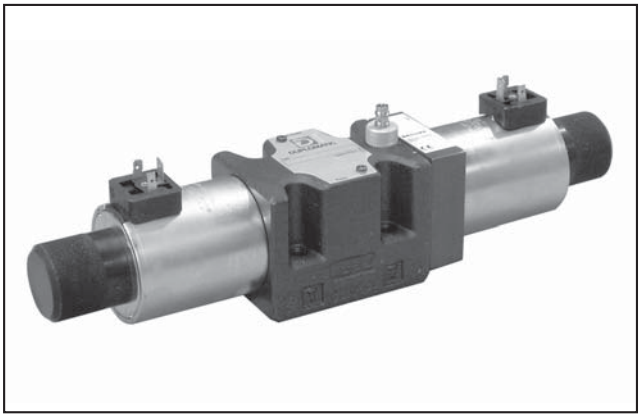
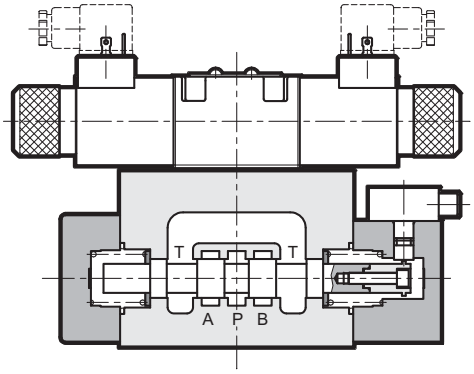


SOLENOID OPERATED DIRECTIONAL CONTROL VALVES WITH MONITORED SPOOLS

VSNG6	NFPA D03, ISO 4401-03, CETOP 03, NG6
VSNG10	NFPA D05, ISO 4401-05-05-0-94, CETOP 4.2-4-R05-320, NG10
VSNG10H	NFPA D05H, CETOP 4.2-4-P05-320
VSNG16	NFPA D07, ISO 4401-07, CETOP 07, NG16
VSNG25	NFPA D08, ISO 4401-08, CETOP 08, NG25

PSI max (see performances table)
GPM max (see performances table)

OPERATING PRINCIPLE



— Solenoid operated directional control valves with monitored spools are supplied with an inductive proximity sensor (PNP) that senses spool position at rest (the case of pilot operated directional control valves the main spool is monitored).

— The PNP sensor with closed contact signals the position of the spool at rest in (de-energized solenoid valve), recognizing the state of the directional control valve if connected to an electronic card, and controlling the combined function (see paragraph 5.3).

— The valves of sizes NFPA D03 (NG6) and NFPA D05 (NG10) are direct operated while sizes NFPA D05H NFPA D07 (NG16) and NFPA D08 (NG25) are pilot operated.

— They are supplied with wet armature solenoids (see paragraph 5.2 for available voltages).

— For type and choice of available spools see par 1.

A wide range of spools, solenoids and sensor positions are available:

– CODE 3: 4-way, 3-position directional control valve, 2 solenoids; positioning of spool at rest is obtained by centering springs.

– CODE 5 & 5R: 4-way, 2-position directional control valve, 1 solenoid; positioning of spool at rest is obtained by centering springs. For VSNG6 and VSNG10 only.

– CODE 1: 4-way, 2-position directional control valve with 1 solenoid; for piloted versions positioning of the spool at rest is determined hydraulically by the pilot valve and mechanically (even without pressure) by the main stage return spring.

PERFORMANCES (working with mineral oil of viscosity of 36 cSt at 122°F / 50°C)

		VSNG6	VSNG10	VSNG10H	VSNG16	VSNG25
Maximum operating pressure: P - A - B ports	PSI (bar)	5070 (350)	4641(320)	4641(320)		
T port		see paragraph 3.2		see performance limits at paragraph 3.3		
Maximum flow rate from P to A - B - T	GPM (l/min)	see performance limits at paragraph 3.2		33(150)	66(300)	132(600)
Ambient temperature range	°F(°C)	-4/+122 (-20/+50)				
Fluid temperature range	°F(°C)	-4/+176 (-20/+80)				
Fluid viscosity range	cSt	10 - 400				
Fluid contamination degree		According to ISO 4406:1999 class 20/18/15				
Recommended viscosity	cSt	25				
Weight: single solenoid valve double solenoid valve	LBS (kg)	3.8 (1.7) 4.9 (2.2)	7.1 (3.2) 10.6 (4.8)	17.6 (8.0) 19.0 (8.6)	18.7 (8.5) 20.0 (9.1)	33.0 (15.0) 34.4 (15.6)

VSNG*- SW MONITORED VALVES

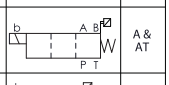
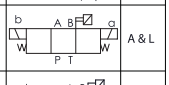
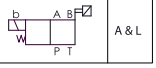
SOLENOID OPERATED DIRECTIONAL CONTROL VALVE WITH MONITORED SPOOLS

1 - IDENTIFICATION CODE

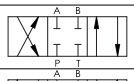
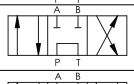
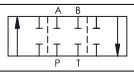
1.1 Identification code for VSNG6 solenoid valves

VSNG6 - [SELECT ONE] [SELECT ONE] - [SELECT ONE] [SELECT AS REQ'D] - SW - [SELECT ONE] - A [DESIGN LETTER]

FUNCTION CODE

SEE NOTE	CODE	DESCRIPTION	SYMBOL	SPOOL AVAIL.
	1	SINGLE OPERATOR 2 POSITION SPRING OFFSET		A & AT
	3	DOUBLE OPERATOR 3 POSITION SPRING CENTER		A & L
	5	SINGLE OPERATOR 2 POSITION SPRING CENTER		A & L

SPOOL

SEE NOTE	CODE	SYMBOL
	A	
2	L	
	AT	

SEAL MATERIAL

SEE NOTE	CODE	DESC.
	A (STD)	BUNA
	G	VITON

MECHANICAL

SEE NOTE	CODE	DESC.
1	R	SINGLE SOL B PORT END

MONITORING SWITCH

SEE NOTE	CODE	DESCRIPTION
3	SW	INDUCTIVE PROXIMITY SENSOR (PNP)

SOLENOID

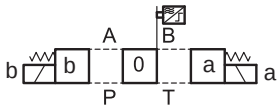
SEE NOTE	CODE	VOLTS	DESCRIPTION
	D12	12 VDC	DIN 43650 TYPE A
	D24	24 VDC	DIN 43650 TYPE A
	A110	110V 50HZ 120V 60HZ	DIN 43650 TYPE A

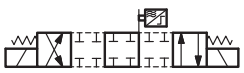
NOTES:
1. Spool "AT" with reverse option: port A to tank when de-energized. Pressure to B port when energized.
2. Operator identification reversed with "L" spool: VSNG6-3L: "A" Solenoid is on the "A" port end, "B" solenoid is on "B" port end.
3. Switch is an inductive proximity sensor (pnp) which is closed when the spool is in the de-energized position. Switch is open when the valve is energized
4. In compliance with prEN 693 standards, valves do not have manual overrides
5. Mounting surface: NFPA D03, ISO 4401-03, CETOP 03.

NOTE: In compliance with prEN 693 standards, valves are without manual override.

1.2 - Spool types for VSNG6 solenoid valves

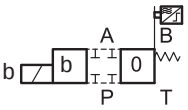
CODE 3:
Double Operator
3 Position
Spring Centered



3A 

3L 

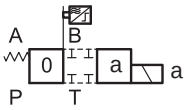
CODE 5:
Single Operator
2 Position
Spring Centered



5A 

5L 

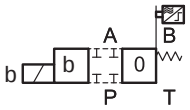
CODE 5:
REVERSE OPERATOR
Single Operator
2 Position
Spring Centered



5A-R 

5L-R 

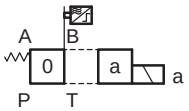
CODE 1:
Single Operator
2 Position
Spring Offset



1A 

1AT 

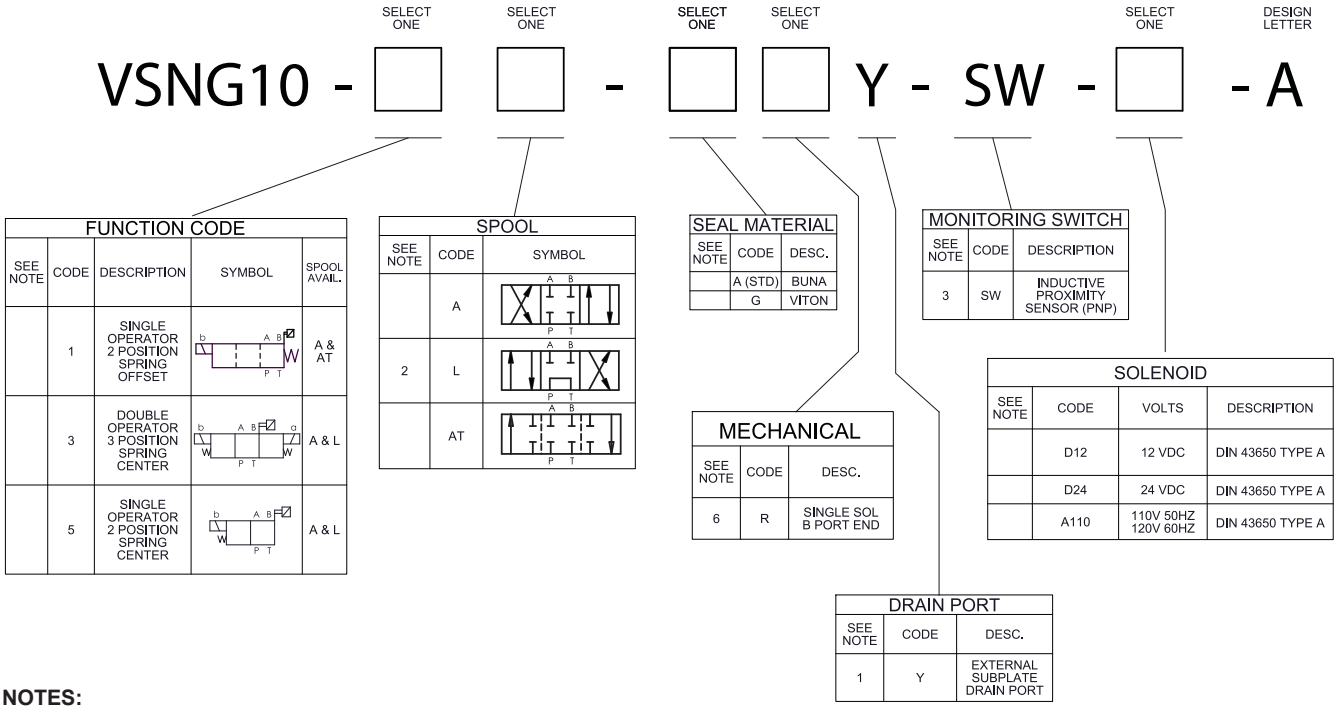
CODE 1:
REVERSE OPERATOR
Single Operator
2 Position
Spring Offset



1A-R 

1AT-R 

1.3 - Identification code for VSNG10 solenoid valves



FUNCTION CODE				
SEE NOTE	CODE	DESCRIPTION	SYMBOL	SPOOL AVAIL.
	1	SINGLE OPERATOR 2 POSITION SPRING OFFSET		A & AT
	3	DOUBLE OPERATOR 3 POSITION SPRING CENTER		A & L
	5	SINGLE OPERATOR 2 POSITION SPRING CENTER		A & L

SPOOL		
SEE NOTE	CODE	SYMBOL
	A	
2	L	
	AT	

SEAL MATERIAL		
SEE NOTE	CODE	DESC.
	A (STD)	BUNA
	G	VITON

MONITORING SWITCH		
SEE NOTE	CODE	DESCRIPTION
3	SW	INDUCTIVE PROXIMITY SENSOR (PNP)

SOLENOID			
SEE NOTE	CODE	VOLTS	DESCRIPTION
	D12	12 VDC	DIN 43650 TYPE A
	D24	24 VDC	DIN 43650 TYPE A
	A110	110V 50HZ 120V 60HZ	DIN 43650 TYPE A

MECHANICAL		
SEE NOTE	CODE	DESC.
6	R	SINGLE SOL B PORT END

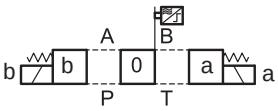
DRAIN PORT		
SEE NOTE	CODE	DESC.
1	Y	EXTERNAL SUBPLATE DRAIN PORT

NOTES:
1. Valve comes STD with an external drain port. Connect the “Y” port to tank for tank pressure up to 4650 PSI (320 BAR). Tank pressure is rated for 725 PSI (50 BAR) dynamic or 1450 PSI (100 BAR) static with the “Y” port blocked.
2. Operator identification reversed with “L” spool.
3. Switch is an inductive proximity sensor (PNP) which is closed when the spool is in the de-energized postion. Switch is open when the valve is energized.
4. In compliance with prEN 693 standards, valves do not have manual overrides.
5. Mounting surface: NFPA D05, ISO 4401-05, CETOP 05.
6. Code R is available with function code 5 only.

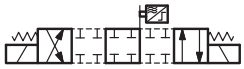
NOTE: In compliance with prEN 693 standards, valves are without manual override

1.4 - Spool type for VSNG10 solenoid valves

CODE 3:
Double Operator
3 Position
Spring Centered

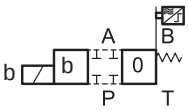


3A



3L

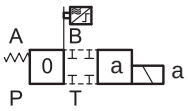
CODE 5:
Single Operator
2 Position
Spring Centered



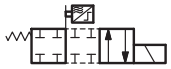
5A

5L

CODE 5:
REVERSE OPERATOR
Single Operator
2 Position
Spring Centered

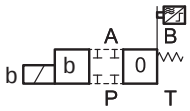


5A-R



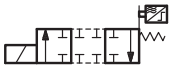
5L-R

CODE 1:
Single Operator
2 Position
Spring Offset



1A

1AT



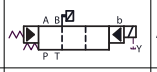
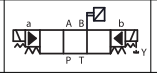
1.5 - Identification code for VSNG10H, VSNG16, & VSNG25 solenoid valves

VSNG [ ] - [ ] [ ] - [ ] [ ] [ ] - SW - [ ] - A

(SELECT ONE) (SELECT ONE) (SELECT ONE) (SELECT ONE) (SELECT AS REQ'D) (SELECT ONE) (SELECT ONE) (DESIGN LETTER)

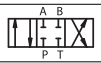
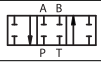
VALVE SIZE	
CODE	MOUNTING PATTERN
10H	D05H
16	D07
25	D08

SOLENOID			
SEE NOTE	CODE	VOLTS	DESCRIPTION
	D12	12 VDC	DIN 43650 TYPE A
	D24	24 VDC	DIN 43650 TYPE A
	A110	110V 50 HZ 120V 60 HZ	DIN 43650 TYPE A

FUNCTION CODE				
SEE NOTE	CODE	DESCRIPTION	SYMBOL	SPOOL AVAIL
	1	SINGLE OPERATOR 2 POSITION SPRING OFFSET		A & AT
	3	DOUBLE OPERATOR 3 POSTION SPRING CENTERED		A & L

MONITORING SWITCH		
SEE NOTE	CODE	DESCRIPTION
3	SW	INDUCTIVE PROXIMITY SENSOR (PNP)

PILOT & DRAIN			
SEE NOTE	CODE	PILOT PRESS.	DRAIN
	1	INTL.	EXT.
1	2	EXT.	EXT.
	3	INTL.	INTL.
1	4	EXT.	INTL.

SPOOL		
SEE NOTE	CODE	SYMBOL
	A	
1, 2	L	
	AT	

MECHANICAL		
SEE NOTE	CODE	DESCRIPTION
	KK	ADJ. PILOT CHOKES
	P08	ORIFICE PLATE WITH .8 MM ORIFICE ON P PORT ONLY

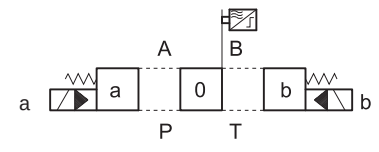
SEAL		
SEE NOTE	CODE	DESCRIPTION
	A (STD)	BUNA N
	G	VITON

NOTES:
1. Choose external pilot, codes "2" or "4", with spool code "L".
2. Operator identification reversed with "L" spool.
3. Switch is an inductive proximity sensor (PNP) which is closed when the spool is in the de-energized postion. Switch is open when the valve is energized.
4. In compliance with prEN 693 standards, valves do not have manual overrides.

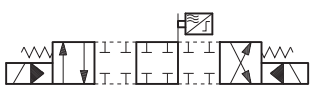
NOTE: In compliance with prEN 693 standards, valves are without manual override

1.6 - Spool type for VSNG10H, VSNG16, & VSNG25 solenoid valves

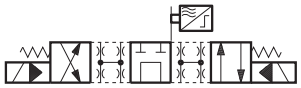
CODE 3:
Double Operator
3 Position
Spring Centered



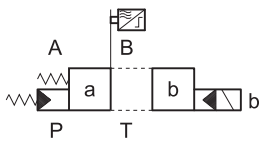
3A



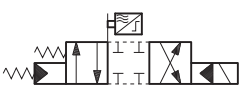
3L



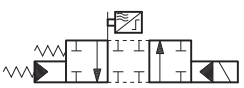
CODE 1
Single Operator
2 Position
Spring Offset



1A



1AT

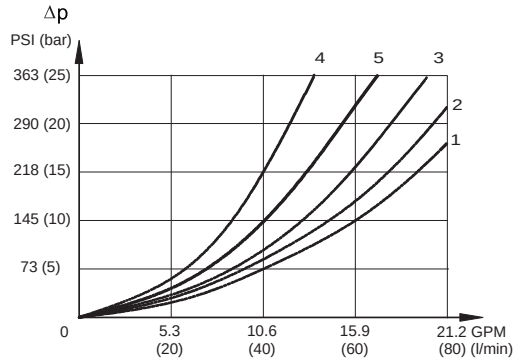


2 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code A). For fluids HFDR type (phosphate esters) use FPM seals (code G).
For the use of other fluid types such as HFA, HFB, HFC, please consult our technical department.
Using fluids at temperatures higher than 176°F (80°C) causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

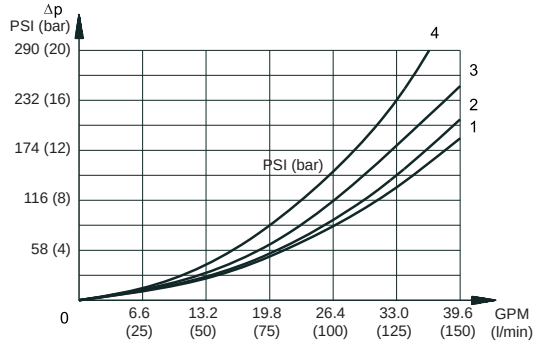
3 - PERFORMANCE CHARACTERISTICS (values obtained with viscosity 36 cSt at 122°F (50°C))

3.1 - Pressure drops Δp-GPM



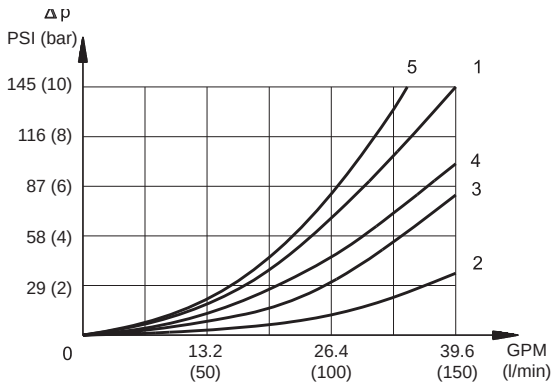
VSNG6

SPOOL	SPOOL POSITION	CONNECTIONS				
		P→A	P→B	A→T	B→T	P→T
		CURVES ON GRAPH				
3A, 5A, 5A-R	energized	1	1	2	2	-
3L, 5L, 5L-R	de-energized					5
	energized	4	4	4	4	
1A, 1A-R	de-energized					-
	energized	1	1	1	1	
1AT	de-energized				3	
	energized	3	-	-		-
1AT-R	de-energized	-		3	-	-
	energized		3			



VSNG10

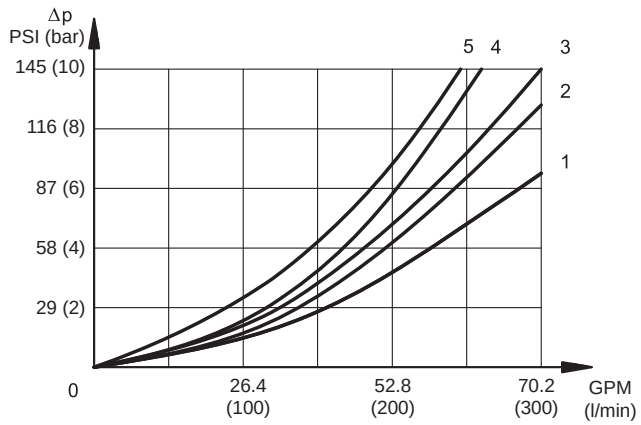
SPOOL	SPOOL POSITION	CONNECTIONS				
		P→A	P→B	A→T	B→T	P→T
		CURVES ON GRAPH				
3A, 5A, 5A-R	energized	2	2	1	1	-
3L, 5L, 5L-R	de-energized					4
	energized	1	1	2	2	
1A	de-energized	3			2	
	energized		3	2		-
1AT	de-energized				2	
	energized	2	-	-		-



VSNG10H

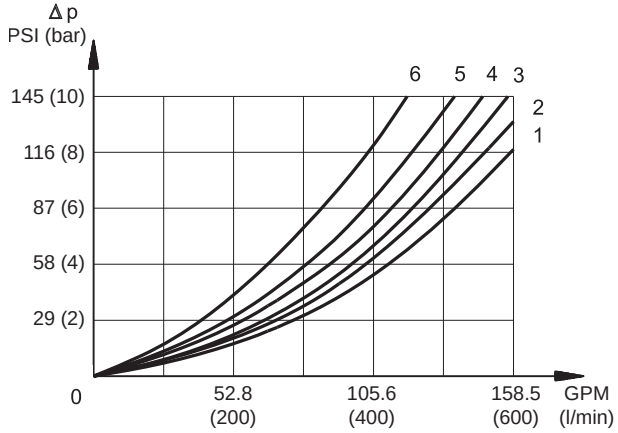
SPOOL	SPOOL POSITION	CONNECTIONS				
		P→A	P→B	A→T	B→T	P→T
		CURVES ON GRAPH				
3A	energized	1	1	2	2	-
3L	de-energized					5
	energized	5	5	3	4	
1A	de-energized	1			2	
	energized		1	2		-
1AT	de-energized		-	-	1	
	energized	1				-

VSNG16



SPOOL	SPOOL POSITION	CONNECTIONS				
		P→A	P→B	A→T	B→T	P→T
		CURVES ON GRAPH				
3A	energized	1	1	2	2	-
3L	de-energized					4
	energized	4	4	2	3	
1A	de-energized	1			2	-
	energized		1	2		
1AT	de-energized				5	
	energized	5	-	-		-

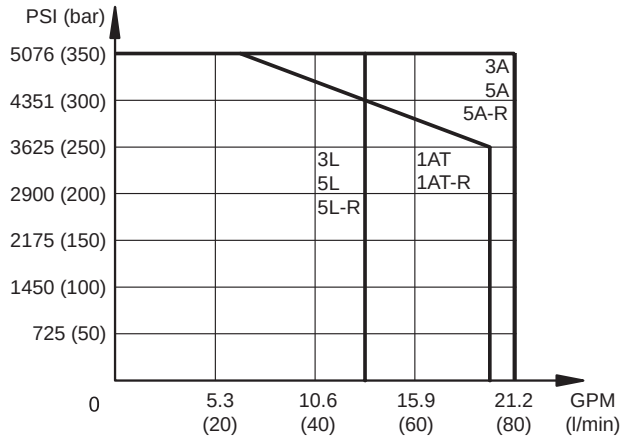
VSNG25



SPOOL	SPOOL POSITION	CONNECTIONS				
		P→A	P→B	A→T	B→T	P→T
		CURVES ON GRAPH				
3A	energized	2	2	3	3	-
3L	de-energized					6
	energized	4	4	3	5	
1A	de-energized	2			3	-
	energized		2	1		
1AT	de-energized				5	
	energized	5	-	-		-

3.2 - Performance limits for VSNG6 & VSNG10 solenoid valves

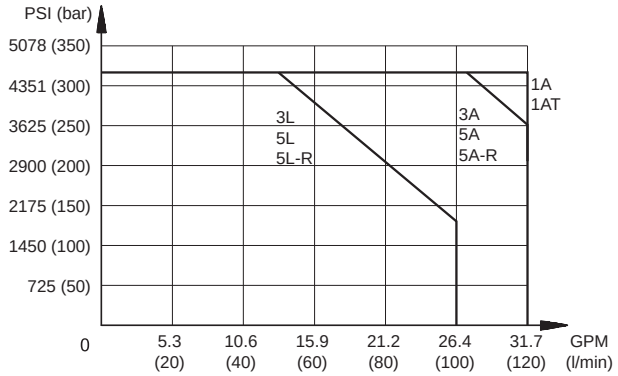
The curves state the flow rate functioning range according to the pressure.
The values are obtained with solenoids at a standard temperature power supplied with a voltage equal to 90% of the rated voltage.



VSNG6

MAXIMUM PRESSURE ON LINE T PSI (bar)	
dynamic	725 (50)
static	1450 (100)

VSNG10



MAXIMUM PRESSURE ON LINE T PSI (bar)	
Y port connected	4641 (320)
Y port not connected	725 (50) Dynamic 1450 (100) Static

3.3 - Performance limits for VSNG10H, VSNG16 & VSNG25 solenoid operated directional control valves

PRESSURES PSI (bar)	MIN	MAX
Piloting pressure	72 (5)	3045 (210)
Pressure on line T with internal drainage	-	2030 (140)
Pressure on line T with external drainage	-	3625 (250)

MAXIMUM FLOW RATES		**VSNG10H**		**VSNG16**		**VSNG25**	
		PRESSURES PSI (bar)					
Spool type		3045 (210)	4641 (320)	3045 (210)	4641 (320)	3045 (210)	4641 (320)
3L & 1AT	GPM (l/min)	31.7 (120)	26.4 (100)	66.0 (250)	52.8 (200)	132.1 (500)	118.9 (450)
3A & 1A	GPM (l/min)	39.6 (150)	31.7 (120)	79.3 (300)	66.0 (250)	158.5 (600)	132.1 (500)

3.4 - Switching times

TIMES [ms]	ENERGIZING	DE-ENERGIZING
VSNG6 DC Coils	25 - 75	15 - 25

The indicated values obtained according to ISO 6403 standards, using mineral oil with viscosity 36 cSt at 122° F (50° C).

TIMES (± 10%) [ms]	ENERGIZING		DE-ENERGIZING	
	2 Pos.	3 Pos.	2 Pos.	3 Pos.
VSNG10H DC Coils	70	60	70	50
VSNG16 DC Coils	70	60	80	50
VSNG25 DC Coils	80	60	90	60

The indicated values refer to a solenoid operated directional control valve operating with piloting pressure of 1450 (100 bar) PSI and with PA and BT connections.
The switch on and off times are obtained at the time a pressure variation occurs on the line.

TIMES (± 10%) [ms]	ENERGIZING	DE-ENERGIZING
VSNG10 DC Coils	120	100

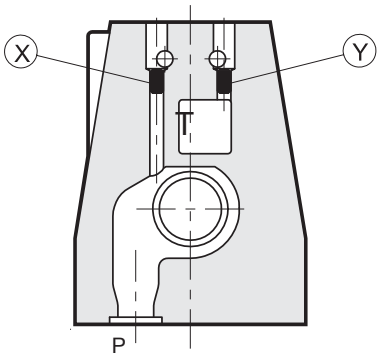
The values indicated refer to a solenoid valve in configuration 3A with 15.8 GPM, 2175 PSI (60 l/min, 150 bar) and with PA and BT connections.
The switch on times are obtained at the time the spool switches over. The switch on and off times are obtained at the time a pressure variation occurs on the line.

4 - PILOTING AND DRAINAGE

The VSNG10H, VSNG16 & VSNG25 valves are available with piloting and drainage, both internal and external.
The version with external drainage allows for a higher back pressure on the outlet.

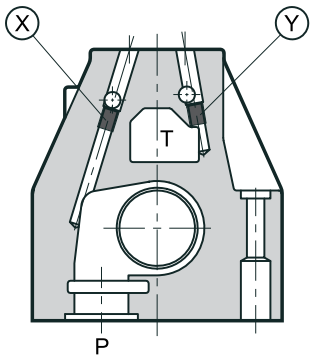
CODE	TYPE OF VALVE	Plug assembly	
		X	Y
1	INTERNAL PILOT AND EXTERNAL DRAIN	NO	YES
2	EXTERNAL PILOT AND EXTERNAL DRAIN	YES	YES
3	INTERNAL PILOT AND INTERNAL DRAIN	NO	NO
4	EXTERNAL PILOT AND INTERNAL DRAIN	YES	NO

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



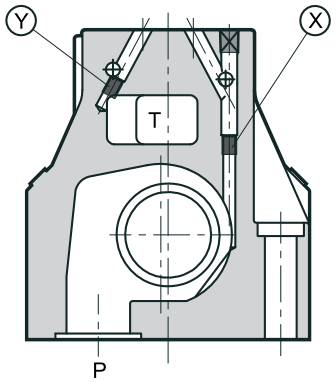
VSNG10H

X: plug M6x8 for external pilot
Y: plug M6x8 for external drain



VSNG16

X: plug M6x8 for external pilot
Y: plug M6x8 for external drain



VSNG25

5 - ELECTRICAL FEATURES

5.1 Solenoids

These are essentially made up of two parts: tube and coil. The tube is threaded into the valve body and includes the armature that moves immersed in oil, without wear. The inner part, in contact with the oil in the return line, ensures heat dissipation.

The coil is fastened to the tube by a threaded ring, and can be rotated and locked to suit the available space.

NOTE 1: The IP65 protection degree is guaranteed only with the connector correctly connected and installed.

VOLTAGE SUPPLY FLUCTUATION	± 10% Vnom
MAX SWITCH ON FREQUENCY VSNG6, VSNG10, VSNG10H, VSNG16, VSNG25	 5.000 ins/hr 4.000 ins/hr
DUTY CYCLE	100%
ELECTROMAGNETIC COMPATIBILITY (EMC)	In compliance with 2004/105/CE
LOW VOLTAGE	In compliance with 2006/95/CE
CLASS OF PROTECTION: Atmospheric agents (CEI EN 60529) Coil insulation (VDE 0580) Impregnation:	 IP 65 (**NOTE 2**) class H class F

5.2 Current and absorbed power

The tables show current and power consumption values relevant to the different coil types.

VSNG6, VSNG10H, VSNG16 & VSNG25 (values ± 5%)

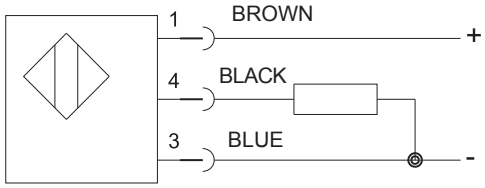
Suffix	Nominal voltage [V]	Resistance at 20°C [Ω]	Current consumpt. [A]	Power consumpt [W]	[VA]
D12	12	4.4	2.72	32.6	
D24	24	18.6	1.29	31.0	
A110	120-60Hz	32	Inrush 1.56 Holding 0.39		Inrush 188 Holding 47

VSNG10 (values ± 5%)

Suffix	Nominal voltage [V]	Resistance at 20°C [Ω]	Current consumpt. [A]	Power consumpt [W]	[VA]
D12	12	3 - 3.4	3.81	45.8	
D24	24	12 - 14	1.90	45.3	
A110	120-60Hz	10.9	Inrush 5.2 Holding 0.89		Inrush 572 Holding 105

5.3 Proximity sensor PNP type

CONNECTION SCHEME



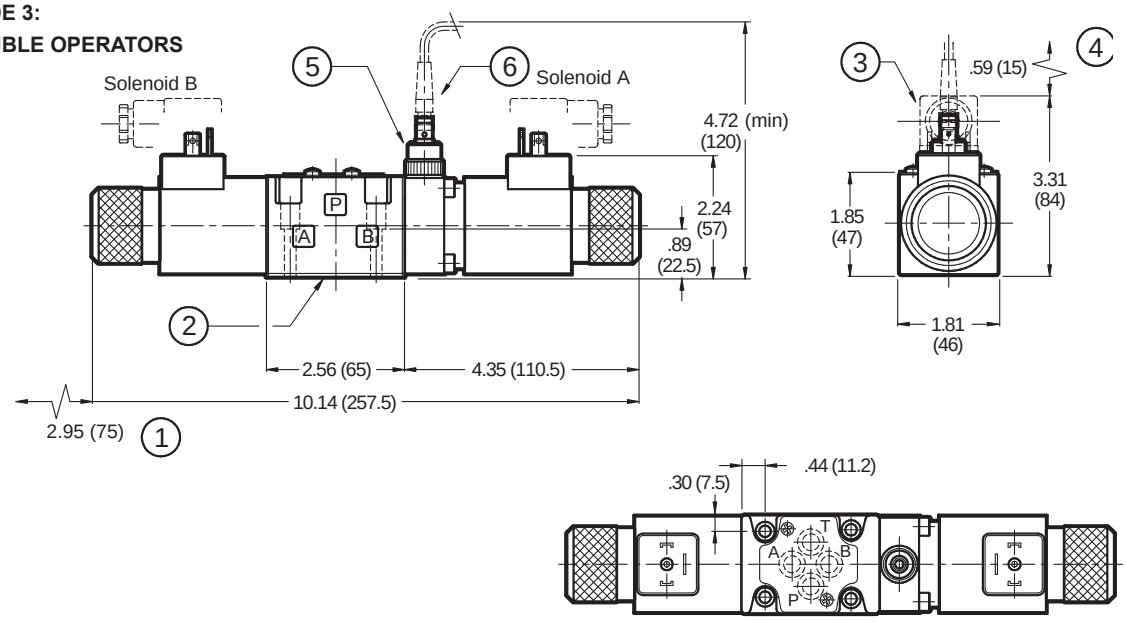
de-energized valve = closed contact = LED on
energized valve = open contact = LED off

		VSNG6 VSNG10	**VSNG10H VSNG16 VSNG25**
Rated voltage	Vdc	24	
Power supply voltage range	Vdc	10 - 30	
Absorbed current	mA	150	200
Output		normally open contact	
Electric protection		polarity inversion short circuit overvoltage	
Electric connection (see 12.1)		MS -IP68	M12 - IP68
Max operating pressure	PSI (bar)	1450 (100)	5076 (350)
Operating temperature range	°F (°C)	-13/158 (-25/70)	-13/170 (-25/80)
Class of protection according to IEC 144 standards (atmospheric agents)		IP67	IP68
Spool position LED (**NOTE**)		YES	NO

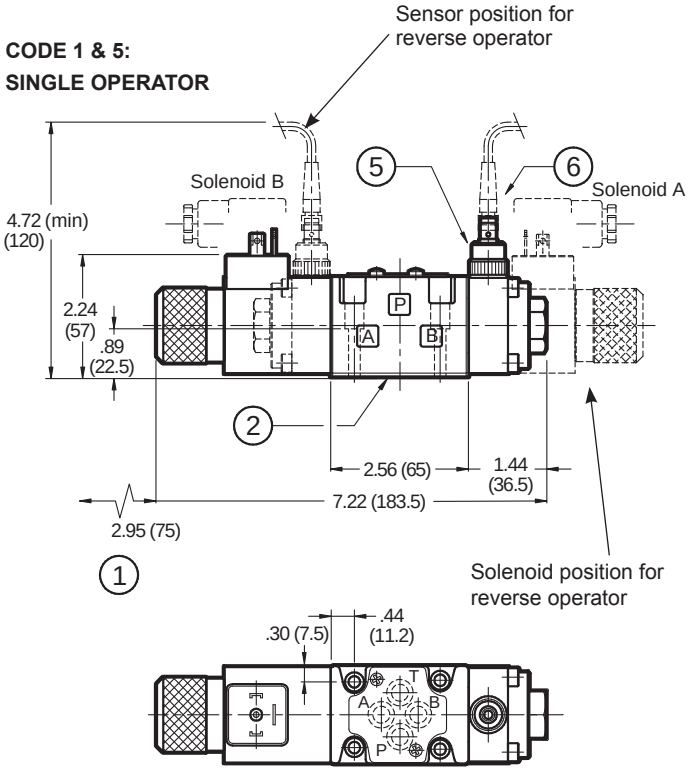
NOTE: On the VSNG6 and VSNG10 valves the led is placed straight on the proximity sensor and its light is RED.
On the VSNG10H, VSNG16 and VSNG25 valves the led is placed in the connector and its light is YELLOW.

6 - OVERALL AND MOUNTING DIMENSIONS FOR VSNG6 SOLENOID VALVES

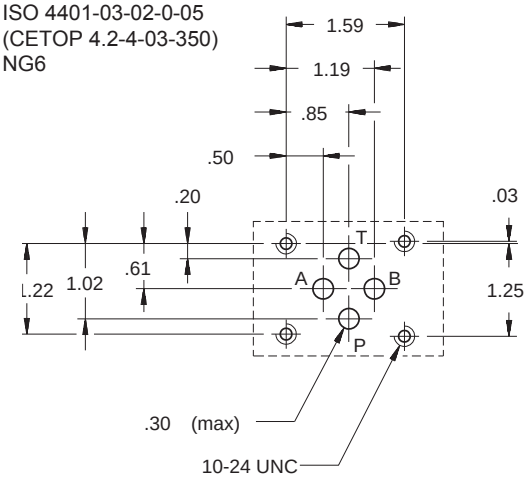
CODE 3:
DOUBLE OPERATORS



CODE 1 & 5:
SINGLE OPERATOR



MOUNTING SURFACE NFPA DO3
ISO 4401-03-02-0-05
(CETOP 4.2-4-03-350)
NG6



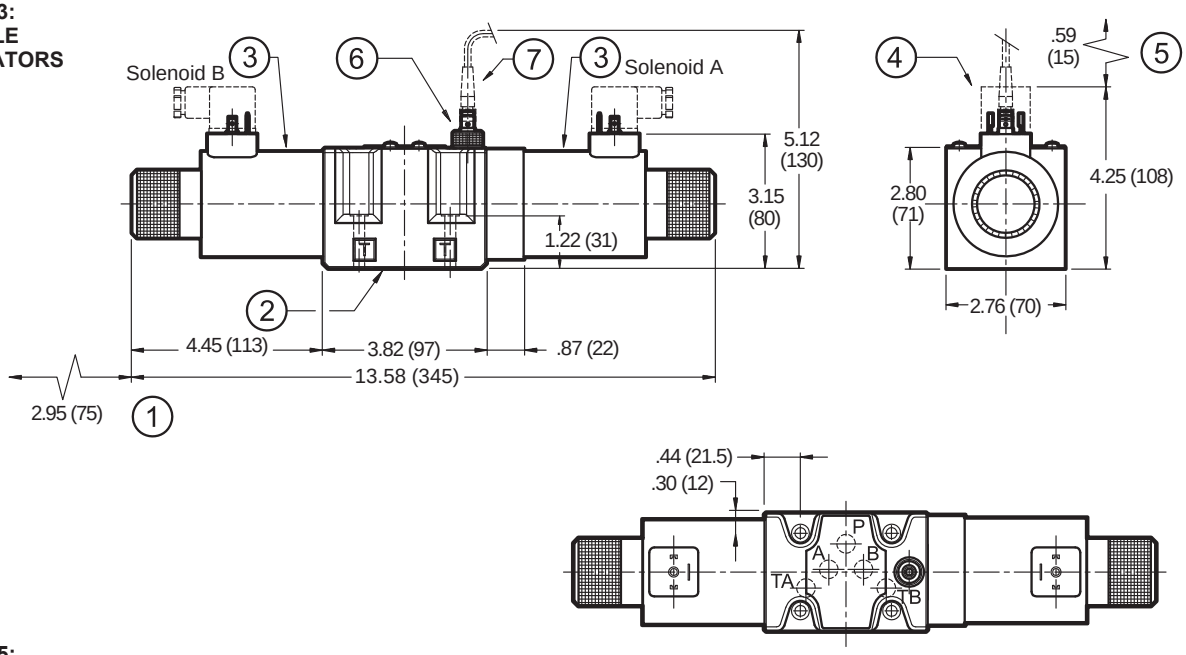
dimensions in inches (mm)

Fastening of single valve: BD03-125 Bolt Kit	
Tightening torque: 4 - 5 lbs - ft	
Threads of mounting holes: 10 -24 UNC x .5 inch	
Sealing rings: 4 OR type 2037 (9.25x1.78) - 90 Shore	

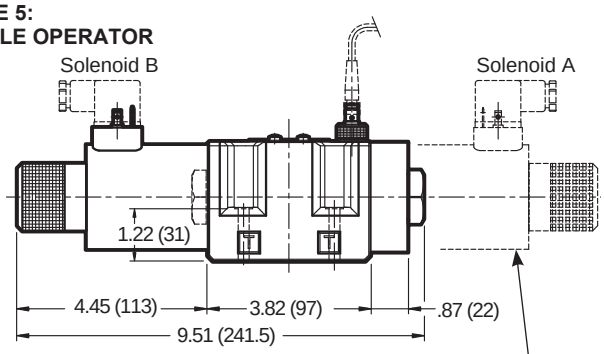
1	Coil removal space
2	Mounting surface with sealing rings
3	Coil electric connector (see par. 12.2)
4	Connector removal space
5	Proximity sensor
6	Connector for proximity sensor (see par. 12.1)

7 - OVERALL AND MOUNTING DIMENSIONS FOR VSNG10 SOLENOID VALVE

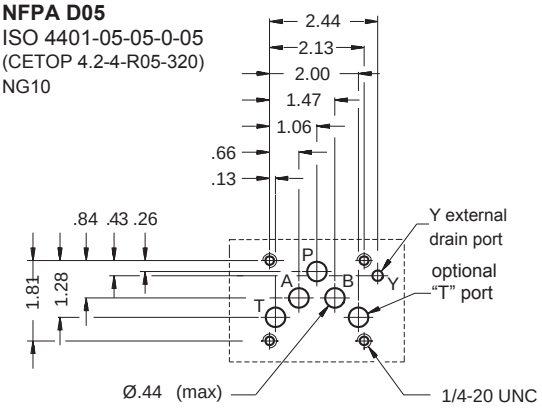
CODE 3:
DOUBLE
OPERATORS



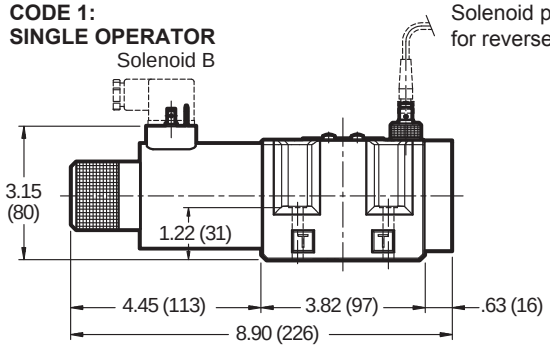
CODE 5:
SINGLE OPERATOR



MOUNTING SURFACE
NFPA D05
ISO 4401-05-05-0-05
(CETOP 4.2-4-R05-320)
NG10



CODE 1:
SINGLE OPERATOR



Fastening of single valve: BD05-175 Bolt Kit
Tightening torque: 10 - 12 lbs - ft
Threads of mounting holes: 1/4-20 UNC x .63
Sealing rings: 5 OR type 2050 (12.42x1.78) - 90 Shore 1 OR type 2037 (9.25x1.78) - 90 Shore

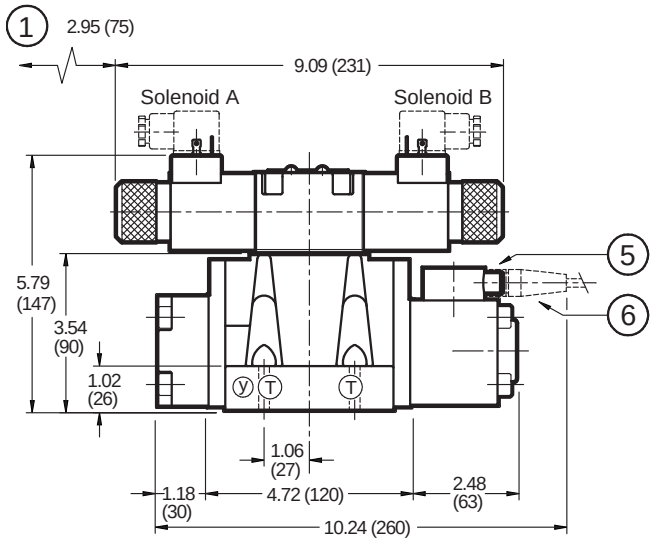
dimensions in inches (mm)

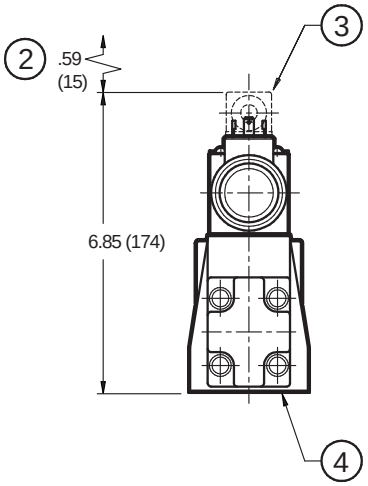
1	Coil removal space
2	Mounting surface with sealing rings
3	Coil (90° orientable)
4	Coil electric connector (see paragraph 12.2)
5	Connector removal space
6	Proximity sensor
7	Connector for proximity sensor (see paragraph 12.1)

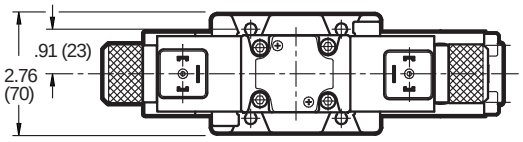
8 -VSNG10H OVERALL AND MOUNTING DIMENSIONS

CODE 3:
DOUBLE OPERATORS

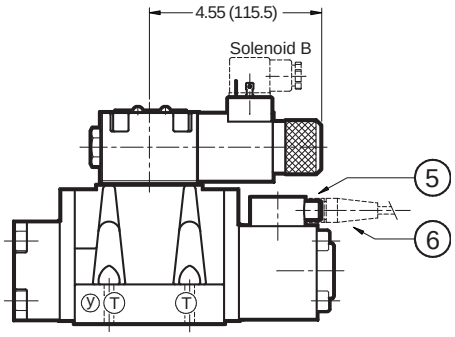
dimensions in inches (mm)



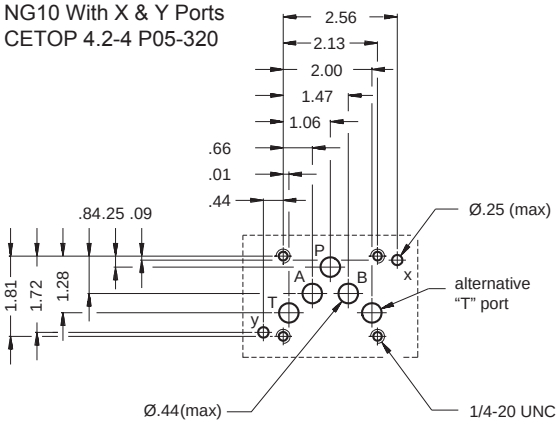




CODE 1:
SINGLE OPERATOR



MOUNTING SURFACES
NFPA D05H
NG10 With X & Y Ports
CETOP 4.2-4 P05-320



NFPA D05HE, ISO 4401-05-05-0-94, CETOP 4.2-4-RO5-320 standards are available upon request.

Adapter DD05HD05HEVAAB can be used to mount the standard D05H valve to a D05HE manifold or subplate.

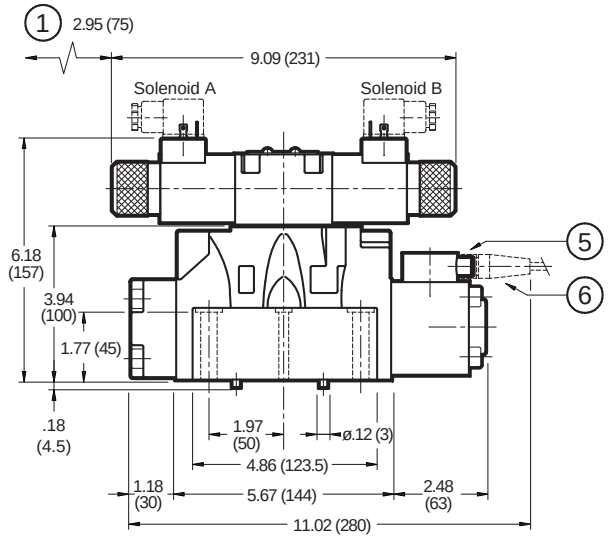
Fastening of single valve: BD05H-150 Bolt Kit
Tightening torque: 10-12 lbs - ft
Threads of mounting holes: 1/4 - 20 UNC x .55
Sealing rings: 5 OR type 2050 (12.42x1.78) - 90 Shore 2 OR type 2037 (9.25x1.78) - 90 Shore

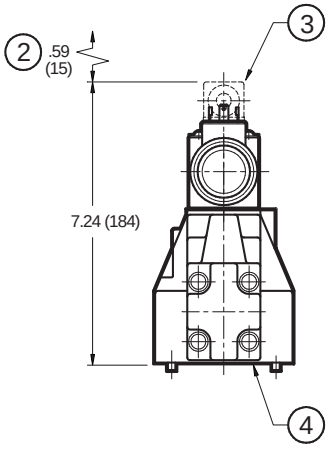
1	Coil removal space
2	Connector removal space
3	Coil electric connector (see par. 12.2)
4	Mounting surface with sealing rings
5	Proximity sensor
6	Connector for proximity sensor (see par. 12.1)

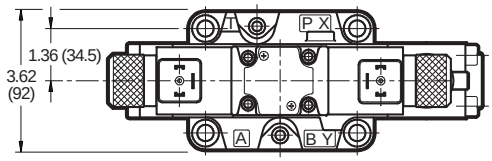
9 - VSNG16 OVERALL AND MOUNTING DIMENSIONS

CODE 3:
DOUBLE OPERATORS

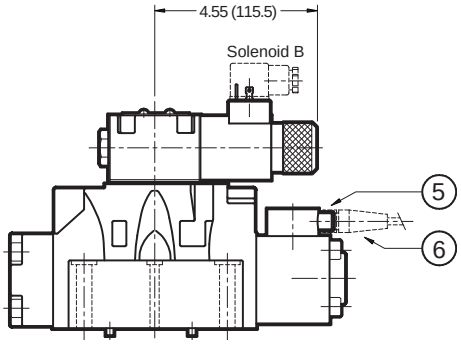
dimensions in inches (mm)



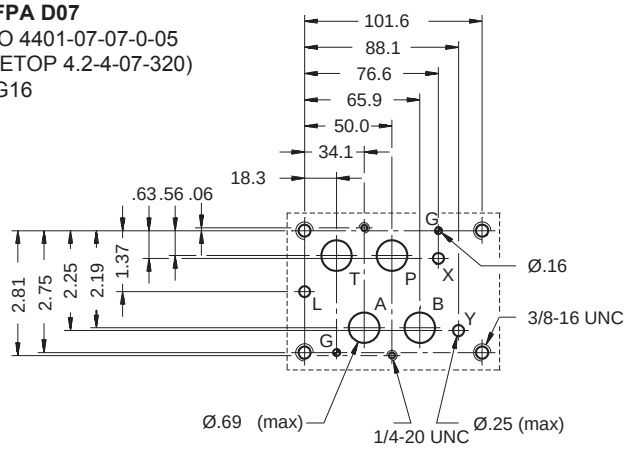




CODE 1:
SINGLE OPERATOR



MOUNTING SURFACE
NFPA D07
ISO 4401-07-07-0-05
(CETOP 4.2-4-07-320)
NG16

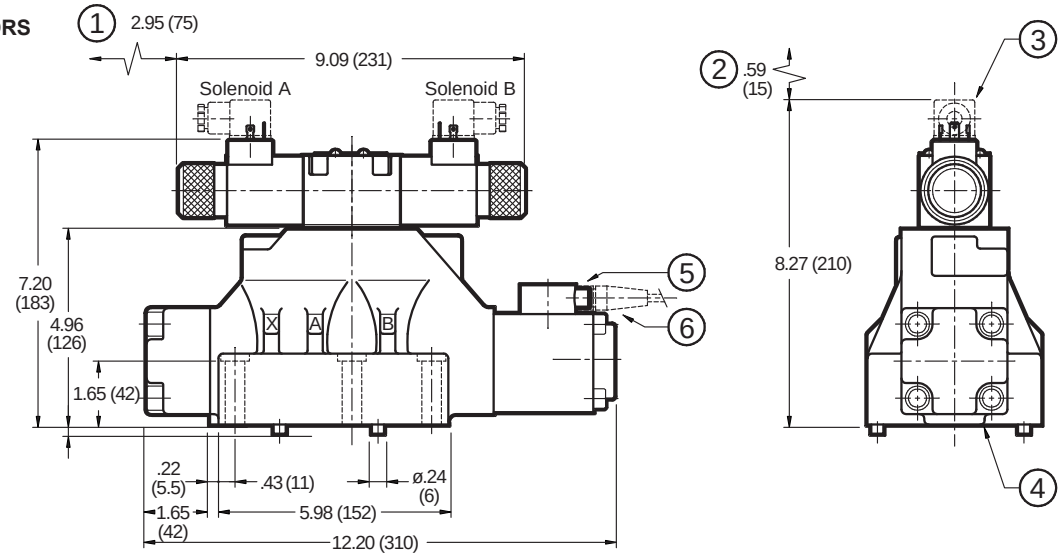


Fastening of single valve: BD07-250 Bolt Kit
Tightening torque: 1/4-20 UNC 10-12 lbs - ft 3/8-16 UNC 50-55 lbs - ft
Threads of mounting holes: (4) 3/8-16 UNC x .75” (2) 1/4-20 UNC x .75”
Sealing rings: 4 OR type 130 (22.22X2.62) - 90 Shore 2 OR type 2043 (10.82x1.78) - 90 Shore

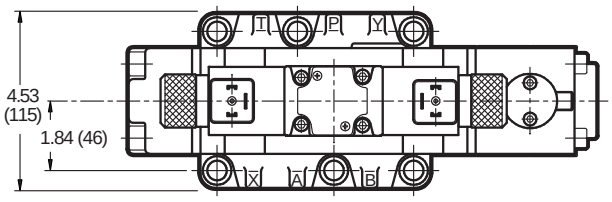
1	Coil removal space
2	Connector removal space
3	Coil electric connector (see par. 12.2)
4	Mounting surface with sealing rings
5	Proximity sensor
6	Connector for proximity sensor (see par. 12.1)

10 - VSNG25 OVERALL AND MOUNTING DIMENSIONS

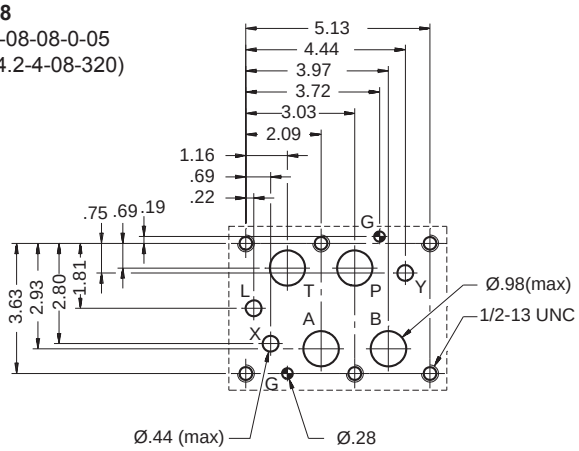
CODE 3:
DOUBLE OPERATORS



CODE 1:
SINGLE OPERATOR



MOUNTING SURFACE
NFPA D08
ISO 4401-08-08-0-05
(CETOP 4.2-4-08-320)
NG25



dimensions in inches (mm)

Fastening of single valve: BD08-250 Bolt Kit
Tightening torque: 90-100 lbs - ft
Threads of mounting holes: 1/2-13 UNC x .75”
Sealing rings: 4 OR type 3118 (29.82x2.62) - 90 Shore 2 OR type 3081 (20.24x2.62) - 90 Shore

1	Coil removal space
2	Connector removal space
3	Coil electric connector (see par. 12.2)
4	Mounting surface with sealing rings
5	Proximity sensor
6	Connector for proximity sensor (see par. 12.1)

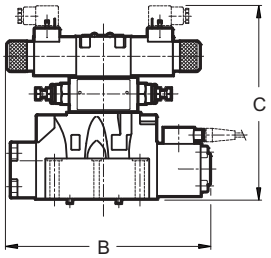
11 - OPTIONS

11.1 - CODE KK: Adjustable Pilot Chokes

By placing a non-compensated double flow control valve between the pilot solenoid valve and the hydropiloted valve, the piloted flow rate can be controlled and therefore the change over smoothness can be varied.

11.2 - CODE PO8: Pressure port restrictor orfice

A subplate with a restrictor of Ø 0.8mm on line P between the pilot valve and the hydropiloted valve. The subplate thickness is 10mm.



dimensions in inches (mm)

	VSNG10H	VSNG16	VSNG25
B	9.41(239)	9.88 (251)	12.20 (310)
C	8.43 (214)	8.82 (224)	9.84 (250)

12 - ELECTRIC CONNECTORS

12.1 - Proximity sensor connectors

Connectors for proximity sensors must be ordered separately, by specifying the descriptions below, depending on the type of valve ordered.

CONNECTOR FOR VSNG6 and VSNG10
description: VEA-D-3M8L-A

Connector: pre-wired connector M8 - IP67
Cable: with 3 conductors 0.34 mm^2 - length 5 mt cable material: polyurethane resin (oil resistant)

LED's are placed on the proximity sensor and are not part of the connector.

CONNECTOR FOR VSNG10H, VSNG16 and VSNG25
description: VEA-D-7M12L-A

Connector: pre-wired connector M12 - IP68
cable: with 3 conductors 0.34 mm^2 - length 5 mt - cable material: polyurethane resin (oil resistant)

LEDS:

Green LED Off: Switch connector does not have power.
Green LED On: Switch connector has power. This LED must be on for the switch to work.

Yellow LED On: The valve spool is in the rest position.
Yellow LED Off: The valve spool is in the actuated position.

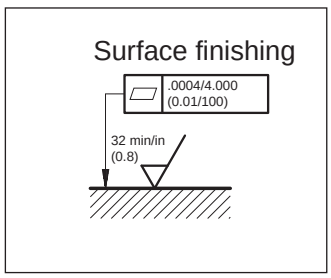
12.2 - DIN CONNECTORS 43650/ISO 4400 (Form A) 90

Connectors must be ordered separately.

VEA-3E (Gray)	165639
VEA-3F (Black)	165638

13 - INSTALLATION

Spring centered and spring return valves can be mounted in any position. Valve mounting takes place by means of bolts or stud kits, fixing the valve on a lapped surface. Surface finish should be equal to or better than the values indicated in the drawing. If these conditions are not met, fluid leakage between the valve and mounting surface could occur.



14 - PARTS

COILS			
Model	Code	Voltage	Part Number
VSNG6, VSNG10H, VSNG16, VSNG25	D12	12 VDC DIN 42650 CONN.	1009709AB
	D24	24 VDC DIN 42650 CONN.	1009709AC
	A110	120 VAC DIN 42650 CONN.	1009711AD
VSNG10	D12	12 VDC DIN 42650 CONN.	1009712AB
	D24	24 VDC DIN 42650 CONN.	1009712AC
	A110	120 VAC DIN 42650 CONN.	1009713AD

SEAL KITS		
Model	Material	Part Number
VSNG6	SEAL KIT, BUNA	1009714
VSNG6	SEAL KIT, VITON	1009715
VSNG6 Pilot	SEAL KIT, BUNA	1009724
VSNG6 Pilot	SEAL KIT, VITON	1009725
VSNG10	SEAL KIT, BUNA	1009716
VSNG10	SEAL KIT, VITON	1009717
VSNG10H	SEAL KIT, BUNA	1009718
VSNG10H	SEAL KIT, VITON	1009719
VSNG16	SEAL KIT, BUNA	1009720
VSNG16	SEAL KIT, VITON	1009721
VSNG25	SEAL KIT, BUNA	1009722
VSNG25	SEAL KIT, VITON	1009723

NOTE: Seal Kits for VSNG10H, VSNG16 and VSNG25 include the pilot valve seals.

OPTIONAL ADDER PARTS		
Option Code	Model	Part Number
KK Buna	VMA-9CC1-A	1009728
KK Viton	VMA-9CC2-A	1009729
P08 Buna	VMA-9P1-A	1009730
P08 Viton	VMA-9P2-A	1009731
	Bolt Kit for KK Option	1009733
	Bolt Kit for P08 Option	1009734
	Bolt Kit for KK & P08 Option	1009735

ELECTRICAL CONNECTIONS			
Model	Code	Description	Part Number
VSNG6, VSNG10	Sensor	VEA-D-3M8L-A	1009726
VSNG10H, VSNG16, VSNG25	Sensor	VEA-D-7M12L-A	1009727
ALL	DIN 43650	VEA-3F (Black)	165638
		VEA-3E (Gray)	165639

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