
VSD03M-1A-GB-70L-C


VSD03M-1A-GB-60L-C

VSD03M

Solenoid Operated Directional Valve

SUBPLATE MOUNTING
ISO 4401-03

P max **5000 PSI 350 bar**
Q max **26 GPM 100 l/min**


VSD03M-1A-GWD85A-60L-C

► DESCRIPTION:

These valves conform to NFPA D03 and ISO 4401 mounting standards. They are available in both 3 way and 4 way styles.

All versions are available in 2 position spring offset, 2 position detent, 2 position spring centered and 3 position spring centered versions.

A wide range of spools are available.

Standard and CSA approved versions are available.


VSD03M-3F-ABD4A-70L-C


VSD03M-3B-GB-75L-C

► PERFORMANCE:

Max Operating Pressure:	**P - A - B Ports**	Standard	5000 psi	350 bar
		CSA	4000 psi	275 bar
	T Port	Standard	3000 psi	210 bar
		CSA	2500 psi	172 bar
Flowrate			20 gpm	76 l/min
Mounting Surface			NFPA D03 ISO 4401-03-02-0-03	
Maximum Weight		AC	4 lbs	1.8 kg
		DC	4.6 lbs	2.1 kg
Temperature Range		Ambient	-4 to +130°F	-20 to +54°F
Fluid Temperature Range		Standard	-4 to +180°F	-20 to +82°F
		CSA	-4 to +150°F	-20 to +66°F
Fluid Viscosity		Range	60-1900 SUS	10-400 cSt
		Recommended	120 SUS	25 cSt
Fluid Contamination Degree			ISO 4406:1999 Class 20/18/15	

(Obtained with mineral oil with viscosity of 36 cSt at 50°C and electronic control card)


VSD03M-3L-GB-60L-C

► IDENTIFICATION CODE:

VSD03M - □ □ - □ □ - □ - □ - □ - □ ——— DESIGN LETTER

BASIC VALVE FUNCTIONS / SPOOL CODES
see page 3

SEAL TYPE	
CODE	**DESCRIPTION**
A	BUNA
G	VITON

MECHANICAL (SELECT 1)	
CODE	**DESCRIPTION**
OMIT	No options
R	Single Solenoid - B port end
WD	Wash-Down

CSA OPTION	
CODE	**DESCRIPTION**
OMIT	Not Required
CSA	Add Code for CSA Mark

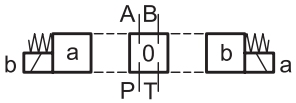
PILOT VALVES REQIRING TERMINAL BOX CONNECTIONS *Reference Page 7-8*		
CODE	**VOLTAGE**	**CONNECTION TYPE**
B-60L	120 - 60hz 110 - 50hz	Connection Box with terminal post and lights
B-61L	240 - 60hz 220 - 50hz	
B-68L (Low Force)	120 - 60hz 110 - 50hz	
B-70L	24 V DC	
B-75L	12 V DC	
B3H-60L	120 - 60hz 110 - 50hz	Single Solenoid Box with 3 PIN MALE MINI RECEPTACLE CONNECTOR ON "B" PORT END
B3H-61L	240 - 60hz 220 - 50hz	
B3H-68L (Low Force)	120 - 60hz 110 - 50hz	
B3H-70L	24 V DC	
B3H-75L	12 V DC	
B3A-60L	120 - 60hz 110 - 50hz	Single Solenoid Box with 3 PIN MALE MINI RECEPTACLE CONNECTOR ON "A" PORT END
B3A-61L	240 - 60hz 220 - 50hz	
B3A-68L (Low Force)	120 - 60hz 110 - 50hz	
B3A-70L	24 V DC	
B3A-75L	12 V DC	
B4-70L	24 V DC	Box with 4 PIN MALE MICRO RECEPTACLE CONNECTOR ON "B" PORT END
B4-75L	12 V DC	
B4A-70L	24 V DC	Box with 4 PIN MALE MICRO RECEPTACLE CONNECTOR ON "A" PORT END
B4A-75L	12 V DC	
BD4-70L	24 V DC	Box with 4 PIN MALE MICRO RECEPTACLE CONNECTOR ON "B" PORT END
BD4-75L	12 V DC	
BD4A-70L	24 V DC	Box with 4 PIN MALE MICRO RECEPTACLE CONNECTOR ON "A" PORT END
BD4A-75L	12 V DC	
B5H-60L	120 - 60hz 110 - 50hz	Box with 5 PIN MALE MINI RECEPTACLE CONNECTOR ON "B" PORT END
B5H-61L	240 - 60hz 220 - 50hz	
B5H-68L (Low Force)	120 - 60hz 110 - 50hz	
B5H-70L	24 V DC	
B5H-75L	12 V DC	
B5A-60L	120 - 60hz 110 - 50hz	Box with 5 PIN MALE MINI RECEPTACLE CONNECTOR ON "A" PORT END
B5A-61L	240 - 60hz 220 - 50hz	
B5A-68L (Low Force)	120 - 60hz 110 - 50hz	
B5A-70L	24 V DC	
B5A-75L	12 V DC	

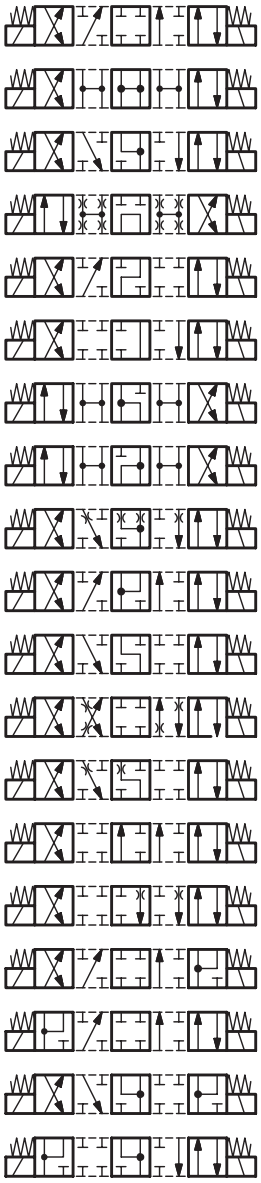
TYPICAL ORDERING CODE:
VSD03M-3A-GB-60L

Please see Connectors Catalog Form #1027453

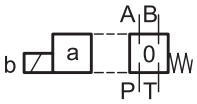
▶ FUNCTIONS/SPOOL CODES:

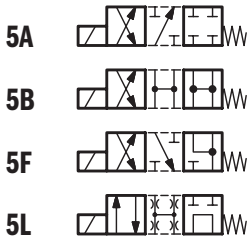
2 solenoids
3 positions with spring centering



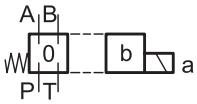


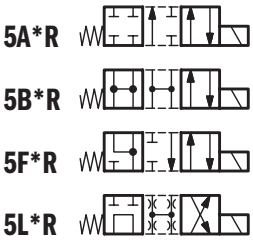
1 solenoid side A
2 positions (central + external)
with spring centering



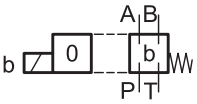


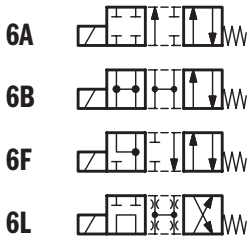
1 solenoid side B
2 positions (central + external)
with spring centering



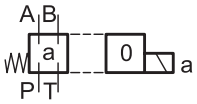


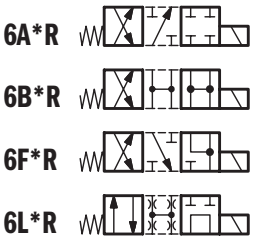
1 solenoid side A
2 positions (external + central)
with return spring



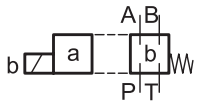


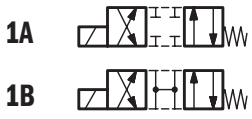
1 solenoid side B
2 positions (external + central)
with return spring



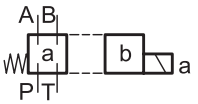


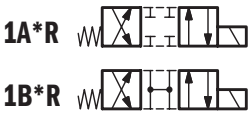
1 solenoid side A
2 external positions with
return spring



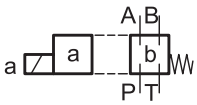


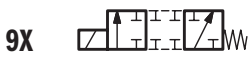
1 solenoid side B
2 external positions with
return spring



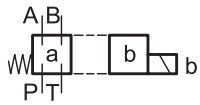


1 solenoid side A
2 positions with return spring



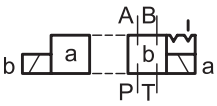


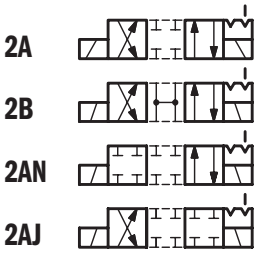
1 solenoid side B
2 positions with return spring



Besides the diagrams shown, which are the most frequently used, other special versions are available: consult our technical department for their identification, feasibility and operating limits.

2 solenoids
2 positions with mechanical retention

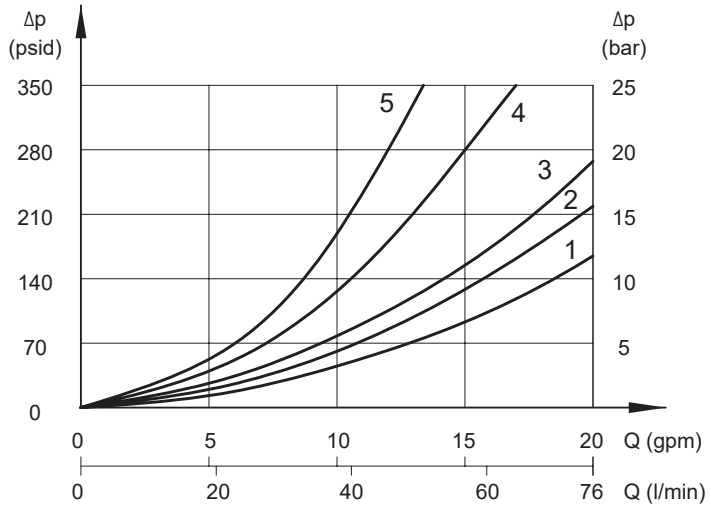




▶ PERFORMANCE DATA:

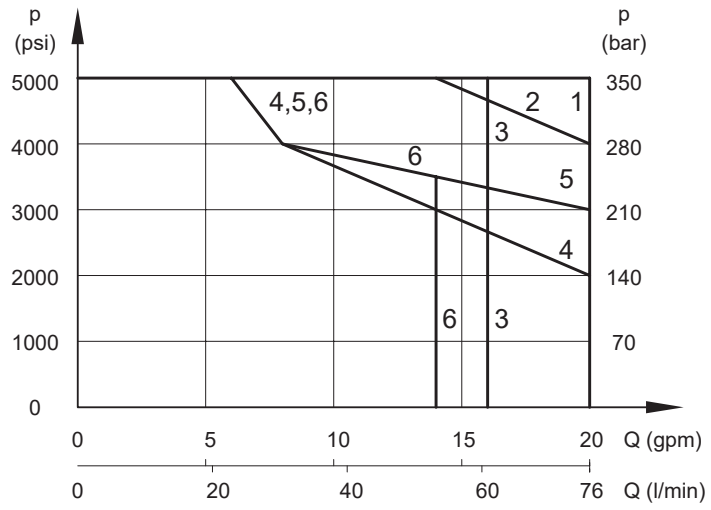
PRESSURE DROPS Δp-Q

(Obtained with viscosity of 170 SUS - 36 CST at 70°F - 50°C)



SPOOL TYPE	FLOW DIRECTION				
	P → A	P → B	A → T	B → T	P → T
	CURVES ON GRAPH				
A, A1, K1, F1, E1	2	2	3	3	
B	1	1	3	3	2
E	2	2	3	1	
F	3	3	1	1	
G	1	3	1	3	
H, Q	4	5	5	5	3
J	2	1	3	3	
K	2	2	1	3	
L	5	5	5	5	3
N	1	2	3	3	
1A, 2A, 2AN, 2AJ	3	3	3	3	
1A, 1B, 2A	2	2	2	2	
9X	3	3			

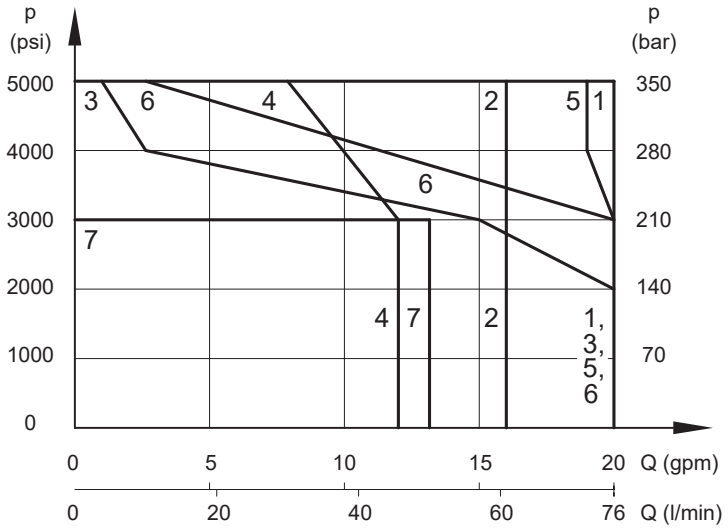
PERFORMANCE CURVE - DC VOLTAGE



CURVE	SPOOL
1	A, 2A, A1, AN, AJ, E1, G, K1, J, N, X
2	F1
3	H, L, Q, B
4	F
5	1A
6	1B, E, K

► PERFORMANCE DATA:

PERFORMANCE CURVE - AC VOLTAGE

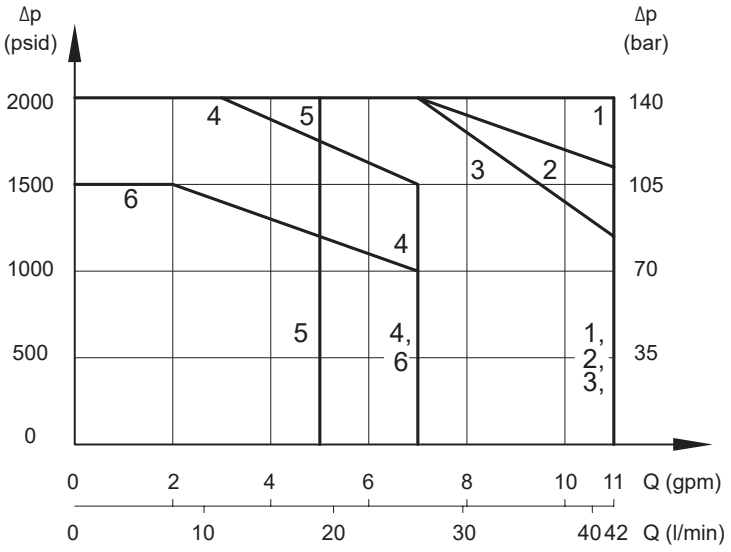


CURVE	SPOOL
1	A, A1, AN, AJ, G, X
2	B
3	F
4	L, H, Q
5	J, N
6	F1, E1, K1
7	K, E

NOTES:

1. The values indicated in the graphs are relevant to the standard solenoid valve, with 42L coils.
2. Valve performance was tested in a four way circuit (full loop). Performances may be reduced from that shown when used in a three-way circuit (half circuit), i.e. A or B port plugged.
3. The values have been obtained according to ISO 6403 norm with solenoids at rated temperature and supplied with voltage equal to 90% of the nominal voltage. The value have been obtained with filtration according to ISO 4406:1999 class 18/16/13.

PERFORMANCE CURVE - AC VOLTAGE - LOW FORCE



CURVE	SPOOL
1	2A, AN, B
2	1A, 1B, G
3	A
4	A1
5	L
6	F

RESPONSE TIME

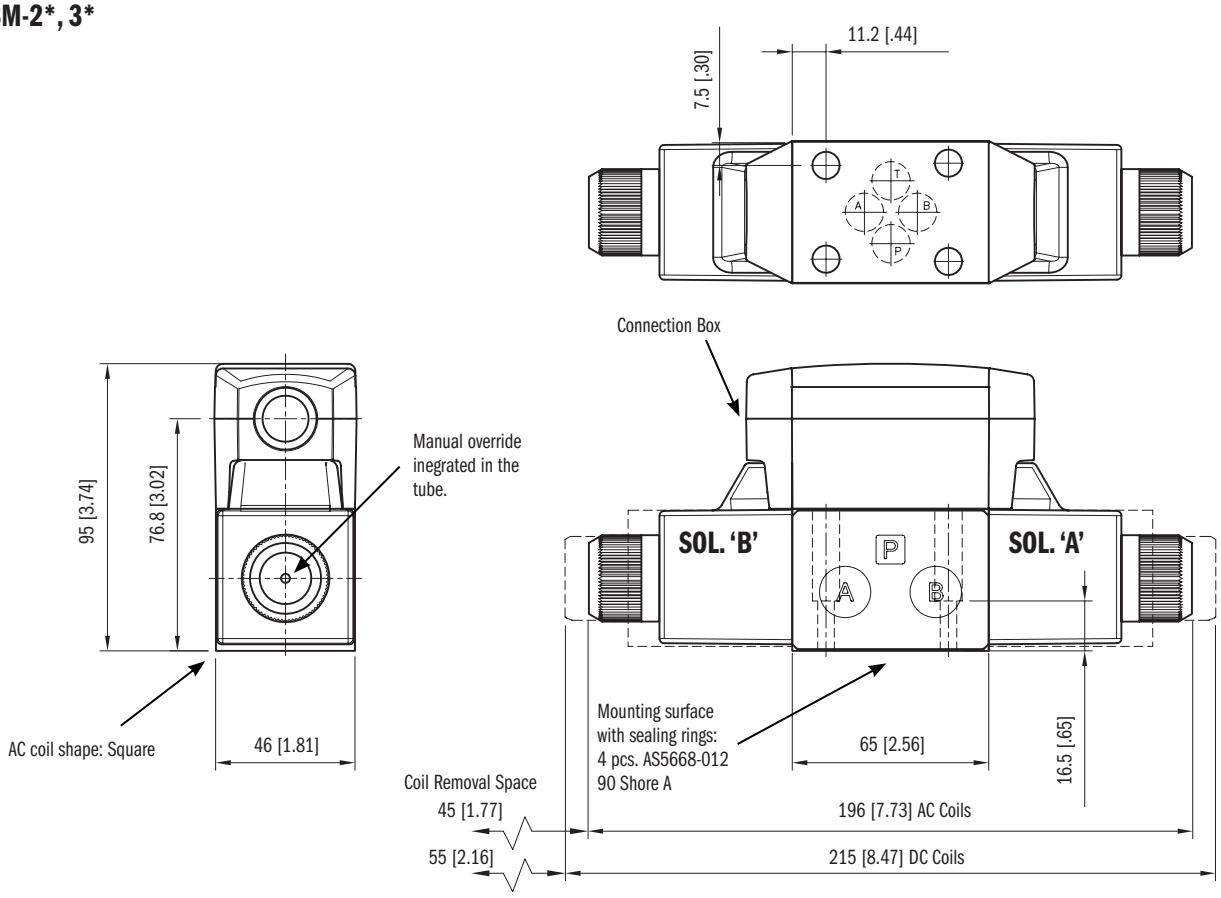
TIMES (± 10%) [MS]	
ENERGIZING	DE-ENERGIZING
AC 10 - 25	AC 15 - 30
DC 25 - 75	DC 15 - 25

► INSTALLATION DATA:

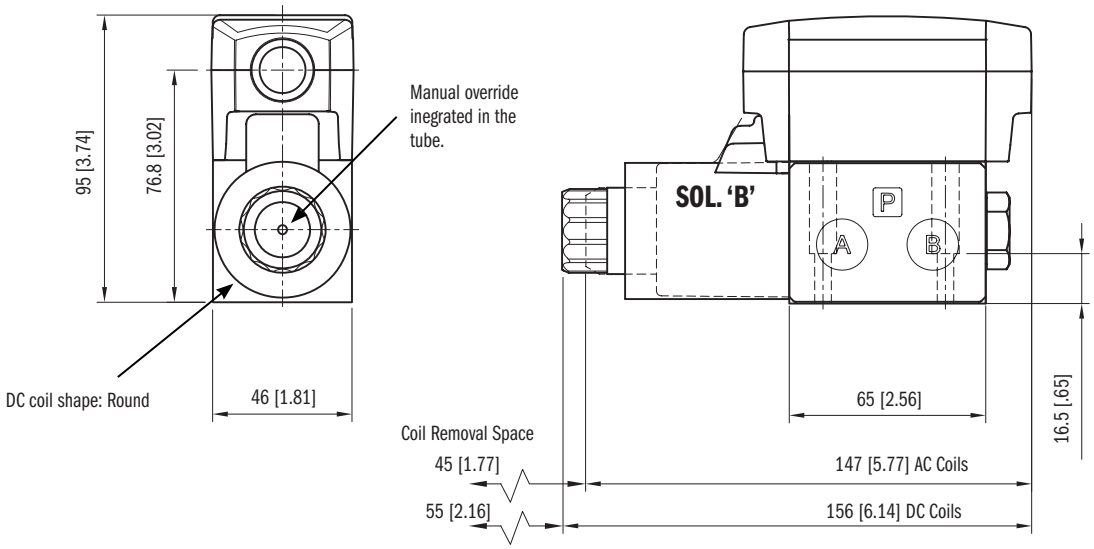
Dimensions mm [in]

OVERALL AND MOUNTING DIMENSIONS CONNECTION BOX VERSION

VSD03M-2*, 3*

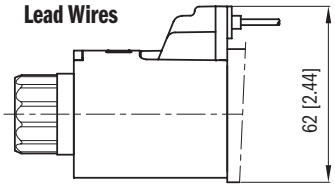


VSD03M-1*, 5*, 6*, 9*



► ELECTRICAL:

Dimensions mm [in]

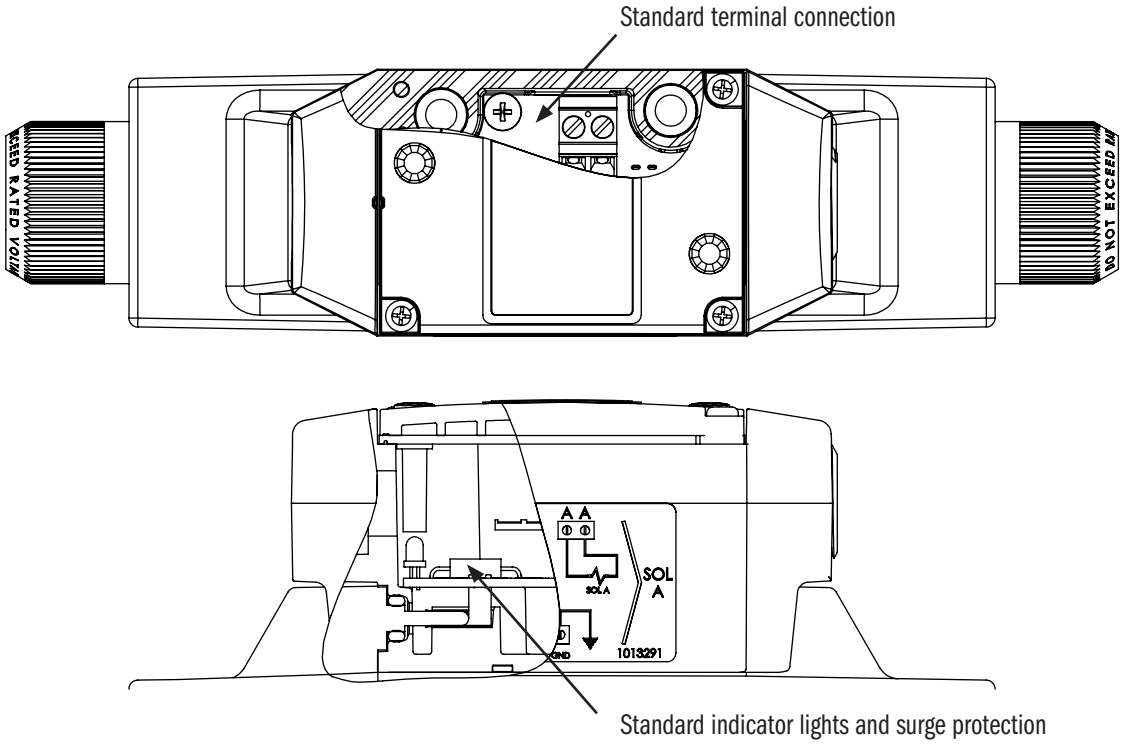


PILOT VALVE - CONNECTION BOX SOLENOIDS

This is a two pin solenoid which connects to the circuit board.
Wiring is done on the terminal strip inside the box.

BOX CONNECTION CODE	VOLTAGE & FREQ. [VOLT - HERTZ]	VOLTAGE LIMITS [MIN - MAX]	RESISTANCE ±10% [OHM]	INRUSH CURRENT [A]	HOLDING CURRENT [A]	HOLDING POWER [W]	REPLACEMENT
60	120 -60 110 - 50	108 - 126 99 - 116	35.7	1.35 1.41	0.46 0.53	22 23	1012953AD
61	240 -60 120 - 50	216 - 252 198 - 231	146.4	0.61 0.71	0.23 0.26	22 23	1012953AC
68 (Low Force)	120 -60 110 - 50	108 - 132 99 - 121	75.8	0.72 0.74	0.22 0.24	10 10	1012953AB
70	24 V DC	21 - 26	19.2	1.25	1.25	30	1012957AC
75	12 V	10 - 13	4.8	2.5	2.5	30	1012957AB

STANDARD TERMINAL BOX CODE "B"



WASHDOWN OPTION (CODE WD)

The wash-down option with the electrical box is designed for an IP65 rating. This option uses a special cover without the mounting bolt access holes and uses silicone sealant to help seal between the coil and core tube.

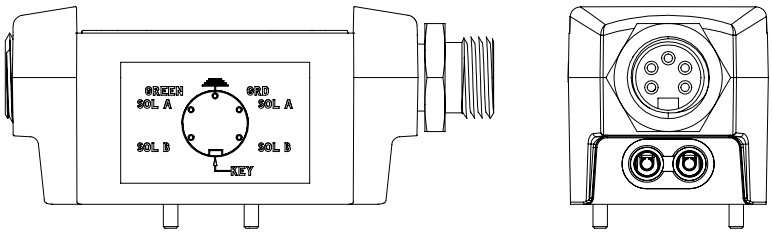
For valve requiring DIN, Deutsch solenoid connections with high IP ratings: Please see the VS6M series catalog.

► ELECTRICAL OPTIONS:

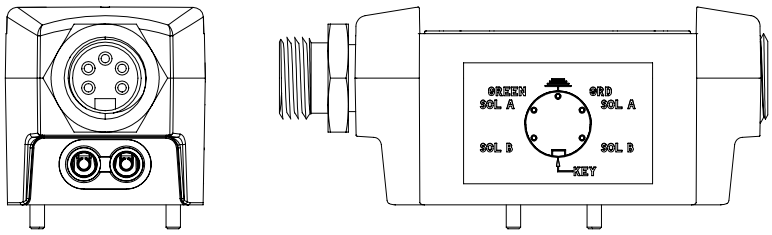
PILOT VALVE - TERMINAL BOX CONNECTION

CODE:

B5H



B5A



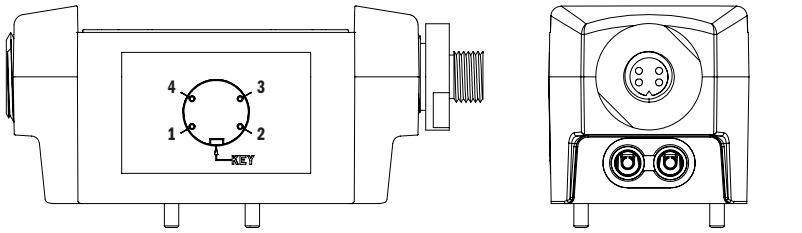
5 PIN RECEPTACLE

Male mini receptacles conform to NFPA/T3.5.29 R1 - 2007 used with single or double solenoid valve.
26 mm [1"] Wrench

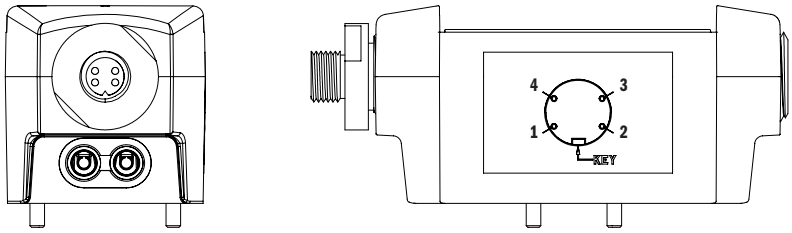
1	Lead to Solenoid B
2	Lead to Solenoid A
3	Ground Lead (Green)
4	Lead to Solenoid A
5	Lead to Solenoid B

(4 PIN CONNECTION OPTION FOR DC VOLTAGE COILS ONLY)

B4/BD4



B4A/BD4A



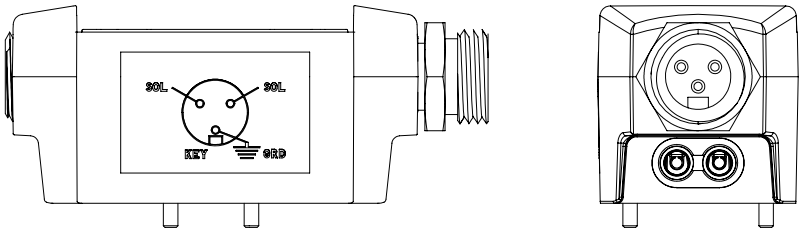
4 PIN RECEPTACLE

Male micro receptacles (M12x1 thread) used with DC valve only.
23 mm [7/8"] Wrench

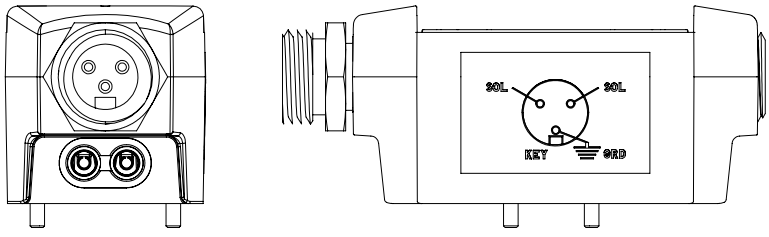
4A & 4		
1	Brown	Lead to Solenoid A
2	White	No Connection
3	Blue	Common Lead to Sol. A & B
4	Black	Lead to Solenoid B

D4A & D4		
1	Brown	No connection
2	White	Lead to Solenoid A
3	Blue	Common Lead to Sol. A & B
4	Black	Lead to Solenoid B

B3H



B3A



3 PIN RECEPTACLE

Male mini receptacles conform to NFPA/T3.5.29 R1 - 2007 used with single solenoid valve.
26 mm [1"] Wrench

1	Ground Lead (Green)
2	Lead to Solenoid
3	Lead to Solenoid

► APPLICATION DATA:

Protection from atmospheric agents IEC 60529

All pressure drops shown on these data pages are based on 170 SUS fluid viscosity and 0.87 specific gravity. For any other specific gravity (G1) the pressure drop (ΔP) will be approx. ΔP1 = ΔP (G1/G). See the chart for other viscosities.

Fluid Viscosities	Cst	10	14.5	32	36	43	54	65	76	86	108	216	324	400
	SUS	60	75	150	170	200	250	300	350	400	500	1000	1500	1900
Multiplier		0.77	0.81	0.97	1.00	1.04	1.10	1.15	1.20	1.24	1.31	1.56	1.72	1.83

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code G). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 180°F causes the accelerated degradation of seals as well as degradation of the fluids physical and chemical properties. From a safety standpoint, temperatures above 130° F are not recommended.

Temperature Ranges	Ambient	-4 to +130°F	-20 to +54°F
Fluid Temperature Range	Standard	-4 to +180°F	-20 to +82°F
	CSA	-4 to +150°F	-20 to +66°F
Fluid Viscosity	Range	60-1900 SUS	10-400 cSt
	Recommended	120 SUS	25 cSt
Fluid Contamination Degree		ISO 4406:1999 Class 20/18/15	

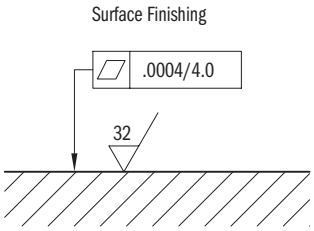
▶ INSTALLATION DATA:

Dimensions inch [mm]

INSTALLATION

Valves with centering and return springs can be mounted in any position without impairing correct operation. Valves with mechanical detent should have horizontal mounting.

Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed, fluid can easily leak between the valve and support surface.

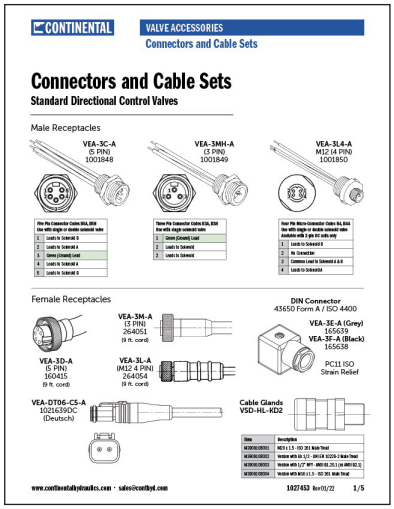


SEAL KIT

BUNA SEAL KIT	1013326
VITON SEAL KIT	1013327

BOLT KIT

VSD03M	121472



Connectors and Cables Sets
Form #1027453

CONTINENTAL HYDRAULICS a member of DAIKIN group

HYDRECO a member of DAIKIN group

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