

General Description

The D1TX throttle valve is designed to vary the amount of fluid flow in proportion to a variable input command signal. The valve will respond to voltage command signals of 0 to +10 VDC, or current command signals of 4-20 mA. The valve features on-board electronics and built-in spool position feedback for low hysteresis.

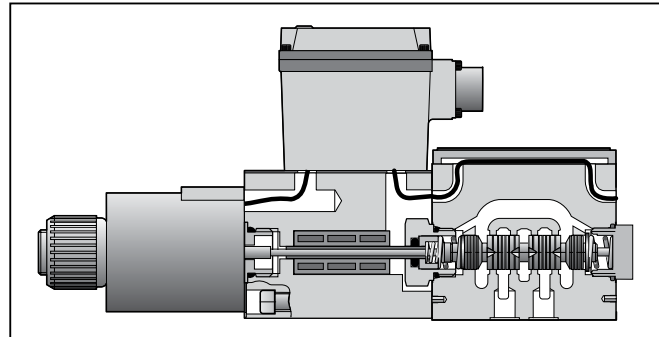
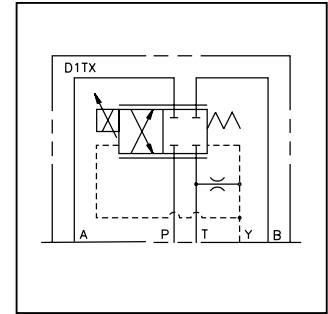
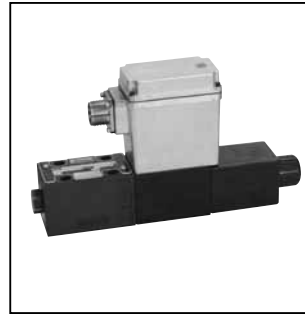
Operation

A minimum of 20 PSI must be maintained on the "Y" or "L" ports for proper operation. An external supply of 20 PSI or a 20 PSI check valve may be used for this purpose.

To simplify piping of the valve for the maximum flow output, order our flow conversion module, FCB03** which has the 20 PSI check valve already installed. This module converts all of the flow paths internally. Connect the "P" for supply pressure, "B" for outlet flow, and "Y or L" for drain line flow.

Features

- **Integral Electronics** — Eliminates the time consuming and often costly wiring between the valve and driver card. Provides a fully tested valve/driver package.
- **LVDT** — The spool position feedback provides low hysteresis.
- **Manual Override**

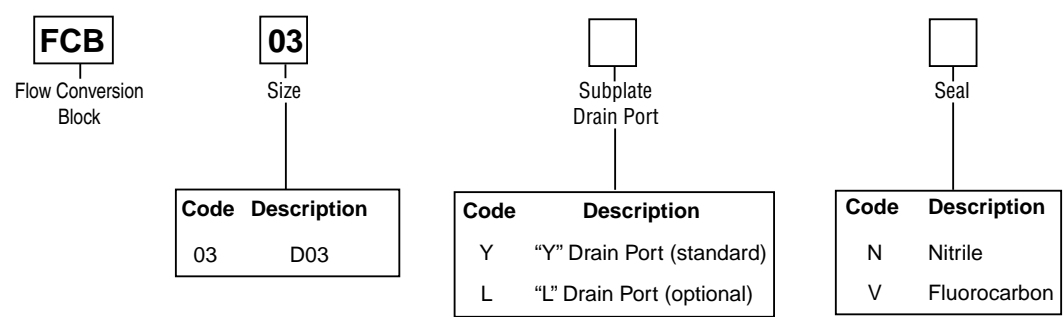
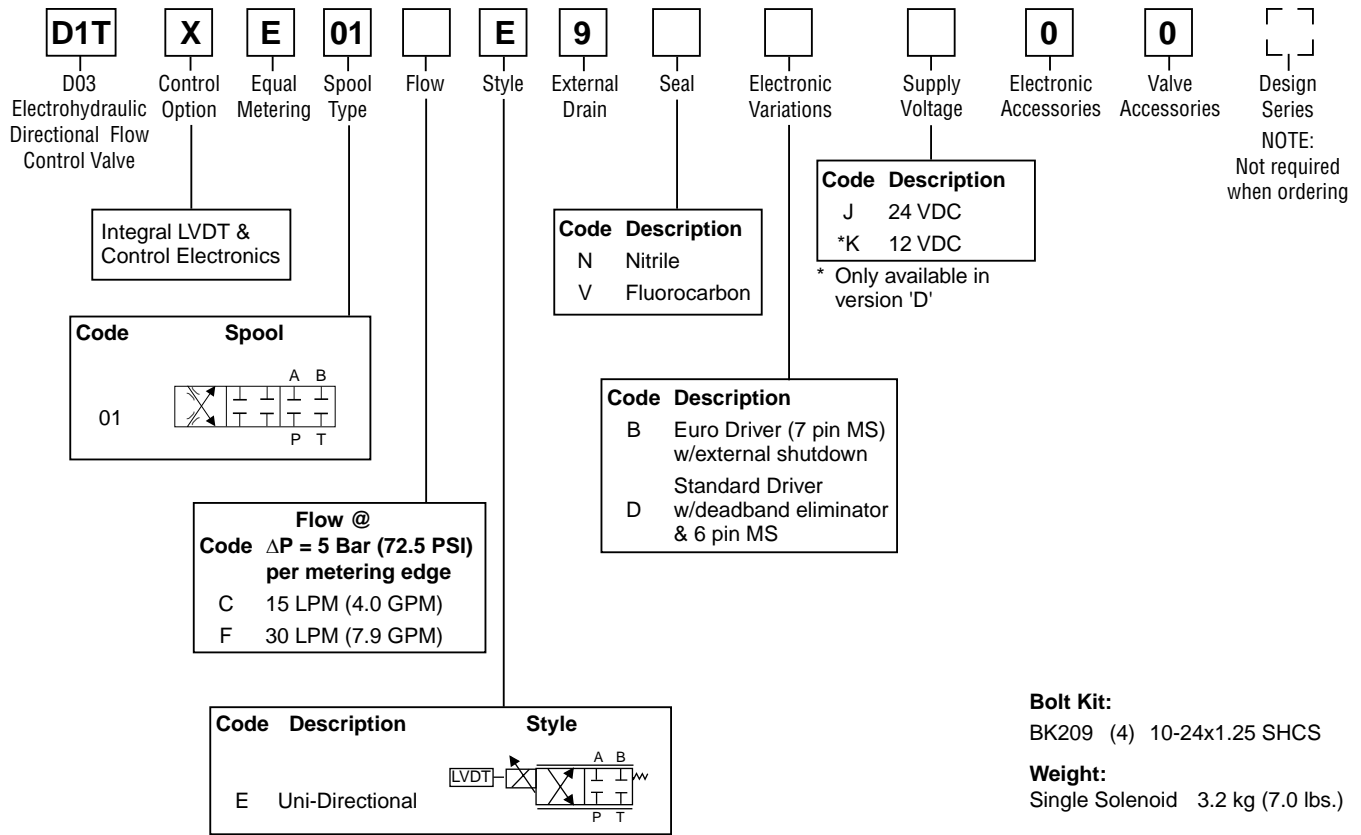


- **Diagnostic Indicator** — An LED confirms movement of the spool.
- **Rugged Construction** — Integral electronics are packaged in a rugged die cast aluminum enclosure to protect it from harsh environments.
- **Electrical Interface** — Standard MS style connector for interface to computers and PLC's.

Specifications

Interface	NFPA D03, CETOP 3	Version	Command Signal	Input Impedance
Maximum Pressure	207 Bar (3000 PSI)	BJ, DJ	0 to + 10 VDC Sgl. Coil	100 k ohms
Drain Line Pressure ("T" and "Y" or "L")	1.4 Bar (20 PSI) minimum 35 Bar (500 PSI) maximum	DK	0 to + 5 VDC Sgl. Coil	100 k ohms
Flow	Up to 61 LPM (16 GPM) (Dual Ported)	BJ, DJ	4 to 20 mA Command	499 ohms
Frequency Response	> 20 Hz with 10% CMD at 50% spool stroke	DK	4 to 20 mA Command	249 ohms
Step Response	Versions BJ, DJ: Full Shift, <60 mS Version DK: Full Shift, <70 mS	Operating Temp. Range (Ambient)	24 volt model: -20° to 60°C (-4° to 140°F) 12 volt model: -29° to 60°C (-20° to 140°F)	
Repeatability	< 0.5% of spool stroke	Spool Position Voltage	Version BJ, DJ: (-10 VDC) Version DK: (-5 VDC)	
Hysteresis	< 1.5%	Reference Supply	+10 VDC @ 10 mA (BJ, DJ) +5 VDC @ 10 mA (DK)	
Nominal Deadband	10%	Low Power Fault Protection	20 VDC (BJ, DJ) 11 VDC (DK)	
Power Requirements	24 VDC @ 3 amps nom.** (BJ, DJ) Range 21 to 30 VDC regulated 12 VDC @ 3 amps nom. (DK)** Range 11.5 to 15 VDC regulated **4 amp regulated power supply recommended	Diagnostics	Red LED for spool position	
		Viscosity Range	75 - 600 SSU	
		Fluid Cleanliness	ISO Class 16/13, SAE Class 4 or better	
		Protection Class	Nema 4 (IP65)	

D1TX.indd, dd

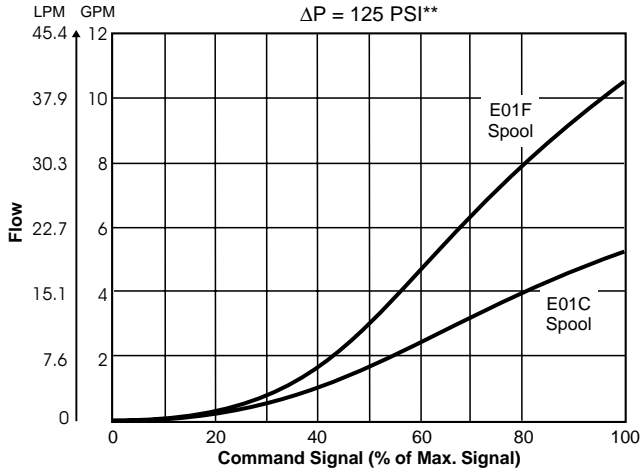


Use Bolt Kit BK243 when including the FCB under the D1TX.

Performance Curves



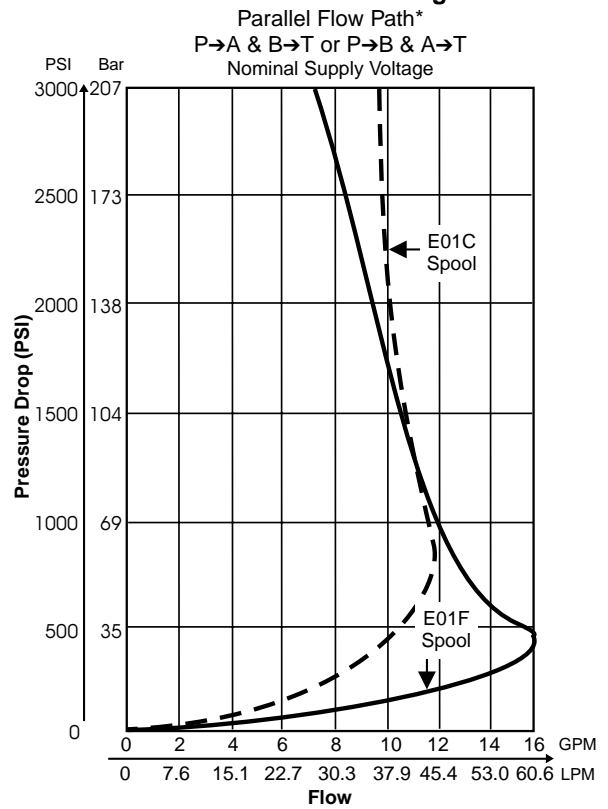
Flow vs. Input Command
 Parallel Flow Path Connected*
 $\Delta P = 125 \text{ PSI}^{**}$



* Requires Flow Conversion Block FCB**

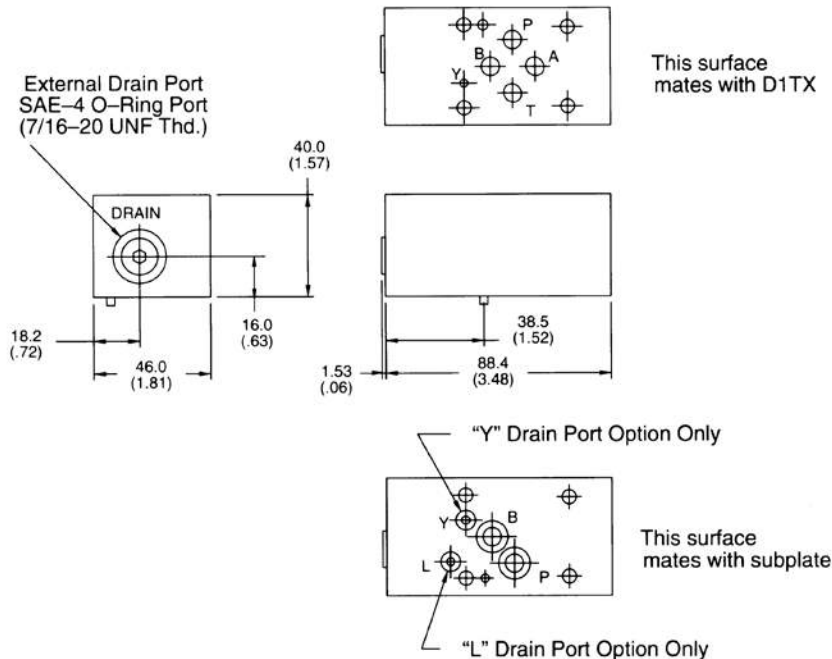
** Flow rate for different Δp per control edge: $Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$

Operating Limits
 Max. Pressure Drop/Flow Envelope
 at 100% Command Signal



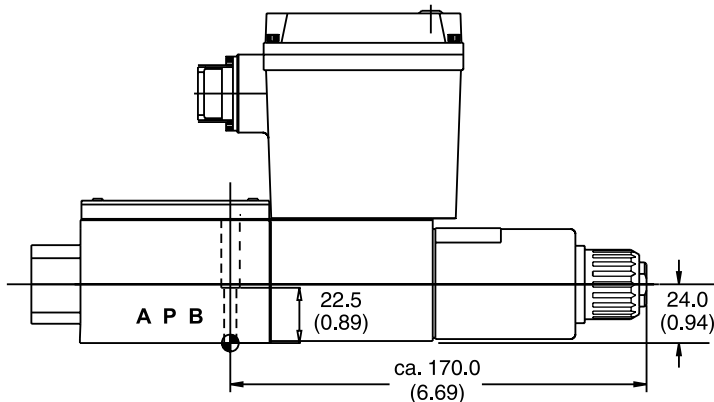
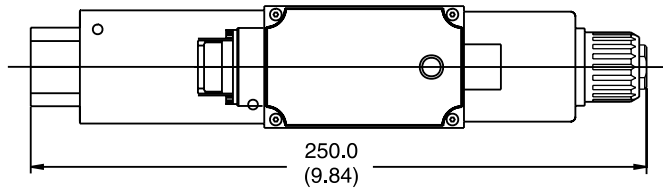
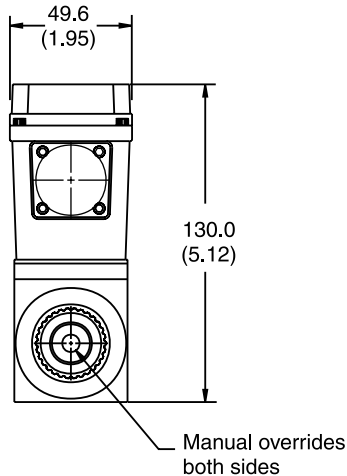
Flow Conversion Block FCB03

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



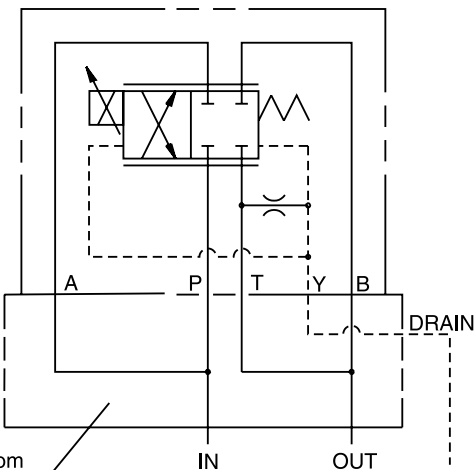
Dimensions

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



Hydraulic Connections

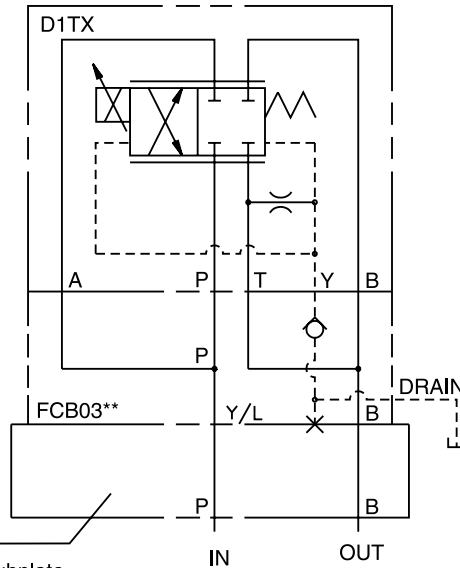
Parallel Flow Hydraulic Connections for D1TX Valve



Custom Manifold or Subplate

Drain Pressure: 35 Bar (500 PSI) max. Must maintain minimum back pressure of 1.4 Bar (20 PSI)

Parallel Flow Hydraulic Connections for D1TX Valve with Flow Conversion Block



Standard NFPA D03 CETOP 3 Subplate

Mounting Surface

Surface must be flat within 0.10 (.0004) T.I.R. and smooth within 32 micro-inch.

Torque bolts to 5.6 N.m. (50 in.-lbs.)

COMBINATION	Required Ports					
	P	A	B	T	Y	L
D1TX valve alone	✓	✓	✓	✓	✓	
D1TX w/FCB03Y	✓		✓		✓*	
D1TX w/FCB03L	✓		✓			✓*

*Y & L port not required if external drain port (SAE-4) is used.

D1TX.indd, dd

