

Direct Operated 2 Port Solenoid Valve For Steam

Series VCS

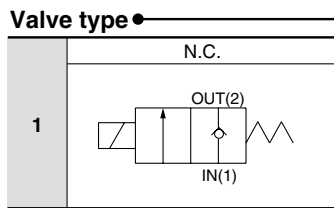
How to Order Valves (Single Unit)

VC S **2** **1** **1** **G** **2** **02** **□** **□** **□**

For steam ●
When no symbol is shown for "Material and insulation type"
● Body material: C37
● Seal material: PTFE
● Coil insulation: Class H

Series ●

2	Class 2
3	Class 3
4	Class 4

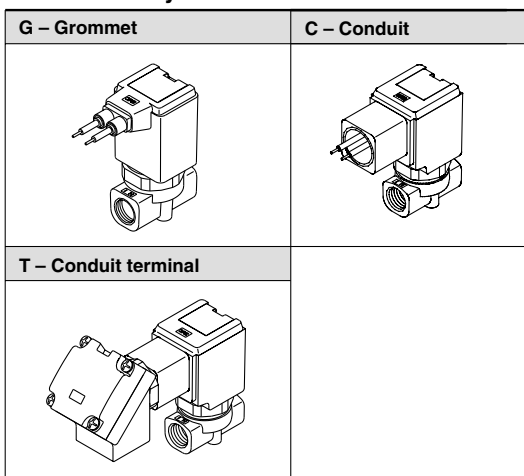


Voltage ●

1	100 VAC
2	200 VAC
3	110 VAC
4	220 VAC
36	230 VAC

* Please consult with SMC regarding other voltages.

Electrical entry ●



* Available types of electrical entry are either G, C and T. (Surge voltage suppressor is not equipped.)

Option ●

Nil	None
F	Foot type bracket

Material and insulation type ●

Symbol	Body material	Seal material	Coil insulation type
Nil	C37	PTFE	Class H
D		FKM	
R	SUS	PTFE	
N		FKM	

Thread type ●

Nil	Rc
N	NPT
F	G

Port size ●

Symbol	Port size	Class 2	Class 3	Class 4
01	1/8 (6A)	○	—	—
02	1/4 (8A)	○	○	○
03	3/8 (10A)	—	○	○
04	1/2 (15A)	—	○	○
06	3/4 (20A)	—	—	○

Orifice size ●

Symbol	Orifice size (mmø)	Class 2	Class 3	Class 4
2	2	○	—	—
3	3	○	○	○
4	4	○	○	○
5	5	○	○	○
7	7	—	○	○
10	10	—	○	○

* Refer to the below table for orifice and port size combinations.

Orifice and Port Size Combinations

Class	Port size	Orifice size (mmø)					
		2	3	4	5	7	10 ⁽¹⁾
2	1/8 (6A)	●	●	●	●	—	—
	1/4 (8A)	●	●	●	●	—	—
3	1/4 (8A)	—	●	●	●	●	—
	3/8 (10A)	—	●	●	●	●	●
4	1/2 (15A)	—	—	—	—	—	●
	1/4 (8A)	—	●	●	●	●	—
	3/8 (10A)	—	●	●	●	●	●
	1/2 (15A)	—	—	—	—	—	●
	3/4 (20A)	—	—	—	—	—	●

Note) ø10 is available with seal material FKM only.

Direct Operated 2 Port Solenoid Valve For Steam **Series VCS**

Standard Specifications



		Valve specifications		
		Valve specifications	Valve specifications	
		Valve construction	Direct operated poppet	
		Fluid	Steam (184°C or less)	
		Withstand pressure MPa	5.0	
		Body material	C37, Stainless steel	
		Seal material	PTFE (FKM)	
		Ambient temperature (°C)	-20 to 100	
		Fluid temperature (°C)	184 or less (PTFE), 120 or less (FKM) ⁽¹⁾	
		Enclosure	Dusttight, low jetproof (equivalent to IP65)	
		Environment	Location without corrosive or explosive gases	
		Valve leakage (cm ³ /min)	300 (PTFE), 1 (FKM) measured by air	
		Mounting orientation	Unrestricted	
		Vibration/Impact resistance (m/s ²) ⁽²⁾	30/150 or less	
		Coil specifications		
		Coil specifications	Coil specifications	
		Rated voltage	100 VAC, 110 VAC, 200 VAC, 220 VAC, 230 VAC (50/60 Hz)	
		Allowable voltage fluctuation	±10% of rated voltage	
		Coil insulation type	Class H	
		Power consumption (W) 50/60 Hz	VCS2: 4.9/4.1, VCS3: 7.7/6.6, VCS4: 10.5/9.3	
		Apparent power (VA) 50/60 Hz	Inrush	VCS2: 22/19, VCS3: 36/30, VCS4: 45/37
			Holding	VCS2: 10/8, VCS3: 15/13, VCS4: 19/16



Note 1) For low pressure steam at a temperature of 120°C or less, use FKM for the seal material.

Note 2) Vibration resistance Conditions when tested with one sweep of 10 to 250 Hz in the axial direction and at a right angle to the armature, in both energized and deenergized states

No malfunction occurred when tested. (Value at the initial state)

Impact resistance Conditions when tested with a drop tester in the axial direction and at a right angle to the armature, one time each in energized and deenergized states.

No malfunction occurred when tested. (Value at the initial state)

Characteristic Specifications

Model	Class	Port size ⁽¹⁾	Orifice size ⁽¹⁾ (mmø)	Max. operating pressure differential MPa	Flow characteristics		Max. system pressure MPa	Weight (kg)
					Av x 10 ⁻⁶ (m ²)	Cv converted		
VCS2	2	1/8 (6A) 1/4 (8A)	2	1.0	3.8	0.16	1.0	1/8: 0.21 1/4: 0.24
			3	0.8	7.9	0.33		
			4	0.5	12	0.51		
			5	0.3	16	0.65		
VCS3	3	1/4 (8A) 3/8 (10A) 1/2 (15A)	3	1.0	8.4	0.35	1.0	1/4: 0.42 3/8: 0.40 1/2: 0.49
			4	0.8	13	0.54		
			5	0.5	19	0.80		
			7	0.2	33	1.4		
			10	0.1	50	2.1		
VCS4	4	1/4 (8A) 3/8 (10A) 1/2 (15A) 3/4 (20A)	3	1.0	8.4	0.35	1.0	1/4: 0.58 3/8: 0.55 1/2: 0.62 3/4: 0.78
			4	1.0	14	0.60		
			5	0.7	20	0.85		
			7	0.3	33	1.4		
			10	0.12	50	2.1		



Note 1) Refer to page 17-2-42 in model selection regarding port size and orifice size combinations.

Note 2) The weight is the value for the grommet type.

VC□

VDW

VQ

VX2

VX□

VX3

VXA

VN□

LVC

LVA

LVH

LVD

LVQ

LQ

LVN

TI/
TIL

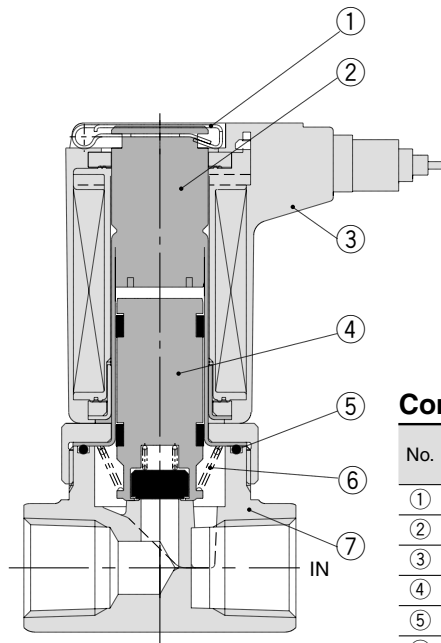
PA

PAX

PB

Series VCS

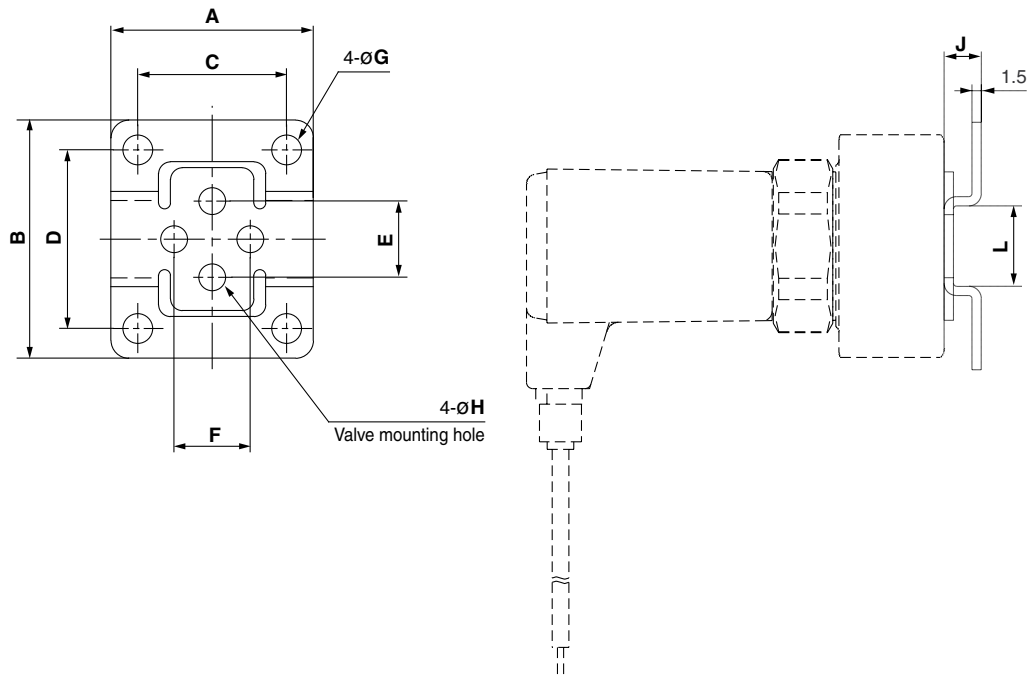
Construction



Component Parts

No.	Description	Material	
		Standard	Option
①	Clip	Stainless steel	—
②	Tube assembly	Stainless steel, Cu	Stainless steel/Ag
③	Coil assembly	Class H	—
④	Armature assembly	Stainless steel, PTFE	Stainless steel, FKM
⑤	Seal	PTFE	FKM
⑥	Return spring	Stainless steel	—
⑦	Body	C37	Stainless steel

Dimensions: Bracket



Bracket Mounting Dimensions/Bracket Material: Stainless Steel

Valve model	Port size	Bracket part no.	A	B	C	D	E	F	G	H	J	L
VCS21	1/8, 1/4	VCW20-12-01A	34	40	25	30	12.8	12.8	5	4.5	6	13
VCS31	1/4, 3/8	VCW30-12-02A	42	52	30	40	19	19	6	5.5	7	19
	1/2	VCW30-12-04A ^{Note 1)}	48	56	36	44	23	23	6	5.5	7	23
VCS41	1/4, 3/8	VCW40-12-02A	42	52	30	40	23	23	6	5.5	7	19
	1/2	VCW30-12-04A ^{Note 1)}	48	56	36	44	23	23	6	5.5	7	23
	3/4	VCW40-12-06A	56	65	44	53	28.2	28.2	6	5.5	7	26

* 2 mounting screws (for mounting bracket) are included in bracket part no.

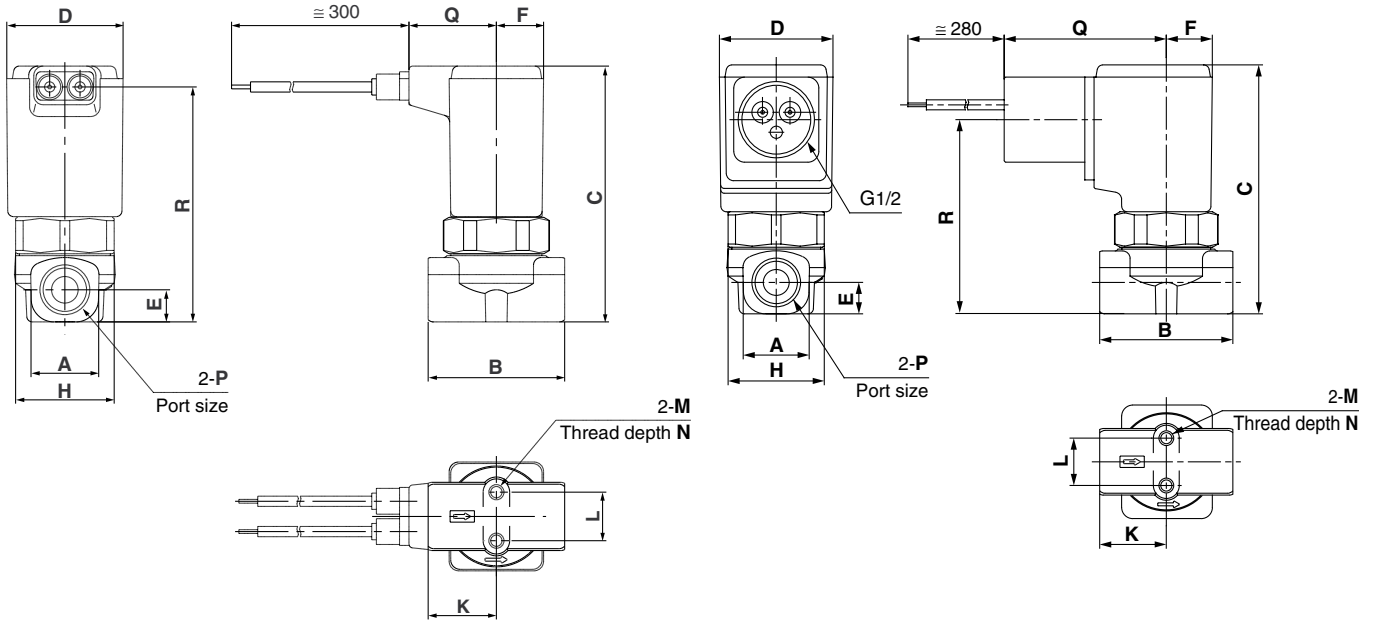
Note 1) The same bracket is used for VCS3□ and VCS4□ (port size 1/2).

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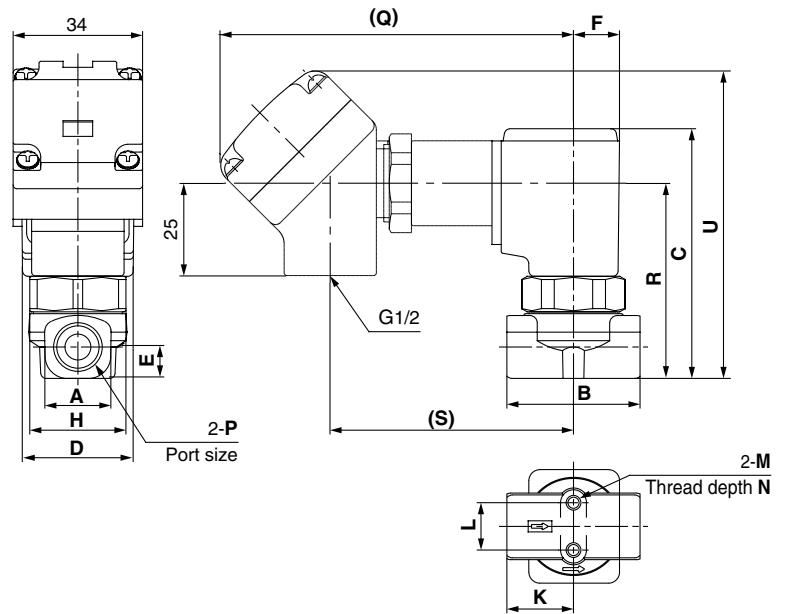
Dimensions

Grommet: G

Conduit: C



Conduit terminal: T



N.C.

(mm)

Model	P Port size	A	B	C	D	E	F	H	K	L	M	N	Electrical entry							
													Grommet: G		Conduit: C		Conduit terminat: T			
													Q	R	Q	R	Q	R	S	U
VCS21	1/8	13.5	28	64	31	6.5	12.5	28	14	12.8	M4	4.5	22	59	44	50	99	50	66	83
	1/4	18	36	67.5	31	8.5	12.5	28	18	12.8	M4	6	22	62	44	53	99	53	66	86
VCS31	1/4, 3/8	22	40	81.5	36.5	11	15	32	20	19	M5	8	24	76	46	66.5	101	66.5	68	99
	1/2	30	50	86	36.5	13.5	15	32	25	23	M5	8	24	80	46	71	101	71	68	104
VCS41	1/4, 3/8	22	45	90	41	11	17	36	22.5	23	M5	8	26	84	48	74.5	103	74.5	70	107
	1/2	30	50	94	41	13.5	17	36	25	23	M5	8	26	88	48	78.5	103	78.5	70	111.5
	3/4	35	60	102	41	17.5	17	36	30	28.2	M5	8	26	96	48	86.5	103	86.5	70	119

- VC□
- VDW
- VQ
- VX2
- VX□
- VX3
- VXA
- VN□
- LVC
- LVA
- LVH
- LVD
- LVQ
- LQ
- LVN
- TI/
TIL
- PA
- PAX
- PB