

# CVE2/CVSE2 CVE3/CVSE3

(Coolant valve)

Air operated 2, 3 port valve (coolant control)

## Overview

This is a reliable 2, 3 port coolant valve with cylinder drive method.

This valve for tool machine cutting oil or coolant control incorporates a metal seal to prevent the entry of cutting chips, abrasive grains and foreign debris, and ensures highly reliable control.

The air operated type and solenoid valve mounted type are available. These can be used in precise machines.

## Features

### High corrosion resistant materials

Cast iron body, and stainless steel metal seal used in valve seat. NBR or FKM packing seal can be selected. Materials optimum for coolant are used.

### Certain operation

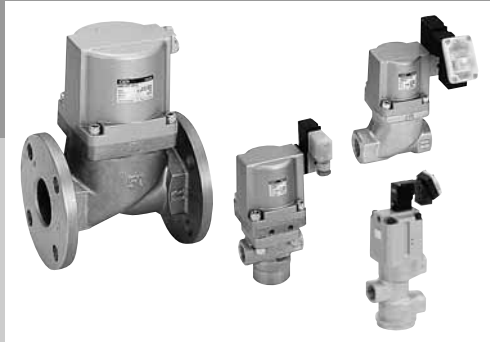
Certain operation is enabled with external pilot air operated cylinder.

### Water hammer prevented (Only 2 port valve)

### Resistant to foreign matter

A metal seal is used.  
**Usable in flammable environment.**  
(Air operated type)

■ For coolant



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⚠ Always read the precautions in the Introduction and page 702 before starting use.

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/  
AD

APK/  
ADK

For  
dry air

Explosion  
proof

HVB/  
HVL

SAB/  
SVB

NP/NAP/  
NVP

CHB/G

MXB/G

Other G.P.  
systems

PD/FAD/  
PJ

**CVE/  
CVSE**

CPE/  
CPD

Medical  
analysis






Custom  
order

Coolant valve

Air operated 2, 3 port valve

# Series variation

## Air operated 2, 3 port valve (coolant control) (Coolant valve)

No. of port	Category		Model	Working pressure range MPa	Connection				
					Rc3/8	Rc1/2			
2 port		Low pressure	Air operated type	CVE2-***-05	0 to 0.5	●	●		
			Solenoid valve mounted type	CVSE2-***-05		●	●		
		Low pressure	Air operated type	CVE2-***-10	0 to 1.0	●	●		
			Solenoid valve mounted type	CVSE2-***-10		●	●		
		Medium pressure	Air operated type	CVE2-***-16	0 to 1.6	●	●		
			Solenoid valve mounted type	CVSE2-***-16		●	●		
		Medium pressure	Air operated type	CVE2-***-30	0 to 3.0	●	●		
			Solenoid valve mounted type	CVSE2-***-30		●	●		
		High pressure	Air operated type	CVE2-***-70	0 to 7.0	●	●		
			Solenoid valve mounted type	CVSE2-***-70		●	●		
	3 port		Low pressure	Air operated type	CV3E-***-03	0 to 0.3			
				Solenoid valve mounted type	CVS3E-***-03				
		Medium pressure	Air operated type	CVE3-***-35	0 to 3.5	●	●		
			Solenoid valve mounted type	CVSE3-***-35		●	●		
		High pressure	Air operated type	CVE3-***-70	0 to 7.0	●	●		
			Solenoid valve mounted type	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	
	●	●	●	●	●	●	●	●	●	●	708
	●	●	●	●	●	●	●	●	●	●	708
	●	●	●	●	●	●	●	●	●	●	708
	●	●	●	●	●	●	●	●	●	●	708
	●	●									718
	●	●									718
	●	●									718
	●	●									718
	●	●									726
	●	●									726
	●	●									744
	●	●									744
	●	●	●		●		●				732
	●	●	●		●		●				732
	●	●									732
	●	●									732

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/  
ADAPK/  
ADKFor  
dry airExplosion  
proofHVB/  
HVLSAB/  
SVBNP/NAP/  
NVP

CHB/G

MXB/G

Other G.P.  
systemsPD/FAD/  
PJCVE/  
CVSECPE/  
CPDMedical  
analysisCustom  
orderCoolant valve  
Air operated 2, 3 port valve



## Safety precautions

Always read this section before starting use.

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

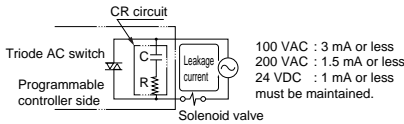
#### Design & Selection

##### 1. Safety designing

###### ⚠ 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 fluid

The 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. Confirm the compatibility when making a selection. Non-corrosive fluids refer to fluids that do not affect or are not affected 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

(1) Drainage measures - Compressed air contains high levels of drainage (water, oxidized oil, tar, foreign matter) that can significantly reduce the reliability of pneumatic components. As measures against drain, 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.

- (2) Pre-lubrication - This series is pre-lubricated, so no lubricator is required. However, once lubrication has been started, it must be continued so that the lubricant is not used up. For lubrication, use the turbine oil Class 1 ISO VG32 (#90) or equivalent.
- (3) Filter - Install a filter with a 5  $\mu$ m 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 joint on the exhaust port so that dust does not enter.

■ When using in a place where water splashes on the valve, take appropriate measures to protect it.

##### 4. How to use

###### ⚠ CAUTION

###### ■ Pilot air pressure

Use pilot air pressure in accordance with the specifications.

#### Installation & Adjustment

##### 1. Piping

###### ⚠ CAUTION

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

■ When piping the CVE or CVSE Series, pay attention to the supply ports on the unit and pilot operation sides.

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

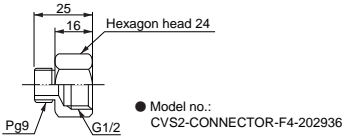
Note: Pipe the unit side supply port so that the arrow on the body matches the fluid flow direction. If supplied in reverse, internal components could be damaged when the valve operates.

### 2. Wiring

#### ⚠ CAUTION

##### ■ Wiring of solenoid valve mounted type

- (1) Refer to connections in pages 54 to 55 in the Introduction when wiring to a DIN terminal box or T type terminal box.
- (2) The size of the screw for the junction box outlets of the DIN terminal box can be changed from Pg9 to G1/2 using the optional connector below.



- (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.

## During Use & Maintenance

### 1. Maintenance & inspection

#### ⚠ CAUTION

##### ■ Pilot air pressure

Use pilot air pressure in accordance with the specifications.

##### ■ 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.  
If these countermeasures fail, contact CKD.

### 2. Assembling & disassembling

#### ⚠ WARNING

##### ■ A spring is used in the cylinder cover. When disassembling this type, the spring could pop out and cause injuries, so take care.

The NC (normally closed) type 2 port valve has a snap ring to prevent the spring from popping out. Do not remove the snap ring.

HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
For dry air
Explosion proof
HVB/ HVL
SAB/ SVB
NP/NAP/ NVP
CHB/G
MXB/G
Other G.P. systems
PD/FAD/ PJ
<b>CVE/ CVSE</b>
CPE/ CPD
Medical analysis
Custom order

Coolant valve  
Air operated 2, 3 port valve

@

## Assembling pilot solenoid valve (for solenoid valve mounted type)

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

### (1) Coil side

- Disassembling  
Loosen the cross headed pan head machine screw, and lift up the coil assembly.  
The outer spring, plunger assembly and O ring can be removed.
- Reassembling  
Set the parts in the sequence of the O ring, plunger assembly, outer spring and coil assembly.  
Tighten the cross headed pan head machine screw with a torque of 0.7 to 1.1 N·m.

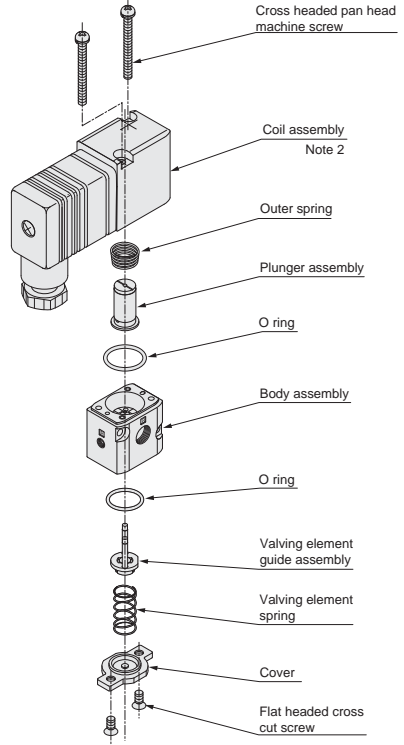
### (2) Cover side

- Disassembling  
Loosen the flat headed cross cut screw, and remove the cover.  
The valving element spring, valving element guide assembly and O ring can be removed.
- Reassembling  
Set the parts in the sequence of the O ring, valving element guide assembly, valving element spring and cover.  
Tighten the flat headed cross cut screw with a torque of 0.7 to 1.1 N·m.

Note 1: Do not lose the components such as springs during disassembly.

Note 2: The coil assembly direction can be changed 180°. Loosen the cross headed pan head machine screw to change the direction.

Note 3: Turbine oil is applied to the plunger as a lubricant.



## Model no. of pilot solenoid valve (actuator assembly kit) for CVSE

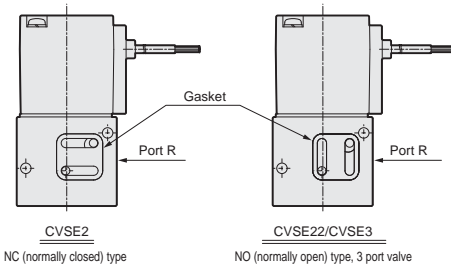
CVSE2-ACTUATOR-0  - **Rated voltage**

Note 1: Indicate the coil option symbol in field \*1.

Note 2: Consult with your CKD Sales Representative about the solenoid valve (actuator assembly kit) for CVS3E.

## Gasket direction (for solenoid valve mounted type)

The gasket has an orientation. Check the orientation when reassembling.



MEMO

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/  
AD

APK/  
ADK

For  
dry air

Explosion  
proof

HVB/  
HVL

SAB/  
SVB

NP/NAP/  
NVP

CHB/G

MXB/G

Other G.P.  
systems

PD/FAD/  
PJ

**CVE/  
CVSE**

CPE/  
CPD

Medical  
analysis

Custom  
order

Coolant valve  
Air operated 2, 3 port valve

Reducing energy loss!

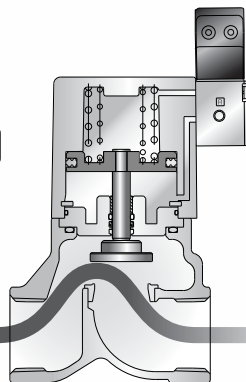
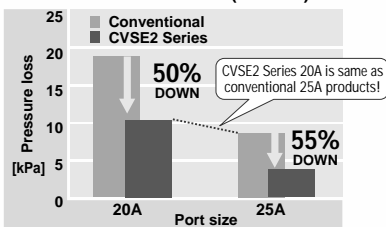
# Low pressure loss, large flow rate coolant valve,

Low pressure (0.5 MPa) to high pressure (7.0 MPa) is available with port size 10A to 80F. Handling coolant needs with a wide range of products.

## Pressure loss 50% reduction

An ideal flow rate shape has been pursued focusing on zero pressure loss. Pressure losses have been approximately halved compared to conventional models. (Max. 59% reduction, CKD comparison)

Pressure loss at 50 L/min. (0.5 MPa)



## Increased flow rate

Comparison of Cv flow factor (0.5 MPa)

Port size	Conventional	CVSE2 Series
15A	5	<b>6.5</b>
20A	8	<b>11</b>
25A	12	<b>18</b>



Low pressure loss type 3 port valve

**CVSE3 Series**

Reliable operation

Cylinder drive method using external pilot air ensures reliable operation.



Valve side mounted low-wattage actuator

Reliable direct acting

Resistant to cutting chips, etc.

The metal seal structure of this valve prevents foreign matters such as cutting chips and abrasive grains from entering the valve.

Low pressure loss type 2 port valve

**CVSE2 Series**

Low pressure loss

Ideal valve flow path shape (registered design, patent pending)

Useful for various tool machines and equipment

# CVSE<sup>2</sup>/<sub>3</sub> Series

2, 3 port coolant valve



# 45 types available.



COOLANT VALVE

**CVSE<sup>2</sup><sub>3</sub> Series**

**RoHS**

## Compatible designs with conventional products

The product is compatible with conventional products in face-to-face dimensions and specifications, enabling installation in existing facilities.

## Current consumption is reduced by 50% with accurate direct-acting type

An accurate direct-acting solenoid valve is used to open and close the valve. Even still, the power consumption is reduced to 2 W from the conventional 4 W.



## Proposals for improving coolant devices

An optimum coolant system is realized by reviewing the valves and system.

### STEP 1

- Review of optimum value for coolant discharge rate
- Review of coolant valve pressure loss

Before improvement

3 conventional 2 port valves used



### STEP 2

The coolant system's optimum circuit can be simulated with sizing software.

Low pressure loss type 3 port valve CVSE3E

### STEP 3

- Downsizing of coolant pump
- Achieving energy saving coolant system

After improvement

Low pressure loss type 2 port valve CVSE2

## Easy installation

The actuator is mounted on the valve side. It is generally smaller and easier to install.

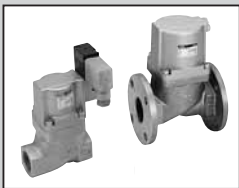
## CVSE Series variation

Model		Port size										
		10A	15A	20A	25A	32A/F	40A/F	50A/F	65F	80F		
2 port valve <b>CVSE2</b>	Low pressure	0.5MPa	●	●	●	●	●	●	●	●	●	●
		1.0MPa	●	●	●	●	●	●	●	●	●	●
	Medium pressure	1.6MPa	●	●	●	●	●	●	●	●	●	●
3 port valve <b>CVSE3</b>	High pressure	3.0MPa	●	●	●	●	●	●	●	●	●	●
	Medium pressure	7.0MPa	●	●	●	●	●	●	●	●	●	●
3 port valve <b>CVSE3E</b>	High pressure	3.5MPa	●	●	●	●	●	●	●	●	●	●
	Low pressure	7.0MPa	●	●	●	●	●	●	●	●	●	●
3 port valve <b>CVSE3E</b>	Low pressure	0.3MPa	●	●	●	●	●	●	●	●	●	●

\*1: A low-pressure shape is not incorporated for this model.  
\*2: Only Rc threaded type is available.

- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- For dry air
- Explosion proof
- HVB/HVL
- SAB/SVB
- NP/NAP/NVP
- CHB/G
- MXB/G
- Other G.P. systems
- PD/FAD/PJ
- CVE/CVSE**
- CPE/CPD
- Medical analysis
- Custom order

Coolant valve for low pressure  
Air operated 2 port valve



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

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

- NC (normally closed) type, NO (normally open) type
- Port size: Rc3/8 to Rc2, 32 to 80 flange
- Low pressure 0.5 MPa, 1.0 MPa

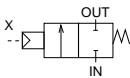


Refer to Ending 17  
for more details.

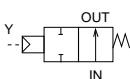


## JIS symbol

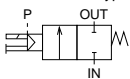
- CVE2 (air operated type)  
: NC type



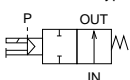
- CVE22 (air operated type)  
: NO type



- CVSE2 (solenoid valve mounted type)  
: NC type



- CVSE22 (solenoid valve mounted type)  
: NO type



## Common specifications for 0.5 MPa

Model no.	CVE2/CVSE2	CVE22/CVSE22
Actuation	NC (normally closed) type	NO (normally open) type
Working fluid	Coolant, other non-corrosive fluids (*1)	
Fluid viscosity	mm <sup>2</sup> /s 500 or less	
Working pressure range	MPa 0 to 0.5	
Withstanding pressure (water)	MPa 2.0	
Fluid temperature	°C -10 to 60 (no freezing)	
Ambient temperature	°C -10 to 60	
Valve seat leakage	cm <sup>3</sup> /min. 20 or less (water) (*2)	
Mounting attitude	Free	
Pilot air pressure	MPa 0.25 to 0.7	
Water hammer (reference)	MPa 1 or less (with 10 m steel pipe, full pressure 0.5 MPa and flow rate 5 m/sec)	

\*1: Fluids that do not affect cast iron (nickel plating), stainless steel, nitrile rubber or fluoro rubber, and epoxy resin adhesive  
\*2: 1 cm<sup>3</sup>/min. or less for port size 10A (Rc3/8)

## Electric specifications (solenoid valve mounted type 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	3.6 (50 Hz), 2.8 (60 Hz)
	Starting	11 (50 Hz), 9 (60 Hz)
Power consumption (W)	AC	3.6 (50 Hz), 2.8 (60 Hz)
	DC	2.0
Heat proof class	B	
Protective structure (IEC standards 529)	Grommet lead wire	IPX2
	DIN terminal box (Pg9)	IPX5
	T type terminal box (G1/2)	IPX5

\*3: Allowable voltage range must be within ±10% of the rated voltage.

## Individual specifications for 0.5 MPa

Item Model no.	Port size	Orifice (mm)	Cv flow factor	Pilot port size	Weight (kg)	
					CVE2(2)	CVSE2(2)
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

HNB/G  
 USB/G  
 FAB/G  
 FGB/G  
 FVB  
 FWB/G  
 FHB  
 FLB  
 AB  
 AG  
 AP/  
 AD  
 APK/  
 ADK  
 For  
 dry air  
 Explosion  
 proof  
 HVB/  
 HVL  
 SAB/  
 SVB  
 NP/NAP/  
 NVP  
 CHB/G  
 MXB/G  
 Other G.P.  
 systems  
 PD/FAD/  
 PJ  
 CVE/  
 CVSE  
 CPE/  
 CPD  
 Medical  
 analysis  
 Custom  
 order  
 Coolant valve for low pressure  
 Air operated 2 port valve

## Common specifications for 1.0 MPa

Model no.	CVE2/CVSE2	CVE22/CVSE22
Actuation	NC (normally closed) type	NO (normally open) type
Working fluid	Coolant, other non-corrosive fluids (*1)	
Fluid viscosity mm <sup>2</sup> /s	500 or less	
Working pressure range MPa	0 to 1.0	
Withstanding pressure (water) MPa	2.0	
Fluid temperature °C	-10 to 60 (no freezing)	
Ambient temperature °C	-10 to 60	
Valve seat leakage cm <sup>3</sup> /min.	20 or less (water) (*2)	
Mounting attitude	Free	
Pilot air pressure MPa	0.25 to 0.7	
Water hammer (reference) MPa	2 or less (with 10 m steel pipe, full pressure 1 MPa and flow rate 5 m/sec)	

\*1: Fluids that do not affect cast iron (nickel plating), stainless steel, nitrile rubber or fluoro rubber, and epoxy resin adhesive  
 \*2: 1 cm<sup>3</sup>/min. or less for port size 10A (Rc3/8)

Electric specifications (solenoid valve mounted type 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	3.6 (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
Heat proof class	B	
Protective structure (IEC standards 529)	Grommet lead wire	IPX2
	DIN terminal box (Pg9)	IPX5
	T type terminal box (G1/2)	IPX5

\*3: Allowable voltage range must be within ±10% of the rated voltage.

## Individual specifications for 1.0 MPa

Item Model no.	Port size	Orifice (mm)	Cv flow factor	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

# CVE2/CVSE2-05/10 Series

@

## How to order

● Air operated type

**CVE2** **2** - **20A** - **10** - **0**      **B** - ●

● Solenoid valve mounted type

**CVSE2** **2** - **15A** - **05** - **0** **2G** **S** - ● - **1**

**A** Actuation

**H** Voltage

**B** Port size

**C** Working pressure range

**D** Body/sealant combination

**E** Coil

**F** Other options

\*1  
\*2  
\*3  
\*4

**G** Assembly direction

<Example of model number>

**CVSE22-15A-05-02GS-1**

Model no.: CVSE2 : Solenoid valve mounted type (2 port)

**A** Actuation : NO (normally open) type

**B** Port size : Rc1/2

**C** Working pressure range : 0 to 0.5 MPa

**D** Body/sealant combination

: Body - cast iron (plating), sealant - nitrile rubber

**E** Coil : DIN terminal box (Pg9)

**F** Other options : Surge suppressor

**G** Assembly direction : No options

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

\*1: The mounting plate (● B) is available only for port size 10A, 15A, 20A or 25A.

\*2: Indicate SB in ● to select both surge suppressor and mounting plate.

\*3: The surge suppressor is an accessory for the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.

\*4: A manual override (non-locking) is provided as standard for the solenoid valve mounted type.

Model no.	
CVE2	CVSE2

Symbol	Descriptions		
<b>A Actuation</b>			
<b>Blank</b>	NC (normally closed) type	●	●
<b>2</b>	NO (normally open) type	●	●
<b>B Port size</b>			
<b>10A</b>	Rc3/8	●	●
<b>15A</b>	Rc1/2	●	●
<b>20A</b>	Rc3/4	●	●
<b>25A</b>	Rc1	●	●
<b>32A</b>	Rc1 1/4	●	●
<b>32F</b>	32 flange	●	●
<b>40A</b>	Rc1 1/2	●	●
<b>40F</b>	40 flange	●	●
<b>50A</b>	Rc2	●	●
<b>50F</b>	50 flange	●	●
<b>65F</b>	65 flange	●	●
<b>80F</b>	80 flange	●	●
<b>C Working pressure range</b>			
<b>05</b>	0 to 0.5 MPa	●	●
<b>10</b>	0 to 1.0 MPa	●	●
<b>D Body/sealant combination</b>			
		Body	Sealant
<b>0</b>	Standard	Cast iron (plating)	Nitrile rubber
<b>B</b>	Option	Cast iron (plating)	Fluoro rubber
<b>E Coil</b>			
<b>2C</b>	Standard	Grommet lead wire	
<b>2G</b>	Option	DIN terminal box (Pg9)	
<b>2H</b>		DIN terminal box + light (Pg9)	
<b>3T</b>		T type terminal box (G1/2)	
<b>3R</b>		T type terminal box + light (G1/2)	
<b>F Other options</b>			
<b>Blank</b>	No options	●	●
<b>S</b>	Surge suppressor		●
<b>B</b>	Mounting plate	●	●
<b>G Assembly direction</b>			
<b>Blank</b>	No options	●	●
<b>X</b>	Cylinder cover 90° rotation		●
<b>Y</b>	Cylinder cover 180° rotation		●
<b>Z</b>	Cylinder cover 270° rotation		●
<b>R</b>	Mounting plate 180° reverse rotation (air operated type) Coil 180° reverse rotation (solenoid valve mounted type) Mounting plate/coil 180° reverse rotation (solenoid valve mounted type)	●	●
Refer to the following page for the layout drawing.			
<b>H Voltage</b>			
<b>1</b>	100 VAC (50/60 Hz) 110 VAC (60 Hz)		●
<b>2</b>	200 VAC (50/60 Hz) 220 VAC (60 Hz)		●
<b>3</b>	24 VDC		●

## G Assembly direction

CVE2 (solenoid valve mounted type) *5					
Symbol	Blank (standard)	X *6	Y *6	Z *6	R *6
Direction	Without rotation	Cylinder cover 90° rotation	Cylinder cover 180° rotation	Cylinder cover 270° rotation	Coil reverse rotation
Arrangement	←	←	←	←	←

CVE2 (solenoid valve mounted type) *1/5					
Symbol	B (mounting plate)	B-X	B-Y *7	B-Z *7	B-R *8
Direction	Without rotation	Cylinder cover 90° rotation	Cylinder cover 180° rotation Mounting plate reverse rotation	Cylinder cover 270° rotation Mounting plate reverse rotation	Coil reverse rotation Mounting plate reverse rotation
Arrangement	←	←	←	←	←

CVE2 (air operated type) *1/5	
Symbol	B (mounting plate)      B-R *9
Direction	Without rotation      Mounting plate reverse rotation
Arrangement	←

⇄ indicates flow path direction, while ← indicates pilot port IN.

\*5: Clockwise rotation angles are shown as viewed from above with IN port facing right.

\*6: Not available for port size 65F/80F.

\*7: The mounting plate is assembled on the 180° opposite side.

\*8: The mounting plate for port size 10A is installed at the bottom, so only the coil position is reversed.

\*9: Not available for port size 10A.

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/  
AD

APK/  
ADK

For  
dry air

Explosion  
proof

HVB/  
HVL

SAB/  
SVB

NP/NAP/  
NVP

CHB/G

MXB/G

Other G.P.  
systems

PD/FAD/  
PJ

CVE/  
CVSE

CPE/  
CPD

Medical  
analysis

Custom  
order

Coolant valve for low pressure

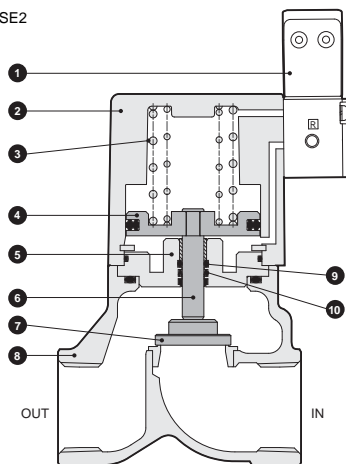
Air operated 2 port valve

# CVSE2-05/10 Series

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## Internal structure and parts list

### ● CVSE2



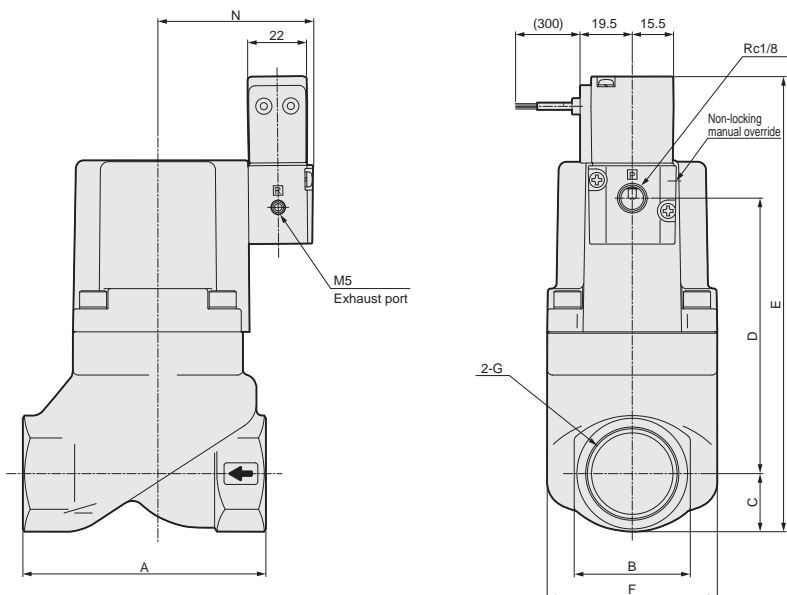
No.	Parts name	Material	
1	Pilot solenoid valve	-	
2	Cylinder cover	ADC12	Aluminum die casting
3	Spring	SWP	Piano wire
4	Piston	A2017	Aluminum
5	Adaptor	SUS303	Stainless steel
6	Piston rod	SUS304	Stainless steel
7	Main valving element	SUS420J2	Stainless steel
8	Body	FCD450	Cast iron (plating)
	Valve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

\*1: ( ) shows options.

\*2: This internal structure drawing is for 15A to 50A.  
For 10A, 65F or 80F, contact CKD.

Dimensions  (Page 746)

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

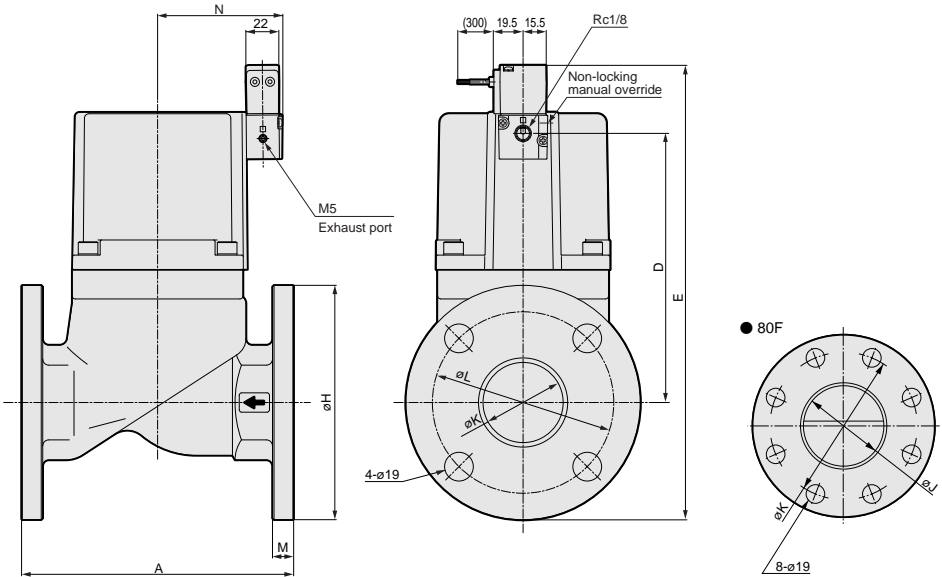


\* Shown without optional assembly direction.

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

## Dimensions (Page 746)

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



\* Shown without optional assembly direction.

Model no.	A	D	E	H	K	L	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	199	347.5	175	68	140	16	101
CVSE*-80F-05/10-2C	240	214	367.5	185	82	150	16	111

## Optional dimensions

Refer to pages 716 and 717 for details on coil options and mounting plates.

HNB/G  
 USB/G  
 FAB/G  
 FGB/G  
 FVB  
 FWB/G  
 FHB  
 FLB  
 AB  
 AG  
 AP/  
 AD  
 APK/  
 ADK  
 For  
 dry air  
 Explosion  
 proof  
 HVB/  
 HVL  
 SAB/  
 SVB  
 NP/NAP/  
 NVP  
 CHB/G  
 MXB/G  
 Other G.P.  
 systems  
 PD/FAD/  
 PJ  
 CVE/  
 CVSE  
 CPE/  
 CPD  
 Medical  
 analysis  
 Custom  
 order

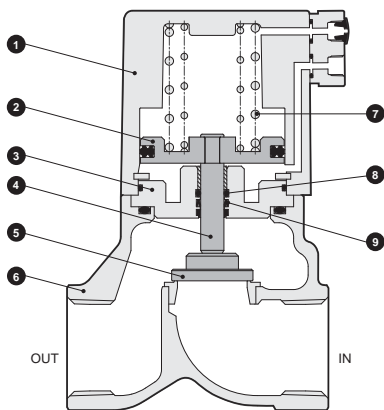
Coolant valve for low pressure  
 Air operated 2 port valve

# CVE2-05/10 Series

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## Internal structure and parts list

### ● CVE2



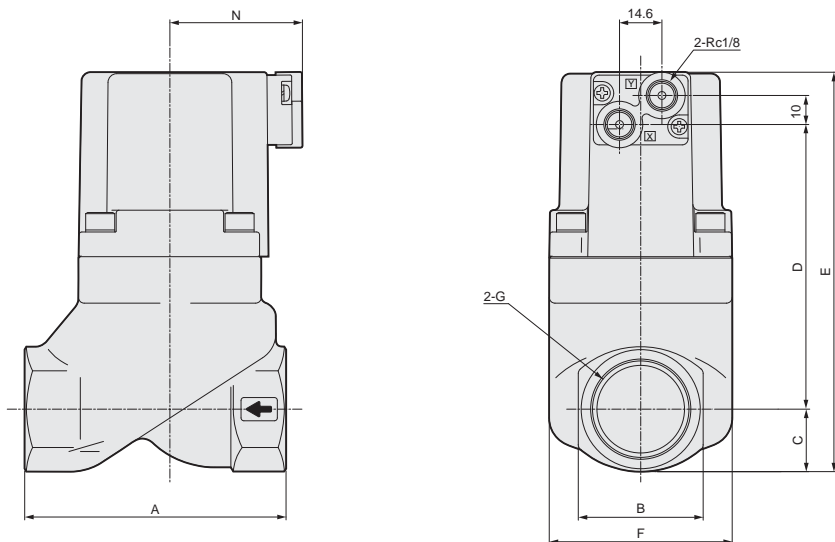
No.	Parts name	Material	
1	Cylinder cover	ADC12	Aluminum die casting
2	Piston	A2017	Aluminum
3	Adaptor	SUS303	Stainless steel
4	Piston rod	SUS304	Stainless steel
5	Main valving element	SUS420J2	Stainless steel
6	Body	FCD450	Cast iron (plating)
	Valve seat	SUS420J2	Stainless steel
7	Spring	SWP	Piano wire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

\*1: ( ) shows options.

\*2: This internal structure drawing is for 15A to 50A.  
For 10A, 65F or 80F, contact CKD.

Dimensions  (Page 746)

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



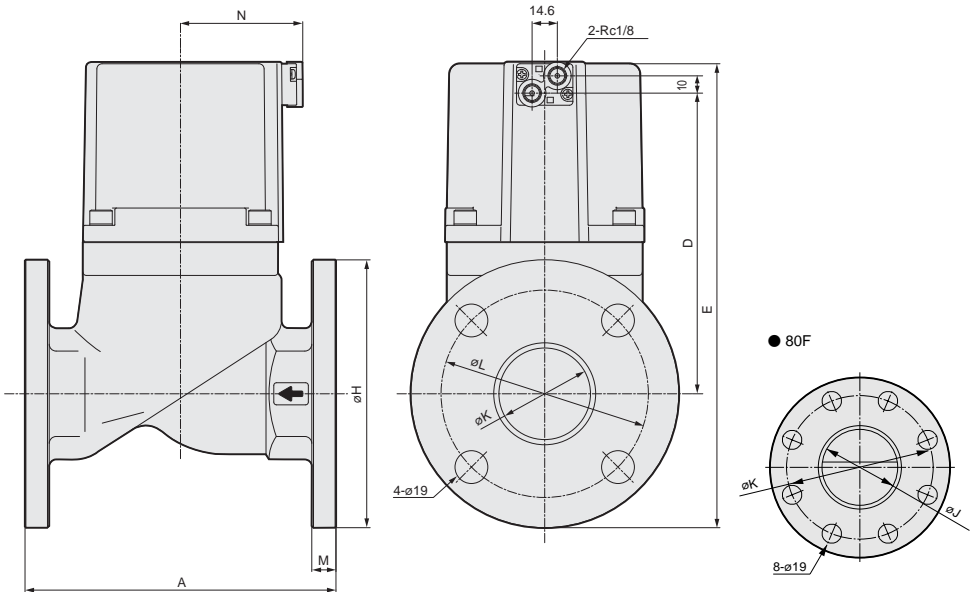
\* The pilot pressurization port is port X for the NC type and port Y for the NO type.

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



## Dimensions (Page 746)

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



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

## Optional dimensions

Refer to page 716 for mounting plates.

HNB/G  
 USB/G  
 FAB/G  
 FGB/G  
 FVB  
 FWB/G  
 FHB  
 FLB  
 AB  
 AG  
 AP/  
 AD  
 APK/  
 ADK  
 For  
 dry air  
 Explosion  
 proof  
 HVB/  
 HVL  
 SAB/  
 SVB  
 NP/NAP/  
 NVP  
 CHB/G  
 MXB/G  
 Other G.P.  
 systems  
 PD/FAD/  
 PJ  
**CVE/  
 CVSE**  
 CPE/  
 CPD  
 Medical  
 analysis  
 Custom  
 order

Coolant valve for low pressure  
 Air operated 2 port valve


# CVE2/CVSE2-05/10 Series

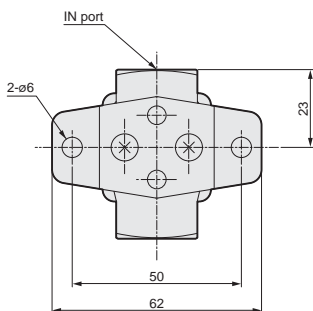
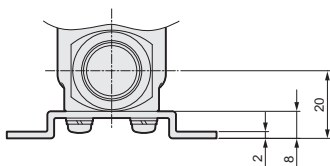
@

Optional dimensions  (Page 746)

● Mounting plate

CVE2/CVE22




CVSE2/CVSE22 -10A-05/10-\*\*

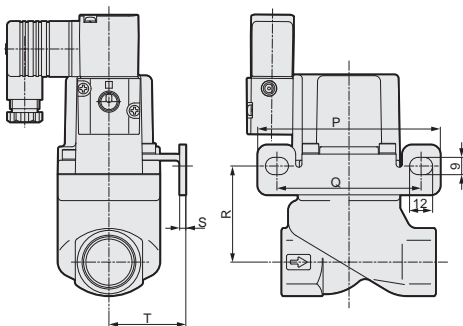



\* Use the body set screws if fixing without a mounting plate.  
(Thread size: M4 depth 7)

● Mounting plate

CVE2/CVE22



CVSE2/CVSE22 -15A/20A/25A-05/10-\*\*//

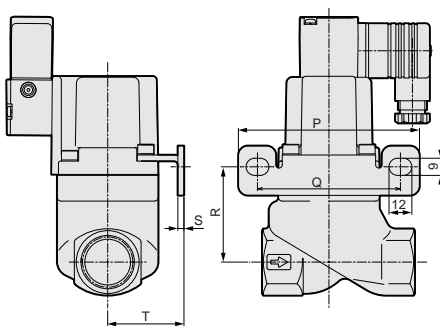



\* Figure shows .




● Mounting plate

CVE2/CVE22

CVSE2/CVSE22 -15A/20A/25A-05/10-\*\*/



\* Figure shows .

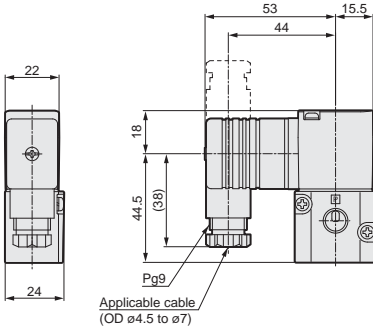
Model no.	P	Q	R	S	T
CV'E2*-15A-05/10-** 	90	70	45	2.3	30
CV'E2*-20A-05/10-** 	95	75	50	3.2	40
CV'E2*-25A-05/10-** 	105	85	55	3.2	45

## Optional dimensions

● DIN terminal box (Pg9)

DIN terminal box with light (Pg9)

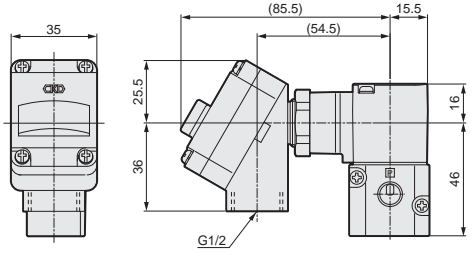
CVSE2/CVSE22-\*05/10-\*  
2G  
2H



● T type terminal box (G1/2)

T type terminal box with light (G1/2)

CVSE2/CVSE22-\*05/10-\*  
3T  
3R



- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/  
AD
- APK/  
ADK
- For  
dry air
- Explosion  
proof
- HVB/  
HVL
- SAB/  
SVB
- NP/NAP/  
NVP
- CHB/G
- MXB/G
- Other G.P.  
systems
- PD/FAD/  
PJ
- CVE/  
CVSE**
- CPE/  
CPD
- Medical  
analysis
- Custom  
order

Coolant valve for low pressure  
Air operated 2 port valve

# CVE/CVSE Series

## Electronic Catalog file list

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

Air operated 2 port valve for low pressure (pages 714 to 716)

Electronic Catalog file list is applied to "CAD DATA 2006".

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
CVE2/22-10A-5/10	CVE2	cve2_22_10a_5_10	CKD-CVE2/22-10A-5/10
CVE2/22-15A-5/10		cve2_22_15a_5_10	CKD-CVE2/22-15A-5/10
CVE2/22-20A-5/10		cve2_22_20a_5_10	CKD-CVE2/22-20A-5/10
CVE2/22-25A-5/10		cve2_22_25a_5_10	CKD-CVE2/22-25A-5/10
CVE2/22-32A-5/10		cve2_22_32a_5_10	CKD-CVE2/22-32A-5/10
CVE2/22-32F-5/10		cve2_22_32f_5_10	CKD-CVE2/22-32F-5/10
CVE2/22-40A-5/10		cve2_22_40a_5_10	CKD-CVE2/22-40A-5/10
CVE2/22-40F-5/10		cve2_22_40f_5_10	CKD-CVE2/22-40F-5/10
CVE2/22-50A-5/10		cve2_22_50a_5_10	CKD-CVE2/22-50A-5/10
CVE2/22-50F-5/10		cve2_22_50f_5_10	CKD-CVE2/22-50F-5/10
CVE2/22-65F-5/10		cve2_22_65f_5_10	CKD-CVE2/22-65F-5/10
CVE2/22-80F-5/10		cve2_22_80f_5_10	CKD-CVE2/22-80F-5/10
Option and accessory (mounting plate)		cve2_f	CKD-CVE2-F

2 port valve for low pressure with solenoid valve (pages 712, 713, 716)

Electronic Catalog file list is applied to "CAD DATA 2006".

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
CVSE2/22-10A-5/10	CVSE2	cvse2_22_10a_5_10	CKD-CVSE2/22-10A-5/10
CVSE2/22-15A-5/10		cvse2_22_15a_5_10	CKD-CVSE2/22-15A-5/10
CVSE2/22-20A-5/10		cvse2_22_20a_5_10	CKD-CVSE2/22-20A-5/10
CVSE2/22-25A-5/10		cvse2_22_25a_5_10	CKD-CVSE2/22-25A-5/10
CVSE2/22-32A-5/10		cvse2_22_32a_5_10	CKD-CVSE2/22-32A-5/10
CVSE2/22-32F-5/10		cvse2_22_32f_5_10	CKD-CVSE2/22-32F-5/10
CVSE2/22-40A-5/10		cvse2_22_40a_5_10	CKD-CVSE2/22-40A-5/10
CVSE2/22-40F-5/10		cvse2_22_40f_5_10	CKD-CVSE2/22-40F-5/10
CVSE2/22-50A-5/10		cvse2_22_50a_5_10	CKD-CVSE2/22-50A-5/10
CVSE2/22-50F-5/10		cvse2_22_50f_5_10	CKD-CVSE2/22-50F-5/10
CVSE2/22-65F-5/10		cvse2_22_65f_5_10	CKD-CVSE2/22-65F-5/10
CVSE2/22-80F-5/10		cvse2_22_80f_5_10	CKD-CVSE2/22-80F-5/10
Option and accessory (T type terminal box, mounting plate)		cvse2_f	CKD-CVSE2-F

**Air operated 3 port valve (coolant control) (coolant valve)**

3 port valve for low pressure (page 745)

Electronic Catalog file list is applied to "CAD DATA 2006".

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
CV3E-20A-3	CV3E	cv3e_20a_3	CKD-CV3E-20A-3
CV3E-25A-3		cv3e_25a_3	CKD-CV3E-25A-3
CVS3E-20A-3		cvs3e_20a_3	CKD-CVS3E-20A-3
CVS3E-25A-3		cvs3e_25a_3	CKD-CVS3E-25A-3
Option and accessory (T type terminal box, mounting plate)		cv_e_f	CKD-CV*E-F
Accessory (T type terminal box, T type terminal box + light)		cvs2_f	CKD-CVS2-F

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/  
AD

APK/  
ADK

For  
dry air

Explosion  
proof

HVB/  
HVL

SAB/  
SVB

NP/NAP/  
NVP

CHB/G

MXB/G

Other G.P.  
systems

PD/FAD/  
PJ

**CVE/  
CVSE**

CPE/  
CPD

Medical  
analysis

Custom  
order

Coolant valve  
Air operated 2, 3 port valve