

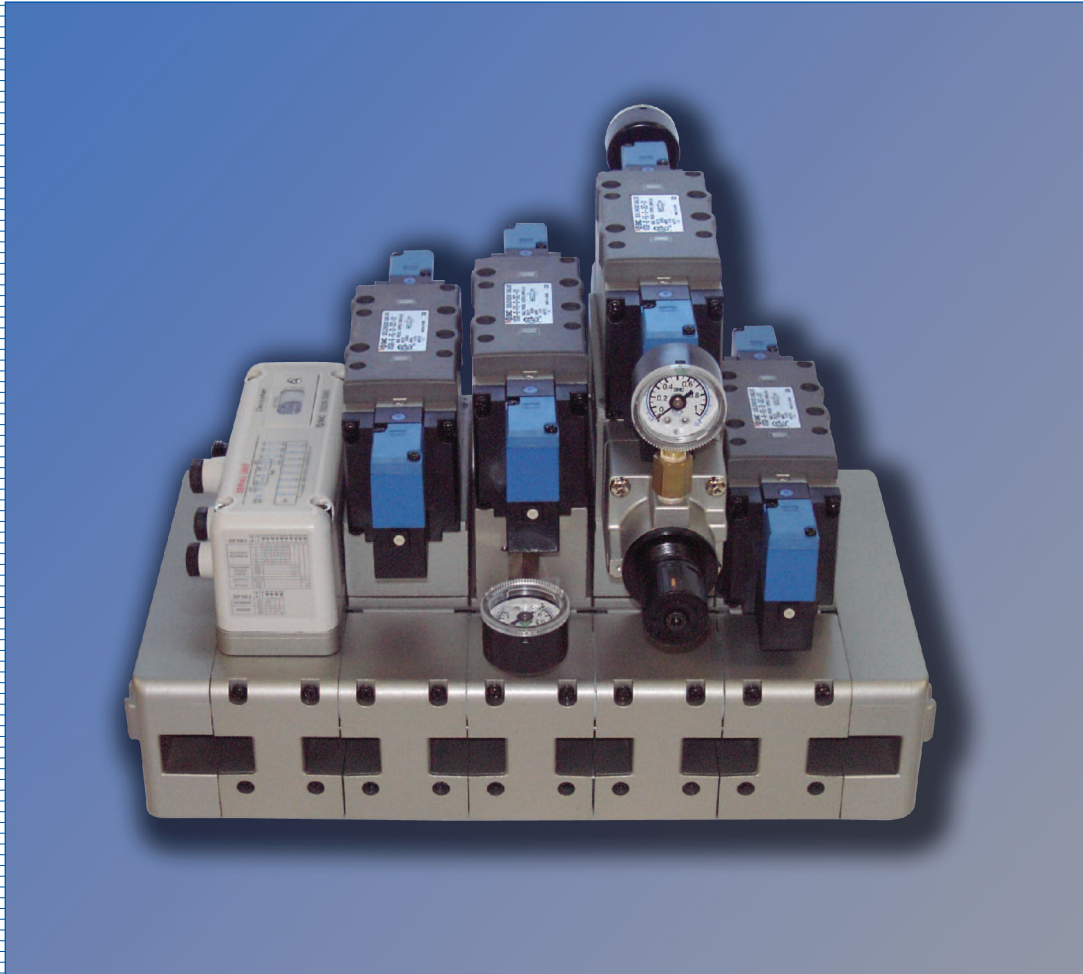


CAT. N140

ISO Interface Solenoid Valve

VSR/S 8

Size 1, 2 & 3



Complies with ISO Standard 5599/2

CSA approved

Lateral plug-in type manifold option

Low power Solenoids (1.8W)

ISO 5599/2 Plug-In P

ISO STANDARD VALVE INTERFACE - SIZES 1, 2 & 3

Higher range of flow rates within each valve size

Size	Model	Seal	Effective area mm ² (Cv) ^{Note 1)}	Response time m sec. ^{Note 2)}			Port size	Dimensions mm (in.) ^{Note 3)}	Weight g (lb) ^{Note 4)}
				Single	Double	3 position			
1	VSR8-6	Rubber	36 (2.0)	30	30	50	¼ ⅜ ½	62x111x188.5 (2.4x4.4x7.4)	552 (1.21)
2	VSR8-8	Rubber	72 (4.0)	50	50	70	⅜ ½ ¾	79x125.5x211 (3.1x4.9x8.3)	824 (1.81)
3	VSR8-10	Rubber	97 (5.4)	80	50	95	½ ¾ 1	96x137x246 (3.8x5.4x9.7)	1000 (2.21)
1	VSS8-6	Metal	32 (1.8)	25	20	45	¼ ⅜ ½	62x111x188.5 (2.4x4.4x7.4)	552 (1.21)
2	VSS8-8	Metal	65 (3.6)	40	20	55	⅜ ½ ¾	79x125.5x211 (3.1x4.9x8.3)	824 (1.81)
3	VSS8-10	Metal	90 (5.0)	50	25	60	½ ¾ 1	96x137x246 (3.8x5.4x9.7)	1000 (2.21)

Note 1) Value for valve mounted on an individual subplate. ½" ports for size 1, ¾" ports for size 2, and 1" ports for size 3.

Note 2) At 0.5MPa (71psi).

Note 3) Double solenoid type.

Note 4) Single solenoid type without base.



Choice of seals for maximum flexibility

Available in either high flow rubber seal (model VSR) or matched ground spool and sleeve (model VSS).

Low power consumption: 1.8w DC

Available in 2 or 3 position, single or double solenoid pilot configuration.

Long operating life

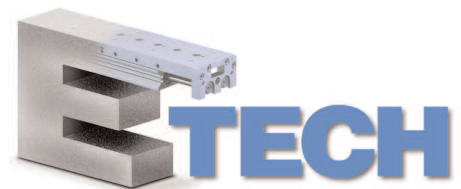
- Rubber Seal: 30 million cycles or more
- Metal Seal: 50 million cycles or more

* Subject to SMC's own test data using clean and dry air

Meet the following specifications:

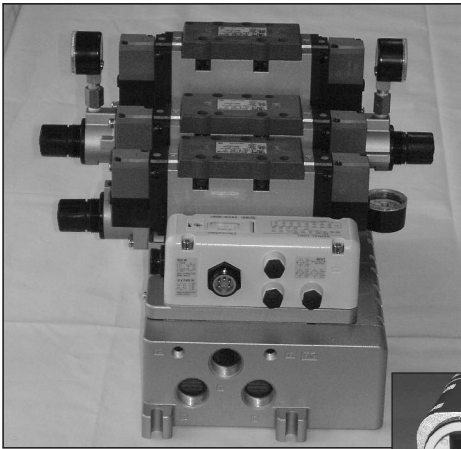
SAE SPEC: SAE J2051

GM SPEC: CC-003

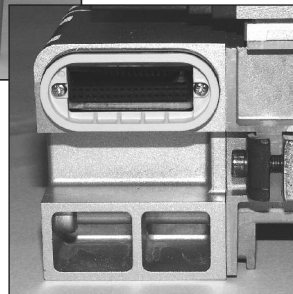


Popular SMC models have been certified by the Canadian Standards Association and bear the CSA trademark. This designation is a registered mark which signifies that the product has been certified to the applicable CSA and UL standard for use in Canada and the United States. NRTL, i.e. Nationally Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards. Please consult the factory for specific details.

Product Features Valve



Easily increase or decrease a manifold station without rewiring the manifold.



A variety of manifold & wiring options

- Individual SUP spacer (For size 1 & 2)
- Individual EXH spacer (For size 1 & 2)
- Interface speed controls (For size 1 & 2)
- Interface regulator (For size 1, 2 & 3)
- Terminal box with conduit port
- Serial transmission unit (Device Net)
- Splash proof manifold conforms to IP65 and NEMA4.

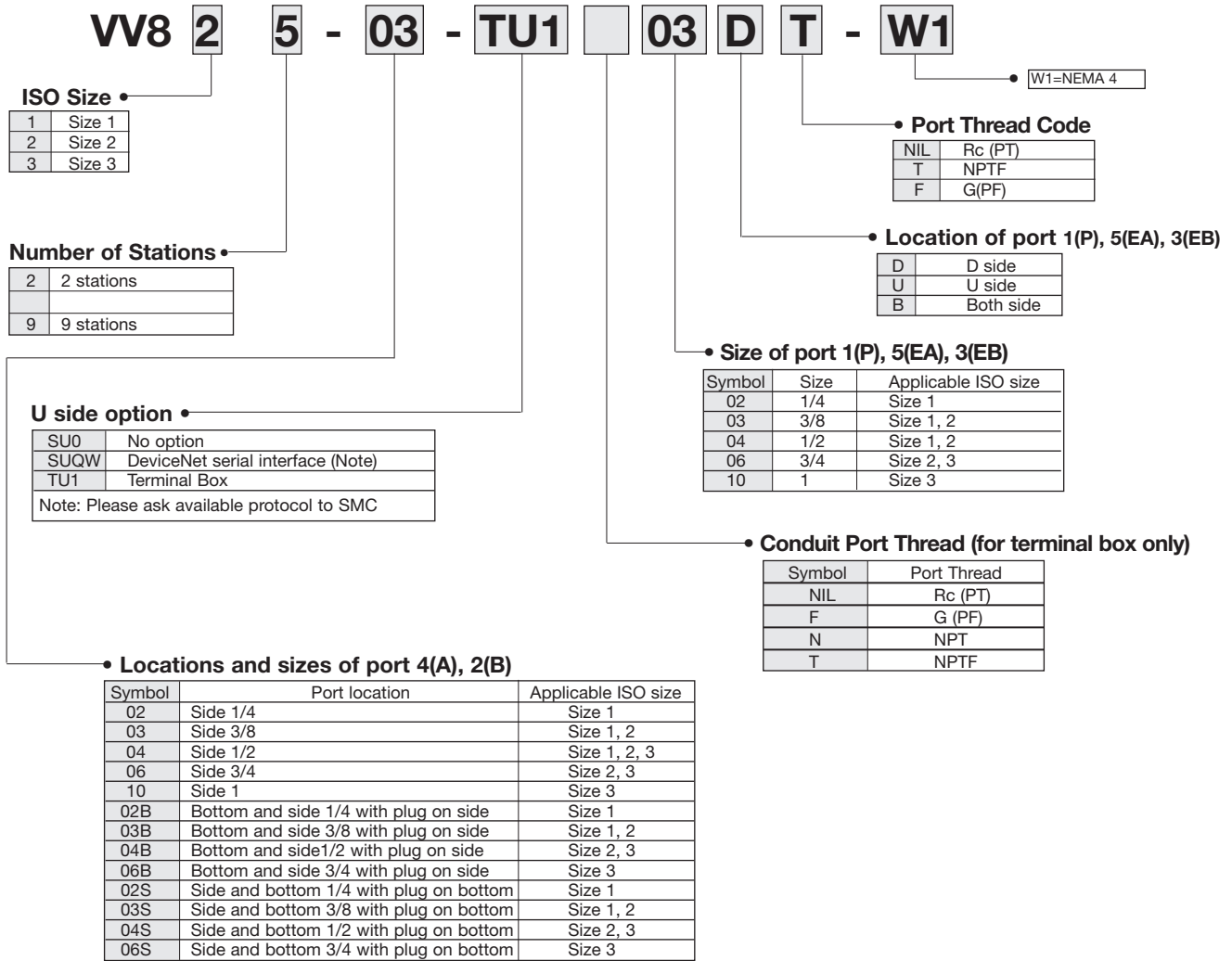
CYLINDER WORKING SPEED CHART

Series VSR8/VSS8

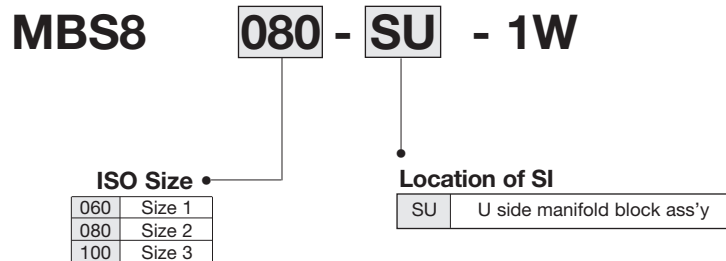
MODEL	CV FACTOR	CYLINDER SPEED (MM/S)	CYLINDER BORE SIZE (MM)									
			ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200
VS [®] 8-6 (Size 1)	2.0	250										
		500										
		750										
VS [®] 8-8 (Size 2)	4.0	250										
		500										
		750										
VS [®] 8-10 (Size 3)	5.4	250										
		500										
		750										

Conditions: Pressure :0.5MPa (71psi)
 Load factor :50%
 Piping length :5m

HOW TO ORDER ISO5599/2 VALVE MANIFOLD

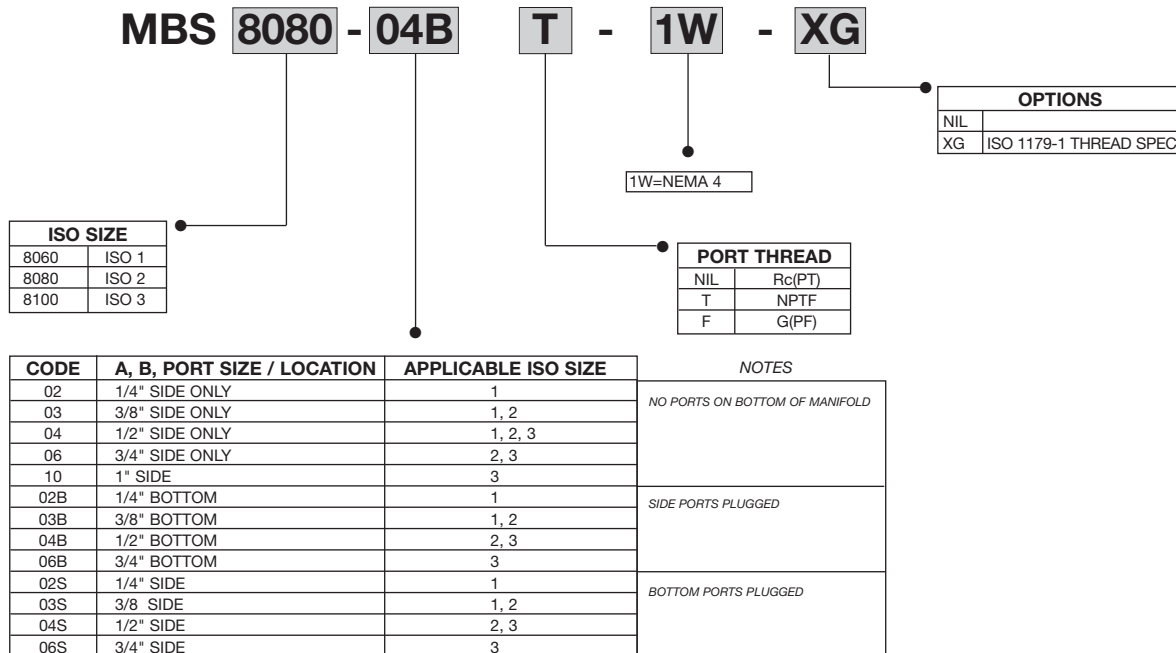


SERIAL INTERFACE MANIFOLD BLOCK ASS'Y



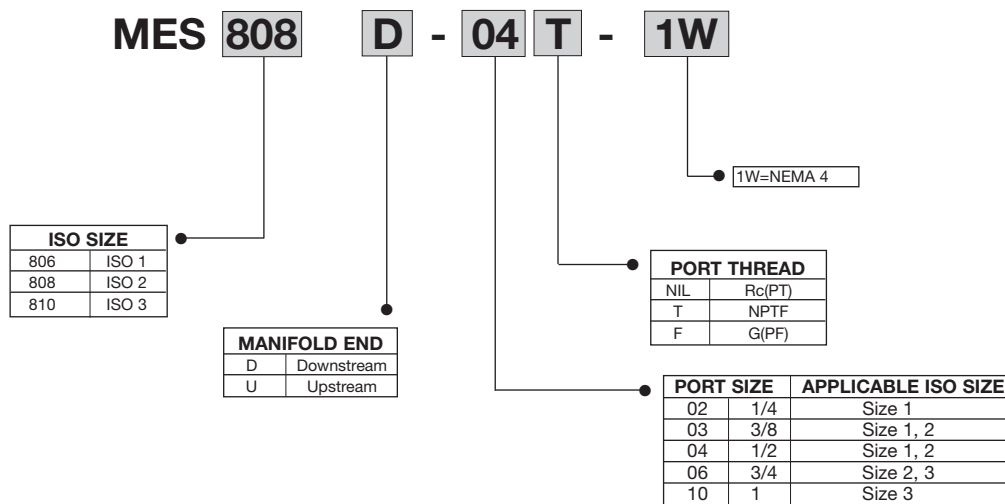
HOW TO ORDER LATERAL PLUG-IN MANIFOLD BLOCKS

VALVE MANIFOLD BLOCKS



NOTE: Device Net Serial Interface Module Manifold Block **MBS 8080 - SU - 1W**
 Device Net Serial Interface Module **EX230 - SDN1**

HOW TO ORDER LATERAL PLUG-IN MANIFOLD END PLATES



NOTE: When ordering parts for assembly. (2) AXT502-34-"" (use "" for number of stations) tie rods must be ordered separately for size 1 only. If only connecting size 1 end plates to manifold. (2) AXT502-4-2 must be ordered separately.

HOW TO ORDER MANIFOLD ASSEMBLIES FOR (4-PIN EURO CONNECTOR) PLUG-IN VALVE BASES

VV8 1 5 - 03S - W 03 D T - X6

ISO SIZE	
1	ISO 1
2	ISO 2
3	ISO 3

NUMBER OF STATIONS	
2	2 STATIONS
:	:
:	:
10	10 STATIONS

4-PIN EURO CONNECTOR	
X6	
X13	
X17	
X53	

* For wiring options, please refer to page 13 for more information.

PORT THREAD	
NIL	Rc(PT)
T	NPTF
F	G(PF)

P, EXH. PORT LOCATION	
D	DOWN STREAM
U	UP STREAM
B	BOTH

P, EXH. PORT SIZE	APPLICABLE ISO SIZE
02	1/4"
03	3/8"
04	1/2"
06	3/4"
10	1"

CODE	A, B, PORT SIZE / LOCATION	APPLICABLE ISO SIZE	NOTES
02	1/4" SIDE ONLY	1	NO PORTS ON BOTTOM OF MANIFOLD
03	3/8" SIDE ONLY	1, 2	
04	1/2" SIDE ONLY	1, 2, 3	
02B	1/4" BOTTOM	2, 3	SIDE PORTS PLUGGED
03B	3/8" BOTTOM	1, 2	
02S	1/4" SIDE	1	BOTTOM PORTS PLUGGED
03S	3/8" SIDE	1, 2	

HOW TO ORDER LATERAL PLUG-IN MANIFOLD BLOCKS WITH 4-PIN EURO CONNECTOR

VALVE MANIFOLD BLOCKS

MBS 8080 - 04B T - 1W - X6

ISO SIZE	
8060	ISO 1
8080	ISO 2

4-PIN EURO CONNECTOR	
X6	
X13	
X17	
X53	

* For wiring options, please refer to page 13 for more information.

1W=NEMA 4

PORT THREAD	
NIL	Rc(PT)
T	NPTF
F	G(PF)

CODE	A,B, PORT SIZE / LOCATION	APPLICABLE ISO SIZE	NOTES
02	1/4" SIDE ONLY	1	NO PORTS ON BOTTOM OF MANIFOLD
03	3/8" SIDE ONLY	1, 2	
04	1/2" SIDE ONLY	1, 2, 3	
02B	1/4" BOTTOM	1	SIDE PORTS PLUGGED
03B	3/8" BOTTOM	1, 2	
02S	1/4" SIDE	1	BOTTOM PORTS PLUGGED
03S	3/8" SIDE	1, 2	
04S	3/4" SIDE	2, 3	

RUBBER SEAL/METAL SEAL SERIES VSR8/VSS8



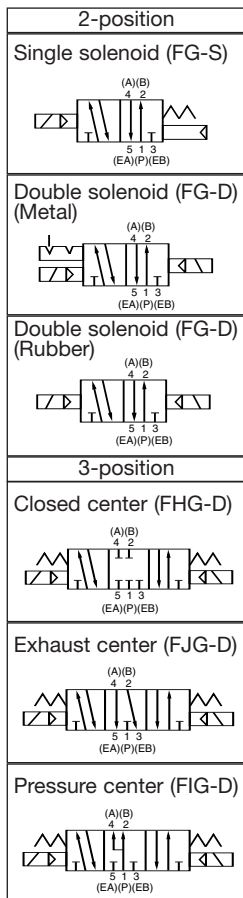
Model

Size	Model	Seal	Effective area (mm ²) (Cv)	Response time (ms) ^{Note2)}			Weight ^{Note3)} g (lb)	Port size
				Single	Double	3 position		
1	VSR8-6	Rubber	36 (2.0)	30	30	50	552 (1.21)	1/4, 3/8, 1/2
	VSS8-6	Metal	32 (1.8)	25	20	45		
2	VSR8-8	Rubber	72 (4.0)	50	50	70	824 (1.81)	3/8, 1/2, 3/4
	VSS8-8	Metal	65 (3.6)	40	20	55		
3	VSR8-10	Rubber	97 (5.4)	80	50	95	1000 (2.21)	1/2, 3/4, 1
	VSS8-10	Metal	90 (5.0)	50	25	60		

Note 1) With port size 1/2 for VSR/VSS8-6, 3/4 for VSR/VSS8-10

Note 2) Subject to JISB8375-1981. At 0.5MPa (71psi)

Note 3) Single solenoid type without base



Specifications

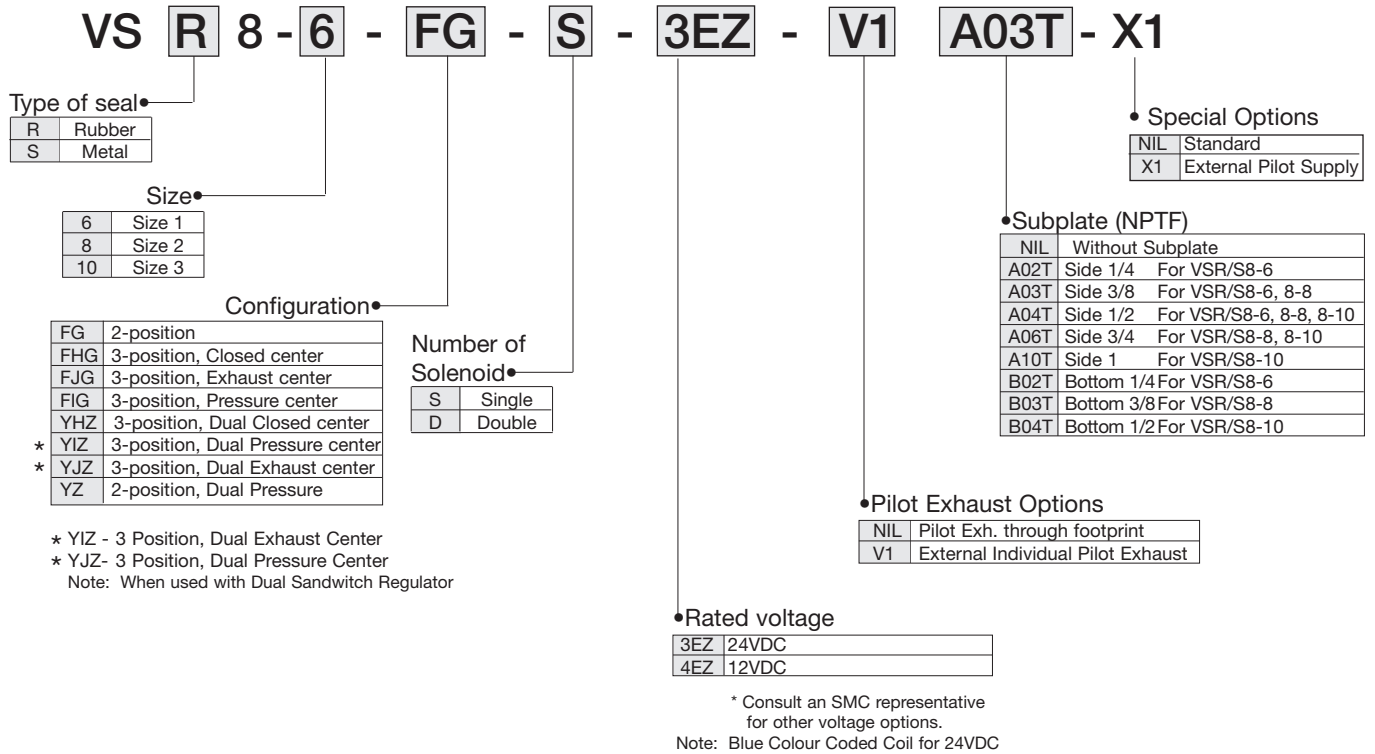
		Rubber Seal	Metal Seal
Valve operation		Pilot operated, 5 port	
Fluid		Air, Inert gas	
Operating pressure range MPa (psi)		0.1~1.0 (14.5~145)	0.1~1.6 (14.5~230) ^{Note1)}
Proof pressure MPa (psi)		1.5 (217)	2.4 (348)
Ambient and fluid temperature C° (°F) ^{Note2)}		-5~50 (23~122)	-20~60 (-4~140)
Maximum operating frequency cycle/Sec. ^{Note3)}	2-position	8-6:5, 8-8:5, 8-10:5	8-6:20, 8-8:15, 8-10:10
	3-position	8-6:3, 8-8:3, 8-10:2	8-6:10, 8-8:10, 8-10:20
Lubrication		Not required	
Manual override		non-locking push type	
Protection structure		NEMA 4/IP65	
Coil rated voltage		24VDC, 12VDC	
Allowable voltage range %		-15~10% of rated voltage	
Coil insulation		Class B or equivalent	
Apparent power VA ^{Note3)} For 12 VDC	Inrush	50Hz	5.6
	Holding	60Hz	5.0
Apparent power VA ^{Note3)} For 24 VDC		Inrush	50Hz
	60Hz		2.3
Power consumption W	Holding	N/A	
		.075 AMPS	
Surge voltage suppressor and indicator light		Available as option	

Note 1) Pilot pressure range should be 0.1~1.0MPa (14.5~145psi).

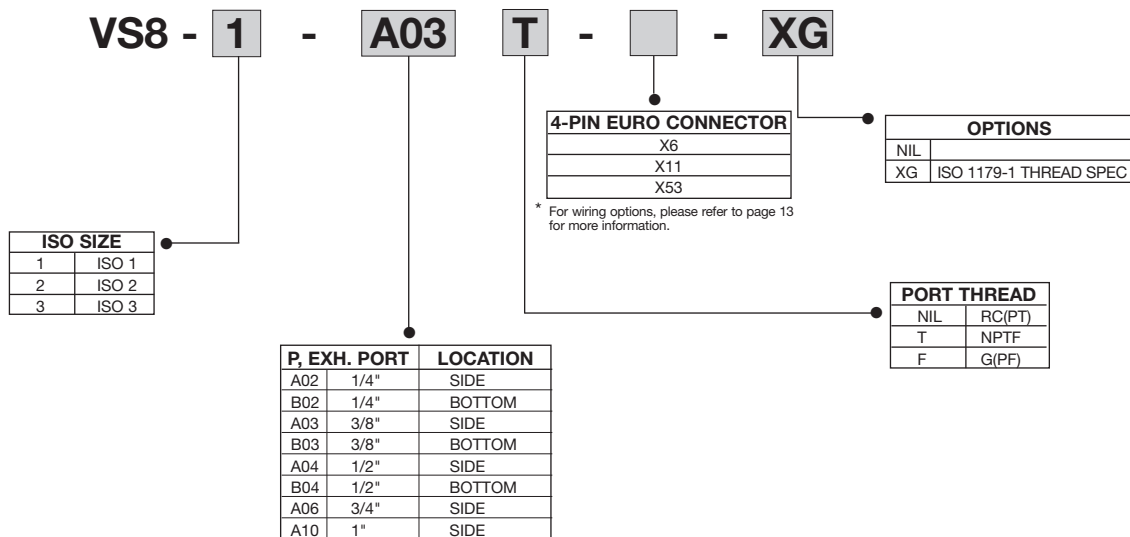
Note 2) Use dry air to prevent dew condensation when operating at low temperature.

Note 3) Subject to JISB8375-1975.

HOW TO ORDER VALVE



HOW TO ORDER ISO SUB-BASES

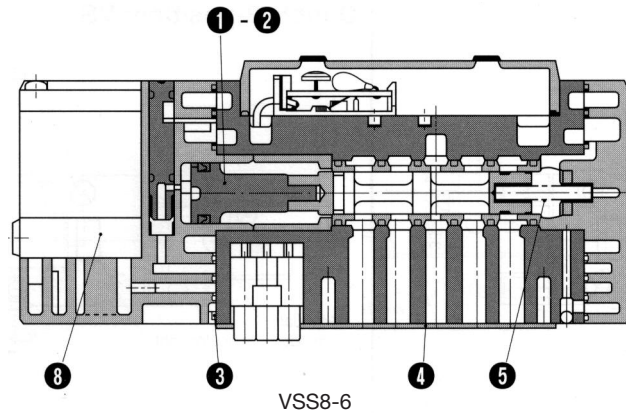


ISO SUB BASES WITH 4-PIN CONNECTORS

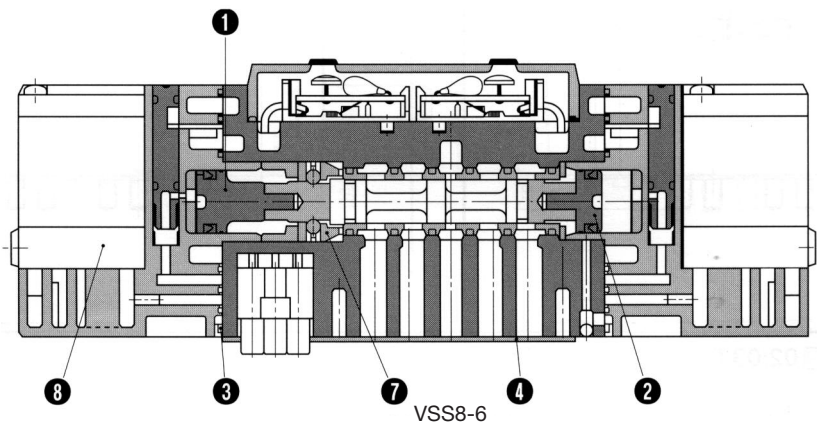
DESCRIPTION	PART#
VS8-1-A03T with 4 pin micro-connector	US15893
VS8-2-A04T with 4 pin micro-connector	US2249
VS8-3-A06T with 4 pin micro-connector	US18552

CONSTRUCTION

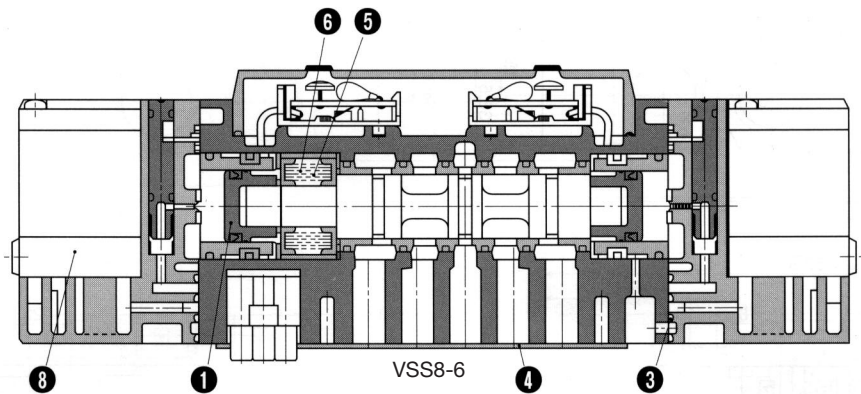
SERIES VSS (METAL SEAL TYPE) SINGLE SOLENOID



DOUBLE SOLENOID



3-POSITION

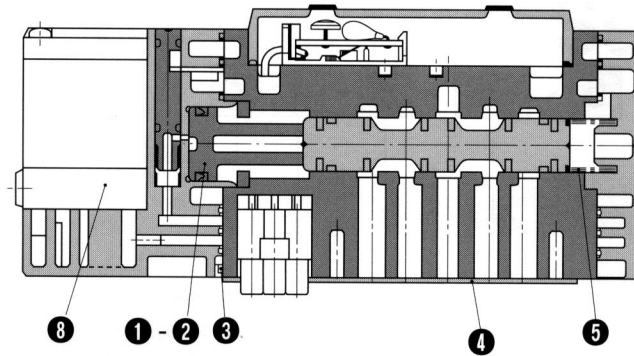


PART LIST

Description	Single solenoid			Double solenoid			3 position		
	VSS8-6	VSS8-8	VSS8-10	VSS8-6	VSS8-8	VSS8-10	VSS8-6	VSS8-8	VSS8-10
1. Piston assembly A	-	-	-	-	-	-	-	-	-
2. Piston assembly B	-	-	-	-	-	-	-	-	-
3. Gasket	-	-	-	-	-	-	-	-	-
4. Gasket	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1
5. Return spring A	-	-	-	-	-	-	-	-	-
6. Return spring B	-	-	-	-	-	-	-	-	-
7. Detent assembly	-	-	-	-	-	-	-	-	-
8. Pilot valve assembly	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30

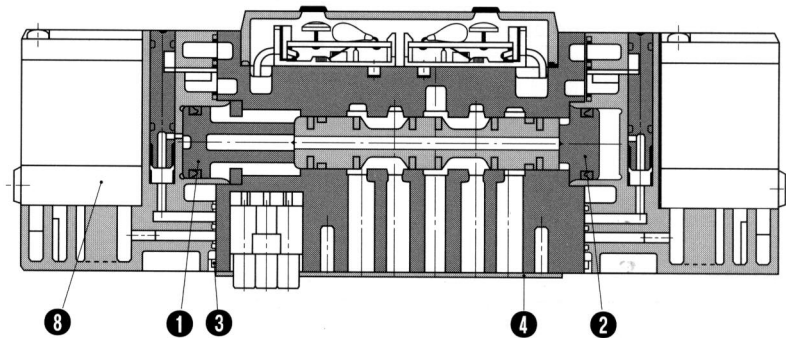
CONSTRUCTION

SERIES VSR (RUBBER SEAL TYPE)
SINGLE SOLENOID



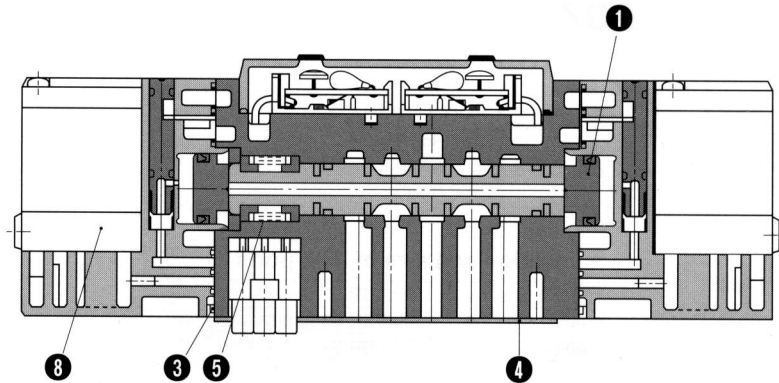
VSR8-6

DOUBLE SOLENOID



VSR8-6

3-POSITION

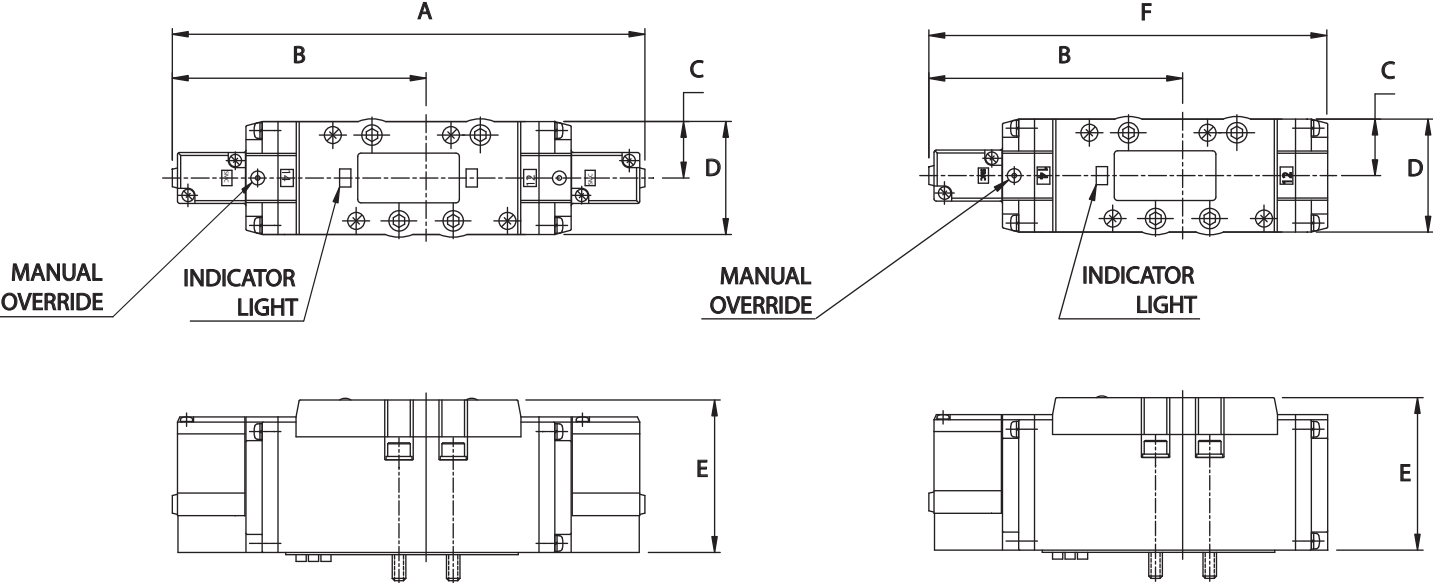


VSR8-6

PART LIST

Description	Single solenoid			Double solenoid			3 position		
	VSS8-6	VSS8-8	VSS8-10	VSS8-6	VSS8-8	VSS8-10	VSS8-6	VSS8-8	VSS8-10
1. Piston assembly A	-	-	-	-	-	-	-	-	-
2. Piston assembly B	-	-	-	-	-	-	-	-	-
3. Gasket	-	-	-	-	-	-	-	-	-
4. Gasket	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1	VS8060-19-1
5. Return spring A	-	-	-	-	-	-	-	-	-
6. Return spring B	-	-	-	-	-	-	-	-	-
7. Detent assembly	-	-	-	-	-	-	-	-	-
8. Pilot valve assembly	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30	SF4-□ F-30

VALVES

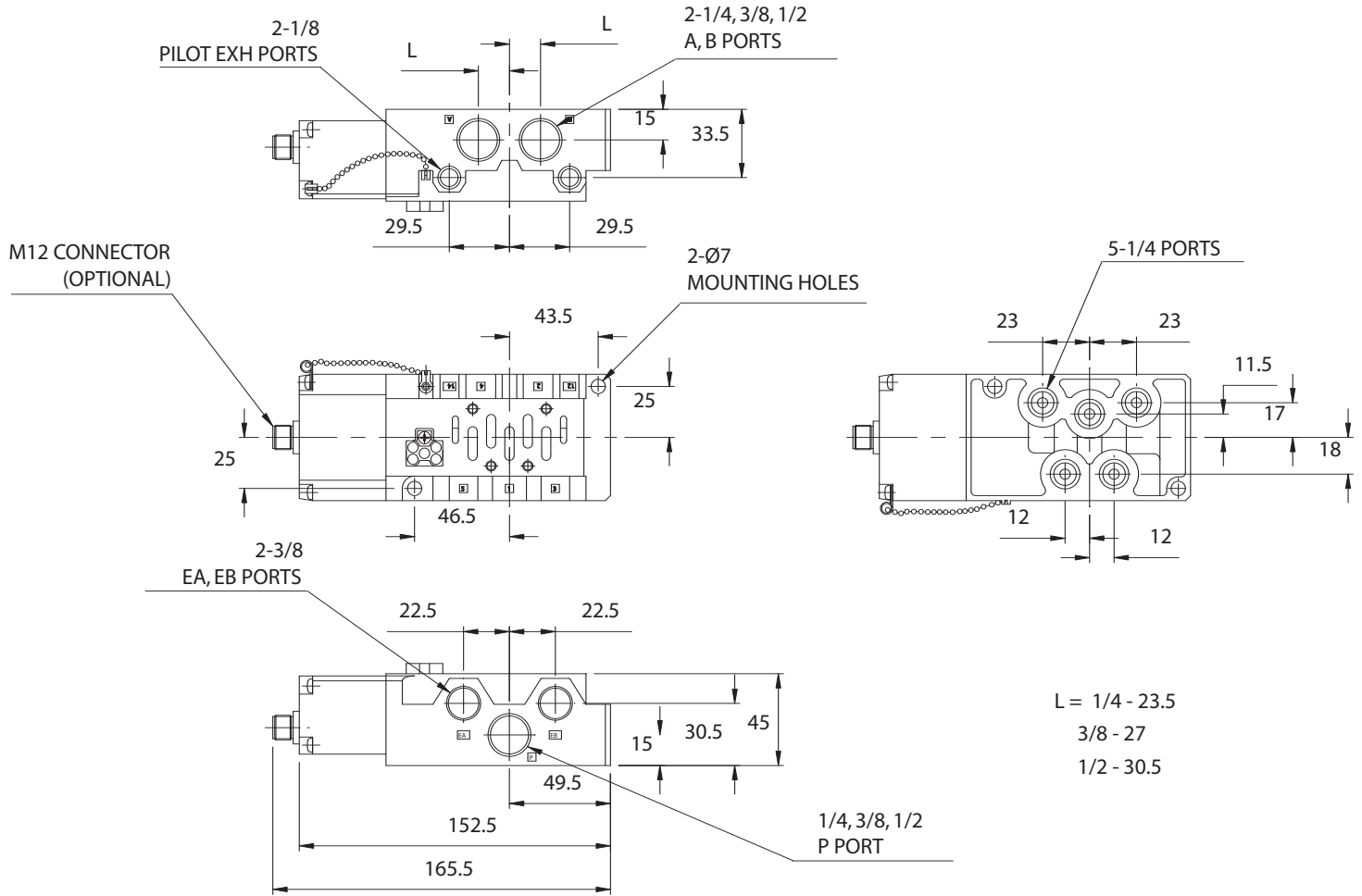


ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F
SIZE 1	188.5	103	19	38	65	150.5
SIZE 2	205	110.5	25	50	67.5	175
SIZE 3	228	122	32	64	71	198

ISO SIZE 1 SUB-BASE

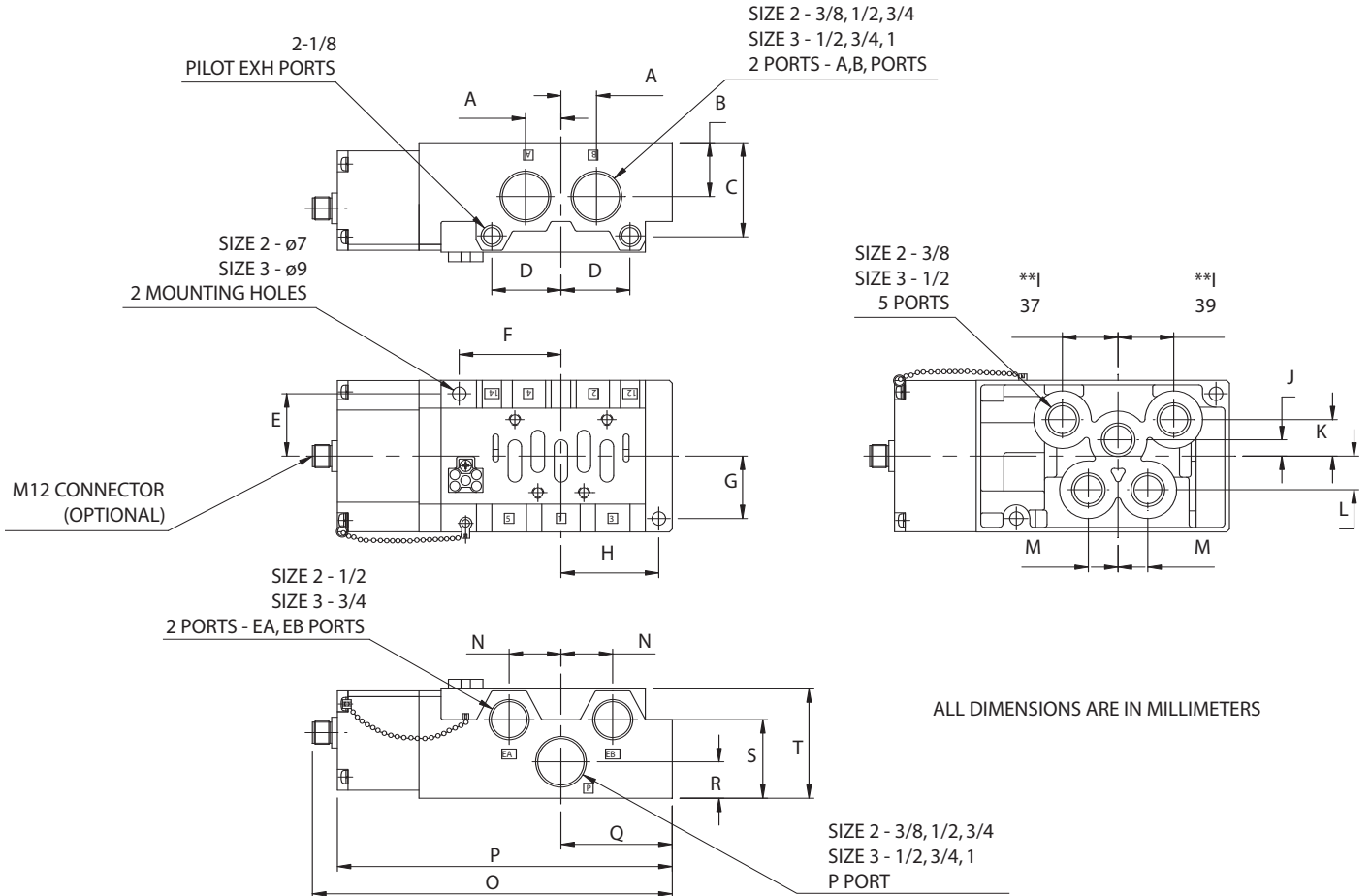
VS8-1-□ 02/03/04 □



ALL DIMENSIONS ARE IN MILLIMETERS

ISO SIZE 2-3 SUB-BASE

VS8- □ 03/04/06/10 □

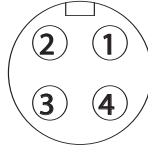


	A	B	C	D	E	F	G	H	I	J
SIZE 2	*	28	48.5	36	32.5	52	32.5	47.5	29	8.5
SIZE 3	22	27	47	45	40	65	40	71	**	22

* 3/8 - 14.5
1/2 - 16
3/4 - 18.5

	K	L	M	N	O	P	Q	R	S	T
SIZE 2	19	17.5	15.5	27	187.5	174.5	58	19	41	57
SIZE 3	14	26	19	40	234	221	76	27	39	65

WIRING INFORMATION



SUB-BASE

OPTION			OPTION		
X11	PIN 1	NOT USED	X53	PIN 1	14 (A) +
	PIN 2	12 (B) +		PIN 2	NOT USED
	PIN 3	COMMON		PIN 3	COMMON
	PIN 4	14 (A) +		PIN 4	12 (B) +
X6	PIN 1	NOT USED			
	PIN 2	14 (A) +			
	PIN 3	COMMON			
	PIN 4	12 (B) +			

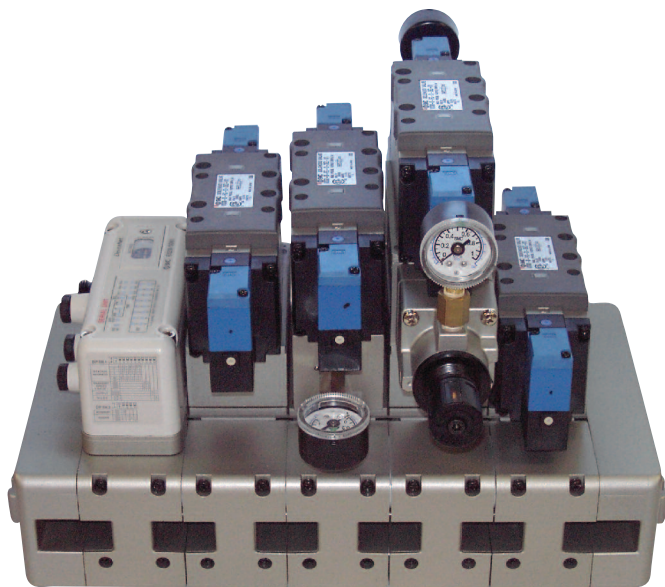
MANIFOLD BLOCK

OPTION			OPTION		
X6	PIN 1	NOT USED	X13	PIN 1	NOT USED
	PIN 2	14 (A) +		PIN 2	12 (B) +
	PIN 3	COMMON		PIN 3	COMMON
	PIN 4	12 (B) +		PIN 4	14 (A) +
X17	PIN 1	NOT USED	X53	PIN 1	14 (A) +
	PIN 2	12 (B) +		PIN 2	NOT USED
	PIN 3	COMMON		PIN 3	COMMON
	PIN 4	14 (A) +		PIN 4	12 (B) +

TERMINAL STRIP 22 POSITION

TERM P1=OUT 0	TERM P7=OUT 6	TERM P13=OUT 12	TERM P19=PE
TERM P2=OUT 1	TERM P8=OUT 7	TERM P14=OUT 13	TERM P20=ITV +24
TERM P3=OUT 2	TERM P9=OUT 8	TERM P15=OUT 14	TERM P21=ITV_IN0
TERM P4=OUT 3	TERM P10=OUT 9	TERM P16=OUT 15	TERM P22=ITV_IN1
TERM P5=OUT 4	TERM P11=OUT 10	TERM P17=OV	
TERM P6=OUT 5	TERM P12=OUT 11	TERM P18=OV	

INTERFACE OPTIONS

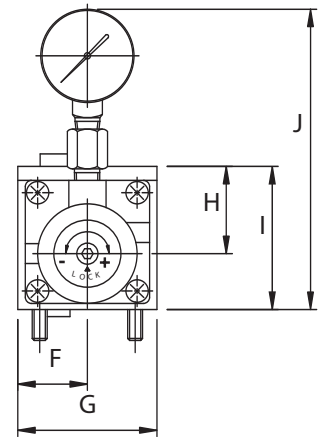
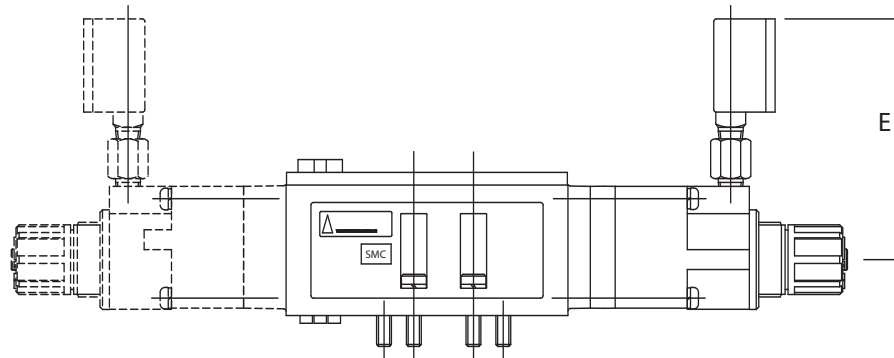
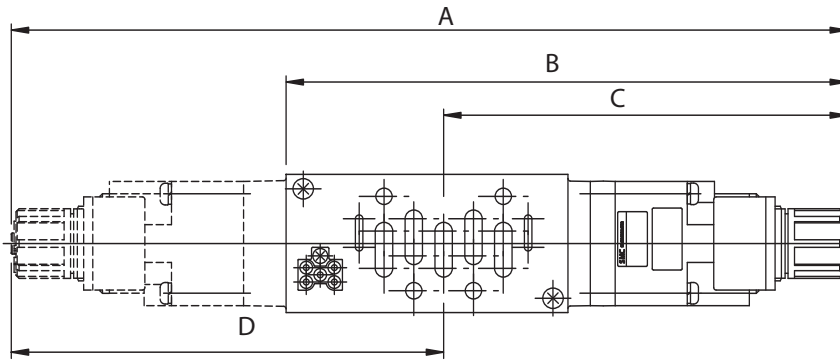


STANDARD SPECIFICATIONS

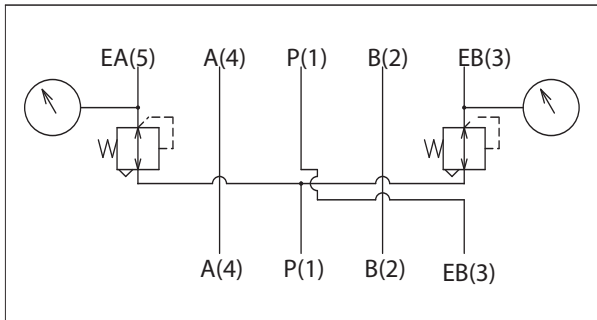
Description	ISO Size 1	ISO Size 2	ISO Size 3
Applicable solenoid valve	VSR/S8-6	VSR/S8-8	VSR/S8-10
Individual SUP Spacer	VV81-P-02/03/04□	VV82-P-03/04/06□	VV83-P-10T-X66US
Individual EXH Spacer	VV81-R-02/03/04□	VV82-R-03/04/06□	
Interface Speed Control	VVS8060-22A	VVS8080-22A	
Valve Dual Sandwich Regulator W/Gauge	VVS8060-ARB-YAB-1	VVS8080-ARB-YAB-1	VVS8100-ARB-YAB-1
Valve Single Sandwich Regulator	NARB250-NO-□-1 ARB250-00-□-1	NARB350-NO-□-1 ARB350-00-□-1	VVS8100-ARB-□-1
Blank Plate, Ass'y	VVS8060-11A	VVS8080-11A	VVS8100-11A
Blocking Disk	VVS8060-14A		
Blocking Disk [1(P) Port]		VVS8080-14A	VVS8100-14A
Blocking Disk [3(EB) Port]		VVS8080-15A	VVS8100-14A
Blocking Disk [5(EA) Port]		VVS8080-15A	VVS8100-14A

NOTE: For linterface speed controllers ISO Size 3 consult SMC Pneumatics.

REGULATORS



"DUAL" SANDWICH REGULATOR

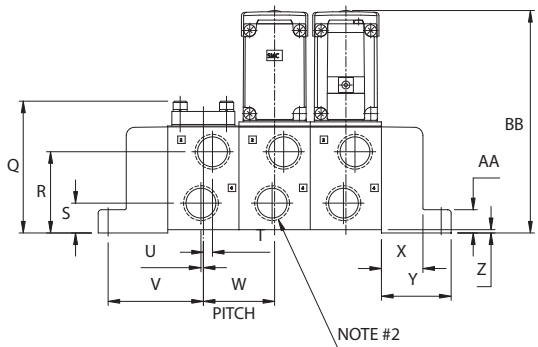
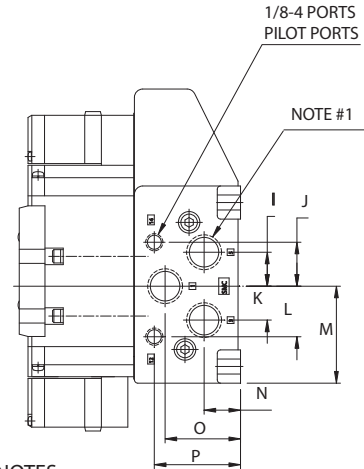
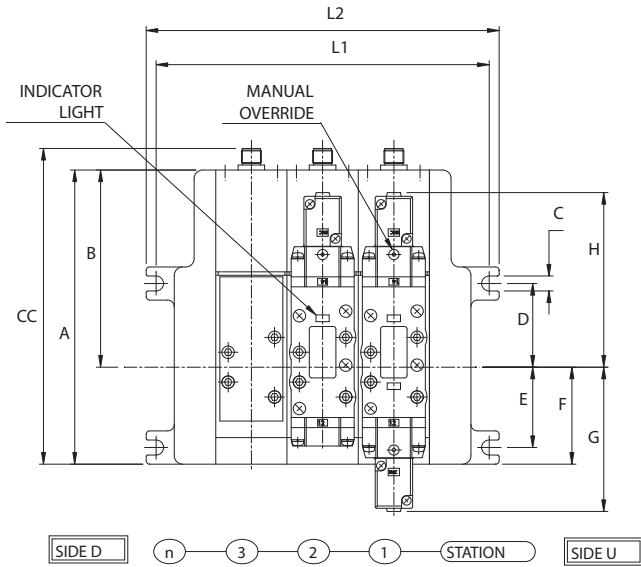


NOTE:

- 1) FOR APPLICATIONS USING DUAL PRESSURE REGULATORS THE CONFIGURATION OF VALVES TO USE ARE "YZ" STYLE FOR 2 POSITION "YHZ" AND "YJZ" STYLE FOR 3 POSITION.
- 2) FOR APPLICATIONS USING SIZE 3 "A" AND "B" STYLE REGULATORS THE CONFIGURATION OF VALVES TO USE ARE "YZ" STYLE FOR 2 POSITION "YHZ" AND "YJZ" STYLE FOR 3 POSITION.
- 3) ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F	G	H	I	J
SIZE 1	294	-	141	153	100	21.3	42.6	35	59.5	124.5
SIZE 2	338	-	163.2	174.7	97	27.8	55.6	35	57.6	120
SIZE 3	427.5	287	208.5	219	100.4	35.3	70.6	48.2	81.2	133

MANIFOLD M12 CONNECTORS



- NOTES:
- 1) SIZE 1 - 1/4, 3/8, 1/2
SIZE 2 - 3/8, 1/2, 3/4
SIZE 3 - 3/4, 1
6 PORTS, 1, 3, 5 PORTS
 - 2) SIZE 1 - 1/4, 3/8, 1/2
SIZE 2 - 3/8, 1/2, 3/4
SIZE 3 - 1/2, 3/4, 1
2 PORTS, 2, 4 PORTS
 - 3) ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SIZE 1	177.5	119	9	50.5	48.5	58.5	87	105	20.5	26.5	20.5	30.5	58.5	22	45.5	52	81	49	18	5.5
SIZE 2	189.5	125	9	52	52.5	64.5	96.5	112	26	34	26	37	64.5	31.5	58.5	67.5	97.5	58.5	20.5	3
SIZE 3	234.5	142.5	13	77.5	79.5	92	108	123.5	41	52	41	52	92	36	69	82.5	121	74	28	4

	U	V	W	X	Y	Z	AA	BB	CC
SIZE 1	1.5	57.5	43	25	42	2	14	133	188.5
SIZE 2	1	73	56	35	53	2	20	150.5	199
SIZE 3	4	68.5	71	30	45	2	20	175.5	244

n= NUMBER OF STATIONS (MIN. 2, MAX. 10)

LENGTH FORMULA
L1= 43n + 72
L2= 43n + 84

LENGTH FORMULA
L1= 56n + 90
L2= 56n + 106

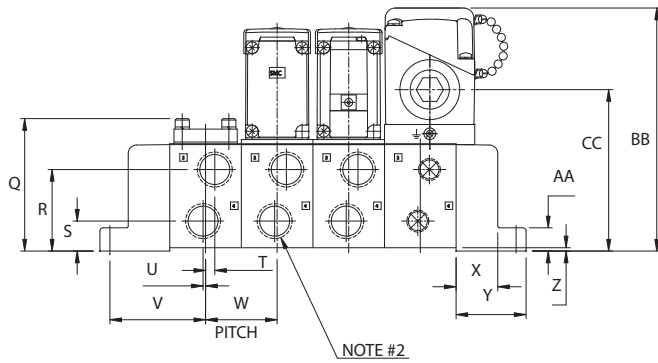
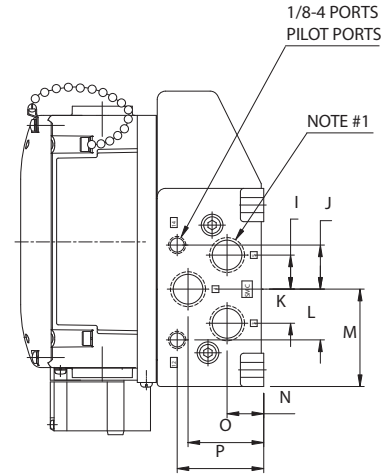
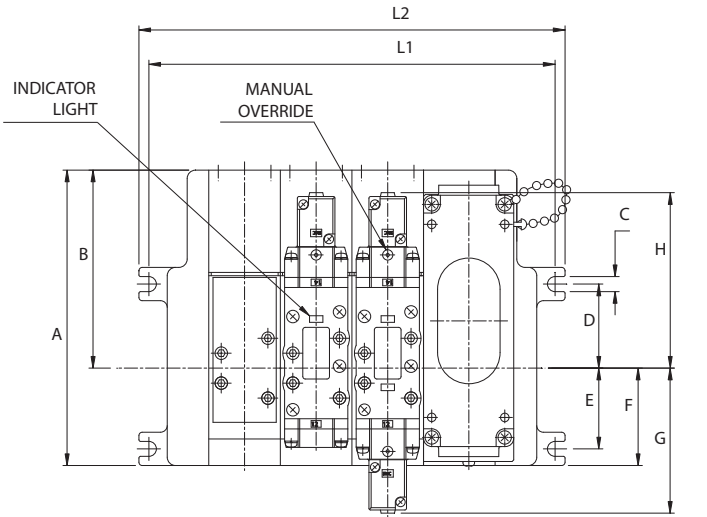
LENGTH FORMULA
L1= 71n + 66
L2= 71n + 90

LENGTH DIMENSIONS		SIZE 1									
n	L	2	3	4	5	6	7	8	9	10	
L1	158	201	244	287	330	373	416	459	502		
L2	170	213	256	299	342	385	428	471	514		

LENGTH DIMENSIONS		SIZE 2									
n	L	2	3	4	5	6	7	8	9	10	
L1	202	258	314	370	426	482	538	594	650		
L2	218	274	330	386	442	498	554	610	666		

LENGTH DIMENSIONS		SIZE 3									
n	L	2	3	4	5	6	7	8	9	10	
L1	208	279	350	421	492	563	634	705	776		
L2	232	303	374	445	516	587	658	729	800		

MANIFOLD WITH TERMINAL BOX



- NOTES:
- 1) SIZE 1 - 1/4, 3/8, 1/2
 SIZE 2 - 3/8, 1/2, 3/4
 SIZE 3 - 3/4, 1
 6 PORTS, 1, 3, 5 PORTS
 - 2) SIZE 1 - 1/4, 3/8, 1/2
 SIZE 2 - 3/8, 1/2, 3/4
 SIZE 3 - 1/2, 3/4, 1
 2 PORTS, 2, 4 PORTS
 - 3) ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SIZE 1	177.5	119	9	50.5	48.5	58.5	87	105	20.5	26.5	20.5	30.5	58.5	22	45.5	52	81	49	18	5.5
SIZE 2	189.5	125	9	52	52.5	64.5	96.5	112	26	34	26	37	64.5	31.5	58.5	67.5	97.5	58.5	20.5	3
SIZE 3	234.5	142.5	13	77.5	79.5	92	108	123.5	41	52	41	52	92	36	69	82.5	121	74	28	4

	U	V	W	X	Y	Z	AA	BB	CC
SIZE 1	1.5	57.5	43	25	42	2	14	145.5	96.5
SIZE 2	1	73	56	35	53	2	20	159	110.5
SIZE 3	4	68.5	71	30	45	2	20	182.5	133.5

n= NUMBER OF STATIONS (MIN. 2, MAX. 10)

LENGTH FORMULA
 $L1 = 43n + 72$
 $L2 = 43n + 84$

LENGTH FORMULA
 $L1 = 56n + 90$
 $L2 = 56n + 106$

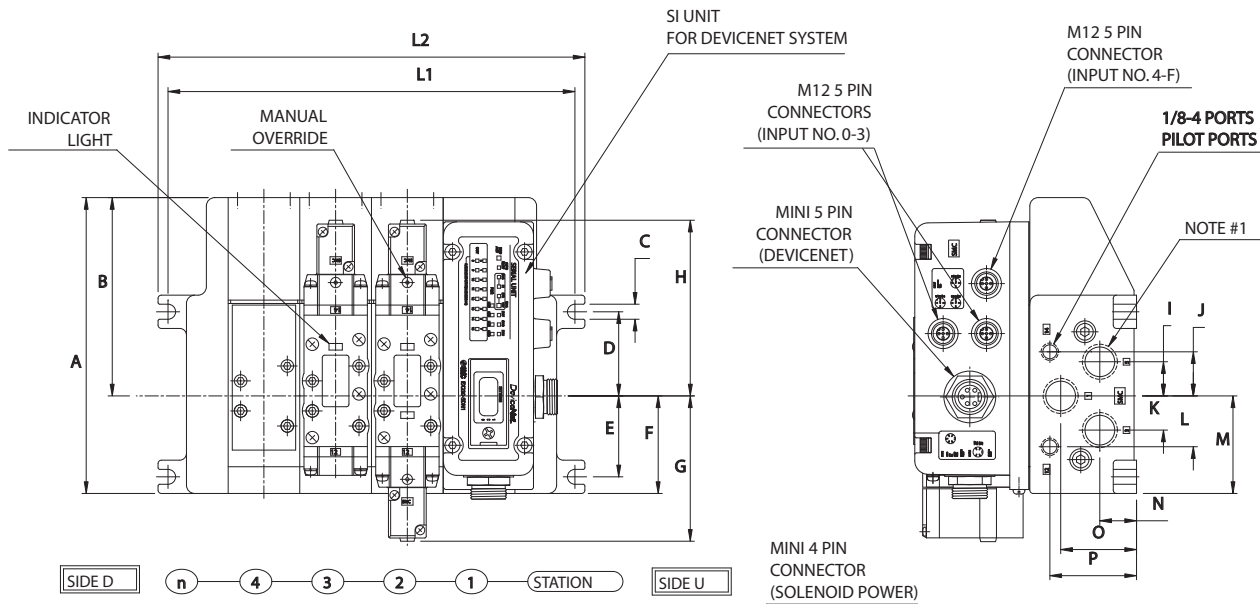
LENGTH FORMULA
 $L1 = 71n + 66$
 $L2 = 71n + 90$

LENGTH DIMENSIONS		SIZE 1								
L \ n		2	3	4	5	6	7	8	9	10
L1		158	201	244	287	330	373	416	459	502
L2		170	213	256	299	342	385	428	471	514

LENGTH DIMENSIONS		SIZE 2								
L \ n		2	3	4	5	6	7	8	9	10
L1		202	258	314	370	426	482	538	594	650
L2		218	274	330	386	442	498	554	610	666

LENGTH DIMENSIONS		SIZE 3								
L \ n		2	3	4	5	6	7	8	9	10
L1		208	279	350	421	492	563	634	705	776
L2		232	303	374	445	516	587	658	729	800

MANIFOLD DEVICENET



- NOTES:
- 1) SIZE 1 - 1/4, 3/8, 1/2
 SIZE 2 - 3/8, 1/2, 3/4
 SIZE 3 - 3/4, 1
 6 PORTS, 1, 3, 5 PORTS
 - 2) SIZE 1 - 1/4, 3/8, 1/2
 SIZE 2 - 3/8, 1/2, 3/4
 SIZE 3 - 1/2, 3/4, 1
 2 PORTS, 2, 4 PORTS
 - 3) ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SIZE 1	177.5	119	9	50.5	48.5	58.5	87	105	20.5	26.5	20.5	30.5	58.5	22	45.5	52	81	49	18	5.5
SIZE 2	189.5	125	9	52	52.5	64.5	96.5	112	26	34	26	37	64.5	31.5	58.5	67.5	97.5	58.5	20.5	3
SIZE 3	234.5	142.5	13	77.5	79.5	92	108	123.5	41	52	41	52	92	36	69	82.5	121	74	28	4

	U	V	W	X	Y	Z	AA	BB	CC
SIZE 1	1.5	57.5	43	25	42	2	14	132.5	99.5
SIZE 2	1	73	56	35	53	2	20	146.5	113.5
SIZE 3	4	68.5	71	30	45	2	20	168.5	135.5

n= NUMBER OF STATIONS (MIN. 2, MAX. 10)

LENGTH FORMULA
 $L1 = 43n + 72$
 $L2 = 43n + 84$

LENGTH FORMULA
 $L1 = 56n + 90$
 $L2 = 56n + 106$

LENGTH FORMULA
 $L1 = 71n + 66$
 $L2 = 71n + 90$

LENGTH DIMENSIONS		SIZE 1								
L	n	2	3	4	5	6	7	8	9	10
L1	n	158	201	244	287	330	373	416	459	502
L2	n	170	213	256	299	342	385	428	471	514

LENGTH DIMENSIONS		SIZE 2								
L	n	2	3	4	5	6	7	8	9	10
L1	n	202	258	314	370	426	482	538	594	650
L2	n	218	274	330	386	442	498	554	610	666

LENGTH DIMENSIONS		SIZE 3								
L	n	2	3	4	5	6	7	8	9	10
L1	n	208	279	350	421	492	563	634	705	776
L2	n	232	303	374	445	516	587	658	729	800

Precautions

Quality of Fluid

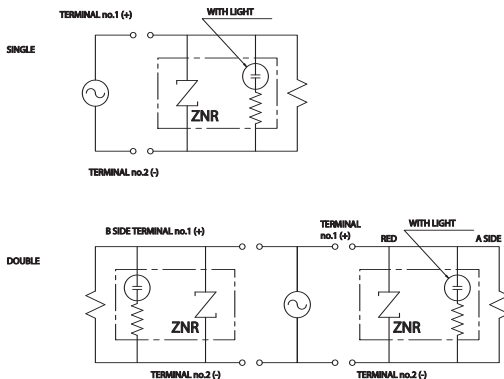
1. A filter of about 5 μm is adequate.
2. Remove contaminants from the system because excess contaminants cause pneumatic product malfunctions as well as environmental pollution.
For added convenience, the use of an auto drain is recommended.
3. When there is a large amount of carbon powder from the compressor, it causes valve malfunction. Please change the compressor oil or install a mist separator.
4. The valve has been lubricated for life at manufacture, and does not require lubrication in service.
If a lubricant is used in the system, use turbine oil (ISO VG32).

Solenoid Precautions

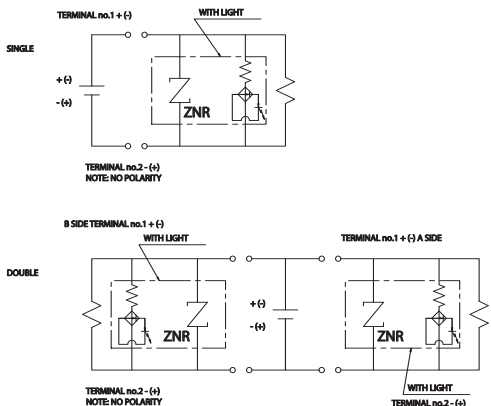
1. Ensure that voltage leakage across the coil is as follows.
DC coil: No more than 3% of the rated voltage
AC coil: No more than 20% of the rated voltage
2. Continuous duty
When long term energizing is required, the continuous energizing time should not exceed 30 days.
3. Energization time
The double solenoid valve must be energized for at least 0.1 second to ensure proper operation.

Wiring & Light / Surge Voltage Suppressor

AC AND 100 VDC



24VDC OR LESS



Piping

1. Flushing: Thoroughly flush the piping on both inlet and outlet sides of the valve to remove dust.
2. Mounting position: Mount the double solenoid and 3-position type valves so that the spool valve will be horizontal.
3. Installation in places subject to vibration: Mount the valve so that spool valve will be at right angles to direction of vibration.
(Avoid use in places where vibration exceeds 5G.)
4. When 3-position closed center valve is mounted: Check the piping between the valve and cylinder as well as joints for leakage using soapy water. Even slight leakage should be avoided.
5. R(EXH) port piping: Take care that exhaust air is not throttled.
(Otherwise, delay in response or cylinder malfunction may result.)

Operation Conditions

Avoid the following locations or environments to prevent valve trouble. If it is unavoidable install a cover, etc. for protection.

1. Locations where the ambient temperature exceeds +5~50°C range. The metal seal type can be used down to -10°C, but take care that solidification of contaminants or water freezing does not take place.
2. Locations where valves will be exposed directly to water drops, cutting oil, etc.
3. Locations exposed to direct sunlight.
4. Environments causing dewing on valve body or condensation when there are drastic temperature changes.
5. Locations exposed to corrosive gas, chemicals and their solution or vapor seawater, etc.

How to calculate Flow (At an air temperature 20°C)

Subsonic flow: $P_1 + 0.1013 < 1.89(P_2 + 0.1013)$

$$Q = 226S \sqrt{\Delta P (P_2 + 0.1013)}$$

Sonic flow: $P_1 + 0.1013 > 1.89(P_2 + 0.1013)$

$$Q = 113S(P_1 + 0.1013)$$

Q: Flow rate under standard conditions [l/min(ANR)]

S: Effective area (mm²)

ΔP: Pressure differential (P1-P2) (MPa)

P1: Upstream pressure (MPa)

P2: Downstream pressure (MPa)

* When the air temperatures is different, multiply the flow calculated with the above formula by the following factor.

Air Temperature (C°)	-20	-10	0	10	30	40	50	60
Factor	1.08	1.06	1.04	1.02	0.98	0.97	0.95	0.94

Features / Options

Expandable Manifold

Stacking type manifold can be expanded up to the recommended number of stations. (Max. of 10 stations)

Various porting combinations available to suit your application.

Every manifold block comes standard with side and bottom ports.

Wide variety of Interface Options

Individual supply/exhaust spacers, interface regulators and interface speed controls are available to customize your manifold



The manifold Series VV81 have a wide variety of functions and portings, compatible with virtually any application.

Standard Features

Common EXH Type

All the manifolded valves are supplied and exhausted by the same manifold ports. This is our most popular configuration.

Bottom Porting Type (A, B port)

When The application requires bottom porting, either a portion of, or the entire manifold can be piped with bottom porting.

Interface Options

Individual EXH Spacer

An individual EXH spacer (VV81-R-■) mounted on the manifold block allows each valve to exhaust individually.

Individual SUP Spacer

An individual SUP spacer (VV81-P-■) mounted on the manifold block allows each valve to exhaust individually.

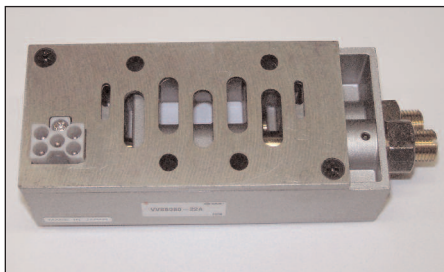


Interface Regulator

The interface unit is designated to separately control the pressure of one valve and still maintain a common manifold pressure. This unit is available as either a P port regulator or as an A or B port regulator.

Interface Speed Controls

Cylinder speed can be controlled by throttling exhaust air.



Manifold Option

Terminal Box

- Terminals are provided in the box, permitting connection of conduit piping.
- Simplifies wiring requirements

SI Unit

With serial interface unit

- Solenoid valve wiring reduced considerably.
- Applicable to Dvice Net and Profi Bus.



Splash Proof

Splash proof manifold conforms to IP65 and NEMA4.

- Applicable to all sizes