Pilot Operated Valves - Air or Oil

D03A-2C-35

D05H-1A-35

Features

Air Pilot Operation: Standard pneumatic operators have low shifting pressures and quick response, series **A**. A series come with manual overrides and breather filter vents standard.

Hydraulic Pilot Operation: Standard hydraulic operators have moderate shifting pressures and quick response, series **H**.
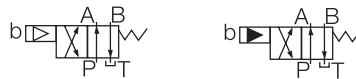

Common Models

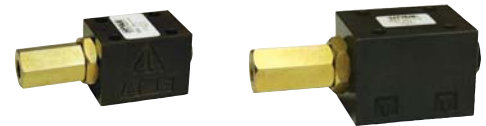### Single Operator

Pneumatic Pilot				Hydraulic Pilot	
Size:	**D03**	**D05**		**D03**	**D05**
Model:	D03A-1A-35	D05A-1A-35		D03H-1A-35	D05H-1A-35

Double Operators
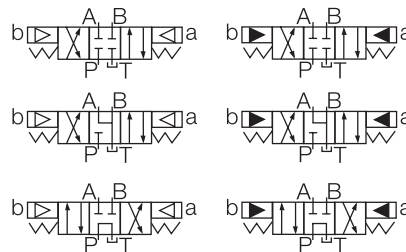
Pneumatic Pilot				Hydraulic Pilot	
Size:	**D03**	**D05**		**D03**	**D05**
Model:	D03A-2B	D05A-2B-35		D03H-2B-35	D05H-2B-35
Model:	D03A-2F-35	D05A-2F-35		D03H-2F-35	D05H-2F-35
Model:	D03A-2C-35	D05A-2C		D03H-2C-35	D05H-2C-35

Specifications

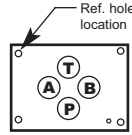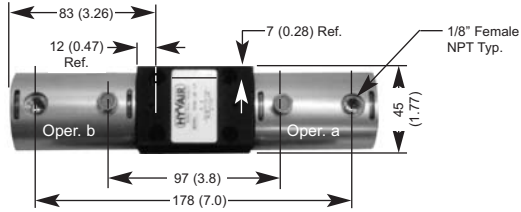| Size		D03	D05
Maximum Flow Rates*		25 gpm (94 lpm)	40 gpm (151 lpm)
Maximum Operating Pressure	P, A, B, Ports*	5000 psi (350 bar)	5000 psi (350 bar)
	T Port- Including Surges	300 psi (20 bar)	300 psi (20 bar)
Internal Leakage	@ 3000 psi	0.18 cu-in/ min (3 ml/ min)	0.22 cu-in/ min (3.5 ml/ min)
Cycle Rate	Maximum	200 cycles/ min	
Mounting Surface	NFPA	T3.5.1.MR1-D03	T3.5.1.MR1-D05
	ISO	ISO 4401- 03	ISO 4401- 05
Weight	Single Air Pilot	2.5 lbs (1.1 kg)	6.2 lbs (2.8 kg)
	Double Air Pilot	3.0 lbs (1.4 kg)	6.6 lbs (3.0 kg)
	Single Hyd. Pilot	2.3 lbs (1.05 kg)	5.9 lbs (2.4 kg)
	Double Hyd. Pilot	2.5 lbs (1.13 kg)	6.1 lbs (2.7 kg)
Pilot Pressures Min/Max	A Series (Air)	20/250 psi (1.4/17.5 bar)	20/250 psi (1.4/17.5 bar)
	H Series (Hydraulic)	200/3000 psi (13.8/210 bar)	
Operating Conditions	Working Temperature	40- 160° F (5- 70°C)	
	Operating Viscosity	80- 300 SUS (17- 65 cSt)	
	Max. Start-up Viscosity	1500 SUS (315 cSt)	
	Filtration	25 micron or less, (ISO 18/15)	
	Recommended Fluids	Petroleum Based Fluids- ISO VG32-68, Phosphate Ester, Most Vegetable Oils, Water Based Fluids to 40% Water	

*Some spools rated less- check max. pressures and flows below. Flows are reduced if valve is used as 2 way or 3 way only- consult factory.
For continuous flow conditions or high cycling applications, a recommended max. flow rating is: 1/2 x maximum flow rating.
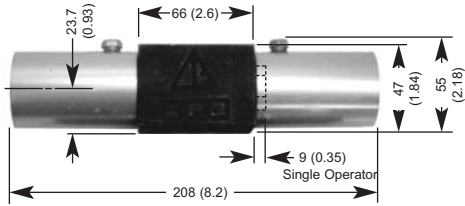
Model Symbol	Valve Spool Type	D03A Max. flow gpm (lpm)	D05A Max .flow gpm (lpm)		Symbol	Valve Spool Type	D03A Max. flow gpm (lpm)	D05A Max. flow gpm (lpm)
	1A	20 (75)	32 (120)			2F	20 (75)	40 (150)
	1AY	20 (75)	32 (120)			2H	20 (75)	40 (150)
	2B	20 (75)	32 (120)			2K	20 (75)	40 (150)
	2C	12 (45)	17 (65)			2T	25 (94)	40 (150)
						3A	25 (45)	40 (150)

Dimensional Data- D03

Series D03A

83 (3.26)
12 (0.47) Ref.
7 (0.28) Ref.
1/8" Female NPT Typ.
45 (1.77)
Oper. b
Oper. a
97 (3.8)
178 (7.0)

Ref. hole location

A T B P

NFPA: T3.5.1.MR1-D03

ISO: 4401- 08

23.7 (0.93)
66 (2.6)
47 (1.84)
55 (2.18)
9 (0.35) Single Operator
208 (8.2)

Units: mm/ (Inch)

Note: Use (4) 10-24 SHCS X 1-3/4" mounting screws

6.4mm (0.25") dia. recessed manual override (standard)

Add 35.5mm (1.4") length for each knob type override

D03A- Single Pilot

Series D03H

40 (1.6)
12 (0.47) Ref.
7 (0.28) Ref.
1/4" Female NPT Typ.
45 (1.77)
Oper. b
Oper. a
172 (6.75)

23.7 (0.93)
66 (2.6)
47 (1.84)
9 (0.35) Single Operator
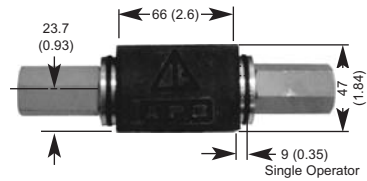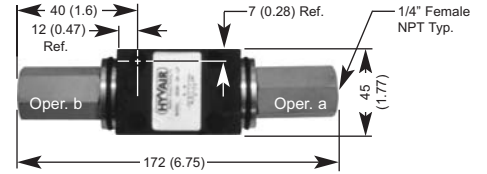
D03H- Single Pilot

Dimensional Data- D05

Series D05A

91 (3.6)
20.5 (0.81) Ref.
9.5 (0.375) Ref.
1/8" Female NPT Typ.
44.5 (1.75)
65 (2.56)
Oper. b
Oper. a
129.5 (5.1)
227 (8.94)

Ref. hole location

P A B T T
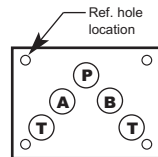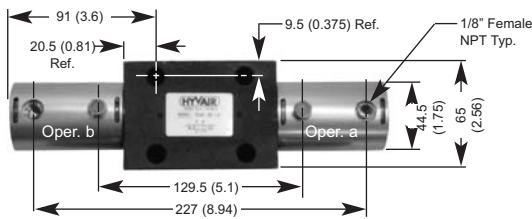
NFPA: T3.5.1.MR1-D05

ISO: 4401- 05

36.2 (1.43)
93 (3.66)
65 (2.56)
69 (2.72)
9 (0.35) Single Operator
255.5 (10.06)

6.4mm (0.25") dia. recessed manual override (standard)

Add 35.5mm (1.4") length for each knob type override
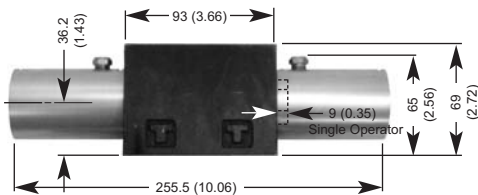
D05A- Single Pilot

Units: mm/ (Inch)

Note: Use (4) 1/4-20 SHCS X 1-1/2" mounting screws

Series D05H

48 (1.9)
20.5 (0.81) Ref.
9.5 (0.375) Ref.
1/4" Female NPT Typ.
65 (2.56)
Oper. b
Oper. a
200 (7.86)

93 (3.66)
69 (2.72)
36.2 (1.43)
9 (0.35) Single Operator

D05H- Single Pilot

Typical Pressure Drop Curves

D03
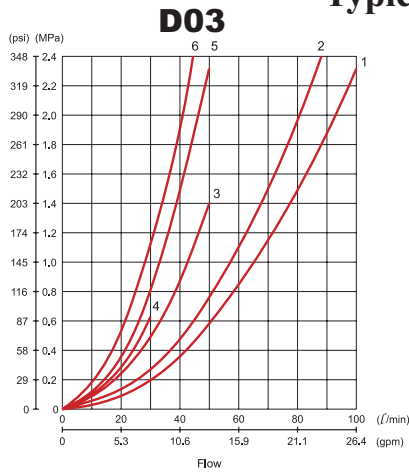
Viscosity of hydraulic fluid: 150SUS (32mm²/s)

Note: For maximum pressure and flows- refer to specifications page.

D05

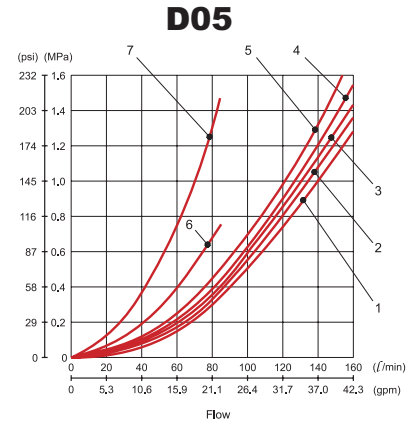| Description	D03 Flow Path					Valve Spool Type		D05 Flow Path				
	P→A	P→B	A→T	B→T	P→T			P→A	P→B	A→T	B→T	P→T
Spring Offset, (Closed in Transition)	2	2	2	2			1A	3	3	4	4	
Spring Offset, (Open in Transition)	1	1	1	1			1AY	1	1	4	4	
Spring Centered, All Ports Blocked	2	2	2	2			2B	3	3	3	3	
Spring Centered, P to T, A & B Blocked	6	6	5	5	3		2C	7	7	7	7	6
Spring Centered, P to Blocked, A & B to T	2	2	1	1			2F	3	3	1	1	
Spring Centered, All Ports Open	1	1	1	1	1		2H	1	1	1	1	1
Spring Centered, P & B Blocked, A to T	2	2	1	2			2K	3	3	1	3	
Spring Centered, P to A & B, T Blocked	1	1	2	2			2T	1	1	3	3	
Detented (Closed in Transition)	2	2	2	2			3A	3	3	4	4	

Ordering Information

D03 A - 2 B - 35

D03 Series or D05 Series	Actuator	Configuration	Function
	A = Air	**1** = Single actuator • 2 position, spring offset	**A** = P to A, B to T
	H = Hydraulic	**2** = Double actuator • 3 position, spring centered	**B** = All Ports Blocked
		3 = Double actuator • 2 position, no spring, detented	**C** = P to T, A & B Blocked
		5 = Single actuator • 2 position, spring centered	**F** = P Blocked, A & B to T
			H = All Ports Open
			T = P to A & B, T Blocked