

FA_G^B / FG_G^B / FVB FW_G^B / FHB / FLB

(Special purpose valve)

Special purpose direct acting 2, 3 port solenoid valve

■ For compressed air, dry air, medium vacuum, water, hot water, oil

Overview

This is a direct acting poppet type solenoid valve. Six series for compressed air, dry air, medium vacuum, water, hot water and oil applications are available to suit the control fluid. Dedicated fluid design is suited for all types of fluids. Select the optimum series based on the fluid.

Features

Dedicated fluid design

Special purpose design to fit the required fluid.

Double life (CKD comparison)

Long life even for dry air and inert gas applications.

26% reduced footprint

(CKD comparison)

56% reduced weight

(CKD comparison for compressed air)

Surge suppressor integrated coil

(with surge suppressor)

Low wattage design

Flame resistant UL94V-0

conformed coil

Easy disassembly and assembly



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For compressed air

2 port solenoid valve

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2 port solenoid valve

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Electronic Catalog file list 114

▲ Always read the precautions in the Introduction and page 24 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

CVB/
CVSE

CPE/
CPD

Medical
analysis

Custom
order

Special purpose valve
Direct acting 2, 3 port solenoid valve

Series variation

Special purpose direct acting 2, 3 port solenoid valve
(special purpose valve)

Working fluid	No. of port	Model	Structure	Actuation
Compressed air	2 port	FAB	Discrete	NC (normally closed) type
		GFAB	Manifold	NO (normally open) type
	3 port	FAG	Discrete	Common supply type
		GFAG	Manifold	Individual supply type
				Universal type
				NC pressurization type
Dry air	2 port	FGB	Discrete	Common air supply/ exhaust type
		GFGB	Manifold	NC (normally closed) type
	3 port	FGG	Discrete	Common supply type
		GFGG	Manifold	Individual supply type
				Universal type
				NC pressurization type
Medium vacuum	2 port	FVB	Discrete	Common air supply/ exhaust type
		GFVB	Manifold	NC (normally closed) type
Water	2 port	FWB	Discrete	Individual supply type
		GFWB	Manifold	NC (normally closed) type
	3 port	FWG	Discrete	NO (normally open) type
		GFWG	Manifold	Common water supply type
				Universal type
				Common water supply/ individual drain type
Hot water	2 port	FHB	Discrete	NC (normally closed) type
Oil	2 port	FLB	Discrete	NC (normally closed) type
		GFLB	Manifold	Central lubrication type

	Port size					Page
	M5	Rc1/8	Rc1/4	Rc3/8	Rc1/2	
	●	●	●	●	●	26
		●	●	●		
		●		●		32
	●	●	●			
	●	●	●	●		38
		●	●	●		
	●	●	●			42
		●	●	●	●	
		●	●	●	●	48
		●		●		
		●	●			52
		●	●	●		
		●	●	●		58
		●	●	●		
		●	●			62
		●	●	●		
		●	●	●		68
		●	●			
		●	●			72
		●	●	●	●	
		●	●	●		78
		●	●	●		
		●	●	●		84
		●	●	●		
		●	●	●		90
		●	●	●		
		●	●	●		94
		●	●	●		
		●	●	●	●	100
		●	●	●	●	
		●	●	●		104
		●	●	●		
		●	●	●		108
		●	●	●		

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
order

Special purpose valve

Direct acting 2, 3 port solenoid valve

* Note: Port size of manifold indicates pressure port.



Safety precautions

Always read this section before starting use.

Special purpose direct acting 2, 3 port solenoid valve (special purpose valve)

Design & Selection

WARNING

1 Working fluid

- (1) Active gases cannot be used with the compressed air and dry air types, so consult with CKD when these applications are required.
- (2) Dedicated solenoid valve for each fluid. Select the solenoid valve based on the fluid. When using with other fluids, for example, in an air flow in water, specifications may differ, so consult with CKD.

2 Protective structure

The protective structure of the special purpose valve has passed IEC standard compliance tests, but performance greatly differs based on weather resistance and time, so these values are not guaranteed.

Provide means to ensure that water, dust, etc., do not come in direct contact.

CAUTION

1 Continuous energizing

Consult with CKD when the 3 port valve for water (FWG) is to be continuously energized with the NO port pressurized.

2 Fluid viscosity

The fluid viscosity must be 50 mm²/s or less.

Malfunctions could occur if the viscosity is higher than 50 mm²/s.

Installation, Piping & Wiring

CAUTION

1 Piping

Always hold the socket with a spanner, etc., when tightening the piping to the FWG Series NO port.

2 Wiring

Refer to the connection methods in Introduction 53 when wiring to the small terminal box, DIN terminal box or T type terminal box.

Maintenance

CAUTION

1 For compressed air, dry air, medium vacuum

- (1) When disassembling or assembling the FAB/G or FGB/G Series, tighten the coil assembly set screws with the following tightening torques.

Model no.	Coil assembly set screw
FAB/G1	0.3 to 0.7 N·m
FAB/G2/FGB/G2	0.7 to 1.1 N·m
FAB/G3/FGB/G3	1.1 to 1.8 N·m
FAB/G4/FGB/G4	1.1 to 1.8 N·m
FAB/G5/FGB/G5	2.0 to 3.0 N·m

- (2) When disassembling or assembling the FAB32/42/52 or FVB Series, tightening the core assembly and body with the following tightening torques.

Model no.	Core assembly set screw
FVB2	12 to 18 N·m
FAB32/FVB3	16 to 24 N·m
FAB42/FVB4	21 to 31 N·m
FAB52/FVB5	21 to 31 N·m

2 For water, hot water, oil

When disassembling or assembling the FWB/G, FHB or FLB Series and tightening the core assembly and body, and core assembly and socket, first temporarily tighten until the core assembly contacts the O ring to prevent entanglement of the spring (outer spring). Then tighten with the following torques.

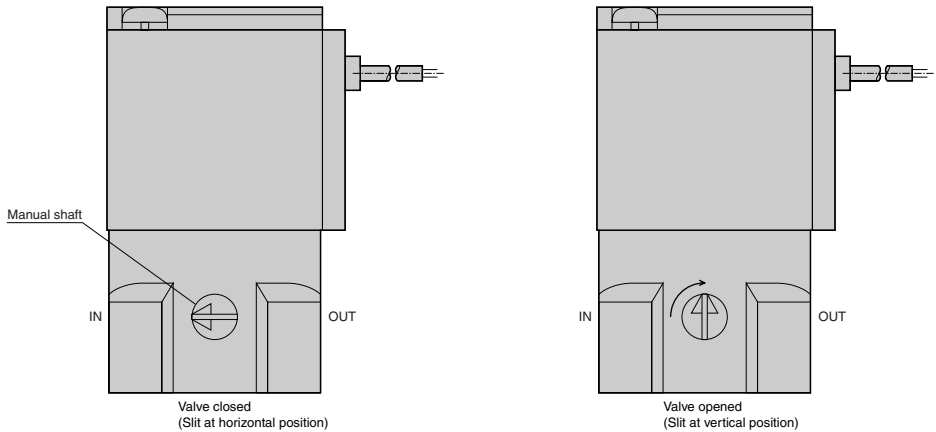
Model no.	Core assembly tightening torque	Socket tightening torque
FWB2/FHB2/FLB2	12 to 18 N·m	_____
FWG2		3 to 5 N·m
FWB3/FHB3/FLB3	16 to 24 N·m	_____
FWG3		6 to 10 N·m
FWB4/FHB4/FLB4	21 to 31 N·m	_____
FWG4		10 to 14 N·m
FWB5/FHB5/FLB5	21 to 31 N·m	_____
FWG5		10 to 14 N·m

How to operate manual override (optional) (FAB/FAG/FGB/FGG/GFAB/GFAG/GFGB/GFGG Series)

1 Manual locking type (available for FAB/FAG/FGB/FGG Series)

Opening: Insert a flat-tip screwdriver into the slit on the manual shaft, and turn it approx. 90° to the right. The plunger will rise up and the valve will open. (For the 3 port valve, the NC side valve seat will open and the NO side valve seat will close.) This opened state will be maintained even if the screwdriver is removed.

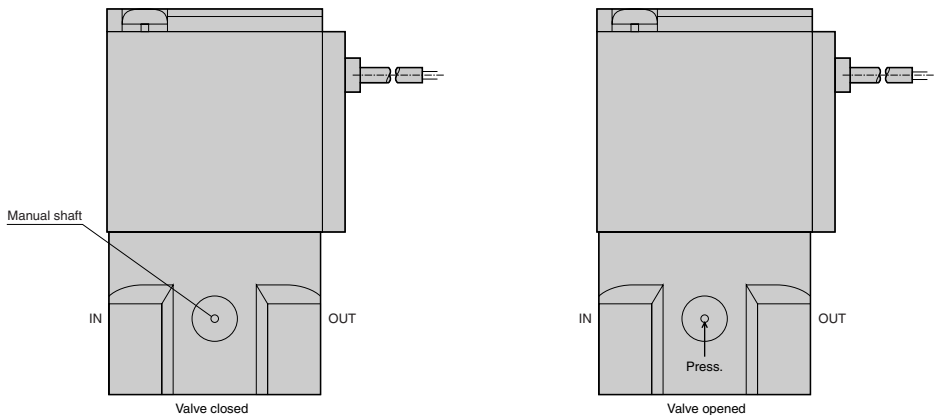
Closing: Turn the manual shaft to the left from the open position to the close position. The plunger will lower and the valve will close. (For the 3 port valve, the NC side valve seat will close and the NO side valve seat will open.)



2 Manual non-locking type

Opening: When the concave section at the center of the manual shaft is pressed in with the fine tip of a Phillips screwdriver, the plunger assembly will rise up and the valve will open. (For the 3 port valve, the NC side valve seat will open and the NO side valve seat will close.)

Closing: When the screwdriver is removed from the manual shaft, the manual shaft will return to the front by the force of the inner spring, and the plunger assembly will lower and the valve will close. (For the 3 port valve, the NC side valve seat will close and the NO side valve seat will open.)



HNB/G

USB/G

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FVB

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For
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Other G.P.
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CV/
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CPE/
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Medical
analysis

Custom
order

Special purpose valve

Direct acting 2, 3 port solenoid valve



Discrete direct acting 2 port solenoid valve for compressed air (special purpose valve)

FAB Series

- NC (normally closed) type, NO (normally open) type
- Port size: M5, AR 1/8 to Rc1/2

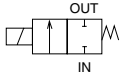


Refer to page 17 in the Ending for details.

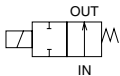


JIS symbol

- NC (normally closed) type



- NO (normally open) type



Common specifications

Item	FAB
Working fluid	Compressed air
Working pressure differential range MPa	0 to 1.4 (refer to max. working pressure differential in individual specifications.)
Withstanding pressure (water) MPa	2.1 (1.5 for FAB11/21)
Fluid temperature °C	AC: -10 to 60, DC: -10 to 40 (no freezing)
Ambient temperature °C	AC: -20 to 60, DC: -20 to 40
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm ³ /min. (ANR)	0.2 or less
Mounting attitude	Free
Protective structure	IP65 or equivalent (Note 1)

Note 1: The T type terminal box type is IP61 or equivalent, and the FAB11 compact terminal box type is IP40 or equivalent.

Individual specifications

Item	Port size	Orifice (mm)	Flow characteristics		Max. working pressure diff. MPa		Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
			C [dm ³ /s.bar]	b	AC	DC			Holding		Starting		AC	DC	
Model no.									50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	DC	
NC (normally closed) type															
FAB11-M5-Z	M5	1	0.12	0.64	0.7	0.7	1.0	100 VAC 50/60 Hz	3.4	2.6	5	4.6	2.3/1.6	3	0.07
-1		1.5	0.28	0.52	0.3	0.3			5.3	3.7	10	9	2.7/2	4	0.12
FAB21-6	Rc1/8	-1	1.5	0.28	0.52	1.0	1.0	110 VAC 60 Hz	7.5	5.5	20	17	4/3.4	6.5	0.21
-2		2	0.55	0.59	0.6	0.6	7.5		5.5	20	17	4/3.4	6.5	0.21	
FAB31-$\frac{8}{8}$	Rc1/8	-2	2	0.55	0.56	1.4	1.4	200 VAC 50/60 Hz	15	11	40	35	7.5/6.5	8	0.37
-3		3	1.2	0.56	1.0	0.6	15		11	40	35	7.5/6.5	8	0.37	
FAB41-$\frac{8}{10}$	Rc1/4	-3	3	1.2	0.56	1.4	1.4	220 VAC 60 Hz	20	16	55	45	11/9.5	11.5	0.60
-5		4	2.1	0.54	1.0	0.9	20		16	55	45	11/9.5	11.5	0.60	
FAB51-10	Rc3/8	-5	4	2.1	0.54	1.2	1.2	24 VAC 12 VDC	25	20	60	50	11/10	11.5	0.71
-6		5	3.1	0.50	0.7	0.8	25		20	60	50	11/10	11.5	0.71	
FAB51-$\frac{10}{15}$	Rc3/8	-7	7	5.7	0.48	0.3	0.3	24 VAC 12 VDC	25	20	60	50	11/10	11.5	0.71
-8		10	5.5	0.41	0.15	0.15	25		20	60	50	11/10	11.5	0.71	
NO (normally open) type															
FAB32-$\frac{8}{8}$	Rc1/8	-2	2	0.57	0.53	1.1	1.1	100 VAC 50/60 Hz	11.5	8	25	22	4.6/3.2	6	0.31
-3		3	1.2	0.57	0.55	0.55	11.5		8	25	22	4.6/3.2	6	0.31	
FAB42-$\frac{8}{10}$	Rc1/4	-6	5	3.0	0.48	0.2	0.2	110 VAC 60 Hz	18	14	45	40	7.5/6.5	8	0.54
-3		3	1.2	0.50	0.9	0.9	18		14	45	40	7.5/6.5	8	0.54	
FAB52-$\frac{8}{10}$	Rc3/8	-5	4	2.1	0.54	0.8	0.8	200 VAC 50/60 Hz	25	20	60	50	11/10	11.5	0.71
-7		7	5.2	0.41	0.15	0.15	25		20	60	50	11/10	11.5	0.71	
FAB52-$\frac{8}{10}$	Rc3/8	-5	4	2.1	0.54	0.8	0.8	220 VAC 60 Hz	25	20	60	50	11/10	11.5	0.71
-6		5	3.0	0.52	0.5	0.5	25		20	60	50	11/10	11.5	0.71	
FAB52-$\frac{8}{10}$	Rc3/8	-7	7	5.2	0.41	0.25	0.25	24 VAC 12 VDC	25	20	60	50	11/10	11.5	0.71
-7		7	5.2	0.41	0.25	0.25	25		20	60	50	11/10	11.5	0.71	

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

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

*3: 8.6 (W) for 12 VDC.

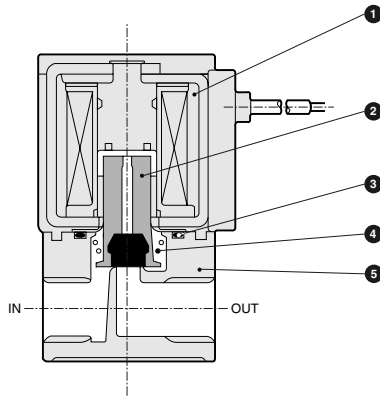
*4: Effective sectional area S and sonic conductance C are converted as $S = 5.0 \times C$.

Leakage current	Voltage	100 VAC	200 VAC	24 VDC	12 VDC
	Model no.				
	FAB1	2 mA or less	1 mA or less	1 mA or less	2 mA or less
	FAB2	3 mA or less	1.5 mA or less	1 mA or less	2 mA or less
	FAB3/4/5	6 mA or less	3 mA or less	1 mA or less	2 mA or less

FAB *1 series: NC (normally closed) type

Internal structure and parts list

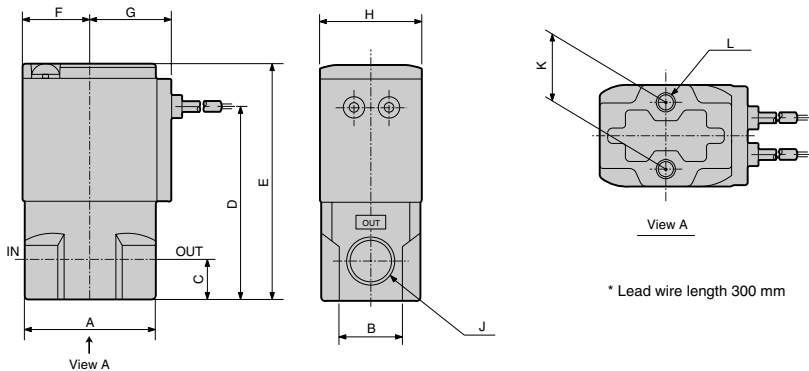
● FAB*1 Series



No.	Parts name	Material	
1	Coil assembly	-	-
2	Plunger assembly	SUS, NBR	Stainless steel, nitrile rubber
3	O ring	NBR	Nitrile rubber
4	Spring	SUS	Stainless steel
5	Body	ADC	Aluminum die cast

Dimensions (Page 114)

● Grommet lead wire type
FAB*1-*-*-*2C



* Lead wire length 300 mm

Model no.	A	B	C	D	E	F	G	H	J	K	L
FAB11	25	14	5	34	43.5	13	17	18	M5	10	M4 depth 5.5
FAB21	32	16	8	43	54	15.5	19.5	22	Rc1/8	15	M4 depth 6
FAB31	36	18	11	53.5	65.5	18.5	22.5	28	Rc1/8, Rc1/4	18	M5 depth 6
FAB41	40	25	12	62	76	22.5	26	34	Rc1/4, Rc3/8	18	M5 depth 7
FAB51	50	30	15	74.5	90.5	26	29.5	40	Rc3/8, Rc1/2	20	M5 depth 8

FAB *1 series: NC (normally closed) type

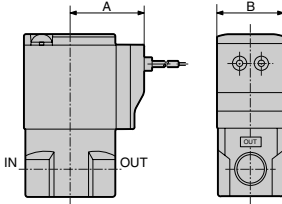
Optional dimensions



(Page 114)

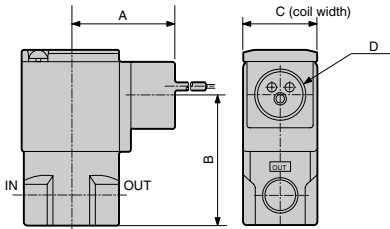
(Refer to the grommet lead wire type dimensions on the left page for common dimensions.)

- Grommet lead wire with surge suppressor
FAB*1-***-2CS



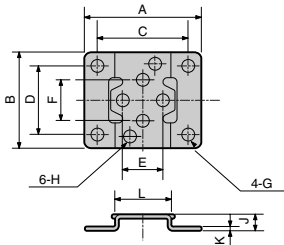
Model no.	A	B
FAB11	24.5	18
FAB21	26.5	22
FAB31	29.5	28
FAB41	34	34
FAB51	37.5	40

- Conduit (CTC19, G1/2)
FAB*1-***-2CG
FAB*1-***-2CH



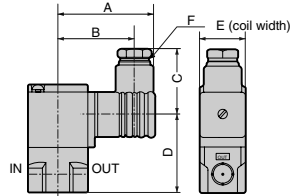
Model no.	A	B	C	D
FAB31	39	48.5	28	CTC19 G1/2
FAB41	43	57.5	34	CTC19 G1/2
FAB51	46.5	71.5	40	CTC19 G1/2

- Mounting plate
FAB*1-***-**B



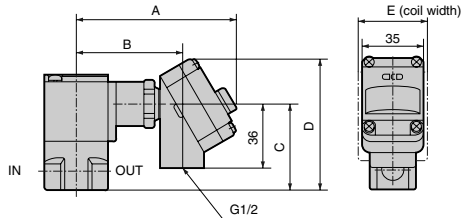
Model no.	A	B	C	D	E	F	G	H	J	K	L
FAB11	40	30	30	21	10	10	ø5	ø4.5	6	1.2	19
FAB21	40	34	30	25	15	15	ø5	ø4.5	6	1.2	20
FAB31	52	42	40	30	18	18	ø6	ø5.5	7	1.6	25
FAB41	56	48	44	36	18	18	ø6	ø5.5	7	1.6	30
FAB51	62	50	50	38	20	20	ø6	ø5.5	7	1.6	36

- DIN terminal box (with light and surge suppressor)
FAB*1-***-2G
FAB*1-***-2HS



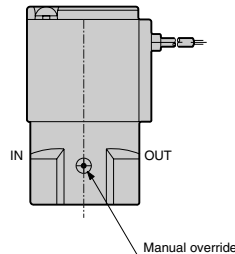
Model no.	A	B	C	D	E	F
FAB11	36	28.5	22	32	18	G1/4
FAB21	53	44	38	36.5	22	Pg 9
FAB31	58.5	47	39	47	28	Pg11
FAB41	62	50.5	39	55.5	34	Pg11
FAB51	65.5	54	39	70	40	Pg11

- T type terminal box (with light and surge suppressor) (G1/2)
FAB*1-***-3T
FAB*1-***-3RS



Model no.	A	B	C	D	E
FAB31	92	60.5	48.5	74.5	28
FAB41	96	64.5	57.5	83.5	34
FAB51	99.5	68	71.5	97.5	40

- Manual override (locking/non-locking)
FAB*1-***-**A
FAB*1-***-**N



Note: Non-locking type is available for size variation 3, 4 and 5.

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

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For
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Other G.P.
systems

PD/FAD/
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CV/
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CPE/
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Medical
analysis

Custom
order

Special purpose valve for compressed air

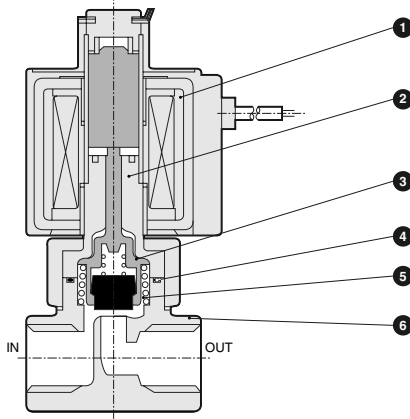
Direct acting 2 port solenoid valve

FAB Series

FAB *2 series: NC (normally closed) type

Internal structure and parts list

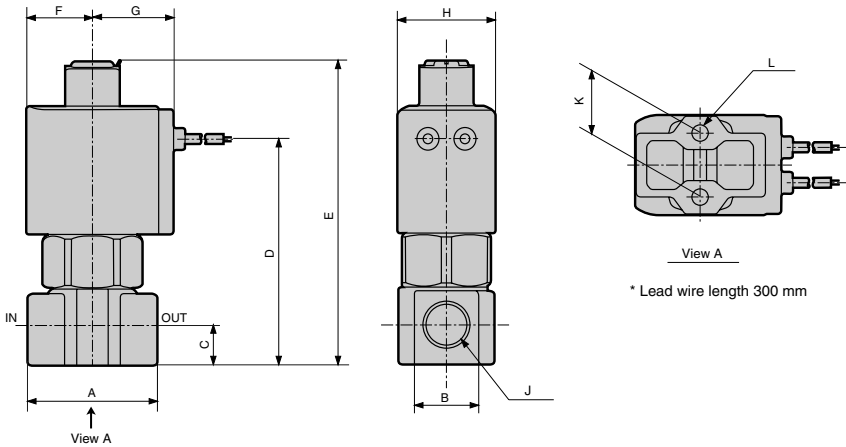
● FAB*2 Series



No.	Parts name	Material
1	Coil assembly	-
2	Core assembly	SUS, Cu Stainless steel, copper
3	Valve 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 Brass

Dimensions (Page 114)

● Grommet lead wire type
FAB*2-*-*-*2C



Model no.	A	B	C	D	E	F	G	H	J	K	L
FAB32	36	18	11	62.5	84	18.5	22.5	28	Rc1/8, Rc1/4	18	M5 depth 6
FAB42	40	21	12	71.5	96	22.5	26	34	Rc1/4, Rc3/8	18	M5 depth 8
FAB52	40	21	12	78	103.5	26	29.5	40	Rc1/4, Rc3/8	18	M5 depth 8

FAB *2 series: NC (normally closed) type

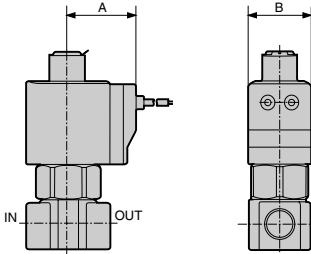
Optional dimensions



(Page 114)

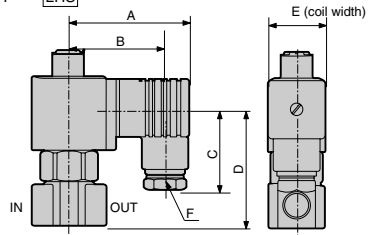
(Refer to the grommet lead wire type dimensions on the left page for common dimensions.)

- Grommet lead wire with surge suppressor
FAB*2-***-1[2CS]



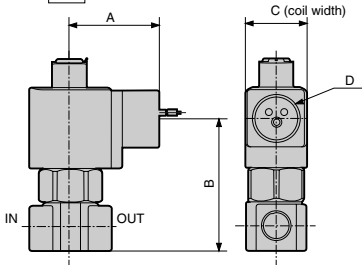
Model no.	A	B
FAB32	29.5	28
FAB42	34	34
FAB52	37.5	40

- DIN terminal box (with light and surge suppressor)
FAB*2-***-1[2G]
FAB*1-***-1[2HS]



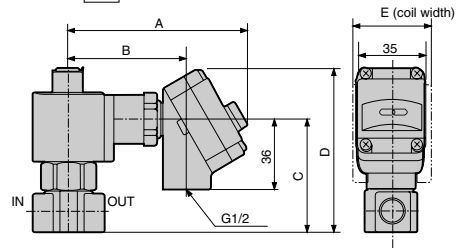
Model no.	A	B	C	D	E	F
FAB32	58.5	47	39	56.5	28	Pg11
FAB42	62	50.5	39	65	34	Pg11
FAB52	65.5	54	39	73.5	40	Pg11

- Conduit (CTC19, G1/2)
FAB*2-***-1[2CG]
FAB*2-***-1[2CH]



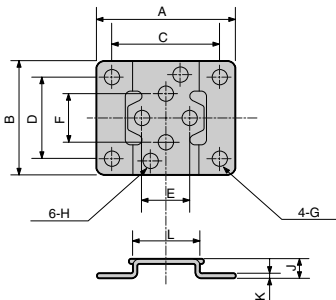
Model no.	A	B	C	D
FAB32	39	58	28	CTC19 G1/2
FAB42	43	67	34	CTC19 G1/2
FAB52	46.5	75	40	CTC19 G1/2

- T type terminal box (with light and surge suppressor) (G1/2)
FAB*2-***-1[3T]
FAB*2-***-1[3RS]



Model no.	A	B	C	D	E
FAB32	92	60.5	58	84	28
FAB42	96	64.5	67	93	34
FAB52	99.5	68	75	101	40

- Mounting plate
FAB*2-***-1[B]



Model no.	A	B	C	D	E	F	G	H	J	K	L
FAB32	52	42	40	30	18	18	06	05.5	7	1.6	25
FAB42/52	56	48	44	36	18	18	06	05.5	7	1.6	30

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

CV/
CVSE

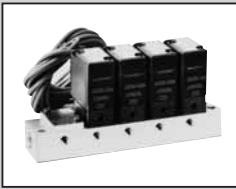
CPE/
CPD

Medical
analysis

Custom
order

Special purpose valve for compressed air

Direct acting 2 port solenoid valve



Direct acting 2 port solenoid valve, manifold for compressed air (special purpose valve)

GFAB Series

- NC (normally closed) type,
- Port size: M, Rc1/8, Rc1/4, Rc3/8

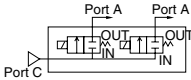


Refer to page 17 in the Ending for details.

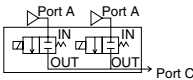


JIS symbol

- NC (normally closed) / common supply type (port C pressurization)



- NC (normally closed) / individual supply type (port A pressurization)



Common specifications

Item	GFAB
Working fluid	Compressed air
Working pressure differential range	0 to 1.4
MPa	(refer to max. working pressure differential in individual specifications.)
Withstanding pressure (water) MPa	2.1 (1.5 for GFAB11/GFAB21)
Fluid temperature °C	AC: -10 to 60, DC: -10 to 40 (no freezing)
Ambient temperature °C	AC: -20 to 40, DC: -20 to 40
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm ³ /min. (ANR)	0.2 or less
Mounting attitude	Free
Protective structure	IP65 or equivalent (Note 1)

Note 1: The T type terminal box type is IP61 or equivalent, and the GFAB11/GFAB15 compact terminal box type is IP40 or equivalent.

Individual specifications

Item	Port size		Orifice (mm)	Flow characteristics			Max. working pressure diff. MPa	Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consumption (W)			
	Model no.	Port A		Port C	C (dm ³ /sbar)					AC	DC	Holding		Starting		AC 50/60 Hz	DC
					a	b						50 Hz	60 Hz	50 Hz	60 Hz		
GFAB 11 ¹ -Z -1	M5	Rc1/8	1	0.15	0.54	0.7	0.7	1.0	100 VAC 50/60 Hz	3.4	2.6	5.0	4.6	2.3/1.6	3		
			1.5	0.31	0.49	1.0	1.0			5.3	3.7	10	9	2.7/2	4		
GFAB 21 ² -1 -2	Rc1/8	Rc1/8	2	0.53	0.38	0.6	0.6	1.0	110 VAC 60 Hz	7.5	5.5	20	17	4/3.4	6.5		
			2	0.55	0.48	1.4	1.4										
GFAB 31 ³ -1 -3	Rc1/4	Rc3/8	3	1.2	0.39	1.0	0.6	1.4	200 VAC 50/60 Hz	15	11	40	35	7.5/6.5	8		
			3	1.2	0.39	1.4	1.4										
			4	2.1	0.34	1.0	0.9										
GFAB 41 ⁴ -1 -5	Rc1/4	Rc3/8	4	2.1	0.34	1.2	1.2	1.4	220 VAC 60 Hz	20	16	55	45	11/9.5	11.5		
			4	2.1	0.34	1.2	1.2										
			5	3.0	0.22	0.7	0.8										
GFAB 51 ⁵ -1 -6	Rc1/4	Rc3/8	5	3.0	0.22	0.7	0.8	1.4	24 VAC 12 VDC	20	16	55	45	11/9.5	11.5		
			7	4.4	0.18	0.3	0.3										

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

*2: The leakage current must be less than the values shown below.

*3: Effective sectional area S and sonic conductance C are converted as S = 5.0 × C.

Leakage current	Voltage	100 VAC	200 VAC	24 VDC	12 VDC
	Model no.				
	GFAB1	2 mA or less	1 mA or less		
	GFAB2	3 mA or less	1.5 mA or less	1 mA or less	2 mA or less
	GFAB3/4/5	6 mA or less	3 mA or less		

How to order

● Manifold

G F A B 3 1 - 2 - 7 - 1 2C N - 1

● Manifold with masking plate

G F A B 2 5 - 1 - X - 1 2G N - 2 - 5 2

No. of port
(2 port valve)

Working fluid
(compressed air)

A Size variation

B Circuit structure

C Orifice

D Station no.
*1
*2

E Body/sealant combination

F Coil option
*3
*4
*5

G Manual override

H Voltage
*6

I No. of solenoid valves
*7

J No. of masking plates

Model no.				
GFAB	GFAB	GFAB	GFAB	GFAB
11	21	31	41	51
15	25	35	45	55

Symbol	Descriptions					
A Size variation						
1	18 mm	●				
2	22 mm		●			
3	28 mm			●		
4	34 mm				●	
5	40 mm					●

B Circuit structure						
1	NC (normally closed) / common supply type	●	●	●	●	●
5	NC (normally closed) / individual supply type	●	●	●	●	●

C Orifice						
Z	ø1	●				
1	ø1.5	●	●			
2	ø2			●		
3	ø3				●	
5	ø4					●
6	ø5				●	●
7	ø7					●

D Station no.						
2	2 stations					
to	to	●	●	●	●	●
10	10 stations					
0	Actuator only	●	●	●	●	●
X	With masking plate	●	●	●	●	●

E Body/sealant combination				
	Body	Sealant		
1	PPS	NBR	●	●

F Coil option						
2C	Std.	Grommet lead wire	●	●	●	●
2CS	Option	Grommet lead wire with surge suppressor	●	●	●	●
2G	Option	DIN terminal box (Pg11)	●	●	●	●
2HS	Option	DIN terminal box with light and surge suppressor (Pg11)	●	●	●	●
2CG	Option	Conduit (CTC19)		●	●	●
2CH	Option	Conduit (G1/2)		●	●	●
3T	Option	T type terminal box (G1/2)			●	●
3RS	Option	T type terminal box with light			●	●

G Manual override						
Blank	Std.	None	●	●	●	●
N	Option	Manual non-locking type	●	●	●	●

H Voltage						
1	100 VAC 50/60 Hz, 110 VAC 60 Hz	●	●	●	●	●
2	200 VAC 50/60 Hz, 220 VAC 60 Hz	●	●	●	●	●
3	24 VDC	●	●	●	●	●
4	12 VDC	●	●	●	●	●

For voltages other than above, directly write in the voltage.

I No. of solenoid valves						
Blank	No masking plate		●	●	●	●
1	One solenoid valve		●	●	●	●
to	to		●	●	●	●
9	Nine solenoid valves		●	●	●	●

J No. of masking plates						
Blank	No masking plate		●	●	●	●
1	One masking plate		●	●	●	●
to	to		●	●	●	●
9	Nine masking plates		●	●	●	●

Select from the combinations indicated with ● above.

<Example of model number>

GFAB31-2-7-12CN-1
Model no.: GFAB

- A** Size variation: 28 mm
- B** Circuit structure: NC (normally closed)/common supply type
- C** Orifice: ø2
- D** Station no.: 7 stations
- E** Body/sealant combination: Body - PPS, sealant - NBR
- F** Coil option: Grommet lead wire
- G** Manual override: Manual non-locking type
- H** Voltage: 100 VAC 50/60Hz, 110 VAC 60Hz
- I** **J**: No masking plate

⚠ Note on model no. selection

- *1: For station no., select the number of stations from 2 to 10.
- *2: For the type with masking plate, designate **D** as X, then designate the numbers of solenoid valves **I** and masking plates **J**.
- *3: For GFAB11/15 **F** 2G, the compact terminal box (G1/4) is used.
- *4: For GFAB21/25 **F** G/2HS, the compact terminal box (Pg9) is used.
- *5: For **E** 2CS, the surge suppressor is built into the coil, and for 2HS/3RS, it is built into the terminal box.
- *6: Some voltages are not available. Contact CKD for details.
- *7: Solenoid valves are arranged from the right side facing the sub-plate (individual) port A.
- *8: Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

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

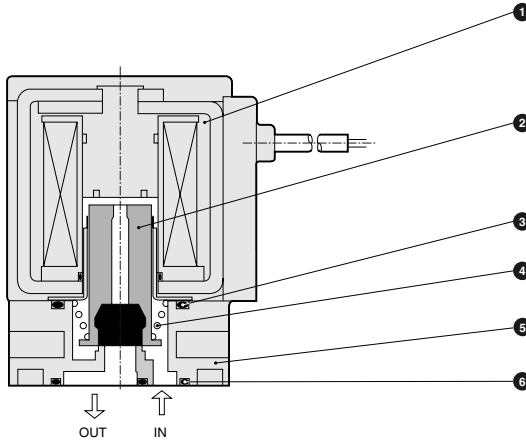
Custom order

Special purpose valve for compressed air

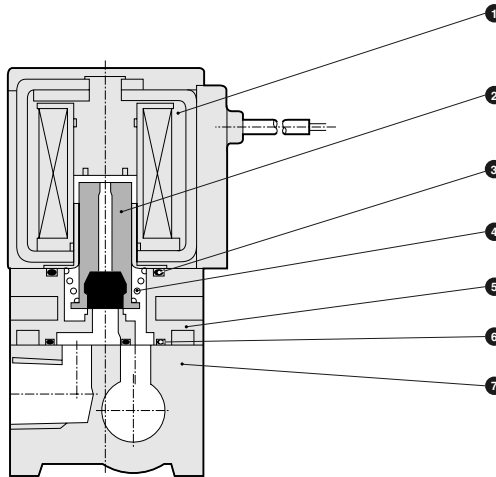
Direct acting 2 port solenoid valve

Internal structure and parts list

● GFAB Actuator




● GFAB Manifold

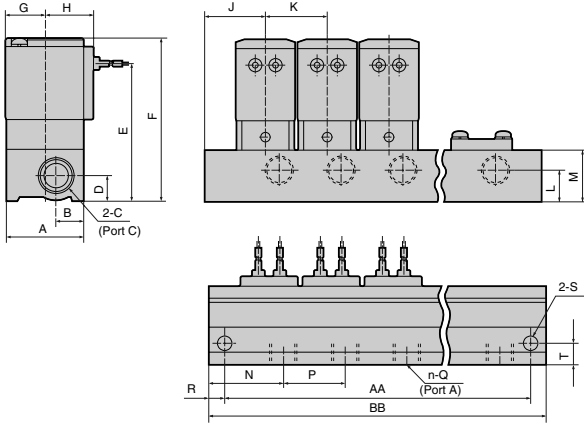


No.	Parts name	Material	No.	Parts name	Material
1	Coil assembly	—	5	Body	PPS Polyphenylene sulfide
2	Plunger assembly	SUS, NBR Stainless steel, nitrile rubber	6	Gasket	NBR Nitrile rubber
3	O ring	NBR Nitrile rubber	7	Sub-plate	A6063 Aluminum
4	Spring	SUS Stainless steel			

Dimensions: Manifold

 (Page 114)

- Grommet lead wire type
GFAB**-*-12C




Lead wire length 300 mm

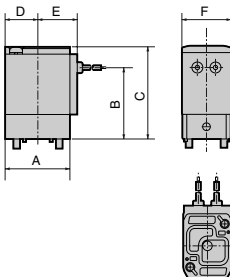
Model no.	Valve symbol	2	3	4	5	6	7	8	9	10
GFAB1	AA	48	68	88	108	128	148	168	188	208
	BB	58	78	98	118	138	158	178	198	218
GFAB2	AA	58	84	110	136	162	188	214	240	266
	BB	68	94	120	146	172	198	224	250	276
GFAB3	AA	74	106	138	170	202	234	266	298	330
	BB	88	120	152	184	216	248	280	312	344
GFAB4	AA	86	124	162	200	238	276	314	352	390
	BB	100	138	176	214	252	290	328	366	404
GFAB5	AA	100	146	192	238	284	330	376	422	468
	BB	114	160	206	252	298	344	390	436	482

Model no.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
GFAB1	25	10		8	44.5	54	13	17	19	20	11	16	21.5	20	M5	5	ø4.5	6.5
GFAB2	30	12	Rc1/8	8	49	60	15.5	19.5	21	26	8	16	25	26	Rc1/8	5	ø4.5	9
GFAB3	36	13	Rc3/8	12	64	76	18.5	22.5	28	32	15	24	34.5	32	Rc1/4	7	ø6.5	10
GFAB4	43	18	Rc3/8	12	71	85	22.5	26	31	38	15	24	31	38	Rc1/4	7	ø6.5	11.5
GFAB5	50	20	Rc3/8	12	79	95	26	29.5	34	46	12	24	34	46	Rc1/4	7	ø6.5	14

Dimensions: Actuator

 (Page 114)

- Grommet lead wire type
GFAB**-*-0-12C



* Lead wire length 300 mm

Model no.	A	B	C	D	E	F
GFAB1	25	28.5	38	13	17	18
GFAB2	30	33	44	15.5	19.5	22
GFAB3	36	40	52	18.5	22.5	28
GFAB4	43	47	61	22.5	26	34
GFAB5	50	55	71	26	29.5	40

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

CV/E/
CVSE

CPE/
CPD

Medical
analysis

Custom
order

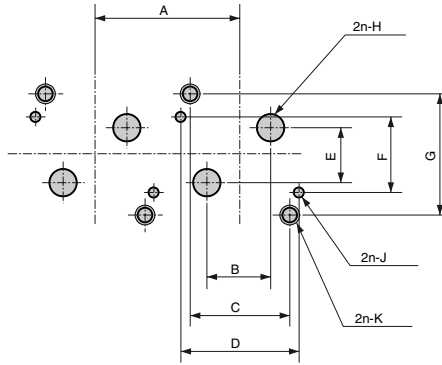
Special
purpose valve for compressed air

Direct acting 2 port solenoid valve

Mounting dimensions of actuator

● GFAB1*/2*/3*

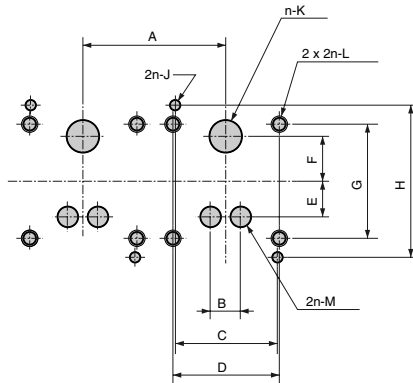
Machining drawing when using 2 actuators



Model no.	A	B	C	D	E	F	G	H	J	K
GFAB1	20 or more	5±0.15	12.4±0.1	14.4±0.1	10±0.15	11.2±0.1	17±0.1	ø3 or less	ø1.6 ^{+0.1} / ₀ depth 2.5±0.5	M2.5 effective thread depth 5.5 or more
GFAB2	26 or more	8±0.15	15.5±0.1	18.4±0.1	10±0.15	12.4±0.1	19.4±0.1	ø3.5 or less	ø1.6 ^{+0.1} / ₀ depth 2.5±0.5	M3 effective thread depth 6 or more
GFAB3	32 or more	13±0.15	20±0.1	23.6±0.1	11.4±0.15	15±0.1	24.2±0.1	ø5 or less	ø2.1 ^{+0.1} / ₀ depth 2.5±0.5	M4 effective thread depth 5.5 or more

● GFAB4*/5*

Machining drawing when using 2 actuators



Model no.	A	B	C	D	E	F	G	H	J	K	L	M
GFAB4	38 or more	7±0.2	25±0.1	26±0.1	8.8±0.2	11±0.2	28±0.1	37±0.1	ø2.6 ^{+0.1} / ₀ depth 2.5±0.5	ø8 or less	M4 effective thread depth 9 or more	ø5 or less
GFAB5	46 or more	8±0.2	30±0.1	30±0.1	11.5±0.2	14.5±0.2	33±0.1	43±0.1	ø2.6 ^{+0.1} / ₀ depth 2.5±0.5	ø11 or less	M5 effective thread depth 8 or more	ø7 or less

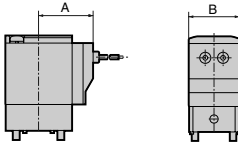
Optional dimensions



(Page 114)

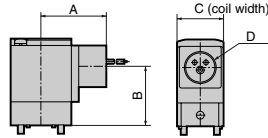
(Refer to the grommet lead wire type dimensions in page 35 for common dimensions.)

- Grommet lead wire with surge suppressor
GFAB***-1[2CS]



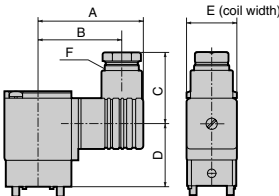
Model no.	A	B
GFAB1	24.5	18
GFAB2	26.5	22
GFAB3	29.5	28
GFAB4	34	34
GFAB5	37.5	40

- Conduit (CTC19, G1/2)
GFAB***-1[2CG]
[2CH]



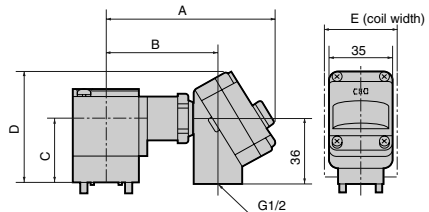
Model no.	A	B	C	D
GFAB3	39	35	28	CTC19 G1/2
GFAB4	43	42.5	34	CTC19 G1/2
GFAB5	46.5	52	40	CTC19 G1/2

- DIN terminal box (with light and surge suppressor)
GFAB***-1[2G]
[2HS]



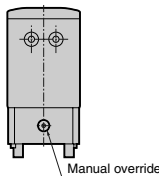
Model no.	A	B	C	D	E	F
GFAB1	36	28.5	22	26.5	18	G1/4
GFAB2	53	44	38	26.5	22	Pg9
GFAB3	58.5	47	39	33.5	28	Pg11
GFAB4	62	50.5	39	40.5	34	Pg11
GFAB5	65.5	54	39	50.5	40	Pg11

- T type terminal box (with light and surge suppressor) (G1/2)
GFAB***-1[3T]
[3RS]



Model no.	A	B	C	D	E
GFAB4	96	64.5	42.5	68.5	34
GFAB5	99.5	68	52	78	40

- Manual override (non-locking)
GFAB***-1[N]



Position of manual override

- Common supply type: Opposite side of port A
- Individual supply type: Port A side

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

CV/
CVSE

CPE/
CPD

Medical
analysis

Custom
order

Special purpose valve for compressed air
Direct acting 2 port solenoid valve



Discrete direct acting 3 port solenoid valve for compressed air (special purpose valve)

FAG Series

- Universal type, NC pressurization type
- Port size: M5, Rc1/8, Rc1/4, Rc3/8



Refer to page 17 in the Ending for details.



JIS symbol

- Universal type



- NC pressurization type



Common specifications

Item	FAG
Working fluid	Compressed air
Working pressure differential range MPa	0 to 1.4 (refer to max. working pressure differential in individual specifications.)
Withstanding pressure (water) MPa	2.1 (1.5 for FAG11/FAG21)
Fluid temperature °C	AC: -10 to 60, DC: -10 to 40 (no freezing)
Ambient temperature °C	AC: -20 to 60, DC: -20 to 40
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm ³ /min. (ANR)	0.2 or less
Mounting attitude	Free
Protective structure	IP65 or equivalent (Note 1)

Note 1: The T type terminal box type is IP61 or equivalent, and the FAB11 compact terminal box type is IP40 or equivalent.

Individual specifications

Item Model no.	Port size	Orifice (mm)	Flow characteristics		Max. working pressure differential MPa	Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
			C (dm ³ /s/bar)	b				Holding		Starting		AC 30 Hz/60 Hz	DC	
								50 Hz	60 Hz	30 Hz	60 Hz			
● Universal type														
FAG11- M5 -Y -0	M5	0.8	0.08	0.61	0.7	1.0	100 VAC 50/60 Hz	3.4	2.6	5	4.6	2.3/1.6	3	0.09
		1.5	0.28	0.40	0.2			5.3	3.7	10	9	2.7/2	4	0.14
FAG21- 6 -Z -1	Rc1/8	1	0.13	0.58	0.7	1.0	110 VAC 60 Hz	7.5	5.5	20	17	4/3.4	6.5	0.23
		2	0.52	0.54	0.15			7.5	5.5	20	17	4/3.4	6.5	0.23
FAG31- 6/8 -0 -1 -4	Rc1/8	1.5	0.32	0.58	0.7	1.4	200 VAC 50/60 Hz	15	11	40	35	7.5/6.5	8	0.43
	Rc1/4	2	0.55	0.48	0.4			15	11	40	35	7.5/6.5	8	0.43
	Rc3/8	3	1.2	0.57	0.2			20	16	55	45	11/9.5	11.5	0.63
FAG41- 8/10 -1 -4 -8	Rc1/4	2	0.55	0.48	0.15	1.4	220 VAC 60 Hz	20	16	55	45	11/9.5	11.5	0.63
	Rc3/8	3	1.2	0.57	0.3			20	16	55	45	11/9.5	11.5	0.63
	Rc1/4	2	0.55	0.48	0.15 (0.6)			20	16	55	45	11/9.5	11.5	0.63
	Rc3/8	3	1.2	0.57	0.6 (0.3)			20	16	55	45	11/9.5	11.5	0.63
FAG51- 8/10 -1 -4 -8	Rc1/4	2	0.55	0.48	0.3 (0.15)	1.4	24 VDC 12 VDC	20	16	55	45	11/9.5	11.5	0.63
	Rc3/8	3	1.2	0.57	0.6 (0.3)			20	16	55	45	11/9.5	11.5	0.63
	Rc1/4	2	0.55	0.48	0.15			20	16	55	45	11/9.5	11.5	0.63
	Rc3/8	3	1.2	0.57	0.6 (0.3)			20	16	55	45	11/9.5	11.5	0.63
● NC pressurization type														
FAG33- 6/8 -0 -1 -4	Rc1/8	1.5	0.32	0.58	1.0	1.4	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC	7.5	5.5	20	17	4/3.4	6.5	0.23
	Rc1/4	2	0.55	0.48	0.7			7.5	5.5	20	17	4/3.4	6.5	0.23
	Rc1/4	3	1.2	0.57	0.3			15	11	40	35	7.5/6	8	0.43
FAG43- 8/10 -1 -4 -8	Rc1/4	2	0.55	0.48	1.2	1.4	50/60 Hz 220 VAC 60 Hz 24 VDC 12 VDC	15	11	40	35	7.5/6	8	0.43
	Rc3/8	3	1.2	0.57	0.6			15	11	40	35	7.5/6	8	0.43
	Rc3/8	4	2.1	0.48	0.3			15	11	40	35	7.5/6	8	0.43

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

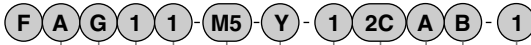
*2: The max. working pressure differential for FAG51 at NO pressurization is shown in parentheses.

*3: The leakage current must be less than the values shown on the right.

*4: Effective sectional area S and sonic conductance C are converted as S = 5.0 × C.

Leakage current	Voltage	100 VAC		200 VAC		24 VDC		12 VDC	
	Model no.								
	FAG1	2 mA or less		1 mA or less		1 mA or less		2 mA or less	
	FAG2	3 mA or less		1.5 mA or less		1 mA or less		2 mA or less	
	FAG3/4/5	6 mA or less		3 mA or less		1 mA or less		2 mA or less	

How to order



No. of port
(3 port valve)

Working fluid
(compressed air)

A Size variation

B Actuation

C Port size

D Orifice

E Body/sealant combination

F Coil option

*1
*2
*3

G Manual override

H Other options

I Voltage

*4

Symbol	Descriptions	Model no.				
		FAG11	FAG21	FAG31	FAG41	FAG51
A Size variation						
1	18 mm	●				
2	22 mm		●			
3	28 mm			●		
4	34 mm				●	
5	40 mm					●
B Actuation						
1	Universal type	●	●	●	●	●
3	NC pressurization type			●	●	
C Port size						
M5	M5	●				
6	Rc1/8		●	●		
8	Rc1/4			●	●	
10	Rc3/8				●	●
D Orifice						
Y	ø0.8	●				
Z	ø1		●			
0	ø1.5	●		●		
1	ø2			●	●	●
4	ø3				●	●
8	ø4				●	●
E Body/sealant combination						
	Body	Sealant				
1	Aluminum	NBR		●	●	●
F Coil option						
2C	Grommet lead wire	●	●	●	●	●
2CS	Grommet lead wire with surge suppressor	●	●	●	●	●
2G	DIN terminal box (Pg11)	●	●	●	●	●
2HS	DIN terminal box with light and surge suppressor (Pg11)		●	●	●	●
2CG	Conduit (CTC19)			●	●	●
2CH	Conduit (G1/2)			●	●	●
3T	T type terminal box (G1/2)			●	●	●
3RS	T type terminal box with light and surge suppressor (G1/2)			●	●	●
G Manual override						
Blank	Std. None	●	●	●	●	●
A	Option Manual locking type	●	●	●	●	●
N		Manual non-locking type			●	●
H Other options						
Blank	Std. None	●	●	●	●	●
B	Option Mounting plate	●	●	●	●	●
I Voltage						
1	100 VAC 50/60 Hz, 110 VAC 60 Hz	●	●	●	●	●
2	200 VAC 50/60 Hz, 220 VAC 60 Hz	●	●	●	●	●
3	24 VDC					
4	12 VDC	●	●	●	●	●
For voltages other than above, directly write in the voltage.						

Select from the combinations indicated with ● above.

<Example of model number>

FAG11-M5-Y-12CAB-1
Model no.: FAG

- A** Size variation: 18 mm
- B** Actuation: Universal type
- C** Port size: M5
- D** Orifice: ø0.8
- E** Body/sealant combination:
Body - aluminum, sealant - NBR
- F** Coil option: Grommet lead wire
- G** Manual override: Manual non-locking type
- H** Other options: Mounting plate
- I** Voltage: 100 VAC 50/60Hz, 110 VAC 60Hz

⚠ Note on model no. selection

- *1: For FAG11 ● 2G, the compact terminal box (G1/4) is used.
- *2: For FAG21 ● 2G/2HS, the compact terminal box (Pg9) is used.
- *3: For ● 2CS, the surge suppressor is built into the coil, and for 2HS/3RS, it is built into the terminal box.
- *4: Some voltages are not available. Contact CKD for details.

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

CVB/CVSE

CPE/CPD

Medical analysis

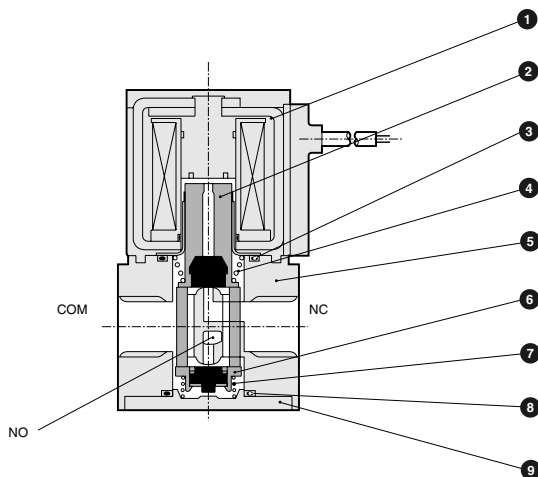
Custom order

Special purpose valve for compressed air

Direct acting 3 port solenoid valve

Internal structure and parts list

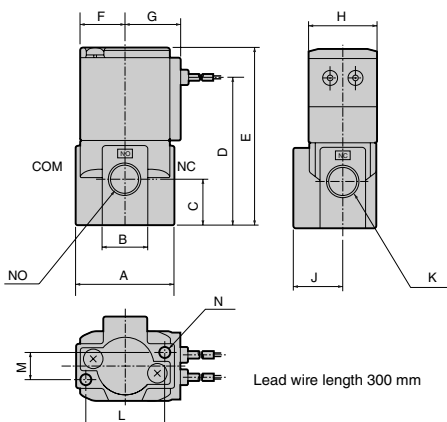
● FAG*1~*3 Series



No.	Parts name	Material	No.	Parts name	Material
1	Coil assembly	—	6	Valve element guide assembly	PPS, SUS, NBR Polyphenylene sulfide, stainless steel, nitrile rubber
2	Plunger assembly	SUS, NBR Stainless steel, nitrile rubber	7	Spring	SUS Stainless steel
3	O ring	NBR Nitrile rubber	8	O ring	NBR Nitrile rubber
4	Spring	SUS Stainless steel	9	Cover	ADC Aluminum die cast
5	Body	ADC Aluminum die cast			

Dimensions (Page 114)

● Grommet lead wire type
FAG**-*-12C



Model no.	A	B	C	D	E	F	G	H	J	K	L	M	N
FAG1	28	14	13.5	42	51.5	13	17	18	12	M5 x 0.8	21	7	M4 depth 5.5
FAG2	32	16	16.5	51	62	15.5	19.5	22	16	Rc1/8	25	8	M4 depth 6
FAG3	40	18	18.5	60.5	72.5	18.5	22.5	28	20	Rc1/8 Rc1/4	32	11	M5 depth 8
FAG4	45	25	25	74.5	88.5	22.5	26	34	21	Rc1/4 Rc3/8	35	15	M5 depth 8
FAG5	50	25	25	81	97	26	29.5	40	21	Rc1/4 Rc3/8	35	15	M5 depth 8

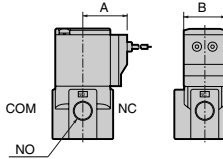
Optional dimensions



(Page 114)

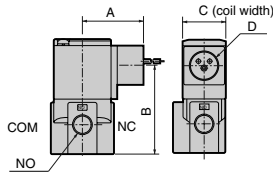
(Refer to the grommet lead wire type dimensions on the left page for common dimensions.)

- Grommet lead wire with surge suppressor
FAG***-1[12CS]



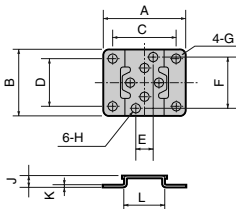
Model no.	A	B
FAG1	24.5	18
FAG2	26.5	22
FAG3	29.5	28
FAG4	34	34
FAG5	37.5	40

- Conduit (CTC19, G1/2)
FAG**/*/*1[2CG
2CH]



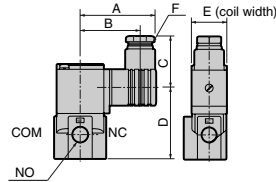
Model no.	A	B	C	D
FAG3	39	55.5	28	CTC19 G1/2
FAG4	43	70	34	CTC19 G1/2
FAG5	46.5	78	40	CTC19 G1/2

- Mounting plate
FAG***-1**[B]



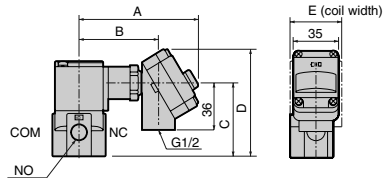
Model no.	A	B	C	D	E	F	G	H	J	K	L
FAG1	40	30	30	21	7	21	ø5	ø4.5	6	1.2	19
FAG2	40	34	30	25	8	25	ø5	ø4.5	6	1.2	20
FAG3	52	42	40	30	11	32	ø6	ø5.5	7	1.6	25
FAG4	56	48	44	36	15	35	ø6	ø5.5	7	1.6	30
FAG5	62	50	50	38	15	35	ø6	ø5.5	7	1.6	36

- DIN terminal box (with light and surge suppressor)
FAG***-1[2G
2HS]



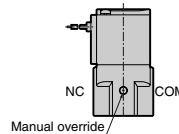
Model no.	A	B	C	D	E	F
FAG1	36	28.5	22	40	18	G1/4
FAG2	53	44	38	44.5	22	Pg9
FAG3	58.5	47	39	54	28	Pg11
FAG4	62	50.5	39	68	34	Pg11
FAG5	65.5	54	39	76.5	40	Pg11

- T type terminal box (with light and surge suppressor) (G1/2)
FAG**/*/*1[3T
3RS]



Model no.	A	B	C	D	E
FAG3	92	60.5	55.5	81.5	28
FAG4	96	64.5	70	96	34
FAG5	99.5	68	78	104	40

- Manual override (locking/non-locking)
FAG***-1*[A
N]



Note: Non-locking type is available for size variation 3, 4 and 5.

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

Special purpose valve for compressed air

Direct acting 3 port solenoid valve



Direct acting 2 port solenoid valve for compressed air, manifold (special purpose valve)

GFAG Series

- Universal type
- Port size: M5, Rc1/8, Rc1/4

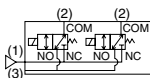


Refer to page 17 in the Ending for details.



JIS symbol

- Common supply / common exhaust type



Common specifications

Item	GFAG
Working fluid	Compressed air
Working pressure	0 to 1.2
differential range MPa	(refer to max. working pressure differential in individual specifications.)
Withstanding pressure (water) MPa	1.8 (1.5 for GFAG11/GFAG21/GFAG31)
Fluid temperature °C	AC: -10 to 60, DC: -10 to 40 (no freezing)
Ambient temperature °C	AC: -20 to 40, DC: -20 to 40
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm ³ /min. (ANR)	0.2 or less
Mounting attitude	Free
Protective structure	IP65 or equivalent (Note 1)

Note 1: The T type terminal box type is IP61 or equivalent, and the GFAB11 compact terminal box type is IP40 or equivalent.

Individual specifications

Item Model no.	Port size		Orifice (mm)	Flow characteristics		Max. working pressure differential MPa	Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consumption (W)				
	Port 2 (individual)	Port 1/3 (common)		C [dm ³ /s/bar]	b				Holding		Starting		AC 50/60 Hz	DC			
									50 Hz	60 Hz	50 Hz	60 Hz					
GFAG11 -Y -0	M5	Rc1/8	0.8	0.08	0.55	0.7	1.0	100 VAC 50/60 Hz	3.4	2.6	5	4.6	2.3/1.6	3			
			1.5	0.25	0.29	0.2			5.3	3.7	10	9	2.7/2	4			
GFAG21 -Z -1	Rc1/8	Rc1/8	1	0.12	0.44	0.7			110 VAC 60 Hz	7.5	5.5	20	17	4/3.4	6.5		
			2	0.42	0.19	0.15				200 VAC 50/60 Hz	15	11	40	35	7.5/6.5	8	
GFAG31 -0 -1 -4	Rc1/4	Rc1/4	1.5	0.28	0.46	0.7		1.2									220 VAC 60 Hz
			2	0.49	0.36	0.4				24 VAC 12 VDC							
GFAG41 -1 -4 -8	Rc1/4	Rc1/4	2	0.50	0.31	0.7			1.2		220 VAC 60 Hz	20	16	55	45	11/9.5	11.5
			3	0.90	0.20	0.2											
GFAG51 -1 -4 -8	Rc1/4	Rc1/4	2	0.50	0.31	1.2 (0.6)				1.2	220 VAC 60 Hz	20	16	55	45	11/9.5	11.5
			3	1.1	0.20	0.6 (0.3)											
GFAG51 -1 -4 -8	Rc1/4	Rc1/4	4	1.6	0.14	0.3 (0.15)		1.2	220 VAC 60 Hz		20	16	55	45	11/9.5	11.5	
			4	1.6	0.14	0.3 (0.15)											

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

*2: The max. working pressure differential for GFAG51 at NO pressurization is shown in parentheses.

*3: The leakage current must be less than the values shown below.

*4: Effective sectional area S and sonic conductance C are converted as $S = 5.0 \times C$.

Leakage current	Voltage	100 VAC	200 VAC	24 VDC	12 VDC
	Model no.				
	GFAG1	2 mA or less	1 mA or less		
	GFAG2	3 mA or less	1.5 mA or less	1 mA or less	2 mA or less
	GFAG3/4/5	6 mA or less	3 mA or less		

How to order

● Manifold

G F A G 2 1 - Z - 5 - 1 2C N - 1

● Manifold with masking plate

G F A G 3 1 - 1 - X - 1 2G N - 2 - 4 1

No. of port
(3 port valve)

Working fluid
(compressed air)

A Size variation

B Circuit structure

C Orifice

D Station no.

*1
*2

E Body/sealant combination

F Coil option

*3
*4
*5

G Manual override

H Voltage

*6

I No. of solenoid valves

*7

J No. of masking plates

<Example of model number>

GFAG21-Z-5-12CN-1

Model no.: GFAG

- A** Size variation: 22 mm
- B** Circuit structure: Common supply / common exhaust type
- C** Orifice: $\phi 1$
- D** Station no.: 5 stations
- E** Body/sealant combination:
Body - PPS, sealant - NBR
- F** Coil option: Grommet lead wire
- G** Manual override: Manual non-locking type
- H** Voltage: 100 VAC 50/60Hz, 110 VAC 60Hz
- I** **J** : No masking plate

⚠ Note on model no. selection

- *1: For station no., select the number of stations from 2 to 10.
- *2: For the type with masking plate, designate **I** as X, then designate the numbers of solenoid valves **I** and masking plates **J**.
- *3: For GFAG11 **F** 2G, the compact terminal box (G1/4) is used.
- *4: For GFAG21 **F** 2G/2HS, the compact terminal box (Pg9) is used.
- *5: For **F** 2CS, the surge suppressor is built into the coil, and for 2HS/3RS, it is built into the terminal box.
- *6: Some voltages are not available. Contact CKD for details.
- *7: Solenoid valves are arranged from the right side facing the sub-plate (individual) port A.
- *8: Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

Model no.

GFAG11	GFAG21	GFAG31	GFAG41	GFAG51
--------	--------	--------	--------	--------

Symbol	Descriptions	GFAG11	GFAG21	GFAG31	GFAG41	GFAG51
A Size variation						
1	18 mm	●				
2	22 mm		●			
3	28 mm			●		
4	34 mm				●	
5	40 mm					●

B Circuit structure						
1	Common supply / common exhaust type	●	●	●	●	●

C Orifice						
Y	$\phi 0.8$		●			
Z	$\phi 1$			●		
O	$\phi 1.5$		●		●	
1	$\phi 2$			●	●	●
4	$\phi 3$				●	●
8	$\phi 4$					●

D Station no.						
2	2 stations					
to	to	●	●	●	●	●
10	10 stations					
O	Actuator only	●	●	●	●	●
X	With masking plate	●	●	●	●	●

E Body/sealant combination						
1	Body	Sealant				
	PPS	NBR	●	●	●	●

F Coil option						
2C	Std.	Grommet lead wire	●	●	●	●
2CS		Grommet lead wire with surge suppressor	●	●	●	●
		DIN terminal box (Pg11)	●	●	●	●
2HS		DIN terminal box with light and surge suppressor (Pg11)	●	●	●	●
		Conduit (CTC19)			●	●
2CH		Conduit (G1/2)			●	●
3T		T type terminal box (G1/2)			●	●
3RS		T type terminal box with light and surge suppressor (G1/2)			●	●

G Manual override						
Blank	Std.	None	●	●	●	●
	N	Manual non-locking type	●	●	●	●

H Voltage						
1	100 VAC 50/60 Hz, 110 VAC 60 Hz	●	●	●	●	●
2	200 VAC 50/60 Hz, 220 VAC 60 Hz	●	●	●	●	●
3	24 VDC		●	●	●	●
4	12 VDC		●	●	●	●

For voltages other than above, directly write in the voltage.

I No. of solenoid valves						
Blank	No masking plate	●	●	●	●	●
1	One solenoid valve					
to	to	●	●	●	●	●
9	Nine solenoid valves					

J No. of masking plates						
Blank	No masking plate	●	●	●	●	●
1	One masking plate					
to	to	●	●	●	●	●
9	Nine masking plates					

Select from the combinations indicated with ● above.

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

CVB/CVSE

CPE/CPD

Medical analysis

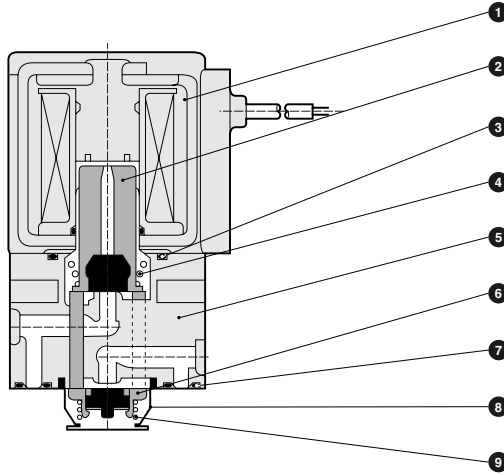
Custom order

Special purpose valve for compressed air

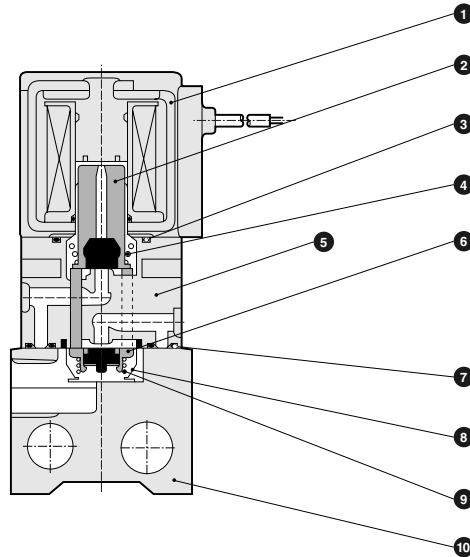
Direct acting 3 port solenoid valve

Internal structure and parts list

● GFAG Actuator

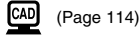


● GFAG Manifold

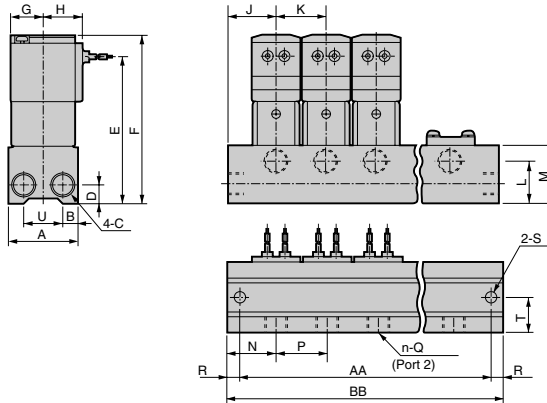


No.	Parts name	Material	No.	Parts name	Material
1	Coil assembly	-	6	Valve element guide assembly	PPS, SUS, NBR Polyphenylene sulfide, stainless steel, nitrile rubber
2	Plunger assembly	SUS, NBR Stainless steel, nitrile rubber	7	Gasket	NBR Nitrile rubber
3	O ring	NBR Nitrile rubber	8	Holder	SUS Stainless steel
4	Spring	SUS Stainless steel	9	Spring	SUS Stainless steel
5	Body	PPS Polyphenylene sulfide	10	Sub-plate	A6063 Aluminum

Dimensions: Manifold



- Grommet lead wire type
GFAG*1-*-*-12C

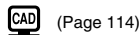


Lead wire length 300 mm

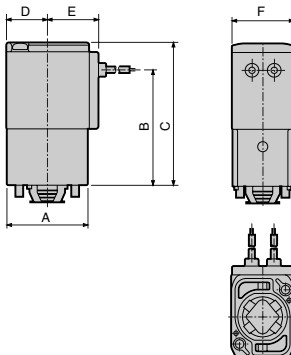
Model no.	Mounting	Ports									
		2	3	4	5	6	7	8	9	10	
GFAG1	AA	48	68	88	108	128	148	168	188	208	
	BB	58	78	98	118	138	158	178	198	218	
GFAG2	AA	58	84	110	136	162	188	214	240	266	
	BB	68	94	120	146	172	198	224	250	276	
GFAG3	AA	74	106	138	170	202	234	266	298	330	
	BB	88	120	152	184	216	248	280	312	344	
GFAG4	AA	86	124	162	200	238	276	314	352	390	
	BB	100	138	176	214	252	290	328	366	404	
GFAG5	AA	100	146	192	238	284	330	376	422	468	
	BB	114	160	206	252	298	344	390	436	482	

Model no.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
GFAG1	30	6.5	Rc1/8	8	55.5	65	13	17	19	20	16	22	18.5	20	M5	5	ø4.5	15	17
GFAG2	30	6.5	Rc1/8	8	70	81	15.5	19.5	21	26	18	27	20	26	Rc1/8	5	ø4.5	15	17
GFAG3	40	9	Rc1/4	11	84	96	18.5	22.5	28	32	24	33	27.5	32	Rc1/4	7	ø6.5	20	22
GFAG4	43	9	Rc1/4	11	93.5	107.5	22.5	26	31	38	24	33	34.5	38	Rc1/4	7	ø6.5	21.5	25
GFAG5	50	10	Rc1/4	11	100	116	26	29.5	34	46	24	33	38.5	46	Rc1/4	7	ø6.5	25	30

Dimensions: Actuator



- Grommet lead wire type
GFAG*1-*-*-0-12C



Model no.	A	B	C	D	E	F
GFAG1	25	33.5	43	13	17	18
GFAG2	30	43	54	15.5	19.5	22
GFAG3	36	51	63	18.5	22.5	28
GFAG4	43	60.5	74.5	22.5	26	34
GFAG5	50	67	83	26	29.5	40

* Lead wire length 300 mm

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

Special purpose valve for compressed air

Direct acting 3 port solenoid valve

Special Purpose Valve Series

Electronic Catalog file list

Special purpose direct acting 2, 3 port solenoid valve (special purpose valve)

Compressed air

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

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
● Discrete 2 port solenoid valve: Pages 28, 30			
FAB11	FAB	fab11	CKD-FAB11
FAB21		fab21	CKD-FAB21
FAB31		fab31	CKD-FAB31
FAB41		fab41	CKD-FAB41
FAB51		fab51	CKD-FAB51
FAB32		fab32	CKD-FAB32
FAB42		fab42	CKD-FAB42
FAB52		fab52	CKD-FAB52
● 2 port solenoid valve, manifold: Page 35			
GFAB11(5)	FAB	gfab11_5_	CKD-GFAB11(5)
GFAB21(5)		gfab21_5_	CKD-GFAB21(5)
GFAB31(5)		gfab31_5_	CKD-GFAB31(5)
GFAB41(5)		gfab41_5_	CKD-GFAB41(5)
GFAB51(5)		gfab51_5_	CKD-GFAB51(5)
● Option			
FAB1 option depth 18 mm	FAB	fab1_opt	CKD-FAB1-OPT
FAB2 option depth 22 mm		fab2_opt	CKD-FAB2-OPT
FAB3 option depth 28 mm		fab3_opt	CKD-FAB3-OPT
FAB4 option depth 34 mm		fab4_opt	CKD-FAB4-OPT
FAB5 option depth 40 mm		fab5_opt	CKD-FAB5-OPT
● Discrete 3 port solenoid valve: Page 40			
FAG11	FAG	fag11	CKD-FAG11
FAG21		fag21	CKD-FAG21
FAG31(3)		fag31_3_	CKD-FAG31(3)
FAG41(3)		fag41_3_	CKD-FAG41(3)
FAG51		fag51	CKD-FAG51
● 3 port solenoid valve, manifold: Page 45			
GFAG11	FAG	gfag11	CKD-GFAG11
GFAG21		gfag21	CKD-GFAG21
GFAG31		gfag31	CKD-GFAG31
GFAG41		gfag41	CKD-GFAG41
GFAG51		gfag51	CKD-GFAG51
● Option			
FAG1 option depth 18 mm	FAG	fag1_opt	CKD-FAG1-OPT
FAG2 option depth 22 mm		fag2_opt	CKD-FAG2-OPT
FAG3 option depth 28 mm		fag3_opt	CKD-FAG3-OPT
FAG4 option depth 34 mm		fag4_opt	CKD-FAG4-OPT
FAG5 option depth 40 mm		fag5_opt	CKD-FAG5-OPT

Special Purpose Valve Series

Electronic Catalog file list

Dry air

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

Model no.	DXF		MICRO CADAM	
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)	
● Discrete 2 port solenoid valve: Page 50				
FGB21	FGB	fgb21	CKD-FGB21	HNB/G
FGB31		fgb31	CKD-FGB31	USB/G
FGB41		fgb41	CKD-FGB41	FAB/G
FGB51		fgb51	CKD-FGB51	FGB/G
● 2 port solenoid valve, manifold: Page 55				
GFGB21(5)	FGB	gfgb21_5_	CKD-GFGB21(5)	FVB
GFGB31(5)		gfgb31_5_	CKD-GFGB31(5)	FWB/G
GFGB41(5)		gfgb41_5_	CKD-GFGB41(5)	FHB
GFGB51(5)		gfgb51_5_	CKD-GFGB51(5)	FLB
● Option				
FGB2 option depth 22 mm	FGB	fgb2_opt	CKD-FGB2-OPT	AB
FGB3 option depth 28 mm		fgb3_opt	CKD-FGB3-OPT	AG
FGB4 option depth 34 mm		fgb4_opt	CKD-FGB4-OPT	AP/AD
FGB5 option depth 40 mm		fgb5_opt	CKD-FGB5-OPT	APK/ADK
● Discrete 3 port solenoid valve: Page 60				
FGG21	FGG	fgg21	CKD-FGG21	For dry air
FGG31(3)		fgg31_3_	CKD-FGG31(3)	Explosion proof
FGG41(3)		fgg41_3_	CKD-FGG41(3)	HVB/HVL
FGG51		fgg51	CKD-FGG51	SAB/SVB
● 3 port solenoid valve, manifold: Page 65				
GFGG21	FGG	gfgg21	CKD-GFGG21	NP/NAP/NVP
GFGG31		gfgg31	CKD-GFGG31	CHB/G
GFGG41		gfgg41	CKD-GFGG41	MXB/G
GFGG51		gfgg51	CKD-GFGG51	Other G.P. systems
● Option				
FGG2 option depth 22 mm	FGG	fgg2_opt	CKD-FGG2-OPT	PDF/FAD/PJ
FGG3 option depth 28 mm		fgg3_opt	CKD-FGG3-OPT	CVE/CVSE
FGG4 option depth 34 mm		fgg4_opt	CKD-FGG4-OPT	CPE/CPD
FGG5 option depth 40 mm		fgg5_opt	CKD-FGG5-OPT	Medical analysis

Medium vacuum

Model no.	DXF		MICRO CADAM	
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)	
● Discrete 2 port solenoid valve: Page 70				
FVB21	FVB	fvb21	CKD-FVB21	Custom order
FVB31		fvb31	CKD-FVB31	Special purpose valve Direct acting 2-, 3 port solenoid valve
FVB41		fvb41	CKD-FVB41	
FVB51		fvb51	CKD-FVB51	
● 2 port solenoid valve, manifold: Page 75				
GFVB25	FVB	gfvb25	CKD-GFVB25	
GFVB35		gfvb35	CKD-GFVB35	
GFVB45		gfvb45	CKD-GFVB45	
GFVB55		gfvb55	CKD-GFVB55	
● Option				
FVB2 option depth 22 mm	FVB	fvb2_opt	CKD-FVB2-OPT	
FVB3 option depth 28 mm		fvb3_opt	CKD-FVB3-OPT	
FVB4 option depth 34 mm		fvb4_opt	CKD-FVB4-OPT	
FVB5 option depth 40 mm		fvb5_opt	CKD-FVB5-OPT	

Special Purpose Valve series

Electronic Catalog file list

Water

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

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
● Discrete 2 port solenoid valve: Pages 80, 82			
FWB21	FWB	fw_l_b21	CKD-FW(L)B21
FWB31		fw_l_b31	CKD-FW(L)B31
FWB41		fw_l_b41	CKD-FW(L)B41
FWB41-*-8		fw_l_b41___8	CKD-FW(L)B41-*-8
FWB51		fw_l_b51	CKD-FW(L)B51
FWB51-*-8		fw_l_b51___8	CKD-FW(L)B51-*-8
FWB32		fwb32	CKD-FWB32
FWB42		fwb42	CKD-FWB42
FWB52	fwb52	CKD-FWB52	
● 2 port solenoid valve, manifold: Page 87			
GFWB21	FWB	gfw_l_b21	CKD-GFW(L)B21
GFWB31		gfw_l_b31	CKD-GFW(L)B31
GFWB41		gfw_l_b41	CKD-GFW(L)B41
GFWB51		gfw_l_b51	CKD-GFW(L)B51
● Option			
FWB2 option depth 22 mm	FWB	fw_l_b2_opt	CKD-FW(L)B2-OPT
FWB3 option depth 28 mm		fw_l_b3_opt	CKD-FW(L)B3-OPT
FWB4 option depth 34 mm		fw_l_b4_opt	CKD-FW(L)B4-OPT
FWB5 option depth 40 mm		fw_l_b5_opt	CKD-FW(L)B5-OPT
● Discrete 3 port solenoid valve: Page 92			
FWG21	FWG	fwg21	CKD-FWG21
FWG31		fwg31	CKD-FWG31
FWG41		fwg41	CKD-FWG41
FWG51		fwg51	CKD-FWG51
● 3 port solenoid valve, manifold: Pages 97 to 98			
GFWG21	FWG	gfwg21	CKD-GFWG21
GFWG31		gfwg31	CKD-GFWG31
GFWG41		gfwg41	CKD-GFWG41
GFWG51		gfwg51	CKD-GFWG51
● Option			
FWG2 option depth 22 mm	FWG	fwg2_opt	CKD-FWG2-OPT
FWG3 option depth 28 mm		fwg3_opt	CKD-FWG3-OPT
FWG4 option depth 34 mm		fwg4_opt	CKD-FWG4-OPT
FWG5 option depth 40 mm		fwg5_opt	CKD-FWG5-OPT

Hot water

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
● Discrete 2 port solenoid valve: Page 103			
FHB21	FHB	fhb21	CKD-FHB21
FHB31		fhb31	CKD-FHB31
FHB41		fhb41	CKD-FHB41
FHB41-*-8		fhb41___8	CKD-FHB41-*-8
FHB51		fhb51	CKD-FHB51
FHB41-*-8		fhb41___8	CKD-FHB41-*-8

For oil

Model no.	DXF		MICRO CADAM	
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)	
● Discrete 2 port solenoid valve: Page 106				
FLB21	FLB	fw_l_b21	CKD-FW(L)B21	
FLB31		fw_l_b31	CKD-FW(L)B31	
FLB41		fw_l_b41	CKD-FW(L)B41	
FLB41-*-8		fw_l_b41___8	CKD-FW(L)B41-*-8	
FLB51		fw_l_b51	CKD-FW(L)B51	
FLB51-*-8		fw_l_b51___8	CKD-FW(L)B51-*-8	
● 2 port solenoid valve, manifold: Page 111				
GFLB21		FLB	gfw_l_b21	CKD-GFW(L)B21
GFLB31	gfw_l_b31		CKD-GFW(L)B31	
GFLB41	gfw_l_b41		CKD-GFW(L)B41	
GFLB51	gfw_l_b51		CKD-GFW(L)B51	
● Option				
FLB2 option depth 22 mm	FLB	fw_l_b2_opt	CKD-FW(L)B2-OPT	
FLB3 option depth 28 mm		fw_l_b3_opt	CKD-FW(L)B3-OPT	
FLB4 option depth 34 mm		fw_l_b4_opt	CKD-FW(L)B4-OPT	
FLB5 option depth 40 mm		fw_l_b5_opt	CKD-FW(L)B5-OPT	