

3 Port Direct Operated Solenoid Valve

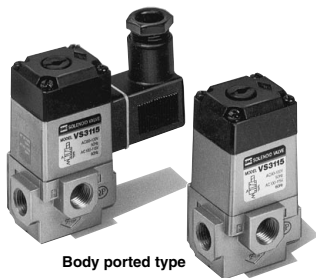
Series VS3115/3110

Metal Seal

Multiple pressure supply is possible with balanced spool sleeve.

Any given port can accept high or low pressure supply without affecting the system life or operation.

No-lubrication and dry-air operation possible.

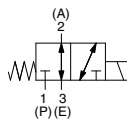


Body ported type



With sub-plate

Symbol



Standard Specifications

Fluid		Air/Inert gas		
Operating pressure range		0 to 1.0 MPa		
Proof pressure		1.5 MPa		
Ambient and fluid temperature		-20 to 60°C (No freezing)		
Response time ⁽¹⁾		10 ms or less (AC), 45 ms or less (DC)		
Max. operating frequency ⁽²⁾		1,500 c.p.m. (AC), 180 c.p.m. (DC)		
Manual override		Non-locking		
Lubrication		Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)		
Enclosure		Dustproof [Degrees of protection 0] ⁽⁴⁾		
Impact/Vibration resistance (m/s ²)		150/50 ⁽⁵⁾		
Electrical entry		Grommet, DIN terminal		
Coil rated voltage	Standard	100, 200 VAC, 50/60 Hz; 24 VDC		
	Option	220, 110, 48, and 24 VAC (50/60 Hz) 100, 48, and 12 VDC		
Allowable voltage fluctuation		-15 to +10% of rated voltage		
Coil insulation type		Class B or equivalent (130°C) ⁽⁶⁾		
Apparent power (VA) (Power consumption (W))	AC	Inrush	50 Hz	51
			60 Hz	45
	Holding	50 Hz	17 (5.3)	
		60 Hz	11 (2.9)	
Power consumption (W)	DC	5.5		
Accessory (Option)		Bracket (AXT338-11)/For body ported type		
		Indicator light		
		Manual override		

Note 1) Based on JIS B 8375-1981. (at 0.5 MPa, without surge voltage suppressor)

Note 2) Minimum operating frequency is once in 30 days. (Based on JIS B 8375.)

Note 3) "Note 1)" and "Note 2)" are with controlled clean air.

Note 4) Based on JIS C 0920.

Note 5) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Note 6) Based on JIS C 4003.

Flow Characteristics/Weight

Body type	Valve model	Port size Rc	Flow characteristics						Weight (kg)	
			P → A			A → E			AC	DC
			C [dm ³ /s·bar]	b	Cv	C [dm ³ /s·bar]	b	Cv		
Body ported	VS3115-01 □□	1/8	3.3	0.36	0.86	2.5	0.39	0.66	0.34	0.46
	VS3115-02 □□	1/4	3.8	0.19	0.86	3.6	0.34	0.88	0.34	0.46
With sub-plate	VS3110-02 □□	1/4	4.0	0.12	0.93	3.2	0.31	0.76	0.40	0.52
	VS3110-03 □□	3/8	4.0	0.15	0.94	3.6	0.18	0.82	0.40	0.52
For manifold use	VS3114-00 □□		Without sub-plate						0.32	0.44

⚠ Caution

Be sure to read before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

How to Calculate the Flow Rate

For obtaining the flow rate, refer to front matters 42 to 45.

VV061

VV100

V100

S070

VQD

VQD-V

VKF

VK

VT

VS4

VS3

Series VS3115/3110

How to Order

VS311 5 - 01 5 D □ L - □

Piping type	
0	With sub-plate
4	Without sub-plate (For Manifold)
5	Body ported

Port size		
Size	Body ported	Sub-plate
01	1/8	○ —
02	1/4	○ ○
03	3/8	— ○
00	—	Sub-plate (For Manifold)

* Select 00 for manifold.

Coil rated voltage	
1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC (50/60 Hz)
4	220 VAC (50/60 Hz)
5	24 VDC

For other rated voltages, please consult with SMC.

Accessory (Option)	
L	With indicator light (Not available for DC, grommet type)
P	Manual override (With lock)

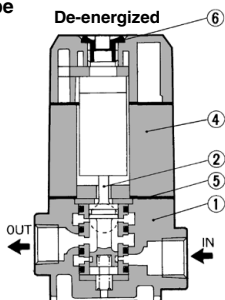
Thread type	
Nll	Rc
N	NPT
T	NPTF
F	G

Mounting	
Nll	Without bracket
B	With bracket (Only Body ported type)

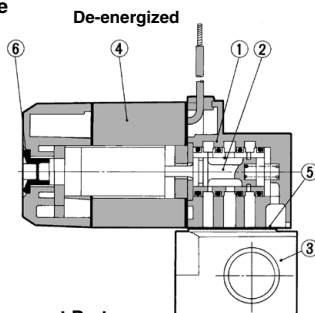
Electrical entry	
G	Grommet
D	DIN terminal

Construction

Body ported type



With sub-plate



Sub-plate Assembly Part No.: VS3110-S-02/03

* Mounting bolts and gaskets are not attached.

Part No. for Mounting Bolt and Gasket

BG-VS3010

Component Parts

No.	Description	Material
1	Body	Aluminum die-casted
2	Spool/Sleeve	Stainless steel
3	Sub-plate	Aluminum die-casted

Replacement Parts

No.	Description	Material	Part no.			
			VS3115-□G	VS3115-□D	VS3110-□G	VS3110-□D
4	Solenoid capsule assembly	AC	SCA006-□	SCAD001-□	SCA006-□	SCAD001-□
		DC	SCA001-□	SCAD001-□	SCA001-□	SCAD001-□
5	Gasket	NBR	AXT333-14	AXT333-14	AXT338-15	AXT338-15
6	Plug for cap	Resin	AXT333-16			

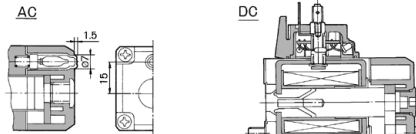
□: Enter the operating voltage.

(100 VAC: 01, 200 VAC: 02, 110 VAC: 03, 220 VAC: 04, 24 VDC: 52)

Accessory (Option)

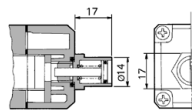
Indicator light

When solenoid is energized, indicator light illuminates, thus the electrical state of the solenoid can be seen from the outside.



Manual override

Remove the rubber plug on the top of the solenoid cap to mount the manual override. Push the override with a screwdriver to the required stroke and the valve will shift. Turn to the right or left at 90 degrees to lock it. Turn it back 90 degrees to unlock. Be sure to unlock the override before energizing the valve electrically.



Description	Part no.	
	AC	DC
Manual override (With lock)	PB0111-3 (PB0111)	PB0111-1
Manual override (Non-locking)	PB0101	PB0101-1

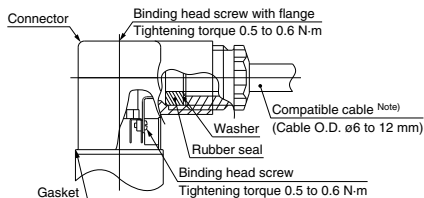
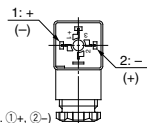
(): With indicator light

DIN terminal

Since internal connections are as shown below for the DIN terminal, make connection to the power supply accordingly.

Terminal no.	1	2
DIN terminal	+ (-)	- (+)

- * There is no polarity. (DC type with indicator light has polarity. ①+, ②-)
- Use compatible heavy duty cords with cable O.D. of ø6 to 12 mm.
- Use the tightening torques below for each section.

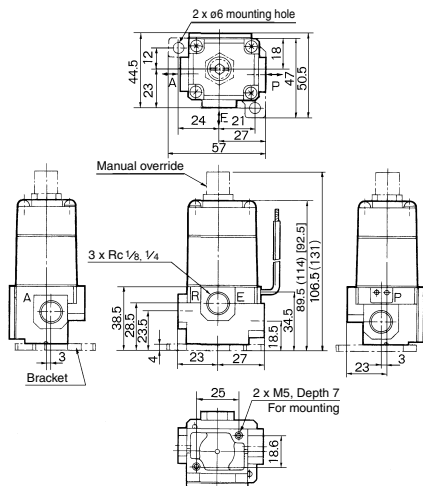


Note) For an outside cable diameter of ø9 to 12 mm, remove the internal parts of the rubber seal before using.

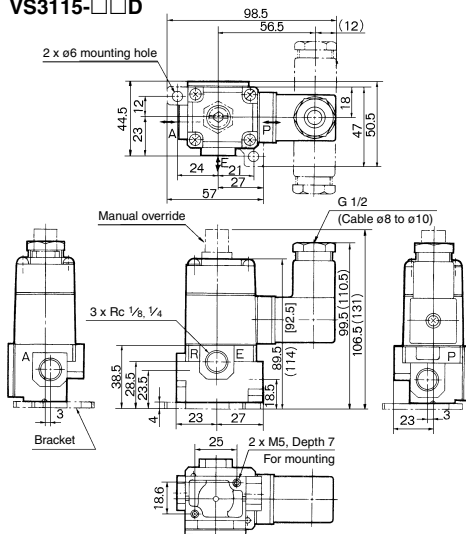
Dimensions

Body ported type

VS3115-□□G



VS3115-□□D



() : DC
[] : AC, with indicator light

VV061

VV100

V100

S070

VQD

VQD-V

VKF

VK

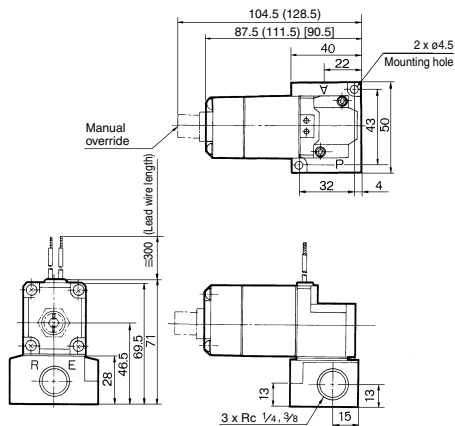
VT

VS4

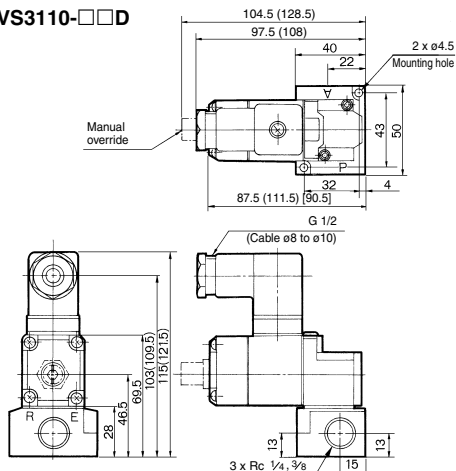
VS3

With sub-plate

VS3110-□□G

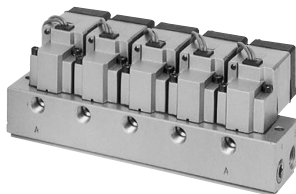


VS3110-□□D



() : DC
[] : AC, with indicator light

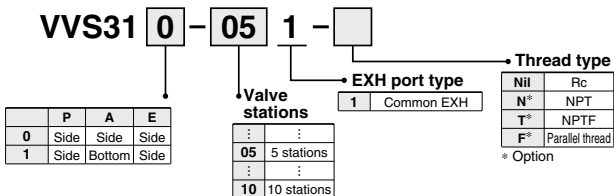
Manifold Specifications



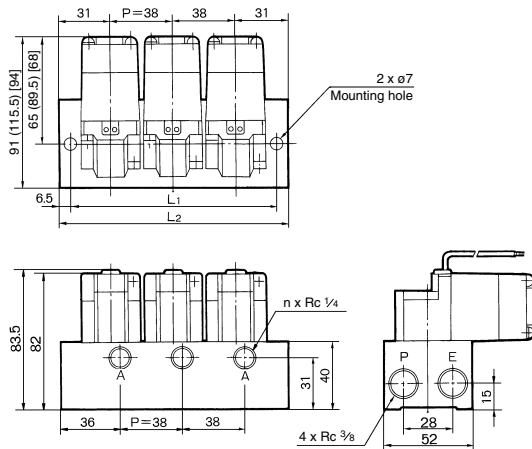
Specifications

Manifold type				B mount			
Max. number of stations				10 stations			
Exhaust type	Port location/Port size			Port direction			Applicable valve model
	P	A	E	P	A	E	
Common	Base 3/8	Base 1/4	Base 3/8	Side	Side	Side	VS3114-00□□
				Side	Bottom	Side	
Accessory				Blanking plate (With gaskets and screw)		AXT338-17A	

How to order manifold



Dimensions



(): DC
[] : AC, with indicator light

L	n	2	3	4	5	6	7	8	9	10
L ₁		87	125	163	201	239	277	315	353	391
L ₂		100	138	176	214	252	290	328	366	404

L₁ = 38n + 11, L₂ = 38n + 24 n: Station
Formula for manifold weight M = 0.16n + 0.1 (kg)

3 Port Direct Operated Solenoid Valve

Series VS3135/3145

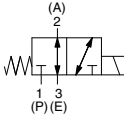
Metal Seal



Terminal type



Symbol



Caution

- Be sure to read before handling.
- Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

How to Calculate the Flow Rate

For obtaining the flow rate, refer to front matters 42 to 45.

Specifications

Fluid	Air/Inert gas
Proof pressure	1.5 MPa
Operating pressure range	0 to 1.0 MPa
Ambient and fluid temperature (°C) ⁽¹⁾	-20 to 60
Lubrication ⁽²⁾	Not required
Manual override	Option (Non-locking type available)
Electrical entry	Grommet, Conduit terminal, Dripproof conduit terminal
Coil rated voltage	AC 100, 200 V 50/60 Hz DC 24 V
Allowable voltage fluctuation	-15 to +10% of rated voltage
Coil insulation type	Class B or equivalent (130°C) ⁽³⁾
Impact/Vibration resistance (m/s²)	150/50 ⁽⁴⁾

Note 1) If it is low temperature, dry air should be used. (No freezing)

Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.

Note 3) Based on JIS C 4003.

Note 4) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Model

Valve model		VS3135						VS3145							
Flow characteristics		P → A			A → E			P → A			A → E				
		C	b	Cv	C	b	Cv	C	b	Cv	C	b	Cv		
		1/4	6.1	0.3	1.5	6.1	0.4	1.6	—	—	—	—	—	—	
3/8	7.2	0.2	1.8	7.3	0.2	1.8	—	—	—	—	—	—			
1/2	9.0	0.2	2.3	9.0	0.3	2.4	18	0.27	4.8	16	0.34	4.1			
3/4	—	—	—	—	—	—	20	0.21	5.1	15	0.46	4.5			
Response time ⁽¹⁾ (ms)	AC	30 or less						30 or less							
	DC	60 or less						80 or less							
Max. operating ⁽²⁾ frequency (c.p.m.)	AC	300 or less						180 or less							
	DC	180 or less						180 or less							
Weight (kg)	AC	0.8						1.6							
	DC	1.1						2.4							
Apparent power (VA)	AC	Inrush	50 Hz	100						300					
			60 Hz	90						360					
	Holding	50 Hz	20						50						
		60 Hz	14						60						
Power consumption (W)	DC	13.2						24							

Note 1) Based on JIS B 8375-1981. (at 0.5 MPa, without surge voltage suppressor)

Note 2) Min. operating frequency is once in 30 days. (Based on JIS B 8375.)

Note 3) "Note 1)" and "Note 2)" are with controlled clean air.

How to Order

VS31 3 5 - 02 1

Body size

3	3/8 Standard
4	1/2 Standard

Port size

Size	3135	3145
02	1/4	—
03	3/8	—
04	1/2	—
06	3/4	—

Coil rated voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC (50/60 Hz)
4	220 VAC (50/60 Hz)
5	24 VDC

For other rated voltages, please consult with SMC.

Option

Nil	None
P	Manual override (With lock)

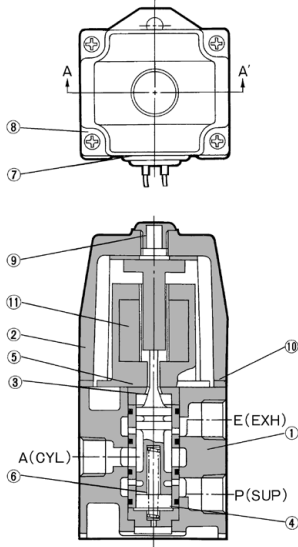
Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

		Electrical entry	
Nil	Grommet	WTL	Dripproof conduit terminal, With light
T	Conduit terminal	WTLZ	Dripproof conduit terminal, With light/surge voltage suppressor (With AXT307-1-□)
TL	Conduit terminal, With light	WTB	Dripproof conduit terminal (Metallic fittings compliant with standards used.)
TZ	Conduit terminal, With surge voltage suppressor (With AXT307-1-□)	WTBL	Dripproof conduit terminal (Metallic fittings compliant with standards used.), With light
TLZ	Conduit terminal, With light/surge voltage suppressor (With AXT307-1-□)	WTBZ	Dripproof conduit terminal (Metallic fittings compliant with standards used.), With surge voltage suppressor (With AXT307-1-□)
WT	Dripproof conduit terminal	WTBLZ	Dripproof conduit terminal (Metallic fittings compliant with standards used.), With light/surge voltage suppressor (With AXT307-1-□)
WTZ	Dripproof conduit terminal, With surge voltage suppressor (With AXT307-1-□)		

Series VS3135/3145

Construction



A-A' cross section

Component Parts

No.	Description	Material
1	Body	Aluminum die-casted
2	Solenoid cover	Aluminum die-casted
3	Spool/Sieve	Stainless steel

⑩ Solenoid Coil Assembly Part No.

Electrical entry	Voltage	Part no.	
		VS3135	VS3145
Grommet	100 VAC	A01-01	A12-01
	200 VAC	A01-02	A12-02
	24 VDC	VS4000-A07-52	A08-52
Conduit terminal	100 VAC	A01-01-63	A12-01-63
	200 VAC	A01-02-63	A12-02-63
	24 VDC	VS4000-A07-52	A08-52-63

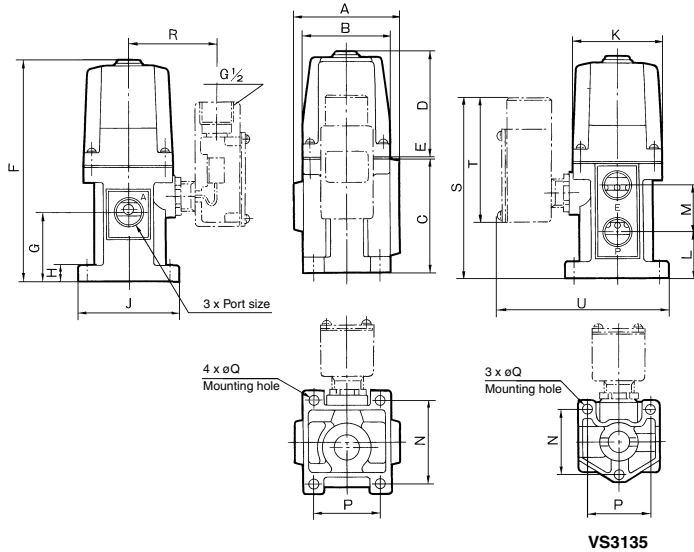
Replacement Parts

No.	Description	Material	Part no.	
			VS3135	VS3145
4	Cap	Resin	—	—
5	Bushing	Resin	XT013-13-2	XT021-12
6	Spring	Steel wire	—	—
7	Rubber plug for wire	NBR	XT010-20	XT010-20
8	Round head combination screw	Steel wire	XT010-21 ^{#1}	XT010-21 ^{#1}
9	Plug for cover	NBR	XT041-1	XT041-1
10	Gasket	NBR	XT013-31-2	NXT030-8

3 Port Direct Operated Solenoid Valve *Series VS3135/3145*

Dimensions

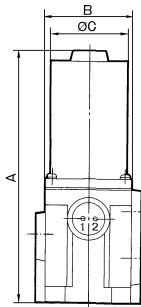
VS3135/3145



- VV061
- VV100
- V100
- S070
- VQD
- VQD-V
- VKF
- VK
- VT
- VS4
- VS3**

Model	Port size Rc	A	B	C	D	E	F	G	H	J	K	L	M	N	P	øQ	Terminal dimensions			
																	R	S	T	U
VS3135-02 VS3135-03 VS3135-04	1/4, 3/8, 1/2	64	64	65	70	1	136	35	9	64	54	19	32	50	50	7	60	120	96	118
VS3145-04 VS3145-06	1/2, 3/4	82	68	88	92	1	181	53	12	81	70	35	36	66	52	9	66	140	96	133

DC



Model	Port size Rc	A	B	øC
VS3135-02 VS3135-03 VS3135-04	1/4, 3/8, 1/2	129	64	50.8
VS3145-04 VS3145-06	1/2, 3/4	196	68	60.5