CONTINENTAL HYDRAULICS

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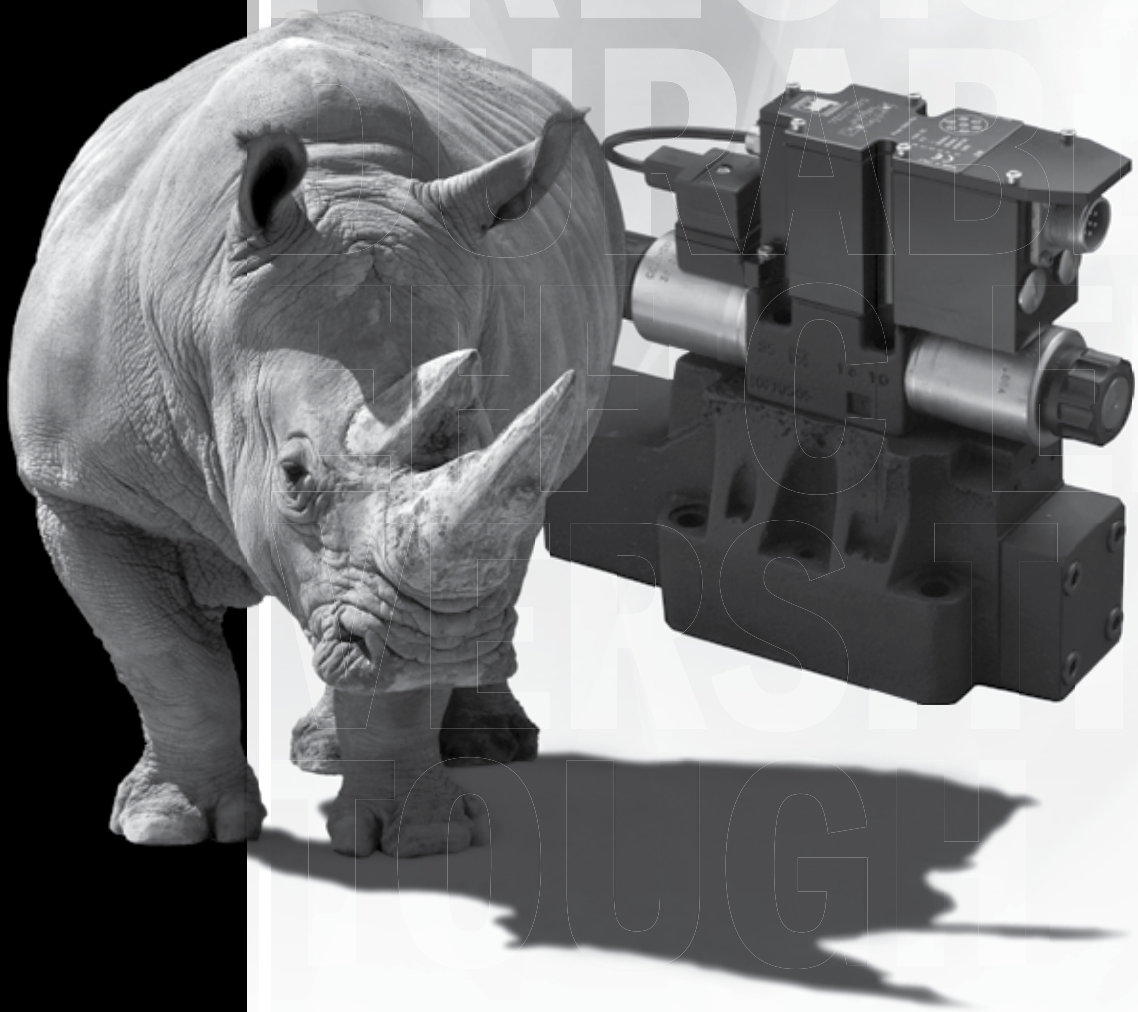
VED*MG

PILOT OPERATED DIRECTIONAL CONTROL VALVES WITH OBE



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VERSITILE

VED*MG

PILOT OPERATED DIRECTIONAL CONTROL VALVES WITH OBE

DESCRIPTION

The VED*MG pilot operated 4-way proportional valves with On-Board Digital Amplifier are available in 5 standard NFPA and ISO patterns.

OPERATION

The VED*MG valves are designed to control the direction and oil flow rate based on the amount of command signal supplied to the On-Board Amplifier.

In event of a loss in electrical power, the centering springs will return the valve spool to the center position.

The On-Board microprocessor controls all the valve functions and is pre-set to optimal valve performance. In-field adjustments can be performed, via software, to customize the parameters based on your application needs.

TYPICAL PERFORMANCE SPECIFICATIONS

MAXIMUM OPERATING PRESSURE:	P - A - B Ports	5000 psi	350 bar
	T Port (int. drain)	143 psi	10 bar
	T Port (ext. drain)	3600 psi	250 bar
HYSTERESIS	% of Q max	< 2%	
REPEATABILITY	% of Q max	< ± 1%	
POWER SUPPLY		24V DC (19V to 35V, ripple max 3V pp)	
	MAX CURRENT	3A	
CONNECTION		7 pin (6+gnd) metal	
PROTECTION	IEC 60529	IP 67	

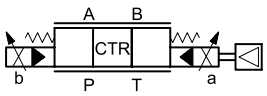
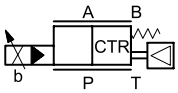
		VED05*MG		**VED07MG**		**VED08MG**		**VED10MG**	
FLOW CAPACITY WITH ΔP 145 PSI (10 BAR)		21 gpm 21/10.5 gpm	80 l/min 80/40 l/min	26.5 gpm 40 gpm 40/20 gpm	100 l/min 150 l/min 150/75 l/min	53 gpm 80 gpm 80/40 gpm	200 l/min 300 l/min 300/150 l/min	93 gpm 132 gpm 132/66 gpm	350 l/min 500 l/min 500/250 l/min
MAX FLOW		48 gpm	180 l/min	120 gpm	450 l/min	210 gpm	800 l/min	420 gpm	1600 l/min
MOUNTING SURFACE		NFPA D05 alt.A / alt.B ISO 4401-05-*-0-05		NFPA D07 ISO 4401-07-07-0-05		NFPA D08 ISO 4401-08-08-0-05		NFPA D10 ISO 4401-10-09-0-05	
WEIGHT	Single Solenoid	16.3 lbs	7.4 Kg	21.2 lbs	9.6 Kg	35.1 lbs	15.9 Kg	116.4 lbs	52.8 Kg
	Dual Solenoid	17.4 lbs	7.9 Kg	22.3 lbs	10.1 Kg	36.2 lbs	16.4 Kg	117.5 lbs	53.3 Kg

IDENTIFICATION CODE

VED ☐ MG - ☐☐ - ☐ - ☐☐☐ - ☐☐ D - ☐ — DESIGN LETTER

SIZE	
05A	NFPA D05 alt. A
05B	NFPA D05 alt. B
07	NFPA D07
08	NFPA D08
10	NFPA D10

With On Board Electronics

FUNCTION	
3	
	double operator 3 position spring centered
5	
	single operator 2 position spring centered **D05 and D07 are available as code 5 only.** **D08 and D10 are available as code 5-R only.**

SEAL	
A	Buna (STD)
G	Viton

NOMINAL FLOW (with Δp P-T 143 psi)		
05	**80**	80 l/min (21 gpm)
	80/40	Asymmetrical spool: 80 l/min (21 gpm) on P-A 40 l/min (10.5 gpm) on B-T
07	**100**	100 l/min (26.5 gpm)
	150	150 l/min (40 gpm)
	150/75	Asymmetrical spool: 150 l/min (40 gpm) on P-A 75 l/min (20 gpm) on B-T
08	**200**	200 l/min (53 gpm)
	300	300 l/min (80 gpm)
	300/150	Asymmetrical spool: 300 l/min (80 gpm) on P-A 150 l/min (40 gpm) on B-T
10	**350**	350 l/min (93 gpm)
	500	500 l/min (132 gpm)
	500/250	Asymmetrical spool: 500 l/min (132 gpm) on P-A 250 l/min (66 gpm) on B-T

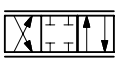
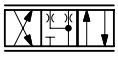
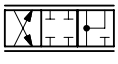
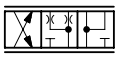
CONNECTION	
OBW	On board electronics 7 pin - no external enable required (STD)
OBC	On board electronics 7 pin external enable on Pin C required

REFERENCE SIGNAL	
E0	Voltage ± 10V (STD)
E1	Current 4 - 20 mA

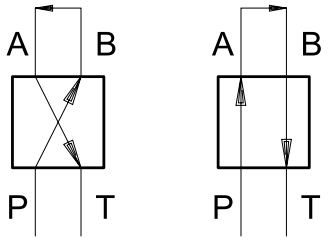
PILOT/DRAIN	
1	Internal Pilot External Drain
2	External Pilot External Drain
3	Internal Pilot Internal Drain
4	External Pilot Internal Drain

MECHANICAL (Omit if not required)	
R	Reverse operator 2 position spring centered solenoid A supplied . **Code R available in D08 and D10 sizes only.**
Z	Pilot pressure reducer. Mandatory with pilot drain 1 and 3 when pressure is higher than 3000 psi (210 bar).

TYPICAL ORDERING CODE:
VED07MG-3AC-100-A1-OBWE0D-A

SPOOLS					
NAME	**SYMBOLS**	**DESCRIPTION**	**APPLICATION**	**SIZE**	**FUNCTION MATCHING**
AC		METER IN / METER OUT	MOTION CONTROL	05, 07	3, 5
				08, 10	3, 5R
FC		METER IN / METER OUT		05, 07	3, 5
				08, 10	3, 5R
RL		METER IN / METER OUT (REGEN)		07, 08, 10	3
RA		METER IN / METER OUT (REGEN)		07, 08, 10	3

PERFORMANCE CURVES - FLOW GAIN



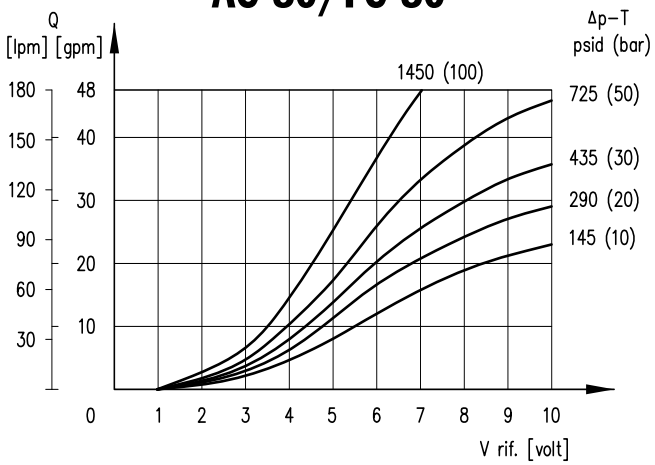
1. **Curves obtained with mineral oil with viscosity of 170 sus (36 cSt) at 122°F (50°C) and dedicated OBE**

2. **The Δp values are measured between P and T (full loop) valve ports.**

3. **Typical flow rate curves at constant Δp related to the reference signal and measured for the available spools and obtained after linearization in factory of the characteristic curve through the digital amplifier.**

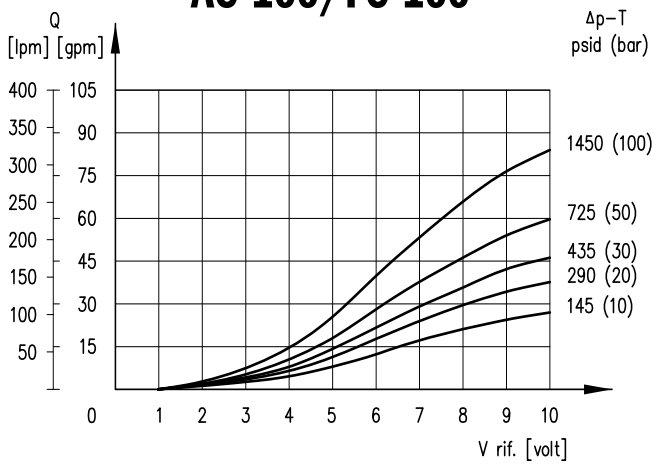
VED05*MG

AC-80/FC-80

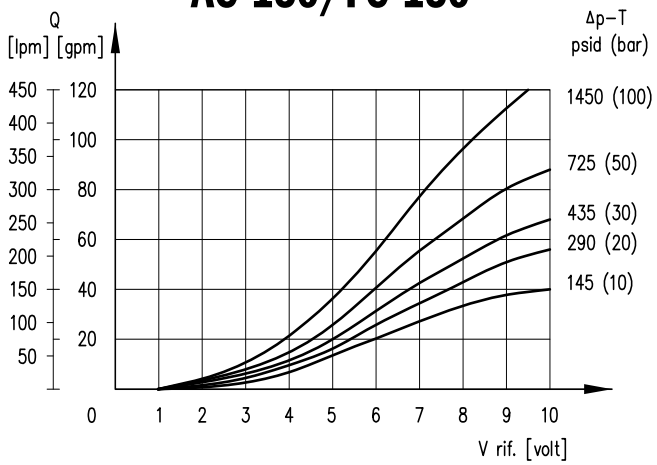


VED07MG

AC-100/FC-100



AC-150/FC-150



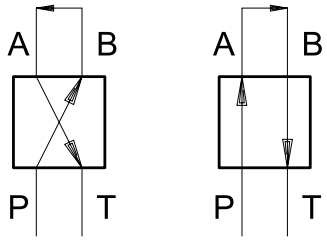
RESPONSE TIME

VED05*MG	ENERGIZING	DE-ENERGIZING
	0 ► 100%	100% ► 0
TIMES [ms]	45	25

RESPONSE TIME

VED07MG	ENERGIZING	DE-ENERGIZING
	0 ► 100%	100% ► 0
TIMES [ms]	65	35

PERFORMANCE CURVES - FLOW GAIN



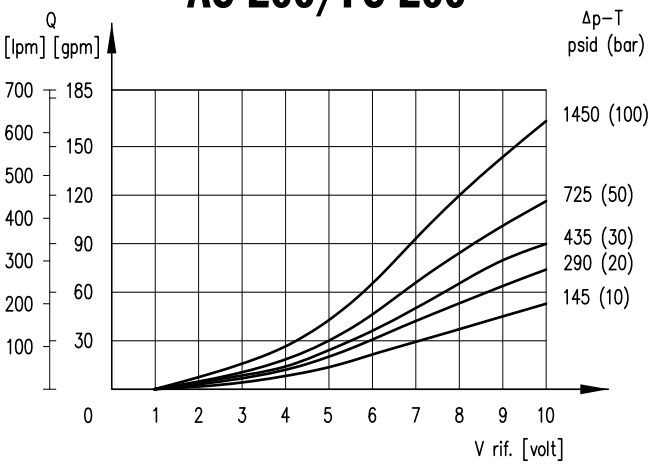
1. **Curves obtained with mineral oil with viscosity of 170 sus (36 cSt) at 122°F (50°C) and dedicated OBE**

2. **The Δp values are measured between P and T (full loop) valve ports.**

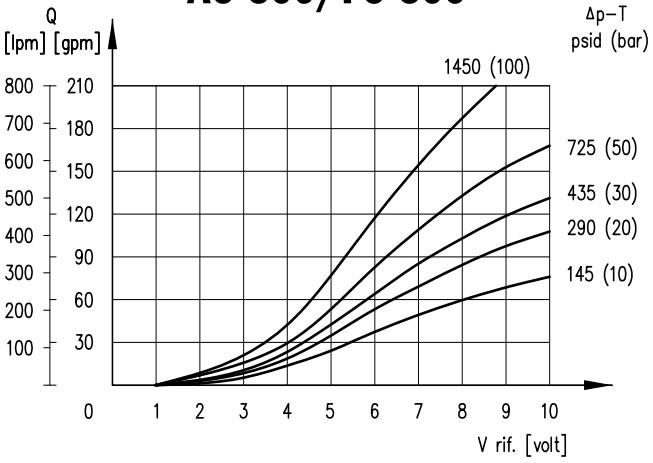
3. **Typical flow rate curves at constant Δp related to the reference signal and measured for the available spools and obtained after linearization in factory of the characteristic curve through the digital amplifier.**

VED08MG

AC-200/FC-200



AC-300/FC-300

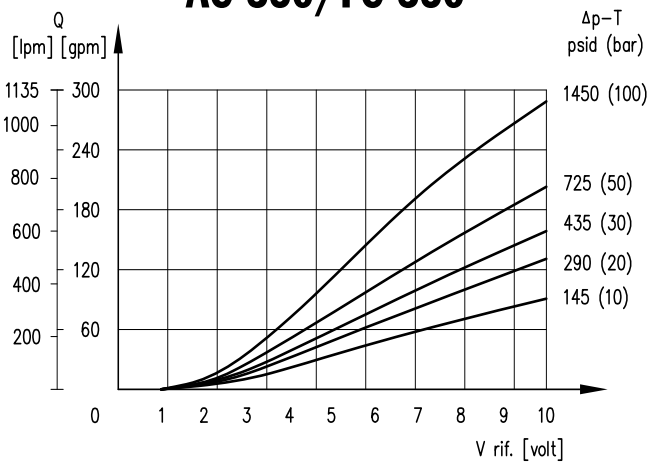


RESPONSE TIME

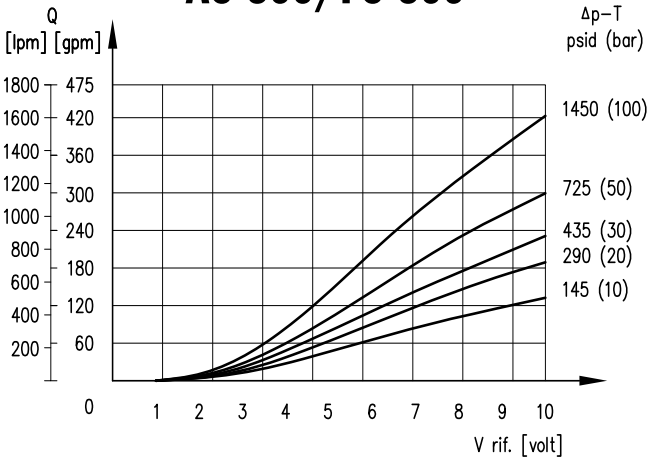
VED08MG	ENERGIZING	DE-ENERGIZING
	0 ► 100%	100% ► 0
TIMES [ms]	85	55

VED10MG

AC-350/FC-350



AC-500/FC-500



RESPONSE TIME

VED10MG	ENERGIZING	DE-ENERGIZING
	0 ► 100%	100% ► 0
TIMES [ms]	140	160

PILOTING AND DRAINAGE

The VED*MG valves are available with piloting and drainage, both internal and/or external.

The version with internal pilot without pressure reducer is suitable only on systems where the pressure is not higher than 3000 psi (210 bar).

When the system pressure exceeds 3000 psi (210 bar) the use of the version with external pilot is mandatory, or alternatively, the version with internal pilot and pressure reducer. The pressure reducer has fixed adjustment of 430 psi (30 bar).

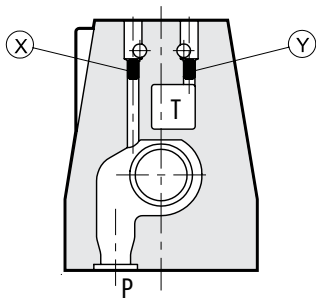
The version with external drainage allows a higher back pressure on the unloading.

CODE	PILOT	X PLUG	DRAIN	Y PLUG
1	Internal	□	External	■
2	External	■	External	■
3	Internal	□	Internal	□
4	External	■	Internal	□

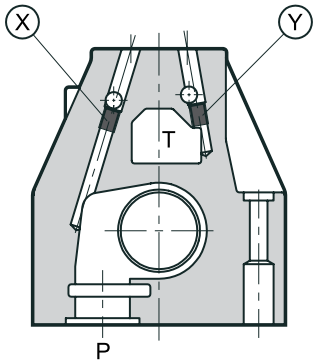
■ Plugged □ Unplugged

PLUG MOUNTING

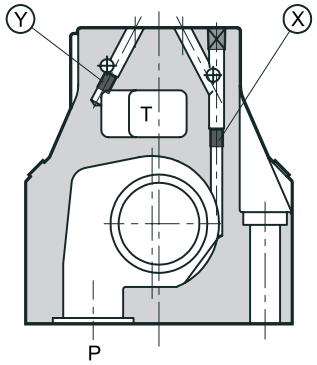
VED05*MG



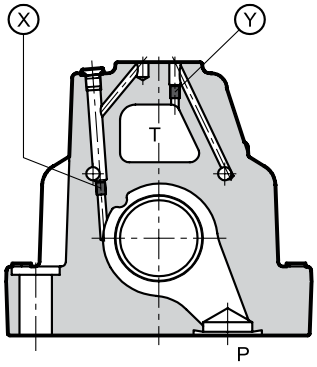
VED07MG



VED08MG



VED10MG



PILOTING REQUIREMENTS

Minimum value of piloting pressure on port X: 430 psi (30 bar).

PILOTING FLOW REQUIRED WITH OPERATION 0 ► 100%		
VED05*MG	0.55 gpm	2.1 lpm
VED07MG	0.63 gpm	2.4 lpm
VED08MG	1.45 gpm	5.5 lpm
VED10MG	1.71 gpm	6.5 lpm

PILOTING VOLUME REQUIRED WITH OPERATION 0 ► 100%		
VED05*MG	0.11 in^3	1.7 cm^3
VED07MG	0.19 in^3	3.2 cm^3
VED08MG	0.55 in^3	9.1 cm^3
VED10MG	1.31 in^3	21.6 cm^3

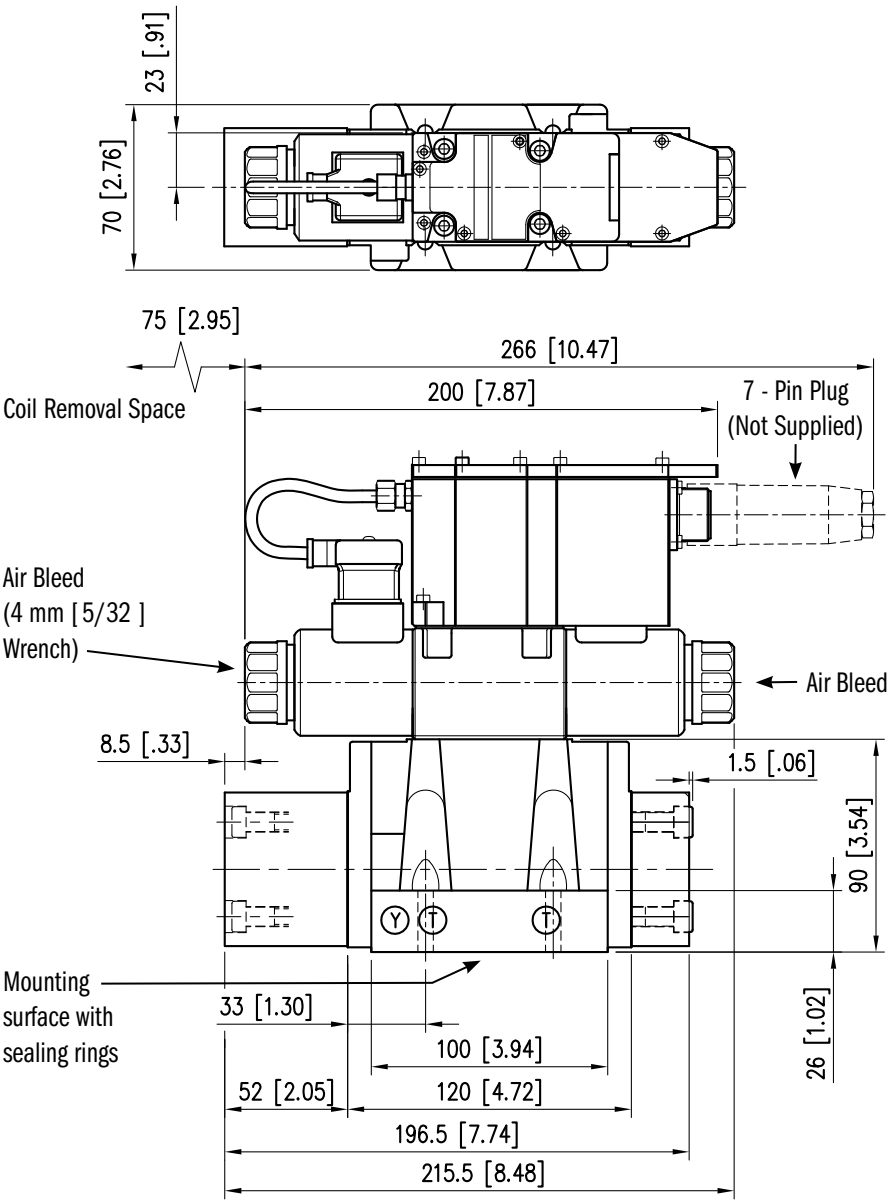
PLUG SIZE:

VED05*MG	M5x6 mm
VED07MG	M6x8 mm
VED08MG	M6x8 mm
VED10MG	M6x8 mm

OVERALL AND MOUNTING DIMENSIONS FOR VED05*MG

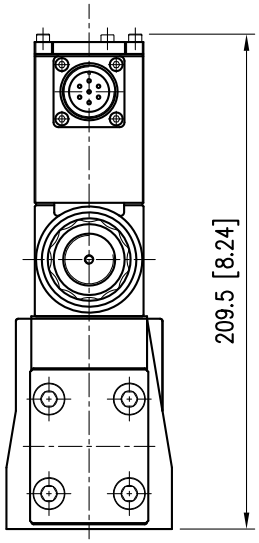
VED05*MG-3

Dimensions in mm [IN]



In order to avoid electromagnetic noises and fulfill the EMC regulations, a 7 pin metal plug according to MIL-C-5015 G should be used instead of the standard plastic 6+PE plug.

The plug is not supplied, but can be ordered separately.



NOTES:

1. At the first start up, or after a long period of no use, it is necessary to vent the air through the air bleed placed at the end of the solenoid tube.

2. For single solenoid overall dimensions see related drawing. See page 11.

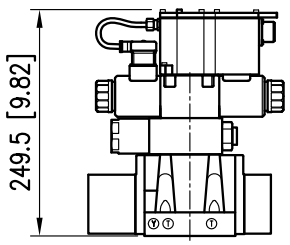
THREAD OF MOUNTING HOLES
1/4 - 20 UNC -2B x 0.60

SEALING RINGS
Qty. 5 O-ring AS568-014 90 shore A
Qty. 2 O-ring AS568-012 90 shore A

FASTENING
4 bolts 1/4-20 UNC-2B x 1 1/2

TIGHTENING TORQUE
6 lb.ft (8.13 Nm)

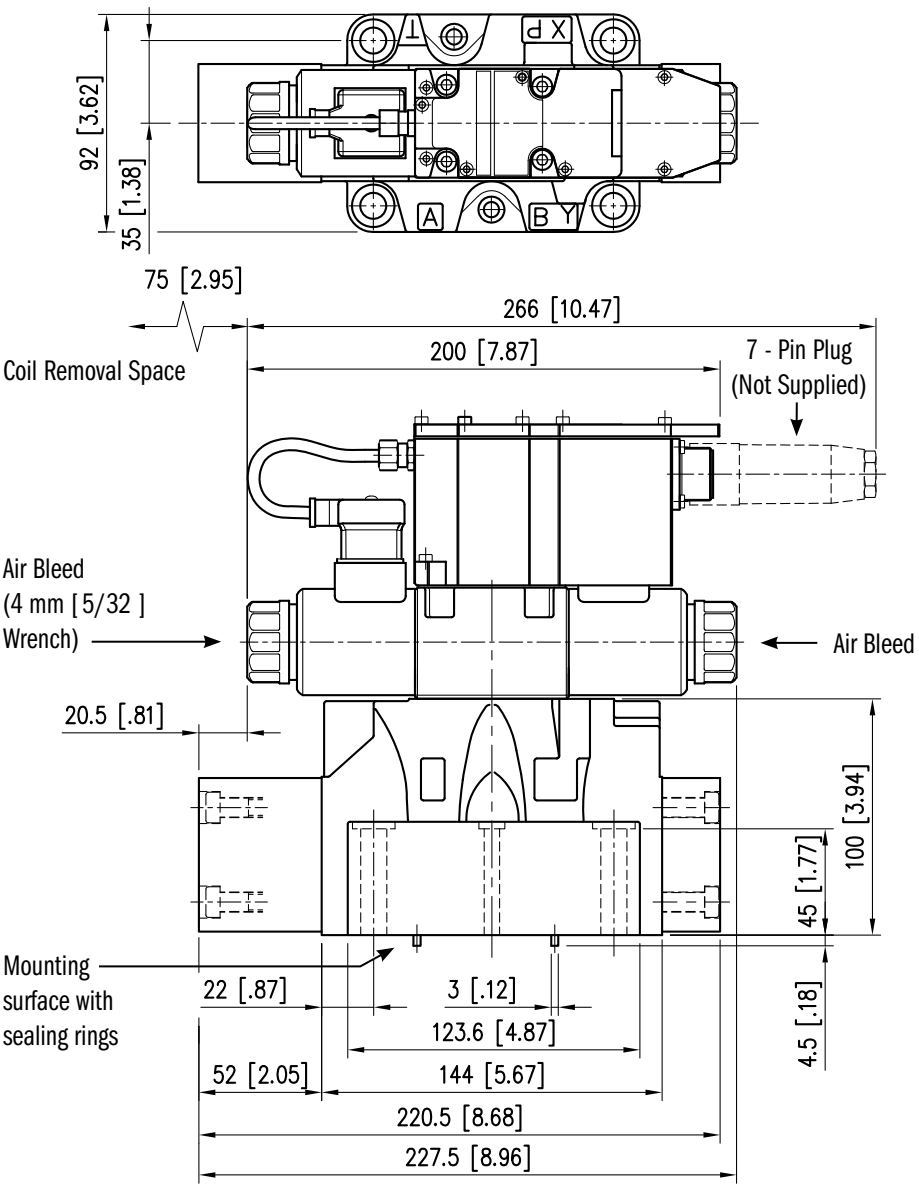
VED05*MG*Z



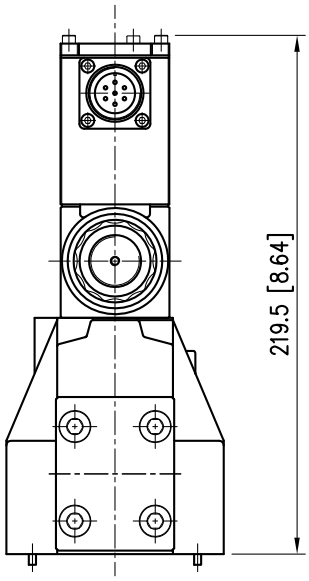
OVERALL AND MOUNTING DIMENSIONS FOR VED07MG

VED07MG-3

Dimensions in mm [IN]



In order to avoid electromagnetic noises and fulfill the European EMC regulations, a 7 pin metal plug according to MIL-C-5015 G should be used instead of the standard plastic 6+PE connector EN 175201-408 (formerly DIN 43563).



NOTES:

1. At the first start up, or after a long period of no use, it is necessary to vent the air through the air bleed placed at the end of the solenoid tube.

2. For single solenoid overall dimensions see related drawing. See page 11.

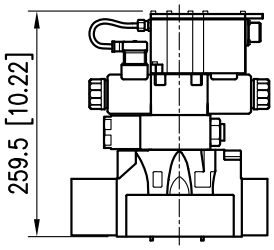
THREAD OF MOUNTING HOLES
1/4 - 20 UNC - 2B x 0.6
3/8 - 16 UNC - 2B x 0.9

SEALING RINGS
Qty. 4 O-ring 22.22mm ID x 2.62mm CS 90 shore A
Qty. 2 O-ring AS568-013 90 shore A

FASTENING
2 bolts 1/4-20 UNC-2B x 2 (50 mm)
4 bolts 3/8-16 UNC-2B x 2 1/2 (60 mm)

TIGHTENING TORQUE
1/4 - 20 UNC -2B: 6 lb.ft (8.13 Nm)
3/8 - 16 UNC -2B: 29.5 lb.ft (40 Nm)

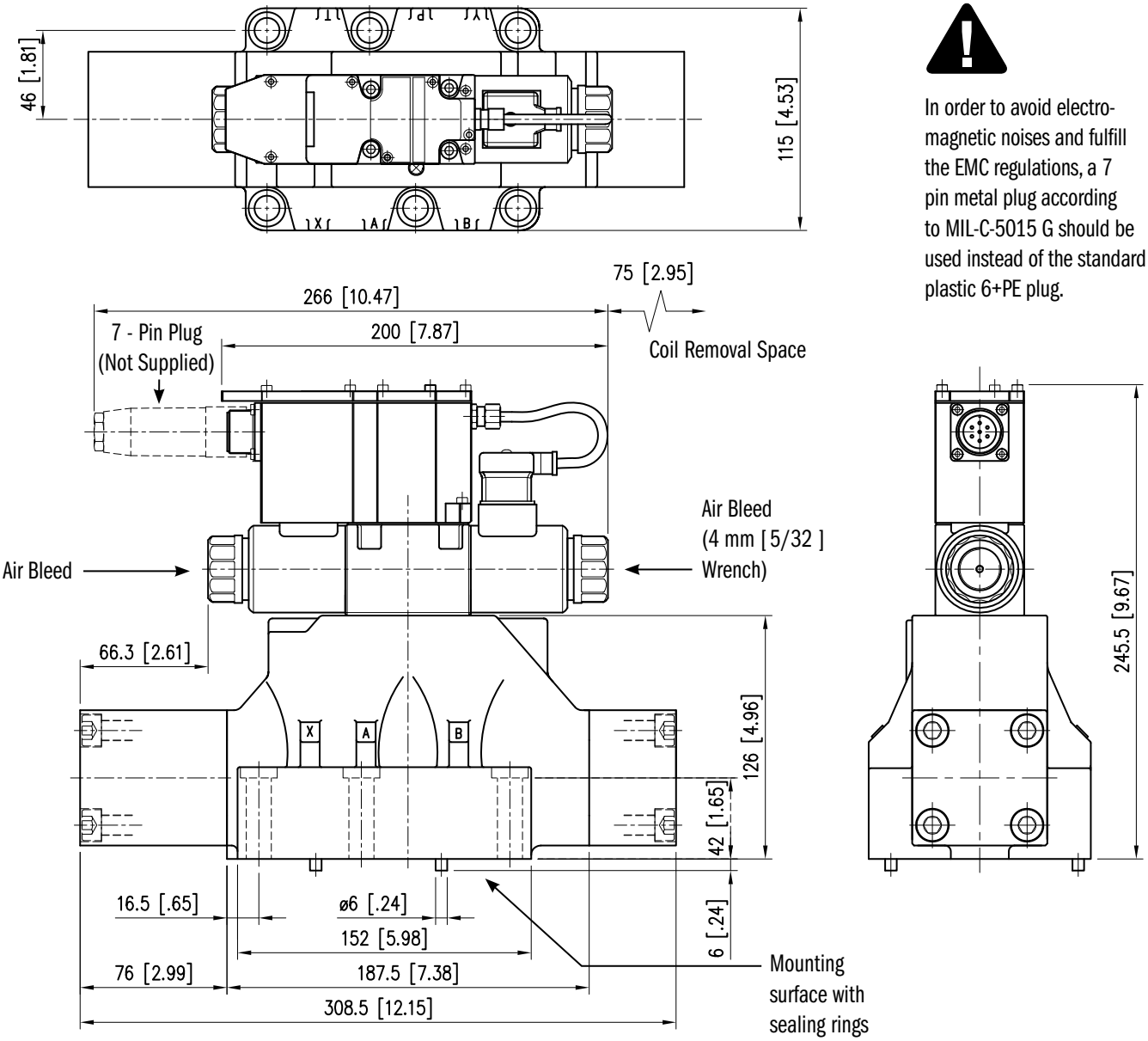
VED07MG*Z



OVERALL AND MOUNTING DIMENSIONS FOR VED08MG-3

VED08MG-3

Dimensions in mm [IN]



In order to avoid electro-magnetic noises and fulfill the EMC regulations, a 7 pin metal plug according to MIL-C-5015 G should be used instead of the standard plastic 6+PE plug.

NOTES:

1. At the first start up, or after a long period of no use, it is necessary to vent the air through the air bleed placed at the end of the solenoid tube.

2. For single solenoid overall dimensions see the related drawing. See page 11.

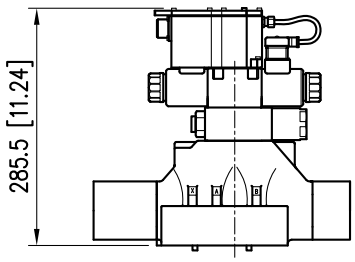
THREAD OF MOUNTING HOLES
1/2 - 13 UNC x 0.9

SEALING RINGS
Qty. 4 O-ring AS568-123 90 shore A
Qty. 2 O-ring AS568-117 90 shore A

FASTENING
6 bolts 1/2 - 13 UNC x 2 1/2 (60 mm)

TIGHTENING TORQUE
51 lb.ft (69 Nm)

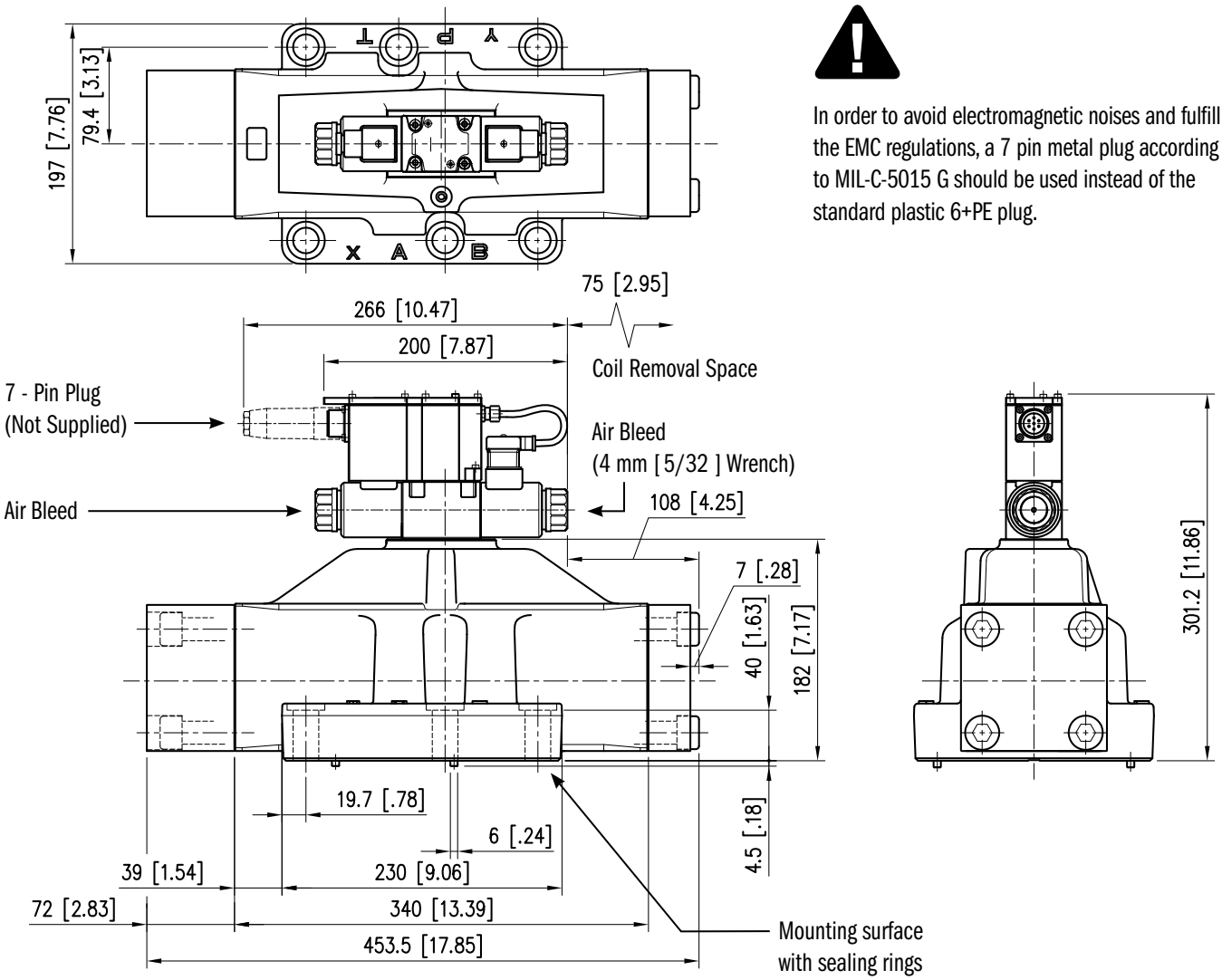
VED08MG*Z



OVERALL AND MOUNTING DIMENSIONS FOR VED10MG-3

VED10MG-3

Dimensions in mm [IN]



In order to avoid electromagnetic noises and fulfill the EMC regulations, a 7 pin metal plug according to MIL-C-5015 G should be used instead of the standard plastic 6+PE plug.

NOTES:

1. At the first start up, or after a long period of no use, it is necessary to vent the air through the air bleed placed at the end of the solenoid tube.

2. For single solenoid overall dimensions see the related drawing. See page 11.

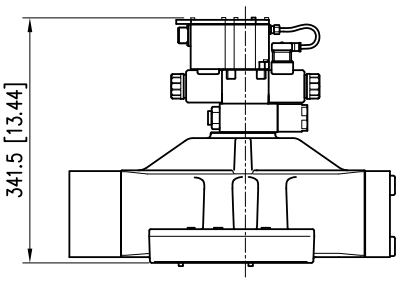
THREAD OF MOUNTING HOLES
3/4 - 10 UNC - 2B x 1.6

SEALING RINGS
Qty. 4 O-ring AS568-222 90 shore A
Qty. 2 O-ring AS568-117 90 shore A

FASTENING
6 bolts 3/4 - 10 UNC - 2B x 2 3/4 (70 mm)

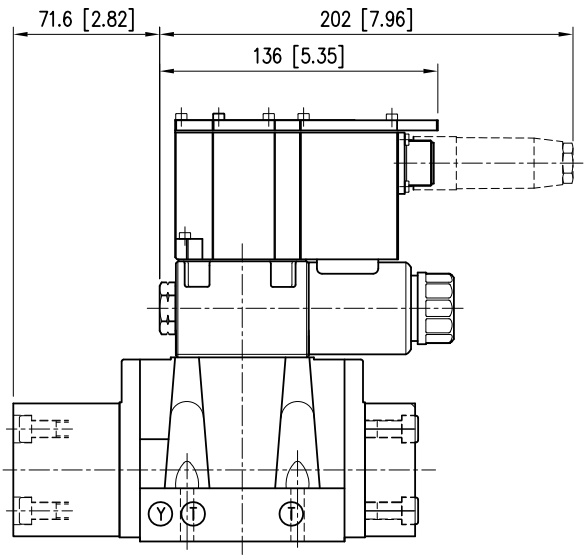
TIGHTENING TORQUE
245 lbf·ft (332 Nm)
high strength: 415 lb.ft (562 Nm)

VED10MG*Z

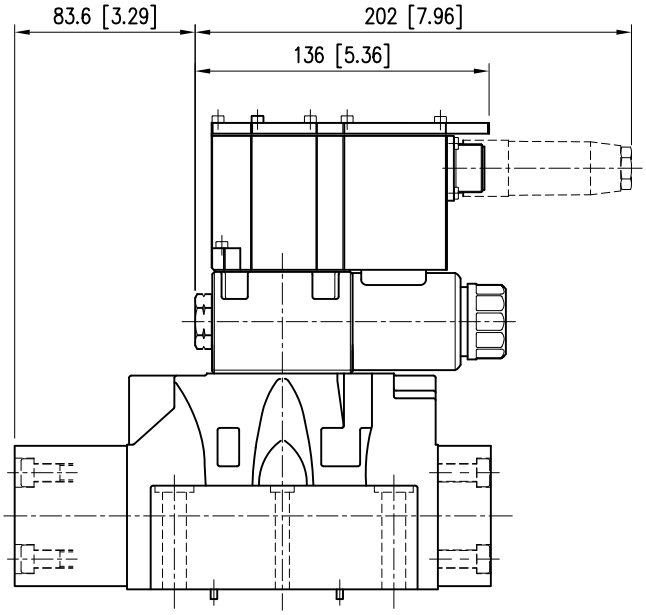


OVERALL DIMENSIONS FOR SINGLE SOLENOID VERSIONS

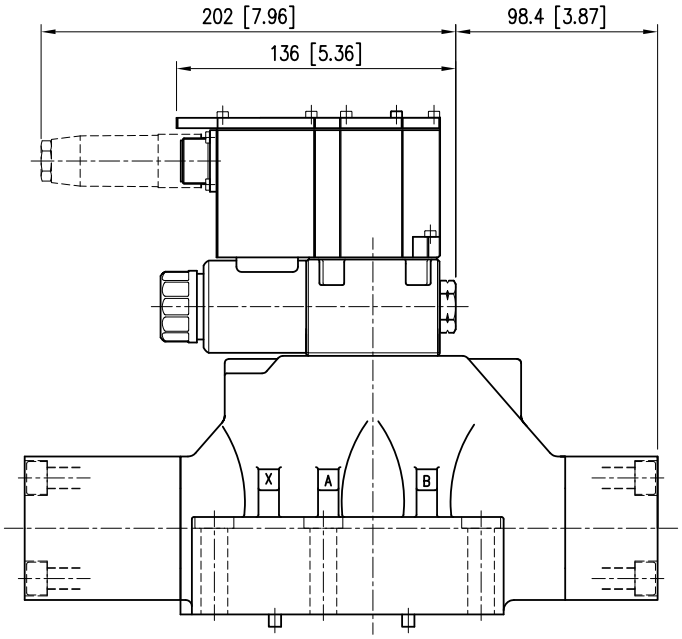
VED05*MG-5



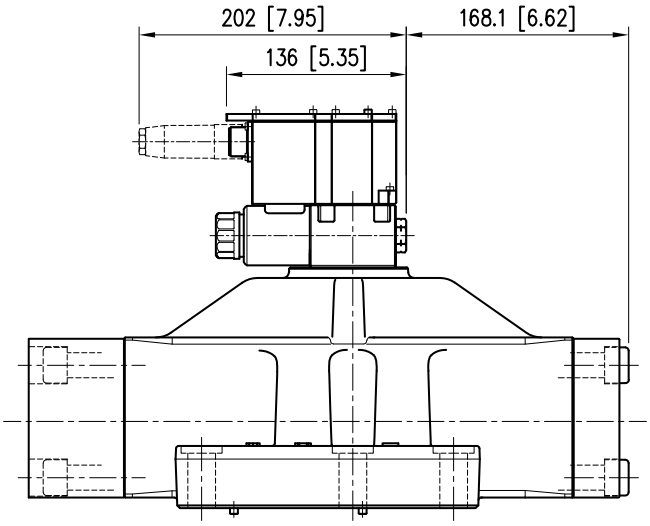
VED07MG-5



VED08MG-5R



VED10MG-5R



NOTES:
For missing dimensions refer to the previous drawings.

ELECTRICAL CHARACTERISTICS

The proportional valve is controlled by a digital amplifier (driver), which incorporates a microprocessor that controls all the valve functions.

THE STANDARD VALVE IS SET AT THE FACTORY WITH:

- UP/DOWN ramp at zero value
- No deadband compensation
- Max valve opening (100% of spool stroke)

It is possible to customize these and others parameters using the optional kit, **LINPC-USB** to be ordered separately (see related literature).

THE DIGITAL DRIVER ENABLES THE VALVE TO REACH BETTER PERFORMANCE COMPARED TO THE ANALOG VERSION, AND GIVES:

- Reduced response times
- Optimization and reproducibility of the characteristic curve, optimized in factory for each valve
- Complete interchangeability in case of valve replacement
- Opportunity to set, via software, the functional parameters
- Opportunity to perform a diagnostic program by means of the LIN connection
- High immunity to electromagnetic interference

The electronic card is available with (OBC) or without (OBW) external enabling signal feature.

POWER SUPPLY		24V DC (19V to 35V, ripple max 3V pp)
ABSORBED POWER		50 W
MAX CURRENT		2A
DUTY CYCLE		100%
MAIN CONNECTOR		7 pin MIL-C-5015-G (DIN 43563)
ELECTROMAGNETIC COMPATIBILITY (EMC) EUROPEAN DIRECTIVE 2004/108/EC	Emission	IEC EN 61000-6-4
	Immunity	IEC EN 61000-6-2
PROTECTION AGAINST ATMOSPHERIC AGENTS	IEC 60529	IP 67
ELECTRICAL PROTECTION	Overload Electronics Overheating Power Failure Or < 4mA	

E0 - VOLTAGE

COMMAND SIGNAL (DIFFERENTIAL)	Single Solenoid	0 - 10V DC
	Dual Solenoid	±10V DC
IMPEDANCE		> 50 kΩ

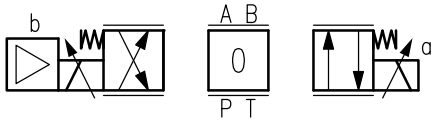
E1 - CURRENT

COMMAND SIGNAL	4 - 20 mA
IMPEDANCE	500 Ω

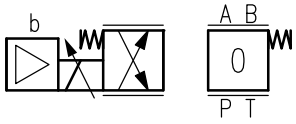
E0 VERSION - VOLTAGE REFERENCE SIGNAL

This is the most common version; it makes the valve completely interchangeable with the traditional proportional valves with analog type integrated electronics. The valve has only to be connected as indicated below.

The input signal is differential type and drives the valve as shown in the chart below. The spool stroke is proportional to UD - UE. If only one input signal (single-end) is available, the pin B (0V power supply) and the pin E (0V reference signal) must be connected through a jumper and both connected to GND, electric panel side.

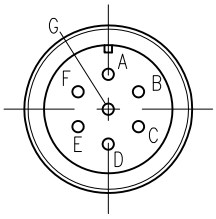


CMD -10V 0V +10V



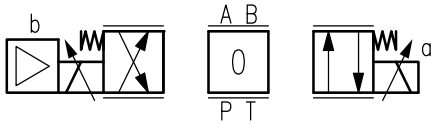
CMD +10V 0V

A	24V	Power supply positive. Use an external fuse 5A/50V fast type for protecting electronics.
B	0V	Power supply zero (0V)
C	NC or 24V	OBW Version: Not wired OBC Version: Valve enable
D	± 10V or 0 - 10V	Differential command signal (+V)
E	0V	Differential command signal (-V)
F	0 - 10V	Output monitor for command signal
G	GND	Protective ground

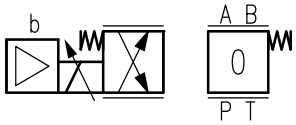


E1 VERSION - CURRENT REFERENCE SIGNAL

The current reference signal is supplied in a range of 4 - 20 mA and drives the valve as shown in the chart below. If the current drops to less than 4 mA, the card de-energizes the coils and the valve will go to rest position. The valve will restart when the command signal rises into the 4 to 20 mA range.

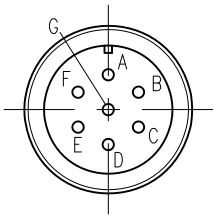


CMD 4mA 12mA 20mA



CMD 20mA 4mA

A	24V	Power supply positive. Use an external fuse 5A/50V fast type for protecting electronics.
B	0V	Power supply zero (0V)
C	NC or 24V	OBW Version: Not wired OBC Version: Valve enable
D	4 - 20 mA	Command signal
E	0V	Return
F	0 - 10V	Output monitor for command signal
G	GND	Protective ground



WIRING:
Connections must be made via the 7 pin plug mounted on the amplifier.

RECOMMENDED CABLE SIZES ARE:

POWER SUPPLY
18 AWG (0.75 mm^2)
for cables up to 65 ft (20 m).

16 AWG (1.00 mm^2)
for cables up to 130 ft (40 m).

SIGNAL CABLES
20 AWG (0.50 mm^2)

A suitable cable would have 7 wires, a separate shield for the signal wires and an overall shield.

PIN C:
Pin C is reserved for the Enable feature and is not connected on the standard card (OBW, see code at page 3) because the enable signal is run directly from the card.

In the OBC card version the Enable feature is external; Pin C has to be connected with 24V.

PIN F:
For reading this value as a current monitor signal, the card must be energized. This value has to be read on Pin B (0V).

A value of 10V means a current to the solenoid at 100% rating.

SINGLE SOLENOID		
Pin F	Pin D	
	E0	E1
-	-	-
0V	0V	4mA
+10V	+10V	20mA

DUAL SOLENOID		
Pin F	Pin D	
	E0	E1
+10 V	-10V	4mA
0V	0V	12mA
+10V	+10V	20mA

OBW OR OBC VERSION?

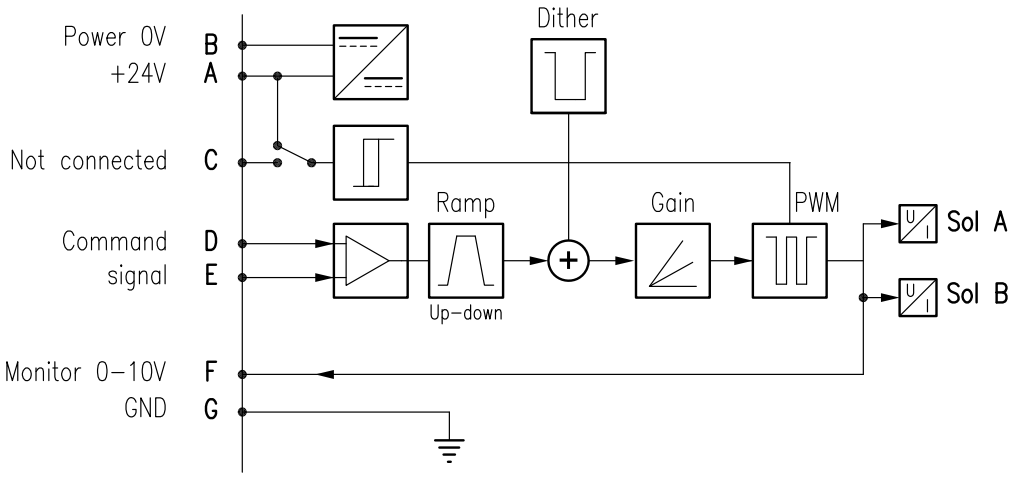
The standard option, code OBW, is programmed for internal enable. The enable signal is taken directly from the power supply of the valve. The card is enabled as soon as supply power is applied to Pins A and B.

Apply command signal to the valve and the output drivers energize the coil. The power supply must be switched off to disable the output to the valve.

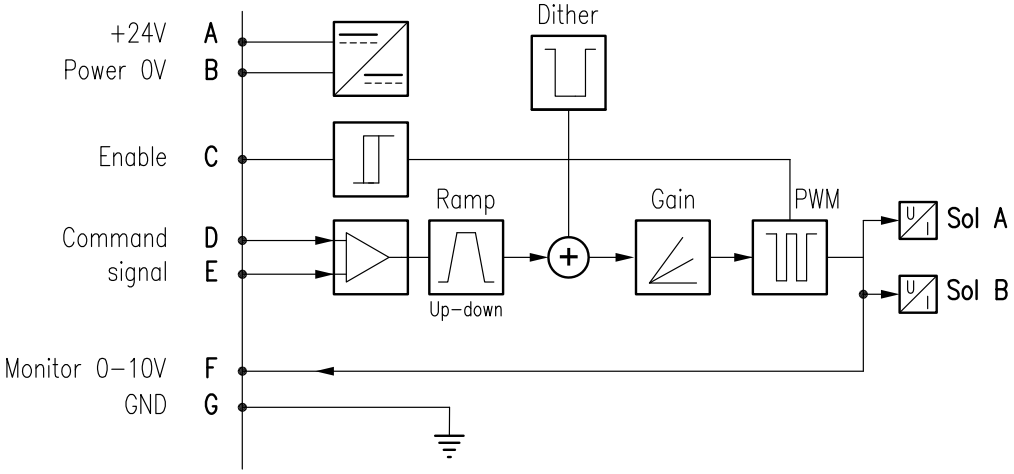
The OBC option is programmed for the external enable feature. A 24 V signal must be applied to Pin C to enable the output drivers to energize the valve coils.

The valve operation can be stopped by simply removing the enable signal from Pin C.

OBW CARD VERSION



OBC CARD VERSION



MOUNTING SURFACES

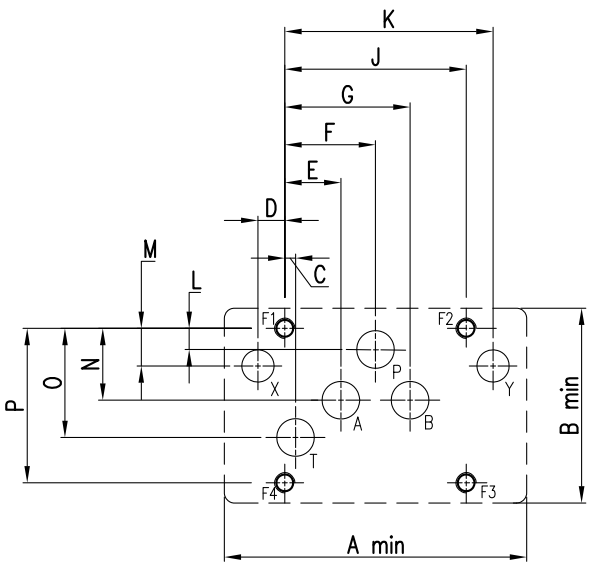
ALL THE MOUNTING SURFACES REFER TO NFPA T3.5.1 R2-2002 AND ISO 4401:2005 STANDARDS.

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

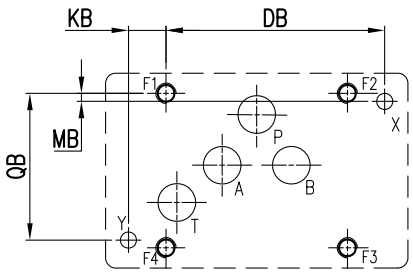
Dimensional tolerances are ± 0.1 mm (0.004") for bolt and pin location; ± 0.2 mm (0.008") for the other quotes.

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

D05 - ALTERNATIVE A



D05 - ALTERNATIVE B



PORT FUNCTION:

P = PRESSURE PORT
T = TANK PORT

A = FIRST CYLINDER PORT
X = PILOT PORT

B = SECOND CYLINDER PORT
Y = DRAIN PORT

	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	¼-20 UNC

	MM	INCH
A	90	3.54
B	58	2.28
C	3.2	0.126
D	8	0.310
E	16.7	0.660
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 indicate different diameters for X and Y holes:
NFPA: Ø 9.6 max in D05 alt. A
Ø 4.8 max in D05 alt. B

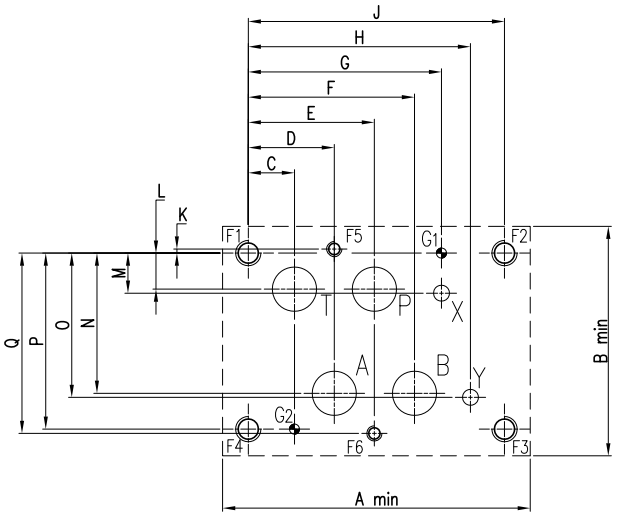
ISO: Ø 6.3 max both

D07

	MM	INCH
P,A, B,T MAX	Ø 17.5	Ø 0.69
X, Y MAX	Ø 6.3	Ø 0.25
G MAX	Ø 4	Ø 0.16
MOUNTING BOLT THREAD SIZE F1 - F4	M10	⅜ - 16 UNC
MOUNTING BOLT THREAD SIZE F5 - F6	M6	¼ - 20 UNC

	MM	INCH
A	122	4.8
B	91	3.58
C	18.3	0.72
D	34.1	1.34
E	50	1.97
F	65.9	2.60
G	76.6	3.016
H	88.1	3.47

	MM	INCH
J	101.6	4
K	1.6	0.063
L	14.3	0.56
M	15.9	0.626
N	55.6	2.19
O	57.2	2.25
P	69.9	2.75
Q	71.5	2.815

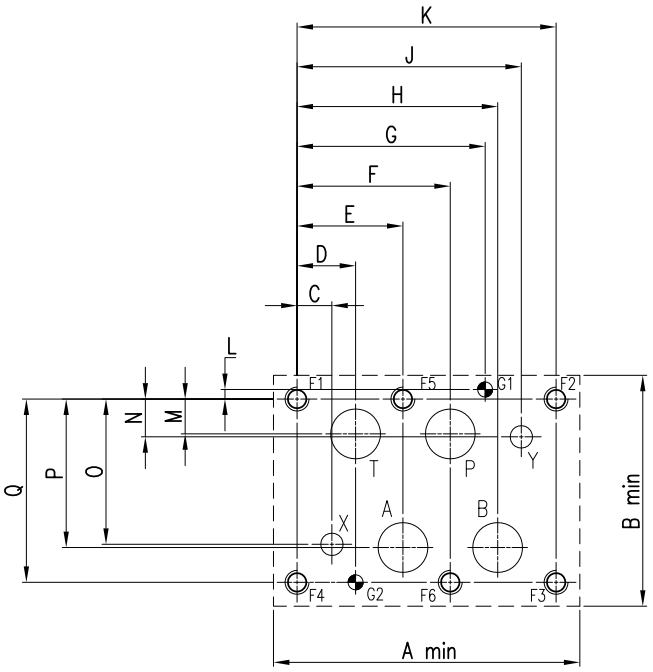


D08

	MM	INCH
P,A, B,T MAX	Ø 25	Ø 0.98
X, Y MAX	Ø 11.2	Ø 0.44
G MAX	Ø 7.5	Ø 0.30
MOUNTING BOLT THREAD SIZE	M12	½ - 13 UNC

	MM	INCH
A	154	6
B	116	4.57
C	17.5	0.69
D	29.4	1.157
E	53.2	2.09
F	77	3.03
G	94.5	3.719
H	100.8	3.97

	MM	INCH
J	112.7	4.44
K	130.2	5.125
L	4.80	0.187
M	17.5	0.69
N	19	0.75
O	73	2.874
P	74.6	2.93
Q	92.1	3.625

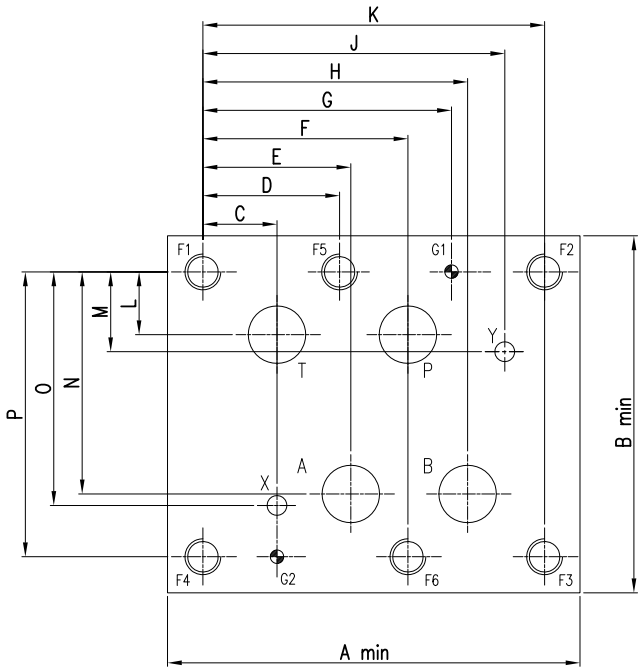


D10

	MM	INCH
P,A, B,T MAX	Ø 32	Ø 1.25
X, Y MAX	Ø 11.2	Ø 0.44
G MAX	Ø 7.5	Ø 0.30
MOUNTING BOLT THREAD SIZE	M20	¾ - 10 UNC

	MM	INCH
A	230	9.06
B	199	7.83
C	41.3	1.63
D	76.2	3
E	82.5	3.25
F	114.3	4.5
G	138.6	5.457
H	147.6	5.81

	MM	INCH
J	168.3	6.63
K	190.5	7.5
L	35	1.38
M	44.5	1.75
N	123.8	4.87
O	130.2	5.13
P	158.8	6.25



APPLICATION DATA

FLUIDS

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
MULTIPIER		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 V). 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 degrees 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 degrees F are not recommended.

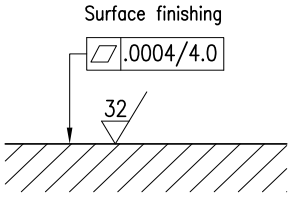
RANGE TEMPERATURES:	Ambient	- 4 to +130 °F	-20 to +54 °C
	Fluid	- 4 to +180 °F	-20 to +82 °C
FLUID VISCOSITY	Range	60 - 1900 SUS	10 - 400 cSt
	Recommended	120 SUS	25 cSt
FLUID CONTAMINATION		ISO 4406:1999 Class 18/16/13	

INSTALLATION

VED*MG valves can be installed in any position without impairing correct operation.

Bleed the air from the hydraulic circuit. Be sure that the solenoid tube is always full of oil. It may be necessary to vent entrapped air from the solenoid tube in certain applications or after a long shutdown period. The air bleed vent is located on the end of the solenoid tube. See the drawings for the location. Be sure to close the air bleed when the process is complete.

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.



BOLT KITS

D05 SIZE	**BD05H-150-B**	Valve Only	1009397
D07 SIZE	**BD07-250**	Valve Only	1009400
D08 SIZE	**BD08-250**	Valve Only	1009401
D10 SIZE	**BD10-275**	Valve Only	1013038

7 PIN PLUGS

VEA-3P7P-A	Straight plug 7 pin plastic housing	264893
VEA-3P7M-A	Straight plug 7 pin metal housing	265947

SEAL KIT

D05* SIZE	**Buna Seal Kit**	1013174
	Viton Seal Kit	1013175
D07 SIZE	**Buna Seal Kit**	1013176
	Viton Seal Kit	1013177
D08 SIZE	**Buna Seal Kit**	1013178
	Viton Seal Kit	1013179
D10 SIZE	**Buna Seal Kit**	1013180
	Viton Seal Kit	1013181

SUBPLATES

D05 alt. A SIZE	**AD05JESPS16S**	Aluminium	SAE-16	351716AJ
	DD05JESPS16S	Ductile	SAE-16	351716AK
D07 SIZE	**AD07SPS016S**	Aluminium	SAE-16	1013039AB
	DD07SPS016S	Ductile	SAE-16	1013039AC
D08 SIZE	**AD08SPS020S**	Aluminium	SAE-20	265803AP
	DD08SPS020S	Ductile	SAE-20	265803AL
D10 SIZE	**AD10SPS032S**	Aluminium	SAE-32	1013040AB
	DD10SPS032S	Ductile	SAE-32	1013040AC

NOTES:
1. Max pressure for aluminum subplates: 3000 psi (210 bar)
2. Max pressure for ductile subplates: 5000 psi (350 bar)
3. Always verify subplate port size is proper for the application

VED*MG - PILOT OPERATED DIRECTIONAL CONTROL VALVES WITH OBE

ABOUT CONTINENTAL HYDRAULICS

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