








Series variation

Air operated 2, 3-port valve (coolant control) (coolant valve)

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/
AD
- APK/
ADK
- DryAir
- EX-
XPLNprf
- XPLNprf
- HVB/
HVL
- SAB/
NAB
- LAD/
NAD
- Water-
Rela
- NP/NAP/
NVP
- SNP
- CHB/G
- MXB/G
- Other
valves
- SWD/
MWD
- DustColl
- CVE/
CVSE**
- CCH/
CPE/D
- LifeSci
- Gas-
Combus
- Auto-
Water
- SpecFld
- Custom
- Ending

Number of ports	Classification		Model	Configuration	Working pressure MPa	Connection			
						Rc3/8	Rc1/2		
2-port		For low pressure	Air operated	CVE2-***-05	Single unit	0 to 0.5	●	●	
			With solenoid valve	CVSE2-***-05			●	●	
		For low pressure	Air operated	CVE2-***-10		0 to 1.0	●	●	
			With solenoid valve	CVSE2-***-10			●	●	
		For medium pressure	Air operated	CVE2-***-16		0 to 1.6	●	●	
			With solenoid valve	CVSE2-***-16			●	●	
		For medium pressure	Air operated	CVE2-***-30			0 to 3.0	●	●
			With solenoid valve	CVSE2-***-30				●	●
		For high pressure	Air operated	CVE2-***-70	0 to 7.0	●	●		
			With solenoid valve	CVSE2-***-70		●	●		
		For low pressure	Air operated	GCVE2-***-05	Module	0 to 0.5		●*	
			With solenoid valve	GCVSE2-***-05				●*	
			For low pressure	Air operated		GCVE2-***-10	0 to 1.0		●*
				With solenoid valve		GCVSE2-***-10			●*
		For medium pressure	Air operated	GCVE2-***-16		0 to 1.6		●*	
			With solenoid valve	GCVSE2-***-16				●*	
3-port		For low pressure	Air operated	CV3E-***-03	Single unit	0 to 0.3			
			With solenoid valve	CVS3E-***-03					
		For medium pressure	Air operated	CVE3-***-35		0 to 3.5	●	●	
			With solenoid valve	CVSE3-***-35			●	●	
		For high pressure	Air operated	CVE3-***-70			0 to 7.0	●	●
			With solenoid valve	CVSE3-***-70				●	●

	Port size										Page
	Rc3/4	Rc1	Rc1 ^{1/4}	32 flange	Rc1 ^{1/2}	40 flange	Rc2	50 flange	65 flange	80 flange	
	●	●	●	●	●	●	●	●	●	●	810
	●	●	●	●	●	●	●	●	●	●	810
	●	●	●	●	●	●	●	●	●	●	810
	●	●	●	●	●	●	●	●	●	●	810
	●	●									820
	●	●									820
	●	●									820
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	●*										848
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	●	●									834

* OUT port size

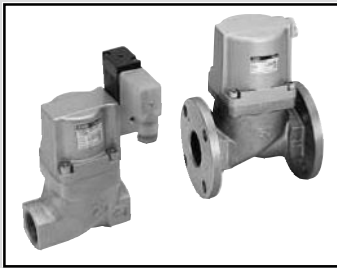
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S [◇] B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

Air operated 2-port valve for low pressure
(coolant valve)

CVSE2/CVSE22-05/10 Series CVE2/CVE22-05/10 Series

- NC, NO
- Port size: Rc3/8 to Rc2, 32 to 80 flange
- Low pressure 0.5 MPa, 1.0 MPa

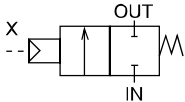
Refer to the Ending for details.



JIS symbol

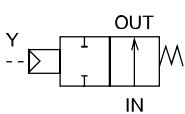
- CVE2 (air operated)

: NC



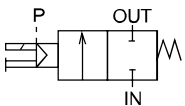
- CVE22 (air operated)

: NO



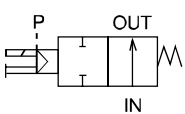
- CVSE2 (with solenoid valve)

: NC



- CVSE22 (with solenoid valve)

: NO



Common specifications for 0.5 MPa

Model No.	CVE2/CVSE2	CVE22/CVSE22
Actuation	NC	NO
Working fluid	Coolant/other non-corrosive liquids (*1)	
Fluid viscosity	mm ² /s 500 or less	
Working pressure	MPa 0 (≈0 psi, 0 bar) to 0.5 (≈73 psi, 5 bar)	
Proof pressure (water pressure)	MPa 2.0 (≈290 psi, 20 bar)	
Fluid temperature	°C -10 (14°F) to 60 (140°F) (no freezing)	
Ambient temperature	°C -10 (14°F) to 60 (140°F)	
Valve seat leakage	cm ³ /min 20 or less (water pressure) (*2)	
Mounting orientation	Unrestricted	
Pilot fluid	Air	
Pilot pressure	MPa 0.25 (≈36 psi, 2.5 bar) to 0.7 (≈100 psi, 7 bar)	
Water hammer value (for reference)	MPa 1 or less (steel pipe 10 m, total pressure 0.5 MPa, flow rate 5 m/sec.)	

*1 : Fluids that do not affect cast iron (nickel plating), stainless steel, nitrile rubber or fluoro rubber

*2 : 1 cm³/min or less for port size 10A (Rc3/8)

Electrical specification (with solenoid valve/common specifications)

Rated voltage	100 VAC (50/60 Hz) / 110 VAC (60 Hz), 200 VAC (50/60 Hz) / 220 VAC (60 Hz), 24 VDC	
Apparent power (VA)	When holding	3.6(50 Hz), 2.8(60 Hz)
	Starting	11(50 Hz), 9(60 Hz)
Power consumption (W)	AC	1.9(50 Hz), 1.5(60 Hz)
	DC	2.0
Thermal class	Class 130 (B)	
Degree of protection (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	DIN terminal box (M12-4P connector)	IPX5
	With T type terminal box (G1/2)	IPX5

*3 : The voltage fluctuation range must be within ±10% of the rated voltage.

Individual specifications for 0.5 MPa

Descriptions	Port size	Orifice size (mm)	Cv	Pilot port size	Weight (kg)	
					CVE2(2)	CVSE2(2)
Model No.						
CVE2 (2)/CVSE2 (2) -10A-05	Rc3/8	10	2.8	Rc1/8	0.35	0.45
CVE2 (2)/CVSE2 (2) -15A-05	Rc1/2	14	6.5		0.6	0.7
CVE2 (2)/CVSE2 (2) -20A-05	Rc3/4	19	11		1.2	1.3
CVE2 (2)/CVSE2 (2) -25A-05	Rc1	24	18		1.8	1.9
CVE2 (2)/CVSE2 (2) -32A-05	Rc1 1/4	31	28		2.7	2.8
CVE2 (2)/CVSE2 (2) -32F-05	32 flange	31	28		5.3	5.4
CVE2 (2)/CVSE2 (2) -40A-05	Rc1 1/2	40	43		4.4	4.5
CVE2 (2)/CVSE2 (2) -40F-05	40 flange	40	43		7.0	7.1
CVE2 (2)/CVSE2 (2) -50A-05	Rc2	50	70		6.5	6.6
CVE2 (2)/CVSE2 (2) -50F-05	50 flange	50	70		9.6	9.7
CVE2 (2)/CVSE2 (2) -65F-05	65 flange	65	70		19.5	19.5
CVE2 (2)/CVSE2 (2) -80F-05	80 flange	79	100		24.0	24.0

Common specifications for 1.0 MPa

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Model No.	CVE2/CVSE2	CVE22/CVSE22
Actuation	NC	NO
Working fluid	Coolant/other non-corrosive liquids (*1)	
Fluid viscosity mm ² /s	500 or less	
Working pressure MPa	0 (≈0 psi, 0 bar) to 1.0 (≈150 psi, 10 bar)	
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)	
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)	
Ambient temperature °C	-10 (14°F) to 60 (140°F)	
Valve seat leakage cm ³ /min	20 or less (water pressure) (*2)	
Mounting orientation	Unrestricted	
Pilot fluid	Air	
Pilot pressure MPa	0.25 (≈36 psi, 2.5 bar) to 0.7 (≈100 psi, 7 bar)	
Water hammer value (for reference) MPa	2 or less (steel pipe 10 m, total pressure 1 MPa, flow rate 5 m/sec.)	

*1 : Fluids that do not affect cast iron (nickel plating), stainless steel, nitrile rubber or fluoro rubber

*2 : 1 cm³/min or less for port size 10A (Rc3/8)

Electrical specification (with solenoid valve/common specifications)

Rated voltage	100 VAC (50/60 Hz) / 110 VAC (60 Hz), 200 VAC (50/60 Hz) / 220 VAC (60 Hz), 24 VDC	
Apparent power (VA)	When holding	3.6(50 Hz), 2.8(60 Hz)
	Starting	11(50 Hz), 9(60 Hz)
Power consumption (W)	AC	1.9(50 Hz), 1.5(60 Hz)
	DC	2.0
Thermal class	Class 130 (B)	
Degree of protection (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	DIN terminal box (M12-4P connector)	IPX5
	With T type terminal box (G1/2)	IPX5

*3 : The voltage fluctuation range must be within ±10% of the rated voltage.

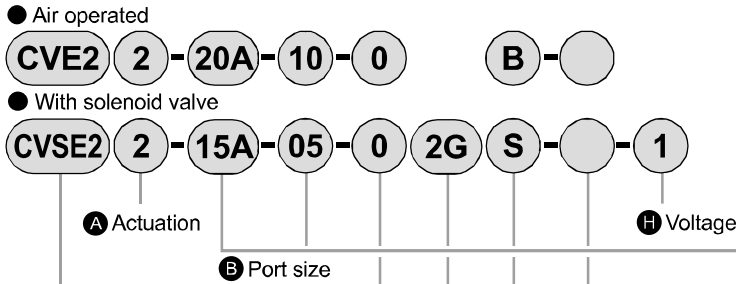
Individual specifications for 1.0 MPa

Descriptions Model No.	Port size	Orifice size (mm)	Cv	Pilot port size	Weight (kg)	
					CVE2(2)	CVSE2(2)
CVE2 (2)/CVSE2 (2) -10A-10	Rc3/8	7	1.7	Rc1/8	0.35	0.45
CVE2 (2)/CVSE2 (2) -15A-10	Rc1/2	10	4.5		0.6	0.7
CVE2 (2)/CVSE2 (2) -20A-10	Rc3/4	14	7		1.2	1.3
CVE2 (2)/CVSE2 (2) -25A-10	Rc1	17	11		1.8	1.9
CVE2 (2)/CVSE2 (2) -32A-10	Rc1 1/4	23	20		2.7	2.8
CVE2 (2)/CVSE2 (2) -32F-10	32 flange	23	20		5.3	5.4
CVE2 (2)/CVSE2 (2) -40A-10	Rc1 1/2	29	30		4.4	4.5
CVE2 (2)/CVSE2 (2) -40F-10	40 flange	29	30		7.0	7.1
CVE2 (2)/CVSE2 (2) -50A-10	Rc2	35	48		6.5	6.6
CVE2 (2)/CVSE2 (2) -50F-10	50 flange	35	48		9.6	9.7
CVE2 (2)/CVSE2 (2) -65F-10	65 flange	49	50		19.5	19.5
CVE2 (2)/CVSE2 (2) -80F-10	80 flange	57	73		24.0	24.0

EXA
FWD
HNB/G
USB/G
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FVB
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XPLNprf
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HVL
S/B/
NAB
LAD/
NAD
Water-
Rela
NPNAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
SpecFld
Custom
Ending

CVE2/CVSE2-05/10 Series

How to order



Model No.	
Air operated (2-port)	CVE2
With solenoid valve (2-port)	CVSE2

[Example of model No.]

CVSE22-15A-05-02GS-1

Model: CVSE2	: With solenoid valve (2-port)	F Other options
A Actuation	: NO	*3
B Port size	: Rc1/2	*4
C Working pressure	: 0 to 0.5 MPa	*5
D Body/sealant combination	: Body - cast iron (plating), sealant - nitrile rubber	*6
E Coil	: With DIN terminal box (Pg9)	*7
F Other options	: With surge suppressor	*8
G Assembly direction	: No option	G Assembly direction
H Voltage	: 100 VAC(50/60 Hz), 110 VAC(60 Hz)	

- *1 : Surge suppressor is not available for Item **E** 2J.
- *2 : Item **E** 2K is available only for the type with surge suppressor and should be specified as 2KS.
- *3 : The mounting plate (Item **F** B) is provided and can be assembled to port size 10A, 15A, 20A and 25A only.
- *4 : Top mounted solenoid valve (Item **F** T) is available only for port sizes 15A, 20A and 25A.
- *5 : To add both the surge suppressor and mounting plate options, specify Item **F** as SB. For a solenoid valve mounted on top, indicate as STB.
- *6 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *7 : A manual override (non-locking) is provided as standard for the solenoid valve mounted.
- *8 : Assembly direction option cannot be selected for the type with top mounted solenoid valve (Item **F** T).

Model No.	
CVE2	CVSE2

Code	Content	CVE2	CVSE2
A Actuation			
Blank	NC	●	●
2	NO	●	●
B Port size			
10A	Rc3/8	●	●
15A	Rc1/2	●	●
20A	Rc3/4	●	●
25A	Rc1	●	●
32A	Rc1 1/4	●	●
32F	32 flange	●	●
40A	Rc1 1/2	●	●
40F	40 flange	●	●
50A	Rc2	●	●
50F	50 flange	●	●
65F	65 flange	●	●
80F	80 flange	●	●
C Working pressure			
05	0 to 0.5 MPa	●	●
10	0 to 1.0 MPa	●	●
D Body/sealant combination			
		Body	Seal
0	Standard	Cast iron (plating)	Nitrile rubber
B	Option	Cast iron (plating)	Fluoro rubber
E Coil			
2C	Standard	Grommet lead wire	●
2G	Option	With DIN terminal box (Pg9)	●
2H		DIN terminal box with lamp (Pg9)	●
2J		DIN terminal box (M12-4P connector)	●
2K		DIN term box, lamp (M12-4P connector)	●
3T		With T type terminal box (G1/2)	●
3R		T type terminal box with lamp (G1/2)	●
F Other options			
Blank	No option	●	●
S	With surge suppressor		●
T	Top mounted solenoid valve		●
B	Mounting plate	●	●
G Assembly direction			
Blank	No option	●	●
X	Cylinder cover rotated 90°		●
Y	Cylinder cover rotated 180°		●
Z	Cylinder cover rotated 270°		●
R	Mounting plate reversed 180° [air operated]/ coil reversed 180° [with solenoid valve] Mounting plate/coil reversed 180° [with solenoid valve]	●	●
Refer to the next page for the layout drawing.			
H Voltage			
1	100 VAC(50/60 Hz) 110 VAC(60 Hz)		●
2	200 VAC(50/60 Hz) 220 VAC(60 Hz)		●
3	24 VDC		●

Item ⑥ Assembly direction

CVSE2 [With solenoid valve] *9					
Code	Blank (standard)	X *10	Y *10	Z *10	R *10
Direction	No rotation	Cylinder cover rotated 90°	Cylinder cover rotated 180°	Cylinder cover rotated 270°	Coil reversed
Layout					

CVSE2 [With solenoid valve] *3/9					
Code	B (with mounting plate)	B-X	B-Y *11	B-Z *11	B-R *12
Direction	No rotation	Cylinder cover rotated 90°	Cylinder cover rotated 180° Mounting plate reversed	Cylinder cover rotated 270° Mounting plate reversed	Coil reversed Mounting plate reversed
Layout					

CVE2 [Air operated] *3/9		
Code	B (with mounting plate)	B-R *13
Direction	No rotation	Mounting plate reversed
Layout		

↔ shows flow path direction and ← shows pilot port IN.

*9 : Clockwise angle when viewed from above with the IN port on the right.

*10 : Not available for port size 65F/80F.

*11 : The mounting plate will be reversed 180° and attached.

*12 : The mounting plate for port size 10A is installed at the bottom, so only the coil position is reversed.

*13 : Not available for port size 10A.

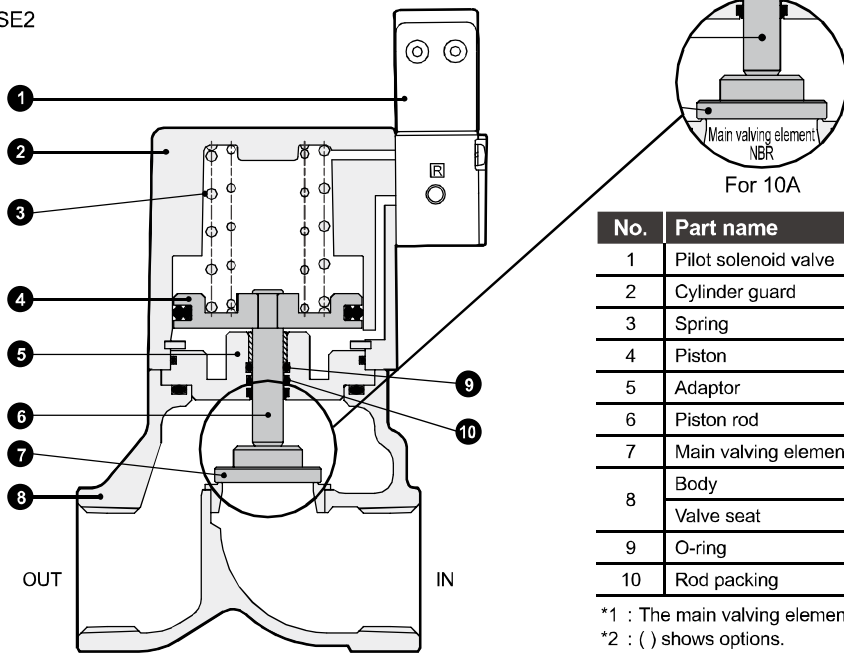
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FWD
HNB/G
USB/G
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FVB
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AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S↕B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
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Other valves
SWD/ MWD
DustCoil
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

CVSE2-05/10 Series

- EXA
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- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- SAB/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE**
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- SpecFld
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Internal structure and parts list

● CVSE2



No.	Part name	Material	
1	Pilot solenoid valve	-	
2	Cylinder guard	ADC12	Aluminum die-casting
3	Spring	SWP	Piano wire
4	Piston	A2017	Aluminum
5	Adaptor	SUS303	Stainless steel
6	Piston rod	SUS304	Stainless steel
7	Main valving element	SUS420J2	Stainless steel*1
8	Body	FCD450	Cast iron (plating)
	Valve seat	SUS420J2	Stainless steel
9	O-ring	NBR(FKM)	Nitrile rubber *2 (Fluoro rubber)*2
10	Rod packing	NBR(FKM)	Nitrile rubber *2 (Fluoro rubber)*2

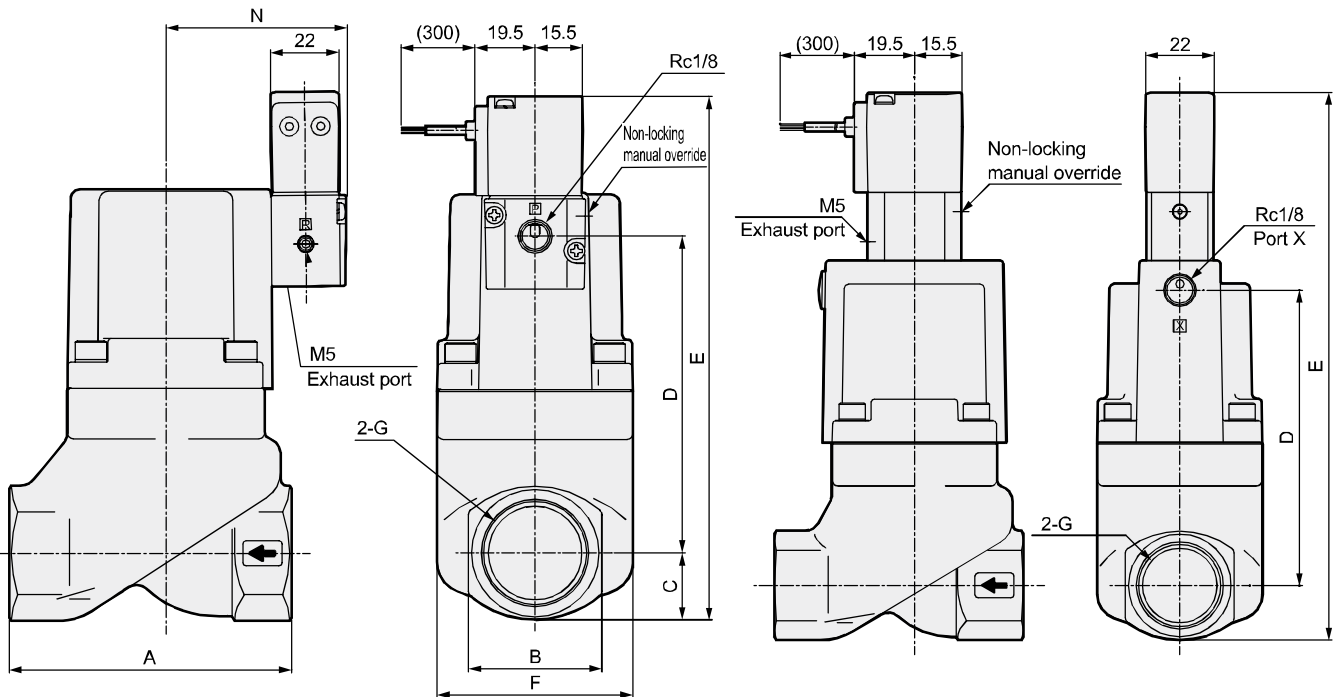
*1 : The main valving element material of 10A is NBR or FKM.
 *2 : () shows options.
 *3 : The internal structure shown is of 15A to 50A.
 For 10A, 65F and 80F, contact CKD separately.

Dimensions



● CVSE2/CVSE22-10A to 50A-05/10-*2C
 (Rc screw-in)

● CVSE2/CVSE22-15A to 25A-05/10-*2CT
 (Solenoid valve mounted on the top)



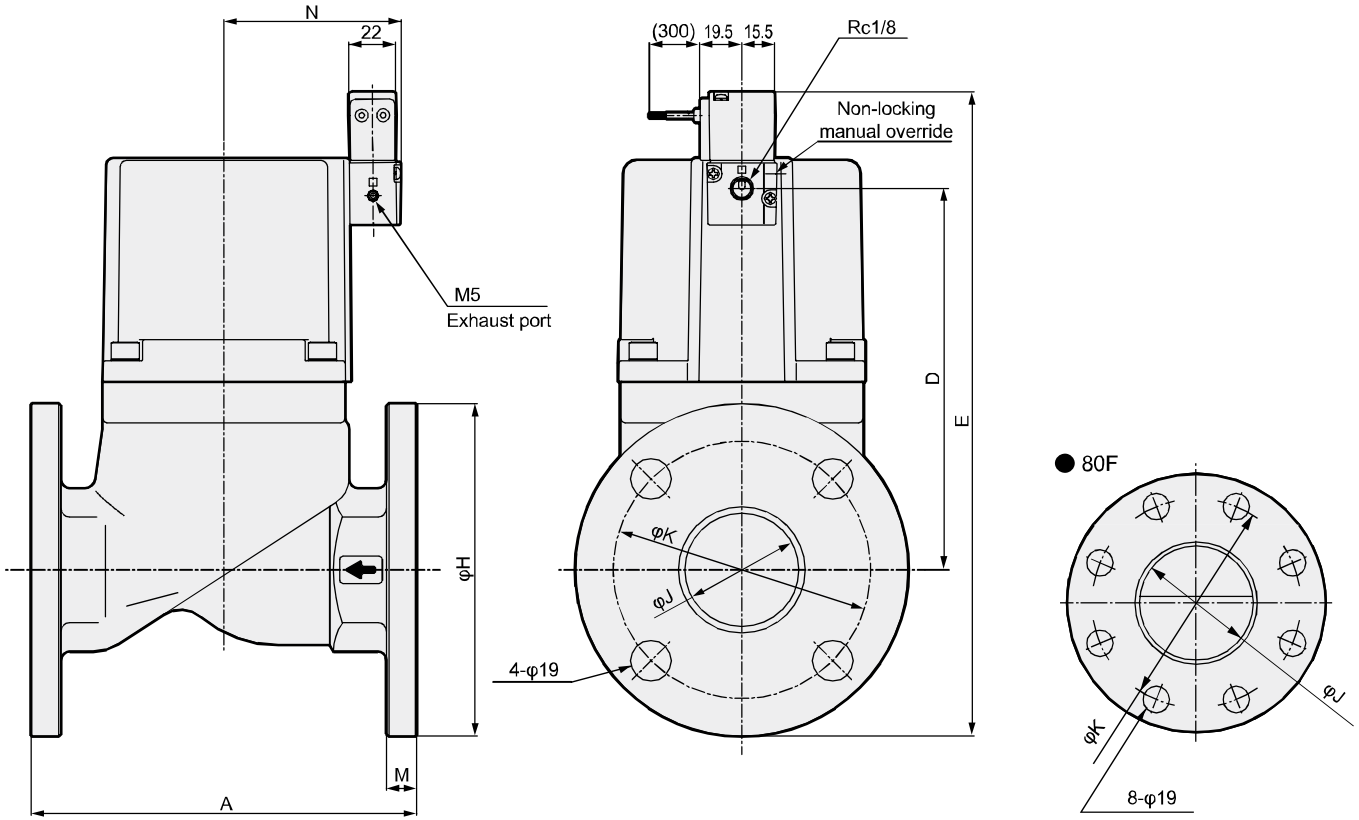
* The figure shows the unit with no assembly direction option selected.

Model No.	A	B	C	D	E	F	G	N
CVSE*-10A-05/10-*2C	50	24	12	47.5	104.5	32	Rc3/8	48.5
CVSE*-15A-05/10-*2C	71	29	14.5	71.5	131	43	Rc1/2	49.5
CVSE*-20A-05/10-*2C	80	35	17.5	83.5	146	53	Rc3/4	53
CVSE*-25A-05/10-*2C	90	43	21.5	102	168.5	63	Rc1	57.5
CVSE*-32A-05/10-*2C	125	55	27.5	130.5	203	77	Rc1 1/4	64.5
CVSE*-40A-05/10-*2C	140	61	30.5	156.5	232	95	Rc1 1/2	72.5
CVSE*-50A-05/10-*2C	160	76	38	178	261	113	Rc2	82.5

Model No.	D	E
CVSE2*-15A-05/10-*2CT	83	161
CVSE2*-20A-05/10-*2CT	95	176
CVSE2*-25A-05/10-*2CT	113	198

Dimensions

● CVSE2/CVSE22-32F to 80F-05/10-*2C (flange)



* The figure shows the unit with no assembly direction option selected.

Model No.	A	D	E	H	J	K	M	N
CVSE*-32F-05/10-*2C	170	130.5	243	135	35	100	12	64.5
CVSE*-40F-05/10-*2C	180	156.5	271.5	140	41	105	12	72.5
CVSE*-50F-05/10-*2C	180	178	300.5	155	53	120	14	82.5
CVSE*-65F-05/10-*2C	210	203	347.5	175	68	140	16	113
CVSE*-80F-05/10-*2C	240	218	367.5	185	82	150	16	123

Optional dimensions

Refer to pages 818 and 819 for coil options and mounting plates.

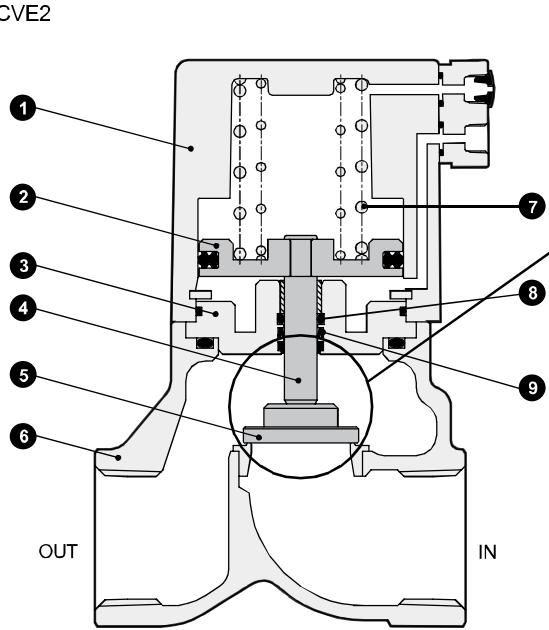
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FHB
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AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S/B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

CVE2-05/10 Series

- EXA
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- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- SAB/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
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- SWD/MWD
- DustColl
- CVE/CVSE**
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- SpecFld
- Custom
- Ending

Internal structure and parts list

● CVE2



No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	SUS303	Stainless steel
4	Piston rod	SUS304	Stainless steel
5	Main valving element	SUS420J2	Stainless steel
6	Body	FCD450	Cast iron (plating)
	Valve seat	SUS420J2	Stainless steel
7	Spring	SWP	Piano wire
8	O-ring	NBR(FKM)	Nitrile rubber (fluoro rubber)
9	Rod packing	NBR(FKM)	Nitrile rubber (fluoro rubber)

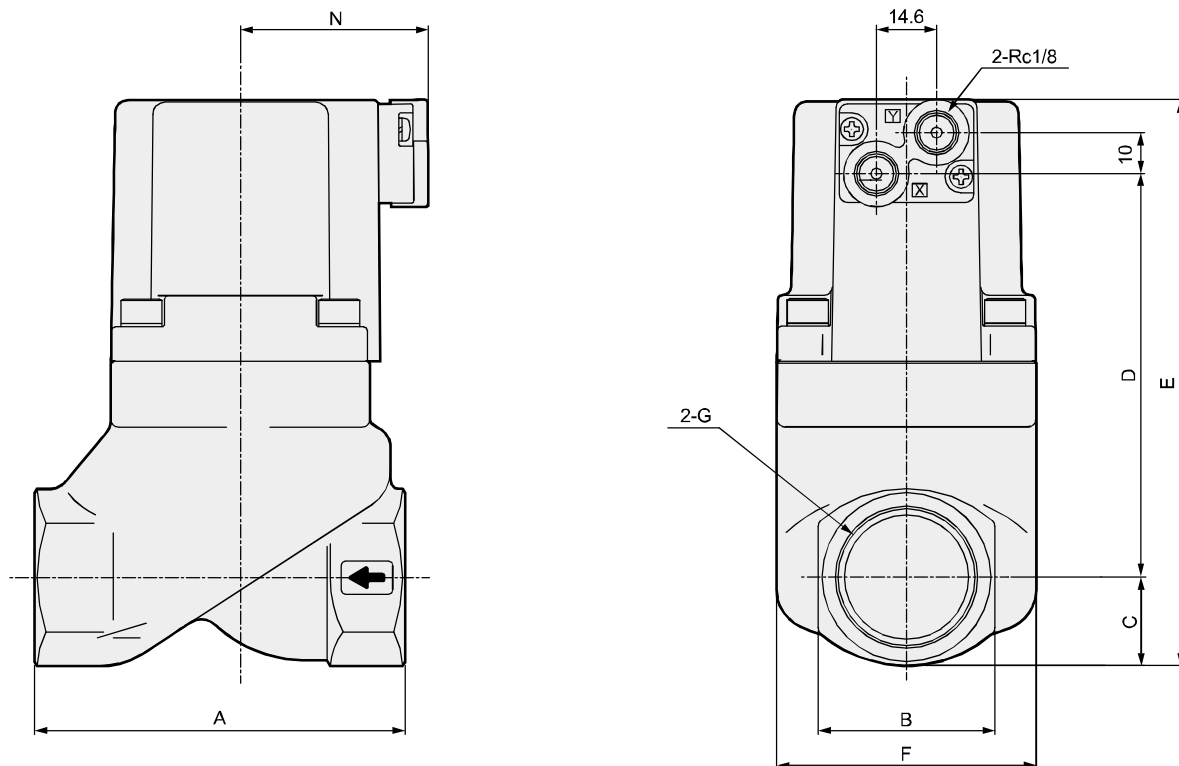
*1 : () shows options.

*2 : The internal structure shown is of 15A to 50A.
For 10A, 65F and 80F, contact CKD separately.

Dimensions



● CVE2/CVE22-10A to 50A-05/10-** (Rc screw-in)



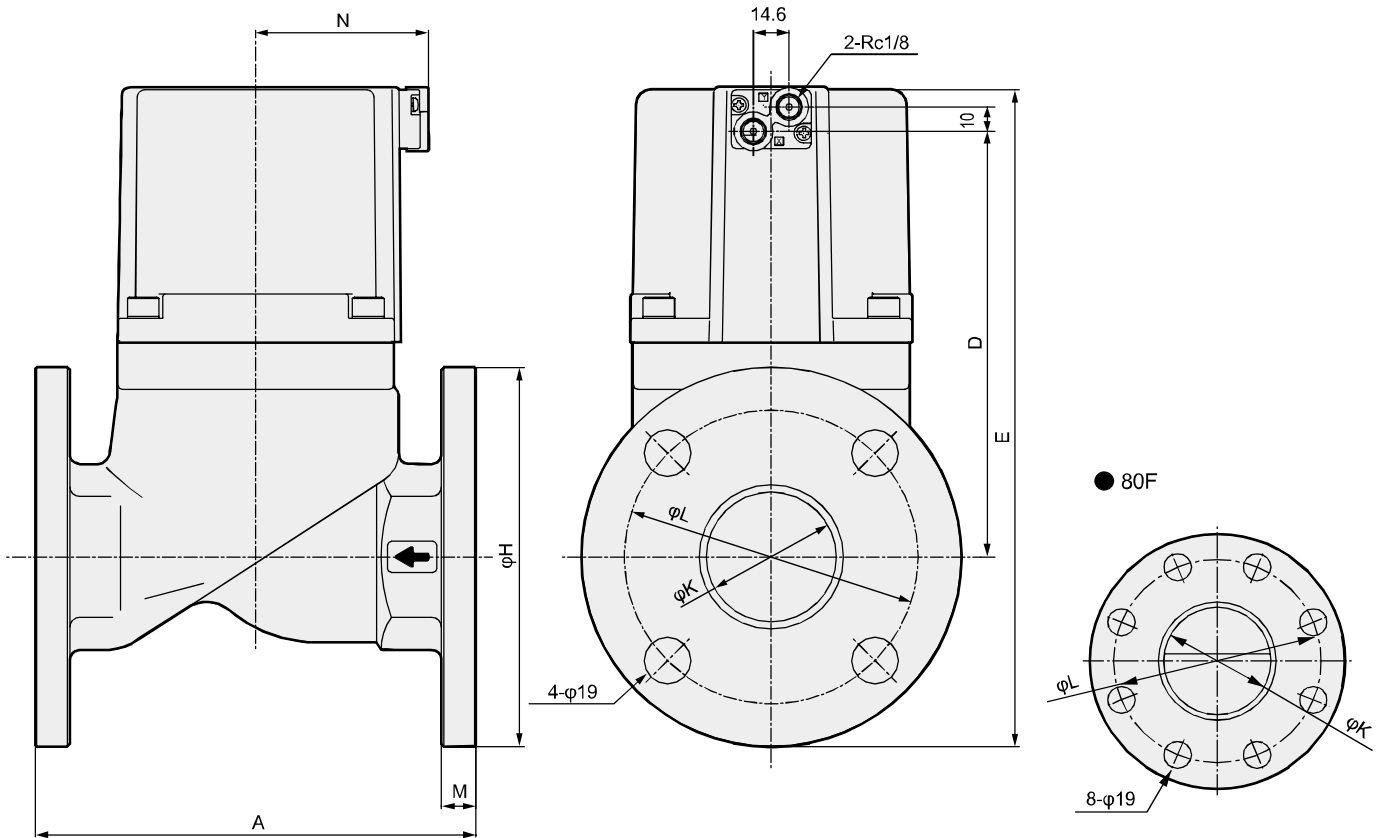
* Pilot pressurization port is port X for the NC and port Y for the NO.

Model No.	A	B	C	D	E	F	G	N
CVE*-10A-05/10-*	50	24	12	43.5	73.5	32	Rc3/8	37
CVE*-15A-05/10-*	71	29	14.5	67.5	100	43	Rc1/2	38
CVE*-20A-05/10-*	80	35	17.5	79.5	115	53	Rc3/4	41.5
CVE*-25A-05/10-*	90	43	21.5	98	137.5	63	Rc1	46
CVE*-32A-05/10-*	125	55	27.5	126.5	172	77	Rc1 1/4	53
CVE*-40A-05/10-*	140	61	30.5	152.5	201	95	Rc1 1/2	61
CVE*-50A-05/10-*	160	76	38	174	230	113	Rc2	71

Dimensions



● CVE2/CVE22-32F to 80F-05/10-** (flange)



Model No.	A	D	E	H	K	L	M	N
CVE*-32F-05/10-*	170	126.5	212	135	35	100	12	53
CVE*-40F-05/10-*	180	152.5	240.5	140	41	105	12	61
CVE*-50F-05/10-*	180	174	269.5	155	53	120	14	71
CVE*-65F-05/10-*	210	199	347.5	175	68	140	16	101
CVE*-80F-05/10-*	240	214	367.5	185	82	150	16	111

Optional dimensions

Refer to page 818 for mounting plates.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S [◇] B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

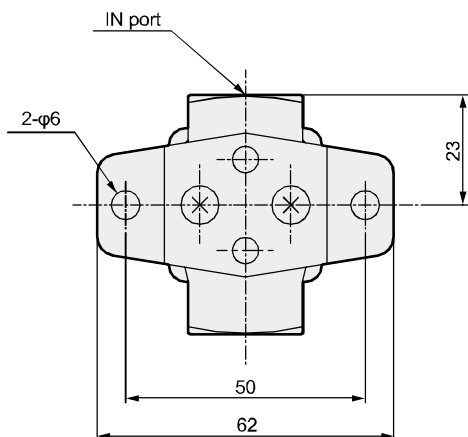
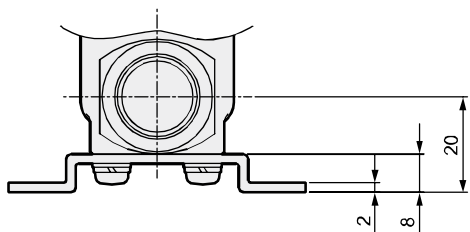
CVE2/CVSE2-05/10 Series

Optional dimensions

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- SAB/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE**
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- SpecFld
- Custom
- Ending

● Mounting plate
 CVE2/CVE22 -10A-05/10-****[B]**
 CVSE2/CVSE22

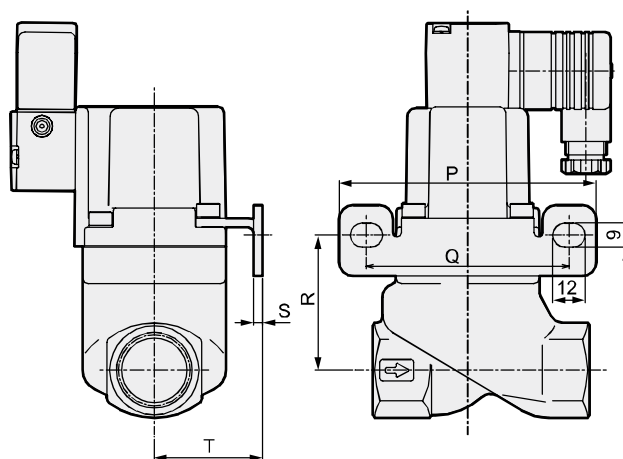
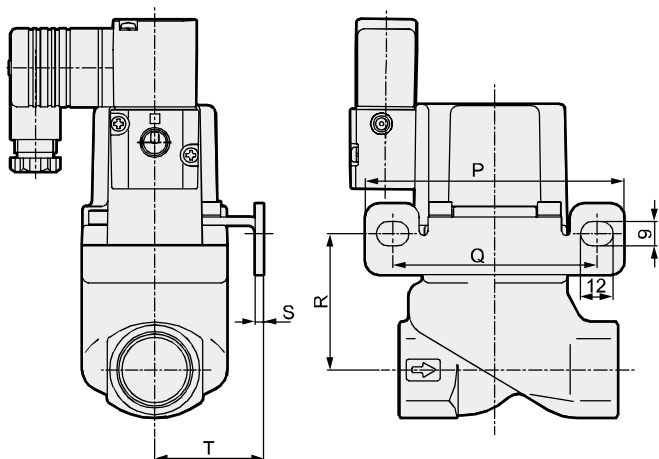
Material: Steel
Zinc plated



* Use the body mounting screws if fixing without a mounting plate.
 (thread size: M4 depth 7)

● Mounting plate
 CVE2/CVE22 -15A/20A/25A-05/10-****[B]/[B-R]/[B-Y]**
 CVSE2/CVSE22

● Mounting plate
 CVE2/CVE22 -15A/20A/25A-05/10-****[B-X]/[B-Z]**
 CVSE2/CVSE22



* The figure shows **[B]**.

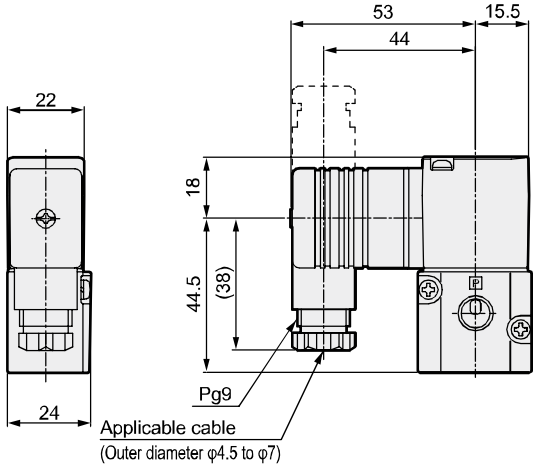
* The figure shows **[B-X]**.

Material: Steel
Zinc plated

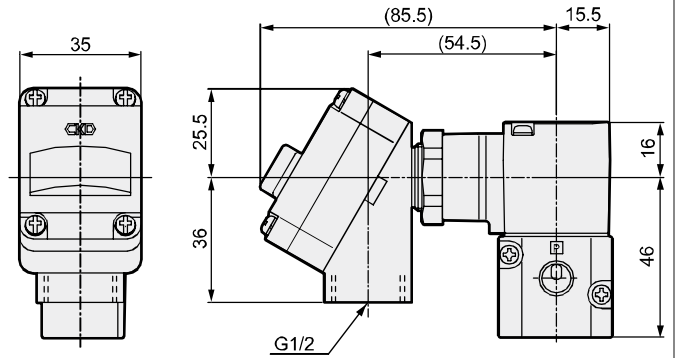
Model No.	P	Q	R	S	T
CV*E2*-15A-05/10-**B	90	70	45	2.3	30
CV*E2*-20A-05/10-**B	95	75	50	3.2	40
CV*E2*-25A-05/10-**B	105	85	55	3.2	45

Optional dimensions

- With DIN terminal box (Pg9)
DIN terminal box with lamp (Pg9)
CVE2/CVSE22*-05/10-* 2G
2H

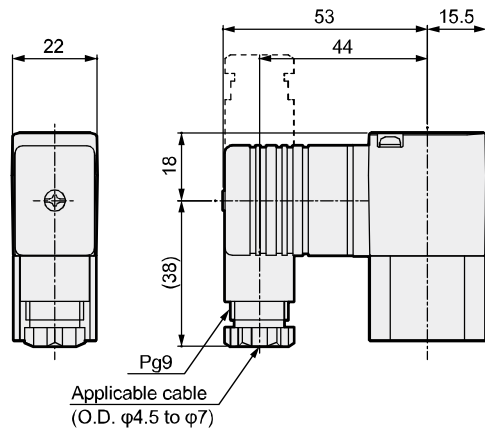


- With T type terminal box (G1/2)
T type terminal box with lamp (G1/2)
CVE2/CVSE22*-05/10-* 3T
3R

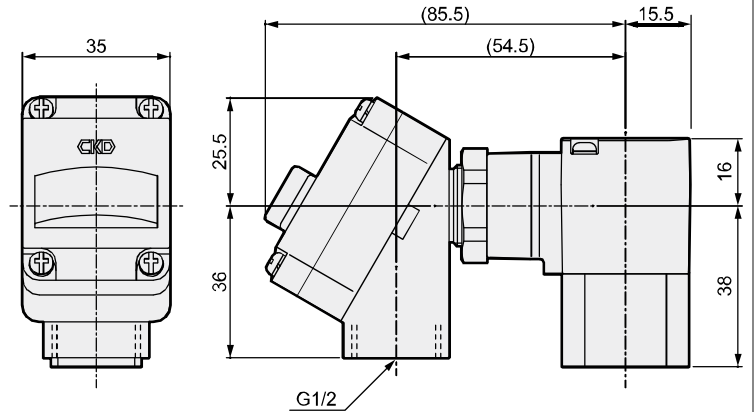


Optional dimensions: Top mounted solenoid valve

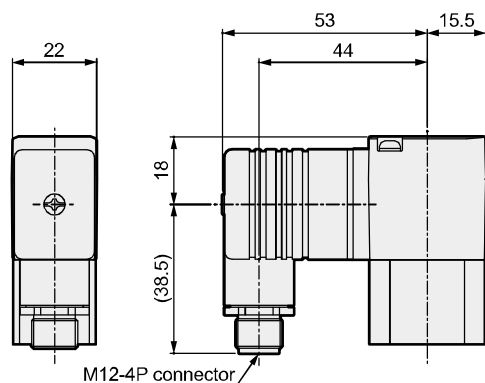
- DIN terminal box (Pg 9)
DIN terminal box with lamp (Pg 9)
CVE2/CVSE22*-05/10/16/30-* 2G T
2H



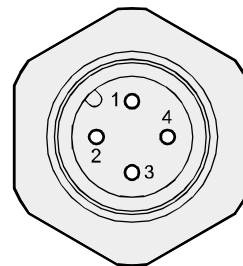
- T type terminal box (G1/2)
T type terminal box with lamp (G1/2)
CVE2/CVSE22*-05/10/16/30-* 3T T
3R



- DIN terminal box (M12-4P connector)
DIN terminal box with lamp/surge suppressor (M12-4P connector)
CVE2/CVSE22*-05/10/16/30-* 2J T
2KS



Connector pin array



PIN No.	Applications
1PIN	Ground
2PIN	(Not used)
3PIN	Power supply -
4PIN	Power supply +

* As it is a screw-in, the connector pin positions may not be the same as those shown above.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S/B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending



Air operated 2-port valve for medium pressure
(coolant valve)

CVSE2/CVSE22-16/30 Series

CVE2/CVE22-16/30 Series

- NC, NO
- Port size: Rc3/8 to Rc1
- Medium pressure 1.6 MPa, 3.0 MPa

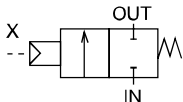
Refer to the Ending for details.



JIS symbol

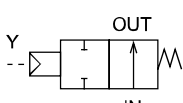
- CVE2 (air operated)

: NC



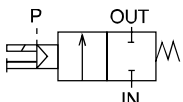
- CVE22 (air operated)

: NO



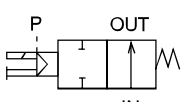
- CVSE2 (with solenoid valve)

: NC



- CVSE22 (with solenoid valve)

: NO



Common specifications for 1.6 MPa

Model No.	CVE2/CVSE2	CVE22/CVSE22
Actuation	NC	NO
Working fluid	Coolant/other non-corrosive liquids (*1)	
Fluid viscosity	mm ² /s 500 or less	
Working pressure	MPa 0 (≈0 psi, 0 bar) to 1.6 (≈230 psi, 16 bar)	
Proof pressure (water pressure)	MPa 6.0 (≈870 psi, 60 bar)	
Fluid temperature	°C -10 (14°F) to 60 (140°F) (no freezing)	
Ambient temperature	°C -10 (14°F) to 60 (140°F)	
Valve seat leakage	cm ³ /min 20 or less (water pressure)	
Mounting orientation	Unrestricted	
Pilot fluid	Air	
Pilot pressure	MPa 0.25 (≈36 psi, 2.5 bar) to 0.7 (≈100 psi, 7 bar)	

*1 : Fluids that do not affect cast iron (nickel plating), stainless steel, steel, nitrile rubber or fluoro rubber

Electrical specification (with solenoid valve/common specifications)

Rated voltage	(*2)	100 VAC (50/60 Hz) / 110 VAC (60 Hz), 200 VAC (50/60 Hz) / 220 VAC (60 Hz), 24 VDC
Apparent power (VA)	When holding	3.6(50 Hz), 2.8(60 Hz)
	When starting	11(50 Hz), 9(60 Hz)
Power consumption (W)	AC	1.9(50 Hz), 1.5(60 Hz)
	DC	2.0
Thermal class	Class 130 (B)	
Degree of protection (IEC standards 529)	With DIN terminal box (Pg9)	IPX5
	DIN terminal box (M12-4P connector)	IPX5
	With T type terminal box (G1/2)	IPX5

*2 : The voltage fluctuation range must be within ±10% of the rated voltage.

Individual specifications for 1.6 MPa

Descriptions	Port size	Orifice size (mm)	Cv	Pilot port size	Weight (kg)	
					CVE2(2)	CVSE2(2)
Model No.						
CVE2 (2)/CVSE2 (2) -10A-16	Rc3/8	10.5	3.6	Rc1/8	0.9	1.0
CVE2 (2)/CVSE2 (2) -15A-16	Rc1/2	10.5	4.6		0.9	1.0
CVE2 (2)/CVSE2 (2) -20A-16	Rc3/4	14.5	7		1.3	1.4
CVE2 (2)/CVSE2 (2) -25A-16	Rc1	18.5	11.5		2.2	2.3

Common specifications for 3.0 MPa

Model No.	CVE2/CVSE2	CVE22/CVSE22
Actuation	NC	NO
Working fluid	Coolant/other non-corrosive liquids (*1)	
Fluid viscosity mm ² /s	500 or less	
Working pressure MPa	0 (≈0 psi, 0 bar) to 3.0 (≈440 psi, 30 bar)	
Proof pressure (water pressure) MPa	6.0 (≈870 psi, 60 bar)	
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)	
Ambient temperature °C	-10 (14°F) to 60 (140°F)	
Valve seat leakage cm ³ /min	20 or less (water pressure)	
Mounting orientation	Unrestricted	
Pilot fluid	Air	
Pilot pressure MPa	0.25 (≈36 psi, 2.5 bar) to 0.7 (≈100 psi, 7 bar)	

*1 : Fluids that do not affect cast iron (nickel plating), stainless steel, steel, nitrile rubber or fluoro rubber

Electrical specification (with solenoid valve/common specifications)

Rated voltage (*2)	100 VAC (50/60 Hz) / 110 VAC (60 Hz), 200 VAC (50/60 Hz) / 220 VAC (60 Hz), 24 VDC	
Apparent power (VA)	When holding	3.6(50 Hz), 2.8(60 Hz)
	When starting	11(50 Hz), 9(60 Hz)
Power consumption (W)	AC	1.9(50 Hz), 1.5(60 Hz)
	DC	2.0
Thermal class	B	
Degree of protection (IEC standards 529)	With DIN terminal box (Pg9)	IPX5
	DIN terminal box (M12-4P connector)	IPX5
	With T type terminal box (G1/2)	IPX5

*2 : The voltage fluctuation range must be within ±10% of the rated voltage.

Individual specifications for 3.0 MPa

Descriptions Model No.	Port size	Orifice size (mm)	Cv	Pilot port size	Weight (kg)	
					CVE2(2)	CVSE2(2)
CVE2 (2)/CVSE2 (2) -10A-30	Rc3/8	8	2.6	Rc1/8	0.9	1.0
CVE2 (2)/CVSE2 (2) -15A-30	Rc1/2	10.5	4.2		1.3	1.4
CVE2 (2)/CVSE2 (2) -20A-30	Rc3/4	14	7.5		2.2	2.3
CVE2 (2)/CVSE2 (2) -25A-30	Rc1	18.5	11		3.4	3.5

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S/B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
SpecFld
Custom
Ending

CVE2/CVSE2-16/30 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- SAB/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- SpecFld
- Custom
- Ending

How to order

● Air operated

CVE2 **2** - **20A** - **30** - **0** **B** - **○**

● With solenoid valve

CVSE2 **2** - **15A** - **16** - **0** **2G** **S** - **○** - **1**

A Actuation

B Port size

Model No.	
Air operated (2-port)	CVE2
With solenoid valve (2-port)	CVSE2

C Working pressure

D Body/sealant combination

E Coil
*1
*2

F Other options
*3
*4
*5
*6
*7
*8

G Assembly direction
*8

[Example of model No.]

CVSE22-15A-16-02GS-1

Model: CVSE2 : With solenoid valve (2-port)

A Actuation : NO

B Port size : Rc1/2

C Working pressure : 0 to 1.6 MPa

D Body/sealant combination

E Coil : With DIN terminal box (Pg9)

F Other options : With surge suppressor

G Assembly direction : No option

H Voltage : 100 VAC(50/60 Hz), 110 VAC(60 Hz)

H Voltage

*1 : Surge suppressor is not available for Item **E** 2J.

*2 : Item **E** 2K is available only for the type with surge suppressor and should be specified as 2KS.

*3 : Mounting plate (Item **F** B) cannot be attached if the combination of Item **B** and Item **C** codes is 20A-30, 25A-16, or 25A-30.

*4 : Top mounted solenoid valve (Item **F** T) is not available if the combination of Item **B** and Item **C** codes is 20A-30, 25A-16, or 25A-30.

*5 : To add both the surge suppressor and mounting plate options, specify Item **F** as SB. For a solenoid valve mounted on top, indicate as STB.

*6 : The surge suppressor is mounted in the terminal box.

*7 : A manual override (non-locking) is provided as standard for the solenoid valve mounted.

*8 : Assembly direction option cannot be selected for the type with top mounted solenoid valve (Item **F** T).

Model No.

	CVE2	CVSE2
--	------	-------

Code	Content		
A Actuation			
Blank	NC	●	●
2	NO	●	●
B Port size			
10A	Rc3/8	●	●
15A	Rc1/2	●	●
20A	Rc3/4	●	●
25A	Rc1	●	●
C Working pressure			
16	0 to 1.6 MPa	●	●
30	0 to 3.0 MPa	●	●
D Body/sealant combination			
		Body	Seal
0	Standard	Cast iron (plating)	Nitrile rubber
B	Option	Cast iron (plating)	Fluoro rubber
E Coil			
2G	With DIN terminal box (Pg9)		●
2H	DIN terminal box with lamp (Pg9)		●
2J	DIN terminal box (M12-4P connector)		●
2K	DIN terminal box with lamp (M12-4P connector)		●
3T	With T type terminal box (G1/2)		●
3R	T type terminal box with lamp (G1/2)		●
F Other options			
Blank	No option	●	●
S	With surge suppressor		●
T	Top mounted solenoid valve		●
B	Mounting plate	●	●
G Assembly direction			
Blank	No option	●	●
X	Cylinder cover rotated 90°		●
Y	Cylinder cover rotated 180°		●
Z	Cylinder cover rotated 270°		●
R	Mounting plate reversed 180° [air operated] Coil reversed 180° [with solenoid valve] Mounting plate/coil reversed 180° [with solenoid valve]	●	●
Refer to the next page for the layout drawing.			
H Voltage			
1	100 VAC(50/60 Hz) 110 VAC(60 Hz)		●
2	200 VAC(50/60 Hz) 220 VAC(60 Hz)		●
3	24 VDC		●

Item ⑥ Assembly direction

CVSE2 [With solenoid valve] *9					
Code	Blank (standard)	X	Y	Z	R
Direction	No rotation	Cylinder cover rotated 90°	Cylinder cover rotated 180°	Cylinder cover rotated 270°	Coil reversed
Layout					

CVSE2 [With solenoid valve] *3/9					
Code	B (with mounting plate)	B-X	B-Y *10	B-Z *10	B-R
Direction	No rotation	Cylinder cover rotated 90°	Cylinder cover rotated 180° Mounting plate reversed	Cylinder cover rotated 270° Mounting plate reversed	Coil reversed Mounting plate reversed
Layout					

CVE2 [Air operated] *3/9		
Code	B (with mounting plate)	B-R
Direction	No rotation	Mounting plate reversed
Layout		

⇐ shows flow path direction and ◀ shows pilot port IN.

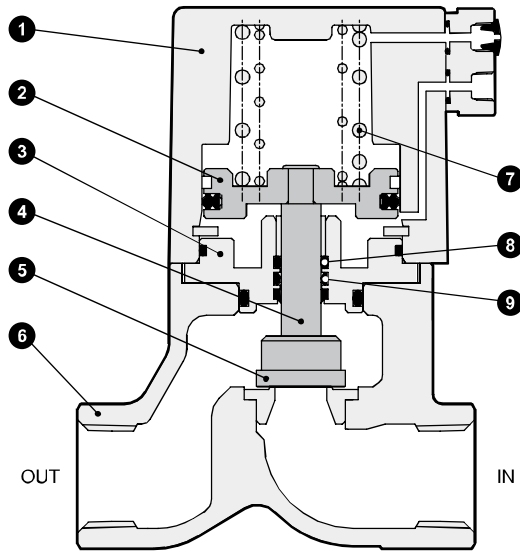
*9 : Clockwise angle when viewed from above with the IN port on the right.

*10 : The mounting plate will be reversed 180° and attached.

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/
AD
- APK/
ADK
- DryAir
- EX-
XPLNprf
- XPLNprf
- HVB/
HVL
- S↕B/
NAB
- LAD/
NAD
- Water-
Rela
- NP/NAP/
NVP
- SNP
- CHB/G
- MXB/G
- Other
valves
- SWD/
MWD
- DustColl
- CVE/
CVSE**
- CCH/
CPE/D
- LifeSci
- Gas-
Combus
- Auto-
Water
- SpecFld
- Custom
- Ending

Internal structure and parts list

● CVE2

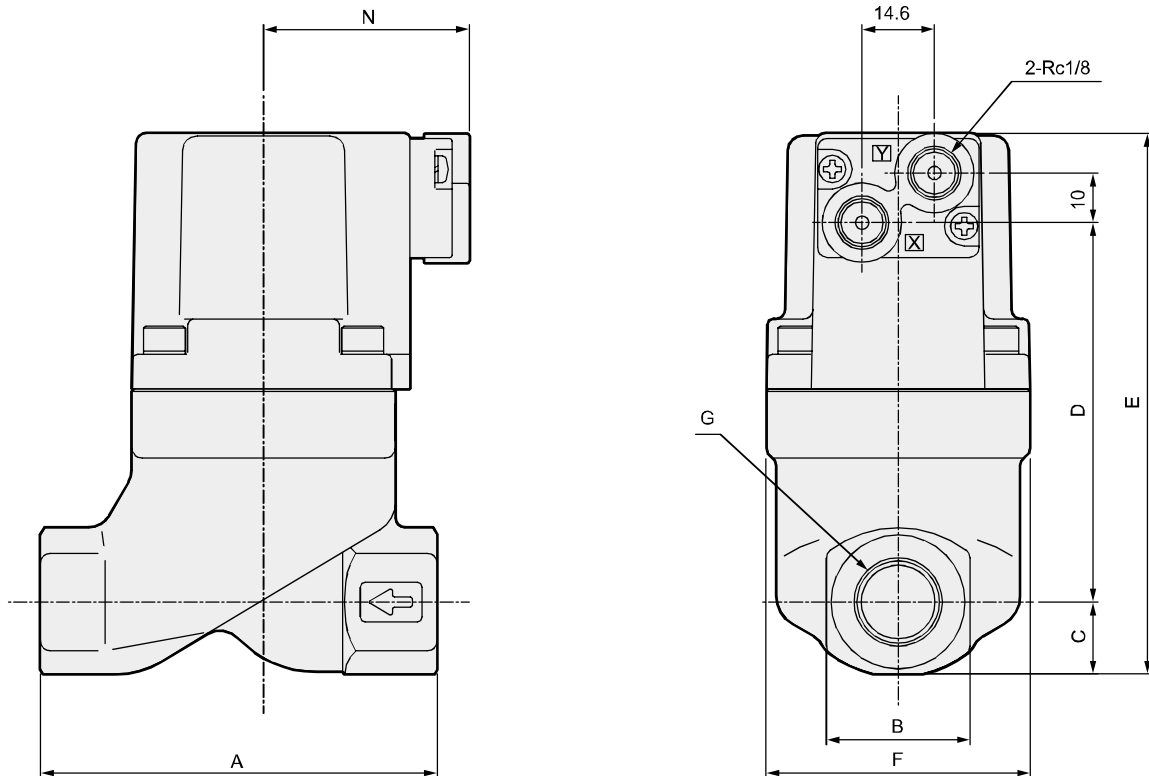


No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	SUS303	Stainless steel
4	Piston rod	SUS304	Stainless steel
5	Main valving element	SUS420J2	Stainless steel
6	Body	FCD450	Cast iron (plating)
	Valve seat	SUS420J2	Stainless steel
7	Spring	SWP	Piano wire
8	O-ring	NBR(FKM)	Nitrile rubber (Fluoro rubber)
9	Rod packing	NBR(FKM)	Nitrile rubber (Fluoro rubber)

Dimensions



● CVE2/CVE22-10A to 25A-16/30-**



* Pilot pressurization port is port X for the NC and port Y for the NO.

Model No.	A	B	C	D	E	F	G	N
CVE2*-10A-16-*	80	29	14.5	76.5	109	53	Rc3/8	41.5
CVE2*-15A-16-*	80	29	14.5	76.5	109	53	Rc1/2	41.5
CVE2*-20A-16-*	90	35	17.5	96.5	132	63	Rc3/4	46
CVE2*-25A-16-*	90	43	21.5	116	155.5	77	Rc1	53
CVE2*-10A-30-*	80	29	14.5	76.5	109	53	Rc3/8	41.5
CVE2*-15A-30-*	90	35	17.5	96.5	132	63	Rc1/2	46
CVE2*-20A-30-*	90	43	21.5	116	155.5	77	Rc3/4	53
CVE2*-25A-30-*	90	43	21.5	141.5	181	95	Rc1	61

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S/B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
**CVE/
CVSE**
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
SpecFld
Custom
Ending

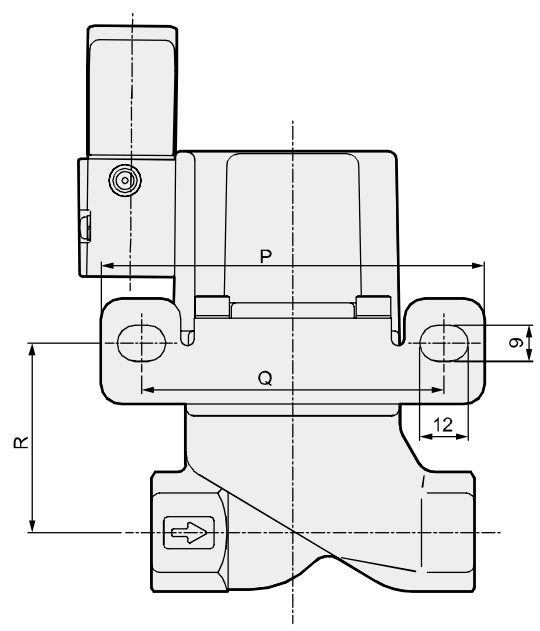
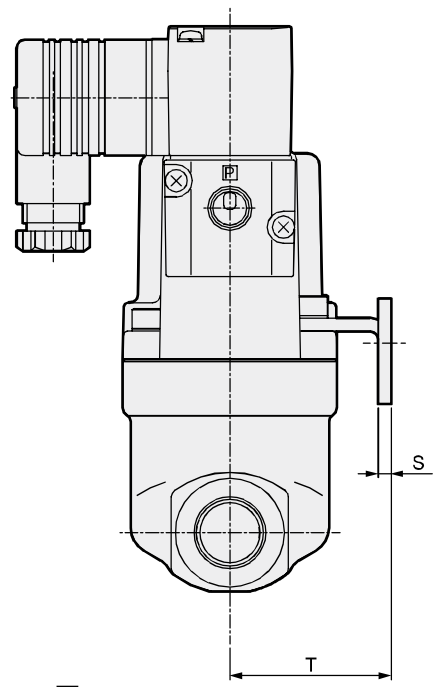
CVE2/CVSE2-16/30 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/
AD
- APK/
ADK
- DryAir
- EX-
XPLNprf
- XPLNprf
- HVB/
HVL
- S^ΔB/
NAB
- LAD/
NAD
- Water-
Rela
- NP/NAP/
NVP
- SNP
- CHB/G
- MXB/G
- Other
valves
- SWD/
MWD
- DustColl
- CVE/
CVSE**
- CCH /
CPE/D
- LifeSci
- Gas-
Combus
- Auto-
Water
- SpecFld
- Custom
- Ending

Optional dimensions

● Mounting plate
 CVE2/CVE22
 CVSE2/CVSE22 -10A to 20A-16/30-** **B** / **B-R** / **B-Y**

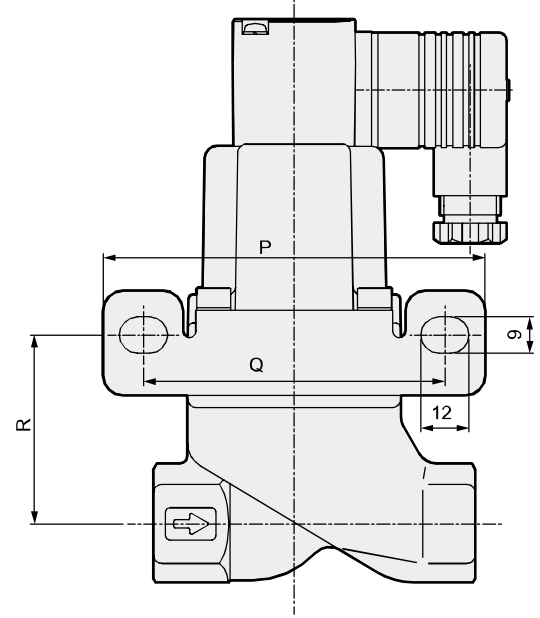
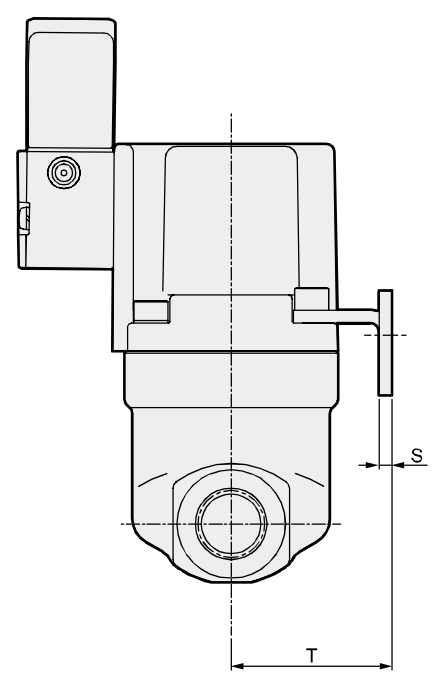
Material: Steel
 Zinc plated



* The figure shows **B**.

● Mounting plate
 CVE2/CVE22
 CVSE2/CVSE22 -10A to 20A-16/30-** **B-X** / **B-Z**

Material: Steel
 Zinc plated



* The figure shows **B-X**.

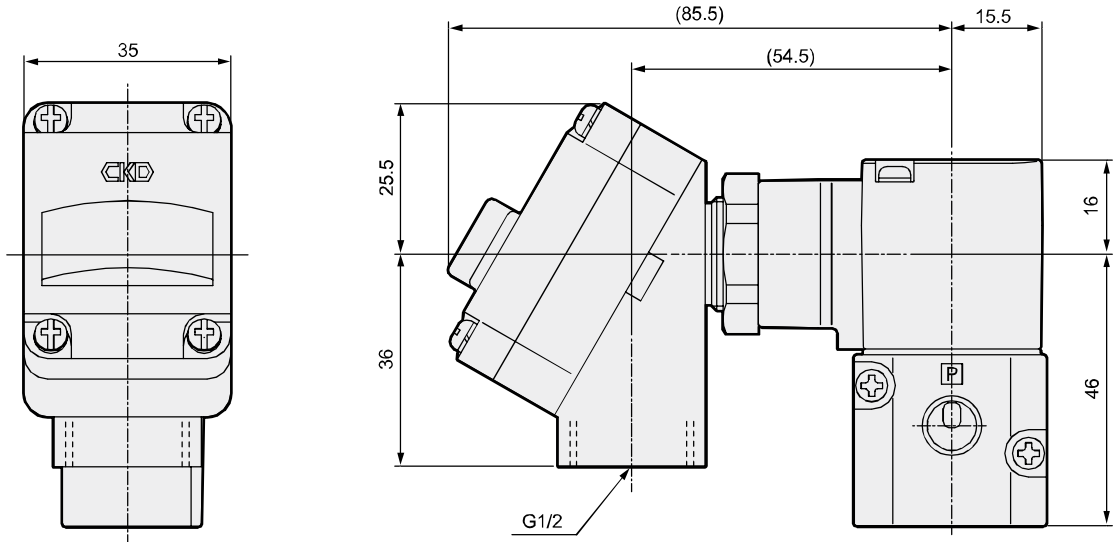
Model No.	P	Q	R	S	T
CV*E2*-10A-16*B	95	75	47	3.2	40
CV*E2*-15A-16*B	95	75	47	3.2	40
CV*E2*-20A-16*B	105	85	53.5	3.2	45
CV*E2*-10A-30*B	95	75	47	3.2	40
CV*E2*-15A-30*B	105	85	53.5	3.2	45

* A mounting plate is provided only with the models listed above.

Optional dimensions

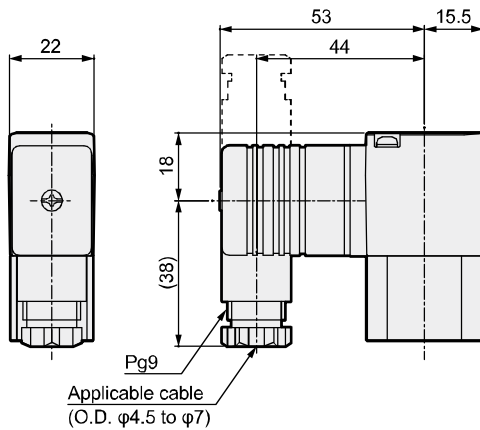


- With T type terminal box (G1/2)
T type terminal box with lamp (G1/2)
CVE2/CVSE22*-16/30-* 3T
3R

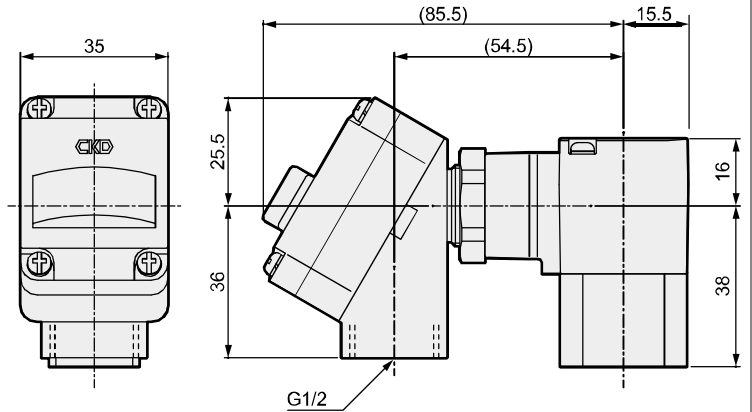


Optional dimensions: Top mounted solenoid valve

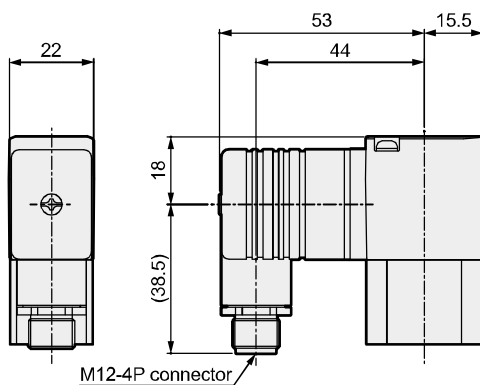
- DIN terminal box (Pg 9)
DIN terminal box with lamp (Pg 9)
CVE2/CVSE22*-05/10/16/30-* 2G T
2H



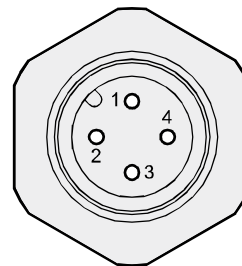
- T type terminal box (G1/2)
T type terminal box with lamp (G1/2)
CVE2/CVSE22*-05/10/16/30-* 3T T
3R



- DIN terminal box (M12-4P connector)
DIN terminal box with lamp/surge suppressor (M12-4P connector)
CVE2/CVSE22*-05/10/16/30-* 2J T
2KS



Connector pin array



PIN No.	Applications
1PIN	Ground
2PIN	(Not used)
3PIN	Power supply -
4PIN	Power supply +

* As it is a screw-in, the connector pin positions may not be the same as those shown above.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
SAB/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending



Air operated 2-port valve for high pressure
(coolant valve)

CVSE2/CVSE22-70 Series CVE2/CVE22-70 Series

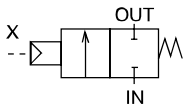
- NC, NO
- Port size: Rc3/8 to Rc1
- High pressure 7.0 MPa

CE Refer to the Ending for details.

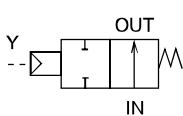


JIS symbol

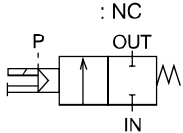
- CVE2 (air operated)
: NC



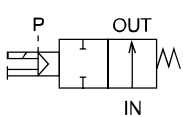
- CVE22 (air operated)
: NO



- CVSE2 (with solenoid valve)
: NC



- CVSE22 (with solenoid valve)
: NO



Common specifications

Model No.	CVE2/CVSE2	CVE22/CVSE22
Actuation	NC	NO
Working fluid	Coolant/other non-corrosive liquids (*1)	
Fluid viscosity	mm ² /s 500 or less	
Working pressure	MPa 0 (≈0 psi, 0 bar) to 7.0 (≈1000 psi, 70 bar)	
Proof pressure (water pressure)	MPa 14 (≈2000 psi, 140 bar)	
Fluid temperature	°C -10 (14°F) to 60 (140°F) (no freezing)	
Ambient temperature	°C -10 (14°F) to 60 (140°F)	
Valve seat leakage	cm ³ /min 20 or less (water pressure)	
Mounting orientation	Unrestricted	
Pilot fluid	Air	
Pilot pressure	MPa 0.25 (≈36 psi, 2.5 bar) to 0.7 (≈100 psi, 7 bar)	

*1 : Fluids that do not affect cast iron (nickel plating), stainless steel, steel, nitrile rubber or fluoro rubber

Electrical specification (with solenoid valve/common specifications)

Rated voltage	(*2)	100 VAC (50/60 Hz) / 110 VAC (60 Hz), 200 VAC (50/60 Hz) / 220 VAC (60 Hz), 24 VDC
Apparent power (VA)	When holding	3.6(50 Hz), 2.8(60 Hz)
	Starting	11(50 Hz), 9(60 Hz)
Power consumption (W)	AC	1.9(50 Hz), 1.5(60 Hz)
	DC	2.0
Thermal class	Class 130 (B)	
Degree of protection (IEC standards 529)	With DIN terminal box (Pg9)	IPX5
	DIN terminal box (M12-4P connector)	IPX5
	With T type terminal box (G1/2)	IPX5

*2 : The voltage fluctuation range must be within ±10% of the rated voltage.

Individual specifications for 7.0 MPa

Descriptions Model No.	Port size	Orifice size (mm)	Cv	Pilot port size	Weight (kg)	
					CVE2(2)	CVSE2(2)
CVE2 (2)/CVSE2 (2) -10A-70	Rc3/8	6.5	1.7	Rc1/8	1.4	1.5
CVE2 (2)/CVSE2 (2) -15A-70	Rc1/2	8	2.8		2.4	2.5
CVE2 (2)/CVSE2 (2) -20A-70	Rc3/4	10.5	4.7		3.9	4.0
CVE2 (2)/CVSE2 (2) -25A-70	Rc1	13	7.0		6.1	6.2

How to order

● Air operated

CVE2 **2** - **20A** - **70** - **0** **B**

● With solenoid valve

CVSE2 **2** - **15A** - **70** - **0** **2G** **S** - - **1**

A Actuation

B Port size

Model No.	
Air operated (2-port)	CVE2
With solenoid valve (2-port)	CVSE2

C Working pressure

D Body/sealant combination

[Example of model No.]

CVSE22-15A-70-02GS-1

Model: CVSE2 : With solenoid valve (2-port)

- A** Actuation : NO
- B** Port size : Rc1/2
- C** Working pressure : 0 to 7.0 MPa
- D** Body/sealant combination : Body - cast iron (plating), sealant - nitrile rubber
- E** Coil : With DIN terminal box (Pg9)
- F** Other options : With surge suppressor
- G** Assembly direction: No option
- H** Voltage : 100 VAC(50/60 Hz), 110 VAC(60 Hz)

E Coil

- *1
- *2

F Other options

- *3
- *4
- *5
- *6
- *7
- *10

G Assembly

- *8 direction
- *10

H Voltage

- *1 : Surge suppressor is not available for Item **E** 2J.
- *2 : Item **E** 2K is available only for the type with surge suppressor and should be specified as 2KS.
- *3 : To add both the surge suppressor and mounting plate options, specify Item **F** as SB. For a solenoid valve mounted on top, indicate as STB.
- *4 : Top mounted solenoid valve (Item **F** T) is available only for port size 10 A.
- *5 : The surge suppressor is mounted in the terminal box.
- *6 : A manual override (non-locking) is provided as standard for the solenoid valve mounted.
- *7 : Mounting plate is attached.
- *8 : Assembly direction option cannot be selected for the air operated.
- *9 : Clockwise angle when viewed from above with the IN port on the right.
- *10 : Assembly direction option cannot be selected for the type with top mounted solenoid valve (Item **F** T).

Item **G** Assembly direction

CVSE2 [With solenoid valve] *9

Code	Blank (standard)	X	Y	Z	R
Direction	No rotation	Cylinder cover rotated 90°	Cylinder cover rotated 180°	Cylinder cover rotated 270°	Coil reversed
Layout					

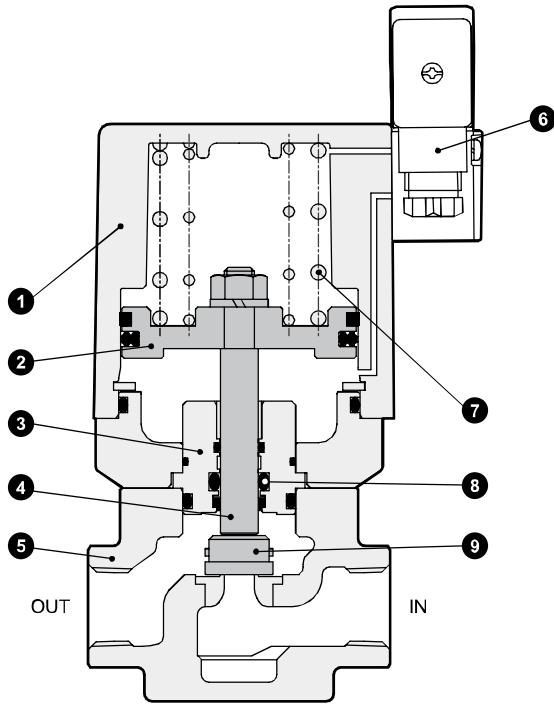
		Model No.	
		CVE2	CVSE2
Code	Content		
A Actuation			
Blank	NC	●	●
2	NO	●	●
B Port size			
10A	Rc3/8	●	●
15A	Rc1/2	●	●
20A	Rc3/4	●	●
25A	Rc1	●	●
C Working pressure			
70	0 to 7.0 MPa	●	●
D Body/sealant combination			
		Body	Seal
0	Standard	Cast iron (plating)	Nitrile rubber
B	Option	Cast iron (plating)	Fluoro rubber
E Coil			
2G	With DIN terminal box (Pg9)		●
2H	DIN terminal box with lamp (Pg9)		●
2J	DIN terminal box (M12-4P connector)		●
2K	DIN terminal box with lamp (M12-4P connector)		●
3T	With T type terminal box (G1/2)		●
3R	T type terminal box with lamp (G1/2)		●
F Other options			
Blank	No option	●	●
S	With surge suppressor		●
T	Top mounted solenoid valve		●
B	Mounting plate	●	●
G Assembly direction			
Blank	No option	●	●
X	Cylinder cover rotated 90°		●
Y	Cylinder cover rotated 180°		●
Z	Cylinder cover rotated 270°		●
R	Coil reversed 180° [with solenoid valve]		●
Refer to the figure below for the layout drawing.			
H Voltage			
1	100 VAC(50/60 Hz) 110 VAC(60 Hz)		●
2	200 VAC(50/60 Hz) 220 VAC(60 Hz)		●
3	24 VDC		●

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- SAB/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustCoil
- CVE/CVSE**
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- SpecFld
- Custom
- Ending

CVSE2-70 Series

Internal structure and parts list

● CVSE2



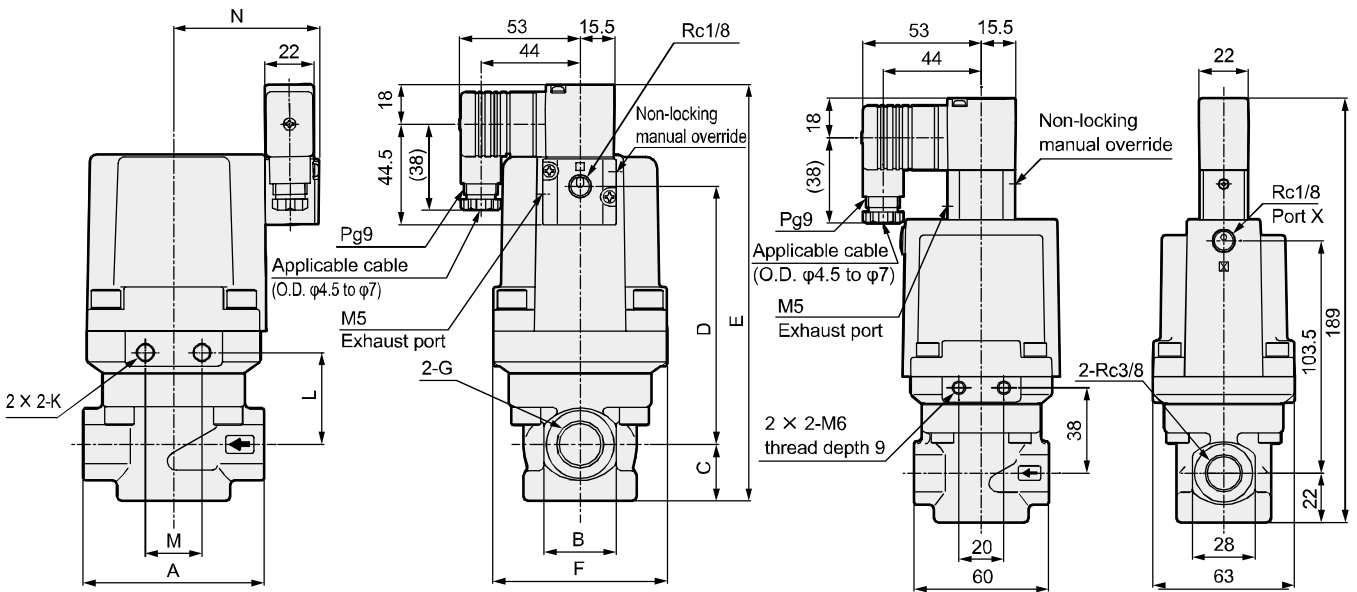
No.	Part name	Material	
1	Cylinder guard	ADS12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	SUS303	Stainless steel
4	Piston rod	SUS304	Stainless steel
5	Body	FCD450	Cast iron (plating)
6	Pilot solenoid valve	-	-
7	Spring	SWP	Piano wire
8	Rod packing	NBR(FKM)	Nitrile rubber (fluoro rubber)
9	Main valving element	SUS420J2	Stainless steel

Dimensions



● With DIN terminal box (Pg9)
CVSE2/CVSE22-10A to 25A-70-*2G

● CVSE2/CVSE22-10A-70-*2GT

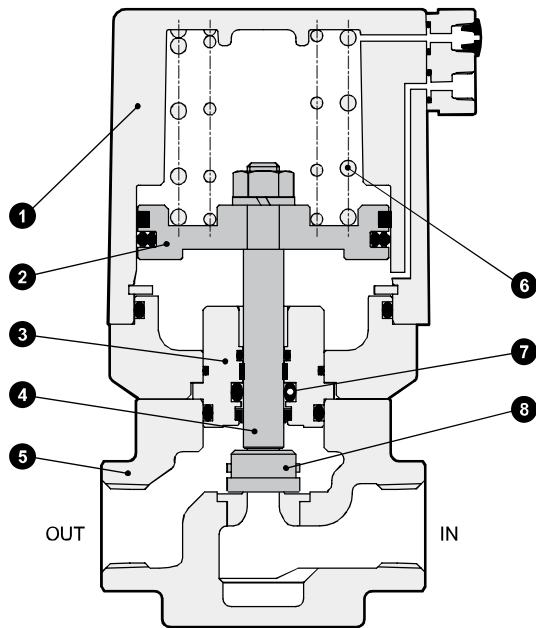


* The figure shows the unit with no assembly direction option selected.

Model No.	A	B	C	D	E	F	G	K	L	M	N
CVSE2/CVSE22-10A-70-*2G	60	28	22	92.5	159.5	63	Rc3/8	M6 thread depth 9	38	20	57.5
CVSE2/CVSE22-15A-70-*2G	80	32	25	114	184	77	Rc1/2	M6 thread depth 10	40.5	25	64.5
CVSE2/CVSE22-20A-70-*2G	90	40	29	136.5	210.5	95	Rc3/4	M6 thread depth 10	45.5	25	72.5
CVSE2/CVSE22-25A-70-*2G	110	48	33.5	149.5	228	113	Rc1	M12 thread depth 14	49	45	82.5

Internal structure and parts list

● CVE2

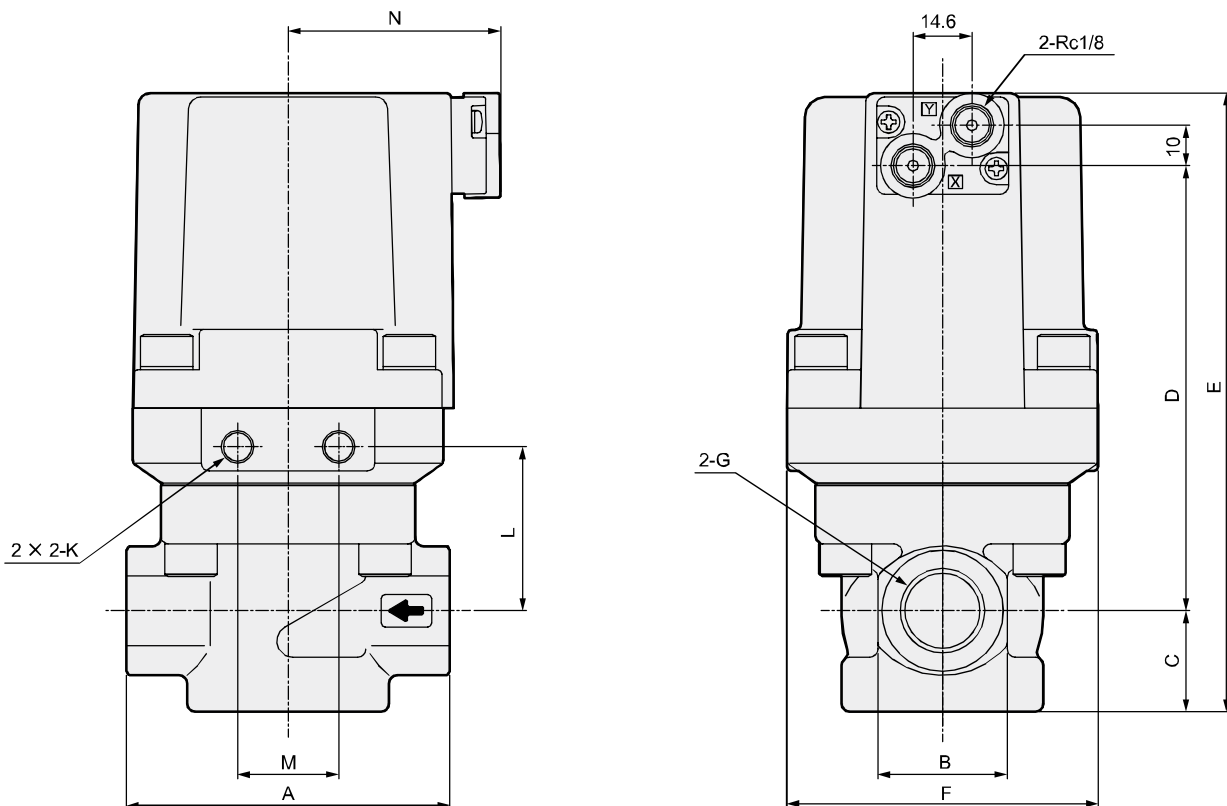


No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	SUS303	Stainless steel
4	Piston rod	SUS304	Stainless steel
5	Body	FCD450	Cast iron (plating)
6	Spring	SWP	Piano wire
7	Rod packing	NBR(FKM)	Nitrile rubber (fluoro rubber)
8	Main valving element	SUS420J2	Stainless steel

Dimensions



● CVE2/CVE22-10A to 25A-70-**



* Pilot pressurization port is port X for the NC and port Y for the NO.

Model No.	A	B	C	D	E	F	G	K	L	M	N
CVE2/CVE22-10A-70-*	60	28	22	88.5	128.5	63	Rc3/8	M6 thread depth 9	38	20	46
CVE2/CVE22-15A-70-*	80	32	25	110	153	77	Rc1/2	M8 thread depth 10	40.5	25	53
CVE2/CVE22-20A-70-*	90	40	29	132.5	179.5	95	Rc3/4	M8 thread depth 10	45.5	25	61
CVE2/CVE22-25A-70-*	110	48	33.5	145.5	197	113	Rc1	M12 thread depth 14	49	45	71

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S/B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
**CVE/
CVSE**
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
SpecFld
Custom
Ending

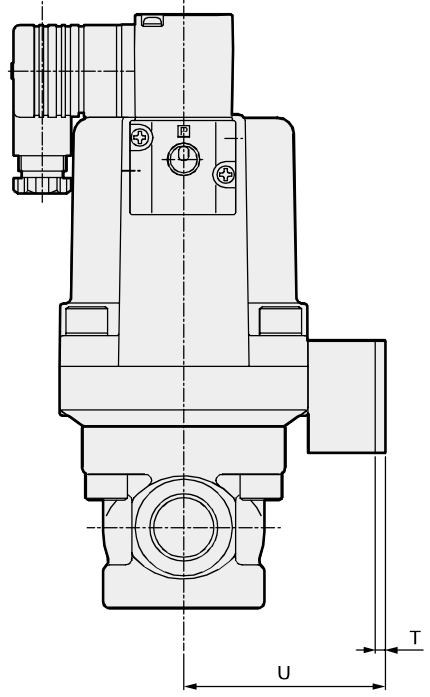
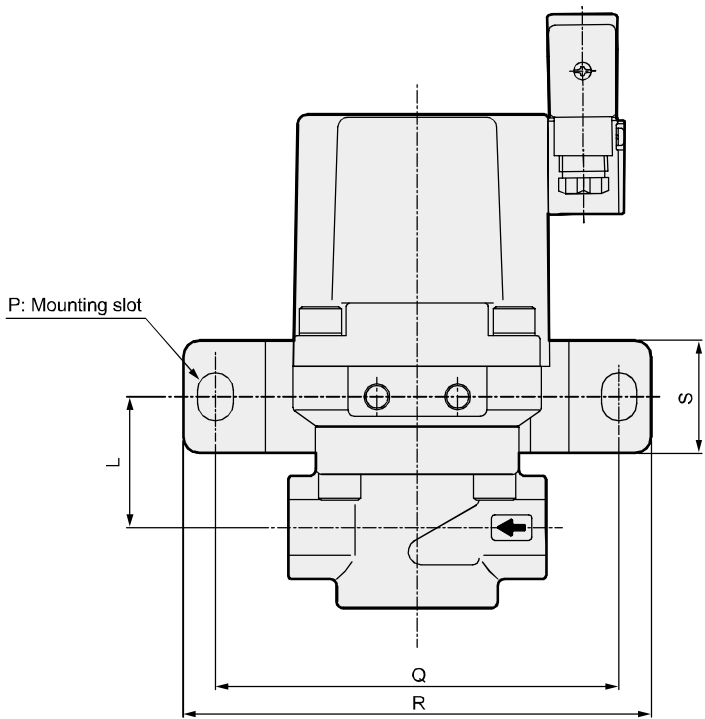
CVE2/CVSE2-70 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/
AD
- APK/
ADK
- DryAir
- EX-
XPLNprf
- XPLNprf
- HVB/
HVL
- SAB/
NAB
- LAD/
NAD
- Water-
Rela
- NP/NAP/
NVP
- SNP
- CHB/G
- MXB/G
- Other
valves
- SWD/
MWD
- DustColl
- CVE/
CVSE**
- CCH /
CPE/D
- LifeSci
- Gas-
Combust
- Auto-
Water
- SpecFld
- Custom
- Ending

Optional dimensions

● Mounting plate
 CVE2/CVE22 -10A to 25A-70-** **B** / **B-R** / **B-Y**
 CVSE2/CVSE22

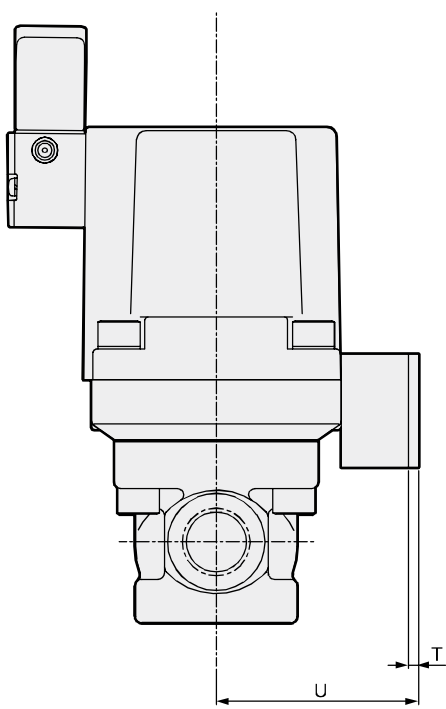
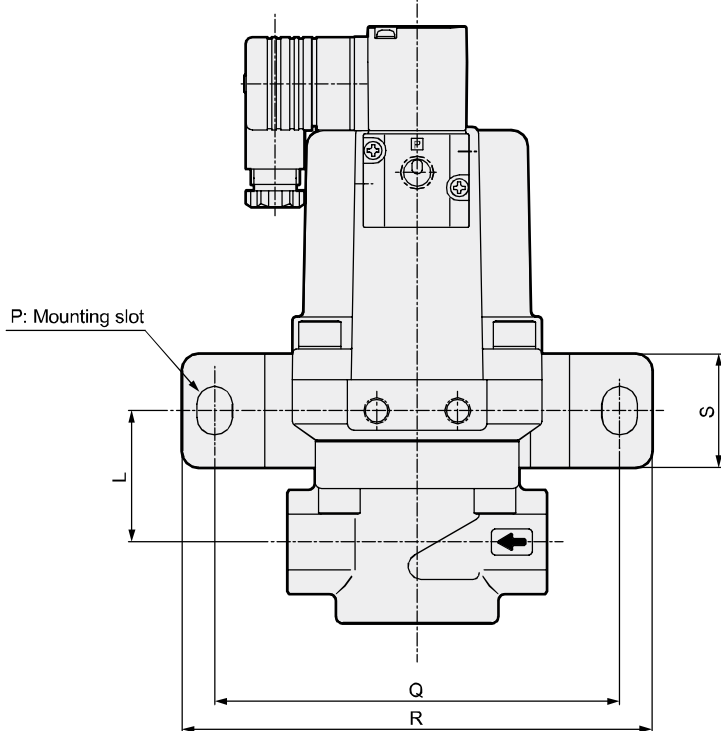
Material: Steel
 Zinc plated



* The figure shows **B**.

● Mounting plate
 CVE2/CVE22 -10A to 25A-70-** **B-X** / **B-Z**
 CVSE2/CVSE22

Material: Steel
 Zinc plated



* The figure shows **B-X**.

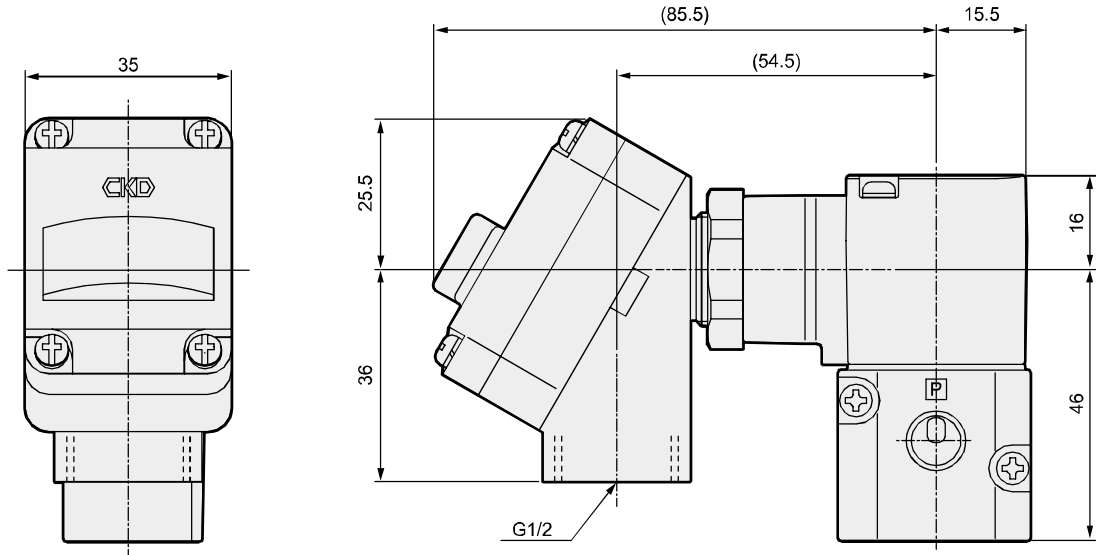
Model No.	L	P	Q	R	S	T	U
CV [^] E2 [*] -10A-70- [*] B	38	9 × 12	85	100	25	3.2	45
CV [^] E2 [*] -15A-70- [*] B	40.5	11 × 15	125	145	35	3.2	62.5
CV [^] E2 [*] -20A-70- [*] B	45.5	11 × 15	125	145	35	3.2	71.5
CV [^] E2 [*] -25A-70- [*] B	49	14 × 20	160	190	40	4	84

Optional dimensions



- With T type terminal box (G1/2)
T type terminal box with lamp (G1/2)
CVSE2/CVSE22-*⁻⁷⁰-*

3T
3R

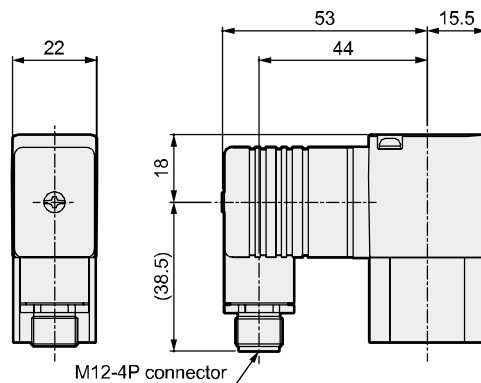


Optional dimensions: Top mounted solenoid valve

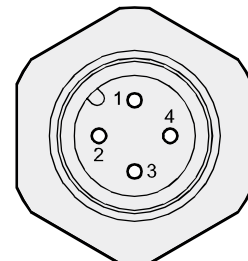
- DIN terminal box (M12-4P connector)
DIN terminal box with lamp/surge suppressor (M12-4P connector)
CVSE2/CVSE22-10A-70-*

2J
2KS

 T



Connector pin array



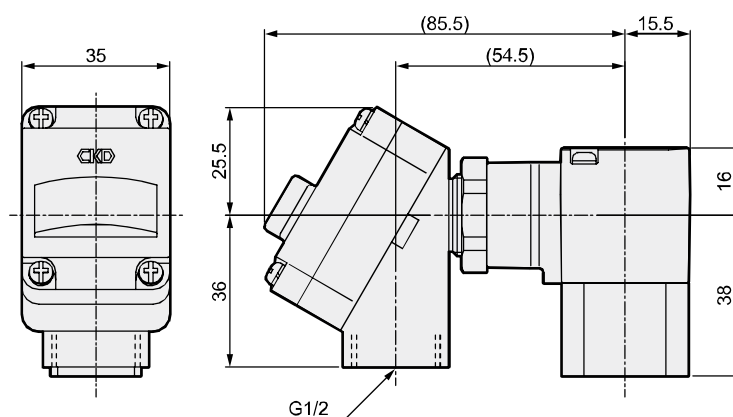
PIN No.	Applications
1PIN	Ground
2PIN	(Not used)
3PIN	Power supply -
4PIN	Power supply +

* As it is a screw-in, the connector pin positions may not be the same as those shown above.

- T type terminal box (G1/2)
T type terminal box with lamp (G1/2)
CVSE2/CVSE22-*^{-10A-70}-*

3T
3R

 T



EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
SAB/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending



Air operated 3-port valve for low pressure (coolant control)
(coolant valve)

CV3E/CVS3E Series

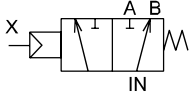
● Port size: Rc3/4, Rc1



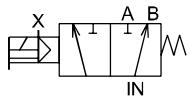
- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/
AD
- APK/
ADK
- DryAir
- EX-
XPLNprf
- XPLNprf
- HVB/
HVL
- SAB/
NAB
- LAD/
NAD
- Water-
Rela
- NP/NAP/
NVP
- SNP
- CHB/G
- MXB/G
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valves
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- CVE/
CVSE**
- CCH /
CPE/D
- LifeSci
- Gas-
Combus
- Auto-
Water
- SpecFld
- Custom
- Ending

JIS symbol

● Air operated (CV3E)



● With solenoid valve (CVS3E)



Common specifications

Descriptions	CV3E/CVS3E	
	20A	25A
Actuation	Directional (COM port pressurization only)	
Working fluid	Coolant	
Fluid viscosity mm ² /s	500 or less	
Working pressure MPa	0 (≈0 psi, 0 bar) to 0.3 (≈44 psi, 3 bar)	
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)	
Fluid temperature °C	-10 (14°F) to 60 (140°F)	
Ambient temperature °C	-10 (14°F) to 60 (140°F)	
Valve seat leakage cm ³ /min	20 or less	
Orifice size mm	22.8 or equiv.	29.3 or equiv.
Cv	12.5	20
Port size	Rc3/4	Rc1
Weight kg	2.2(2.1) *1	3.9(3.8) *1
Pilot fluid	Air	
Pilot pressure MPa	0.25 (≈36 psi, 2.5 bar) to 0.5 (≈73 psi, 5 bar)	
Pilot port size	Rc1/4	
Mounting orientation	Unrestricted	

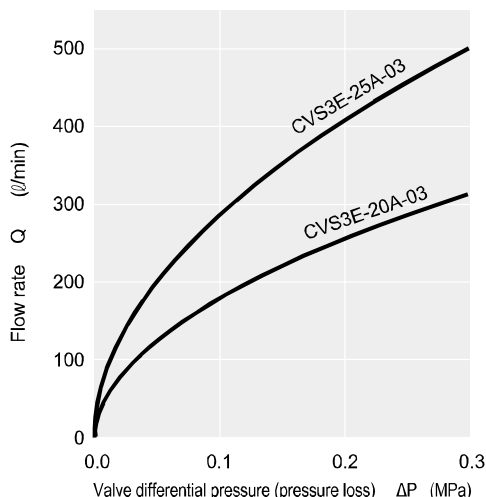
*1: Weights in () are for air operated (CV3E).

Electrical specification (with solenoid valve/common specifications)

Rated voltage	100 VAC (50/60 Hz) / 110 VAC (60 Hz), 200 VAC (50/60 Hz) / 220 VAC (60 Hz), 24 VDC	
Apparent power VA	Holding	3.9(50 Hz), 3.1(60 Hz)
	Starting	9.2(50 Hz), 7.9(60 Hz)
Power consumption W	AC	2.0(50 Hz), 1.7(60 Hz)
	DC	2.0
Thermal class	Class 130 (B)	
Degree of protection (IEC standards 529)	With DIN terminal box (Pg9)	IPX5
	With T type terminal box (G1/2)	IPX6

*2: The voltage fluctuation range must be within ±10% of the rated voltage.

Flow characteristics



Note: Calculated value at specific gravity 1.

How to order

- Air operated

CV3E - **20A** - **03** - **B**

- With solenoid valve

CVS3E - **25A** - **03** - **0** - **2H** - **S** - **2**

A Port size
Working pressure
0 to 0.3 MPa
B Packing seal/gasket material

C Coil

D Other options

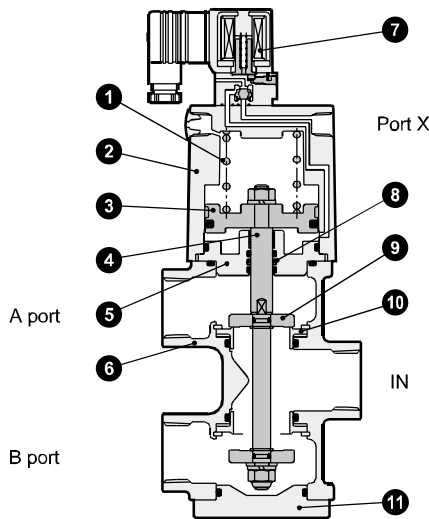
E Rated voltage

Model No.	
Air operated (3-port)	CV3E
With solenoid valve (3-port)	CVS3E

Code		Content		Model No.	
				CV3E	CVS3E
A Port size					
20A	Rc3/4			●	●
25A	Rc1			●	●
B Packing seal/gasket material					
0	Standard	Nitrile rubber		●	●
B	Option	Fluoro rubber		●	●
C Coil					
2G	With DIN terminal box (Pg9)				●
2H	DIN terminal box with lamp (Pg9)				●
3T	With T type terminal box (G1/2)				●
3R	T type terminal box with lamp (G1/2)				●
D Other options					
Blank	Standard	No option			●
S	Option	With surge suppressor			●
E Rated voltage					
1	100 VAC(50/60 Hz), 110 VAC(60 Hz)				●
2	200 VAC(50/60 Hz), 220 VAC(60 Hz)				●
3	24 VDC				●

The combinations indicated with ● in the above table are available.

Internal structure and parts list

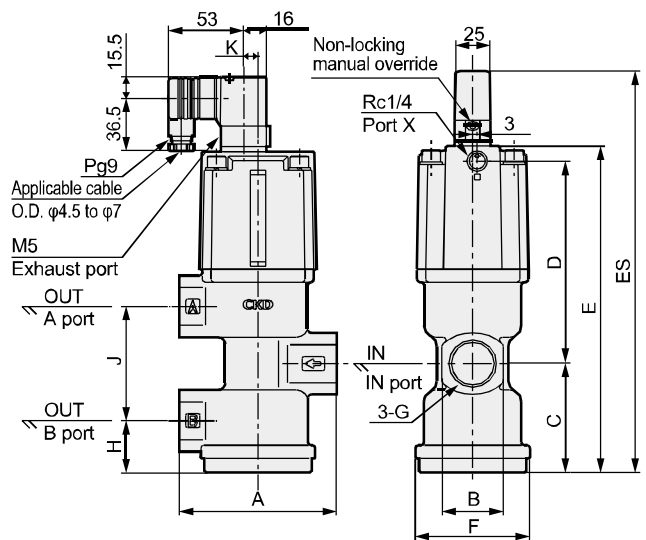


No.	Part name	Material	
1	Spring	SWP	Piano wire
2	Cylinder guard	ADC12	Aluminum die-casting
3	Piston	A2017	Aluminum
4	Piston rod	SUS304	Stainless steel
5	Adaptor	SUS303	Stainless steel
6	Body	FCD450	Cast iron (plating)
7	Pilot solenoid valve	-	-
8	Rod packing	NBR(FKM)	Nitrile rubber (fluoro rubber)
9	Main valving element	SUS440	Stainless steel
10	Valve seat	SUS440	Stainless steel
11	Bottom cap	SUS303	Stainless steel

Dimensions



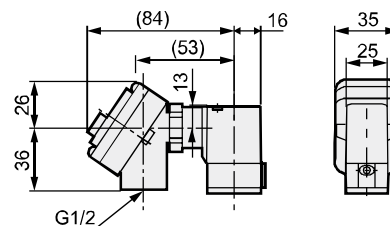
- With DIN terminal box (Pg9)



No.	A	B	C	D	E	ES	F	G	H	J	K
CV(S)3E-20A	90	35	64	112	186	238.5	65	Rc3/4	31.5	65	0
CV(S)3E-25A	110	43	76	141.5	233	280.5	80	Rc1	36	80	10

*1: Dimension E indicates the total height of the air operated, and dimension ES indicates that of the solenoid valve mounted.

- With T type terminal box (G1/2)



EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S/B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other valves
SWD/
MWD
DustCoil
**CV3E/
CVSE**
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
SpecFld
Custom
Ending



Safety precautions

Fluid Control Components: Warnings and Cautions

Be sure to read this section before use.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
SAB/
NAB
LAD/
NAD
Water-
Rela
NP/INP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
SpecFld
Custom
Ending

Precautions for each model series: product-specific cautions

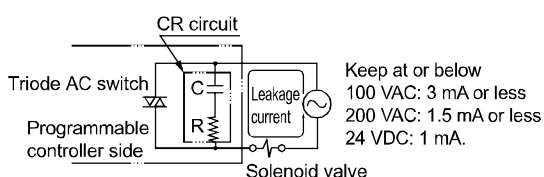
Air operated 2, 3-port valve (coolant valve) (CVE/CVSE)

Design/selection

1. Safety design

CAUTION

- Leakage current from other fluid control components
When operating the solenoid valve with a programmable controller, etc., check that the output leakage current from the programmable controller is within the following specifications. Failure to observe this could lead to malfunctions.



2. Working fluid

WARNING

- Working fluids
Compatibility has not been evaluated with all coolants. Particularly, if coolant contains high levels of chlorine or sulfur, materials used at wetted parts could be adversely affected. Non-corrosive fluids refer to fluids that are mutually unaffected when they contact the valve's wetted part materials.
Wetted part materials: Cast iron (nickel plating), stainless steel, nitrile rubber or fluoro rubber, and epoxy resin adhesive.

External pilot air

- Draining: Compressed air contains a large amount of drainage (water, oil oxides, tar, foreign matter). This is a factor that significantly reduces the reliability of the pneumatic components. For drainage measures, improve air quality by dehumidifying with an after cooler or dryer, removing foreign matter with a filter, and removing tar with a tar removal filter, etc.

- Pre-lubrication: This series is pre-lubricated, so no lubrication is required. However, once lubrication has been started, it must be continued so that the lubricant does not run out. Use turbine oil Class 1 ISO VG32 (#90) or equivalent for lubrication.
- Filter: Install a filter with a 5 μm or less filter element.

3. Working environment

WARNING

- CVSE Series cannot be used in an explosive gas atmosphere. When using in an explosive gas atmosphere, change to the CVE Series, and provide a separate explosion-proof solenoid valve on the pilot air circuit.
- If there are high levels of dust in the area, install a downward-facing silencer or elbow fitting on the exhaust port so that dust does not enter.
- Take appropriate safeguards when using this product in places where it can be exposed to dripping water.

4. How to use

CAUTION

- Pilot pressure
Set pilot air pressure within the specified range.

Mounting, installation and adjustment

1. Piping

CAUTION

- Do not pipe using the solenoid valve section. There is a risk of damage. (For solenoid valve mounted)

- When piping the CVE/CVSE Series, check the supply ports on the body side and pilot operation side.

Model No.	Body side supply port	Pilot operation side supply port
CVE2	IN	X
CVE22		Y
CVSE2/CVSE22		P
CVE3		Y
CVSE3		P

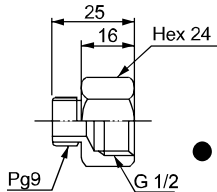
Note) Pipe the unit side supply port so that the arrow on the body matches the fluid flow direction. If supplied in reverse, internal components could be damaged when the valve operates.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S [◇] B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

2. Wiring

⚠ CAUTION

- Wiring for models with solenoid valve
 - (1) Refer to Connections on Intro Pages 65 and 66 when wiring to a DIN terminal box or T type terminal box.
 - (2) The thread size for the junction box outlets of the DIN terminal box can be changed from Pg9 to G1/2 using the optional connector below.



● Order Model No.:
CVS2-CONNECTOR-F4-202936

- (3) Coil direction can be changed 180°. To reverse the electrical connection direction, rotate only the coil. Do not lose internal parts when removing the coil.

Use/maintenance

1. Maintenance and inspection

⚠ CAUTION

- Pilot pressure
Set pilot air pressure within the specified range.
- If water hammer occurs when a 3-port coolant valve for medium/high pressure operates, reduce the noise as follows.
 - (1) Install a metering valve on the valve IN side, then adjust the metering valve to reach the required flow rate. If these countermeasures fail, contact CKD.

2. Disassembly/assembly

⚠ WARNING

- A spring is used in the cylinder cover. When disassembling this type, be careful as the spring could pop out and cause injuries. The NC 2-port valve has a snap ring to prevent the spring from popping out. Do not remove the snap ring.

Modular coolant valve (GCVE2/GCVSE2)

Mounting, installation and adjustment

1. Piping

⚠ CAUTION

- Do not support the valve body only with piping. Use the set screws on the lower part of the body to fix it to the equipment.
- Refer to the table below for the piping tightening torque.

Piping nominal diameter	Recommended piping tightening torque (N·m)
Rc1/2	41 to 43
Rc3/4	62 to 65
Rc1	83 to 86

- Tightening torque should be 30 to 36 N·m when tightening the fixing hexagon socket head cap screws to add/remove valves. Make sure that the O-ring is fixed in position and the spigot is securely engaged before tightening additional valves. After assembling, check for leakage from the connection parts before use.

CVE/CVSE Series

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
SAB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
SpecFld
Custom
Ending

■ Pilot solenoid valve (with solenoid valve) assembly procedure

If the pilot solenoid valve has been disassembled, assemble it as follows.

(1) Coil side

- Disassembly
Loosen the cross-recessed pan head machine screw and lift up the coil assembly. Take out the outer spring, plunger assembly, and O-ring.
- Reassembly
Assemble the parts in the sequence of O-ring, plunger assembly, outer spring and coil assembly. Tighten the cross-recessed pan head machine screws with a torque of 0.7 to 1.1 N·m.

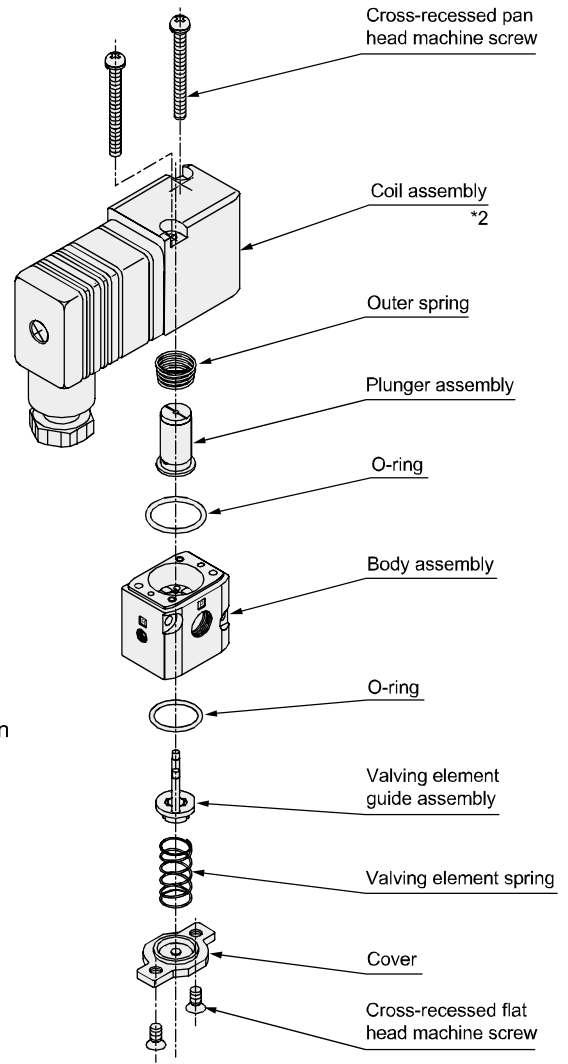
(2) Cover side

- Disassembly
Loosen the cross-recessed flat head screw to remove the cover. Take out the valving element spring, valving element guide assembly, and O-ring.
- Reassembly
Set the parts in the sequence of O-ring, valving element guide assembly, valving element spring and cover. Tighten the flat-head cross-recessed screw with a torque of 0.7 to 1.1 N·m.

*1 : Be careful not to lose components such as springs during disassembly.

*2 : The orientation of the coil assembly can be changed 180 degrees. Loosen the cross-recessed pan head machine screw to adjust the orientation.

*3 : Plunger is coated with turbine oil for lubrication.



■ Model No. of pilot solenoid valve (actuator assembly kit) for CVSE

CVSE2-ACTUATOR-0 ^{*1} - Rated voltage

*1 : Specify the coil option code in the *1 field.

*2 : Contact your CKD Sales Representative about the pilot solenoid valve (actuator assembly kit) for CVS3E.

■ Orientation of gasket (models with solenoid valve)

The gasket has an orientation. Make sure to check the orientation when re-assembling.

