Compact Direct Operated 3 Port Solenoid Valve For Water and Air

Series VDW200/300

How to Order Valves (Single unit)

VDW 2 50 – 1 G – 2 – 01 [ ] – [ ] – [ ]

For Water, Air and Vacuum

Series

2	200
3	300

Valve type

50	C.O. N.C. (2) N.O. (3) (1) IN

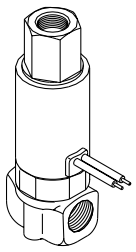
Voltage

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
6	12 VDC

∗ Please consult with SMC regarding other voltages.

Electrical entry

G-Grommet



Orifice size

Symbol	N.C. Orifice size (mm ø)	N.O. Orifice size (mm ø)	Series
1	1	1	200
2	1.6		
2	2	1.8	300
3	3		
4	4		

Port size

Symbol	Port size	Series	
		200	**300**
M5	M5	○	—
01	1/8 (6A)	○	○
02	1/4 (8A)	—	○

Thread type

Nil	Rc
F	G
N	NPT

Material and insulation type

Symbol	Body material	Seal material	Coil insulation type
Nil	C37	NBR	Class B
A		FKM	
G	Stainless steel	NBR	
H		FKM	
L Note)		FKM	

Note) For pure water: The armature assembly is a corrosion resistant construction.

Option

Nil	None
F	Foot type bracket

Note) Foot brackets are packed with valves.

Standard Specifications

Valve specifications	Valve construction	Direct operated poppet
	Fluid (2)	Water (except waste water or agricultural water), Air, low vacuum
	Withstand pressure (MPa)	2.0
	Ambient temperature (°C)	–10 to 50
	Fluid temperature (°C)	1 to 50 (No freezing)
	Environment	Location without corrosive or explosive gases
	Valve leakage (cm^3/min)	0 (with water pressure)
	Mounting orientation	Unrestricted
	Vibration/Impact (m/s^2) (4)	30/150
Coil specifications	Rated voltage	24 VDC, 12 VDC, 100 VAC, 110 VAC, 200 VAC, 220 VAC (50/60 Hz)
	Allowable voltage fluctuation (%)	±10 of rated voltage
	Coil insulation type	Class B
	Enclosure (5)	Enclosed (equivalent to IP40)
	Power consumption (W) (3)	3

Note 1) Please consult with SMC when used under conditions which may cause condensation on the exterior of the product.
Note 2) When used with pure water, select "L" (Stainless steel, FKM) for the material type.
Note 3) Since AC coil specifications include a rectifying device, there is no difference in power consumption between inrush and holding.
3.5 W in the case of 110/220 VAC.
Note 4) Vibration resistance···· No malfunction when tested with one sweep of 5 to 200 Hz in the axial direction and at a right angle to the armature, in both energized and deenergized states.
Impact resistance ····· No malfunction 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.
Note 5) Please consult with SMC regarding dust-protected splashproof type (equivalent to IP54).

Characteristic Specifications

Model	Port size	Orifice size (mm ø)	Max. operating pressure differential (2) (MPa)		Operating Pressure range (3) (MPa)	Weight (kg)
			Pressure port 1	Pressure ports 2, 3 (1)		
VDW200	M5 1/8 (6A)	1	0.9	0.3	0 to 1.0	0.12
		1.6	0.7	0.1		
VDW300	1/8 (6A) 1/4 (8A)	2	0.8	0.2		1/8: 0.27 1/4: 0.30
		3	0.4	0.1		
		4	0.2	0.05		

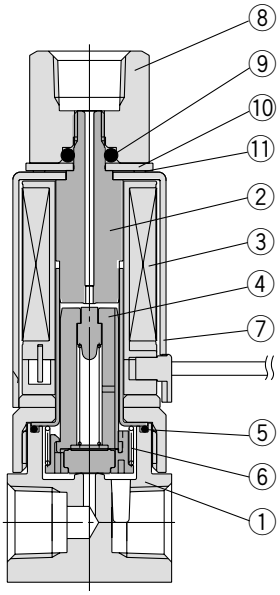
Note 1) Indicates the maximum operating pressure differential of pressure ports 2 and 3.
Note 2) The maximum operating pressure differential changes depending on the flow direction of the fluid.
Refer to page 17-2-63 for details.
Note 3) For low vacuum specifications, the operating pressure range is 1 Torr (1.33 x 102 Pa) to 1.0 MPa.
Please consult with SMC if using below 1 Torr (1.33 x 102 Pa).

Flow Characteristics

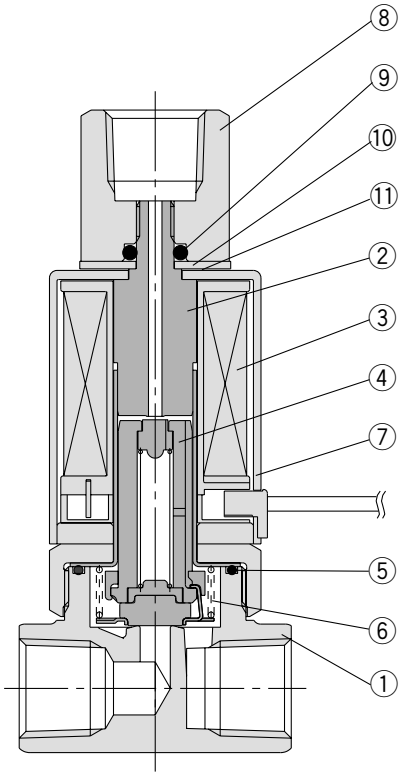
Model	Port size	Orifice size (mm ø)		Water				Air					
				1→2 (IN→N.C.)		1→3 (IN→N.O.)		1→2 (IN→N.C.)			1→3 (IN→N.O.)		
		N.C.	N.O.	Av x 10^{-6} m^2	Cv converted	Av x 10^{-6} m^2	Cv converted	C [dm^3/(s·bar)]	b	Cv	C [dm^3/(s·bar)]	b	Cv
VDW200	M5 1/8 (6A)	1	1	0.72	0.03	0.96	0.04	0.12	0.35	0.03	0.13	0.52	0.04
		1.6		1.9	0.08			0.31	0.45	0.09			
VDW300	1/8 (6A) 1/4 (8A)	2	1.8	3.8	0.16	3.1	0.13	0.52	0.52	0.16	0.38	0.50	0.12
		3		6.7	0.28			1.0	0.52	0.30			
		4		11	0.44			1.5	0.49	0.46			

Construction

VDW250



VDW350

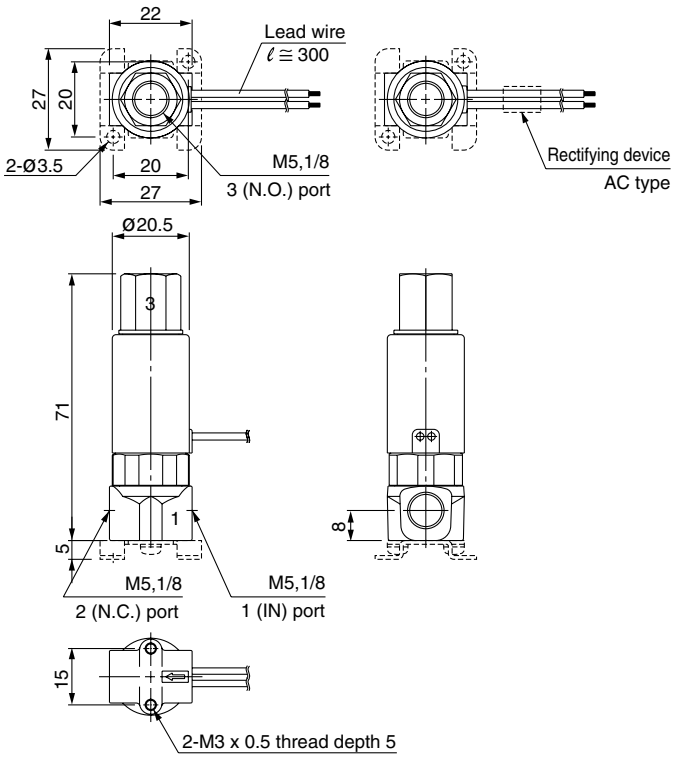


Component Parts

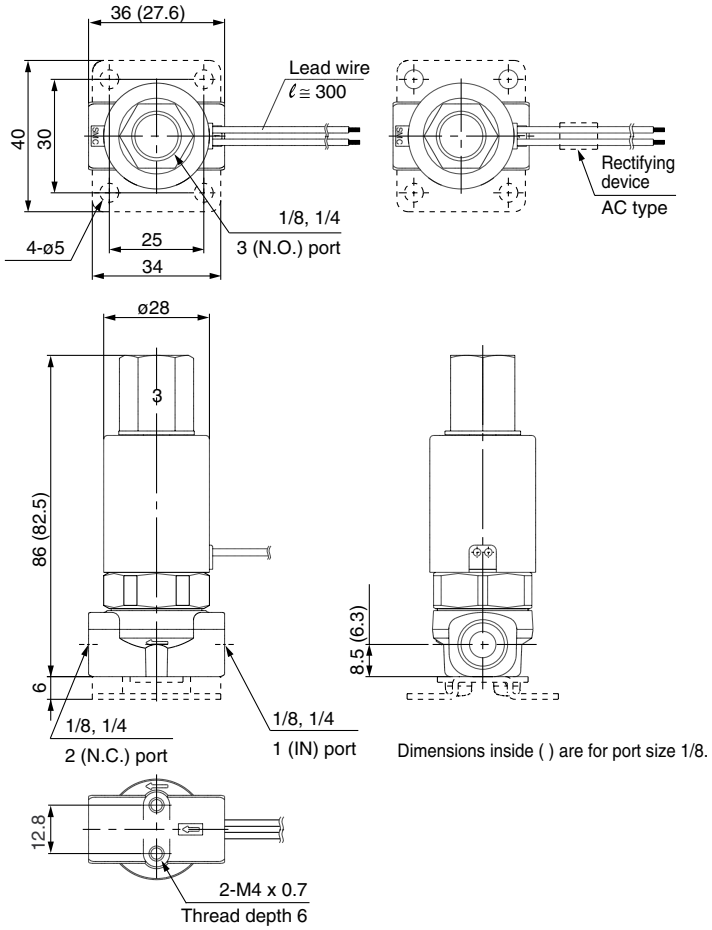
No.	Description	Material	
		Standard	Option
①	Body	C37	Stainless steel
②	Tube assembly	Stainless steel	—
③	Coil assembly	—	—
④	Armature assembly	Stainless steel, PPS, NBR	Stainless, PPS, FKM
⑤	O-ring (Body)	NBR	FKM
⑥	Return spring	Stainless steel	—
⑦	Cover	SPCE	—
⑧	Socket	C36	Stainless
⑨	O-ring	NBR	FKM
⑩	Plate	SPCC	—
⑪	Wave washer	Stainless steel	—

Dimensions

VDW250



VDW350



Dimensions inside ( ) are for port size 1/8.

Bracket assembly part no.

- **Type 200**

VDW20－15A－1

- **Type 300**

VCW20－12－01A