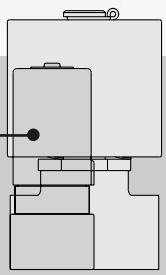
Compact Direct Operated
2/3 Port Solenoid Valve for Water and Air

Series VDW

VDW10/20/30: 2 Port, VDW200/300: 3 Port

Compact/Light weight (compared to series VX)

Single valve volume: Reduced 75% (VDW20)
100g: Reduced approx. 50% (for orifice size equivalent to ø2)



Compact Direct Operated 2/3 Port Solenoid Valve for Water and Air

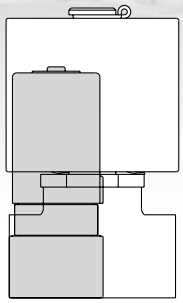
Series VDW

- **Compact (compared to series VX)**

Single valve volume: Reduced 75% (VDW20)
Manifold length: Reduced 18% (VDW30, 7 stations)

- **Light weight (compared series VX)**

100g: Reduced approx. 50% (for orifice size equivalent to ø2)



Improved durability (nearly twice the life of the previous series)

The use of a unique magnetic material reduces the operating resistance of moving parts, while improving service life, wear and corrosion resistance.

Clip type

Quick change coils
Clip design makes coil replacement easy (2 port)

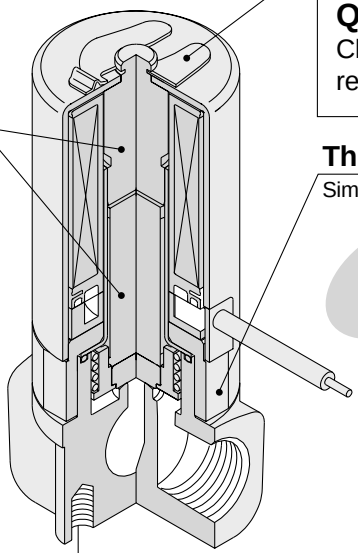
Improved corrosion resistance
Special material introduced

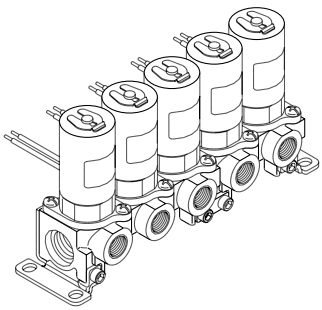
Threaded assembly
Simplifies maintenance

Brass/Stainless steel manifolds added to series (2 port)

High flow rate: Nℓ/min
29.50 to 431.86 (2 port)

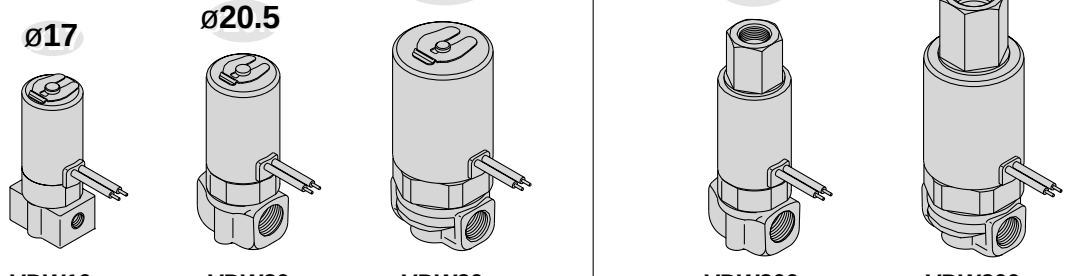
Universal porting
VDW200/300 (3 port)





Bottom mounting threads
Mounting bracket also available

Series of compact designs	
2 port	**3 port**



Compact Direct Operated
2 Port Solenoid Valve for Water and Air
Series VDW10/20/30

How to Order Valves (Single Type)

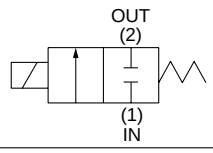
VDW 2 1 – 1 G – 2 01 □ □ □ – Q

For water, air and vacuum

Series

1	10
2	20
3	30

Valve type

1	N.C. 

Voltage

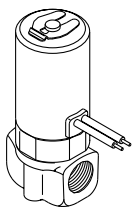
1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC

Order Made Contact SMC regarding other voltages

Protective class
Class II (Mark: ▣)..... Over 50V
Class III (Mark: ◁▷)..... 50V and less

Electrical entry

G – Grommet



Orifice size

Symbol	Orifice size mm	Series
1	ø1	10
2	ø1.6	
1	ø1.6	20
2	ø2.3	
3	ø3.2	
2	ø2	30
3	ø3	
4	ø4	

Port size

Symbol	Port size	Series		
		10	20	30
M5	M5	○	○	—
01	1/8 (6A)	—	○	○
02	1/4 (8A)	—	—	○

Thread type

Nil	Rc
F	G
N	NPT

Materials and insulation type

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

Note) For pure water: 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 Note 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 (with no freezing)
	Environment	Location without corrosive or explosive gases
	Valve leakage cm³/min	0 (with water pressure)
	Mounting orientation	Unrestricted
	Vibration/Impact m/s² Note 4)	30/150
Coil Specifications	**Rated voltage**	24VDC, 12VDC
	Allowable voltage fluctuation %	±10% of rated voltage
	Coil insulation type	Class B
	Enclosure Note 5)	Dust proof (equivalent to IP40)
	Power consumption W Note 3)	2.5 (VDW10), 3 (VDW20/30)

Note 1) Consult 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 for starting and holding.
In case of 110/220VAC, VDW10 is 3W and VDW20/30 is 3.5W.
Note 4) Vibration resistance … No malfunction when tested with one sweep of 5 to 200Hz 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) Consult SMC regarding drip-proof specifications (equivalent to IP54).

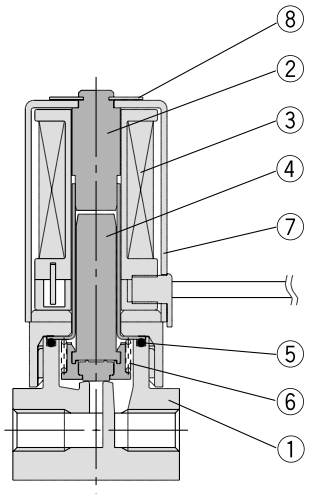
Characteristic Specifications

Model	Port size	Orifice size mm	Maximum operating pressure differential MPa Note 1)		Operating pressure range MPa Note 2)	Effective area mm² (Nℓ/min)	Weight kg
			Pressure port 1	Pressure port 2			
VDW10	M5	ø1	0.9	0.4	0 to 1.0	0.54 (29.50)	0.08
		ø1.6	0.4	0.2		1.2 (68.70)	
VDW20	M5 1/8 (6A)	ø1.6	0.7	0.2		1.2 (68.70)	0.1
		ø2.3	0.4	0.1		3.2 (176.67)	
		ø3.2	0.2	0.05		5.8 (29.50)	
VDW30	1/8 (6A) 1/4 (8A)	ø2	0.8	0.2		2.8 (157.04)	1/8: 0.23 1/4: 0.26
		ø3	0.4	0.1		5.0 (274.82)	
		ø4	0.2	0.05		8.0 (431.86)	

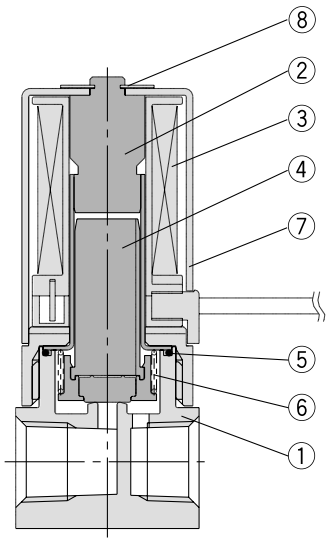
Note 1) The maximum operating pressure differential changes depending on the flow direction of the fluid. Refer to page 4.4-20 for details.
Note 2) For low vacuum specifications, the operating pressure range is 1Torr (1.33 x 10² Pa) to 1.0MPa. Consult SMC if used below 1Torr (1.33 x 10² Pa).

Construction

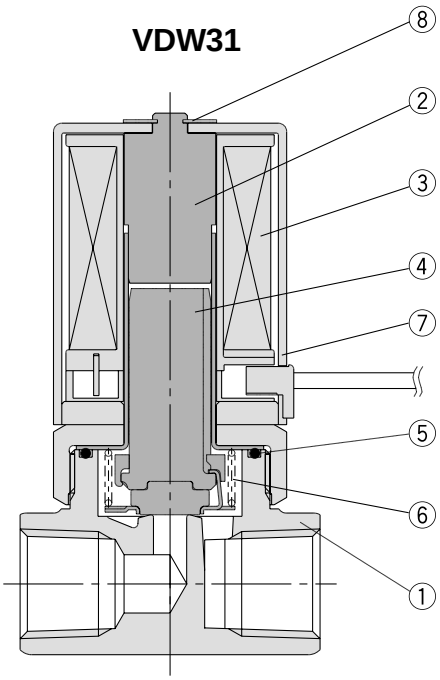
VDW11



VDW21



VDW31

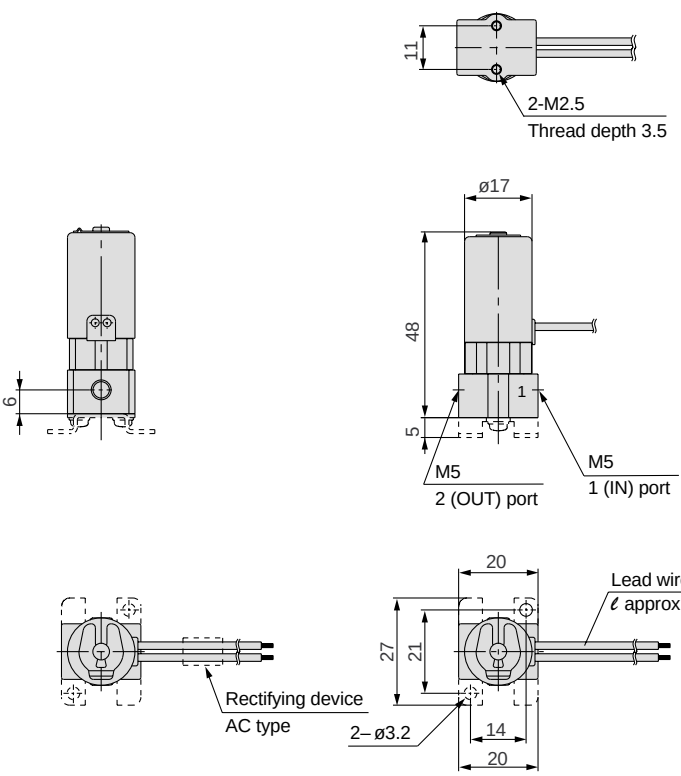


Parts list

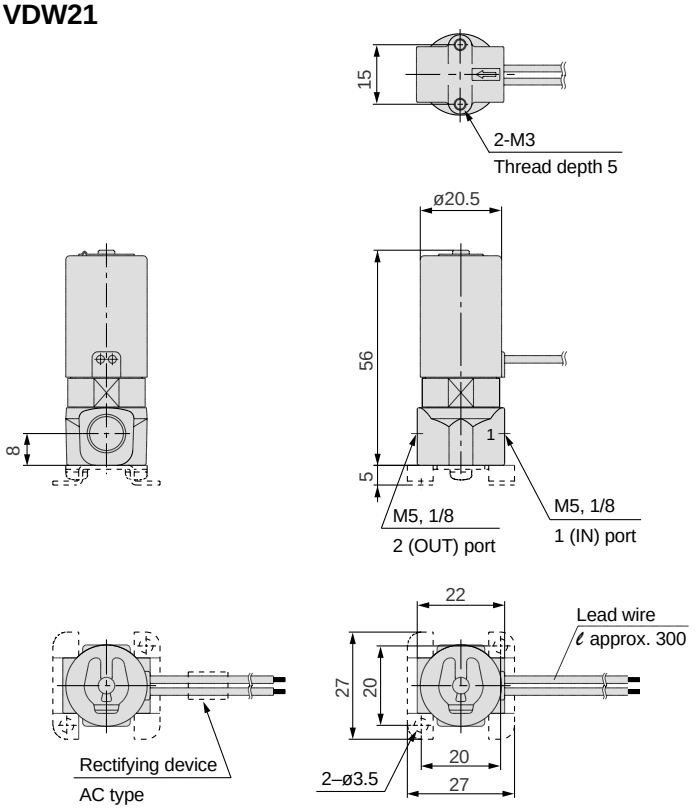
No.	Description	Material	
		Standard	Optional
1	Body	Brass	Stainless steel
2	Tube assembly	Stainless steel	—
3	Coil assembly	—	—
4	Amature assembly	VDW11/21: Stainless steel, PPS, NBR	VDW11/21: Stainless steel, PPS, FKM
		VDW31: Stainless steel, NBR	VDW31: Stainless steel, FKM
5	O-ring (body)	NBR	FKM
6	Return spring	Stainless steel	—
7	Cover	SPCE	—
8	Clip	Stainless steel	—

Dimensions

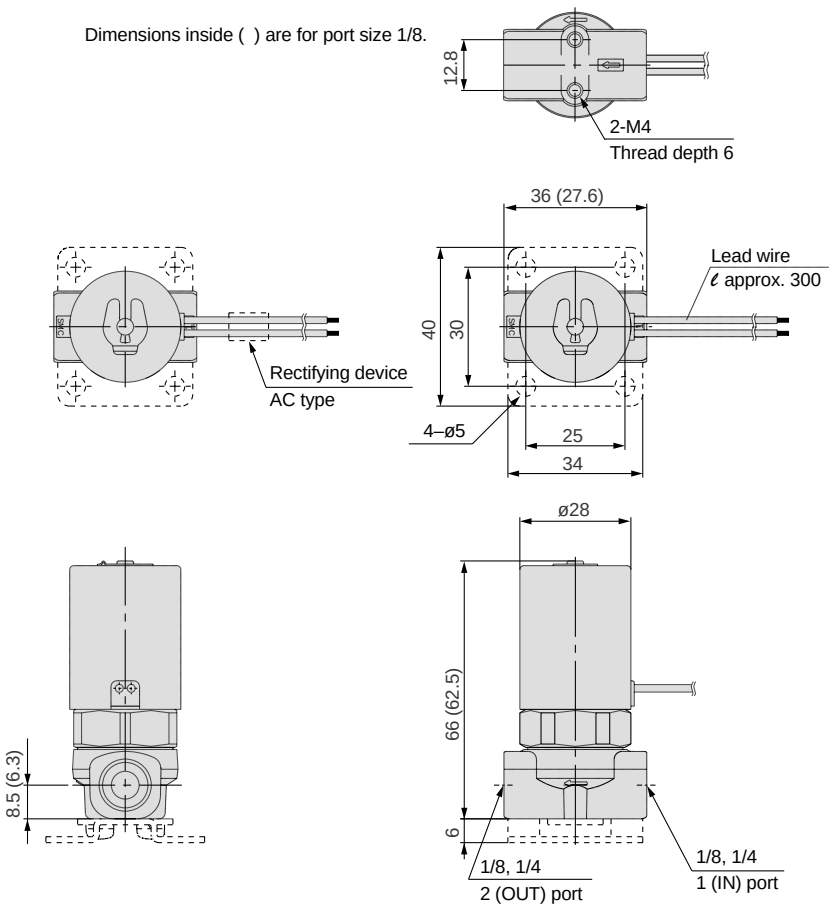
VDW11



VDW21



VDW31



Bracket assembly part no.

- **Types 10, 20**

VDW 2 0 − 15A − 1

- **Series**

1	10
2	20

- **Type 30**

VCW20 − 12 − 01A

How to Order Manifolds

VV2DW 2 □ 05 01 □ □

Series

1	10
2	20
3	30

Materials

Symbol	Manifold material	Seal material
Nil	Brass	NBR
A		FKM
G	Stainless steel	NBR
H		FKM

Stations

02	2 stations
:	:
10	10 stations

OUT port size

Symbol	Port size	Series 10	Series 20	Series 30
M5	M5	○	○	—
01	1/8 (6A)	—	○	○
02	1/4 (8A)	—	—	○

Note) IN port sizes are as follows.
10: 1/8 (6A)
20: 1/4 (8A)
30: 3/8 (10A)

Thread type

Nil	Rc
F	G
N	NPT

Option

Nil	None
F	With bracket

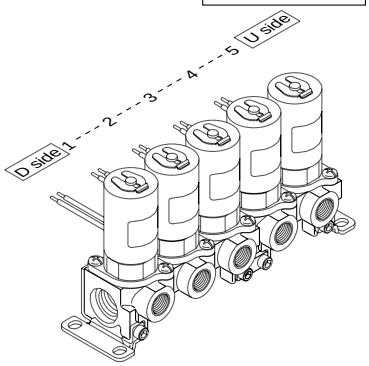
Note) Type 30 is available only with bracket.

How to Order Manifold Assemblies (Example)

Enter the valve and option models to be mounted under the manifold base part number.

<Example>
VV2DW2-0501 …….. 1 set Manifold part no.
VDW23-5G-2-Q ……..5 sets Valve part no. (Stations 1 to 5)

Enter together in order, counting from station 1 on the D side.



How to Order Valves (for Manifold)

VDW 2 3 5 G 2 □ Q

Series

1	10
2	20
3	30

Valve type

3	N.C. for Manifold

Voltage

1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC

Contact SMC regarding other voltages

Protective class
Class II (Mark: ▣)..... Over 50V
Class III (Mark: ◈)..... 50V and less

Electrical entry

G	Grommet

Materials and insulation type

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

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

Orifice size

Symbol	Orifice size mm	Series
1	ø1	10
2	ø1.6	
1	ø1.6	20
2	ø2.3	
3	ø3.2	
2	ø2	30
3	ø3	
4	ø4	

Manifold Options

Blanking plate assembly

● **Types 10, 20**

VVDW 2 0 − 3A □

Series

1	10
2	20

Materials

Symbol	Plate material	Seal material
G	Stainless steel	NBR
H		FKM

∗ Plate material is stainless steel only.

● **Type 30**

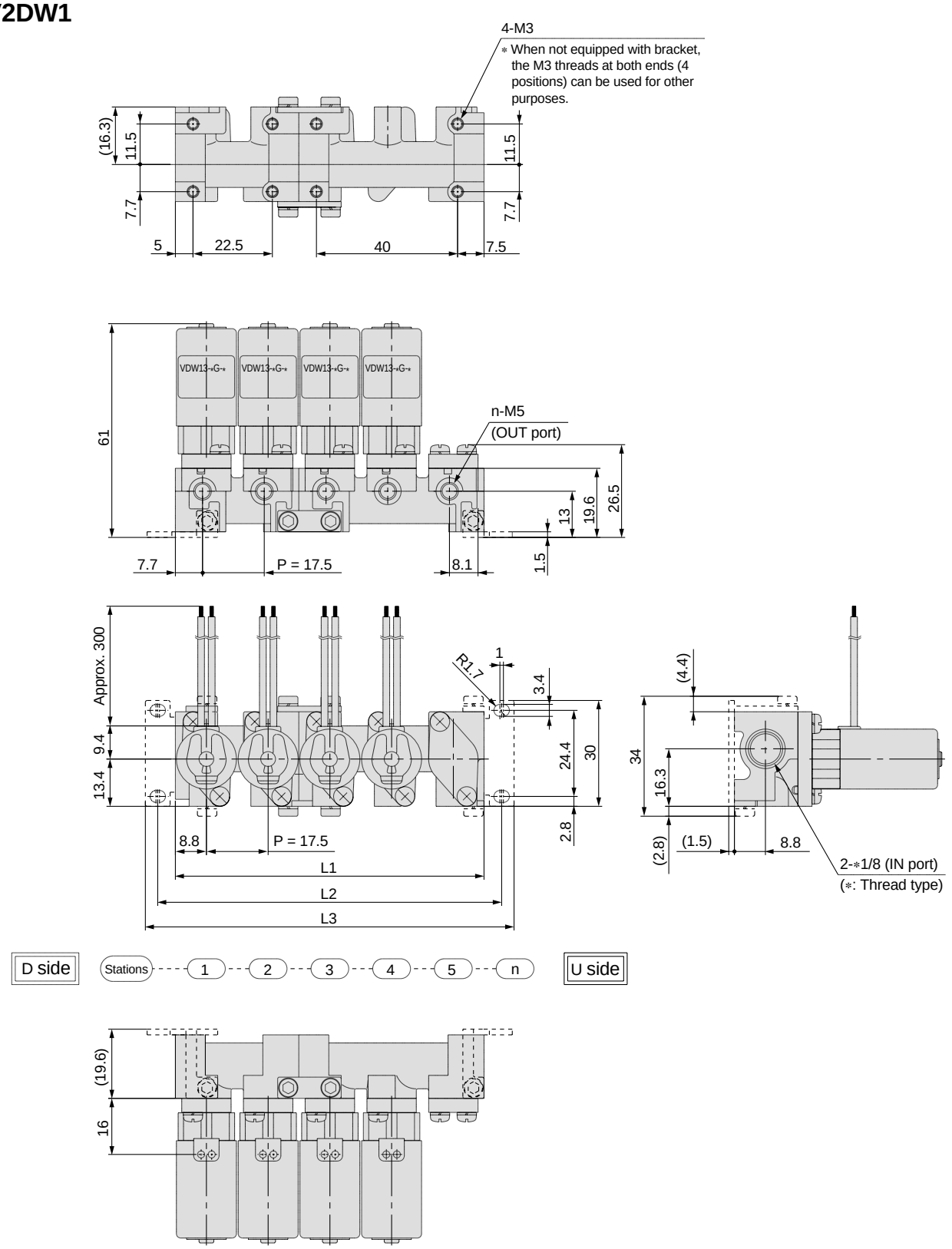
VVCW20 − 3A □

Materials

Symbol	Plate material	Seal material
Nil	Brass	NBR
A		FKM
G	Stainless steel	NBR
H		FKM

Dimensions

VV2DW1



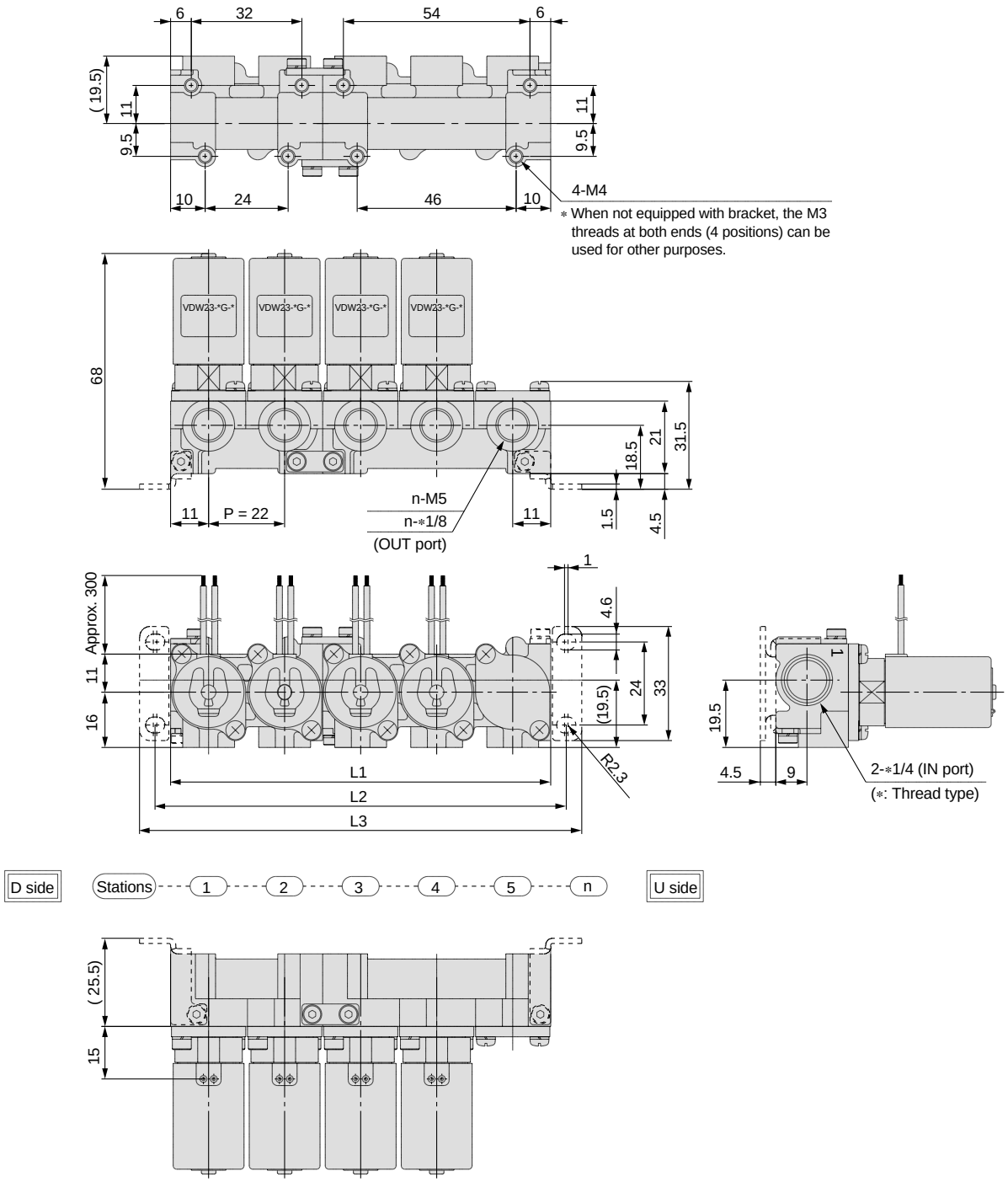
L dimensions (mm)

Dimensions	n (stations)								
	2	3	4	5	6	7	8	9	10
L1	35	52.5	70	87.5	105	122.5	140	157.5	175
L2	45	62.5	80	97.5	115	132.5	150	167.5	185
L3	52	69.5	87	104.5	122	139.5	157	174.5	192
Manifold composition	2 stns. x 1	3 stns. x 1	2 stns. x 2	2 stns. + 3 stns.	3 stns. x 2	2 stns. x 2 + 3 stns.	2 stns. + 3 stns. x 2	3 stns. x 3	2 stns. x 2 + 3 stns. x 2

Note) Manifold bases are composed by connecting 2 station and 3 station bases.
Refer to pages 4.4-11 and 4.4-12 regarding manifold additions.

Dimensions

VV2DW2



VX
VN□
VQ
VDW
VC
LV
PA

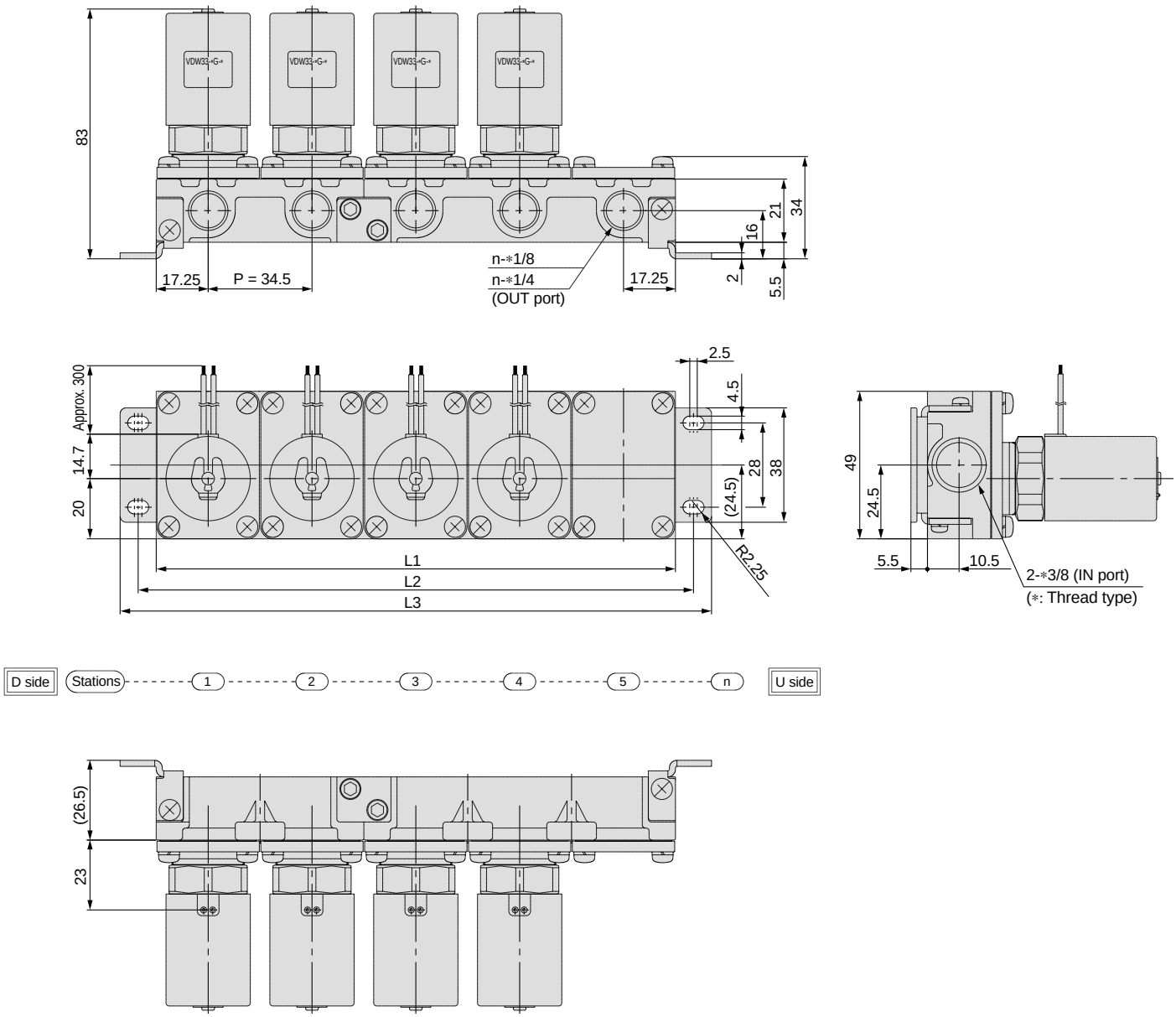
L dimensions (mm)

Dimensions	n (stations)								
	2	3	4	5	6	7	8	9	10
L1	44	66	88	110	132	154	176	198	220
L2	53	75	97	119	141	163	185	207	229
L3	62	84	106	128	150	172	194	216	238
Manifold composition	2 stns. x 1	3 stns. x 1	2 stns. x 2	2 stns. + 3 stns.	3 stns. x 2	2 stns. x 2 + 3 stns.	2 stns. + 3 stns. x 2	3 stns. x 3	2 stns. x 2 + 3 stns. x 2

Note) Manifold bases are composed by connecting 2 station and 3 station bases.
Refer to pages 4.4-11 and 4.4-12 regarding manifold additions.

Dimensions

VV2DW3

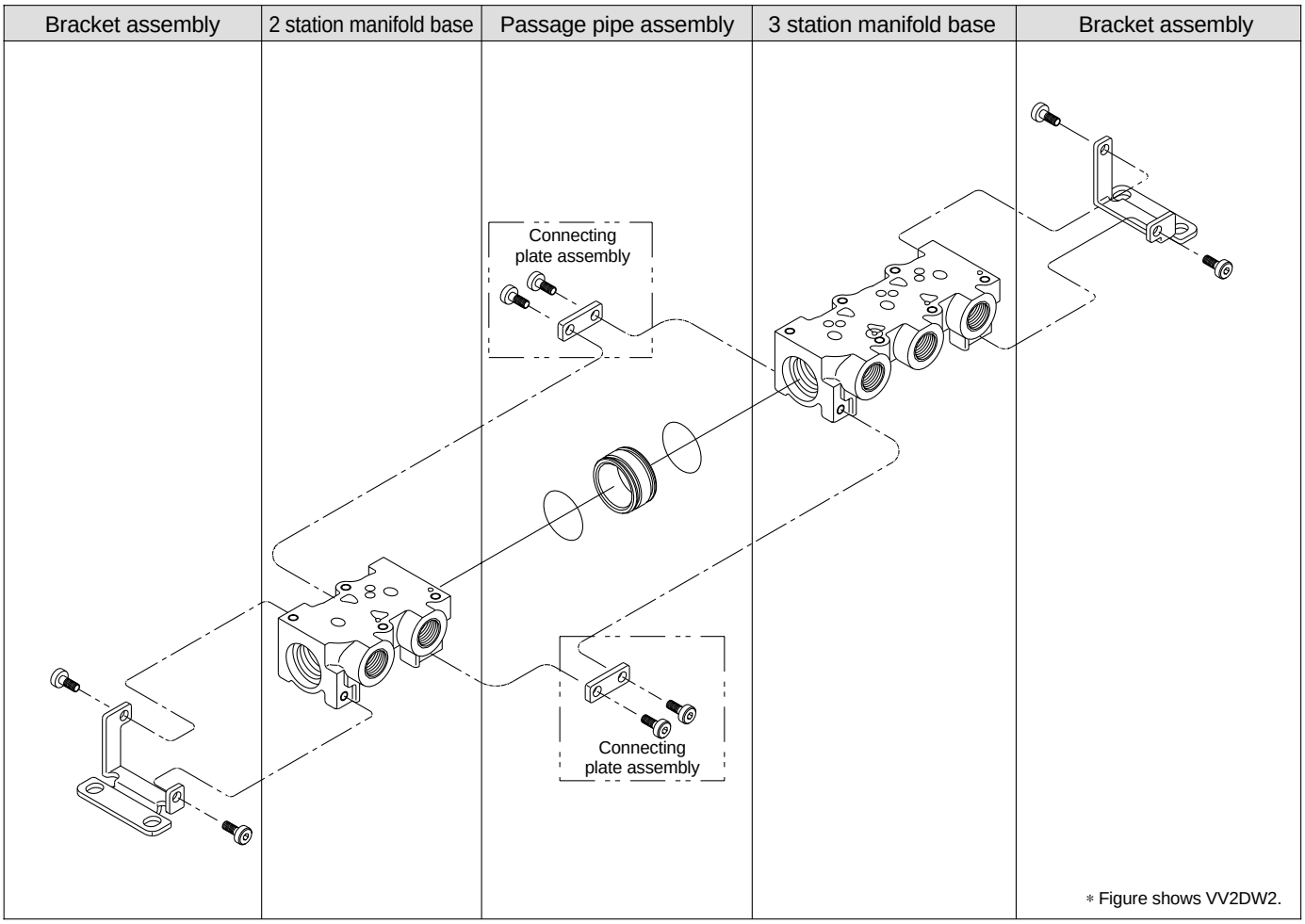


L dimensions (mm)

Dimensions	n (stations)								
	2	3	4	5	6	7	8	9	10
L1	69	103.5	138	172.5	207	241.5	276	310.5	345
L2	81	115.5	150	184.5	219	253.5	288	322.5	357
L3	93	127.5	162	196.5	231	265.5	300	334.5	369
Manifold composition	2 stns. x 1	3 stns. x 1	2 stns. x 2	2 stns. + 3 stns.	3 stns. x 2	2 stns. x 2 + 3 stns.	2 stns. + 3 stns. x 2	3 stns. x 3	2 stns. x 2 + 3 stns. x 2

Note) Manifold bases are composed by connecting 2 station and 3 station bases.
Refer to pages 4.4-11 and 4.4-12 regarding manifold additions.

Manifold Exploded View



Manifold additions

1 Install a passage pipe assembly in between the manifold bases to be added.

2 Connect the respective manifold bases with a connecting plate assembly. (Tightening torque: 0.9±0.1N· m)

3 Attach brackets to the manifold bases. {when equipped with brackets} (Tightening torque: 0.9±0.1N· m)

Note) Manifold station additions can be made in units of 2 or 3 stations.
Order one set each of manifold base, connection plate assembly and passage pipe assembly.

<Manifold bases>

● **Types 10, 20**

VVDW 2 0 − 2 C − 1 − 01 □

Series

1	10
2	20

Material

C	Brass
S	Stainless steel

Stations

1	For 2 stations
2	For 3 stations

Thread type

Nil	Rc
F	G
N	NPT

OUT port size

Symbol	Port size
M5	M5
01	1/8 (6A)

∗ Type 10 is M5 only.

● **Type 30**

VVCW20 − 2 C − 1 − 01 □

Material

C	Brass
S	Stainless steel

Stations

1	For 2 stations
2	For 3 stations

Thread type

Nil	Rc
F	G
N	NPT

OUT port size

Symbol	Port size
01	1/8 (6A)
02	1/4 (8A)

<Bracket assembly>

Note) Consists of a set for the D and U sides.

● **Types 10, 20**

VVDW 2 0 − 5A

Series

1	10
2	20

● **Type 30**

VVCW20-5A

<Connecting plate assembly>

Note) Two sets of connecting plate and mounting screws.

● **Types 10, 20**

VVDW 2 0 − 4A

Series

1	10
2	20

● **Type 30**

VVCW20-4A

<Passage pipe assembly>

● **Types 10, 20**

VVDW 2 0 − 6A − □

Series

1	10
2	20

Materials

Symbol	Pipe material	Seal material
Nil	Brass	NBR
A		FKM
G	Stainless steel	NBR
H		FKM

● **Type 30**

VVCW20 − 6A − □

Materials

Symbol	Pipe material	Seal material
Nil	Brass	NBR
A		FKM
G	Stainless steel	NBR
H		FKM

Compact Direct Operated
3 Port Solenoid Valve for Water and Air
Series VDW200/300

How to Order Valves (Single Type)

VD W 2 50 – 5 G – 2 01 □ – □ – □ – Q

For water, air and vacuum

Series

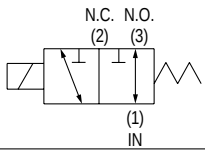
2	200
3	300

Option

Nil	None
F	Foot type bracket

Note) Foot brackets are packed with valves.

Valve type

50	C.O. 

Materials and insulation type

Symbol	Body material	Seal material	Coil insulation
Nil	Brass	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.

Voltage

1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC

Order Made Contact SMC regarding other voltages

Protective class
Class II (Mark: ⧈)..... Over 50V
Class III (Mark: ◈)..... 50V and less

Thread type

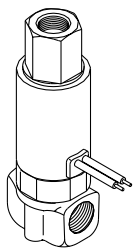
Nil	Rc
F	G
N	NPT

Port size

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

Electrical entry

G – Grommet



Orifice size

Symbol	N.C. Orifice size mm	N.O. Orifice size mm	Series
1	ø1	ø1	200
2	ø1.6		
2	ø2	ø1.8	300
3	ø3		
4	ø4		

Standard Specifications

Valve specifications	**Valve construction**	Direct operated poppet
	Fluid Note 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 (with 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 Note 4)	30/150
Coil specifications	**Rated voltage**	24VDC, 12VDC
	Allowable voltage fluctuation %	±10% of rated voltage
	Coil insulation type	Class B
	Enclosure Note 5)	Dust proof (equivalent to IP40)
	Power consumption W Note 3)	3

Note 1) Consult 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 for starting and holding.
3.5W in case of 110/220VAC.
Note 4) Vibration resistance … No malfunction when tested with one sweep of 5 to 200Hz 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) Consult SMC regarding drip-proof specifications (equivalent to IP54) .

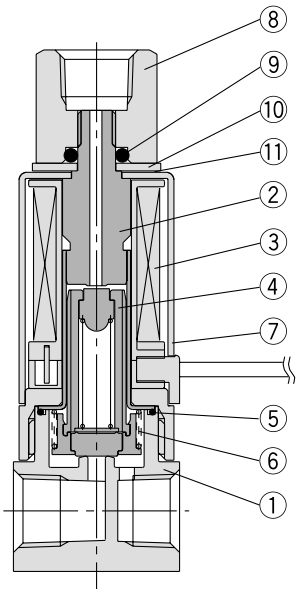
Characteristic Specifications

Model	Port size	Orifice size mm	Maximum operating pressure differential MPa Note 3)		Operating pressure range MPa Note 4)	Effective area mm^2 (Nℓ/min) Note 1)	Weight kg
			Pressure port 1	Pressure ports 2, 3 Note 2)			
VDW200	M5 1/8 (6A)	ø1	0.9	0.3	0 to 1.0	0.54 (29.50)	0.12
		ø1.6	0.7	0.1		1.2 (68.70)	
VDW300	1/8 (6A) 1/4 (8A)	ø2	0.8	0.2		2.8 (157.04)	1/8: 0.27 1/4: 0.30
		ø3	0.4	0.1		5.0 (274.82)	
		ø4	0.2	0.05		8.0 (431.86)	

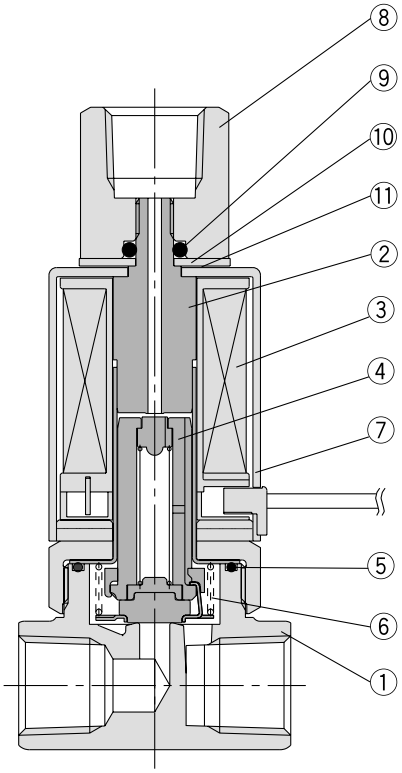
Note 1) Effective area is for the case when IN is normally closed (N.C.).
Note 2) Indicates the maximum operating pressure differential of pressure ports 2 and 3.
Note 3) The maximum operating pressure differential changes depending on the flow direction of the fluid.
Refer to page 4.4-20 for details.
Note 4) For low vacuum specifications, the operating pressure range is 1Torr (1.33×10^2Pa) to 1.0MPa.
Consult SMC if used below 1Torr (1.33×10^2Pa).

Construction

VDW250



VDW350

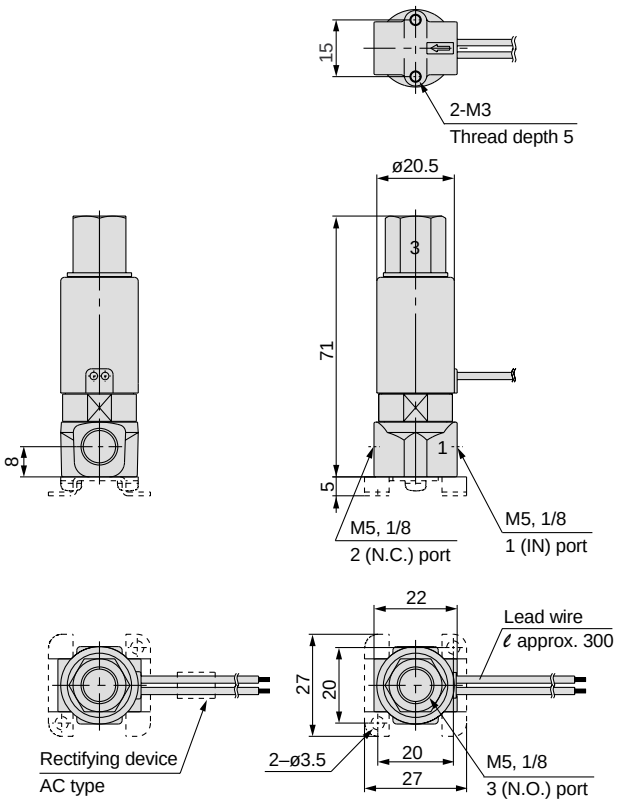


Parts list

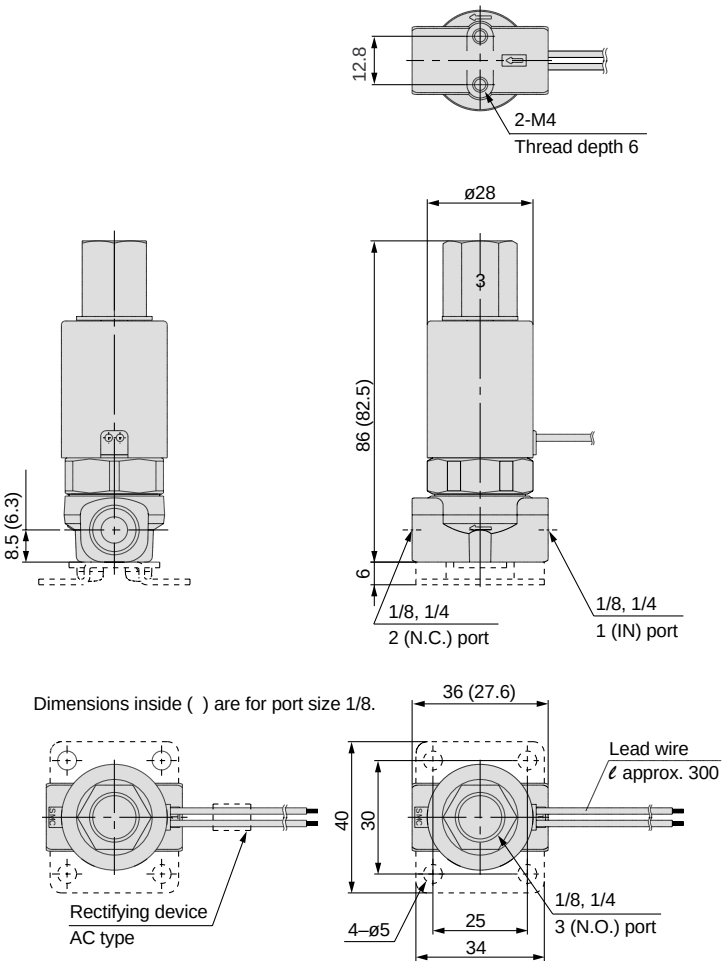
No.	Description	Material	
		Standard	Optional
1	Body	Brass	Stainless steel
2	Tube assembly	Stainless steel	—
3	Coil assembly	—	—
4	Amature assembly	VDW250: Stainless steel, PPS, NBR	VDW250: Stainless steel, PPS, FKM
		VDW350: Stainless steel, NBR	VDW350: Stainless steel, FKM
5	O-ring (body)	NBR	FKM
6	Return spring	Stainless steel	—
7	Cover	SPCE	—
8	Socket	Brass	Stainless steel
9	O-ring	NBR	FKM
10	Plate	SPCC	—
11	Wave washer	Stainless steel	—

Dimensions

VDW250



VDW350



Bracket part no.

- **Type 200**

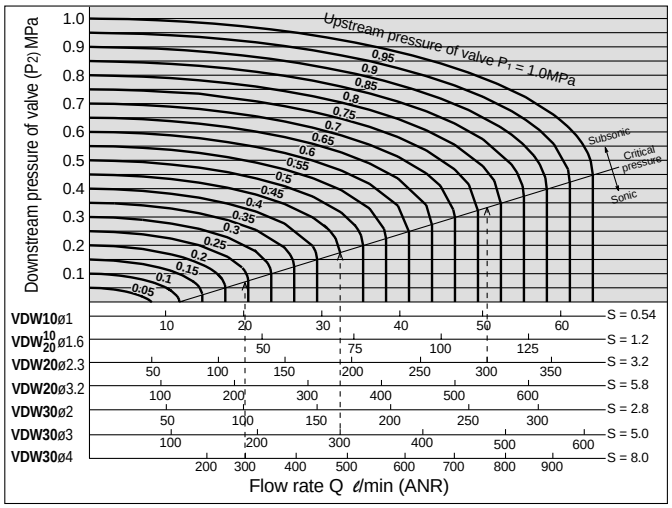
VDW20－15A－1

- **Type 300**

VCW20－12－01A

Series VDW
Model Selection

For air

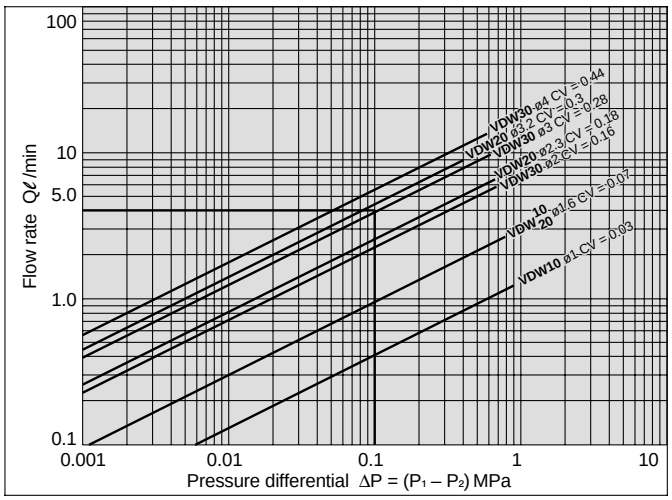


Viewing the graph The sonic range pressure to generate a flow rate of 300ℓ/min (ANR) for orifice ø2.3 (VDW20) is P1 approx. 0.77MPa, for orifice ø3 (VDW30) is P1 approx. 0.45MPa, for orifice ø4 (VDW30) is P1 approx. 0.24MPa.

How to find the flow rate for air

1. For subsonic range
   Where $P_1 + 0.1013 = (1 \text{ to } 1.8941)(P_2 + 0.1013)$
   - Formula based on Cv factor
     $Q = 4073.4 \cdot Cv \cdot \sqrt{\Delta P (P_2 + 0.1013)}$ … ℓ/min (ANR)
   - Formula based on effective area
     $Q = 226.3 \cdot S \cdot \sqrt{\Delta P (P_2 + 0.1013)}$ …… ℓ/min (ANR)
2. For sonic range
   Where $P_1 + 0.1013 \geq 1.8941 (P_2 + 0.1013)$
   - Formula based on Cv factor
     $Q = 1972.8 \cdot Cv \cdot (P_1 + 0.1013)$ … ℓ/min (ANR)
   - Formula based on effective area
     $Q = 109.6 \cdot S \cdot (P_1 + 0.1013)$ ……. ℓ/min (ANR)

For water



Viewing the graph To generate a water flow of 4ℓ/min at a differential pressure of 0.1MPa, an effective area with Cv factor 0.28 (VDW30ø3) or more is required.

How to find the flow rate for water

- Formula based on Cv factor
  $Q = 14.2 \cdot Cv \cdot \sqrt{10.2 \cdot \Delta P}$ … ℓ/min
- Formula based on effective area (Smm²)
  $Q = 0.8 \cdot S \cdot \sqrt{10.2 \cdot \Delta P}$ …… ℓ/min

Q: Flow rate (ℓ/min), ΔP: Pressure differential (P_1—P_2), P_1: Upstream pressure (MPa)
P_2: Downstream pressure (MPa), S: Effective area (mm²), Cv: Cv factor

Explanation of Terminology

Pressure Terminology

1. Maximum operating pressure differential

This indicates the maximum pressure differential (upstream and downstream pressure differential) which can be allowed for operation with the valve closed or open. When the downstream pressure is 0MPa, this becomes the maximum operating pressure.

2. Maximum operating pressure

This indicates the limit of pressure that can be applied inside the pipelines. (line pressure)

(The pressure differential of the solenoid valve unit must be no more than the maximum operating pressure differential.)

3. Withstand pressure

The pressure which must be withstood without a drop in performance after returning to the operating pressure range. (the value under the prescribed conditions)

Electrical Terminology

1. Surge voltage

A high voltage which is momentarily generated in the shut-off unit by shutting off the power.

Other

1. Materials

NBR: Nitrile rubber
FKM: Fluoro rubber – Trade names: Viton®, Dai-el, etc.

Series VDW
2/3 Port Solenoid Valve for Fluid Control
Be sure to read before handling.

Wiring

⚠ Caution

1. As a rule, use electrical wire of 0.5 to 1.25mm² or more.

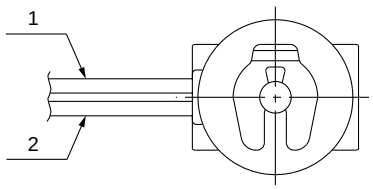
Furthermore, do not allow excessive force to be applied to the lines.

2. Use electrical circuits which do not generate chattering in their contacts.

3. Use voltage which is within ±10% of the rated voltage. In cases of a DC power supply where emphasis is placed on responsiveness, stay within ±5% of the rated value. The voltage drop is the value in the lead wire section connecting the coil.

Electrical Connections

⚠ Caution



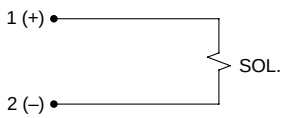
Rated voltage	Lead wire color	
	①	②
DC	Black	Red

∗ DC does not have polarity.

Electrical Circuits

⚠ Caution

DC circuit



Operating Environment

⚠ Warning

1. Do not use valves in atmospheres of corrosive gases, chemicals, salt water, water or steam, or where there is direct contact with same.

2. Do not use in explosive atmospheres.

3. Do not use in locations subject to vibration or impact.

4. Do not use in locations where radiated heat will be received from nearby heat sources.

5. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.

Maintenance

⚠ Warning

1. Perform maintenance in accordance with the procedures in the instruction manual.

Improper handling can cause damage or malfunction of equipment and devices, etc.

2. Demounting of the product

1. Shut off the fluid supply and release the fluid pressure in the system.
2. Shut off the power supply.
3. Demount the product.

3. Low frequency operation

Switch valves at least once every 30 days to prevent malfunction. In addition, perform maintenance inspections once every six months to ensure optimum performance.

⚠ Caution

1. Filters and strainers

1. Be careful regarding clogging of filters and strainers.
2. Replace filter elements after one year of use, or earlier if the amount of pressure drop reaches 0.1MPa.
3. Clean strainers when the amount of pressure drop reaches 0.1MPa.
4. Flush drainage from filters periodically.

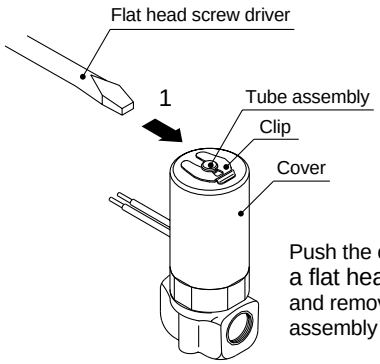
2. Storage

In case of long term (approx. one month or more) storage after use with water, first thoroughly remove all moisture to prevent rust and deterioration of rubber materials, etc.

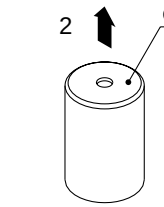
Replacement of the Solenoid Coil

⚠ Caution

2 port valve

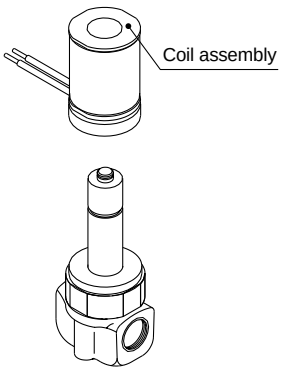


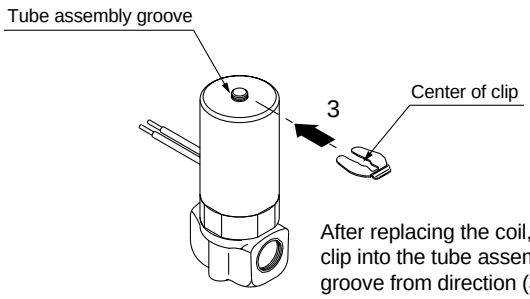
Push the clip in direction (1) with a flat head screw driver, etc., and remove it from the tube assembly groove.



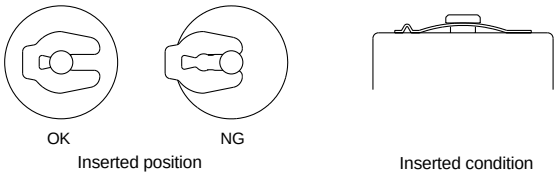
Remove the cover in direction (2), and replace the coil assembly.

Note
In case of types 10 and 30, the cover alone cannot be removed because it is integrated with the coil assembly.

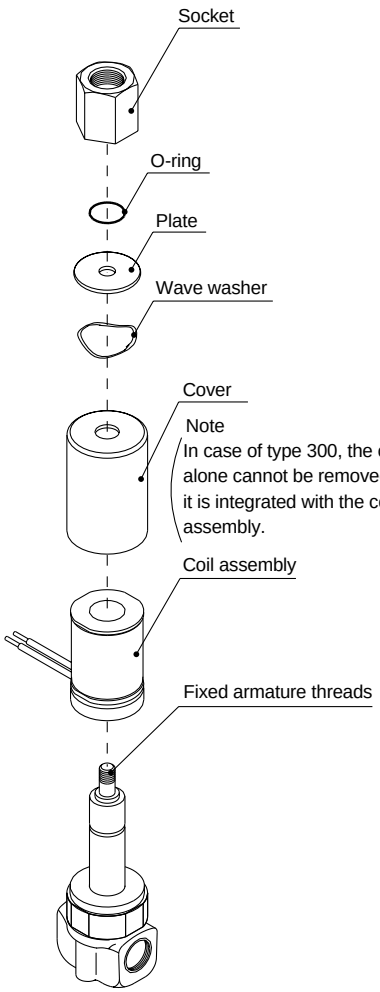




After replacing the coil, insert the clip into the tube assembly groove from direction (3). After inserting it into the groove, confirm the position and condition of the clip.



3 port valve



After removing the socket with a wrench, etc., lift off the plate, wave washer and cover, and replace the coil assembly. After replacing the coil, first tighten the socket by hand while holding down the plate and wave washer, and then tighten it further with a torque of 0.8 to 1N· m .

∗ Precautions when attaching and removing the socket

- Be careful that the O-ring installed on the bottom (plate side) of the socket does not fall out or become chewed up, etc.
- Be sure to hold the body with a wrench, etc., and tighten the socket within the tightening torque range given above. If excessive torque is applied, there is a danger of damaging the threads.

Series VDW / Specific Product Precautions 2

Be sure to read before handling.

Replacement Parts

Solenoid coil part numbers

VDW 2 0 — 1 B — 5 — ☐

Series

1	10
2	20, 200
3	30, 300

Type Note 1)

C1	10,20, 30
C2	200,300

Lead wire length

Nil	300mm
L1 Note)	600mm

Note) Type L1 is optional.

Voltage

1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC

Order Made Contact SMC regarding other voltages

Protective class
Class II (Mark: ⧈)..... Over 50V
Class III (Mark: ⧋)..... 50V and less

Note 1) In case of a type C coil (for 10, 30, 300), the cover will be an integrated type.
To have a label on the cover, enter the part number below together with the coil part number.

AZ-T-VDW

How to Order Valves (Refer to pages 4.4-3, 4.4-7 and 4.4-13.)

Clip part numbers (2 port)

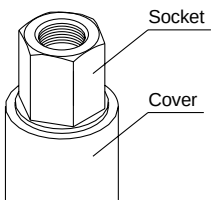
VDW 2 0 — 10

Series

2	10, 20
3	30

Piping to 3 Port Valve N.O. Port

⚠ Caution

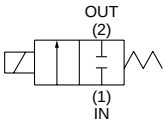


When piping to an N.O. port, be sure to perform piping work while holding the socket with a wrench or other tool.

Fluid Flow Direction

⚠ Caution

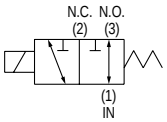
The maximum operating pressure differential differs depending on the flow direction of the fluid. If the pressure differential at each port exceeds the values in the table below, valve leakage may occur.



2 port valve

Model	Orifice size mm	Maximum operating pressure differential MPa	
		Pressure port 1	Pressure port 2 Note 1)
VDW10	ø1	0.9	0.4
	ø1.6	0.4	0.2
VDW20	ø1.6	0.7	0.2
	ø2.3	0.4	0.1
	ø3.2	0.2	0.05
VDW30	ø2	0.8	0.2
	ø3	0.4	0.1
	ø4	0.2	0.05

Note) When applying pressure from port 2, be careful to avoid vibration and impacts, etc.



3 port valve

Model	Orifice size mm	Maximum operating pressure differential MPa	
		Pressure port 1	Pressure ports 2, 3 Note 1 & 2)
VDW200	ø1	0.9	0.3
	ø1.6	0.7	0.1
VDW300	ø2	0.8	0.2
	ø3	0.4	0.1
	ø4	0.2	0.05

Note 1) Indicates the maximum operating pressure differential for pressure ports 2 and 3.

Note 2) When the port 2 pressure is the higher pressure, be careful to avoid vibration and impacts, etc.