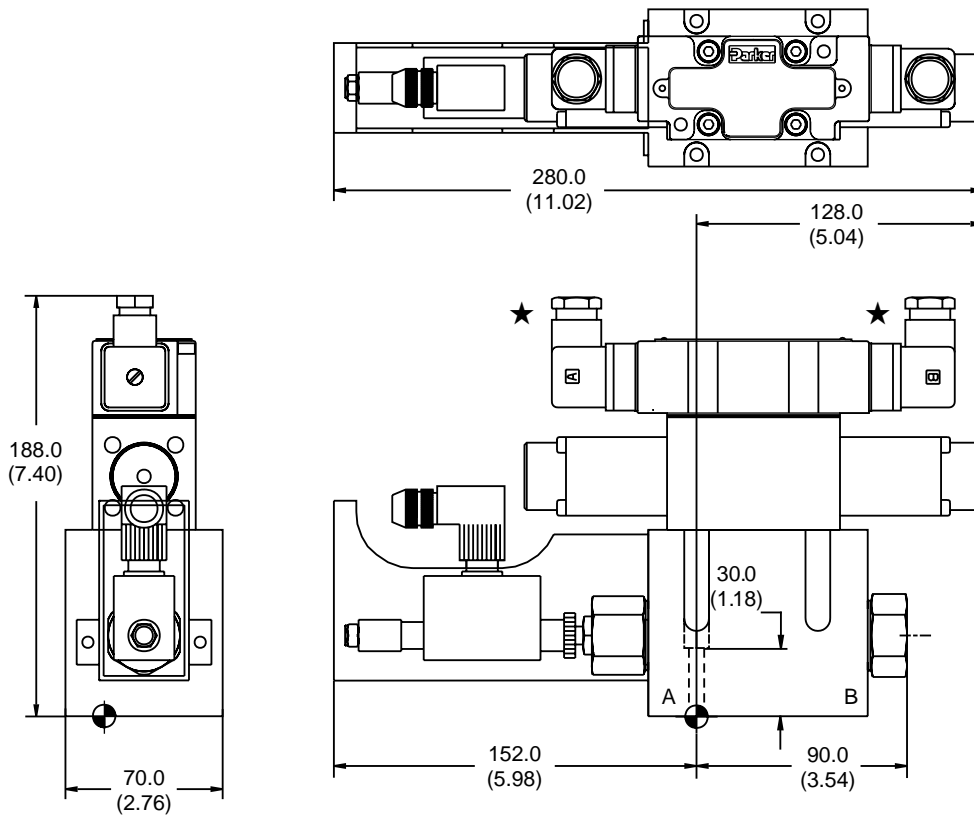
Pilot oil		A	B	C	D
Inlet	Drain				
internal	external	●	○	●	○
external	external	○	●	●	○
internal	internal	●	○	○	●
external	internal	○	●	○	●



D_1FS.indd, dd

D31FS

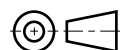
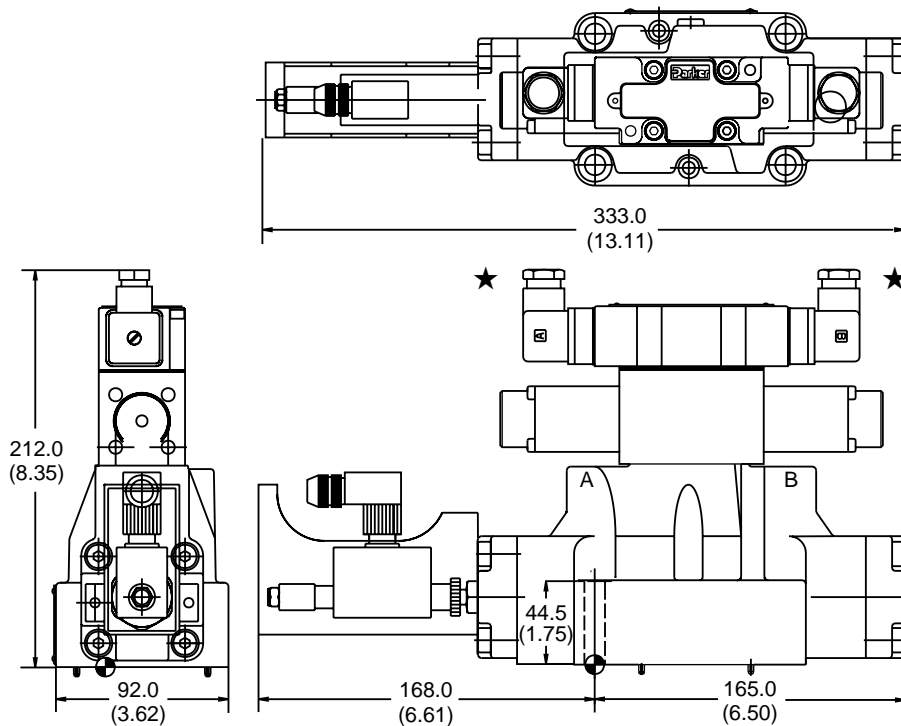
Inch equivalents for millimeter dimensions are shown in (**)



★ Order plugs separately.

D41FS

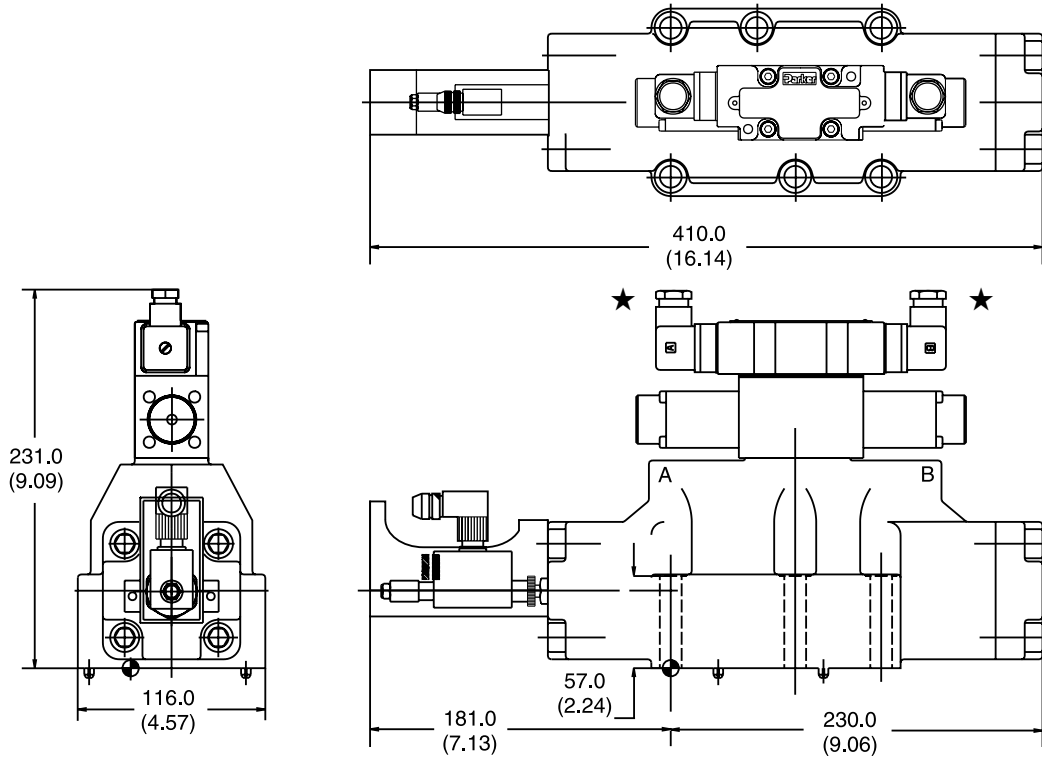
Inch equivalents for millimeter dimensions are shown in (**)



Dimensions

D81FS and D91FS

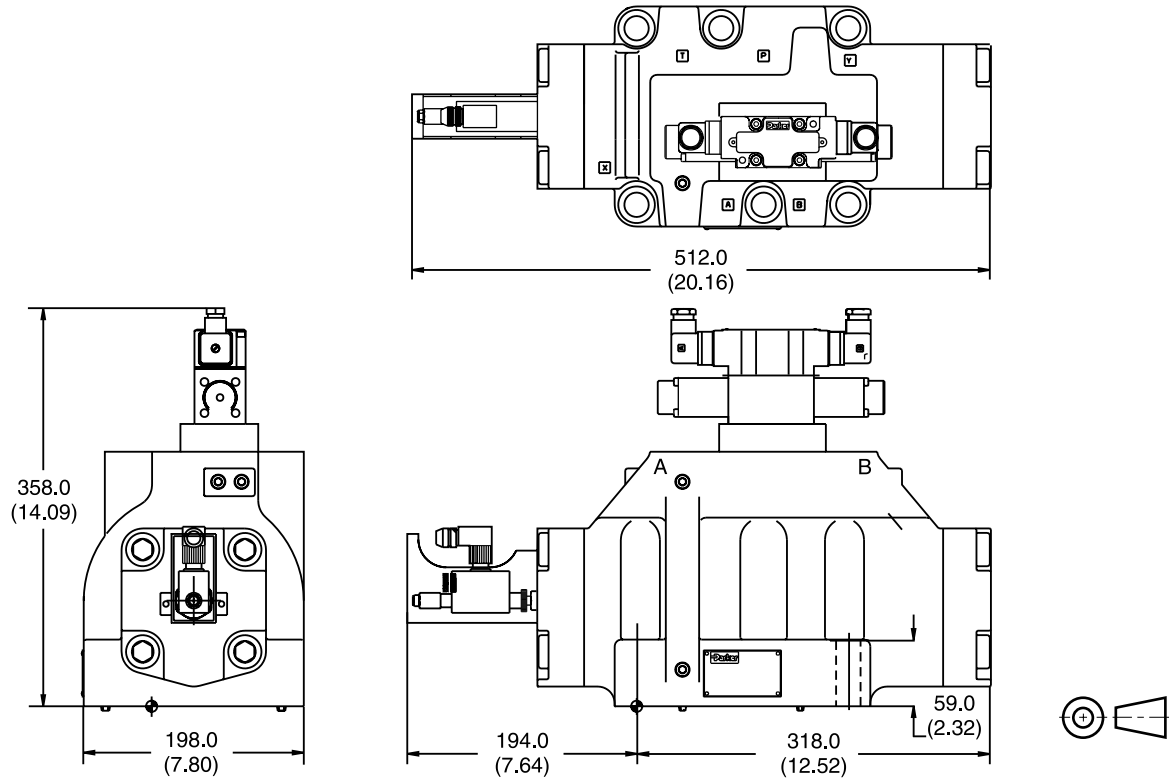
Inch equivalents for millimeter dimensions are shown in (**)



★ Order plugs separately.

D111FS

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



D_1FS.indd, dd

