CKD

New Products

New Product

Compact Pilot Operated Solenoid Valve for Water
FWD Series

Eco-friendly solenoid valve!!

RoHS

Specifications

Descriptions		FWD11-8A	FWD11-10A	FWD11-15A
Actuation		NC (normally closed)		
Working fluid		Water (other than sewage, agricultural water, liquid manure, and antifreeze)		
Working pressure differential range	MPa	0.02 to 0.7		
Max. working pressure	MPa	0.7		
Withstanding pressure (water)	MPa	1.05		
Fluid temperature	℃	5 to 60 (no freezing)		
Ambient temperature	℃	-10 to 60 (no freezing of fluid)		
Atmosphere		Area without corrosive or explosive gases		
Valve structure		Pilot operated poppet structure diaphragm structure		
Valve seat leakage	cm ^{3}/min	0 (water pressure) (Note 1)		
Installation attitude		Free		
Protection property		IPX5		
Port size		Rc 1/4	Rc 3/8	Rc 1/2
Orifice	mm	15 (Note 2)		
Cv flow factor		2.8	4.2	6.0
Weight	g	340	320	390
Rated voltage		100 VAC 50/60 Hz, 200 VAC 50/60 Hz, 24 VDC		
Allowable voltage fluctuation		Rated voltage ± 10%		
Apparent power	VA	At holding (50/60 Hz): 5/4, at starting (50/60 Hz): 9/8		
Power consumption	W	AC (50/60 Hz): 2.7/2, DC: 4		
Coil heat resistance class		B		

Note 1: "Valve seat leakage 0 cm^3/min" means that no water drip leaks for a minute.

Note 2: Orifice diameter refers to the diameter of the valve seat section.

* Water-hammer reduction is also supported. Please contact our sales office.

⚠ Refer to "Safety Precautions" on the rear side before use.

CKD Corporation

CC-1057A

How to order

FWD11 - 15 A - 0 2GS B - AC100V

Model no.

Ⓐ Port size

Ⓑ Screw type

Ⓒ Body/sealant combination

Ⓓ Coil option

Ⓔ Mounting plate

Ⓕ Rated voltage Note 1

Symbol	Descriptions
Ⓐ Port size	
8	1/4
10	3/8
15	1/2
Ⓑ Screw type	
A	Rc thread
G	G thread
N	NPT thread
Ⓒ Body/sealant combination	
	Body / Seal
0	Brass/PPS / NBR
D	Stainless steel/PPS / NBR
Ⓓ Coil option	
2C	Grommet lead wire
2CS	Grommet lead wire with surge suppressor
2G	DIN terminal box (Pg9)
2GS	DIN terminal box with surge suppressor (Pg9)
2H	Din terminal box with light (Pg9)
2HS	DIN terminal box with light, surge suppressor (Pg9)
Ⓔ Mounting plate	
Blank	None
B	Mounting plate
Ⓕ Rated voltage	
AC100V	100 VAC 50/60 Hz, 110 VAC 60 Hz
AC200V	200 VAC 50/60 Hz, 220 VAC 60 Hz
DC24V	24 VDC

Note on model No. selection

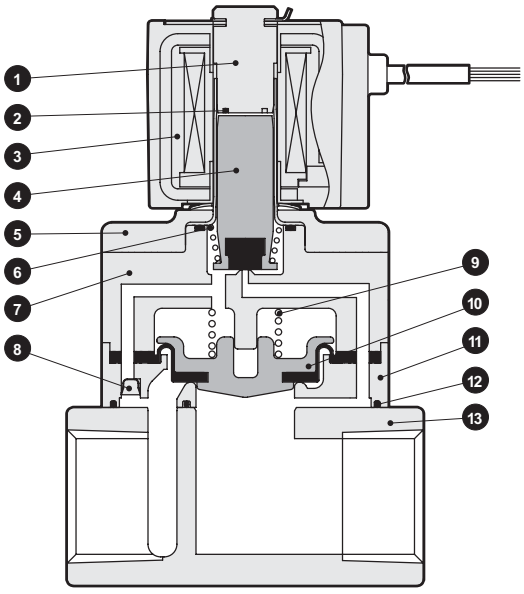
Note 1:The rated voltage includes 110 VAC 50/60 Hz and 220 VAC 50/60 Hz. Contact CKD for more information.

<Example of model number>

FWD11-15A-02GSB-AC100V

Ⓐ Port size : 1/2
Ⓑ Screw type : Rc thread
Ⓒ Body/sealant combination : Brass/PPS, NBR
Ⓓ Coil option : DIN terminal box with surge suppressor (Pg9)
Ⓔ Mounting plate : Mounting plate
Ⓕ Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

Internal structure and parts list



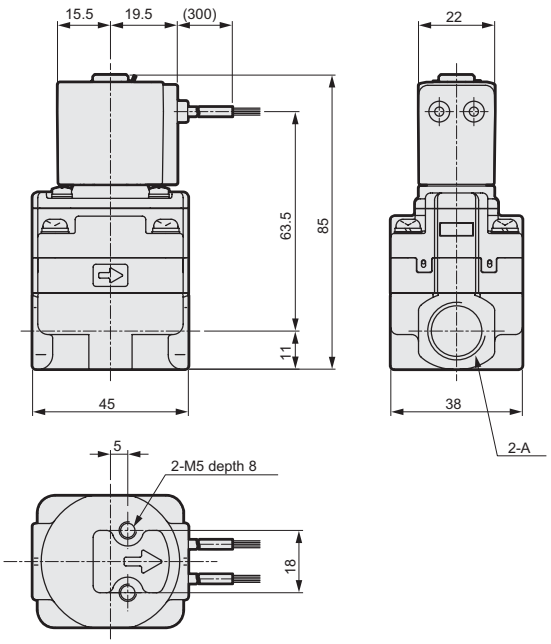
No.	Parts name	Material	
1	Core assembly	SUS	Stainless steel
2	Shading coil *1	Cu (Ag for stainless steel body)	Copper (sliver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS/NBR	Stainless, nitrile rubber
5	Holder plate	PPS	Polyphenylene sulfide
6	Plunger spring	SUS	Stainless steel
7	Stuffing assembly	PPS/SUS/NBR	Polyphenylene sulfide/ Stainless, nitrile rubber
8	Filter	SUS	Stainless steel
9	Valve spring	SUS	Stainless steel
10	Diaphragm assembly	PPS/NBR	Polyphenylene sulfide/ Nitrile rubber
11	Valve body	PPS	Polyphenylene sulfide
12	Gasket	BUNA-N	Nitrile rubber
13	Main body	C (SUS)	Brass (stainless steel)

( ) shows option.
* 1: A shading coil is not used in the case of a DC coil.

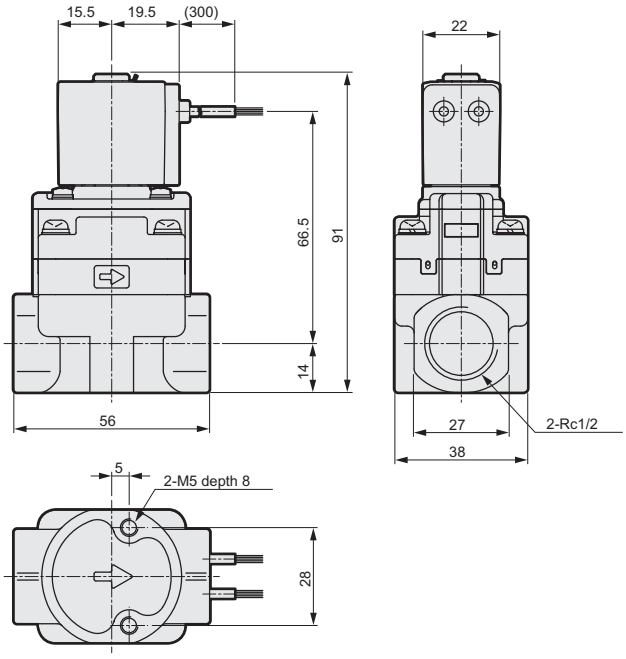
Dimensions

● Grommet lead wire type

FWD11-8A/10A-*2C



FWD11-15A-*2C

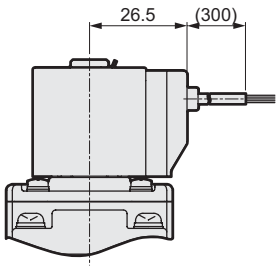


Model	A
FWD11-8A	Rc 1/4
FWD11-10A	Rc 3/8

Dimensions with optional equipment

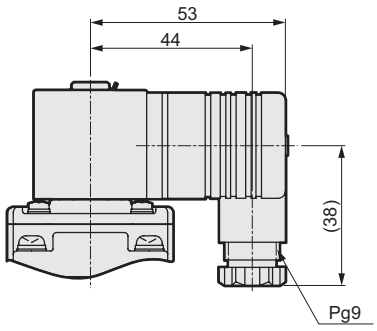
● Grommet lead wire with surge suppressor

FWD11-**-*2CS



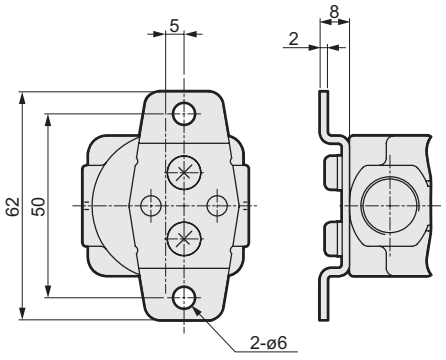
● DIN terminal box

FWD11-**-*2G/2GS/2H/2HS

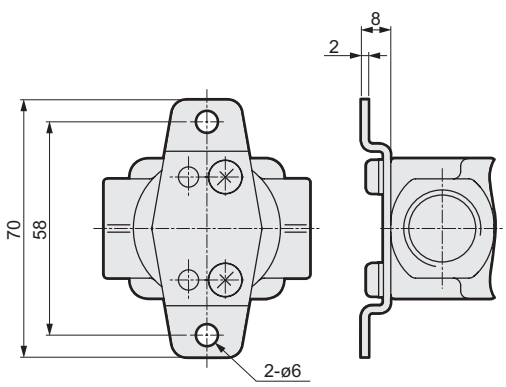


● Mounting plate

FWD11-8A/10A-**B



FWD11-15A-*B



FWD Series

Safety precautions

Be sure to read the instructions before use.
Refer also to the precautions of "General Purpose Valves(No. CB-03-1SA)".

⚠ WARNING

■ Design & Selection

● Working fluid

1. You cannot use afluid other than water.

● Working environment

Do not use the product where the product is exposed to direct-sunlight or may come in contact with water or oil.
Can not be used outdoors.

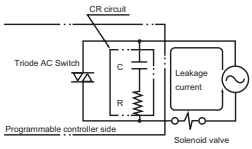
⚠ CAUTION

■ Design & Selection

● Design for Safety

● Leakage current from other fluid control components
When using a programmable controller, etc., with CR circuits to absorb the surge voltage generated by switching elements, leakage current could pass and adversely affect the operation of the solenoid valve. Confirm that the leakage current is withing the specification on theright.

Voltage / Model no.	AC		DC
	100 V	200 V	24 V
FWD	3 mA or less	1.5 mA or less	1mA or less



■ Installation & Adjustment

● Installation

- Install in a manner tension will not be applied to the coil section lead wire.
- Hold the product body when carrying the product. (Do not hold onto the lead wire)

● Piping

- Dirt or foreign matter in fluid may prevent the product from functioning correctly. Install a filter finer than 80 mesh.
- When the regulator and solenoid valve are directly connected, the parts could mutually vibrate causing resonance and chattering.
- If the piping cross section on the fluid supply side is restricted, operation may become unstable because of a differential pressure fault when the valve functions. Use a pipe that matches the port size on the supply side.

■ During Use & Maintenance

● During use

- Instantaneous leakage phenomenon
  When using the 2 port pilot operated solenoid valve, sudden application of pressure (e.g. starting up a pump) could momentarily open a closed valve and cause fluid to leak.
- Operation
  Do not place a back pressure. There is a risk of malfunction.
- Water-hammer
  If you experience a water-hammer problem, please consider using CKD "WHL-type" or "RSV-type" solenoid valve or a motor valve.
- Differential pressure
  Keep the differential pressure 0.02 MPa or above between the primary and secondary sides with the valve open.
  Differential pressure will become difficult to generate between the primary and secondary in the following cases.
  • If a restriction, such as a nozzle is attached to the secondary side
  • When valves are simultaneously opened in a state where multiple solenoid valves are piped in parallel.

● Assembling & Disassembling

- Tightening torque
  The screw must be tightened with the torquespecified on the right for disassembly and assembly.

Holder plate set screw	Body set screw
0.63 to 0.77 N·m	0.81 to 0.99 N·m

Disclaimer

1 Term of warranty

"Warranty Period" is one (1) year from the first delivery to the customer.

2 Scope of warranty

In case any defect attributable to CKD is found during the Warranty Period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, according to its own judgement.
Note that the following faults are excluded from the warranty term:
(1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications
(2) Failure caused by other than the delivered product
(3) Use other than original design purposes.
(4) Third-party repair/modification
(5) Failure caused by reason that is unforeseeable with technology put into practical use at the time of delivery
(6) Failure attributable to force majeure.
In no event shall CKD be liable for business interruptions, loss of profits, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

3 Compatibility confirmation

In no event shall CKD be liable for merchantability or fitness for a particular purpose, notwithstanding any disclosure to CKD of the use to which the product is to be put.

If the goods and their replicas, or the technology and software in this catalog are to be exported, laws require the exporter to make sure they will never be used for the development or the manufacture of weapons for mass destruction.

CKD Corporation

＜Website＞
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2011.8.CAC