

**NFPA SIZE  
D05**



**DESCRIPTION**

As a valve spool shifts, the spool lands cross over the valve body ports. This can produce instantaneous high flow rates.

**TYPICAL PERFORMANCE SPECIFICATIONS**

Performance is measured on a four-way circuit (full circuit). Performance may be reduced from that shown if a three-way circuit (half circuit) is used, i.e. A or B port plugged.

All pressure drops shown on the next page are based on 100 SUS (20.5 CS) fluid viscosity, and 0.87 specific gravity. See the chart below for other viscosities.

Fluid	CS	14.5	20.5	32	43	54	65	76	86
Viscosities	SUS	75	100	150	200	250	300	350	400
Multiplier		0.93	1.00	1.11	1.19	1.26	1.32	1.37	1.41

For any other specific gravity ( $G_1$ ) the pressure drop ( $? P$ ) will be approximately  $? P_1 = ? P (G_1/G)$ .

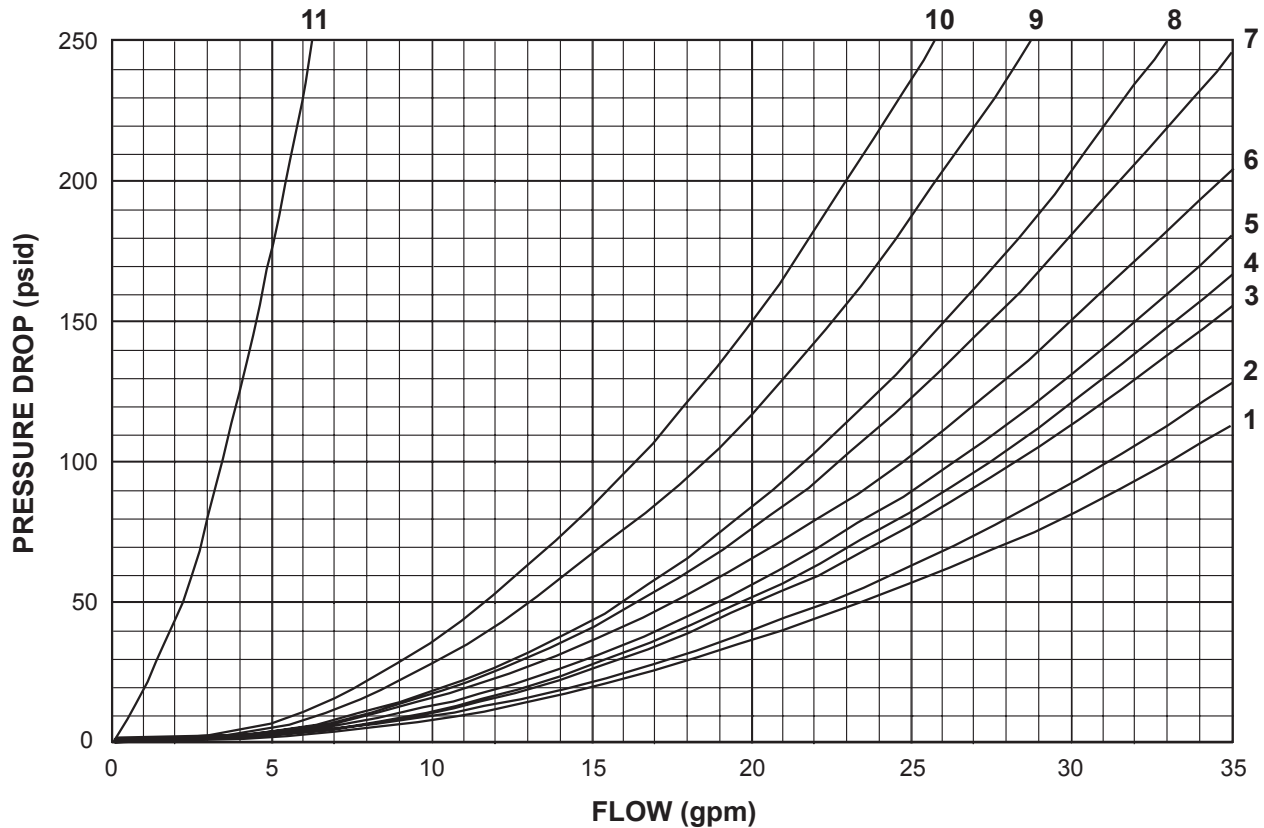
MAXIMUM FLOW RATE - (up to)		35 gpm	132.5 lpm
MAXIMUM OPERATING PRESSURE	P, A, B Ports*	4600 psi	317 bar
	T Port	2500 psi	172 bar
MAXIMUM CYCLE RATE	AC Solenoids	up to 9000 cycles/hr	
	DC Solenoids	up to 11,000 cycles/hr	
MOUNTING SURFACE		NFPA/T3.5.1 R2 - 2002 D05 ISO 4401 Size 05	
WEIGHT	AC Single Actuator	9.9 lbs.	4.5 kg
	AC Double Actuator	11.3 lbs.	5.1 kg
SPOOL CODES AVAILABLE		SEE CHART	

\* Up to 3000 psi (207 bar) maximum on valves with solenoid codes 39 and 68. See performance charts on pages 4 thru 6.

**NEW VSD05M**  
**DIRECTIONAL CONTROL VALVES**  
 SOLENOID ACTUATED, DIRECT OPERATING



**TYPICAL PRESSURE DROP (ISO VG 32 at 120° F.)**



**FLOW PATH ? P CURVES**

Spool Code	Flow Curve Number							
	Spool Shifted				Spool Centered			
	P to A	B to T	P to B	A to T	P to A or B	A to T	B to T	P to T
A	5	3	5	3	--	--	--	--
A Code 1 & 2	4	4	4	4	--	--	--	--
B	5	2	5	2	--	--	--	6
B Code 1 & 2	3	1	3	1	--	--	--	--
E	6	2	6	5	--	--	9	--
F	6	1	6	1	--	7	7	--
F1	6	3	6	3	--	11	11	--
G	4	3	4	3	8	--	--	--
K	6	5	6	2	--	9	--	--
L	6	5	6	5	--	--	--	10
Subplate	5 (Full Circuit)				--	--	--	--

**SPOOL DESCRIPTION**

CODE	SYMBOL	SPOOL FUNCTION	CENTER POSITION	CROSSOVER
A			All ports blocked	All ports blocked
B			All ports open	All ports open
E			P & A blocked B to T	All ports blocked, or P & A blocked B to T
F			P blocked A & B to T	P blocked A or B to T
F1			P blocked A & B restricted to T	P blocked A or B restricted to T
G			P to A & B T blocked	P to A or B T & A or B blocked
K			P & B blocked A to T	All ports blocked, or P & B blocked, A to T
L			P to T A & B blocked	All ports open, restricted

**TYPICAL ELECTRICAL INFORMATION**

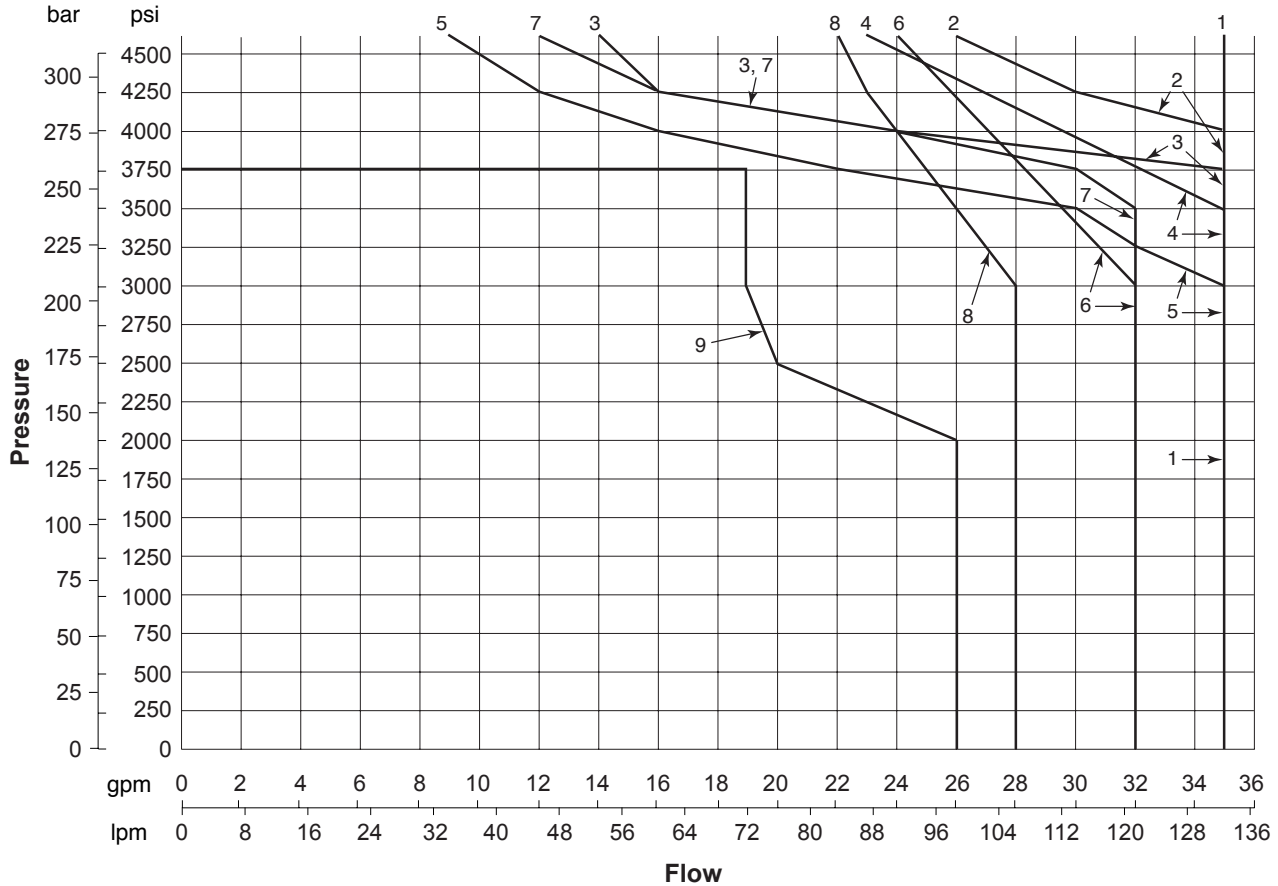
SOLENOID CODE		VOLTAGE & FREQUENCY	VOLTAGE LIMITS	RESISTANCE	MAXIMUM INRUSH CURRENT	HOLDING CURRENT	HOLDING CURRENT MIN. VOLT.	HOLDING POWER
DIN CONN.	2 PIN	VOLTS - Hz.	MIN. - MAX.	OHMS	(AMP)	(AMP)	(AMP)	(WATTS)
33L	60L	120 - 60	108 - 126	9.2	5.0	.91	.76	45
		110 - 50	99 - 116		6.2	1.1	.91	43
34L	61L	240 - 60	216 - 252	38.0	2.9	.48	.40	45
		220 - 50	198 - 231		3.0	.53	.44	43
39L*	68L*	120 - 60	108 - 132	16.4	3.7	.38	.32	22
		110 - 50	99 - 121		3.8	.41	.34	21
42L	70L	24 DC	21.6 - 26	13.1	1.8	1.8	1.7	44
44L	75L	12 DC	10.8 - 13	3.3	3.6	3.6	3.3	44

\* Code 39L and 68L valves (low watt) may not shift on high viscosity (low temperature) fluids.  
Maximum 1000 SUS (215.7 CS) start-up recommended.

**NEW VSD05M**  
**DIRECTIONAL CONTROL VALVES**  
 SOLENOID ACTUATED, DIRECT OPERATING



**AC PERFORMANCE CURVE**  
 SOLENOIDS CODES 33L, 34L, 60L and 61L



**AC PERFORMANCE CURVE CHART**

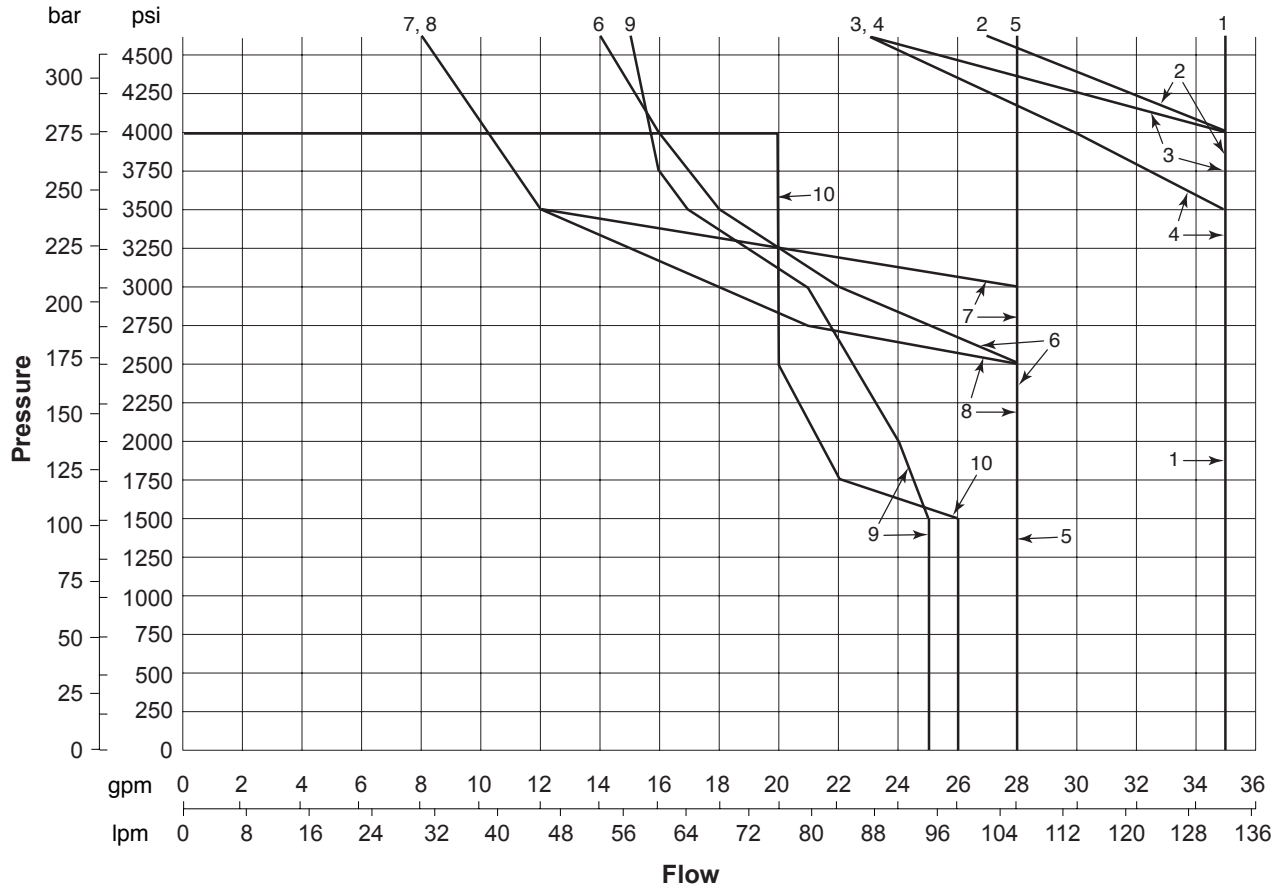
Curve	Function and Spool Code
1	2A, 3A, 5A, 2B
2	1B
3	1B-R
4	3B, 5B
5	3F, 5F, 3E, 5E, 3K, 5K
6	1A, 1A-R
7	3F1, 5F1
8	3G, 5G
9	3L, 5L

**NOTES:**

1. Performance curve data was measured at 90% voltage with the solenoids at operating temperature and with low tank port pressure.
2. Valve performance was tested in a four-way circuit (full loop). Performance may be reduced from that shown when used in a three-way circuit (half circuit), i.e. A or B port plugged.

**DC PERFORMANCE CURVE**

SOLENOIDS CODES 42L, 44L, 70L and 75L



**DC PERFORMANCE CURVE CHART**

Curve	Function and Spool Code
1	2A, 3A, 5A, 2B
2	1B
3	3B, 5B
4	1B-R
5	3G, 5G
6	1A-R
7	3F, 5F, 3F1, 5F1
8	3E, 5E, 3K, 5K
9	1A
10	3L, 5L

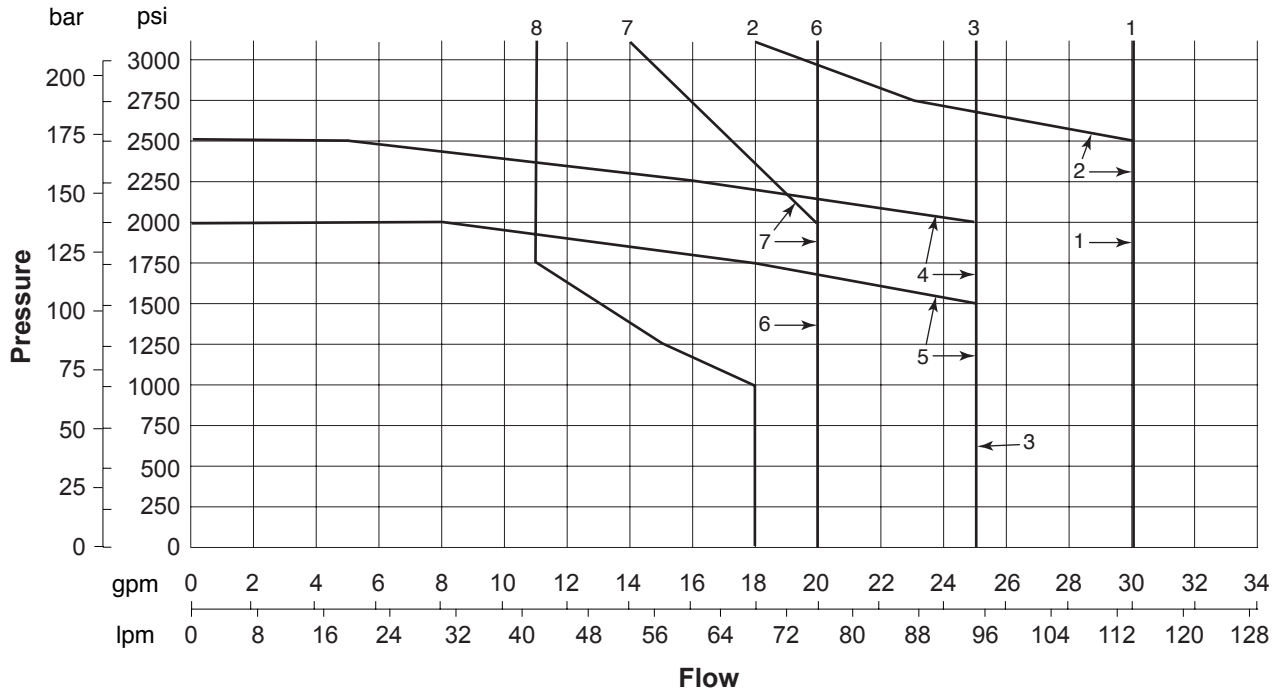
**NOTES:**

1. Performance curve data was measured at 90% voltage with the solenoids at operating temperature and with low tank port pressure.
2. Valve performance was tested in a four-way circuit (full loop). Performance may be reduced from that shown when used in a three-way circuit (half circuit), i.e. A or B port plugged.

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**AC PERFORMANCE CURVE (Low Watt)**  
 SOLENOIDS CODES 39L and 68L



**AC PERFORMANCE CURVE (Low Watt) CHART**

Curve	Function and Spool Code
1	1B, 2B
2	1B-R
3	2A, 3A, 5A
4	3F1, 5F1, 3E, 5E, 3K, 5K
5	3F, 5F
6	3B, 5B, 3G, 5G
7	1A, 1A-R
8	3L, 5L

**NOTES:**

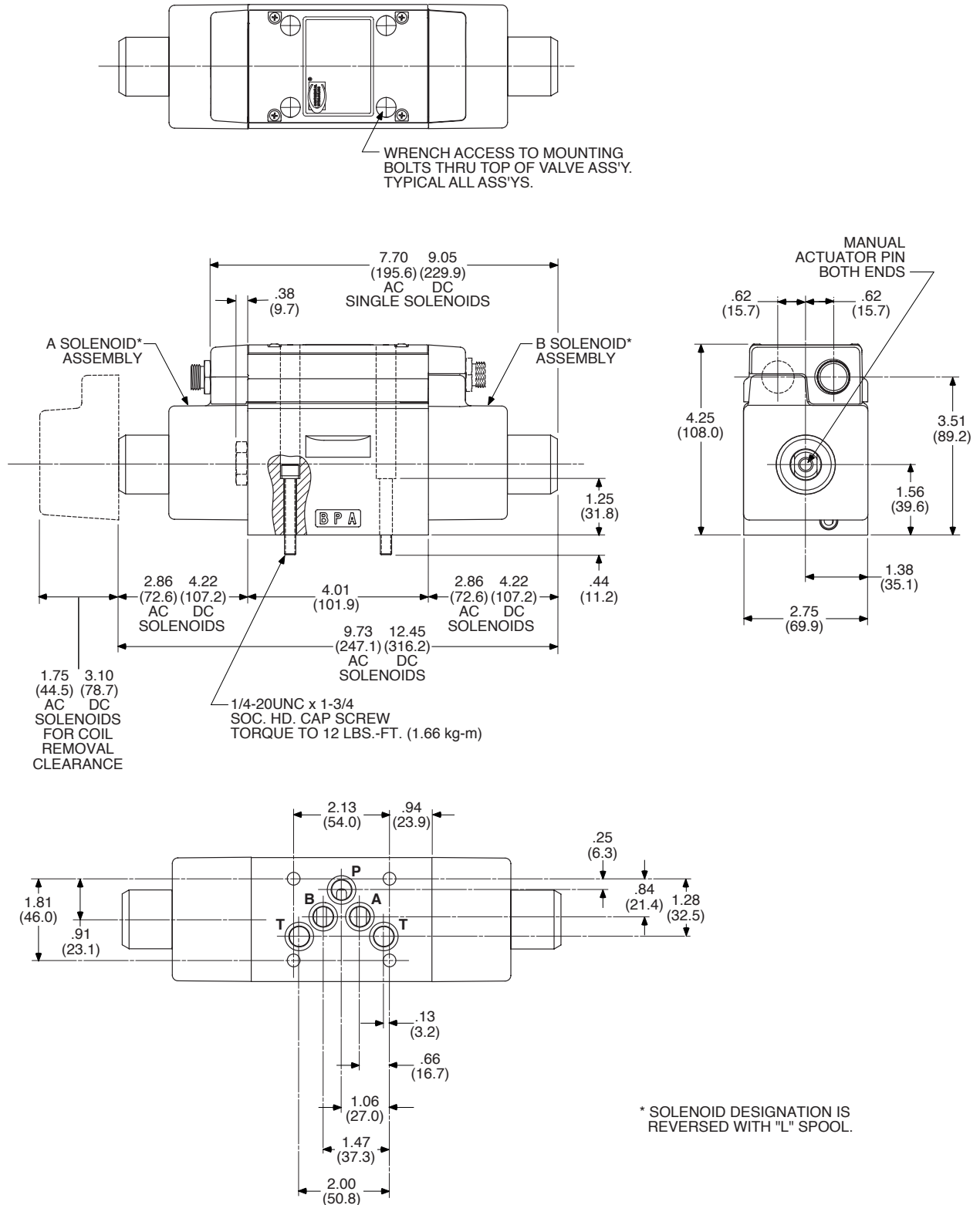
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2. Valve performance was tested in a four-way circuit (full loop). Performance may be reduced from that shown when used in a three-way circuit (half circuit), i.e. A or B port plugged.

**NEW VSD05M**  
**DIRECTIONAL CONTROL VALVES**  
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**2 PIN COILS DIMENSIONS**

Shown in: Inches  
 (millimeters)

**NFPA D05 Size**



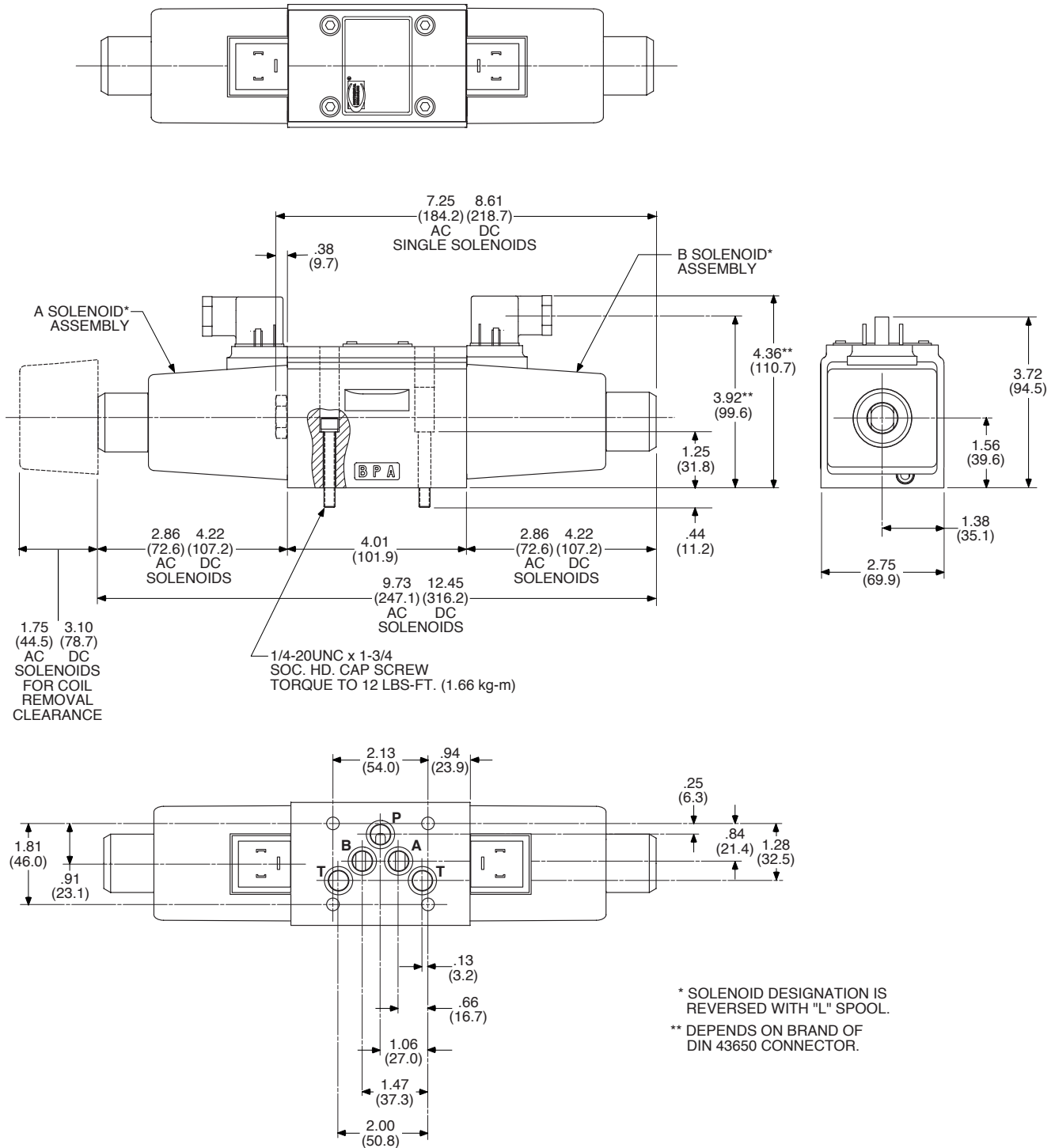
**NEW VSD05M**  
**DIRECTIONAL CONTROL VALVES**  
 SOLENOID ACTUATED, DIRECT OPERATING



**DIN CONNECTORS DIMENSIONS**

Shown in: Inches  
 (millimeters)

**NFPA D05 Size**

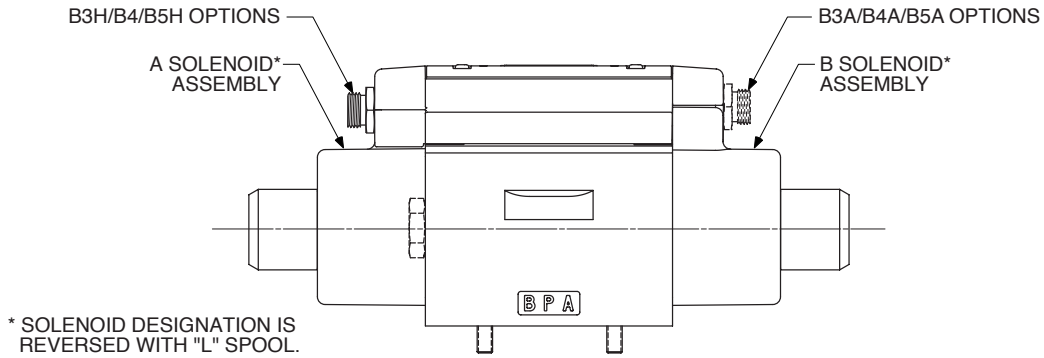


*NEW* **VSD05M**  
**DIRECTIONAL CONTROL VALVES**  
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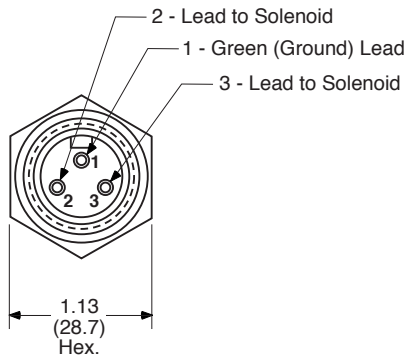
**PIN CONNECTION DETAILS**

Shown in: Inches  
 (millimeters)

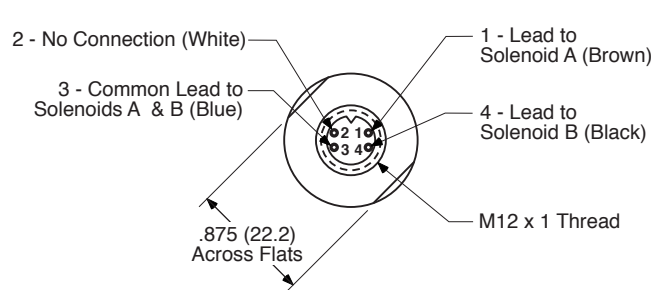
**NFPA D05 Size**



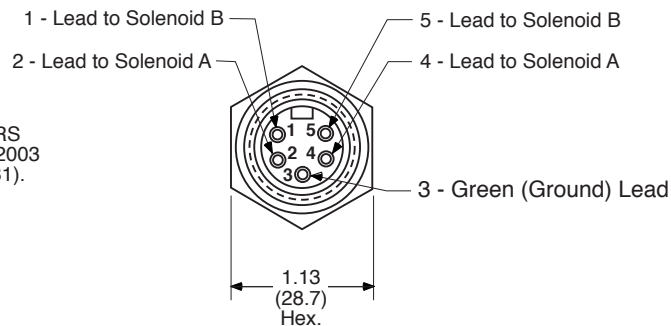
**THREE PIN CONNECTOR - CODES B3A, B3H**  
 USE WITH SINGLE SOLENOID VALVE



**FOUR PIN MICRO-CONNECTOR - CODES B4, B4A**  
 USE WITH SINGLE OR DOUBLE SOLENOID VALVE  
 AVAILABLE WITH 2-PIN DC COILS ONLY



**FIVE PIN CONNECTOR - CODES B5A, B5H**  
 USE WITH SINGLE OR DOUBLE SOLENOID VALVE



**NOTE:** CODES B3\* AND B5\* CONNECTORS  
 CONFORM TO NFPA/T3.5.29 R1 - 2003  
 (REVISION TO ANSI/B93.55M - 1981).

# NEW VSD05M

## DIRECTIONAL CONTROL VALVES

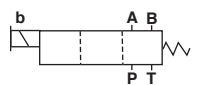
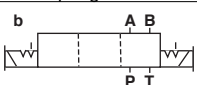
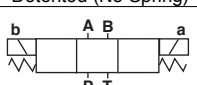
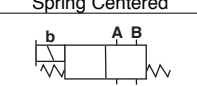
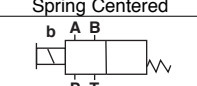
SOLENOID ACTUATED, DIRECT OPERATING



### SPECIFYING POWRFLOW™ DIRECTIONAL CONTROL VALVES

VSD05M —    —    — **G** —    —    —    —    — **A**

**FUNCTION**

CODE	OPTION
1	 Single Operator • 2 Position Spring Offset
2	 Double Operator • 2 Position Detented (No Spring)
3	 Double Operator • 3 Position Spring Centered
5	 Single Operator • 2 Position Spring Centered
6	 Single Operator • 2 Position Spring Offset, Energize to Center

**SPOOLS**

CODE	DESCRIPTION
REFER TO PAGE 3 FOR SPOOL AVAILABILITY	

**SEALS**

CODE	DESCRIPTION
VITON SEALS STANDARD	

**MECHANICAL OPTIONS**

CODE	DESCRIPTION
OMIT	SINGLE SOLENOID "A" PORT END
R	SINGLE SOLENOID "B" PORT END
WD	WASHDOWN

**ELECTRICAL OPTIONS**

CODE	DESCRIPTION
OMIT	DIN STYLE SOLENOIDS
B	TOP ELECT. CONN. BOX W/TERMINAL POSTS, LIGHTS AND SURGE SUPPRESSOR
B3A†	TOP ELECT. CONN. BOX W/3 PIN MALE MINI RECEPTACLE, LIGHTS & SURGE SUPPRESSOR CONNECTOR ON "A" PORT END
B3H†	TOP ELECT. CONN. BOX W/3 PIN MALE MINI RECEPTACLE, LIGHTS & SURGE SUPPRESSOR CONNECTOR ON "B" PORT END
B4A**	TOP ELECT. CONN. BOXW/4 PIN MALE MICRO RECEPTACLE, LIGHTS & SURGE SUPPRESSOR CONNECTOR ON "A" PORT END
B4**	TOP ELECT. CONN. BOXW/4 PIN MALE MICRO RECEPTACLE, LIGHTS & SURGE SUPPRESSOR CONNECTOR ON "B" PORT END
B5A†	TOP ELECT. CONN. BOX W/5 PIN MALE MINI RECEPTACLE, LIGHTS & SURGE SUPPRESSOR CONNECTOR ON "A" PORT END
B5H†	TOP ELECT. CONN. BOX W/5 PIN MALE MINI RECEPTACLE, LIGHTS & SURGE SUPPRESSOR CONNECTOR ON "B" PORT END

**SOLENOID MFG.**

CODE	DESCRIPTION
L	LISK

**SOLENOID**

CODE	VOLTAGE
WITH DIN 43650 ELECTRICAL CONNECTIONS	
33	120/110V 60/50 Hz
34	240/220 V 60/50 Hz
39	120/110V 60/50 Hz (LOW WATT)
42	24 VDC
44	12 VDC
WITH 2 PIN CONNECTIONS	
60	120/110 V 60/50 Hz
61	240/220 V 60/50 Hz
68	120/110 V 60/50 Hz (LOW WATT)
70	24 VDC
75	12 VDC

**NOTE:** Solenoids not CSA approved.

### EXCLUSIVE 3 YEAR WARRANTY

Continental Hydraulics Division warrants all hydraulic directional valves supplied by Continental Hydraulics against defects in materials and workmanship under normal use and service for 3 years from the date code on the valve.

Complete terms and conditions available upon request.

TYPICAL ORDERING CODE  
**VSD05M-3A-GB-60L-A**

\* Single solenoid valves only.  
 \*\* DC voltage only.  
 † Connector conforms to NFPA/T3.5.29 R1 - 2003 (Revision to ANSI/B93.55M - 1981).





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Because Continental Hydraulics is continually improving its products, specifications and appearance are subject to change without notice.