



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

# FHB Series

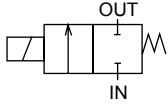
- NC
- Port size: Rc1/8 to Rc1/2



EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
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 specifications

Descriptions	FHB
Working fluid	Hot water (90°C (194°F) or less)
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	1 (33.8°F) to 90 (194°F) (no freezing)
Ambient temperature °C	-20 (-4°F) to 60 (140°F)
Thermal class	Class 180 (H) or equivalent
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

## Individual specifications

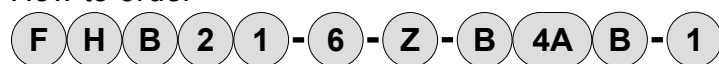
1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions Model No.	Port size	Orifice size (mm)	Cv	Max. working pressure differential MPa	Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
							When holding		When starting		AC		
							50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
<b>NC</b>													
FHB 21- 6 - Z - 2	Rc1/8	1	0.035	1.5	1.5 (≈220 psi, 15 bar)	100 VAC 50/60 Hz	5.5	4	9	8	2.8	2	0.16
		2	0.15	0.7			10	7	23	20	4.2	3.2	
FHB 31- 6 8 - 3 - 5 - 6	Rc1/8	3	0.31	0.7	1.5 (≈220 psi, 15 bar)	200 VAC 50/60 Hz	16	13	40	35	7.5	6.3	0.51
	Rc1/4	4	0.54	0.4									
FHB 41- 8 10 - 5 - 6 - 7	Rc1/4	4	0.54	0.8	0.3 (≈44 psi, 3 bar)	100 VAC 50/60 Hz	16	13	40	35	7.5	6.3	0.51
	Rc3/8	5	0.80	0.5									
FHB 41- 10 15 - 8	Rc3/8 Rc1/2	10	1.88	0.1	0.3 (≈44 psi, 3 bar)	200 VAC 50/60 Hz							0.60
FHB 51- 8 10 - 5 - 6 - 7	Rc1/4	4	0.54	1.1	1.5 (≈220 psi)	100 VAC 50/60 Hz	23	19	60	50	11.5	10	0.69
	Rc3/8	5	0.80	0.7									
FHB 51- 10 15 - 8	Rc3/8 Rc1/2	10	1.88	0.12	0.3 (≈44 psi)								0.79

- \*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 below.  
 \*3 : 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
	Model No.		
	FHB2	3 mA or less	1.5 mA or less
	FHB3/4/5	6 mA or less	3 mA or less

## How to order



No. of ports  
(2-port valve)

Working fluid  
(Hot water)

**A** Series size

**B** Actuation

**C** Port size

**D** Orifice size

\*1

\*2

**E** Body/sealant combination

**F** Coil option

**G** Other options

**H** Voltage

\*3

		Model No.			
		FHB21	FHB31	FHB41	FHB51
Code	Content				
<b>A Series size</b>					
2	22 mm	●			
3	28 mm		●		
4	34 mm			●	
5	40 mm				●
<b>B Actuation</b>					
1	NC	●	●	●	●
<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>			
B	Bronze casting	FKM	●	●	●
<b>F Coil option</b>					
4A	Std.	Grommet lead wire	●	●	●
<b>G Other options</b>					
Blank	Std.	None	●	●	●
B	Option	Mounting plate	●	●	●
<b>H Voltage</b>					
1	100 VAC 50/60 Hz	●	●	●	●
2	200 VAC 50/60 Hz	●	●	●	●
Specify the desired voltage if it is not listed above. (AC only)					

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

[Example of model No.]

**FHB21-6-Z-B4A B-1**

Model: FHB

- A** Series size : 22 mm
- B** Actuation : NC
- C** Port size : Rc1/8
- D** Orifice size : φ1
- E** Body/sealant combination : Body - bronze casting/sealant - FKM
- F** Coil option : Grommet lead wire (thermal class H or equivalent)
- G** Other options : Mounting plate
- H** Voltage : 100 VAC 50/60 Hz

## ⚠ Precautions for model No. selection

\*1 : For FHB41 and FHB51 with orifice of φ4 mm (Item 5), φ5 mm (Item 6) and φ7 mm (Item 7), available port sizes are Rc1/4 (Item 8) and Rc3/8 (Item 10) only.

\*2 : For orifice of φ10 mm (Item 8), available port sizes are Rc3/8 (Item 10) and Rc1/2 (Item 15).

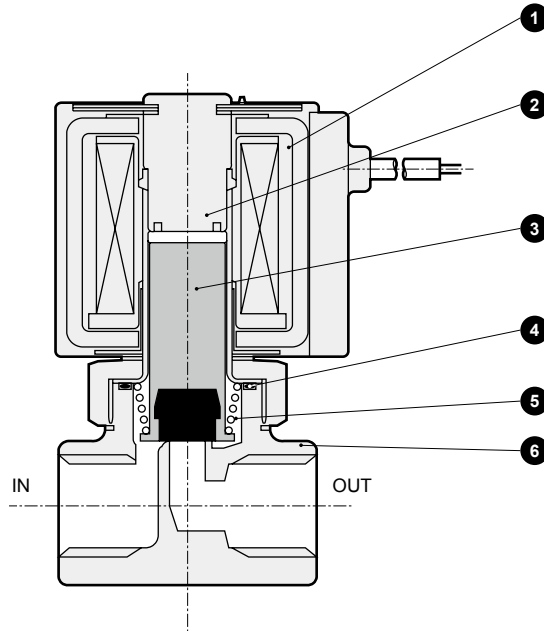
\*3 : Other voltages may not be available. Contact CKD for details.

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

- 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 $\hat{\Delta}$ 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

● FHB\*1 Series

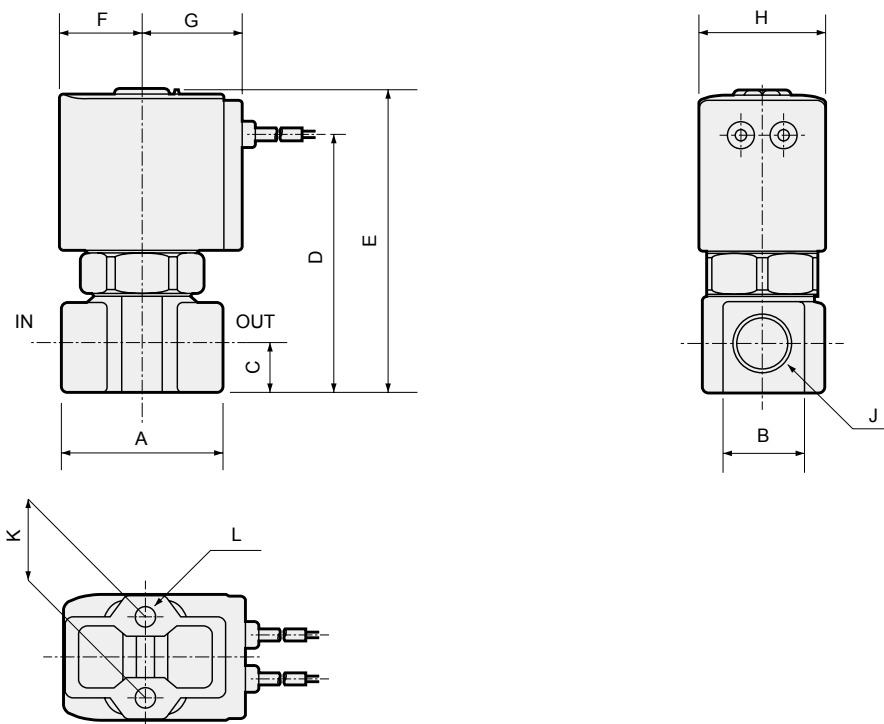


No.	Part name	Material	
1	Coil assembly	-	-
2	Core assembly	SUS, Cu	Stainless steel, copper
3	Plunger assembly	SUS, FKM	Stainless steel, fluoro rubber
4	O-ring	EPDM	Ethylene propylene rubber
5	Spring	SUS	Stainless steel
6	Body	CAC408	Bronze casting

## Dimensions



- Grommet lead wire (thermal class H or equivalent)  
FHB\*1-\*-\*\_B4A



\* Lead wire length 300 mm

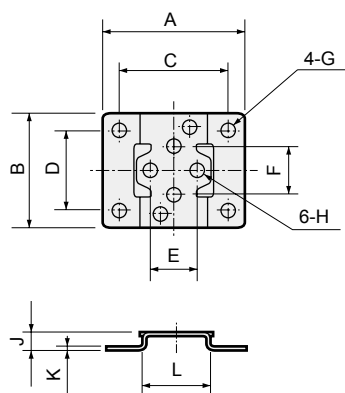
Model No.	A	B	C	D	E	F	G	H	J	K	L
FHB21	32	14	8	45.5	56	15.5	19.5	22	Rc1/8	15	M4 depth 6
FHB31	36	18	11	57.5	68.5	18.5	22.5	28	Rc1/8, Rc1/4	18	M5 depth 6
FHB41	40	23	12	67	81	22.5	26	34	Rc1/4, Rc3/8	18	M5 depth 8
FHB41-10/15-8 (orifice $\phi$ 10)	50	29	15	76	90				Rc3/8, Rc1/2		
FHB51	40	23	12	73.5	89	26	29.5	40	Rc1/4, Rc3/8	18	M5 depth 8
FHB51-10/15-8 (orifice $\phi$ 10)	50	29	15	82.5	98				Rc3/8, Rc1/2		

## Optional dimensions



- Mounting plate  
FHB\*1-\*-\*\_B\* [B]

Material: Steel  
Zinc plated



Model No.	A	B	C	D	E	F	G	H	J	K	L
FHB21	40	34	30	25	15	15	$\phi$ 5	$\phi$ 4.5	6	1.2	20
FHB31	52	42	40	30	18	18	$\phi$ 6	$\phi$ 5.5	7	1.6	25
FHB41/51	56	48	44	36	18	18	$\phi$ 6	$\phi$ 5.5	7	1.6	30

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