

Direct acting 2-port solenoid valve for water, single unit  
(Special purpose valve)

# FWB Series

- NC, NO
- Port size: Rc1/8 to Rc1/2

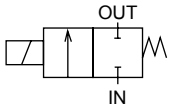


Refer to the Ending for details.

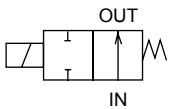


## JIS symbol

● NC



● NO



## Common specifications

Descriptions	FWB
Working fluid	Water (excluding sewage, agricultural water and liquid manure)
Working pressure differential MPa	0 (≈0 psi, 0 bar) to 1.5 (≈220 psi, 15 bar) (refer to the max. working pressure differential in the individual specifications)
Proof pressure (water pressure) MPa	5.0 (≈730 psi, 50 bar) (3.0 (≈440 psi, 30 bar) for φ7 and φ10 orifice)
Fluid temperature °C	AC: 1 (33.8°F) to 60 (140°F), DC: 1 (33.8°F) to 40 (104°F) (no freezing)
Ambient temperature °C	AC: -20 (-4°F) to 60 (140°F), DC: -20 (-4°F) to 40 (104°F)
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm <sup>3</sup> /min	0 (water pressure)
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent (*1)

\*1: The T type terminal box is IP61 or equivalent.

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions	Port size	Orifice size (mm)	Cv	Max. working pressure differential MPa		Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)				
				AC	DC			When holding		When starting		AC 50/60 Hz	DC					
								50 Hz	60 Hz	50 Hz	60 Hz							
<b>NC</b>																		
FWB21 - 6 - Z	Rc1/8	1	0.036	1.5	0.9	1.5	100 VAC 50/60 Hz	5	4	9	8	2.7/2	4	0.15				
				0.7	0.35			9	8	2.7/2	4							
FWB31 - 6 - 8	Rc1/8	3	0.31	0.8	0.5	≈220 psi, 15 bar)	100 VAC 50/60 Hz	9.5	7	23	20	4/3.2	6	0.3				
	Rc1/4	4	0.5	0.5	0.2			23	20	4/3.2	6							
	5	0.65	0.3	0.08	23			20	4/3.2	6								
FWB41 - 8 - 10	Rc1/4	4	0.54	0.8	0.5	0.3	200 VAC 50/60 Hz	16	13	40	35	7.5/6.3	8	0.49				
	Rc3/8	5	0.8	0.5	0.25			40	35	7.5/6.3	8							
	7	1.1	0.2	0.1	40			35	7.5/6.3	8								
FWB41 - 10 - 15	Rc3/8 Rc1/2	10	1.88	0.1	0.05	≈44 psi)	24 VDC 12 VDC											
FWB51 - 8 - 10	Rc1/4	4	0.54	1.1	1.3	1.5	≈220 psi)	23	19	60	50	11.5/10	11.5	0.68				
	Rc3/8	5	0.8	0.7	0.6	60									50	11.5/10	11.5	
	7	1.1	0.3	0.25	0.3	60									50	11.5/10	11.5	
FWB51 - 10 - 15	Rc3/8 Rc1/2	10	1.88	0.12	0.1	≈44 psi)								0.8				
<b>NO</b>																		
FWB32 - 6 - 8	Rc1/8	3	0.31	0.4	0.4	1.5	100 VAC 50/60 Hz	11.5	8	25	22	4.6/3.2	6	0.31				
	Rc1/4	4	0.5	0.2	0.2										25	22	4.6/3.2	6
	5	0.65	0.12	0.12	25										22	4.6/3.2	6	
FWB42 - 8 - 10	Rc1/4	4	0.54	0.4	0.4	≈220 psi, 15 bar)	200 VAC 50/60 Hz	18	14	45	40	7.5/6.5	8	0.54				
	Rc3/8	5	0.8	0.2	0.2										45	40	7.5/6.5	8
	7	1.1	0.12	0.12	0.3										45	40	7.5/6.5	8
FWB52 - 8 - 10	Rc1/4	4	0.54	0.7	0.7	1.5	24 VDC 12 VDC	25	20	60	50	11/10	11.5	0.71				
	Rc3/8	5	0.8	0.45	0.45	≈220 psi)									60	50	11/10	11.5
	7	1.1	0.2	0.2	0.3	60									50	11/10	11.5	

\*1 : The voltage fluctuation range must be within ±10% of the rated voltage.

\*2 : The leakage current must be less than or equal to the values shown on the right.

\*3 : 8.5 (W) for 12 VDC.

\*4 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz).

Leakage current	Voltage Model No.	100 VAC	200 VAC	24 VDC	12 VDC
	FWB2	3 mA or less	1.5 mA or less	1 mA or less	2 mA or less
FWB3/4/5	6 mA or less	3 mA or less	1 mA or less	2 mA or less	

## How to order

F
W
B
2
1
-
6
-
Z
-
O
2C
B
-
1

No. of ports  
(2-port valve)

Working fluid  
(Water)

**A** Series size

**B** Actuation

**C** Port size

**D** Orifice size

\*1

\*2

**E** Body/sealant combination

\*3

**F** Coil option

\*4

\*5

**G** Other options

**H** Rated voltage

\*6

[Example of model No.]

**FWB21-6-Z-02CB-1**

Model: FWB

- A** Series size : 22 mm
- B** Actuation : NC
- C** Port size : Rc1/8
- D** Orifice size : φ1
- E** Body/sealant combination : Body - copper alloy, sealant - NBR
- F** Coil option : Grommet lead wire
- G** Other options : Mounting plate
- H** Rated voltage : 100 VAC 50/60 Hz

### ⚠ Precautions for model No. selection

- \*1 : For FWB41 and FWB51 with orifice of φ4 mm (Item **D** 5), φ5 mm (Item **D** 6) and φ7 mm (Item **D** 7), available port size is Rc1/4 (Item **C** 8) and Rc3/8 (Item **C** 10) only.
- \*2 : For orifice of φ10 mm (Item **D** 8), available port size is Rc3/8 (Item **C** 10) and Rc1/2 (Item **C** 15).
- \*3 : For orifice of φ10 mm (Item **D** 8) with Item **E** O (copper alloy body), the body is bronze casting.
- \*4 : For FWB21 Item **F** 2G/2HS, the DIN terminal box (Pg9) is used.
- \*5 : The surge suppressor is built into the coil for Item **F** 2CS and in the terminal box for 2HS and 3RS.
- \*6 : Other voltages may not be available. Contact CKD for details.

Code		Content		Model No.						
				FWB21	FWB31	FWB41	FWB51	FWB32	FWB42	FWB52
<b>A Series size</b>										
2		22 mm		●						
3		28 mm			●					
4		34 mm				●			●	
5		40 mm					●			●
<b>B Actuation</b>										
1		NC		●	●	●	●			
2		NO						●	●	●
<b>C Port size</b>										
6		Rc1/8		●	●			●		
8		Rc1/4			●	●	●	●	●	●
10		Rc3/8				●	●		●	●
15		Rc1/2				●	●			
<b>D Orifice size</b>										
Z		φ1		●						
2		φ2		●						
3		φ3			●					
5		φ4				●	●	●	●	●
6		φ5				●	●	●	●	●
7		φ7					●	●		●
8		φ10					●	●		
<b>E Body/sealant combination</b>										
		<b>Body</b>	<b>Seal</b>							
O		Copper alloy	NBR	●	●	●	●	●	●	●
D		Stainless steel	NBR	●	●	●	●	●	●	●
<b>F Coil option</b>										
2C	Std.	Grommet lead wire		●	●	●	●	●	●	●
2CS	Option	Grommet lead wire with surge suppressor		●	●	●	●	●	●	●
2G		With DIN terminal box (Pg11)		●	●	●	●	●	●	●
2HS		DIN terminal box with lamp/surge suppressor (Pg11)		●	●	●	●	●	●	●
2CG		Conduit (CTC19)			●	●	●	●	●	●
2CH		Conduit (G1/2)			●	●	●	●	●	●
3T		With T type terminal box (G1/2)			●	●	●	●	●	●
3RS		T type terminal box with lamp/surge suppressor (G1/2)			●	●	●	●	●	●
<b>G Other options</b>										
Blank	Std.	None		●	●	●	●	●	●	●
B	Option	Mounting plate		●	●	●	●	●	●	●
<b>H Rated voltage</b>										
1		100 VAC 50/60 Hz		●	●	●	●	●	●	●
2		200 VAC 50/60 Hz		●	●	●	●	●	●	●
3		24 VDC		●	●	●	●	●	●	●
4		12 VDC		●	●	●	●	●	●	●

Select from the combinations indicated with ● in the table 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
- SDB/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

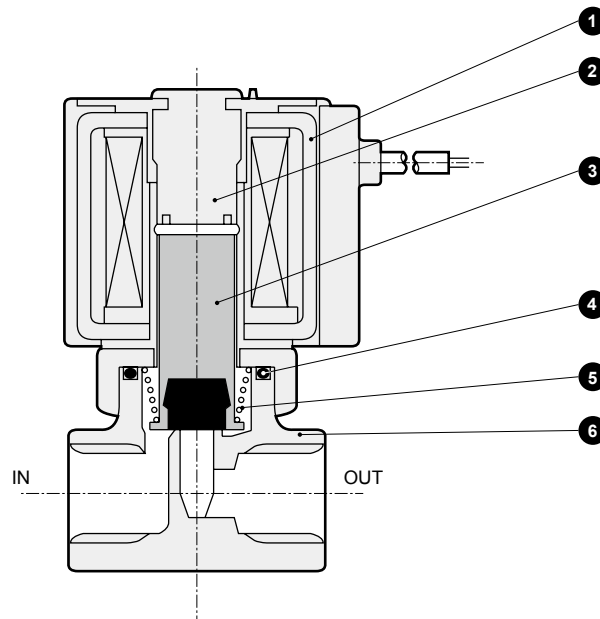
# FWB Series

FWB\*1 Series: NC

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

## Internal structure and parts list

● FWB\*1 Series



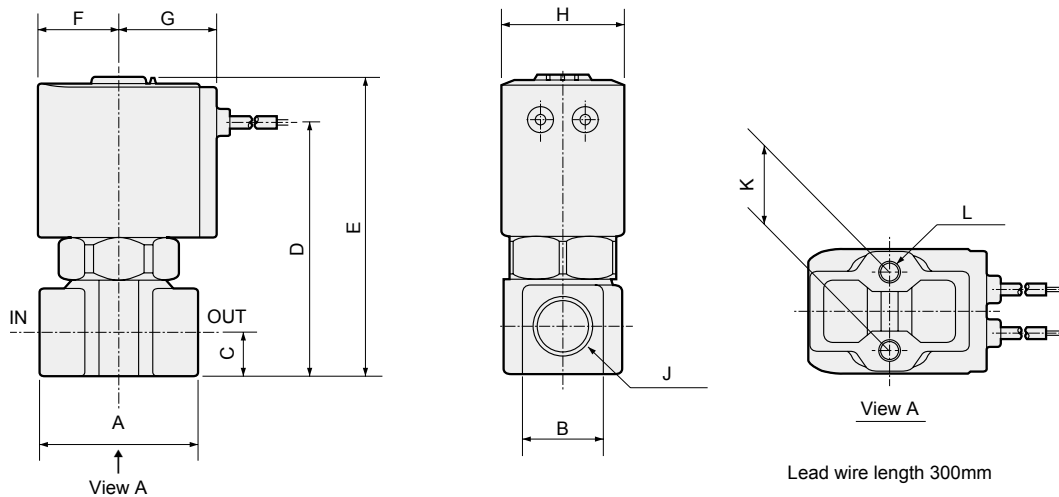
No.	Part name	Material	
1	Coil assembly	-	-
2	Core assembly	SUS, Cu (Ag for SUS body)	Stainless steel, copper (silver for stainless steel body)
3	Plunger assembly	SUS, NBR	Stainless steel, nitrile rubber
4	O-ring	NBR	Nitrile rubber
5	Spring	SUS	Stainless steel
6	Body	C3771 or CAC408 (SUS)	Copper alloy or bronze (stainless steel)

( ) shows options. Note: For FWB4 and FWB5 with orifice of  $\phi 10$  and body seal code 0, the body is bronze casting.

## Dimensions



● Grommet lead wire  
FWB\*1-\*. \*-\*2C



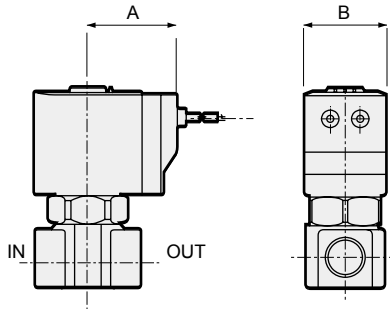
Model No.	A	B	C	D	E	F	G	H	J	K	L
FWB21	32	14	8	45.5	56	15.5	19.5	22	Rc1/8	15	M4 depth 6
FWB31	36	18	11	57.5	68.5	18.5	22.5	28	Rc1/8, Rc1/4	18	M5 depth 6
FWB41	40	21	12	67	81	22.5	26	34	Rc1/4, Rc3/8	18	M5 depth 8
FWB41-10/15-8	50	29(26)	15	76	90				Rc3/8, Rc1/2		
FWB51	40	21	12	73.5	89	26	29.5	40	Rc1/4, Rc3/8	18	M5 depth 8
FWB51-10/15-8	50	29(26)	15	82.5	98				Rc3/8, Rc1/2		

Dimensions shown in ( ) are for stainless steel body.

## Optional dimensions

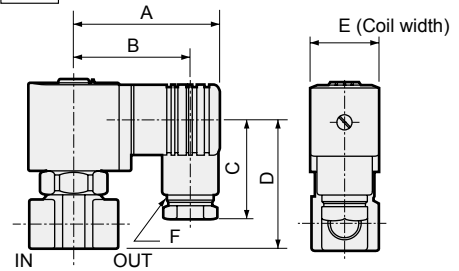
(Refer to the dimensions of grommet lead wire on the left page for common dimensions.)

- Grommet lead wire with surge suppressor  
FWB\*1-\*\*\***2CS**



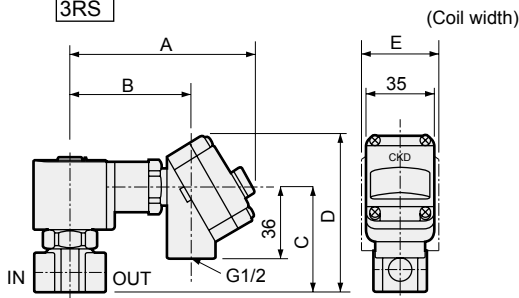
Model No.	A	B
FWB21	26.5	22
FWB31	29.5	28
FWB41	34	34
FWB51	37.5	40

- DIN terminal box (with lamp/surge suppressor)  
FWB\*1-\*\*\***2G**  
**2HS**



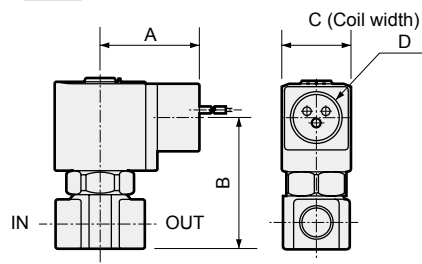
Model No.	A	B	C	D	E	F
FWB21	53	44	38	39	22	Pg9
FWB31	58.5	47	39	51	28	Pg11
FWB41	62	50.5	39	61	34	Pg11
FWB41-10/15-8				70		
FWB51	65.5	54	39	69.5	40	Pg11
FWB51-10/15-8				78.5		

- T type terminal box (with lamp/surge suppressor) (G1/2)  
FWB\*1-\*\*\***3T**  
**3RS**



Model No.	A	B	C	D	E
FWB31	92	60.5	53	79	28
FWB41	96	64.5	62.5	88.5	34
FWB41-10/15-8			71.5	97.5	
FWB51	99.5	68	71	97	40
FWB51-10/15-8			80	106	

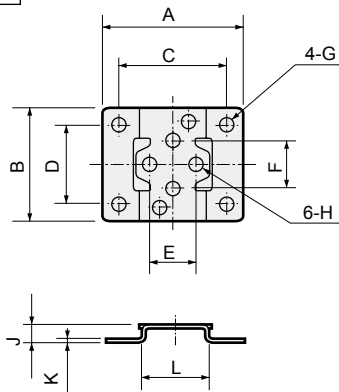
- Conduit (CTC19 / G1/2)  
FWB\*1-\*\*\***2CS**  
**2CH**



Model No.	A	B	C	D
FWB31	39	53	28	CTC19 G1/2
FWB41	43	62.5	34	CTC19 G1/2
FWB41-10/15-8		71.5		
FWB51	46.5	71	40	CTC19 G1/2
FWB51-10/15-8		80		

- Mounting plate  
FWB\*1-\*\*\***B**

Material: Steel  
Zinc plated



Model No.	A	B	C	D	E	F	G	H	J	K	L
FWB21	40	34	30	25	15	15	φ5	φ4.5	6	1.2	20
FWB31	52	42	40	30	18	18	φ6	φ5.5	7	1.6	25
FWB41/51	56	48	44	36	18	18	φ6	φ5.5	7	1.6	30

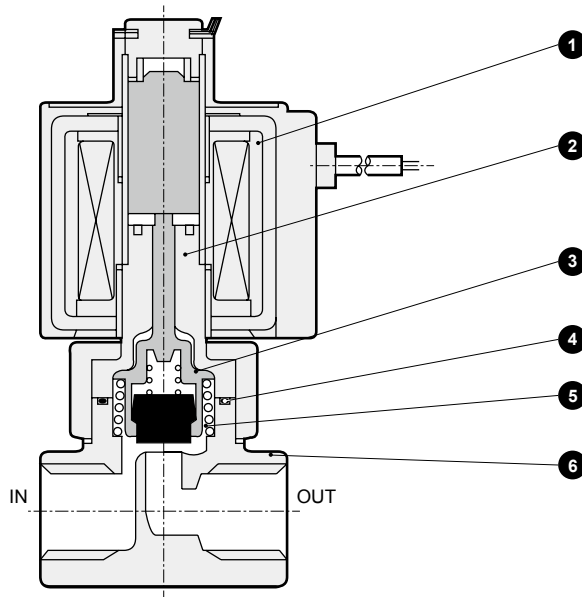
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
SAB/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH / CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

# FWB Series

FWB\*2 Series: NO

## Internal structure and parts list

● FWB\*2 Series



No.	Part name	Material	
1	Coil assembly	-	-
2	Core assembly	SUS, Cu (Ag for SUS body)	Stainless steel, copper (silver for stainless steel body)
3	Valving element guide assembly	PPS, SUS, NBR	Polyphenylene sulfide, stainless steel, nitrile rubber
4	O-ring	NBR	Nitrile rubber
5	Spring	SUS	Stainless steel
6	Body	C3771(SUS)	Copper alloy (stainless steel)

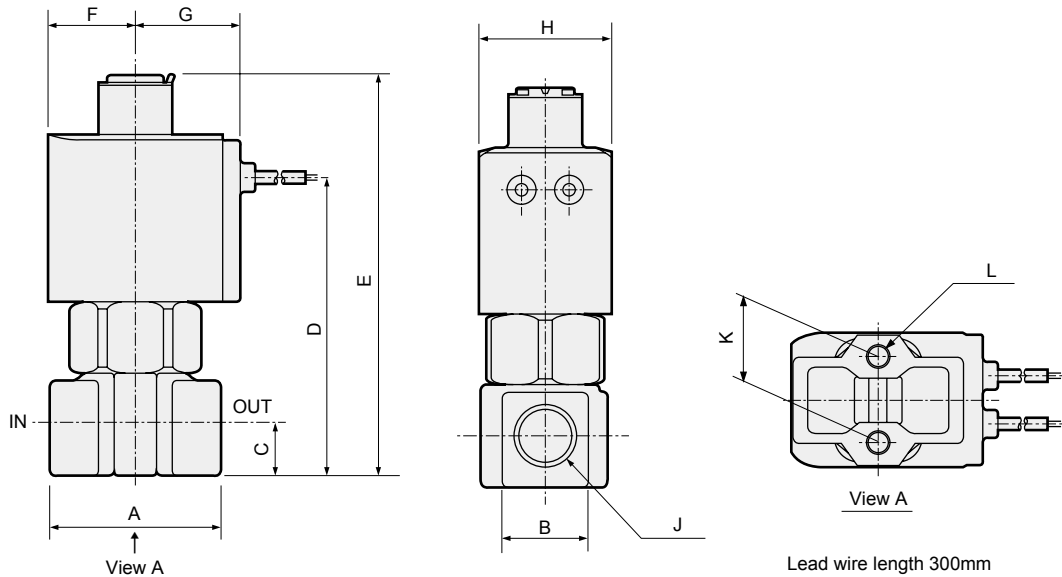
( ) shows options.

## Dimensions



● Grommet lead wire

FWB\*2-\*.\*.2C



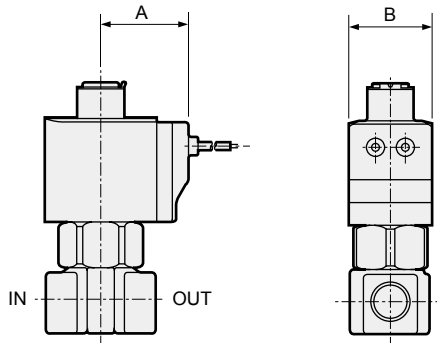
Model No.	A	B	C	D	E	F	G	H	J	K	L
FWB32	36	18	11	62.5	84	18.5	22.5	28	Rc1/8, Rc1/4	18	M5 depth 6
FWB42	40	21	12	71.5	96	22.5	26	34	Rc1/4, Rc3/8	18	M5 depth 8
FWB52	40	21	12	78	103.5	26	29.5	40	Rc1/4, Rc3/8	18	M5 depth 8

## Optional dimensions



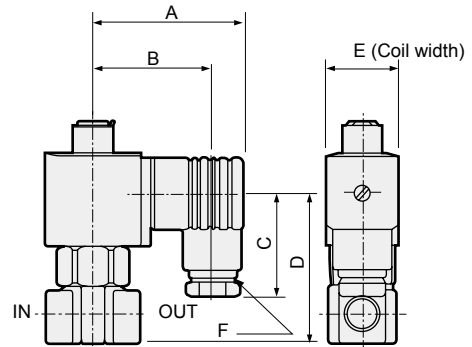
(Refer to the dimensions of grommet lead wire on the left page for common dimensions.)

- Grommet lead wire with surge suppressor  
FWB\*2-\*-\***2CS**



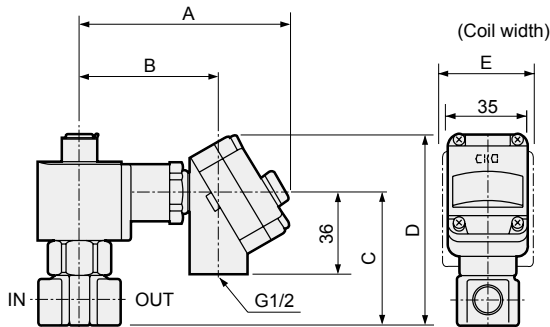
Model No.	A	B
FWB32	29.5	28
FWB42	34	34
FWB52	37.5	40

- DIN terminal box (with lamp/surge suppressor)  
FWB\*2-\*-\***2G**  
**2HS**



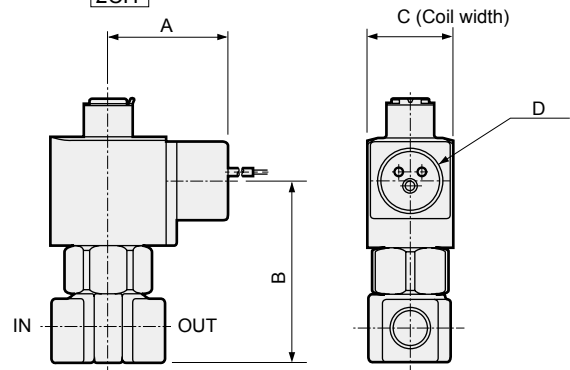
Model No.	A	B	C	D	E	F
FWB32	58.5	47	39	56.5	28	Pg11
FWB42	62	50.5	39	65	34	Pg11
FWB52	65.5	54	39	73.5	40	Pg11

- T type terminal box (with lamp/surge suppressor) (G1/2)  
FWB\*2-\*-\***3T**  
**3RS**



Model No.	A	B	C	D	E
FWB32	92	60.5	58	84	28
FWB42	96	64.5	67	93	34
FWB52	99.5	68	75	101	40

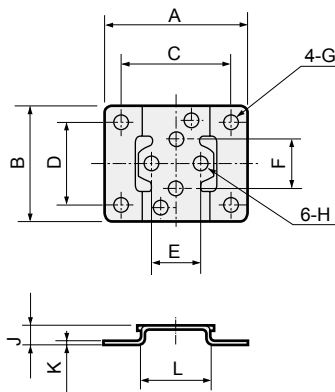
- Conduit (CTC19 / G1/2)  
FWB\*2-\*-\***2CG**  
**2CH**



Model No.	A	B	C	D
FWB32	39	58	28	CTC19 G1/2
FWB42	43	67	34	CTC19 G1/2
FWB52	46.5	75	40	CTC19 G1/2

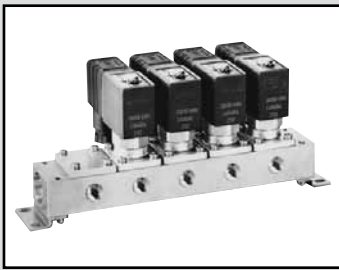
- Mounting plate  
FWB\*2-\*-\***B**

Material: Steel  
Zinc plated



Model No.	A	B	C	D	E	F	G	H	J	K	L
FWB32	52	42	40	30	18	18	φ6	φ5.5	7	1.6	25
FWB42/52	56	48	44	36	18	18	φ6	φ5.5	7	1.6	30

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
<b>FWB/G</b>
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



Direct acting 2-port solenoid valve for water, manifold  
(Special purpose valve)

# GFWB Series

- NC
- Port size: Rc1/8, Rc1/4, Rc3/8



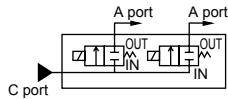
Refer to the Ending for details.



- 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

## JIS symbol

- NC/common water supply (C port pressurization)



## Common specifications

Descriptions	GFWB
Working fluid	Water (excluding sewage, agricultural water and liquid manure)
Working pressure differential	0 (≈0 psi, 0 bar) to 1.5 (≈220 psi, 15 bar) (refer to the max. working pressure differential in the individual specifications.)
MPa	
Proof pressure (water pressure) MPa	5.0 (≈730 psi, 50 bar) (3.0 (≈440 psi, 30 bar) for φ7 orifice)
Fluid temperature °C	AC: 1 (33.8°F) to 60 (140°F), DC: 1 (33.8°F) to 40 (104°F) (no freezing)
Ambient temperature °C	AC: -20 (-4°F) to 40 (104°F)/DC: -20 (-4°F) to 40 (104°F)
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm <sup>3</sup> /min	0 (water pressure)
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent (*1)

\*1: The T type terminal box is IP61 or equivalent.

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions	Port size		Orifice size (mm)	Cv	Max. working pressure differential MPa		Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consumption (W)		
	A port (Individual port)	C port (Common port)			AC	DC			When holding		When starting		AC	DC	
Model No.									50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz		
<b>NC</b>															
GFWB21	- Z	Rc1/8	Rc1/4	1	0.036	1.5	0.9	100 VAC 50/60 Hz 200 VAC 50/60 Hz 24 VDC 12 VDC	5	4	9	9	2.7/2	4	
	- 2			2	0.12	0.7	0.35								
GFWB31	- 3	Rc1/4	Rc3/8	3	0.23	0.8	0.5		≈220 psi, 15 bar	9.5	7	23	20	4/3.2	6
	- 5			4	0.36	0.5	0.2								
	- 6			5	0.45	0.3	0.08								
GFWB41	- 5	Rc1/4	Rc3/8	4	0.42	0.8	0.5		1.5	16	13	40	35	7.5/6.3	8
	- 6			5	0.55	0.5	0.25								
	- 7			7	0.73	0.2	0.1								
GFWB51	- 5	Rc1/4	Rc3/8	4	0.42	1.1	1.3		≈220 psi)	23	19	60	50	11.5/10	11.5
	- 6			5	0.55	0.7	0.6								
	- 7			7	0.73	0.3	0.25								

\*1 : The voltage fluctuation range must be within ±10% of the rated voltage.

\*3 : 8.6 (W) for 12 VDC.

\*2 : The leakage current must be less than or equal to the values shown below.

\*4 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz).  
The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz).

Leakage current	Voltage	100 VAC	200 VAC	24 VDC	12 VDC
	Model No.				
	GFWB2	3 mA or less	1.5 mA or less	1 mA or less	2 mA or less
	GFWB3/4/5	6 mA or less	3 mA or less		

## Weight

Model No.	Actuator weight (kg)	Masking weight (kg)	Sub-plate weight (g) (sub-plate, connection part and mounting plate)										Formula for product weight
			2 stns.	3 stns.	4 stns.	5 stns.	6 stns.	7 stns.	8 stns.	9 stns.	10 stns.		
GFWB21	0.14	0.03	0.40	0.51	0.77	0.77	1.03	1.16	1.30	1.60	1.55	(Product weight (kg)) = 0.14 x (Actuator quantity) + 0.03 x (Masking quantity) + Sub-plate weight	
GFWB31	0.27	0.05	0.60	0.80	1.20	1.22	1.60	1.81	2.02	2.40	2.44	(Product weight (kg)) = 0.27 x (Actuator quantity) + 0.05 x (Masking quantity) + Sub-plate weight	
GFWB41	0.45	0.06	0.73	1.00	1.47	1.50	2.00	2.23	2.50	3.00	3.00	(Product weight (kg)) = 0.45 x (Actuator quantity) + 0.06 x (Masking quantity) + Sub-plate weight	
GFWB51	0.64	0.09	0.83	1.11	1.67	1.70	2.24	2.52	2.81	3.36	3.40	(Product weight (kg)) = 0.64 x (Actuator quantity) + 0.09 x (Masking quantity) + Sub-plate weight	

## How to order

● Manifold

**G F W B 2 1 - Z - 3 - 0 2C - 1**

● Manifold with masking plate

**G F W B 3 1 - 5 - X - D 2G - 2 - 5 2**

No. of ports  
(2-port valve)

Working fluid  
(Water)

**A** Series size

**B** Circuit configuration

**C** Orifice size

**D** Manifold station No.

\*1  
\*2

**E** Body/sealant combination

**F** Coil option

\*3  
\*4

**G** Voltage

\*5

**H** No. of solenoid valves

\*6

**I** Masking plate quantity

[Example of model No.]

**GFWB21-Z-3-02C-1**

Model: GFWB

- A** Series size : 22 mm
- B** Circuit configuration : NC/common supply
- C** Orifice size :  $\phi 1$
- D** Manifold station No. : 3 stations
- E** Body/sealant combination : Body - copper alloy/sealant - NBR
- F** Coil option : Grommet lead wire
- G** Voltage : 100 VAC 50/60 Hz
- H I** : No masking plate

### ⚠ Precautions for model No. selection

- \*1 : Select a desired manifold station No. from 2 to 10.
- \*2 : For the type with masking plate, designate Item **H** as X, then designate the quantities of **H** solenoid valves and **I** masking plates.
- \*3 : For GFWB21 **F** 2G/2HS, the DIN terminal box (Pg9) is used.
- \*4 : The surge suppressor is built into the coil for Item **F** 2CS and in the terminal box for 2HS and 3RS.
- \*5 : Other voltages may not be available. Contact CKD for details.
- \*6 : Solenoid valves are arranged from the right side with the sub-plate (individual) port A facing front.
- \*7 : Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

		Model No.			
		GFWB21	GFWB31	GFWB41	GFWB51
Code	Content				
<b>A Series size</b>					
2	22 mm	●			
3	28 mm		●		
4	34 mm			●	
5	40 mm				●
<b>B Circuit configuration</b>					
1	NC/common supply	●	●	●	●
<b>C Orifice size</b>					
Z	$\phi 1$	●			
2	$\phi 2$	●			
3	$\phi 3$		●		
5	$\phi 4$		●	●	●
6	$\phi 5$		●	●	●
7	$\phi 7$			●	●
<b>D Manifold station No.</b>					
2 to 10	2 stations to 10 stations	●	●	●	●
O	Actuator only	●	●	●	●
X	With masking plate	●	●	●	●
<b>E Body/sealant combination</b>					
	<b>Body</b>	<b>Seal</b>			
O	Copper alloy	NBR	●	●	●
D	Stainless steel	NBR	●	●	●
<b>F Coil option</b>					
2C	Std. Grommet lead wire	●	●	●	●
2CS	Grommet lead wire with surge suppressor	●	●	●	●
2G	With DIN terminal box (Pg11)	●	●	●	●
2HS	DIN terminal box with lamp/surge suppressor (Pg11)	●	●	●	●
2CG	Conduit (CTC19)		●	●	●
2CH	Conduit (G1/2)		●	●	●
3T	With T type terminal box (G1/2)		●	●	●
3RS	T type terminal box with lamp/surge suppressor (G1/2)		●	●	●
<b>G Voltage</b>					
1	100 VAC 50/60 Hz	●	●	●	●
2	200 VAC 50/60 Hz	●	●	●	●
3	24 VDC	●	●	●	●
4	12 VDC	●	●	●	●
Specify the desired voltage if it is not listed above.					
<b>H No. of solenoid valves</b>					
Blank	No masking plate	●	●	●	●
1 to 9	1 solenoid valve to 9 solenoid valves	●	●	●	●
<b>I Masking plate quantity</b>					
Blank	No masking plate	●	●	●	●
1 to 9	1 masking plate to 9 masking plates	●	●	●	●

Select from the combinations indicated with ● in the table above.

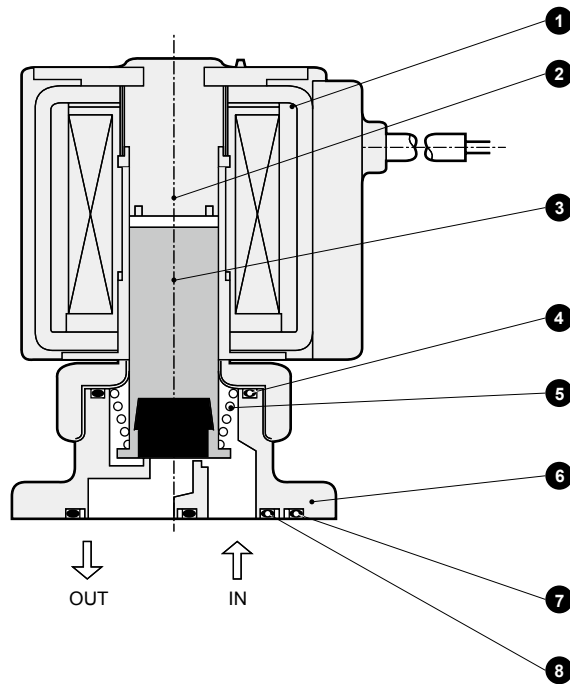
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S  $\Delta$  B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH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



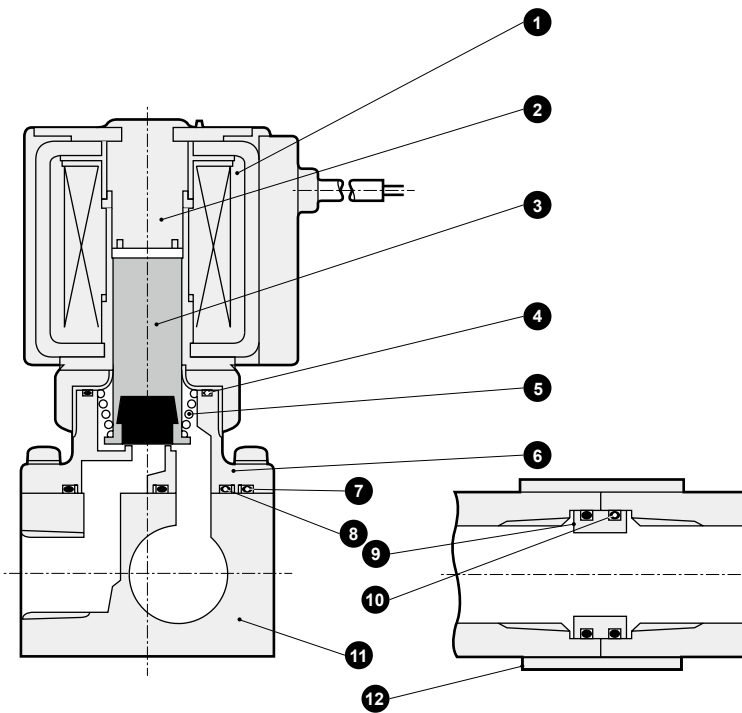
## Internal structure and parts list

- 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 $\nabla$ 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-  
Combust
- Auto-  
Water
- SpecFld
- Custom
- Ending

### ● GFWB actuator



### ● GFWB manifold



No.	Part name	Material	No.	Part name	Material
1	Coil assembly	-	7	O-ring	NBR Nitrile rubber
2	Core assembly	SUS, Cu (Ag for SUS body)	8	O-ring	NBR Nitrile rubber
3	Plunger assembly	SUS, NBR	9	Connector	C3604 (SUS for SUS body)
4	O-ring	NBR	10	O-ring	NBR Nitrile rubber
5	Spring	SUS	11	Sub-plate	C3604 (SUS for SUS body)
6	Body	C3771(SUS)	12	Connecting plate	SPC Steel

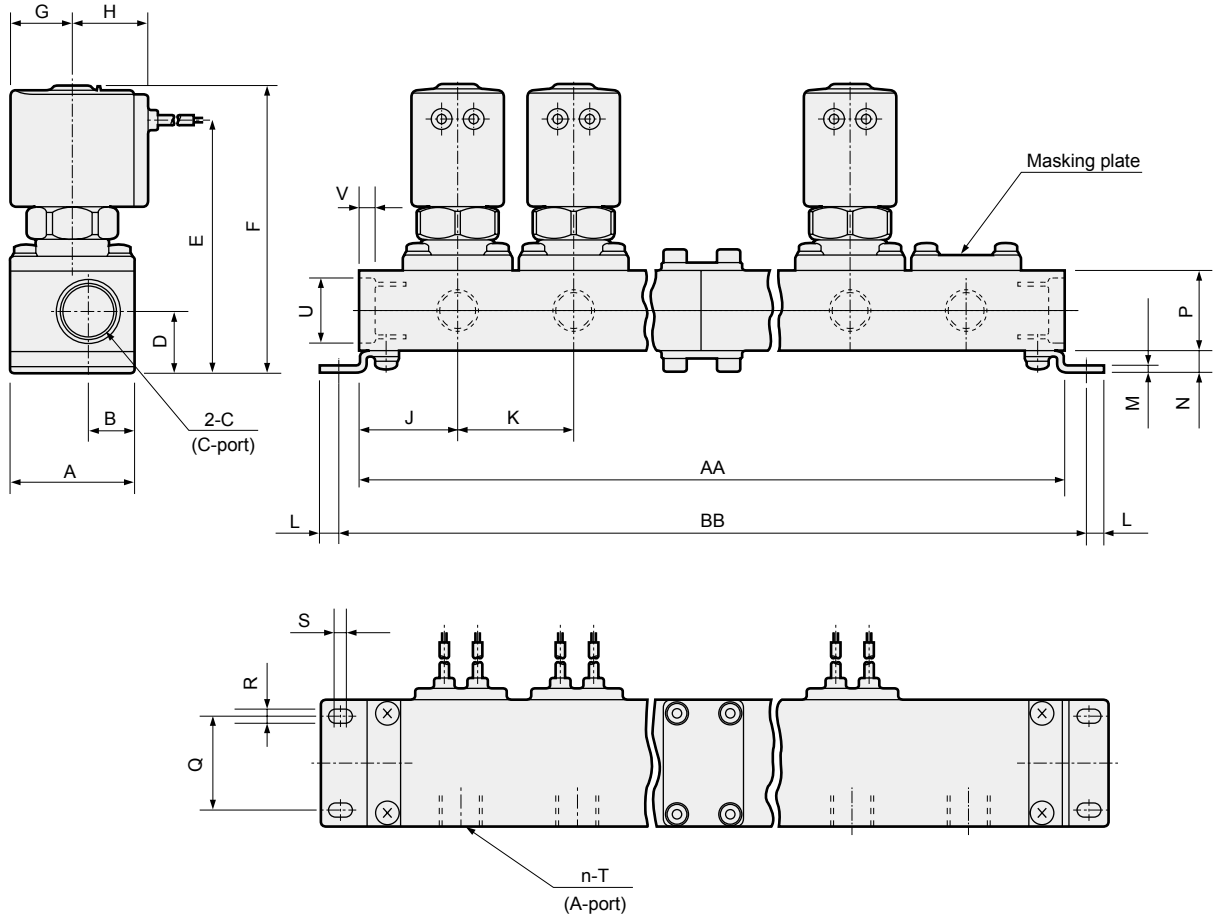
\*4 body mounting screws and 2 O-rings are attached to the actuator only.

( ) shows options.

## Dimensions: Manifold



- Grommet lead wire  
GFWB\*1-\*.\*.2C



\* Lead wire length 300 mm

Model No.	Station No. Code	2	3	4	5	6	7	8	9	10
		GFWB2	AA	81	109	162	165	218	246	274
	BB	93	121	174	177	230	258	286	339	342
GFWB3	AA	97	133	194	205	266	302	338	399	410
	BB	109	145	206	217	278	314	350	411	422
GFWB4	AA	106	145	212	223	290	329	368	435	446
	BB	119	158	225	236	303	342	381	448	459
GFWB5	AA	118	163	236	253	326	371	416	489	506
	BB	131	176	249	266	339	384	429	502	519

Manifold configuration 2 stns. x 1 3 stns. x 1 2 stns. x 2 5 stns. x 1 3 stns. x 2 5 stns. + 2 stns. 5 stns. + 3 stns. 3 stns. x 3 5 stns. x 2

Note) Manifold configuration combines 2-station, 3-station and 5-station units.

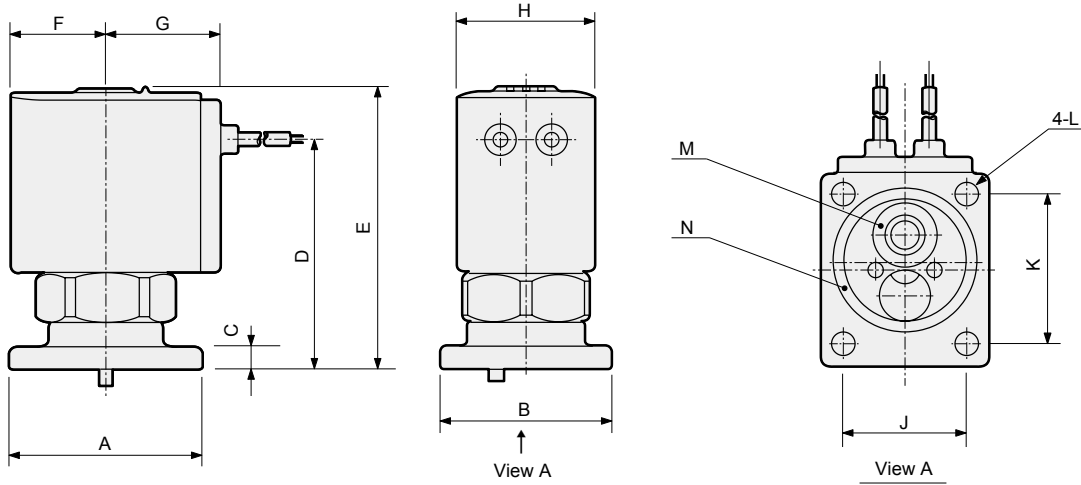
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V
GFWB2	32	13.5	Rc1/4	17.5	66.5	77	15.5	19.5	26	28	6	1.6	6.5	21	22	4.5	2.5	Rc1/8	φ17.3	4
GFWB3	38	14.5	Rc3/8	18.5	75.5	86.5	18.5	22.5	30	36	6	2	6.5	24	28	4.5	2.5	Rc1/4	φ19	4.6
GFWB4	42	16.5	Rc3/8	19.5	84	98	22.5	26	33	39	6.5	2	7.5	24	30	5.5	2.5	Rc1/4	φ19	4.6
GFWB5	42	16.5	Rc3/8	19.5	90	105	26	29.5	36	45	6.5	2	7.5	24	30	5.5	2.5	Rc1/4	φ19	4.6

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
<b>FWB/G</b>
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

# GFWB Series

## Dimensions: Actuator

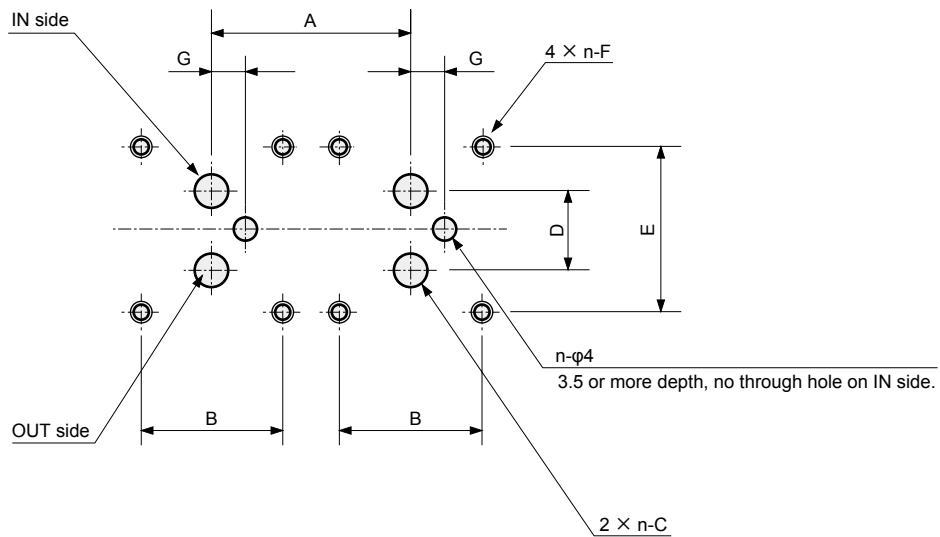
● Grommet lead wire  
GFWB\*1-\*O-\*2C



Lead wire length 300mm

Model No.	A	B	C	D	E	F	G	H	J	K	L	Applicable O-ring	
												M	N
GFWB2	32	27	4	39	49.5	15.5	19.5	22	19	24	φ3.5	AS568-009	AS568-018
GFWB3	38	34	4.5	45	56	18.5	22.5	28	25	29	φ4.5	AS568-011	AS568-022
GFWB4	42	38	4.5	52.5	66.5	22.5	26	34	28	32	φ4.5	AS568-012	AS568-025
GFWB5	42	44	5.5	58.5	73.5	26	29.5	40	34	32	φ4.5	AS568-012	AS568-025

## Actuator installation dimensions



Machining drawing when using 2 actuators

(n: number of stations)

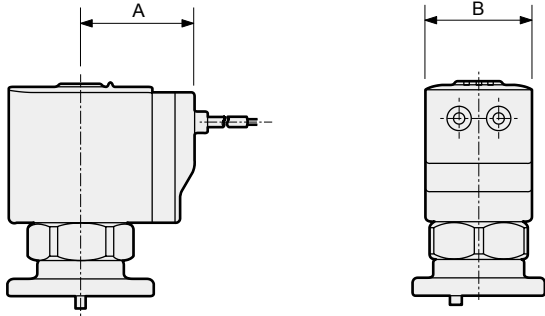
Model No.	A	B	C	D	E	F	G
GFWB2	28 or more	19±0.1	φ3.5	10.6±0.1	24±0.1	M3 effective thread depth 6 or more	6±0.2
GFWB3	35 or more	25±0.1	φ5.5	13.8±0.1	29±0.1	M4 effective thread depth 6 or more	6±0.2
GFWB4	39 or more	28±0.1	φ7.5	17±0.1	32±0.1	M4 effective thread depth 6 or more	7±0.2
GFWB5	45 or more	34±0.1	φ7.5	17±0.1	32±0.1	M4 effective thread depth 6 or more	7±0.2

## Optional dimensions



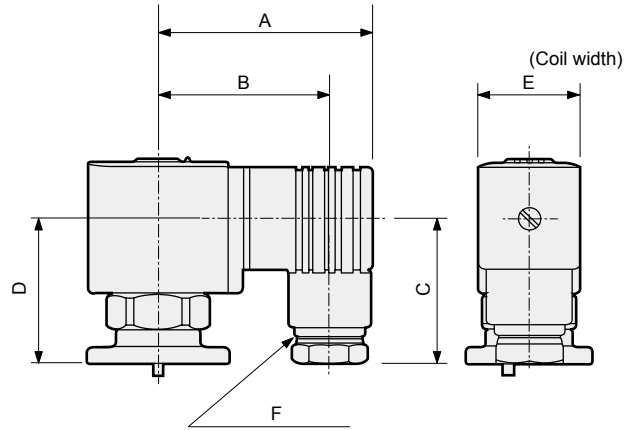
(Refer to the grommet lead wire actuator dimensions on the left page for common dimensions.)

- Grommet lead with surge suppressor  
GFWB\*1-\*\*-\*\* 2CS



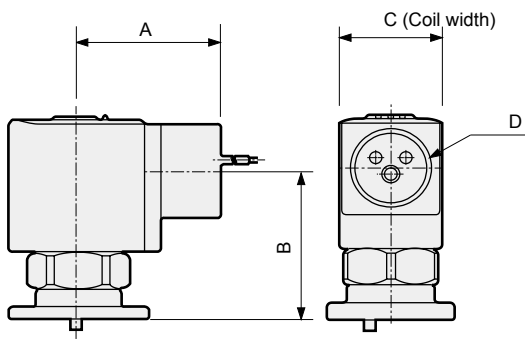
Model No.	A	B
GFWB2	26.5	22
GFWB3	29.5	28
GFWB4	34	34
GFWB5	37.5	40

- DIN terminal box (with lamp/surge suppressor)  
GFWB\*1-\*\*-\*\* 2G  
2HS



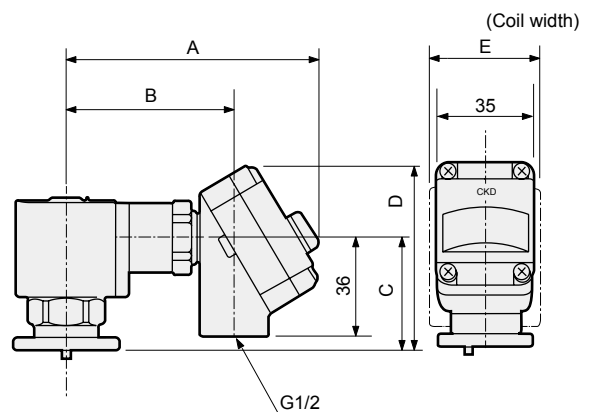
Model No.	A	B	C	D	E	F
GFWB2	53	44	38	32.5	22	Pg9
GFWB3	58.5	47	39	38.5	28	Pg11
GFWB4	62	50.5	39	46.5	34	Pg11
GFWB5	65.5	54	39	54	40	Pg11

- Conduit (CTC19 / G1/2)  
GFWB\*1-\*\*-\*\* 2CG  
2CH



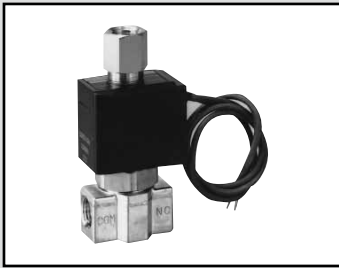
Model No.	A	B	C	D
GFWB3	39	40.5	28	CTC19 G1/2
GFWB4	43	48	34	CTC19 G1/2
GFWB5	46.5	55.5	40	CTC19 G1/2

- T type terminal box (with lamp/surge suppressor) (G1/2)  
GFWB\*1-\*\*-\*\* 3T  
3RS



Model No.	A	B	C	D	E
GFWB3	92	60.5	40.5	66.5	28
GFWB4	96	64.5	48	74	34
GFWB5	99.5	68	55.5	81.5	40

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
<b>FWB/G</b>
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



Direct acting 3-port solenoid valve for water, single unit  
(Special purpose valve)

# FWG Series

- Universal
- Port size: Rc1/8, Rc1/4, Rc3/8



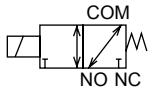
Refer to the Ending for details.



- 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

## JIS symbol

- Universal



## Common specifications

Descriptions	FWG
Working fluid	Water (excluding sewage, agricultural water and liquid manure)
Working pressure differential MPa	0 (≈0 psi, 0 bar) to 1.0 (≈150 psi, 10 bar) (refer to the max. working pressure differential in the individual specifications)
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)
Fluid temperature °C	AC: 1 (33.8°F) to 60 (140°F), DC: 1 (33.8°F) to 40 (104°F) (no freezing)
Ambient temperature °C	AC:-20 (-4°F) to 60 (140°F), DC:-20 (-4°F) to 40 (104°F)
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm <sup>3</sup> /min	0 (water pressure)
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent (*1)

\*1: The T type terminal box is IP61 or equivalent.

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions Model No.	Port size	Orifice size (mm)	Cv	Max. working pressure differential MPa		Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
				AC	DC		When holding		When starting		AC 50/60 Hz	DC	
							50 Hz	60 Hz	50 Hz	60 Hz			
<b>Universal</b>													
FWG21- 6 - Z	Rc1/8	1	0.036	0.7	0.7	100 VAC 50/60 Hz 200 VAC 50/60 Hz 24 VDC 12 VDC	6.5	5	10	9	3.6/2.5	4	0.17
FWG31- $\frac{6}{8}$ - 0	Rc1/8 / Rc1/4	1.5	0.080	0.7	0.7		16	10.5	23	20	7/4.1	6	0.33
FWG41- $\frac{8}{10}$ - 1	Rc1/4 / Rc3/8	2	0.14	1	1		22	16	40	35	8.5/6.5	8*4	0.52
FWG51- $\frac{8}{10}$ - 4	Rc1/4 / Rc3/8	3	0.31	0.6 *2	0.6 *2		32	22	60	50	12.5/10.5	11.5	0.69

\*1 : The voltage fluctuation range must be within ±10% of the rated voltage.

\*2 : 0.4 for NO pressurization.

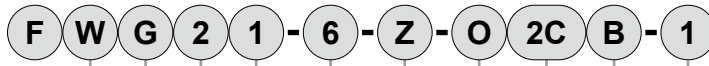
\*3 : The leakage current must be less than or equal to the values shown below.

\*4 : 8.6 (W) for 12 VDC.

\*5 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz).  
The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz).

Leakage current	Voltage				
	Model No.	100 VAC	200 VAC	24 VDC	12 VDC
	FWG2	3 mA or less	1.5 mA or less	1 mA or less	2 mA or less
FWG3/4/5	6 mA or less	3 mA or less			

## How to order



No. of ports  
(3-port valve)

Working fluid  
(Water)

**A** Series size

**B** Actuation

**C** Port size

**D** Orifice size

**E** Body/sealant combination

**F** Coil option

\*1  
\*2

**G** Other options

**H** Voltage

\*3

[Example of model No.]

**FWG21-6-Z-O2CB-1**

Model: FWG

- A** Series size : 22 mm
- B** Actuation : Universal
- C** Port size : Rc1/8
- D** Orifice size :  $\phi 1$
- E** Body/sealant combination : Body - copper alloy/sealant - NBR
- F** Coil option : Grommet lead wire
- G** Other options : Mounting plate
- H** Voltage : 100 VAC 50/60 Hz

### ⚠ Precautions for model No. selection

- \*1 : For FWG21 Item **F** 2G/2HS, the DIN terminal box (Pg9) is used.
- \*2 : The surge suppressor is built into the coil for Item **F** 2CS and in the terminal box for 2HS and 3RS.
- \*3 : Other voltages may not be available. Contact CKD for details.

Code		Content		Model No.			
				FWG21	FWG31	FWG41	FWG51
<b>A Series size</b>							
2	22 mm	●					
3	28 mm		●				
4	34 mm			●			
5	40 mm					●	
<b>B Actuation</b>							
1	Universal	●	●	●	●		
<b>C Port size</b>							
6	Rc1/8	●	●				
8	Rc1/4		●	●	●		
10	Rc3/8			●	●		
<b>D Orifice size</b>							
Z	$\phi 1$	●					
O	$\phi 1.5$		●				
1	$\phi 2$			●			
4	$\phi 3$					●	
<b>E Body/sealant combination</b>							
	<b>Body</b>	<b>Seal</b>					
O	Copper alloy	NBR	●	●	●	●	
D	Stainless steel	NBR	●	●	●	●	
<b>F Coil option</b>							
2C	Std.	Grommet lead wire	●	●	●	●	
2CS	Option	Grommet lead wire with surge suppressor	●	●	●	●	
2G		With DIN terminal box (Pg11)	●	●	●	●	
2HS		DIN terminal box with lamp/surge suppressor (Pg11)	●	●	●	●	
2CG		Conduit (CTC19)		●	●	●	
2CH		Conduit (G1/2)		●	●	●	
3T		With T type terminal box (G1/2)		●	●	●	
3RS		T type terminal box with lamp/surge suppressor (G1/2)		●	●	●	
<b>G Other options</b>							
Blank	None		●	●	●	●	
B	Mounting plate		●	●	●	●	
<b>H Voltage</b>							
1	100 VAC 50/60 Hz		●	●	●	●	
2	200 VAC 50/60 Hz		●	●	●	●	
3	24 VDC		●	●	●	●	
4	12 VDC		●	●	●	●	
Specify the desired voltage if it is not listed above.							

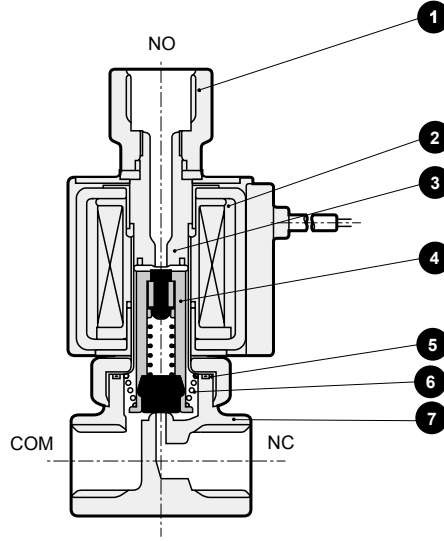
Select from the combinations indicated with ● in the table above.

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 $\Delta$ 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-Combust
Auto-Water
SpecFld
Custom
Ending

EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB

## Internal structure and parts list

● FWG\*1 Series



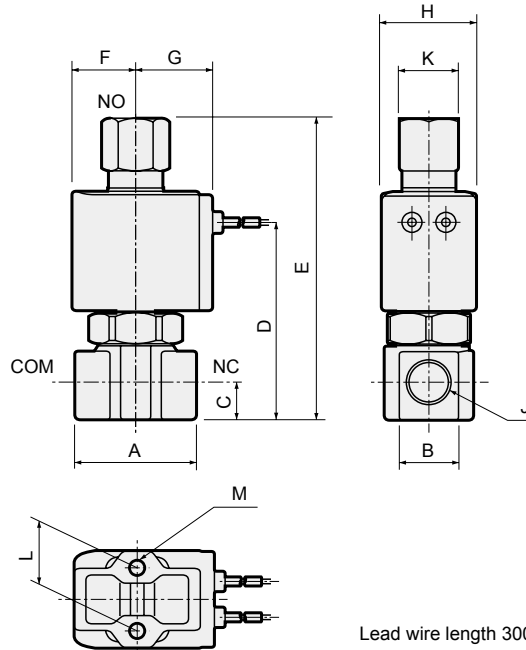
No.	Part name	Material	
1	Socket	C3604 (SUS for SUS body)	Copper alloy (stainless steel for stainless steel body)
2	Coil assembly	-	-
3	Core assembly	SUS, Cu (Ag for SUS body)	Stainless steel, copper (silver for stainless steel body)
4	Plunger assembly	SUS, NBR	Stainless steel, nitrile rubber
5	O-ring	NBR	Nitrile rubber
6	Spring	SUS	Stainless steel
7	Body	C3771(SUS)	Copper alloy (stainless steel)

( ) shows options.

## Dimensions



● Grommet lead wire  
FWG\*1-\*.\*\*2C



Lead wire length 300mm

Model No.	A	B	C	D	E	(E)	F	G	H	J	K	L	M
FWG21	32	14	8	45.5	74	(75)	15.5	19.5	22	Rc1/8	14	15	M4 depth 6
FWG31	36	18	11	57.5	90	(Rc1/8:90)	18.5	22.5	28	Rc1/8, Rc1/4	17	18	M5 depth 6
						(Rc1/4:91.5)							
FWG41	40	21	12	67	103	(105)	22.5	26	34	Rc1/4	17	18	M5 depth 8
										Rc3/8	22		
FWG51	40	21	12	73.5	111	(113)	26	29.5	40	Rc1/4	17	18	M5 depth 8
										Rc3/8	22		

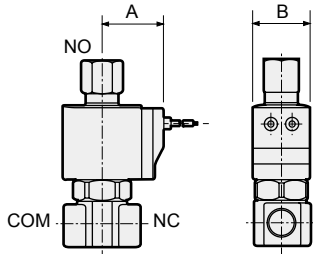
\* (E) shows dimensions of stainless steel body.

## Optional dimensions



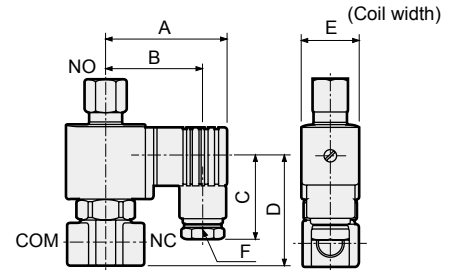
(Refer to the dimensions of grommet lead wire on the left page for common dimensions.)

- Grommet lead wire with surge suppressor  
FWG\*1-\*-\***2CS**



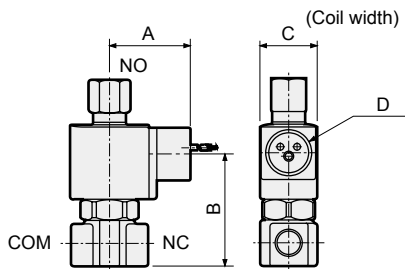
Model No.	A	B
FWG21	26.5	22
FWG31	29.5	28
FWG41	34	34
FWG51	37.5	40

- DIN terminal box (with lamp/surge suppressor)  
FWG\*1-\*-\***2G**  
**2HS**



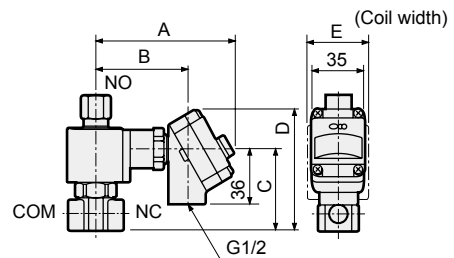
Model No.	A	B	C	D	E	F
FWG21	53	44	38	39	22	Pg9
FWG31	58.5	47	39	51	28	Pg11
FWG41	62	50.5	39	61	34	Pg11
FWG51	65.5	54	39	69.5	40	Pg11

- Conduit (CTC19 / G1/2)  
FWG\*1-\*-\***2CG**  
**2CH**



Model No.	A	B	C	D
FWG31	39	53	28	CTC19 / G1/2
FWG41	43	62.5	34	CTC19 / G1/2
FWG51	46.5	71	40	CTC19 / G1/2

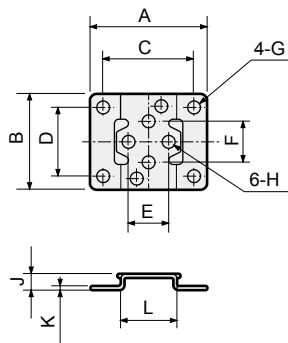
- T type terminal box (with lamp/surge suppressor) (G1/2)  
FWG\*1-\*-\***3T**  
**3RS**



Model No.	A	B	C	D	E
FWG31	92	60.5	53	79	28
FWG41	96	64.5	62.5	88.5	34
FWG51	99.5	68	71	97	40

- Mounting plate  
FWG\*1-\*-\***B**

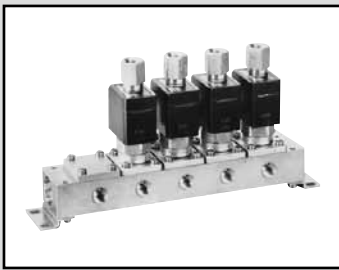
Material: Steel  
Zinc plated



Model No.	A	B	C	D	E	F	G	H	J	K	L
FWG21	40	34	30	25	15	15	φ5	φ4.5	6	1.2	20
FWG31	52	42	40	30	18	18	φ6	φ5.5	7	1.6	25
FWG41/51	56	48	44	36	18	18	φ6	φ5.5	7	1.6	30

- 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 $\Delta$ B/  
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





Direct acting 3-port solenoid valve for water, manifold  
(Special purpose valve)

# GFWG Series

- Universal
- Port size: Rc1/8, Rc1/4, Rc3/8



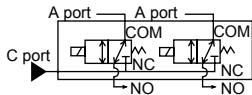
Refer to the Ending for details.



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

## JIS symbol

- Common water supply/  
individual drain



## Common specifications

Descriptions	GFWG
Working fluid	Water (excluding sewage, agricultural water and liquid manure)
Working pressure differential MPa	0 (≈0 psi, 0 bar) to 1.0 (≈150 psi, 10 bar) (refer to the max. working pressure differential in the individual specifications.)
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)
Fluid temperature °C	AC: 1 (33.8°F) to 60 (140°F), DC: 1 (33.8°F) to 40 (104°F) (no freezing)
Ambient temperature °C	AC:-20 (-4°F) to 40 (104°F), DC:-20 (-4°F) to 40 (104°F)
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm <sup>3</sup> /min	0 (water pressure)
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent (*1)

\*1: The T type terminal box is IP61 or equivalent.

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions Model No.	Port size		Orifice size (mm)	Cv	Max. working pressure differential MPa		Rated voltage	Apparent power (VA)				Power consumption (W)	
	A/NO ports (Individual port)	C port (Common port)			AC	DC		When holding		When starting		AC 50/60 Hz	DC
								50 Hz	60 Hz	50 Hz	60 Hz		
<b>Universal</b>													
GFWG21- Z	Rc1/8	Rc1/4	1	0.036	0.7	0.7	100 VAC 50/60 Hz 200 VAC 50/60 Hz 24 VDC 12 VDC	6.5	5	10	9	3.6/2.5	4
GFWG31- 0	Rc1/4	Rc3/8	1.5	0.080	0.7	0.7		16	10.5	23	20	7/4.1	6
GFWG41- 1	Rc1/4	Rc3/8	2	0.14	1.0	1.0		22	16	40	35	8.5/6.5	8.4
GFWG51- 4	Rc1/4	Rc3/8	3	0.27	0.6 <sup>2</sup>	0.6 <sup>2</sup>		32	22	60	50	12.5/10.5	11.5

\*1 : The voltage fluctuation range must be within ±10% of the rated voltage.

\*2 : 0.4 for NO pressurization.

\*3 : The leakage current must be less than or equal to the values shown below.

\*4 : 8.6 (W) for 12 VDC.

\*5 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz).  
The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz).

Leakage current	Voltage				
	Model No.	100 VAC	200 VAC	24 VDC	12 VDC
		GFWG2	3 mA or less	1.5 mA or less	1 mA or less
GFWG3/4/5	6 mA or less	3 mA or less			

## Weight

Model No.	Actuator weight (kg)	Masking weight (kg)	Sub-plate weight (g) (sub-plate, connection part and mounting plate)										Formula for product weight
			2 stns.	3 stns.	4 stns.	5 stns.	6 stns.	7 stns.	8 stns.	9 stns.	10 stns.		
GFWG21	0.16	0.03	0.40	0.51	0.77	0.77	1.03	1.16	1.30	1.60	1.55	(Product weight (g)) = 0.14 × (Actuator quantity) + 0.03 × (Masking quantity) + Sub-plate weight	
GFWG31	0.3	0.05	0.60	0.80	1.20	1.22	1.60	1.81	2.02	2.40	2.44	(Product weight (g)) = 0.27 × (Actuator quantity) + 0.05 × (Masking quantity) + Sub-plate weight	
GFWG41	0.48	0.06	0.73	1.00	1.47	1.50	2.00	2.23	2.50	3.00	3.00	(Product weight (g)) = 0.45 × (Actuator quantity) + 0.06 × (Masking quantity) + Sub-plate weight	
GFWG51	0.65	0.09	0.83	1.11	1.67	1.70	2.24	2.52	2.81	3.36	3.40	(Product weight (g)) = 0.64 × (Actuator quantity) + 0.09 × (Masking quantity) + Sub-plate weight	

## How to order

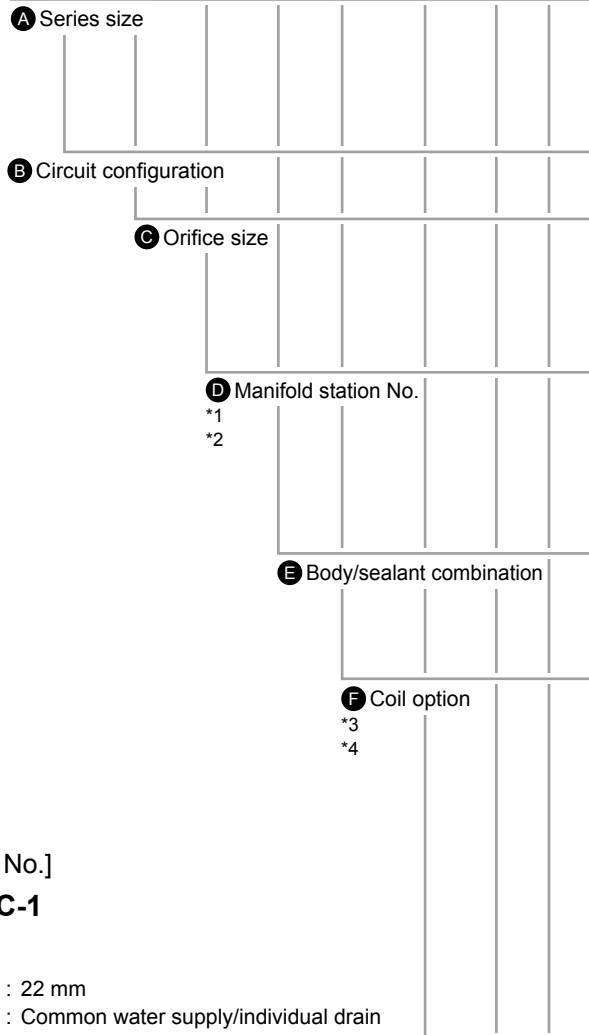
● Manifold

**G F W G 2 1 - Z - 5 - 0 2C - 1**

● Manifold with masking plate

**G F W G 3 1 - 4 - X - D 2G - 2 - 3 6**

No. of ports  
(3-port valve)  
Working fluid  
(Water)



[Example of model No.]

**GFWG21-Z-5-02C-1**

Model: GFWG

- A** Series size : 22 mm
- B** Circuit configuration : Common water supply/individual drain
- C** Orifice size :  $\phi 1$
- D** Manifold station No. : 5 stations
- E** Body/sealant combination : Body - copper alloy/sealant - NBR
- F** Coil option : Grommet lead wire
- G** Voltage : 100 VAC 50/60 Hz
- H I** : No masking plate

### ⚠ Precautions for model No. selection

- \*1 : Select a desired manifold station No. from 2 to 10.
- \*2 : For the type with masking plate, designate Item **D** as X, then designate the quantities of **H** solenoid valves and **I** masking plates.
- \*3 : For GFWG21 **F** 2G/2HS, the DIN terminal box (Pg9) is used.
- \*4 : The surge suppressor is built into the coil for Item **F** 2CS and in the terminal box for 2HS and 3RS.
- \*5 : Other voltages may not be available. Contact CKD for details.
- \*6 : Solenoid valves are arranged from the right side with the sub-plate (individual) port A facing front.
- \*7 : Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

Code		Content	Model No.			
			GFWG21	GFWG31	GFWG41	GFWG51
<b>A Series size</b>						
2		22 mm	●			
3		28 mm		●		
4		34 mm			●	
5		40 mm				●
<b>B Circuit configuration</b>						
1		Common water supply/individual drain	●	●	●	●
<b>C Orifice size</b>						
Z		$\phi 1$	●			
O		$\phi 1.5$		●		
1		$\phi 2$			●	
4		$\phi 3$				●
<b>D Manifold station No.</b>						
2		2 stations				
to		to				
10		10 stations	●	●	●	●
O		Actuator only	●	●	●	●
X		With masking plate	●	●	●	●
<b>E Body/sealant combination</b>						
		<b>Body</b>	<b>Seal</b>			
O		Copper alloy	NBR	●	●	●
D		Stainless steel	NBR	●	●	●
<b>F Coil option</b>						
2C	Std.	Grommet lead wire	●	●	●	●
2CS	Option	Grommet lead wire with surge suppressor	●	●	●	●
2G		With DIN terminal box (Pg11)	●	●	●	●
2HS		DIN terminal box with lamp/surge suppressor (Pg11)	●	●	●	●
2CG		Conduit (CTC19)		●	●	●
2CH		Conduit (G1/2)		●	●	●
3T		With T type terminal box (G1/2)		●	●	●
3RS		T type terminal box with lamp/surge suppressor (G1/2)		●	●	●
<b>G Voltage</b>						
1		100 VAC 50/60 Hz	●	●	●	●
2		200 VAC 50/60 Hz	●	●	●	●
3		24 VDC	●	●	●	●
4		12 VDC	●	●	●	●
Specify the desired voltage if it is not listed above.						
<b>H No. of solenoid valves</b>						
Blank		No masking plate		●	●	●
1		1 solenoid valve		●	●	●
to		to		●	●	●
9		9 solenoid valves		●	●	●
<b>I Masking plate quantity</b>						
Blank		No masking plate	●	●	●	●
1		1 masking plate		●	●	●
to		to		●	●	●
9		9 masking plates		●	●	●

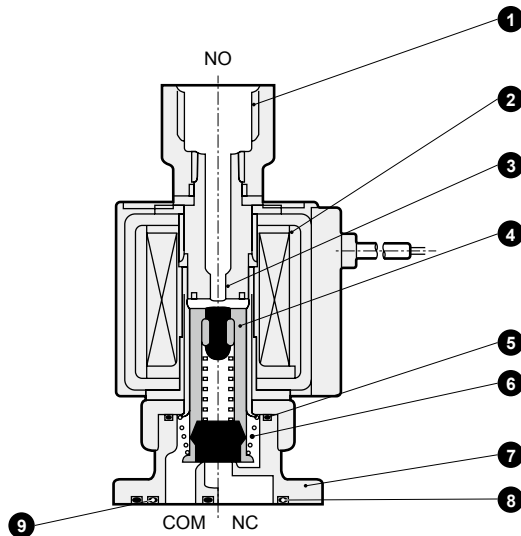
Select from the combinations indicated with ● in the table above.

- 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 $\diamond$ 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-Combust
- Auto-Water
- SpecFld
- Custom
- Ending

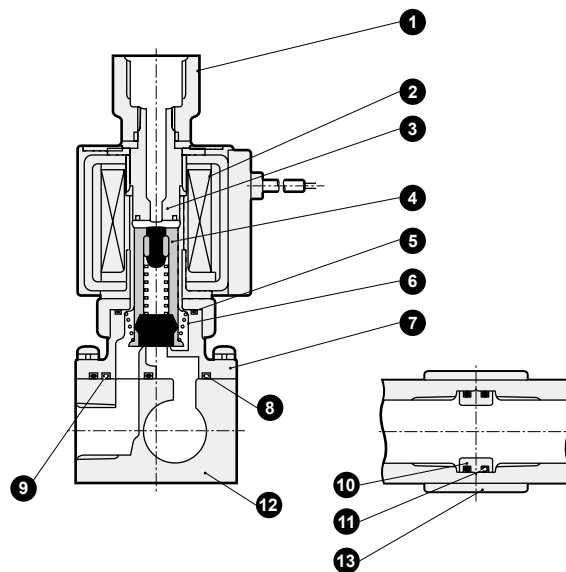
- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G**
- FHB
- FLB
- AB
- AG
- AP/  
AD
- APK/  
ADK
- DryAir
- EX-  
XPLNprf
- XPLNprf
- HVB/  
HVL
- S $\nabla$ B/  
NAB
- LAD/  
NAD
- Water-  
Rela
- NP/NAP/  
NVP
- SNP
- CHB/G
- MXB/G
- Other  
valves
- SWD/  
MWD
- DustColl
- CVE/  
CVSE
- CCH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

## Internal structure and parts list

### ● GFWG actuator



### ● GFWG manifold



No.	Part name	Material	No.	Part name	Material
1	Socket	C3604 (SUS for SUS body)	8	O-ring	NBR Nitrile rubber
2	Coil assembly	-	9	O-ring	NBR Nitrile rubber
3	Core assembly	SUS, Cu (Ag for SUS body)	10	Connector	C3604 (SUS for SUS body) Copper alloy (stainless steel for stainless steel body)
4	Plunger assembly	SUS, NBR	11	O-ring	NBR Nitrile rubber
5	O-ring	NBR Nitrile rubber	12	Sub-plate	C3604 (SUS for SUS body) Copper alloy (stainless steel for stainless steel body)
6	Spring	SUS Stainless steel	13	Connecting plate	SPC Steel
7	Body	C3771(SUS) Copper alloy (stainless steel)			

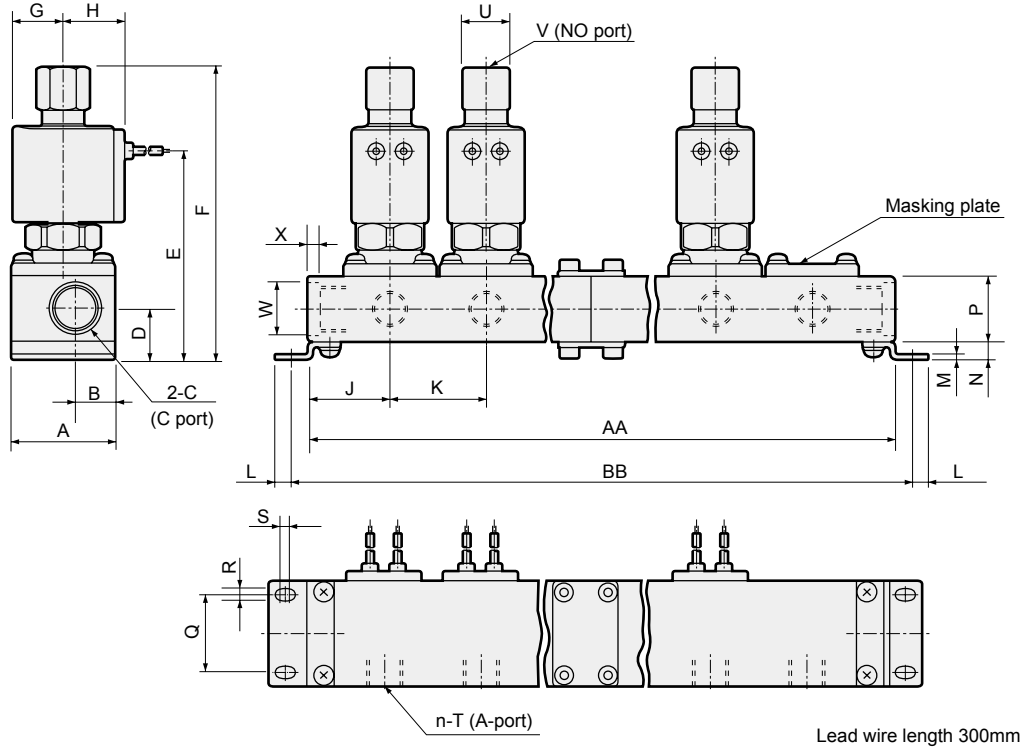
\*4 body mounting screws and 2 O-rings are attached to the actuator only.

( ) shows options.

## Dimensions: Manifold



- Grommet lead wire  
GFWG\*1-\*.~.\*2C



Model No.	Station No. Code	2	3	4	5	6	7	8	9	10
		GFWG2	AA	81	109	162	165	218	246	274
	BB	93	121	174	177	230	258	286	339	342
GFWG3	AA	97	133	194	205	266	302	338	399	410
	BB	109	145	206	217	278	314	350	411	422
GFWG4	AA	106	145	212	223	290	329	368	435	446
	BB	119	158	225	236	303	342	381	448	459
GFWG5	AA	118	163	236	253	326	371	416	489	506
	BB	131	176	249	266	339	384	429	502	519
Manifold configuration		2 stns. x 1	3 stns. x 1	2 stns. x 2	5 stns. x 1	3 stns. x 2	5 stns. + 2 stns.	5 stns. + 3 stns.	3 stns. x 3	5 stns. x 2

Note) Manifold configuration combines 2-station, 3-station and 5-station units.

Model No.	A	B	C	D	E	F	(F)	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
GFWG2	32	13.5	Rc1/4	17.5	66.5	95	(96)	15.5	19.5	26	28	6	1.6	6.5	21	22	4.5	2.5	Rc1/8	14	Rc1/8	φ17.3	4
GFWG3	38	14.5	Rc3/8	18.5	75.5	108	(109)	18.5	22.5	30	36	6	2	6.5	24	28	4.5	2.5	Rc1/4	17	Rc1/4	φ19	4.6
GFWG4	42	16.5	Rc3/8	19.5	84	120	(121.5)	22.5	26	33	39	6.5	2	7.5	24	30	5.5	2.5	Rc1/4	17	Rc1/4	φ19	4.6
GFWG5	42	16.5	Rc3/8	19.5	90	127	(128.5)	26	29.5	36	45	6.5	2	7.5	24	30	5.5	2.5	Rc1/4	17	Rc1/4	φ19	4.6

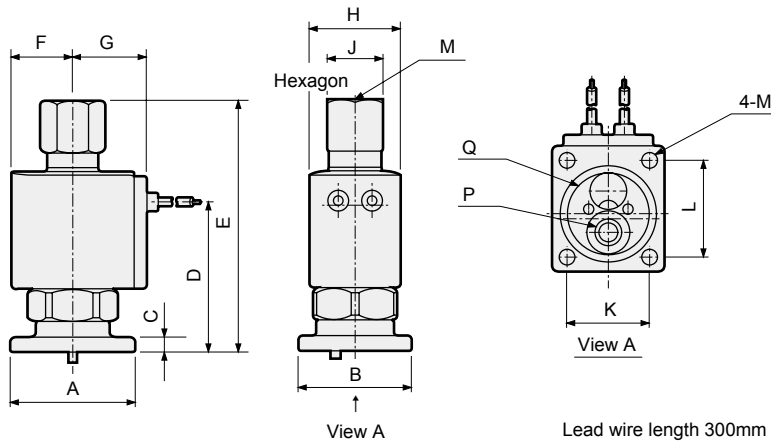
\*(F) shows dimensions of stainless steel body.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
<b>FWB/G</b>
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S <sup>Δ</sup> 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-Combust
Auto-Water
SpecFld
Custom
Ending



## Dimensions: Actuator

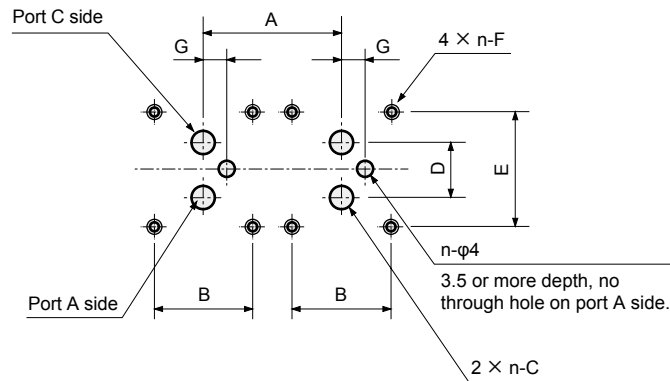
● Grommet lead wire  
GFWG\*1-\*O-\*2C



Model No.	A	B	C	D	E	(E)	F	G	H	J	K	L	M	N	Applicable O-ring	
															P	Q
GFWG2	32	27	4	39	67.5	(68.5)	15.5	19.5	22	14	19	24	φ3.5	Rc1/8	AS568-009	AS568-018
GFWG3	38	34	4.5	45	77.5	(78.5)	18.5	22.5	28	17	25	29	φ4.5	Rc1/4	AS568-011	AS568-022
GFWG4	42	38	4.5	52.5	88.5	(90)	22.5	26	34	17	28	32	φ4.5	Rc1/4	AS568-012	AS568-025
GFWG5	42	44	5.5	58.5	95.5	(97)	26	29.5	40	17	34	32	φ4.5	Rc1/4	AS568-012	AS568-025

\*(E) shows dimensions of stainless steel body.

## Actuator installation dimensions



Machining drawing when using 2 actuators (n: number of stations)

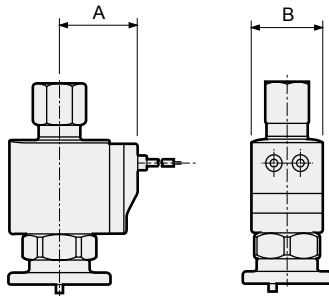
Model No.	A	B	C	D	E	F	G
GFWG2	28 or more	19±0.1	φ3.5	10.6±0.1	24±0.1	M3 effective thread depth 6 or more	6±0.2
GFWG3	35 or more	25±0.1	φ5.5	13.8±0.1	29±0.1	M4 effective thread depth 6 or more	6±0.2
GFWG4	39 or more	28±0.1	φ7.5	17±0.1	32±0.1	M4 effective thread depth 6 or more	7±0.2
GFWG5	45 or more	34±0.1	φ7.5	17±0.1	32±0.1	M4 effective thread depth 6 or more	7±0.2

## Optional dimensions



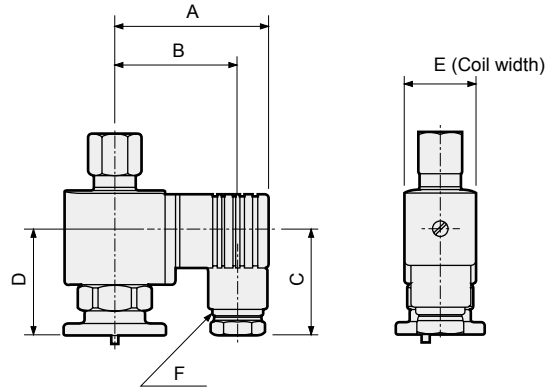
(Refer to the grommet lead wire actuator dimensions on the left page for common dimensions.)

- Grommet lead with surge suppressor  
GFWG\*1-\*\*-\*\* 2CS



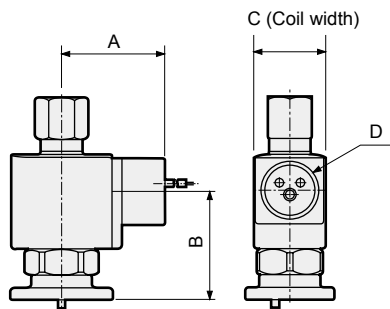
Model No.	A	B
GFWG2	26.5	22
GFWG3	29.5	28
GFWG4	34	34
GFWG5	37.5	40

- DIN terminal box (with lamp/surge suppressor)  
GFWG\*1-\*\*-\*\* 2G  
2HS



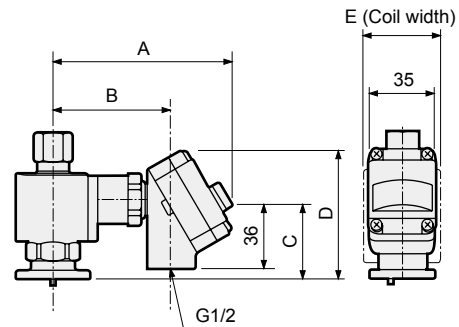
Model No.	A	B	C	D	E	F
GFWG2	53	44	38	32.5	22	Pg9
GFWG3	58.5	47	39	38.5	28	Pg11
GFWG4	62	50.5	39	46.5	34	Pg11
GFWG5	65.5	54	39	54	40	Pg11

- Conduit (CTC19 / G1/2)  
GFWG\*1-\*\*-\*\* 2CG  
2CH



Model No.	A	B	C	D
GFWG3	39	40.5	28	CTC19 / G1/2
GFWG4	43	48	34	CTC19 / G1/2
GFWG5	46.5	55.5	40	CTC19 / G1/2

- T type terminal box (with lamp/surge suppressor) (G1/2)  
GFWG\*1-\*\*-\*\* 3T  
3RS



Model No.	A	B	C	D	E
GFWG3	92	60.5	40.5	66.5	28
GFWG4	96	64.5	48	74	34
GFWG5	99.5	68	55.5	81.5	40

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
<b>FWB/G</b>
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S $\nabla$ B/ 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