



CONTINENTAL HYDRAULICS

VSNG10

SOLENOID OPERATED DIRECTIONAL VALVES



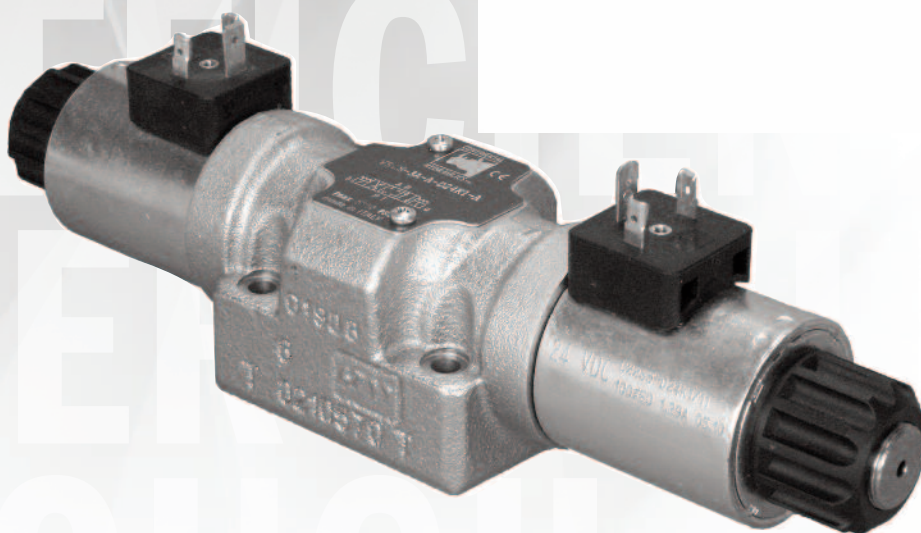
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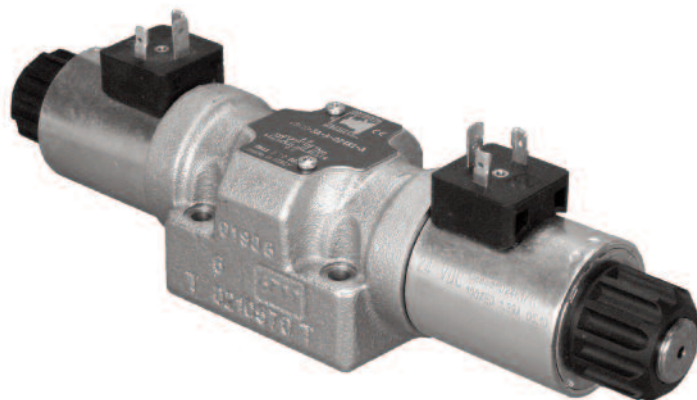
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VSNG10

SOLENOID OPERATED DIRECTIONAL VALVES



DESCRIPTION

These valves are supplied with a ZINC-NICKEL PLATING making them the perfect choice for mobile and environmental applications that require better protection.

Direct acting, subplate mounted directional control valve, with mounting surface according to NFPA D05 ISO 4401-05. The valve body is made with high strength cast iron with internal passages designed to minimize pressure drop.

OPERATIONS

The valve can be supplied for valve functions requiring 2 positions or 3 positions, as well as 3 way or 4 way flow functions.

DIN 43650, AMP junior, DEUTSCH DT04-2P coil connections are available.

Salt spray resistance up to 600h (test according to UNI EN ISO 9227 and UNI EN ISO 10289 tests and standards).

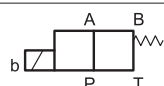
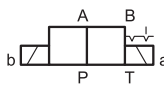
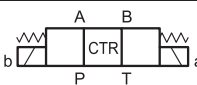
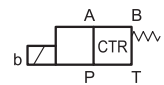
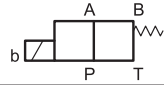
TYPICAL PERFORMANCE SPECIFICATIONS

MAXIMUM OPERATING PRESSURE	P - A - B Ports	4600 psi	320 bar
	T Port	3000 psi	210 bar
FLOW RATE		33 gpm	125 l/min
MOUNTING SURFACE		NFPA D05 ISO 4401-05-04-0-05	
WEIGHT	Single Solenoid	5.3 lbs	2.4 kg
	Dual Solenoid	6.6 lbs	3 kg

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 20/18/15	

IDENTIFICATION CODE

VSNG10 - - - - - _____ DESIGN LETTER

FUNCTION	
1	
	Single Solenoid 2 Position - Spring Offset
2	
	Dual Solenoid 2 Position Detented (No Spring)
3	
	Dual Solenoid 3 Position - Spring Centered
5	
	Single Solenoid 2 Position - Spring Centered
9	
	Single Solenoid 2 Position - 3 Ways Spring Offset

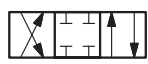
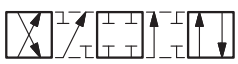

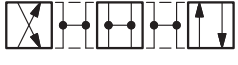

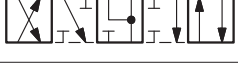



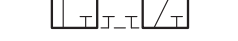
SEAL	
A	Buna

MECHANICAL OMIT IF NOT REQUIRED	
R	Single Solenoid Operator At 'B' Port End

CONNECTION	
K1	DIN 43650 - IP65
K2	AMP JUNIOR - IP67
K7	DEUTSCH DT04 male - IP69K

VOLTAGE	
D12	12V DC
D24	24V DC

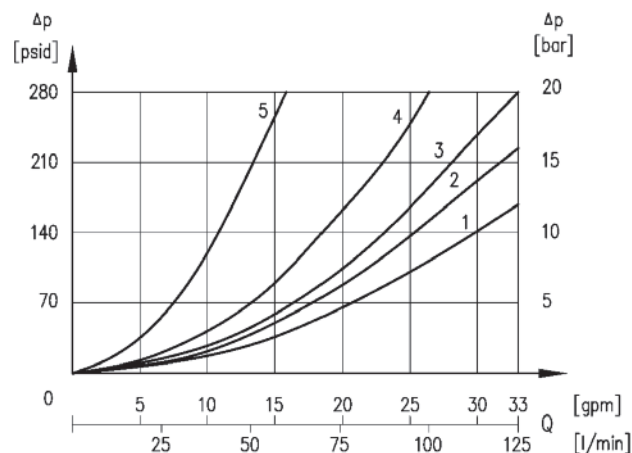
TYPICAL ORDERING CODE:
VSNG10-3A-A-D24K1-A

SPOOLS					
NAME	SYMBOL	FUNCTION	CENTER POSITION	CROSSOVER	FUNCTION MATCHING
A			All ports blocked	P→B or P→A T blocked	1, 2, 3, 5
B			All ports open	All ports open	1, 3, 5
F			P blocked, A→T and B→T	P blocked and A→T or B→T	3, 5
L			P→T, A and B blocked	All ports open, restricted	3, 5
X			-	All ports blocked	9

Other spool functions are available upon request.

PRESSURE DROPS ΔP -Q

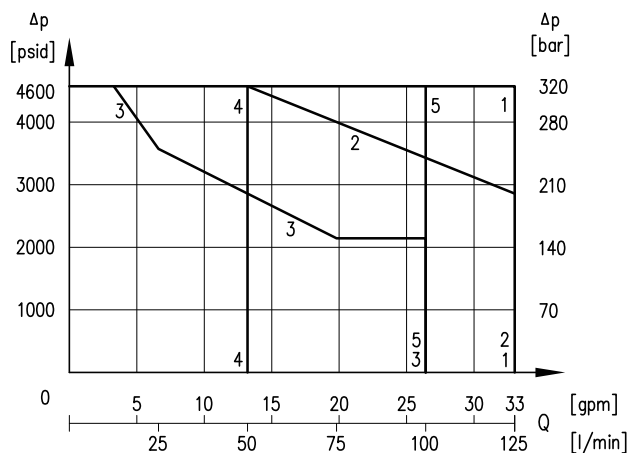
(OBTAINED WITH VISCOSITY OF 170 SUS - 36 CST AT 122°F - 50°C)



SPOOL	FLOW CURVE NUMBER					
	SHIFTED				CENTER	
	P→A	P→B	A→T	B→T	P→T	A→T B→T
3A	1	1	2	2		
B	1	1	1	1	1	5
F	1	1	1	1		
L	4	4	4	4	1	
2A	2	2	2	2		
1A	2	2	3	3		
1B	2	2	1	1		
X	3	3				

PERFORMANCE CURVE

DC VOLTAGE



CURVE	SPOOL
1	A, 2A, B
2	1B
3	F
4	L
5	1A, 9X

NOTES:

- The values indicated in the graphs are relevant to the standard solenoid valve, with D24 coils.
- Valve performance was tested in a four way circuit (full loop). Performances may be reduced from that shown when used in a three-way circuit (half circuit), i.e. A or B port plugged.
- The values have been obtained according to ISO 6403 norm with solenoids at rated temperature and supplied with voltage equal to 90% of the nominal voltage. The values have been obtained with filtration according to ISO 4406:1999 class 18/16/13.

SWITCHING TIMES

TIMES ($\pm 10\%$) [ms]	
ENERGIZING	DE-ENERGIZING
70 - 100	15 - 20

Switching times obtained with 3A solenoid valve.

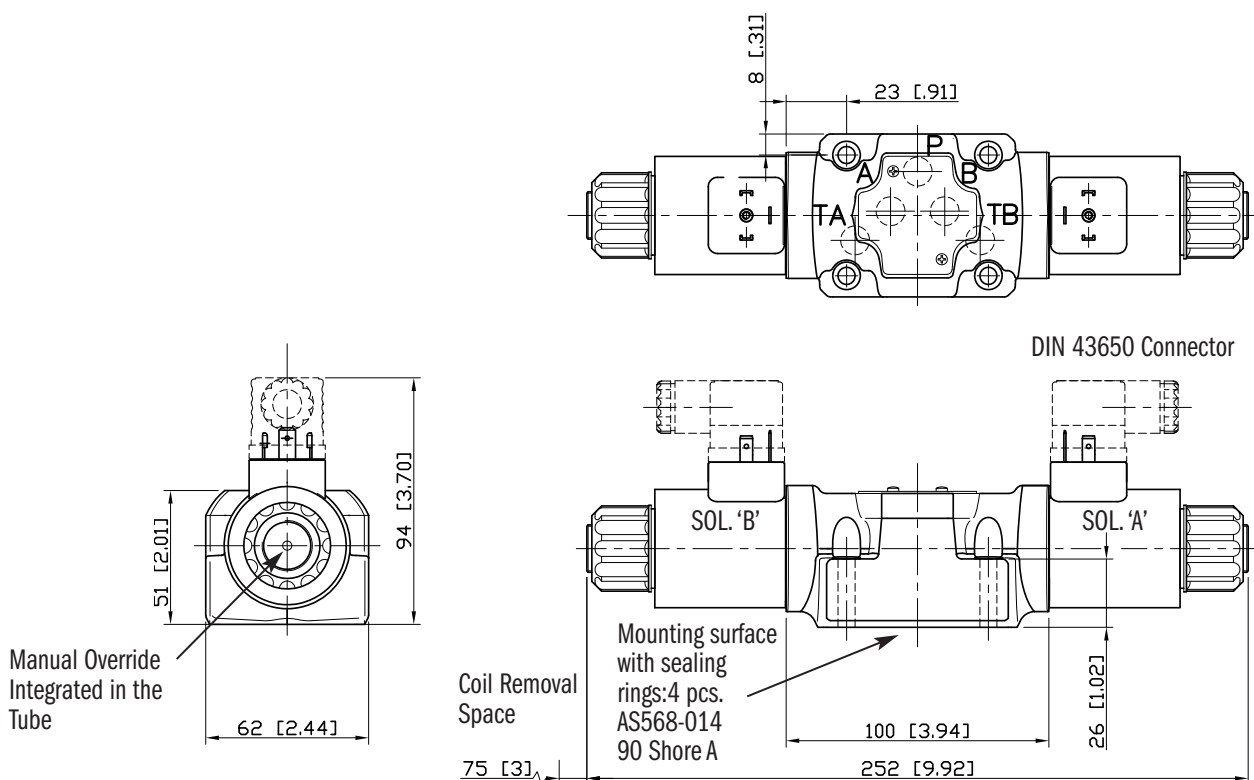
The energizing time is obtained at the time the spool switches over.

The de-energizing time is measured at the time the pressure variation occurs on the line.

OVERALL AND MOUNTING DIMENSIONS - DIN STYLE VERSION

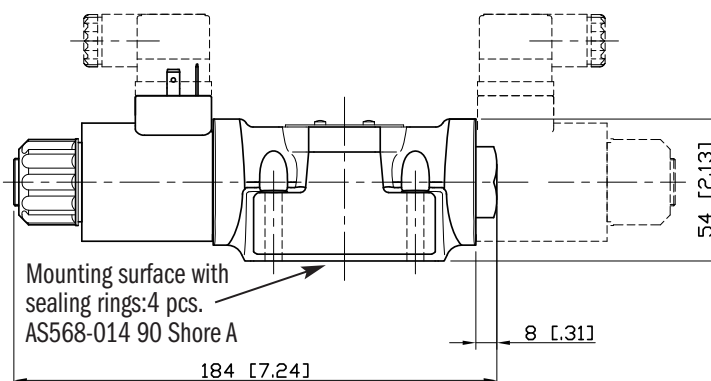
VSNG10-2*, 3*

Dimensions in mm [IN]



VSNG10-1*, 5*, 9X

Solenoid position for "R" Mechanical Option



COIL FEATURES

CODE	VOLTAGE [VOLT]	RESISTANCE AT 68°F [Ω] (±1%)	CURRENT CONSUMPTION [A] (±5%)	POWER CONSUMPTION (±5%) [W]
D12	12 V DC	4.4	2.72	32.7
D24	24 V DC	18.6	1.29	31

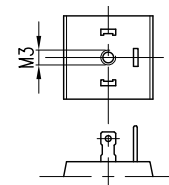
The coils are fastened to the tube by a threaded nut and can be rotated 360°.

SUPPLY VOLTAGE FLUCTUATION		± 10% Vnom
MAXIMUM SWITCH ON FREQUENCY		10,000 cycles/hr
DUTY CYCLE		100%
ELECTROMAGNETIC COMPATIBILITY (EMC)		According to 2004/108/EC
LOW VOLTAGE		According to 2006/95 EC
CLASS OF PROTECTION	Coil Insulation	Class H
	Impregnation	Class F

COIL CONNECTION

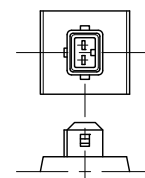
K1 - DIN 43650

This solenoid has three terminal posts. Use bi-polar connectors that meet ISO 4400 / DIN 43650 (EN 175301-803). Protection against atmospheric agent: IP 65*
Connectors must be ordered separately.



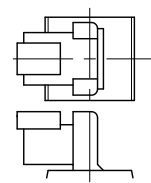
K2 - AMP JUNIOR

Plug for this type of connector. Protection against atmospheric agent: IP 67*
Connectors are user supplied.



K7 - DEUTSCH DT04 MALE

Protection against atmospheric agent: IP 69*
Connectors are user supplied.



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

SEAL KIT

Buna Seal Kit	1019658
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BOLT KIT

BD05-150-B	1019657
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NOTES:

1. Bolt kit consists of: qty. 4 1/4 - 20 UNC / qty. 4 # 1/4 lock washer
2. The recommended torque value for fasteners is: 6 lbf (8 Nm)

POWERFUL
 DURABLE
 CURATE
 INNOVATIVE
 PRECISE
 EFFICIENT
 RUGGED

ABOUT CONTINENTAL HYDRAULICS

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