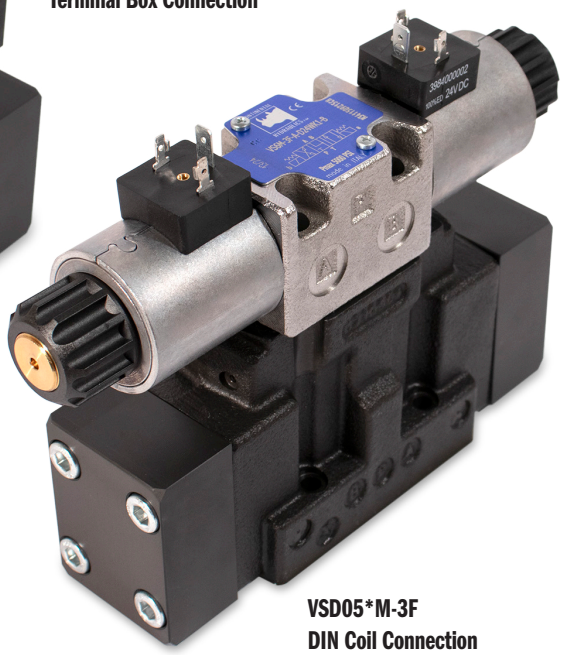
VSD05*M/ VPD05*M

Pilot Operated Directional Valve

SUBPLATE MOUNTING
ISO 4401-05, Alt. A or Alt. B

P max **5000 PSI 350 bar**
Q max **40 GPM 150 l/min**

VSD05*M-3F
Terminal Box Connection



VSD05*M-3F
DIN Coil Connection

► DESCRIPTION:

The VSD05*M and VPD05*M pilot operated directional control valves are available with either electric solenoid or hydraulic actuation of the main spool.

Operation: The valves are available in both 2 or 3 position and various spool flow patterns.

On VSD05*M valves, the configuration for internal or external pilot/drains can be easily changed in the field. Also available to improve consistent cycling of the valve are pilot pressure reducing, pilot chokes, and main stage stroke adjustments.

► FEATURES:

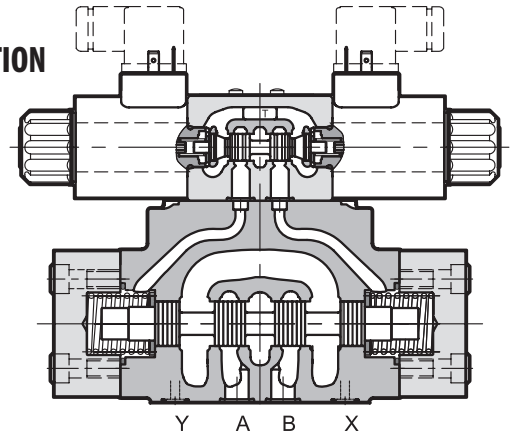
- The VSD05*M are 4-ports directional valves, pilot operated, with mounting surface according to ISO 4401-05 standards
- VPD05*M are the hydraulic actuated versions.
- Valves are available with 15 different spool types (see page 5), with some options for the opening control.
- They are available also with zinc-nickel surface treatments, that ensure a salt spray resistance up to 600 hours.

► PERFORMANCE:

(Obtained with mineral oil with viscosity of 36 cSt at 50°C)

			VSD05*M
Max Operating Pressure:	P - A - B ports	PSI (bar)	5000 (350)
	T port (external drainage)	PSI (bar)	3600 (250)
	T port (internal drainage)	PSI (bar)	AC Box 3000 (210) AC DIN 2300 (160) DC 3000 (210)
Maximum flow rate from port P to A - B - T		GPM (l/min)	40 (150)
Ambient temperature range		°F (°C)	-4 / 122 (-20 / +50)
Fluid temperature range		°F (°C)	-4 / 175 (-20 / +80)
Fluid viscosity range		cSt	10 - 400
Fluid contamination degree		according to ISO 4406:1999 class 20/18/15	
Recommended viscosity		cSt	25
Mass: Dual Solenoid Single Solenoid VPD08M		lbs (kg)	14.1 (6.4) 13.0 (5.9) 11.9 (5.4)

CROSS SECTION



▶ IDENTIFICATION CODE: (Internal Piloted)

VSD [ ] M - [ ] - [ ] [ ] [ ] [ ] [ ] [ ] - **CONTINUED ON NEXT PAGE...**

Solenoid Operated

MOUNTING SURFACE	
CODE	**DESCRIPTION**
05A	Alt. A 4101-05-05-0-05
05B	Alt. B Cetop 4, 2-4 P05-350

See page 17 for more details.

BASIC VALVE FUNCTIONS / SPOOL CODES
see page 5

SEAL	
CODE	**DESCRIPTION**
A	Buna
G	Viton

PILOT / DRAIN	
CODE	**DESCRIPTION**
1	Internal Pilot External Drain
2	External Pilot External Drain
3	Internal Pilot Internal Drain
4	External Pilot Internal Drain

MECHANICAL OPTIONS (OMIT IF NOT REQUIRED)	
CODE	**DESCRIPTION**
R	REV. Build Solenoid A Supplied
JJ	Main Stage Spool Stroke Adjustment (On A and B Port Ends)
JA	Main Stage Spool Stroke Adjustment (On A Port End Only)
JB	Main Stage Spool Stroke Adjustment (On B Port End Only)
KK	Adjustable Pilot Chokes
P*	Pilot Throttle Insert P Port (available 0.6mm to 3.5mm)
A*	Pilot Throttle Insert A Port (available 0.6mm to 3.5mm)
B*	Pilot Throttle Insert B Port (available 0.6mm to 3.5mm)
WD**	Washdown

* Pilot Valve Port Inserts available sizes see Page 9

** WD code only for Valve enhancements with Terminal Box options. (WK7 for highest IP rating)

INTERNAL PILOT OPTIONS (OMIT IF NOT REQUIRED)	
CODE	**DESCRIPTION**
Z*	Pilot Pressure Reducer

*Required for pressure over 3000 PSI (210 Bar)

PILOT VALVE OVERRIDE OPTIONS Only available with DIN or Deutsch Connections (Select 1)	
CODE	**DESCRIPTION**
OMIT	No options
H	Lever Override (DC only)
LL	Long Lever Override (DC Only)
U	Manual Override Boot
CP	Push Knob (DC only)
CK1	Turn Knob (DC only)
CPK	Mechanical Detent (DC only)
CK2	Push and Twist (DC only)
For applications requiring a higher IP rating, one of the above codes will be required. (See pages 16 for more details)	

TYPICAL ORDERING CODE:
VSD05AM-3A-G1B-60L
VSD05BM-3F-G1-D24WK1

► IDENTIFICATION CODE:

CONTINUED FROM LAST PAGE.

[ ] - [ ] ——— DESIGN LETTER

Select 1

PILOT VALVES REQUIRING TERMINAL BOX CONNECTIONS *Reference Page 13-14*		
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	

DIN / DEUTSCH CONNECTION *Reference Page 14-15*		
CODE	**VOLTAGE**	**CONNECTION TYPE**
DC Voltages		
D12WK1	12 VDC	DIN 43650 (Form A) Zinc-Nickel coating
D12WK7	12 VDC	Deutsch DT04-2P Zinc-Nickel coating
D12WK7D	12 VDC	Deutsch DT04-2P Bi-Directional Diode Zinc-Nickel coating
D14K1	14 VDC	DIN 43650 (Form A)
D24WK1	24 VDC	DIN 43650 (Form A) Zinc-Nickel coating
D24WK7	24 VDC	Deutsch DT04-2P Zinc-Nickel coating
D24WK7D	24 VDC	Deutsch DT04-2P Bi-Directional Diode Zinc-Nickel coating
D28K1	28 VDC	DIN 43650 (Form A)
D48K1	48 VDC	DIN 43650 (Form A)
D110K1	110 VDC	DIN 43650 (Form A)
D125K1	125 VDC	DIN 43650 (Form A)
D220K1	220 VDC	DIN 43650 (Form A)
AC Voltages		
A24K1	24 VAC	DIN 43650 (Form A)
A48K1	48 VAC	DIN 43650 (Form A)
A110K1	110-50Hz 120-60Hz	DIN 43650 (Form A)
A230K1	230-50Hz 240-60Hz	DIN 43650 (Form A)

Please see Connectors Catalog Form #1027453

► IDENTIFICATION CODE: (Hydraulic Piloted through X and Y Ports)

VPD ☐ M - ☐ - ☐ ☐ 2 - ☐ — DESIGN LETTER

Pilot Operated

MOUNTING SURFACE	
CODE	**DESCRIPTION**
05A	Alt. A 4101-05-05-0-05
05B	Alt. B Cetop 4, 2-4 P05-350

See page 17 for more details.

BASIC VALVE FUNCTIONS / SPOOL CODES
see page 5

SEAL	
CODE	**DESCRIPTION**
A	Buna
G	Viton

MECHANICAL OPTIONS (OMIT IF NOT REQUIRED)	
CODE	**DESCRIPTION**
R	REV. Build Solenoid A Supplied
JJ	Main Stage Spool Stroke Adjustment (On A and B Port Ends)
JA	Main Stage Spool Stroke Adjustment (On A Port End Only)
JB	Main Stage Spool Stroke Adjustment (On B Port End Only)
KK	Adjustable Pilot Chokes
P*	Pilot Throttle Insert P Port (available 0.6mm to 3.5mm)
A*	Pilot Throttle Insert A Port (available 0.6mm to 3.5mm)
B*	Pilot Throttle Insert B Port (available 0.6mm to 3.5mm)

* Pilot Valve Port Inserts available sizes see Page 9

HYDRAULIC ACTUATION	
CODE	**DESCRIPTION**
2*	X Port Is Actuator B Y Port Is Actuator A

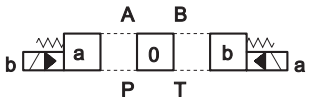
* 3000 PSI (210 Bar) Max pressure X and Y

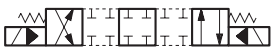
TYPICAL ORDERING CODE:
VPD05AM-3A-A2-A

Please see Connectors Catalog Form #1027453

FUNCTIONS/SPOOL CODES:

2 solenoids
3 positions with spring centering



3A

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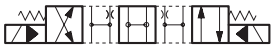
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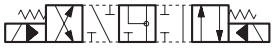
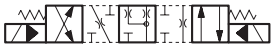

3L

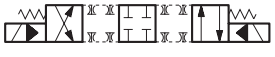
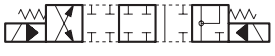
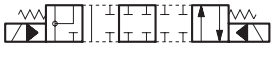
3E

3H

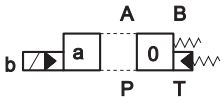
3Q

3F1

3G

3K

3A1

3R

3V


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



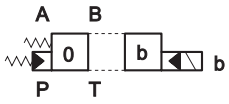
5A

5B

5F

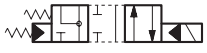
5L


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

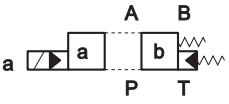


5A*R

5B*R

5F*R

5L*R

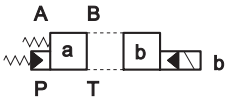

1 solenoid side A
2 external positions
with return spring



1A

1B

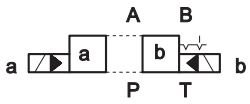

1 solenoid side B
2 external positions
with return spring



1A*R

1B*R


2 solenoids
2 positions with mechanical retention



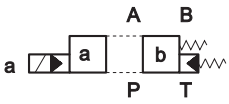
2A

2B


* NOT Available for VPD05*M

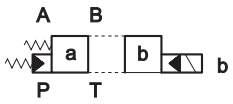
***NOTE: 2A and 2B valve main stages are spring centered when no pilot pressure is present. Consult factory for other options.**

Three-way valve - 1 solenoid - 2 external positions, return spring



9X


* NOT Available for VPD05*M



9X*R

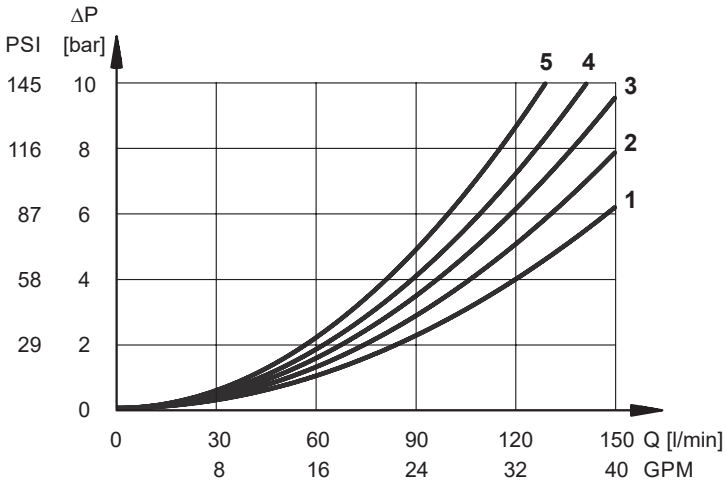

* NOT Available for VPD05*M

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.

► PERFORMANCE DATA:

PRESSURE DROPS Δp-Q

(obtained with viscosity 36 cSt at 50 °C)



ACTUATED POSITION

SPOOL TYPE	FLOW DIRECTION			
	P → A	P → B	A → T	B → T
	CURVES ON GRAPH			
3A, 5A	2	2	2	3
3B, 5B	3	3	1	2
3F, 5F	2	2	1	2
3L, 5L	2	2	2	4
3E	2	2	1	2
3FI	2	2	1	2
3G	4	4	3	3
3K	5	5	3	3
3AI	2	2	2	3
1A	3	3	3	4
1B	3	3	1	2
2A	2	2	2	3

NORMAL POSITION

SPOOL TYPE	FLOW DIRECTION				
	P → A	P → B	A → T	B → T	P → T
	CURVES ON GRAPH				
3B, 5B	-	-	2	2	3
3F, 5F			5	5	
3L, 5L					5
3E				5	
3K			5		

OPERATING LIMITS

The values have been obtained with mineral oil, viscosity 36 cSt at 50 °C, and filtration ISO 4406:1999 class 18/16/13.

MAXIMUM FLOW RATES GPM/LPM		
	at 3000 psi (210 bar)	at 5000 psi (350 bar)
3L, 3H, 3Q	32 GPM (120 LPM)	26 GPM (100 LPM)
All the other spools	40 GPM (150 LPM)	32 GPM (120 LPM)

▶ PERFORMANCE DATA:

SWITCH TIMES

The values indicated refer to a solenoid valve working with piloting pressure of 100 bar, with mineral oil at a temperature of 50 °C, at viscosity of 36 cSt and with P→A / B→T connections.

The energizing and de-energizing times are obtained at the pressure variation which occurs on the lines.

TIMES (± 10%) [ms]	**ENERGIZED**		**DE-ENERGIZED**	
	2 Pos	**3 Pos**	**2 Pos**	**3 Pos**
AC solenoid	35	25	35	25
DC solenoid	60	50	50	40

PERFORMANCE CHARACTERISTICS

PRESSURES	**VSD05M**	**VPD05M**
Max pressure in P, A, B ports	5000 psi (350 Bar)	5000 psi (350 Bar)
Max pressure in T line with external drain	3600 psi (250 Bar)	3600 psi (250 Bar)
Max pressure in T line with internal drain	3000 psi (210 Bar) (DC) 2300 psi (160 Bar) (AC)	-
Max pressure in Y line with external drain	3000 psi (210 Bar) (DC) 2300 psi (160 Bar) (AC)	-
Minimum pilot supply pressure (Note 1)	75-175 psi (5-12 Bar) Note 1	75-175 psi (5-12 Bar) Note 1
Maximum pilot supply pressure (Note 2)	3000 psi (210 Bar) Note 2	3000 psi (210 Bar) Note 2

NOTE 1: The minimum piloting pressure can be the lower range value at low flows rates, but with higher flow rates the higher value is needed.

NOTE 2: If the working pressure is higher than these rated limits, then provide an external pilot line with pmax within the rated limits and purchase the valve with code 2 or 4 type pilot supply.

For VSD05*M valves, if the external pilot line is not possible, you must opt for the version with Z type pilot supply (see page 8), providing max 5000 psi (350 bar) at inlet pressure P.

▶ OPTIONS:

Dimensions mm [in]

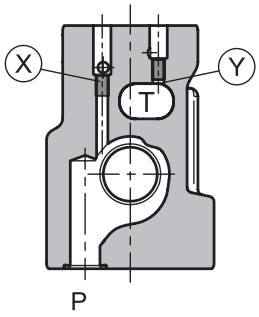
PILOT AND DRAIN

Valves with electro-hydraulic actuation (VSD05*M) are available with both pilot supply and drain internal or external type. The version with external drain allows a higher back pressure on the return line.

The valves with hydraulic actuation (VSD05*M) are available with both pilot supply and pilot return external only.

NOTE: The pilot supply and drainage configuration must be chosen when ordering. Subsequent modification is only permitted by authorized experienced operators or at the factory.

TYPE OF VALVE		PLUG ASSEMBLY	
		X	Y
1	Internal pilot and external drain	No	Yes
2	External pilot and external drain	Yes	Yes
3	Internal pilot and internal drain	No	No
4	External pilot and internal drain	Yes	No



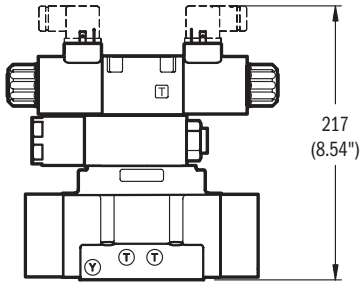
X: plug M5x6 for external pilot
Y: plug M5x6 for external drain

Z TYPE PILOT SUPPLY:

INTERNAL PILOT SUPPLY WITH PRESSURE REDUCING VALVE

The Z type pilot supply consists of an arrangement with internal pilot and 30 bar supply pressure to the pilot stage by means of a fixed adjustment pressure reducing valve placed between the main stage and the pilot valve.

VSD05*M Z



▶ MECHANICAL OPTIONS:

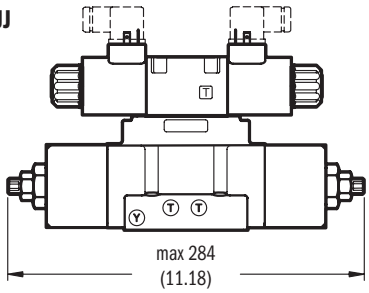
Dimensions mm [in]

CONTROL OF THE MAIN SPOOL STROKE: JA, JB, JJ

Stroke control for the main spool is possible by means of special side covers so as to vary the maximum clearance opening.

This solution allows control of the flow rate from the pump to the actuator and from the actuator to the outlet, obtaining a double adjustable control on the actuator.

VSD05*M JJ



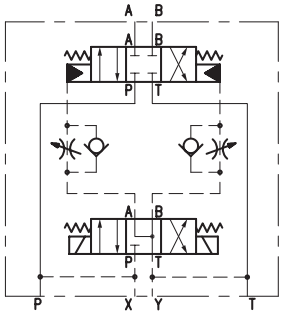
CONTROL OF THE MAIN SPOOL SHIFTING SPEED: KK

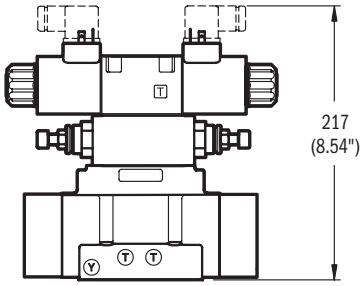
By placing a double flow control valve (F03MSV type) between the pilot solenoid valve and the main stage, the pilot supply flow can be adjusted and therefore the changeover smoothness can be varied.

The chokes operate by metering out (returning) on all 2 position valves, and when going to center position on 3-position valves.

Add the letter KK in the identification code to order this version (see page 2).

VSD05*M KK

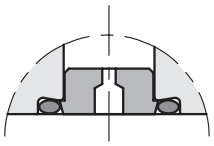




PORT RESTRICTIONS: OPTIONS P, A, B

Port restrictor plugs can be ordered separately.

	Port Code (Select as required)			
Throttle Orifice Size	**P PORT OF PILOT VALVE**	**A PORT OF PILOT VALVE**	**B PORT OF PILOT VALVE**	**Replacement Part**
0.8 mm	**P0.8**	**A0.8**	**B0.8**	**M0144033**
1.0 mm	**P1.0**	**A1.0**	**B1.0**	**M0144034**
1.2 mm	**P1.2**	**A1.2**	**B1.2**	**M0144035**
1.5 mm	**P1.5**	**A1.5**	**B1.5**	**M0144036**



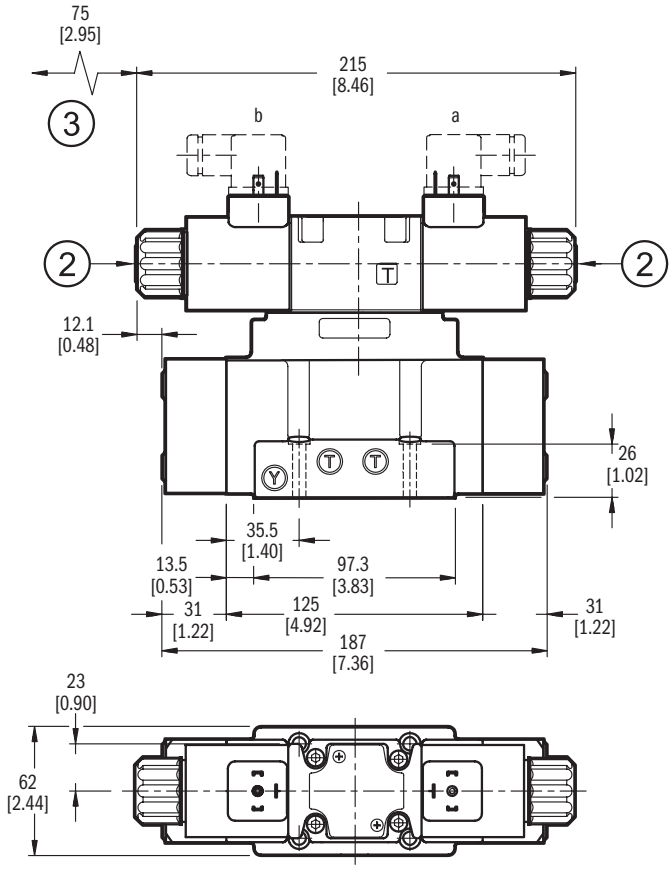
Other sizes available - consult factory.

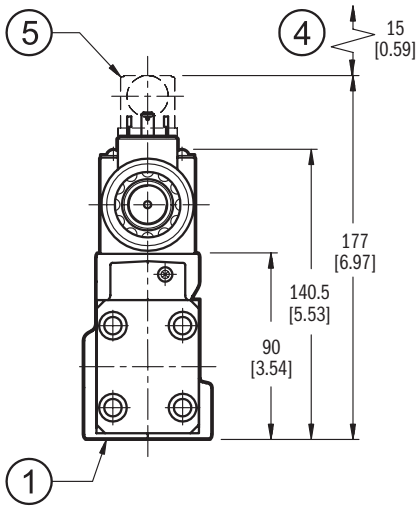
► INSTALLATION DATA:

OVERALL AND MOUNTING DIMENSIONS

Dimensions mm [in]

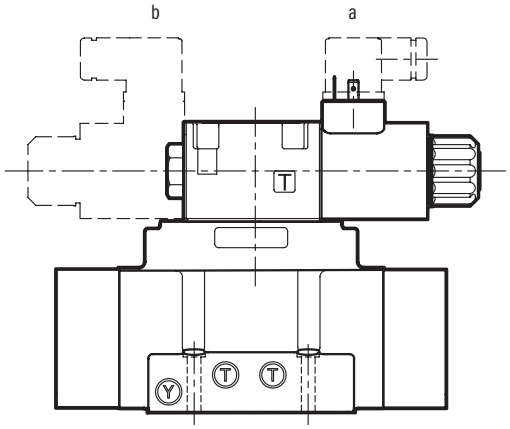
VSD05*M - 3, 2 (DIN/Deutsch)





VSD05*M

Solenoid position configurations 1, 5, 9



Fastening: 4 bolts 1/4 - 20 UNC-2B x 1 1/2 Grade 8 or stronger
Tightening torque: 6 lbf-ft (8 Nm)
Thread of mounting holes: 1/4 - 20 UNC -2B x 0.60

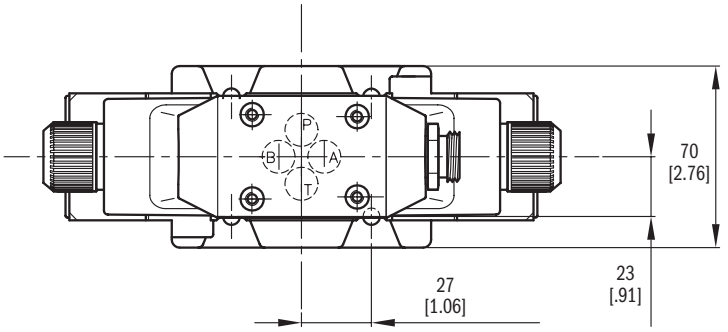
1	Sealing rings: 5 O-rings AS568-014 90 shore A 2 O-rings AS568-012 90 shore A
2	Manual override
3	Coil removal space
4	Connector removal space
5	Electric connector to be ordered separately

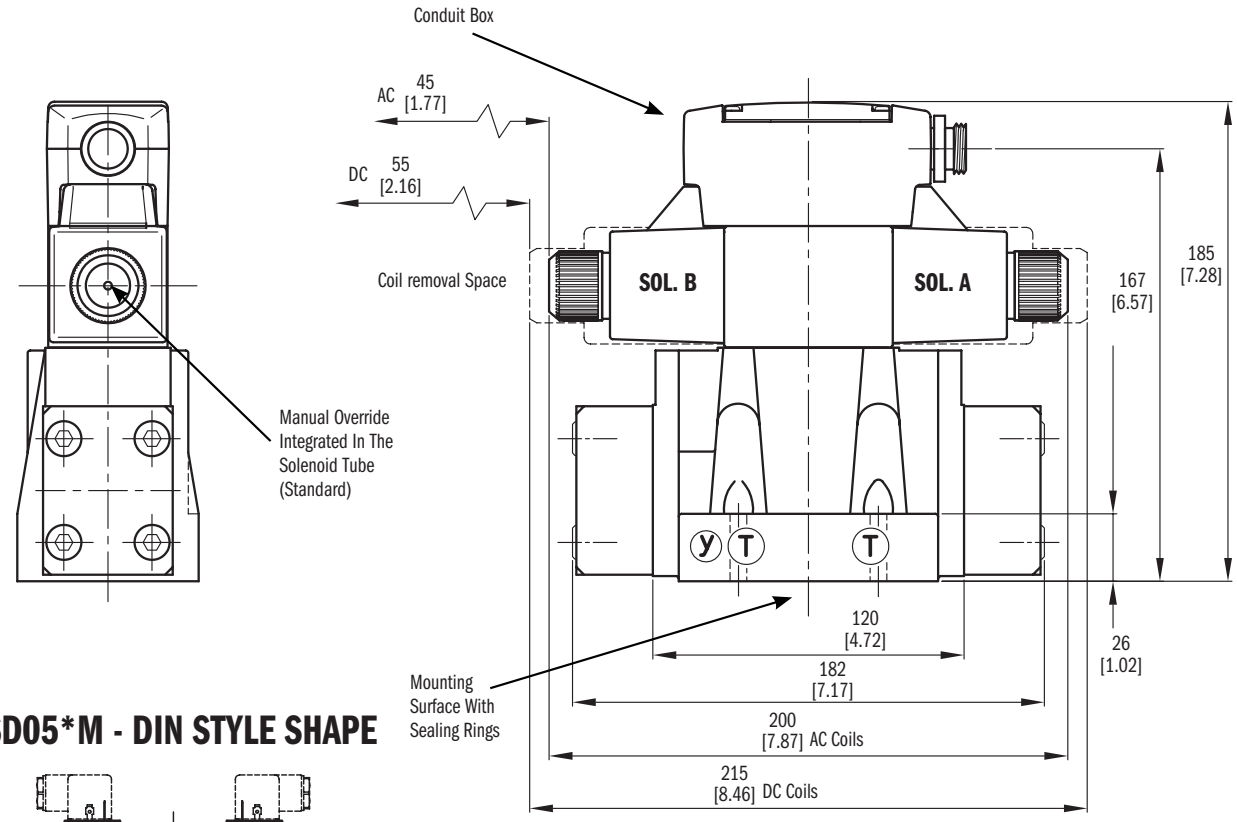
► INSTALLATION DATA:

OVERALL AND MOUNTING DIMENSIONS

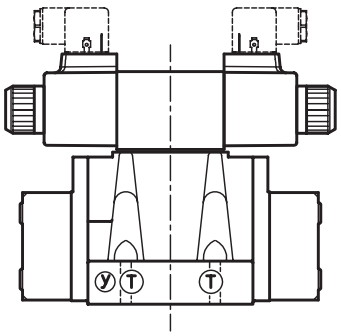
Dimensions mm [in]

VSD05*M





VSD05*M - DIN STYLE SHAPE



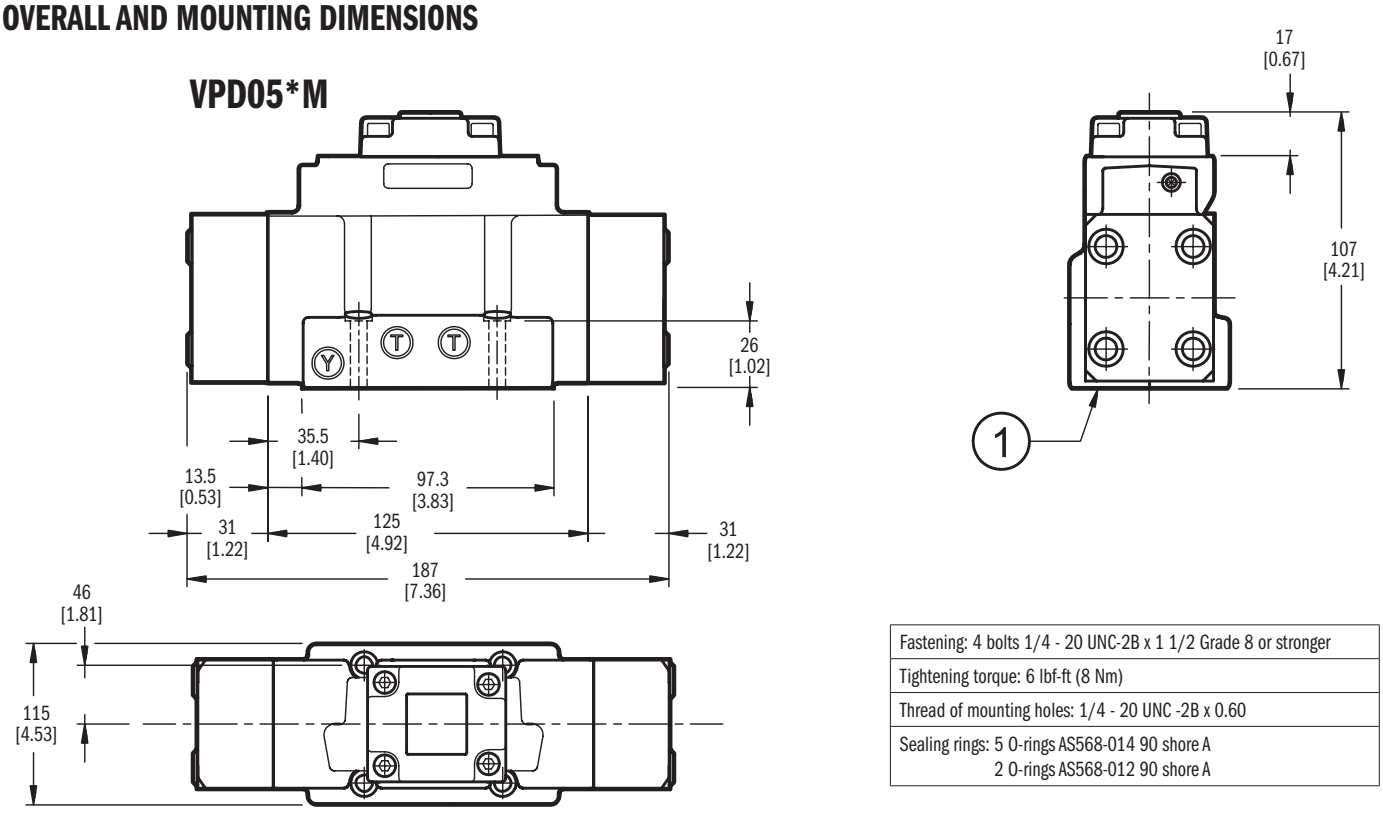
Fastening: 4 bolts 1/4 - 20 UNC-2B x 1 1/2 Grade 8 or stronger
Tightening torque: 6 lbf-ft (8 Nm)
Thread of mounting holes: 1/4 - 20 UNC -2B x 0.60
Sealing rings: 5 O-rings AS568-014 90 shore A 2 O-rings AS568-012 90 shore A

NOTE: Drawings and dimensions refer to the AC version of pilot valve, with conduit box and 5A receptacle option on A port end.

► INSTALLATION DATA:

Dimensions mm [in]

OVERALL AND MOUNTING DIMENSIONS

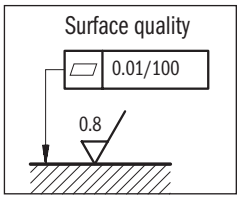


Fastening: 4 bolts 1/4 - 20 UNC-2B x 1 1/2 Grade 8 or stronger
Tightening torque: 6 lbf-ft (8 Nm)
Thread of mounting holes: 1/4 - 20 UNC -2B x 0.60
Sealing rings: 5 O-rings AS568-014 90 shore A 2 O-rings AS568-012 90 shore A

INSTALLATION

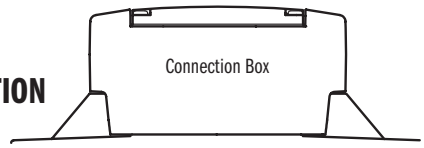
Configurations with centring and recall springs can be mounted in any position.

Valve fastening takes place by means of screws or tie rods, laying the valve on a lapped surface, with values of planarity and smoothness that are equal to or better than those indicated in the drawing. If the minimum values of planarity or smoothness are not met, fluid leakages between valve and mounting surface can easily occur.



ELECTRICAL OPTIONS:

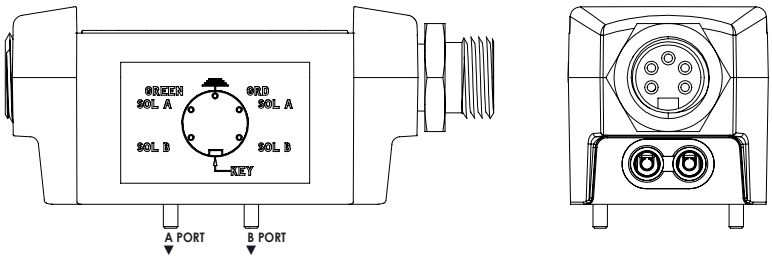
PILOT VALVE - TERMINAL BOX CONNECTION



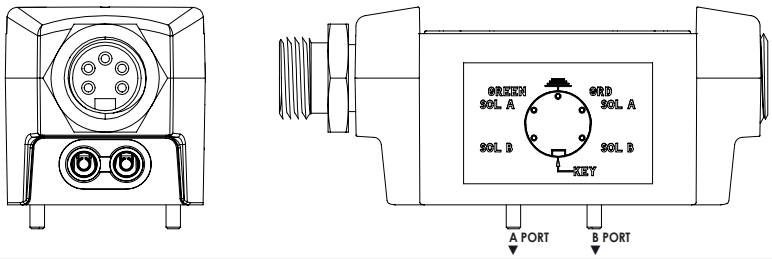
Standard with terminals, solenoid indicator lights.

CODE:

B5H



B5A



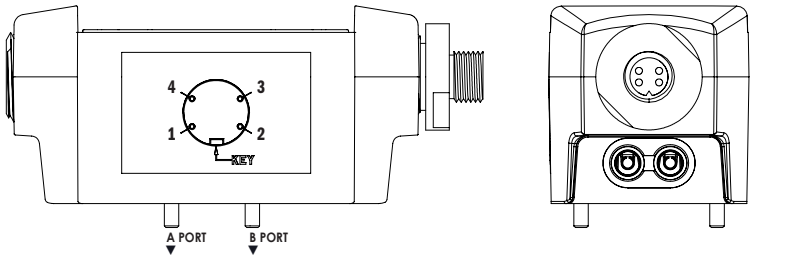
5 PIN RECEPTACLE

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

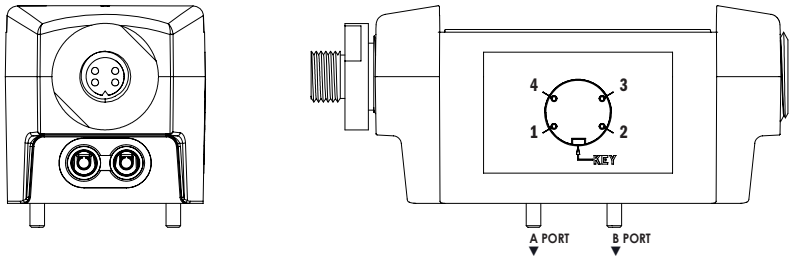
1	Lead to Solenoid B
2	Lead to Solenoid A
3	Ground Lead (Green)
4	Lead to Solenoid A
5	Lead to Solenoid B

(4 PIN CONNECTION OPTION FOR DC VOLTAGE COILS ONLY)

B4/BD4



B4A/BD4A



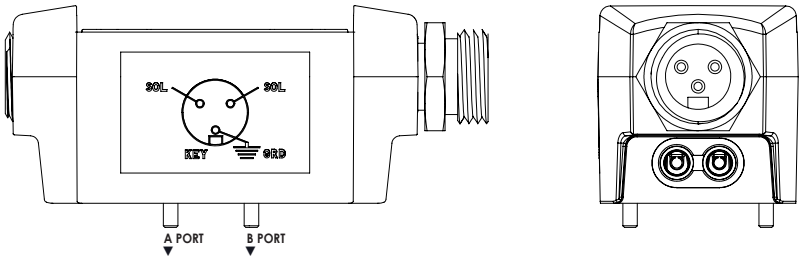
4 PIN RECEPTACLE

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

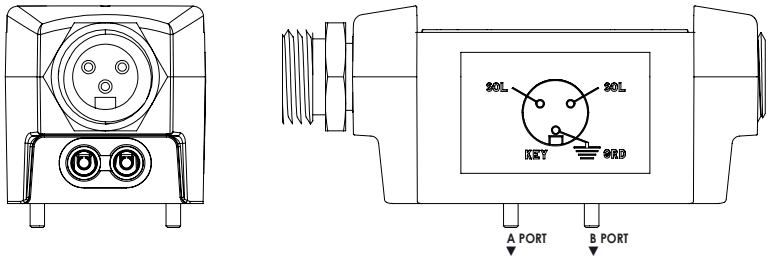
4A & 4		
1	Brown	Lead to Solenoid A
2	White	No Connection
3	Blue	Common Lead to Sol. A & B
4	Black	Lead to Solenoid B

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



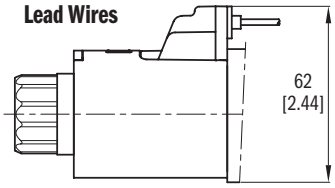
3 PIN RECEPTACLE

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

► 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	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

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.

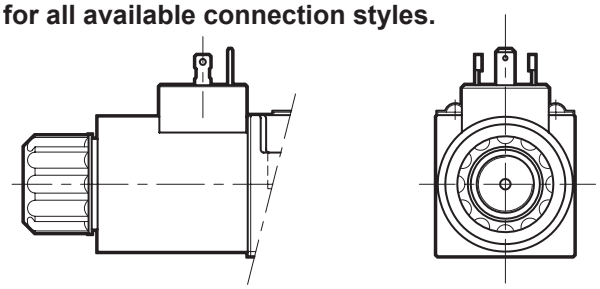
The DIN, Deutsch and lead wire coils versions of the wash-down option uses silicone sealant to help seal between the coil and core tube.

PILOT VALVE - CONNECTIONS: DIN / DEUTSCH

See Connectors and Cable Sets Catalog (1027453) for all available connection styles.

Connection for EN 175301-803
(ex DIN 43650) connector

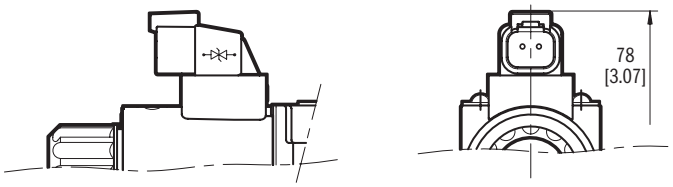
code WK1 (DC voltage version only)



Connection for
DEUTSCH DT06-2S male connector

code WK7

code WK7D (with diode)



ELECTRICAL CONNECTORS

Solenoid operated valves are delivered without connectors.
Connectors type EN 175301-803 (ex DIN 43650) for K1 connections
can be ordered separately. See: Connectors and Cables sets catalog.

► ELECTRICAL: PILOT VALVE

Protection from atmospheric agents IEC 60529

The IP protection degree is guaranteed only with both valve and connectors of an equivalent IP degree, correctly connected and installed.

Electric Connection Code	Electric Connection Protection	Whole Valve Protection
K1	IP65	IP65
WK1	IP66	IP66
WK7	IP66/IP68/IP69 IP69K*	IP66/IP68/IP69 IP69K*
WK7D	IP66/IP68/IP69 IP69K*	IP66/IP68/IP69 IP69K*

(*) The IP69K protection degree is not taken in account in IEC 60529 but is included in ISO 20653.

Current and absorbed power for DC solenoid valves

The coils WK feature a zinc-nickel surface treatment.

The WK7D coil includes a bi-directional diode for protection from voltage peaks during switching. During the switching the diode significantly reduces the energy released by the winding, but limiting the voltage to 31.4 V in the D12 coil and to 58.9 V in the D24 coil.

Using connectors type “D” (VEA-6FR) with embedded bridge rectifier it is possible to feed DC coils (starting from 48V voltage) with alternating current (50 or 60 Hz), considering a reduction of the operating limits (see page 6).

Code	Nominal Voltage [V]	Resistance at 20 °C [Ω]	Current Consumption [A]	Power Consumption [W]	Replacment Coil Code
D12WK1	12	4.4	2.72	32.7	M3984000001
D12WK7	12	4.4	2.72	32.7	M3984000101
D12WK7D	12	4.4	2.72	32.7	M3984000111
D14K1	14	7.2	1.93	27	M1903086
D24WK1	24	18.6	1.29	31	M3984000002
D24WK7	24	18.6	1.29	31	M3984000102
D24WK7D	24	18.6	1.29	31	M3984000112
D28K1	28	26	1.11	31	M1903082
D48K1	48	78.6	0.61	29.5	M1903083
D110K1	110	423	0.26	28.2	M1903464
D125K1	125	550	0.23	28.6	M1903467
D220K1	220	1692	0.13	28.2	M1903465

Current and absorbed power for AC solenoid valve

The table shows current and power consumption values at inrush and at holding, for AC coils.
Coils for alternating current (values ± 5%).

Suffix	Nominal voltage [V]	Freq. [Hz]	Resistance at 20 °C [Ω]	Current consumption at inrush [A]	Current consumption at holding [A]	Power consumption at inrush [VA]	Power consumption at holding [VA]	Coil code [K1]
A24K1	24	50	1,69	5,81	1,32	139	32	M1902830
A48K1	48		6,02	3,78	0,86	182	41	M1902831
A110K1	110V-50Hz 120V-60Hz	50/60	33	1,76	0,40	194	44	M1902832
				1,54	0,35	185	42	
A230K1	230V-50Hz 240V-60Hz		135	0,92	0,21	213	48	M1902833
				0,79	0,18	190	43	

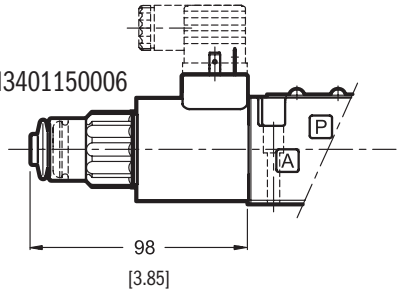
► MANUAL OVERRIDES: PILOT VALVE

Dimensions mm [in]

Manual override, boot protected

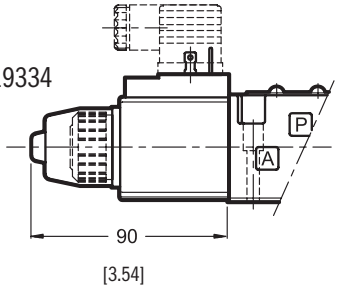
U - Version for DC solenoid valve

Code: M3401150006



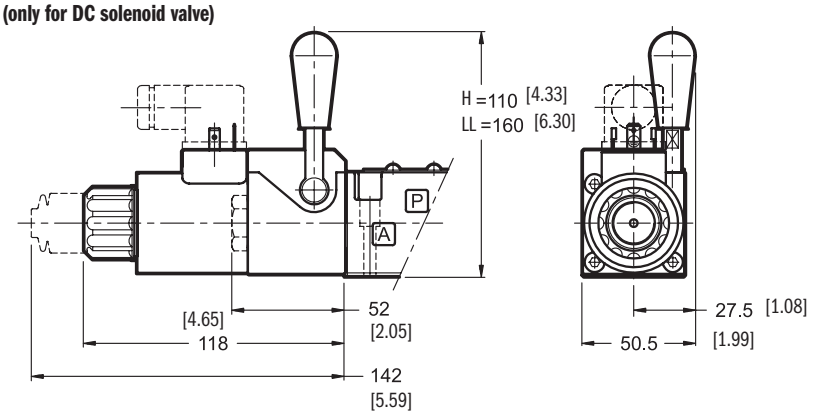
U - Version for AC solenoid valve

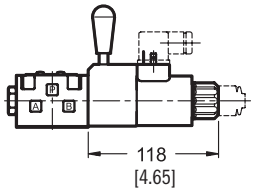
Code: M0119334



H Lever manual override

(only for DC solenoid valve)





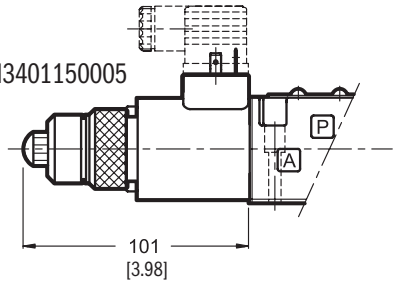
NOTES: the CH device is located on the A side of the valve, with the exception of the valves type VS6M-*R.

Not available on function code 6 valves.

CP Push manual override

(only for DC solenoid valve)

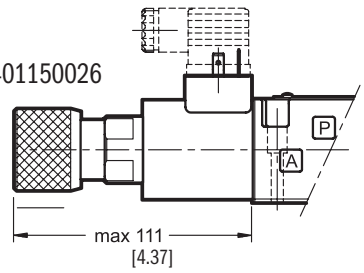
Code: M3401150005



CK1 knob manual override, turning

(only for DC solenoid valve)

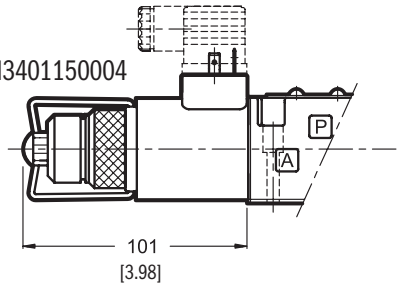
Code: M3401150026



CPK Push manual override with mechanical retention

(only for DC solenoid valve)

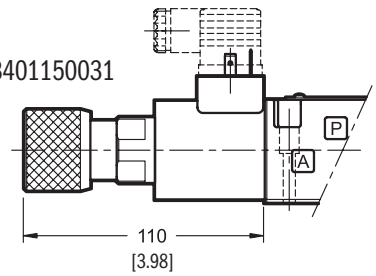
Code: M3401150004



CK2 and twist manual override

(only for DC solenoid valve)

Code: M3401150031



► MOUNTING:

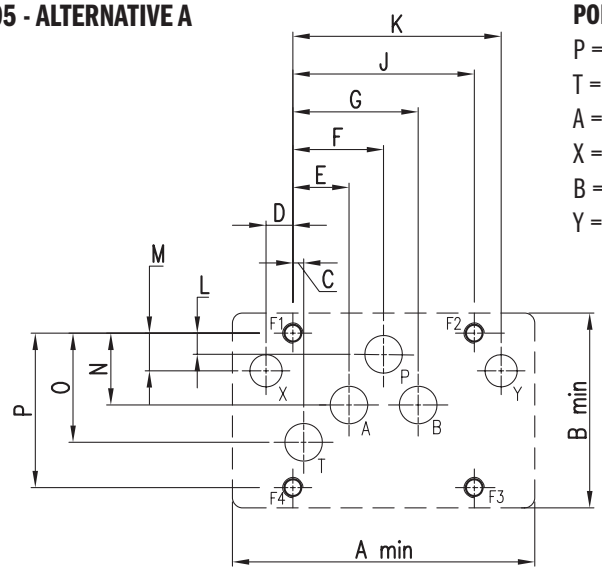
ALL THE MOUNTING SURFACES REFER TO NFPA T3.5.1 R2-2002 AND ISO 4401:2005 STANDARDS.

The mounting surface standards recommends metric coarse threads. However, subplates are commercially available with UNC threads. Select a bolt size that matches the threads in the mounting surface.

Dimensional tolerances are ± 0.1 mm (0.004”) for bolt and pin location; ± 0.2 mm (0.008”) for the other quotes.

The minimum depth of the blind hole G where required is 8 mm (0.31 in).

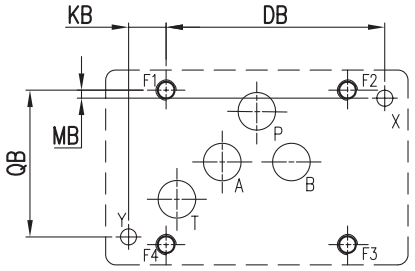
D05 - ALTERNATIVE A



PORT FUNCTION:

P = PRESSURE PORT
T = TANK PORT
A = FIRST CYLINDER PORT
X = PILOT PORT
B = SECOND CYLINDER PORT
Y = DRAIN PORT

D05 - ALTERNATIVE B



	MM	INCH
P, A, B, T MAX	Ø 11.2	Ø 0.44
X, Y ALT. A	Ø 6.3	Ø 0.25
X, Y ALT. B	Ø 4.8	Ø 0.19
Mounting Bolt Thread Size	M6	1/4 - 20 UNC

	MM	INCH
A	90	3.54
B	58	2.28
C	3.2	0.126
D	8	0.31
E	16.7	0.66
F	27	1.06
G	37.3	1.47

	MM	INCH
J	54	2.125
K	62	2.44
L	6.3	0.25
M	11.2	0.44
N	21.4	0.84
O	32.5	1.28
P	46	1.82

	MM	INCH
DB	65.1	2.563
KB	11.2	0.44
MB	2.4	0.09
QB	43.7	1.72

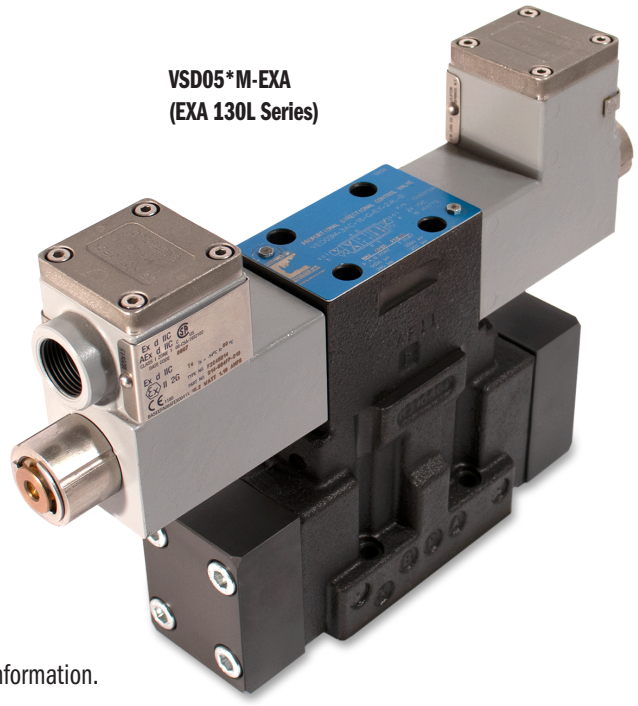
NOTES:
NFPA D05 and ISO 4401-05 indicates different diameters for X and Y holes:
NFPA: Ø 9.6 max in D05 alt A.
Ø 4.8 max in D05 alt B

ISO: Ø 6.3 max both

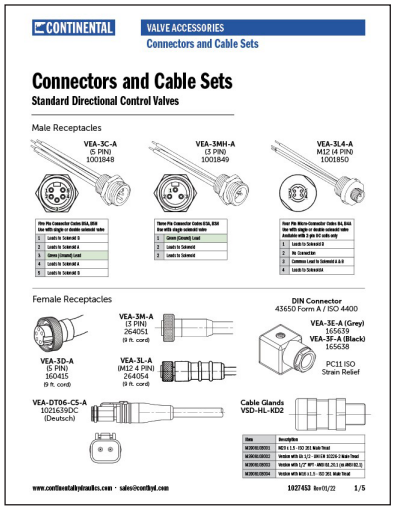
HAZARDOUS LOCATION VALVES
Also available:

VSD05*M-EX
(EX 80L Series)

VSD05*M-EXA
(EXA 130L Series)



Consult Factory for more information.


CONTINENTAL
VALVE ACCESSORIES
Connectors and Cable Sets

Connectors and Cable Sets
Standard Directional Control Valves

Male Receptacles
VEA-3C-A (5 PIN) 1001848
VEA-3MH-A (3 PIN) 1001849
VEA-3L4-A M12 (4 PIN) 1001850

Female Receptacles
VEA-3M-A (3 PIN) 264051 (9 ft. cord)
VEA-3D-A (5 PIN) 160415 (9 ft. cord)
VEA-3L-A (M12 4 PIN) 264054 (9 ft. cord)
DIN Connector 43650 Form A / ISO 4400
VEA-3E-A (Grey) 165639
VEA-3F-A (Black) 165638
PC11 ISO Strain Relief
VEA-DT06-CS-A 1021639DC (Deutsch)
Cable Glands VSD-HL-M32

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1027453 Rev 01/22 1/6

Connectors and Cables Sets
Form #1027453

CONTINENTAL HYDRAULICS INC. / HYDRECO INC.
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