

Discrete direct acting 3 port solenoid valve (general purpose valve)

AG31/AG41 Series

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







JIS symbol

AG31/41: Universal type



Common specifications

Item	Standard specifications	Optional sp	ecifications				
Working fluid	Airflow, low vacuum (1.33 x 10 ² Pa (abs)), water, kerosene, oil (50 mm ² /s or less)	Hot water	Steam				
Working pressure differential range MPa	0 to 1 (refer to max. working pressure differential in individual specifications						
Max. working pressure MPa		1					
Withstanding pressure (water) MPa	2	5					
Fluid temperature (Note 1) °C	-10 to 60	-10 to 90	-10 to 184				
Ambient temperature °C	-20 to 60 -20 to 100						
Heat proof class	В	H	I				
Atmosphere	Place free of corrosive	gas and explosive ga	as				
Valve structure	Direct acting p	oppet structure					
Valve seat leakage on 9 min. (ANR)	0.2 or less (air)	0.2 or less (air)					
Mounting attitude	Free						
Body, sealant	Brass, nitrile rubber	Brass, ethylene propylene diene rubber	Brass, PTFE				

Note 1: No freezing

Individual specifications

Item		Ori	Orifice Max. working pressure differential (MPa)					Apparent power (VA)										
	Port size	(m	ım)	A	ir	Water, hot wa	eter, kerosene	Oil (50	mm²/s)	Steam	Rated voltage	Hol	ding	Stai	ting	AC	DC	Weight
Model no.	SIZE	TOP	BODY	AC	DC	AC	DC	AC	DC	AC	voilage	50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz		(kg)
AG31-01-1	Rc1/8	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6 (0.5)	0.7	100 VAC 50/60 Hz							
-01-2	KC1/6	2.0	2.0	0.4	0.4 (0.35)	0.4	0.4	0.25	0.2 (0.15)	0.4	110 VAC	14	4 11	20	16	6/4.2	11 (8.1)	0.36
-02-1	Rc1/4	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6 (0.5)	0.7	60 Hz			20				0.30
-02-2	KC1/4	2.0	2.0	0.4	0.4 (0.35)	0.4	0.4	0.25	0.2 (0.15)	0.4	200 VAC 50/60 Hz							
AG41-02-1	De1/4	2.0	2.0	1.0	0.7 (0.45)	1.0	0.7	0.4	0.3 (0.25)	1.0	220 VAC							0.45
-02-2	Rc1/4	2.3	2.3	0.7	0.4 (0.25)	0.7	0.4	0.25	0.15 (0.1)	0.7	60 Hz 12 VDC	22	17	35	27	8.3/6.2	11	0.45
-03-1	Rc3/8	2.0	2.0	1.0	0.7 (0.45)	1.0	0.7	0.4	0.3 (0.25)	1.0	24 VDC 48 VDC	22	''	35	21	0.5/0.2	(10.4)	0.48
-03-2	KU3/8	2.3	2.3	0.7	0.4 (0.25)	0.7	0.4	0.25	0.15 (0.1)	0.7	100 VDC							0.40

^{*1:} The model numbers above show the basic port size (Rc) and orifice diameter. Refer to How to order for other combinations.

^{*2:} Refer to DC column for the max. working pressure differential of coil with diode.

^{*3:} The voltage fluctuation must be within ±10% of the rated voltage.

^{*4:} Values in () are for the type with DIN terminal box and DC voltage specifications, and indicate the max. working pressure differential when pressurizing from the

^{*5:} When continuously energizing the valve, use a fluoro rubber seal.

^{*6:} When the sealant is PTFE, the NO port cannot be pressurized.

Optional specifications (fluid temperature, ambient temperature, valve seat leakage)

Sealant	Fluoro	rubber	Ethylene propyl	ene diene rubber	PTFE		
Coil (heat proof class)	В	Н	В	Н	В	Н	
Fluid temperature (Note 1) °C	-10 to 60	-10 to 90	-10 to 60	-10 to 90	-10 to 60	-10 to 184	
Ambient temperature °C	-20 to 60	-20 to 100 (Note 2)	-20 to 60	-20 to 100 (Note 2)	-20 to 60	-20 to 100 (Note 2)	
Valve seat leakage cm9min. (ANR)		0.2 or le	300 or less (air)				

Note 1: No freezing

Note 2: The range is -20 to 80°C when using the HP terminal box with indicator light for the coil housing.

Flow characteristics

				5 1 1 1 1 1							
		Orifice	e (mm)	Flow characteristics							
Model no.	Port size	TOP	BODY	C [dm3/(s·bar)]		b		Cv flow factor			
		101	ВОВТ	TOP	BODY	TOP	BODY	TOP	BODY		
AG31-01-1	Rc1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09		
-01-2	KC1/6	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15		
-02-1	5	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09		
-02-2	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15		
AG41-02-1	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15		
-02-2	KC1/4	2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19		
-03-1	Rc3/8	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15		
-03-2	RC3/8	2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19		

^{*1:} Effective sectional area S and sonic conductance C are converted as S \approx 5.0 x C.

HVB/ HVL SAB/ SVB NP/NAP/

NVP

CHB/G

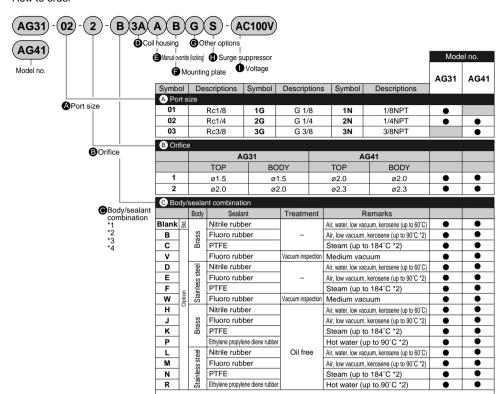
MXB/G Other G.P. systems PD/FAD/

PJ CVE/ CVSE CPE/

CPD Medical analysis

Custom order

How to order



Refer to page 36 in the Introduction for details on the material combinations.

Refer to the following page for details on the coil housing, other options and

<Example 1 of model number>

AG31-02-1-AC100V Model no.: AG31

Port size: Rc1/4
Orifice: TOP -

voltage, etc.

The combinations indicated with

in the above table are available.

B Orifice: TOP - Ø1.5, BODY - Ø1.5

Body/sealant combination:

Body - bronze, sealant - nitrile rubber
Coil housing: Grommet lead wire

(a) to **(b)**: Blank

● Voltage: 100 VAC 50/60Hz, 110 VAC 60Hz

D to D

<Example 2 of model number>

AG41-03-2-000ABS-AC100V

Model no.: AG41

A Port size: Rc3/8

Orifice: TOP - ø2.3, BODY - ø2.3

Body/sealant combination:

Body - bronze, sealant - nitrile rubber

Coil housing: Grommet lead wire

Manual override (locking):
Selected

Selected
Mounting plate: Selected
Other options: Blank
Surge suppressor: Selected

Voltage: 100 VAC 50/60Hz, 110 VAC 60Hz

A Note on model no. selection

Note on

*1: Leave blank for standard. However, to select options in ① to ①, indicate 0 for ②.

*2: When 4A, 4M or 4N is selected for ©.

 The ethylene propylene diene rubber seal combination (© P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene diene rubber is not oil-resistant.)

*4: For option symbols V and W, vacuum is inspected at "leakage amount: 1.33 x 10⁻⁶ Pa·m³/s or less".

Open frame type grommet lead wire 300 mm
 4A (heat proof class H)

Open frame HP terminal box

4M, 4N (heat proof class H)
 5M, 5N (diode integrated)

Open frame HP terminal box

(IP65 or equivalent)

* Refer to page 122 for coil selection.

5I, 5J (diode integrated)

5A (diode integrated)

4A

5A

3M 3N 4M 4N

3I 3J 5I

D C	oil I	housing				G) (Other o	options			(3)	Rated voltage		
Desci	ipt	ions		Manual override (locking)	Mounting plate		e gland e cable A-15b	gland)	<u> </u>	uit pipe) B Descriptions		Descriptions		
Blank	Std.	Gromme	et lead wire									100 VAC, 200 VAC		
2E		DIN tern	()	A	В						s	100 VAC, 200 VAC		
2G		DIN tern	(-3)	, ,	-						"	12 VDC, 24 VDC, 48 VDC, 100 VDC		
2H		DIN termir	nal box + small light (Pg11)						G	H		100 VAC, 200 VAC, 24 VDC		
3A 3M			Lead wire HP terminal box (G1/2)						G	н		100 VAC, 200 VAC 12 VDC, 24 VDC, 48 VDC, 100 VDC		
3N		Open	HP terminal box (G1/2)	A	В						_	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC		
31		frame type	HP terminal box (IP65 or equivalent) (G1/2)	^	"	D	E	F			s	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC		
3J	Option		HP terminal box + light (P65 or equivalent) (G1/2)									100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC		
4A		Open	Lead wire						G	Н	s	100 VAO, 200 VAC, 12 VBC, 24 VBC, 100 V		
4M			HP terminal box (G1/2)	Α	В	D	Е	F				100 VAC, 200 VAC		
4N		(heat proof class H)	HP terminal box + light (G1/2)			ט	_	-						
5A			Lead wire						G	Н				
5M		Open	HP terminal box (G1/2)											
_5N			HP terminal box + light (G1/2)	Α	В	D	Е	F				100 VAC, 200 VAC		
5I		(diode integrated)	HP terminal box (IP65 or equivalent) (G1/2)											
5J			HP terminal box+light (P65 or equivalent) (G1/2)											
\perp										A	Refer	to the following precautions for ① to ①.		
Blank	Blank Grommet lead wire 300 mm G H Conduit G (CTC19) H (G1/2)						● G (CTC19)							
2E 2G 2H			DIN termina	l box										

A Note on model no. selection

Note on

- Leave blank for the standard coil housing. However, to select options in (E) to (H), indicate 00 for (D).
- 5A, 5M, 5N, 5I and 5J are coils for which AC power is converted to DC with a diode.
- A DC coil for steam is available for AG41. Contact CKD for more information.

Note on (a) to (b)

- *8: When © is C, F, K, N, V or W, the manual override (E A) is not available.
 - Select one among D, E, F, G and H for @.
- *10: The surge suppressor is an accessory for the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
- *11: As standard, the surge suppressor is incorporated in the coil with diode and the 24 VDC coil (® 2H), so the surge suppressor symbol S cannot be selected.
- *12: Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that the tropicalization is not available when the manual override option A is selected.

Note on

- *13: 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. Note that the coils @ 5A/5M/5N/5I/5J can be used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- *14: For voltages other than above, consult with CKD.
- *15: The lead wire is available in the standard 300 mm length, and 500 mm, 1000 mm, 2000 mm and 3000 mm lengths. Contact CKD for more information.

HNB/G

HSR/G FAB/G

FGB/G

FWR/G

FHB FLB

AB

AG AP/ AD APK/ ADK

For dry air Explosion proof

HVB/ HVL SAR/ SVB

NP/NAP/ NVP CHB/G

MXB/G

Other G.P. systems PD/FAD/

PJ CVE/ CVSE

CPE/ CPD

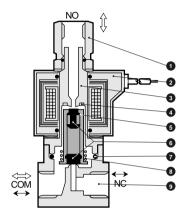
Medical analysis Custom

order

General purpose valve Direct acting 3 port solenoid valve

Internal structure and parts list

AG31/41 Series



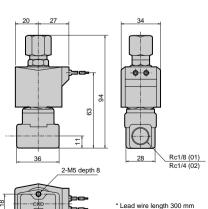
No.	Parts name	Material	
1	Socket	C3604 (SUS303)	Brass (stainless steel)
2	Coil		¦ —
3	Core assembly	SUS405 or equivalent, 316L, 403 *1	Stainless steel
4	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
5	Plunger	SUS405 or equivalent	Stainless steel
6	Sealant	NBR (FKM, EPDM, PTFE)	NBR: Nitrile rubber FKM: Fluoro rubber
7	O ring	NBR (FKM, EPDM, PTFE) (AS568/019)	EPDM: Ethylene propylene diene rubber PTFE: Tetrafluoroethylene resin
8	Plunger spring	SUS304	Stainless steel
9	Body	C3771 (SUS303)	Brass (stainless steel)

^{*1:} When the body/sealant combination symbol is other than blank or H, the material is SUS405 or equivalent, 316L, 430.

Dimensions: AG31 Series

 Grommet lead wire type AG31-01/02-1 to 2





<Reference> As the JIS symbol flow shows, pressure can be applied from any of the three piping ports. Generally, two orifices (TOP, BODY) have the same values and rated pressure. When de-energized: $COM \rightarrow NO \text{ or } NO \rightarrow COM$

When energized: COM → NC or NC → COM

Note 1: The dimensions are the same for the G or NPT thread port size

^{*2: ()} shows option.

Optional dimensions: AG31 Series



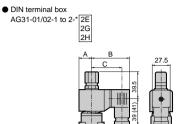
* Refer to the grommet lead wire type dimensions on the left page for common dimensions.

3A 4A

5A

Open frame type

AG31-01/02-1 to 2-

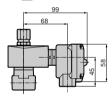


Dimensions shown in () are for G1/2.

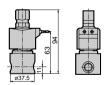
24, 38,	38
20.5	

Voltage R C AC 20 62 50.5 (50) DC 21 63.5 52 (51.5)

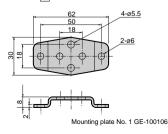
 Open frame type + HP terminal box AG31-01/02-1 to 2-* 3 M · 4M 5 N 4N



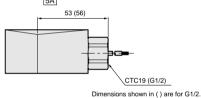
 Stainless steel body AG31-01/02-1 to 2- D/E/F/R/W/L/M/N



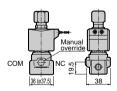
 Mounting plate AG31-01/02-1 to 2-*** B



 Open frame type + conduit G H AG31-01/02-1 to 2-* 3A 4A 5A



 Manual override (locking) AG31-01/02-1 to 2-*** A Figure shows the brass body.



Dimensions shown in () are for stainless steel body.

HNB/G

HSR/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

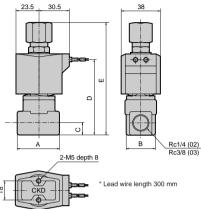
order

AG31/41 Series

Dimensions: AG41 Series



 Grommet lead wire type AG41-02/03-1 to 2



<Reference> As the JIS symbol flow shows, pressure can be applied from any of the three piping ports. Generally, two orifices (TOP, BODY) have the same values and rated

pressure.
When de-energized:
COM → NO or NO → COM When energized: COM → NC or NC → COM

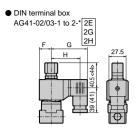
Note 1: The dimensions are the same for the G or NPT thread port size.

Model no.	Α	В	С	D	Е
AG41-02-1 to 2	36	28	11	68	99.5
AG41-03-1 to 2	40	28	12	71	106

Optional dimensions: AG41 Series



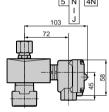
* Refer to the grommet lead wire type dimensions on the left page for common dimensions.



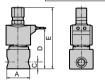
Dimensions shown in < > are for Rc3/8. Dimensions shown in () are for G1/2.

Voltage	F	G	Н
AC	23.5	65.5	54 (53.5)
DC	23.5	66	54.5 (54)

 Open frame type + HP terminal box AG41-02/03-1 to 2-* 3 M -4M 5 N 4N

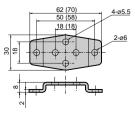


 Stainless steel body AG41-02/03-1 to 7-D/E/F/R/W/L/M/N

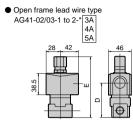


Model no.	Α	С	D	Е
AG41-02-1 to 2-*	ø37.5	11	68	99.5
AG41-03-1 to 2-*	ø45	12	71	106

 Mounting plate AG41-02/03-1 to 2-*** B

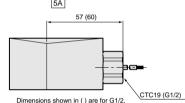


Dimensions shown in () are for mounting plate No. 2.



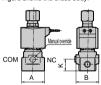
Model no.	D	Е
AG41-02-1 to 2-**A	52	99.5
AG41-03-1 to 2-**A	55	106

 Open frame type + conduit AG41-02/03-1 to 2-* 3A G 4A H 5A



 Manual override (locking) AG41-02/03-1 to 2*** A

Figure shows the brass body.



Model no.	Α	В	K
AG41-02-1 to 2-***A	36 (ø37.5)	38	19.5
AG41-03-1 to 2-***A	40 (ø45.0)	40	22.5

Dimensions shown in () are for stainless steel body.

Code	Applicable model
Mounting plate No. 1 GE-100106	 ◆ AG41-02/03-1 to 2 Series ◆ Stainless steel body AG41-02-1 to 2-D/E/F/L/M/N/R/W
Mounting plate No. 2 GE-100159	● Stainless steel body AG41-03-1 to 2-D/E/F/L/M/N/R/W

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



Direct acting 3 port solenoid valve, manifold and actuator (general purpose valve)

GAG31*/GAG35*, GAG41*/GAG45* Series

- Universal type
- Common supply / individual exhaust type, common supply / separate flow type







Manifold circuit structure Common specifications

(Common supply / individual exhaust type)



■ GAG352/452 (Common supply / separate flow type)



Item	Standard specifications	Optional sp	ecifications			
Working fluid	Airflow, low vacuum (1.33 x 10 ² Pa (abs)), water, kerosene, oil (50 mm ² /s or less)	Hot water	Steam			
Working pressure differential range MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)					
Max. working pressure MPa	1	I				
Withstanding pressure (water) MPa	1	0				
Fluid temperature (Note 1) °C	-10 to 60	-10 to 90	-10 to 184			
Ambient temperature °C	-20 to 60 -20 to 100					
Heat proof class	В Н					
Atmosphere	Place free of corrosive	Place free of corrosive gas and explosive gas				
Valve structure	Direct acting po	oppet structure				
Valve seat leakage cm³/min.(ANR)	0.2 or less (air)		300 or less (air)			
Mounting attitude	Free					
Body, sealant	Brass, nitrile rubber	Brass, ethylene propylene diene rubber	Brass, PTFE			

Note 1: No freezing

Individual specifications

Item	em NO Orifice				Max. working pressure differential (MPa)					Apparent power (VA)			(VA)	Power consum	ption (W)		
	port	(m	ım)	А	ir	Water, hot wa	iter, kerosene	Oil (50	mm²/s)	Steam	Rated voltage	Hole	ding	Star	ting	AC	DC
Model no.	size	TOP	BODY	AC	DC	AC	DC	AC	DC	AC	voitage	50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	
GAG311-1	Rc1/8	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6 (0.5)	0.7	100 VAC 50/60 Hz						
-2	KC1/6	2.0	2.0	0.4	0.4 (0.35)	0.4	0.4	0.25	0.2 (0.15)	0.4	110 VAC				4.0	6/4.2	11
GAG312-1	D 4/4	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6 (0.5)	0.7	60 Hz	14	11	20	16	6/4.2	(8.1)
-2	RC1/4	Rc1/4 2.0	2.0	0.4	0.4 (0.35)	0.4	0.4	0.25	0.2 (0.15)	0.4	200 VAC 50/60 Hz						
GAG412-1	Rc1/4	2.0	2.0	1.0	0.7 (0.45)	1.0	0.7	0.4	0.3 (0.25)	1.0	220 VAC						
-2	KC1/4	2.3	2.3	0.7	0.4 (0.25)	0.7	0.4	0.25	0.15 (0.1)	0.7	60 Hz 12 VDC						11
GAG413-1		2.0	2.0	1.0	0.7 (0.45)	1.0	0.7	0.4	0.3 (0.25)	1.0	24 VDC 48 VDC	22	17	35	27	8.3/6.2	(10.4)
-2	Rc3/8	2.3	2.3	0.7	(0.25)	0.7	0.4	0.25	0.15	0.7	100 VDC						

^{*1:} The model numbers above show the basic NO port size and orifice diameter. Refer to How to order for other combinations.

^{*2:} Refer to How to order (page 176) and Dimensions (page 180) for the port sizes of port A and C.

^{*3:} Refer to DC column for the max. working pressure differential of coil with diode.

^{*4:} The voltage fluctuation must be within ±10% of the rated voltage.

^{*5:} Values in () are for the type with DIN terminal box and DC voltage specifications, and indicate the max. working pressure differential when pressurizing from the NO port.

^{*6:} When continuously energizing the valve, use a fluoro rubber seal.

^{*7:} When the sealant is PTFE, the NO port cannot be pressurized.

Optional specifications (fluid temperature, ambient temperature, valve seat leakage)

Sealant	Fluoro	rubber	Ethylene propyle	ene diene rubber	PTFE		
Coil (heat proof class)	В	Н	В	Н	В	Н	
Fluid temperature (Note 1) °C	-10 to 60	-10 to 90	-10 to 60	-10 to 90	-10 to 60	-10 to 184	
Ambient temperature °C	-20 to 60	-20 to 100 (Note 2)	-20 to 60	-20 to 100 (Note 2)	-20 to 60	-20 to 100 (Note 2)	
Valve seat leakage cm9min. (ANR)		0.2 or le	300 or less (air)				

Note 1: No freezing

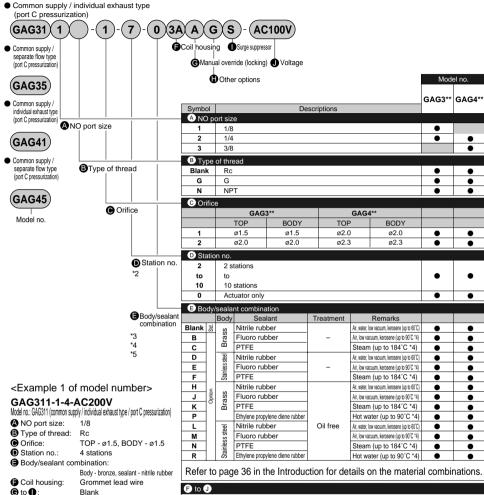
Note 2: The range is -20 to 80°C when using the HP terminal box with indicator light for the coil housing.

Flow characteristics

	Port size	Orifice	e (mm)	Flow characteristics						
Model no.		TOP	BODY -	C [dm ³ /	′(s⋅bar)]	I	b	Cv flow factor		
	0.20	IOF		TOP	BODY	TOP	BODY	TOP	BODY	
GAG311-1	D o 1 /0	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09	
-2	Rc1/8	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15	
GAG312-1	Rc1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09	
-2	KC1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15	
GAG412-1	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15	
-2	KC1/4	2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19	
GAG413-1	Rc3/8	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15	
-2	KC3/6	2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19	

^{*1:} Effective sectional area S and sonic conductance C are converted as $S \approx 5.0 \text{ x C}$.

How to order



<Example 2 of model number>

GAG352G-2-7-000AS-AC200V

Model no.: GAG352 (common supply / separate flow type / port C pressurization)

A NO port size: 1/4

O Voltage:

B Type of thread: G

Orifice: TOP - ø2.0, BODY - ø2.0

Station no.: 7 stations Body/sealant combination:

Body - bronze, sealant - nitrile rubber Grommet lead wire

200 VAC 50/60Hz, 220 VAC 60Hz

 Manual override (locking): Selected ① Other options: Blank

Surge suppressor: Selected U Voltage: 200 VAC 50/60Hz, 220 VAC 60Hz

Refer to the following page for details on the coil housing, other options and

The combinations indicated with
in the above table are available.

A Note on model no. selection

*1: Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

Note on and

- *2: Consult with CKD about more than 10 stations manifold. *3: Leave blank for standard. However, to select options in to (1), indicate 0 for (E)
- *4: When 4A, 4M or 4N is selected for E.
- *5: The ethylene propylene diene rubber seal combination (E) P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene diene rubber is not oil-resistant.)

Coil housing:

HNB/G HSR/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

analysis

For (F) to (J), the combinations indicated with symbols can be manufactured. Note that if options (6) to (1) are not required, no symbol is indicated.

	III I	housing		G		Other o	ptions			0	J Rated voltage	
				ig.		e gland		Cond	uit	SSOF		
امدد	in	tions		over	(Marir	ne cable	gland)	(Cond	uit pipe)	suppressor	Descriptions	
,0301	·Ρ	10113		Manual override (locking)	A-15a	A-15b	A-15c	CTC19	G1/2	Surge su	Descriptions	
lank		Gromme	t lead wire	2 8						Ś	100 VAC, 200 VAC	
2E	0)	DIN term	inal box (G1/2	1						_	100 VAC. 200 VAC	
2G		DIN term	inal box (Pg11	Α .						S	12 VDC, 24 VDC, 48 VDC, 100 VDC	
2H		DIN term	inal box + small light (Pg11						Н	1	100 VAC, 200 VAC, 24 VDC	
3A			Lead wire					G	Н		100 VAC, 200 VAC	
зм		_	HP terminal box (G1/2	7						1	12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N		Open frame type	HP terminal box + light (G1/2	A	D	E	F			s	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
31	_		HP terminal box (IP65 or equivalent) (G1/2		"	-	[100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 V	
3J	Option		HP terminal box + light (IP65 or equivalent) (G1/2								100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
4A	ŏ	Open	Lead wire					G	Н	S		
4M		frame type	HP terminal box (G1/2	Α	D	E	F				100 VAC, 200 VAC	
4N		(heat proof class H)	HP terminal box + light (G1/2				<u> </u>					
5A			Lead wire					G	Н			
5M		Open	HP terminal box (G1/2	4								
5N			HP terminal box + light (G1/2		D	E	F				100 VAC, 200 VAC	
51		(diode integrated)	HP terminal box (IP65 or equivalent) (G1/2	-		-	١.					
5J HP terminal box + light (IP65 or equivalent) (G1/2)									
$\overline{}$	_		3 () (
Γ			3 (2004) (2004)						*	Refer	to the following precautions for $\widehat{\mathbb{F}}$ to $\widehat{\mathbb{J}}$.	
			3 (, , , , , , , , , , , , , , , , ,						*	Refer	to the following precautions for (E) to (J).	
		ror.	3 () () ()							Refer	3871	
lank				- 300 m	m			(3	Refer	● Conduit	
lank			● Grommet lead wir	e 300 mi	m					Refer	3871	
lank	100 miles 100 miles	~(∋ 300 mi	m				6	Refer	● Conduit ● G (CTC19)	
ilank	1 may	Ĭ(∋ 300 mi	m				6	Refer	● Conduit ● G (CTC19)	
				e 300 mi	m				6	Refer	● Conduit ● G (CTC19)	
elank 2E 2G		<u>ن</u> (∋ 300 mi	m				6	Refer	● Conduit ● G (CTC19)	
2E			● Grommet lead wir	e 300 mi	m				6	Refer	● Conduit ● G (CTC19)	
2E 2G			● Grommet lead wir	e 300 mi	m			1	3	W.	● Conduit ● G (CTC19)	
2E 2G			Grommet lead wir DIN terminal box	e 300 mi	m				Note	e on r	• Conduit • G (CTC19) • H (G1/2)	
2E 2G			Grommet lead wir DIN terminal box Open frame type					No.	Note on	e on r	• Conduit • G (CTC19) • H (G1/2)	
2E 2G 2H			Grommet lead wir DIN terminal box	: 300 mr				No.	Note on Leave	e on r	• Conduit • G (CTC19) • H (G1/2)	

* Refer to page 122 for coil selection.

Open frame HP terminal box 4M, 4N (heat proof class H) 5M, 5N (diode integrated)

Open frame HP terminal box

(IP65 or equivalent)

5I, 5J (diode integrated)

3M 3N 4M 4N 5M 5N

3I 3J 5I 5J

- DC with a diode
- A DC coil for steam is available for GAG4**. Contact CKD for more information

Note on **G** to **Ū**

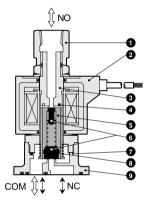
- *9: When (E) is C, F, K or N, the manual override ((G) A) is not available.
- *10: Select one among D, E, F, G and H for H.
- *11: The surge suppressor is an accessory for the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box. *12: As standard, the surge suppressor is incorporated in the coil with
- diode and the 24 VDC coil (F 2H), so the surge suppressor symbol S cannot be selected. *13: Tropicalization (rust-proof coating) is available as a measure against
 - rust. Contact CKD for more information. Note that the tropicalization is not available when the manual override option A is selected.

Note on

- *14: 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. Note that the coils (F) 5A/5M/5N/5I/5J can be used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- *15: For voltages other than above, consult with CKD.
- *16: The lead wire is available in the standard 300 mm length, and 500 mm, 1000 mm, 2000 mm and 3000 mm lengths. Contact CKD for more information.

Internal structure and parts list

GAG31*/GAG35*/GAG41*/GAG45* Actuator



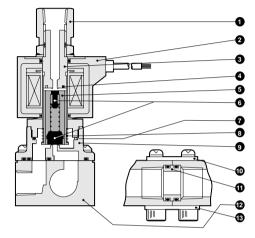
No.	Parts name	Material	
1	Socket	C3604 (SUS303)	Brass (stainless steel)
2	Coil		_
3	Core assembly	SUS405 or equivalent, 316L, 403 *1	Stainless steel
4	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
5	Plunger	SUS405 or equivalent	Stainless steel
6	Sealant	NBR (FKM, EPDM, PTFE)	
7	O ring	NBR (FKM, EPDM, PTFE) (size: AS568-019)	EPDM: Ethylene propylene diene rubber PTFE: Tetrafluoroethylene resin
8	Plunger spring		Stainless steel
9	Body	C3771 (SCS13)	Brass (stainless steel)

^{*1:} When the body/sealant combination symbol is other than blank or H, the material is SUS405 or equivalent, 316L, 430.

^{*2: ()} shows option.

Internal structure and parts list

GAG31*/GAG35*/GAG41*/GAG45* Manifold



No.	Parts name	Material	
1	Socket	C3604 (SUS303)	Brass (stainless steel)
2	Coil	_	. —
3	Core assembly	SUS405 or equivalent, 316L, 403 *1	Stainless steel
4	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
5	Plunger	SUS405 or equivalent	Stainless steel
6	Sealant	NBR (FKM, EPDM, PTFE)	
7	O ring	NBR (FKM, EPDM, PTFE) (size: AS568-019)	EPDM: Ethylene propylene diene rubber PTFE: Tetrafluoroethylene resin
8	Plunger spring	SUS304	Stainless steel
9	Body	C3771 (SCS13)	Brass (stainless steel)
10	Holder	SPCC	Steel
11	Connector	C3604 (SUS304)	Brass (stainless steel)
12	Sub-plate	C3604 (SUS303)	Brass (stainless steel)
13	Connecting plate	SPCC	Steel

^{*1:} When the body/sealant combination symbol is other than blank or H, the material is SUS405 or equivalent, 316L, 430.

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

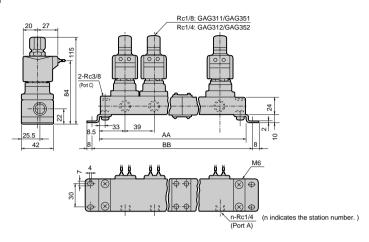
analysis Custom order

^{*2: ()} shows option.

Dimensions: GAG31*/GAG35* Series



Manifold (grommet lead wire type)
 GAG3**-1 to 2-2 to 10



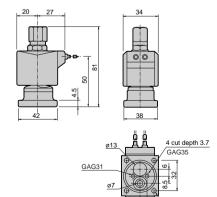
Station no.	AA	BB	Manifold structure	Station no.	AA	BB	Manifold structure			
2	106	122	2 stations x 1	7	329	345	5 stations + 2 stations			
3	145	161	3 stations x 1	8	368	384	5 stations + 3 stations			
4	212	228	2 stations x 2	9	435	451	3 stations x 3			
5	223	239	5 stations x 1	10	446	462	5 stations x 2			
6	290	306	3 stations x 2	Consult with CKD about more than 10 stations manifold.						

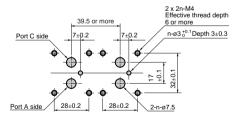
4-ø4.5

28

- *1: A manifold is configured by combining 2-, 3- and 5-station modules.
- *2: The dimensions are the same for the G or NPT thread port size.
- Actuator (grommet lead wire type)
 GAG3**-1 to 2-0

Recommended dimensions for actuator mounting





■ Machining drawing when using 2 actuators

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

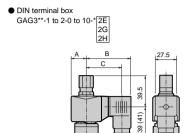
Other G.P. systems PD/FAD/

PJ CVE/ CVSE CPE/ CPD Medical

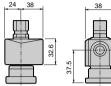
Optional dimensions: GAG31*/GAG35*

CAD

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



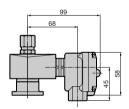
 Open frame lead wire type GAG3**-1 to 2-0 to 10-* 3A 4A 5A



Dimensions shown in () are for G1/2.

Voltage	Α	В	С
AC	20	62	50.5 (50)
DC	21	63.5	52 (51.5)

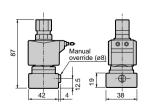
Open frame type + HP terminal box GAG3**-1 to 2-0 to 10-* 3 M · 4M 4N 5 N 1



Open frame type + conduit GAG3**-1 to 2-0 to 10-* 3A G H 5A 53 (56) CTC19 (G1/2)

Dimensions shown in () are for G1/2.

 Manual override (locking) GAG3**-1 to 2-0 to 10-*** A

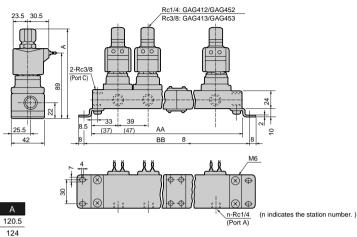


analysis Custom order General purpose valve Direct acting 3 port solenoid valve

Dimensions: GAG41*/45* Series



■ Manifold (grommet lead wire type) GAG4**-1 to 2- 2 to 10



Station no	. AA	BB	Manifold structure	Station no.	AA	BB	Manifold structure
2	106 (122)	122 (138)	2 stations x 1	7	329 (385)	345 (401)	5 stations + 2 stations
3	145 (169)	161 (185)	3 stations x 1	8	368 (432)	384 (448)	5 stations + 3 stations
4	212 (244)	228 (260)	2 stations x 2	9	435 (507)	451 (523)	3 stations x 3
5	223 (263)	239 (279)	5 stations x 1	10	446 (526)	462 (542)	5 stations x 2
6	290 (338)	306 (354)	3 stations x 2	Consult w	ith CKD about	more than 10	stations manifold.

- *1: A manifold is configured by combining 2-, 3- and 5-station modules.
- *2: Dimensions in () are for the open frame type.
- *3: The dimensions are the same for the G or NPT thread port size.

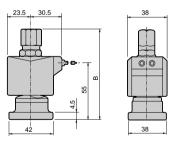
Actuator (grommet lead wire type) GAG4**-1 to 2-0

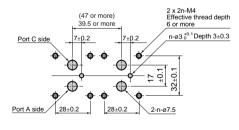
Model no.

GAG412/452-1 to 2

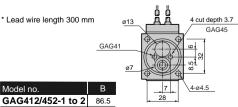
GAG413/453-1 to 2

Recommended dimensions for actuator mounting





■ Machining drawing when using 2 actuators



90

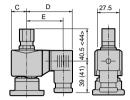
GAG413/453-1 to 2

Optional dimensions: GAG41*/45* Series

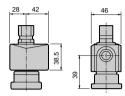


* Refer to the grommet lead wire type dimensions on the left page for common dimensions.

 DIN terminal box GAG4**-1 to 2-0 to 10-* 2E 2G 2H



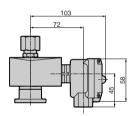
 Open frame lead wire type GAG4**-1 to 2-0 to 10-* 3A 4A 5A



Dimensions shown in () are for G1/2. Dimensions shown in < > are for Rc3/8.

Voltage	С	D	Е
AC	23.5	65.5	54 (53.5)
DC	23.5	66	54.5 (54)

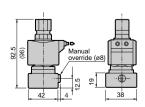
● Open frame type + HP terminal box GAG4**-1 to 2-0 to 10-* 3 M · 4M 5 N 4N 1



Open frame type + conduit GAG4**-1 to 2-0 to 10-* 3A G H 4A 5A 57 (60) CTC19 (G1/2)

Dimensions shown in () are for G1/2.

 Manual override (locking) GAG4**-1 to 2-0 to 10-*** A



systems PD/FAD/ PJ CVE/ CVSE CPE/ CPD Medical analysis Custom

order General purpose valve Direct acting 3 port solenoid valve

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.