

## D05H Pattern Directional Control Valves

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

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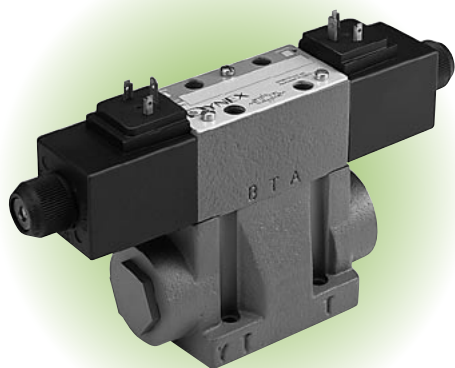
#### BROCHURE NOTES:

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.



# D05H SIZE



## VALVE DESCRIPTION

D05H valves provide high flow capability, one-third greater than D05 valves.

The valve's low pressure drop is enhanced with the use of the Dynex standard subplate, which takes advantage of the valve's special double tank port design.

For a description of spools, operators and application information, see [dynexdcvoperating.pdf](http://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

30 U.S. gpm (114 L/min) nominal;  
40 U.S. gpm (151 L/min) maximum for most spool types.

Models with Type 56 or 58 are rated for 15 gpm (57 L/min) maximum. For higher flows, contact the sales department.

## Rated Pressure

5000 psi (350 bar).

## Tank Port Pressure (Maximum)

Standard External Drain:  
5000 psi (350 bar).

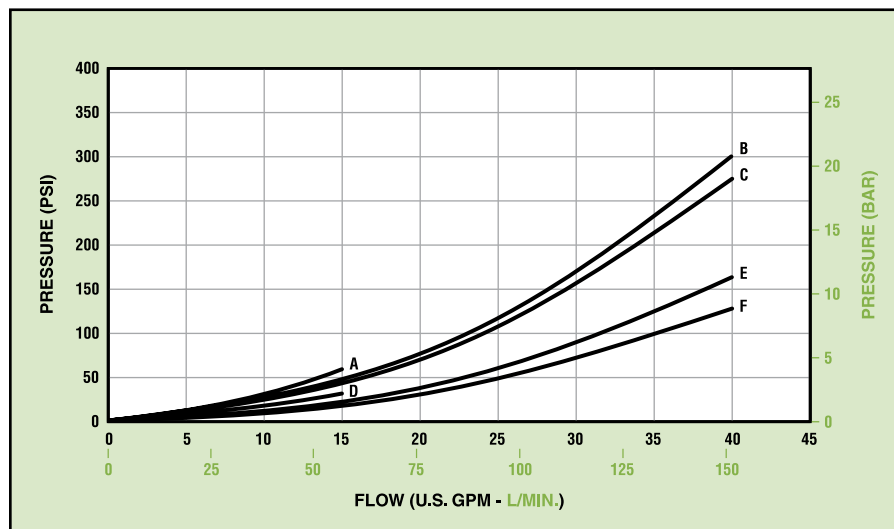
Internal Drain ("ID" Option):  
Solenoid models, 1500 psi (105 bar);  
Solenoid models with "HT" Option,  
AC models, 2300 psi (160 bar),  
DC models, 3000 psi (210 bar);  
Air piloted models,  
3000 psi (210 bar).

## Response Time (Full Stroke)

Spring Centered Models:  
Solenoid Energized, 40-70 ms.  
Spring Returned, 40-45 ms.

Spring Offset Models:  
Solenoid Energized, 50-55 ms.  
Spring Returned, 85 ms.

## Pressure Drop ( $\Delta P$ )



## Flow 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 59 spools are rated for 15 U.S. gpm (57 L/min) maximum flow.

## 6600 Series Solenoid Piloted Models

Pilot Pressure:  
Minimum, 65 psi (5 bar);  
Maximum, 5000 psi (350 bar).

Solenoids:  
These models use a D03 valve as a pilot. Models are available with standard AC or DC solenoids. Optional Plug-In-Terminal Solenoids fit DIN Connector, Standard 43650 Form A ("Hirschmann" type).

See [dynexdcvoperating.pdf](http://dynexdcvoperating.pdf) for "Electrical Connections" and "Explosion Proof Option".

## 6800 Series Hydraulic Piloted Models

Pilot Pressure:  
Minimum, 100 psi (7 bar), except models with Code 5 internal operator, 85 psi (6 bar);  
Maximum, 3000 psi (210 bar).

Required Volume (to shift spool full stroke):  
0.21 in<sup>3</sup> (3,4 cm<sup>3</sup>).

## 6900 Series Air Piloted Models

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

Air Pilot Pressure:  
Minimum, 40 psi (3 bar);  
Maximum, 200 psi (14 bar).

Required Volume (to shift spool full stroke):  
0.22 in<sup>3</sup> (3,6 cm<sup>3</sup>).

## VALVE EFFICIENCY

Efficiency for all models is shown by the typical performance curves, above. The table identifies the appropriate pressure drop curve for each spool and flow path.

For example, In the table under spool Type 5, curve "B" is called out to determine the pressure drop for P→A. Looking at the curves, "B" indicates a drop of about 165 psi at 30 U.S. gpm (11,4 bar at 114 L/min).

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

## INSTALLATION AND DIMENSIONS

### Valve Mounting

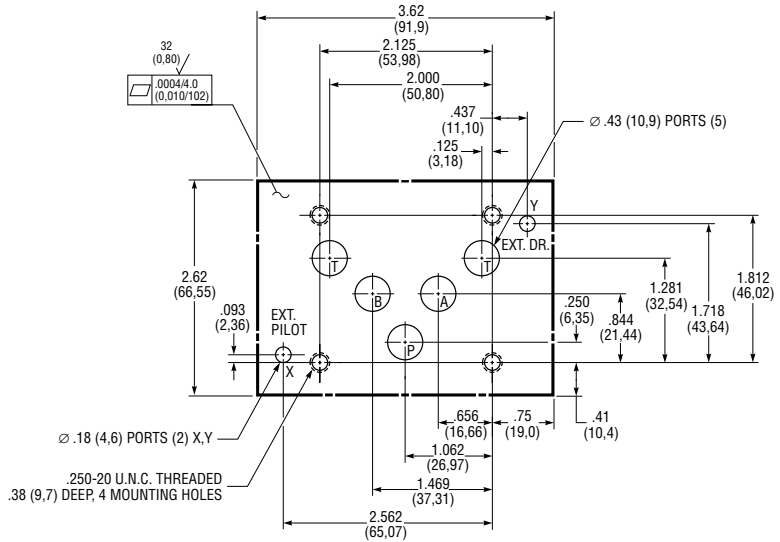
D05H valves have a second "T" port into a common tank passageway, for lower pressure drop. The mounting surface drawing shows the standard N.F.P.A. pattern, with auxiliary "X" and "Y" ports for external pilot and drain.

Port o-rings are included with valves.

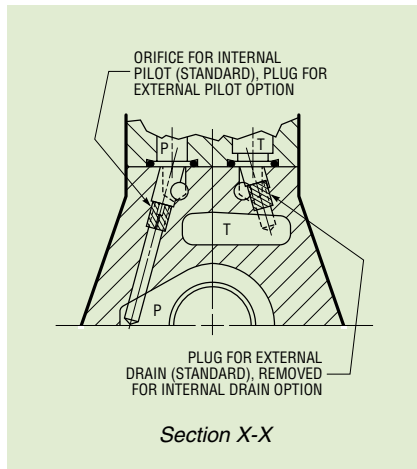
Mounting bolts must be ordered separately: .250-20 U.N.C. Threaded x 1.00 inch (25,4 mm), Grade 8 or better, four required. Recommended mounting torque is 12 lb-ft (16 N·m).

### Pilot and Drain Options

The "Section X-X" drawing shows the location of the orifice for standard internal pilot, and plug for standard external drain on solenoid and air piloted models.



Recommended 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



### Solenoid Model Dimensions

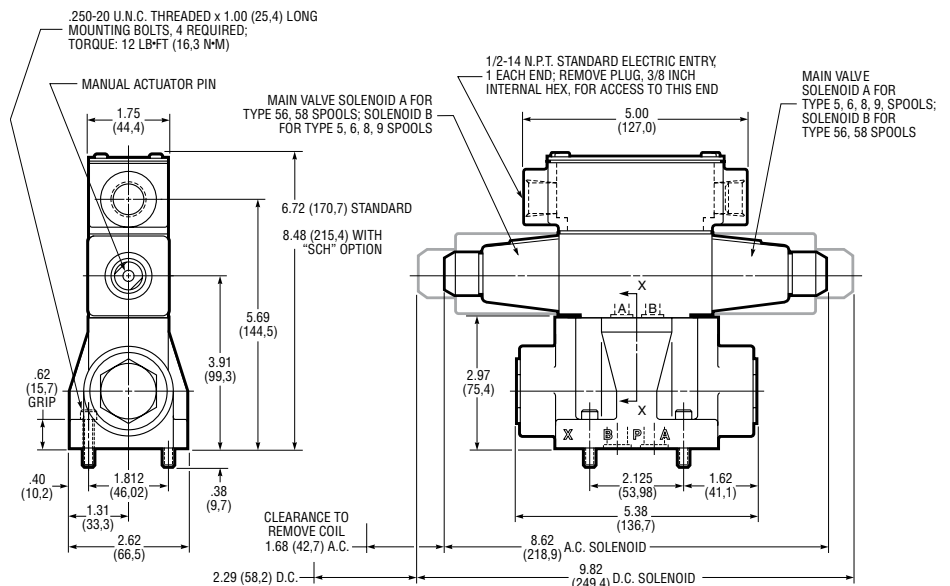
Dimensions are shown for both AC and DC solenoids. DC configuration is shown printed in gray.

The overall length of a single solenoid model (not shown) is 7.00 inches (177,8 mm) AC and 7.62 inches (193,5 mm) DC.

Weight (Mass):

Single Solenoid,  
AC, 9.3 lb (4,2 kg);  
DC, 9.8 lb (4,4 kg).

Double Solenoid,  
AC, 10.0 lb (4,5 kg);  
DC, 11.3 lb (5,1 kg).



6600 Series, Double Solenoid Piloted Models

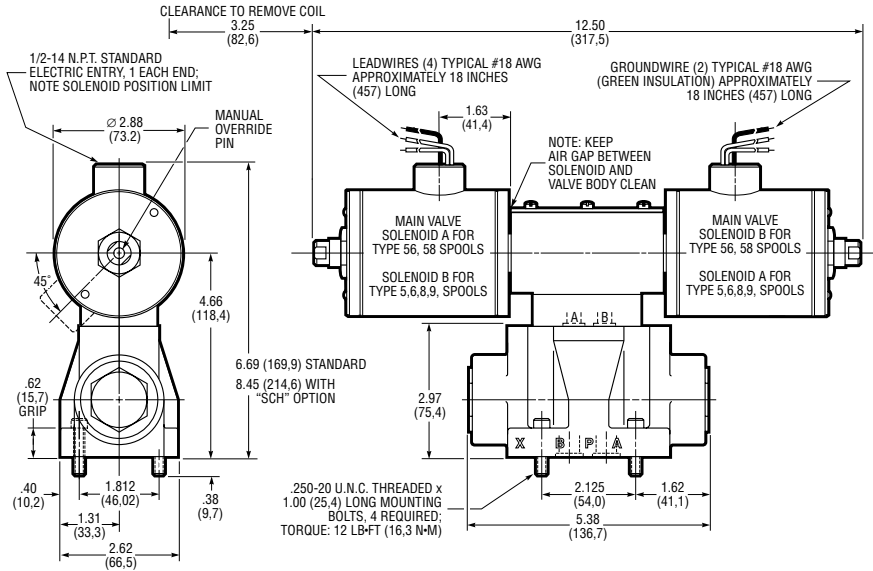
# D05H SIZE

## Explosion Proof Solenoids

"EP" solenoids with special enclosures are approved by UL and CSA for use in hazardous locations. Overall length of single solenoid models (not shown) is 8.90 inches (226,1 mm).

Weight (Mass):

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



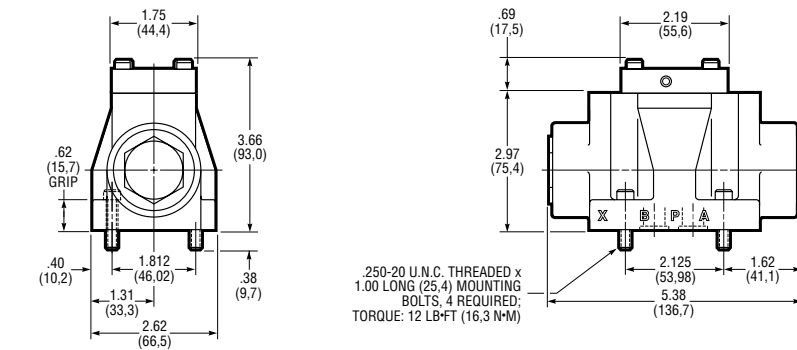
6600 Series, Double "EP" Solenoid Models

## Direct Hydraulic Pilot Operated

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

Weight (Mass):

6.0 lb (2,7 kg).



6800 Series, Direct Hydraulic Piloted Models

## "X" and "Y" Port Function

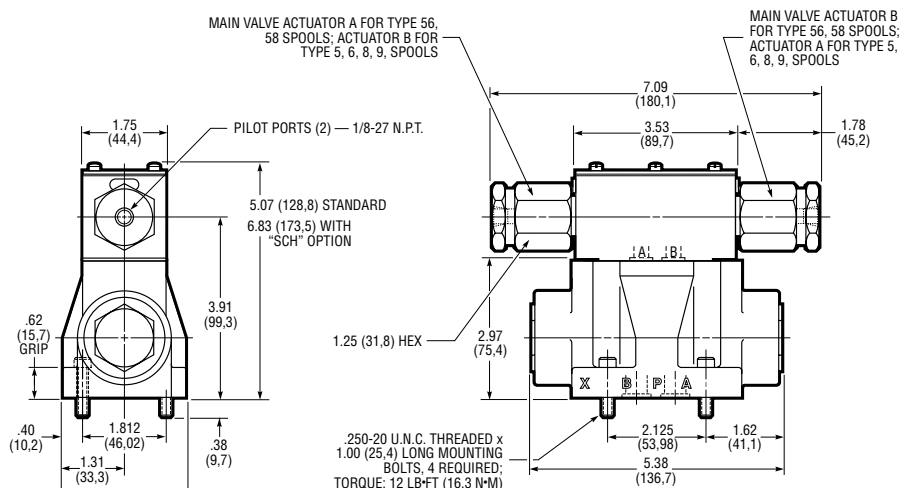
Model	Port "X"	Port "Y"
681*	Actuator A	External Drain
682*	External Drain	Actuator B
685*	Actuator A for: Type 5, 6, 8, 9	Actuator B for: Type 5, 6, 8, 9
	Actuator B for: Type 56, 58	Actuator A for: Type 56, 58

## Air Piloted Models

Overall length of single actuator configuration (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

## D05H SUBPLATE AND BOLT KITS

Part Number	Description
<b>Subplates:</b>	
P22-D05H-.75	Bottom Ports, 3/4-14 N.P.T.F.
PSO22-D05H-.75	Side Ports, 3/4-14 N.P.T.F.
<b>Bolt Kit:</b>	
P22-BK	Four .250-20 U.N.C. Threaded x 1.00 inch (25,4 mm)

# D05H SIZE

## TYPICAL MODEL CODE

6 6 4 5 - D05H - 115DF - R - T - CH - 1 0

Valve Type	
6	Subplate Mounted Directional Control

Actuator	
6	Solenoid Operated
8	Hydraulic Piloted
9	Air Piloted

Internal Operator	
1	Two Position: Spring Offset (P→B), Actuator Offset (P→A)
2	Two Position: Spring Offset (P→A), Actuator Offset (P→B)
3	Two Position: Actuator Offset, Detented
4	Two Position: Spring Centered, Actuator Offset <sup>①</sup>
5	Three Position: Spring Centered, Actuator Offset

<sup>①</sup> For most spools, normal flow is actuator offset P→A.  
For Spool Types 56 or 58, normal flow is actuator offset P→B.

Spools	
5	
6	
8	
9	
56 <sup>①</sup>	
58 <sup>②</sup>	

<sup>①</sup> Closed Crossover  
<sup>②</sup> Open Crossover

Valve Size	
D05H	NFPA D05 (CETOP 5) Mounting Pattern with auxiliary "X" port (external pilot) and "Y" port (external drain)

Reverse Flow Option	
R	Reverse Flow (Code 4 Operator Only)

Design Number
1

Modification Number
0

Solenoid Options	
BH3A	3-pin Connector for single solenoid models on port "A" end <sup>①②③</sup>
BH3B	3-pin Connector for single solenoid models on port "B" end <sup>①②③</sup>
BH5A	5-pin Connector for single or double solenoid models on port "A" end <sup>①②③</sup>
BH5B	5-pin Connector for single or double solenoid models on port "B" end <sup>①②③</sup>
C	CUL Recognized Coils (Etched with Symbol) <sup>④</sup>
CG	Cable Grip for .38 to .44 inch (9,5 to 11,1 mm) O.D. machine tool cable <sup>①②</sup>
M	Hand Actuated Manual Override <sup>①</sup>
SL	Solenoid Lights (available 115DF AC only) <sup>①②④</sup>
T	Terminal Strip <sup>①②</sup>

<sup>①</sup> Option not available with "EP" solenoid models.  
<sup>②</sup> Option not available with "Plug-In Terminal" solenoid models.  
<sup>③</sup> NFPA standard T3.539-1980; ANSI standard B93.55M-1981.  
<sup>④</sup> Available with 115DF solenoids only.

General Options <sup>①</sup>	
CH	Flow Control (Pilot Choke) – 3000 psi (210 bar) maximum pressure
ID	Internal Drain
XP	External Pilot

<sup>①</sup> Not available with hydraulic piloted models.

Electrical Options			
<i>Standard AC Solenoids (Dual Frequency):</i>		<i>Standard DC Solenoids:</i>	
24DF	24V/60Hz, 24V/50Hz	12DC	12VDC
115DF	115V/60Hz, 110V/50Hz	24DC	24VDC
230DF	230V/60Hz, 220V/50Hz		
<i>Plug-In Terminal AC Solenoids:<sup>①</sup></i>		<i>Plug-In Terminal DC Solenoids:<sup>①</sup></i>	
115HA	115V/60Hz, 110V/50Hz	12HD	12VDC
230HA	230V/60Hz, 220V/50Hz	24HD	24VDC
<i>Explosion-Proof AC Solenoids:</i>		<i>Explosion-Proof DC Solenoids:</i>	
115EP	115V/60Hz	12EP	12VDC
110EP	110V/50Hz	24EP	24VDC
220EP	220V/50Hz		

<sup>①</sup> Fits DIN Connector Standard 43650 Form A ("Hirschmann" type).