

## D05H Pattern Directional Control Valves

Also refer to "Directional Valve Features, Selection and Operating Recommendations" ([dynexdcvoperating.pdf](#))

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#### BROCHURE NOTES:

*Consult the Dynex sales department for a review of any application which requires operating above the rated flows or pressures, or higher than normal operating temperatures.*

*Specifications shown were in effect when published. Since errors or omissions are possible, contact your sales representative for the most current specifications before ordering. Dynex reserves the right to discontinue or change designs at any time without incurring any obligation.*



## Valves Control Flow to 40 U.S. gpm (151 L/min)

### SPECIFICATIONS

#### General

For a description of spools, operator functions, electrical options and operating recommendations refer to *dynexdcvoperating.pdf*.

#### Mounting

Subplate, N.F.P.A. D05 (CETOP 5) pattern, with auxiliary "X" and "Y" ports for external pilot and drain.

#### Rated Flow

Nominal: 30 U.S. gpm (114 L/min)  
Maximum: 40 U.S. gpm (151 L/min) for most spool types.

Models with Type 56 or 58 spools are rated for 15 gpm (57 L/min) maximum. Contact the Dynex sales department about higher flows using these spools.

#### Rated Pressure

5000 psi (350 bar)

#### Tank Port Pressure (Maximum)

Standard External Drain:

5000 psi (350 Bar)

Internal Drain: 1500 psi (105 bar)

Internal Drain with "HPT" Option:

A.C., 2300 psi (160 bar);

D.C., 3000 psi (210 bar)

#### Solenoid Piloted Models

Pilot Pressure:

Minimum, 65 psi (5 bar);

Maximum, 5000 psi (350 bar)

Solenoids:

These models use a D03 as a pilot.

#### Hydraulic Piloted Models

Pilot Pressure:

Minimum, 100 psi (7 bar), except

models with Code 5 operator,

85 psi (6 bar);

Maximum, 3000 psi (210 bar)

Volume:

Maximum required to shift spool full stroke, 0.21 in<sup>3</sup> (3,4 cm<sup>3</sup>)

#### Air Piloted Models

These models use an air piloted D03 as a pilot valve.

Oil Pilot Pressure:

Minimum, 65 psi (5 bar);

Maximum, 5000 psi (350 bar)

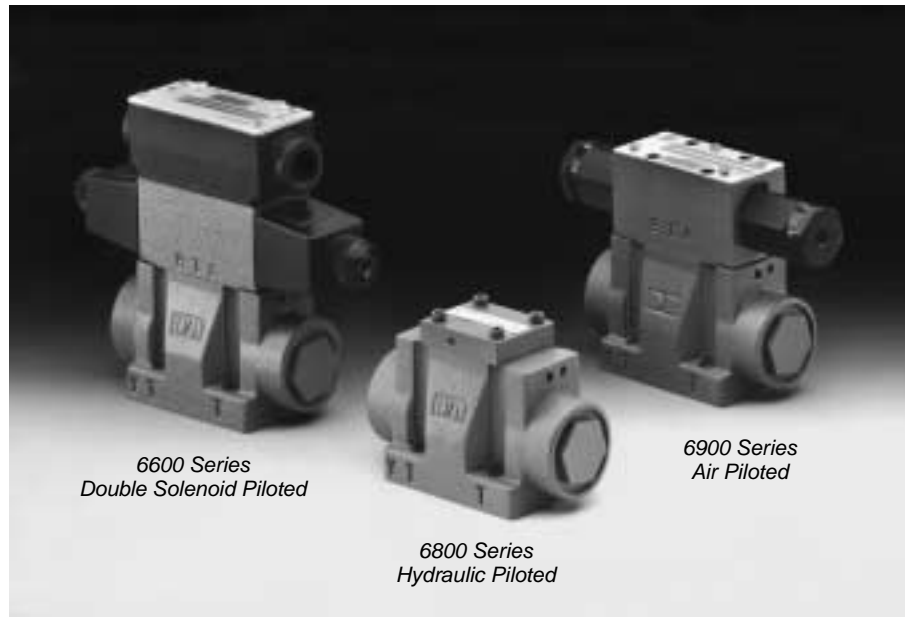
Air Pilot Pressure:

Minimum, 40 psi (3 bar);

Maximum, 200 psi (14 bar)

Volume (Air):

Maximum required to shift spool full stroke, 0.22 in<sup>3</sup> (3,6 cm<sup>3</sup>)



### TYPICAL PERFORMANCE

The curves show resistance for various spool types. The table identifies the appropriate pressure drop curve for each spool and flow path.

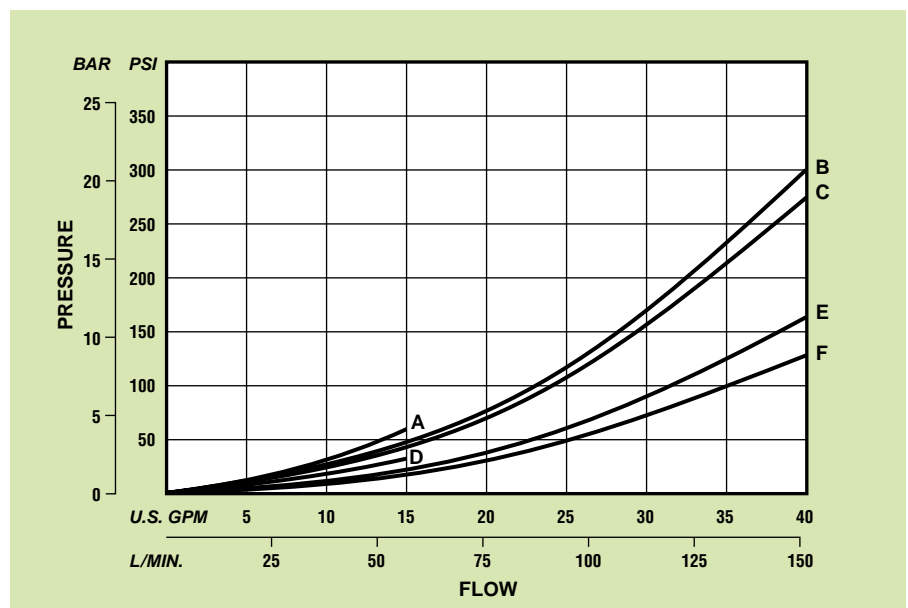
To determine total "loop" drop the individual pressure drops for P→A and B→T (or P→B and A→T) must be added.

### CURVE REFERENCE

Flow Path	Spool Type					
	5	6	8	9	56 <sup>①</sup>	58 <sup>①</sup>
P→A	B	C	B	B	C	C
P→B	B	C	B	B	C	C
A→T	E	F	F	E	D	D
B→T	E	F	F	E	D	D
P→T	—	C	—	—	A	A

<sup>①</sup> Models with Type 56 and 58 spools are rated for 15 gpm (57 L/min) maximum flow.

### PRESSURE DROP (ΔP)



## Installation and Dimensions

### GENERAL VALVE MOUNTING

The mounting surface drawing shows the minimum flush or raised surface required for the N.F.P.A. D05 (CETOP 5) pattern. This high flow pattern includes auxiliary "X" and "Y" ports and two "T" ports into a common tank passageway.

Mounting face must be flat within 0.0004 inch/4.0 inches (0,010 mm/102 mm) with a surface finish of 32 microinch (0,80 µm) AA.

Port o-rings are included with all valves. Mounting bolts must be ordered separately, .250-20 U.N.C. Threaded x 1.00 inches (25,4 mm), Grade 8 or better; four required. Recommended torque is 12 lb-ft (16 N·m) maximum.

### SOLENOID MODEL DIMENSIONS

These models use a D03 valve as a pilot valve. Overall length of a single solenoid model (not shown) is 7.00 inches (177,8 mm).

Section X-X below shows the location of orifice for standard internal pilot and plug for standard external drain, on solenoid and air piloted models. For conversion to external pilot, replace orifice with set-screw, 10-24 U.N.C. Threaded x .25 inch (6,4) long, part number 10590270.

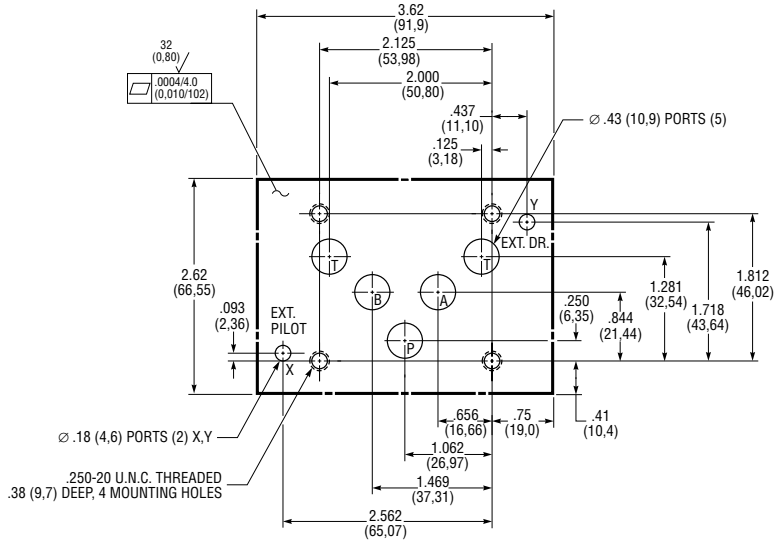
### Weight (Mass)

Single Solenoid:

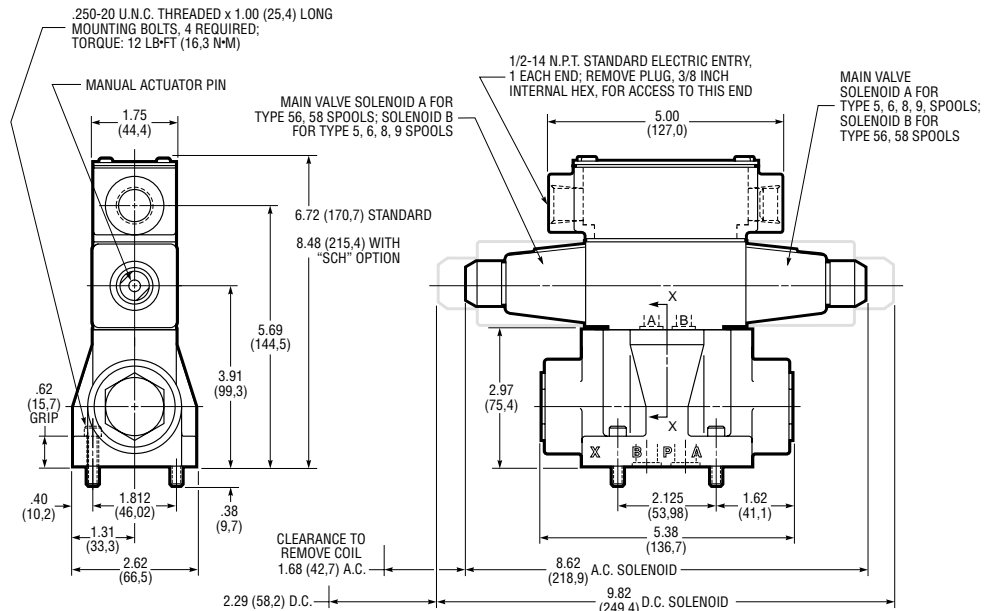
- A.C., 9.3 lb (4,2 kg.);
- D.C., 9.8 lb (4,4 kg.)

Double Solenoid:

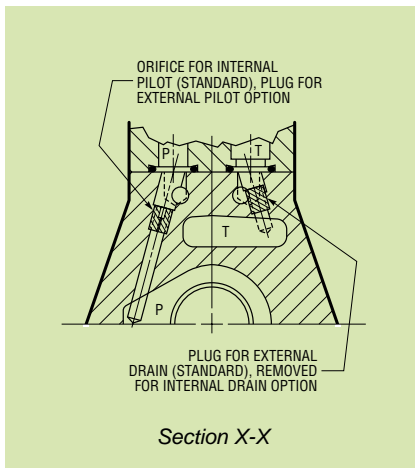
- A.C., 10.0 lb (4,5 kg.);
- D.C., 11.3 lb (5,1 kg)



Minimum Mounting Surface, N.F.P.A. D05 (CETOP 5) Pattern with Auxiliary "X" and "Y" ports and Two Ports (T) Into Common Tank Passageway



6600 Series, Double Solenoid Piloted Models



Section X-X

## EXPLOSION PROOF SOLENOIDS

These models use a D03 pilot valve with explosion proof solenoids ("EPW" option). The solenoids with special enclosures are approved by *UL* and recognized by *CSA* for use in hazardous locations.

The overall length of models with a single "EPW" solenoid, not shown, is 8.90 inches (226.1 mm).

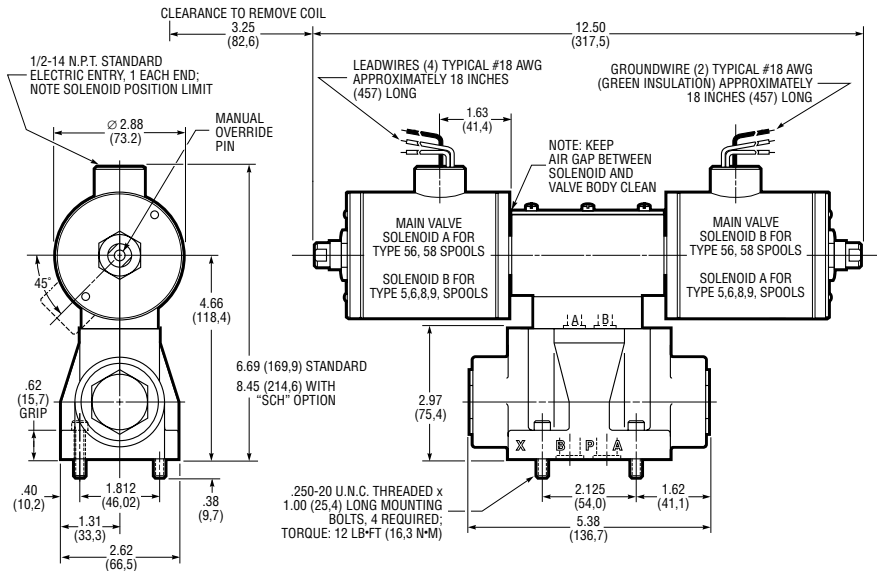
Note that a spacer plate provides mounting clearance for solenoids. A spacer kit, KV00301065, and bolt kit, P25-BK-24, are available for conversions.

### UL Classification

Class I, Group C, D;  
Class II, Group E,F,G

### Weight (Mass)

Single Solenoid: 14.3 (6,5 kg.);  
Double Solenoid: 20.0 lbs. (9,1 kg.)



6600 Series, Double "EPW" Solenoid Models

## HYDRAULIC PILOTED MODELS

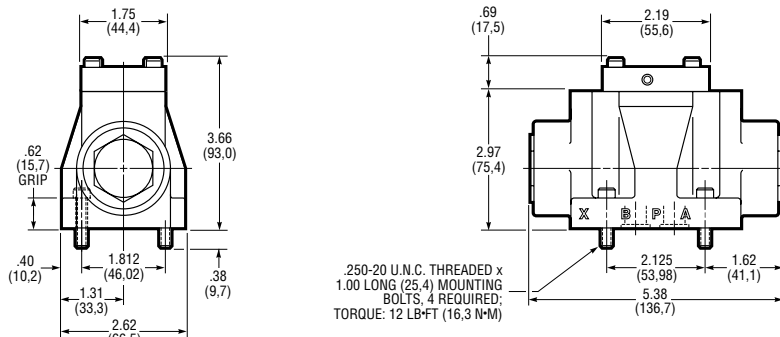
As shown, these models use a cross-over block to direct flow from auxiliary ports "X" and "Y".

### Weight (Mass)

6.0 lbs. (2,7 kg.)

### "X" AND "Y" PORT FUNCTIONS

Model	Port "X"	Port "Y"
681*	Actuator A	External Drain
682*	External Drain	Actuator B
685*	Actuator A For: Type 5,6,8,9	Actuator B for: Type 5,6,8,9
	Actuator B For: Type 56,58	Actuator A For: Type 56,58



6800 Series, Direct Hydraulic Piloted Models

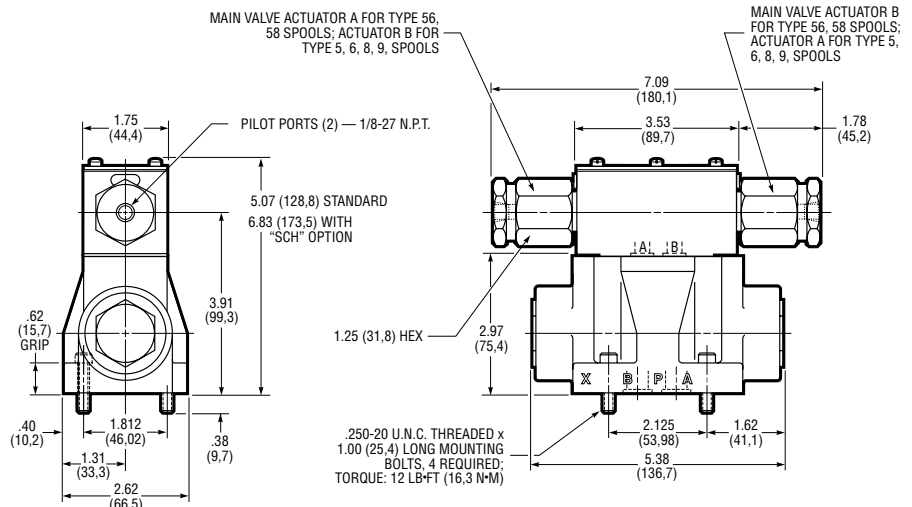
## AIR PILOTED MODELS

These models use an air piloted D03 valve as a pilot.

Single and double actuator models are available. Overall length of models with a single actuator (not shown) is 6.24 inches (158,5 mm).

### Weight (Mass)

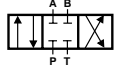
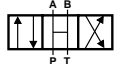
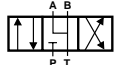
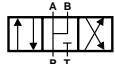
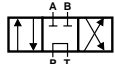
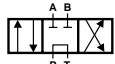
Single Actuator: 8.4 lb (3,8 kg);  
Double Actuator: 9.1 lb (4,1 kg)



6900 Series, Double Air Piloted Models

## Typical Model Code

6      6      4      5 — D05H — 115/DF — R — CH — 1      0

<p style="text-align: center; font-weight: bold;">Valve Type</p> <p>6 — Subplate Mounted Directional Control</p>	<p style="text-align: center; font-weight: bold;">Spools</p> <p>5 </p> <p>6 </p> <p>8 </p> <p>9 </p> <p>56<sup>①</sup> </p> <p>58<sup>②</sup> </p> <p><sup>①</sup> Closed Crossover <sup>②</sup> Open Crossover</p>	<p style="text-align: center; font-weight: bold;">Reverse Flow Operator (Code 4 Only)</p> <p>R — Two Position; Spring Centered, Actuator Offset (P→B)</p>	<p style="text-align: center; font-weight: bold;">Modification Number</p>	<p style="text-align: center; font-weight: bold;">Design Number</p>	<p style="text-align: center; font-weight: bold;">Options</p> <p><b>SOLENOID OPTIONS:</b></p> <p>C — CSA and UL Recognized Coils (Etched with Symbol)<sup>①</sup></p> <p>M — Hand Actuated Manual Override<sup>②</sup></p> <p>T — Terminal Strip<sup>②③</sup></p> <p>CG — Cable Grip, for .38 to .44 inch (9,5 to 11,1 mm) O.D. machine tool cable<sup>②③</sup></p> <p>SL — Solenoid Lights (Available 115/DF A.C. Only)<sup>②③</sup></p> <p>HPT — High Pressure Tank Port 2300 psi (160 bar) maximum A.C. models 3000 psi (210 bar) maximum D.C. models</p> <p>BH3A — 3-pin Connector (N.F.P.A. standard T3.539-1980) for single solenoid models, on port "A" end of valve<sup>②③④</sup></p> <p>BH3B — 3-pin Connector, for single solenoid models, on port "B" end of valve<sup>②③④</sup></p> <p>BH5A — 5-pin Connector for single or or double solenoid models on port "A" end of valve<sup>②③④</sup></p> <p>BH5B — 5-pin Connector for single or or double solenoid models on port "B" end of valve<sup>②③④</sup></p> <p><b>GENERAL OPTIONS:</b></p> <p>ID — Internal Drain</p> <p>XP — External Pilot</p> <p>CH — Flow Control (Pilot Choke)<sup>⑤</sup></p> <p><sup>①</sup> Available with 115/DF solenoids only. For other voltages, consult the Dynex sales department</p> <p><sup>②</sup> Option not available with "EPW" solenoid models.</p> <p><sup>③</sup> Option not available with "Plug-In-Terminal" solenoid models.</p> <p><sup>④</sup> N.F.P.A. standard T3.539-1980; A.N.S.I. standard B93.55M-1981.</p> <p><sup>⑤</sup> Models with this option are rated to 3000 psi (210 bar) maximum.</p>
<p style="text-align: center; font-weight: bold;">Actuator</p> <p>6 — Solenoid Operated</p> <p>8 — Direct Hydraulic Piloted</p> <p>9 — Air Pilot Operated</p>	<p style="text-align: center; font-weight: bold;">Internal Operator</p> <p>1 — Two Position; Spring Offset (P→B), Actuator Offset (P→A)</p> <p>2 — Two Position; Spring Offset (P→A), Actuator Offset (P→B)</p> <p>3 — Two Position; Actuator Offset, Detented</p> <p>4 — Two Position; Spring Centered, Actuator Offset (P→A)</p> <p>5 — Three Position; Spring Centered, Actuator Offset</p>				
<p style="text-align: center; font-weight: bold;">Valve Size</p> <p>D05H — 30 U.S. GPM (114 L/min) Nominal Flow, N.F.P.A. D05 (CETOP 5) Pattern with auxiliary "X" port (external pilot) and "Y" port (external drain)</p>		<p style="text-align: center; font-weight: bold;">Electrical – Solenoid Options</p> <p><b>STANDARD SOLENOIDS:</b></p> <p>24/DF — Dual Frequency, 24/60, 24/50</p> <p>115/DF — Dual Frequency, 115/60, 110/50</p> <p>230/DF — Dual Frequency, 230/60, 220/50</p> <p>460/DF — Dual Frequency, 460/60, 440/50</p> <p>12VDC — Direct Current, 12 Volts</p> <p>24VDC — Direct Current, 24 Volts</p> <p>115/60 EPW — Explosion Proof Solenoids</p> <p>110/50 EPW — Explosion Proof Solenoids</p> <p>220/50 EPW — Explosion Proof Solenoids</p> <p><b>PLUG-IN TERMINAL SOLENOIDS:<sup>①</sup></b></p> <p>115/HAC — Dual Frequency, 115/60, 110/50</p> <p>230/HAC — Dual Frequency, 230/60, 220/50</p> <p>12/HDC — Direct Current, 12 Volts</p> <p>24/HDC — Direct Current, 24 Volts</p> <p style="text-align: center;">For Other Voltages, Consult the Dynex Sales Department</p>			

<sup>①</sup> Fits DIN Connector Standard 43650 (Hirschmann GDM 209)