



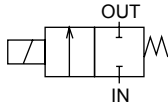
Direct acting 2-port solenoid valve
General purpose

AB21 Series

- NC (open when energized)
- Port size: Rc1/8, Rc1/4



JIS symbol



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AB21
Working fluid	Air/water/kerosene/oil (50 mm ² /s or less)
Working pressure differential MPa	0 to 1.5 (refer to max. working pressure differential in individual specifications)
Max. working pressure MPa	1.5 (≈220 psi, 15 bar)
Proof pressure (water pressure) MPa	3 (≈440 psi, 30 bar)
Fluid temperature °C	-10 (14°F) to 40 (104°F) (no freezing)
Ambient temperature °C	-20 (-4°F) to 50 (122°F)
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm ³ /min(ANR)	0.2 or less
Mounting orientation	Unrestricted

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	Port size	Orifice size (mm)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
			Air		Water/kerosene		Oil (50 mm ² /s)			When holding		When starting		AC 50/60 Hz	DC	
			AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz			
AB21-01-1	Rc1/8	1.5	1.5	1.0	1.5	1.0	0.9	1.0	100 VAC 50/60 Hz *2	11	9	15.4	12.6	5.5/4.2	7	0.23 (Aluminum)
AB21-01-2		2.0	1.0	0.6	1.0	0.6	0.5	0.6								
AB21-01-3		3.0	0.7	0.2	0.4	0.2	0.25	0.2								
AB21-01-5		4.0	0.4	0.1	0.2	0.1	0.1	0.1								
AB21-02-1	Rc1/4	1.5	1.5	1.0	1.5	1.0	0.9	1.0	200 VAC 50/60 Hz *2	11	9	15.4	12.6	5.5/4.2	7	0.36 (Copper alloy)
AB21-02-2		2.0	1.0	0.6	1.0	0.6	0.5	0.6								
AB21-02-3		3.0	0.7	0.2	0.4	0.2	0.25	0.2								
AB21-02-5		4.0	0.4	0.1	0.2	0.1	0.1	0.1								

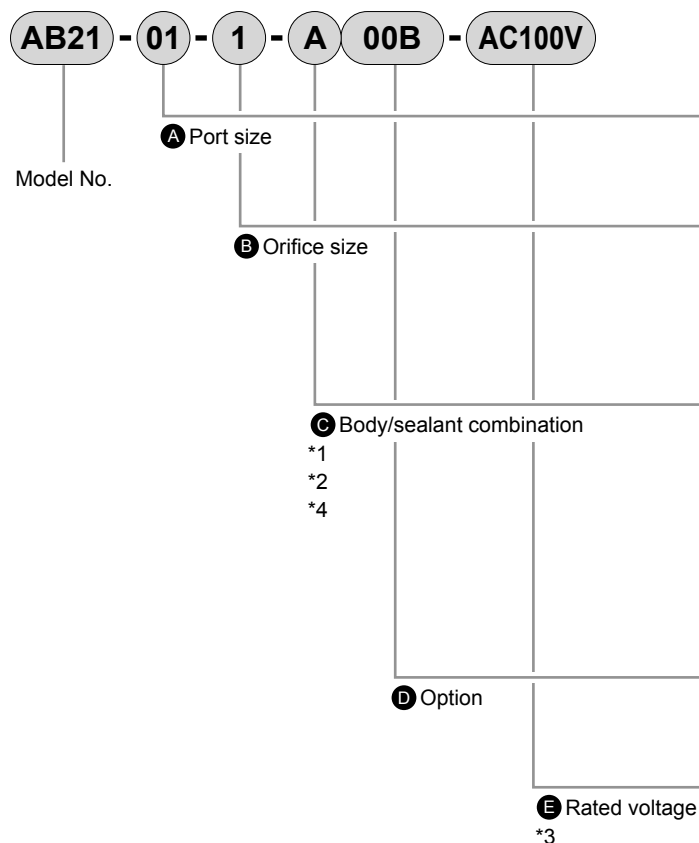
Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics		
			C[dm ³ /(s·bar)]	b	Cv
NC (open when energized)					
AB21-01-1	Rc1/8	1.5	0.29	0.51	0.1
AB21-01-2		2.0	0.53	0.55	0.15
AB21-01-3		3.0	1.1	0.52	0.3
AB21-01-5		4.0	1.8	0.35	0.4
AB21-02-1	Rc1/4	1.5	0.29	0.51	0.1
AB21-02-2		2.0	0.53	0.55	0.15
AB21-02-3		3.0	1.1	0.52	0.3
AB21-02-5		4.0	1.8	0.35	0.4

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

How to order



Code	Description		
A Port size			
01	Rc1/8		
02	Rc1/4		
B Orifice size			
1	ø1.5		
2	ø2		
3	ø3		
5	ø4		
C Body/sealant combination			
	Body	Seal	Remarks
Blank	Aluminum	Nitrile rubber	Air/kerosene/oil
2		Fluoro rubber	Air/kerosene/oil
A	Copper alloy	Nitrile rubber	Air/water/kerosene/oil
B		Fluoro rubber	Air/water/kerosene/oil
Refer to Intro Page 39 for reference on material combinations.			
D Option			
Blank	None		
00B	With mounting plate		
E Rated voltage			
AC100V	100 VAC 50/60 Hz, 110 VAC 60 Hz	For other voltages, contact CKD.	
AC200V	200 VAC 50/60 Hz, 220 VAC 60 Hz		
DC24V	24 VDC		

[Example of model No.]

AB21-01-1-A00B-AC100V

Model: AB21

- A** Port size : Rc1/8
- B** Orifice size : ø1.5
- C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- D** Option : Mounting plate
- E** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

⚠ Precautions for model No. selection

- *1 : For **B** 1 (ø1.5 orifice), only Item **C** A/B are available.
- *2 : When the fluid is water, select the copper alloy (option code: A or B) body.
- *3 : The voltage fluctuation range must be within ±10% of the rated voltage.
- *4 : Leave Item **C** blank for standard. However, to select 00B for Item **D**, indicate 0 for Item **C**.

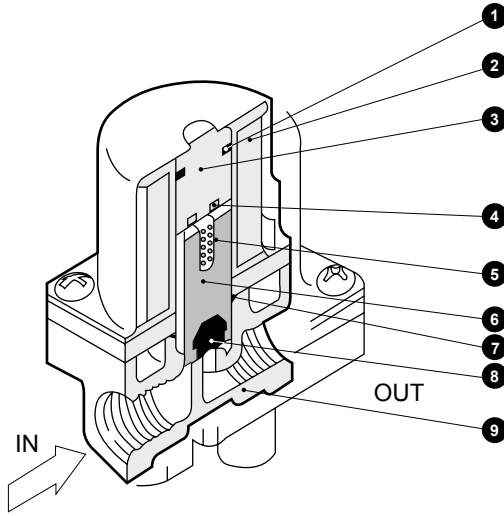
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
SøB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AB21 Series

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

Internal structure and parts list

● AB21 Series

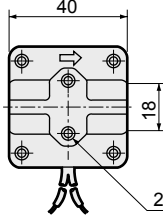
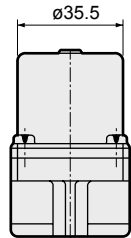
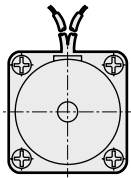


No.	Part name	Material
1	O-ring	Fluoro rubber
2	Coil	-
3	Core assembly	Stainless steel
4	Shading coil	Copper
5	Plunger spring	Stainless steel
6	Plunger	Stainless steel
7	O-ring	Nitrile or fluoro rubber
8	Seal	Nitrile or fluoro rubber
9	Body	Aluminum or copper alloy

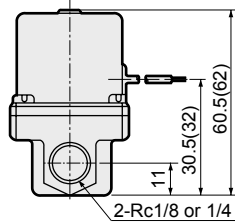
Dimensions



● AB21-01/02-1 to 5-*



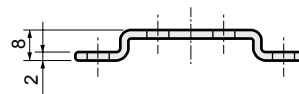
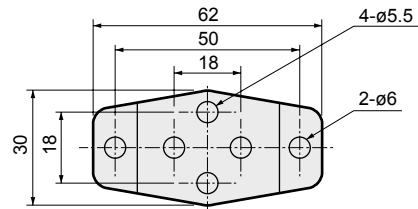
* Lead wire length
250 mm



Dimensions shown in () are for copper alloy body.

● Mounting plate

AB21-01/02-1 to 5-*00[B]



Mounting plate
No.1
GE-100106

MEMO

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



Direct acting 2-port solenoid valve, single unit
General purpose

AB31/AB41 Series ● NC (open when energized)

AB42 Series ● NO (closed when energized)

● Port size: Rc1/8 to Rc1/2



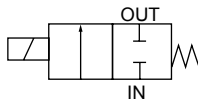
Refer to the Ending for details.



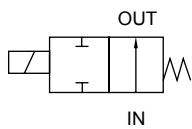
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S◇B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combust
Auto-Water
Outdoor
SpecFld
Custom
Ending

JIS symbol

● AB31/41: NC (open when energized)



● AB42: NO (closed when energized)



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications		Optional specifications	
Working fluid	Air/low vacuum [1.33 x 10 ² Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)		Hot water	Steam
Working pressure differential MPa	0 to 5 (refer to max. working pressure differential in individual specifications.)			
Proof pressure (water pressure) MPa	25 (≈3600 psi, 250 bar)			
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)	-10 (14°F) to 184 (363.2°F)	
Ambient temperature °C	-20 (-4°F) to 60 (140°F)		-20 (-4°F) to 100 (212°F)	
Thermal class	Class 130 (B)		Class 180 (H)	
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 (air)		300 or less (air)	
Mounting orientation	Unrestricted			
Body/seal material	Copper alloy/nitrile rubber		Copper alloy/EPM rubber	Copper alloy/PTFE

*1: No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Max. working pressure differential (MPa)								Max. working pressure (MPa)	Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)		
			Air		Water/hot water/kerosene		Oil (50 mm ² /s)		Steam				Holding	Starting	AC	DC					
			AC	DC	AC	DC	AC	DC	AC	50/60 Hz							DC				
NC (open when energized)																					
AB31- ⁰¹ / ₀₂	-1	Rc1/8	1.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.0	5 (≈730 psi, 50 bar)	100 VAC	12	10	17	14	5.2/3.8	11 (8.1)*5	0.35	
			-2	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5										1.0
			-3	3.0	1.0	0.5	0.7	0.5	0.5	0.5	0.5										0.7
			-4	3.5	0.6	0.4	0.5	0.4	0.4	0.4	0.4										0.5
			-5	4.0	0.4	0.25	0.3	0.25	0.25	0.25	0.25										0.3
			-6	5.0	0.2	0.15	0.15	0.15	0.15	0.15	0.15										0.15
AB41- ⁰² / ₀₃	-1	Rc1/4	1.5	5.0	4.0	4.5	4.0	4.0	4.0	4.0	1.0	5 (Fluid: Steam For 1)	50/60 Hz *9	18	15	29	24	6.7/5.7	11 (10.4)*5 (7)*7	0.43 (Rc1/4)	
			-2	2.0	3.0	2.5	2.7	2.5	2.5	2.5	2.5										1.0
			-3	3.0	1.5	0.9	1.3	0.9	0.9	0.9	0.9										1.0
			-4	3.5	1.2	0.6	0.9	0.6	0.6	0.6	0.6										0.9
			-5	4.0	1.0	0.5	0.7	0.5	0.5	0.5	0.5										0.7
			-6	5.0	0.6	0.25	0.4	0.25	0.25	0.25	0.25										0.4
			-7	7.0	0.25	0.1	0.2	0.1	0.15	0.1	0.2										
AB41- ⁰³ / ₀₄	-8	Rc3/8	10.0	0.1	0.05 (0.03)*8	0.1	0.05 (0.03)*8	0.05	0.05 (0.03)*8			12 VDC 24 VDC 48 VDC							0.54		
		Rc1/2																			
NO (closed when energized)																					
AB42- ⁰² / ₀₃	-1	Rc1/4	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2 (≈290 psi, 20 bar)	100 VDC	22	18	35	29	8.7/6.7	15.5 (14)*5	0.50 (Rc1/4)	
			-2	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0										1.0
			-3	3.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7										0.7
			-4	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5										0.5
			-5	4.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4										0.4
			-6	5.0	0.25	0.25	0.25	0.25	0.25	0.25	0.25										0.25
			-7	7.0	0.15	0.15	0.15	0.15	0.15	0.15	0.15										0.15

*1 : The model numbers above are for the basic port size (Rc) and orifice size. Refer to How to order for other combinations (e.g., for steam).

*2 : The port size model No. is 01 for Rc1/8 (6A), 02 for Rc1/4 (8A), 03 for Rc3/8 (10A) and 04 for Rc1/2 (15A).

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

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

*5 : Power consumption of coil housings 2E/2G/2H.

*6 : When using at low vacuum, vacuum the OUT port side.

*7 : Power consumption of coil housings 6C/6E/6G/6H.

*8 : DC voltage of coil housings 2E/2G/2H, and max. working pressure differential of coil housings 6C/6E/6G/6H.

*9 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.

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

Sealant	Fluoro rubber		Ethylene propylene rubber		PTFE	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)	-10 to 60	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)				300 or less (air)	

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with light.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics		
			C[dm ³ /(s·bar)]	b	Cv
NC (open when energized)					
AB31- ⁰¹ ₀₂ -1	Rc1/8 Rc1/4	1.5	0.29	0.53	0.1
-2		2.0	0.53	0.52	0.15
-3		3.0	1.1	0.52	0.31
-4		3.5	1.7	0.49	0.42
-5		4.0	2.1	0.48	0.54
-6		5.0	3.0	0.42	0.8
-7		7.0	4.8	0.29	1.0
AB41- ⁰² ₀₃ -1	Rc1/4 Rc3/8	1.5	0.29	0.53	0.1
-2		2.0	0.53	0.52	0.15
-3		3.0	1.1	0.52	0.31
-4		3.5	1.7	0.49	0.42
-5		4.0	2.1	0.48	0.54
-6		5.0	3.0	0.42	0.8
-7		7.0	4.8	0.29	1.0
AB41- ⁰³ ₀₄ -8	Rc3/8 Rc1/2	10.0	9.3	0.36	1.88
			[8.1]	[0.31]	[1.5]
NO (closed when energized)					
AB42- ⁰² ₀₃ -1	Rc1/4 Rc3/8	1.5	0.29	0.53	0.1
-2		2.0	0.53	0.52	0.15
-3		3.0	1.1	0.52	0.31
-4		3.5	1.7	0.49	0.42
-5		4.0	2.1	0.48	0.54
-6		5.0	3.0	0.42	0.8
-7		7.0	4.8	0.29	1.0
			[4.6]	[0.37]	[0.82]

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

*2 : Dimensions shown in [] are for stainless steel body.

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

AB31/41/42 Series

How to order

● NC (open when energized)

AB31 - **02** - **3** - **0** **3A** **A** **B** **G** **S** - **AC100V**

AB41

Model No.

- D** Coil housing
- E** Manual override (locking)
- F** Mounting plate
- G** Other options
- H** With surge suppressor
- I** Rated voltage

Model No.		
AB31	AB41	AB41 Low pressure large flow

Code	Description	Code	Description	Code	Description
A Port size					
01	Rc1/8	1G	G1/8	1N	1/8NPT
02	Rc1/4	2G	G1/4	2N	1/4NPT
03	Rc3/8	3G	G3/8	3N	3/8NPT
04	Rc1/2	4G	G1/2	4N	1/2NPT

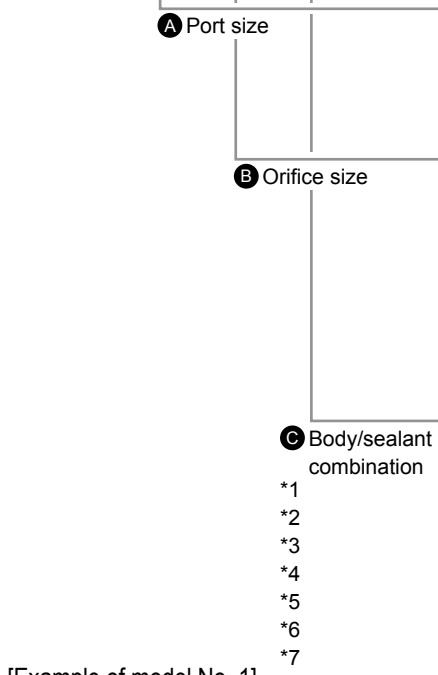
B Orifice size		
1	ø 1.5	● ● ●
2	ø 2	● ● ●
3	ø 3	● ● ●
4	ø 3.5	● ● ●
5	ø 4	● ● ●
6	ø 5	● ● ●
7	ø 7	● ● ●
8	ø10	● ● ●

C Body/sealant combination					
Blank	Std.	Body	Seal	Treatment	Remarks
		Copper alloy or bronze	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)
B			Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
C			PTFE		Steam (up to 184°C *2)
V			Fluoro rubber	Vacuum inspection	Low vacuum
D		Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)
E			Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
F			PTFE		Steam (up to 184°C *2)
W			Fluoro rubber	Vacuum inspection	Low vacuum
H		Copper alloy	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)
J			Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
K			PTFE		Steam (up to 184°C *2)
P			Ethylene propylene rubber	Oil-prohibited	Hot water (up to 90°C *2)
L		Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)
M			Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
N			PTFE		Steam (up to 184°C *2)
R			Ethylene propylene rubber		Hot water (up to 90°C *2)

Refer to Intro Page 39 for reference on material combinations.

D Coil housing					
Blank	Std.	Description			
		Grommet lead wire	●	●	●
2E		With DIN terminal box (G1/2)	●	●	●
2G		With DIN terminal box (Pg11)	●	●	●
2H		DIN terminal box with small lamp (Pg11)	●	●	●
3A		Lead wire	●	●	●
3M		With HP terminal box (G1/2)	●	●	●
3N		HP terminal box with lamp (G1/2)	●	●	●
3I		HP terminal box (IP65 or equivalent) (G1/2)	●	●	●
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)	●	●	●
4A		Lead wire	●	●	●
4M		With HP terminal box (G1/2)	●	●	●
4N		HP terminal box with lamp (G1/2)	●	●	●
5A		Lead wire	●	●	●
5M		With HP terminal box (G1/2)	●	●	●
5N		HP terminal box with lamp (G1/2)	●	●	●
5I		HP terminal box (IP65 or equivalent) (G1/2)	●	●	●
5J		HP terminal box with lamp (IP65 or equivalent) (G1/2)	●	●	●
6C		Grommet lead wire 7W	●	●	●
6E		With DIN terminal box (G1/2) 7W	●	●	●
6G		With DIN terminal box (Pg11) 7W	●	●	●
6H		DIN terminal box with small lamp (Pg11) 7W	●	●	●

The combinations indicated with ● in the above table are available.



[Example of model No. 1] **AB41-02-3-000AS-AC100V**

- Model: AB41
- A** Port size : Rc1/4
 - B** Orifice size : ø3
 - C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
 - D** Coil housing : Grommet lead wire
 - E** Manual override (locking) : With
 - F** / **G** / **H** : None
 - I** Surge suppressor : With surge suppressor
 - I** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

⚠ Precautions for model No. selection

- Notes for C**
- *1 : Leave blank for standard. However, to select options in **D**, **E**, **F**, **G** or **H**, indicate 0 for Item **C**.
 - *2 : When Item **D** 4A/4M/4N is selected.
 - *3 : The body for low pressure large flow rate AB41-02-8 is bronze (standard) or stainless steel (optional).
 - *4 : For option codes V and W, vacuum is inspected at "leakage rate: 1.33 x 10⁻⁶ Pa·m³/s or less".
 - *5 : When using low pressure large flow rate AB41-02-8 with Item **C** VW, DC voltage type and Item **D** 5A/5M/5N/5I/5J are not available.
 - *6 : The ethylene propylene rubber seal combination (Item **C** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
 - *7 : When Item **C** is C, F, K, P, N or R, the Item **D** coil housings 6C, 6E, 6G and 6H cannot be selected.

- Notes for D**
- *8 : Leave blank for the standard coil housing. However, to select options in **E**, **F**, **G** or **H**, indicate 00 for Item **D**.
 - *9 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
 - *10 : A DC coil for steam is available for AB41. Contact CKD for more information.
 - *11 : For 6C/6E/6G/6H, only AB41 is available.
 - *12 : The coil housings 6C, 6E and 6G are 12 VDC and 24 VDC dedicated. 6H is 24 VDC dedicated.

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

		Model No.		
		AB31	AB41	AB41 Low pressure large flow
Code	Description			
E Manual override (locking)				
Blank	None	●	●	●
A	With manual override	●	●	
F Mounting plate				
Blank	None	●	●	●
B	With mounting plate	●	●	●
G For cable gland and conduit combinations, refer to the compatible coil housings below.				
Blank	None	●	●	●
D	A-15a Marine cable gland	●	●	●
E	A-15b Marine cable gland	●	●	●
F	A-15c Marine cable gland	●	●	●
G	CTC19 Conduit piping	●	●	●
H	G1/2 Conduit piping	●	●	●
H For surge suppressor combinations, refer to the compatible coil housings below.				
Blank	Without surge suppressor	●	●	●
S	With surge suppressor	●	●	●
I Rated voltage				
Refer to the table on the right for the voltage.				

● Compatible coil housing

	Blank	2E	2G	2H	3A	3M	3N	3I	3J	4A	4M	4N	5A	5M	5N	5I	5J	6C	6E	6G	6H	
G Cable gland/conduit																						
D	A-15a					●	●	●	●		●	●		●	●	●	●					
E	A-15b					●	●	●	●		●	●		●	●	●	●					
F	A-15c					●	●	●	●		●	●		●	●	●	●					
G	CTC19				●					●			●									
H	G1/2			●	●					●			●									●
H For surge suppressor compatible coil housings, refer to page 156.																						
S	With surge suppressor	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

⚠ Precautions for model No. selection







Notes for E to H

- *13: Manual override (Item E A) cannot be mounted on the low pressure large flow rate AB41-03-8.
- *14: When Item C is C, F, K, N, V or W, the manual override (Item E A) is not available.
- *15: For G, select an option from D, E, F, G and H.
- *16: The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *17: As standard, the surge suppressor is built into the the coil with diode and the 24 VDC coil (Item D 2H/6H), so the surge suppressor code S cannot be selected.
- *18: Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.
Note that tropicalization is not available when the manual override option (A) and the coil option 6C/6E/6G/6H are selected.

Notes for I

- *20: 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. However, coils for Item D 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *21: For voltages other than above, contact CKD.
- *22: 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.

I Rated voltage	
Blank	100 VAC, 200 VAC
2E	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2G	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2H	100 VAC, 200 VAC, 24 VDC
3A	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3M	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3N	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
3I	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3J	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A	100 VAC, 200 VAC
4M	100 VAC, 200 VAC
4N	100 VAC, 200 VAC
5A	100 VAC, 200 VAC
5M	100 VAC, 200 VAC
5N	100 VAC, 200 VAC
5I	100 VAC, 200 VAC
5J	100 VAC, 200 VAC
6C	12 VDC, 24 VDC
6E	12 VDC, 24 VDC
6G	12 VDC, 24 VDC
6H	24 VDC

Blank 6C		● Grommet lead wire 300 mm
2E 2G 2H 6E 6G 6H		● DIN terminal box
3A 4A 5A		● Open frame lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)
G H		● Conduit ● G(CTC19) ● H(G1/2)

Refer to page 148 for coil selection.

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

AB31/41/42 Series

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

How to order

● NO (closed when energized)

AB42 - 02 - 4 - L 3A A B - AC100V

- D** Coil housing
- E** Manual override (locking)
- F** Mounting plate
- G** Other options
- H** With surge suppressor
- I** Rated voltage

Model No.

A Port size

B Orifice size

C Body/sealant combination

- *1
- *2
- *3
- *4

Code	Description	Code	Description	Code	Description
A Port size					
02	Rc1/4	2G	G1/4	2N	1/4NPT
03	Rc3/8	3G	G3/8	3N	3/8NPT

B Orifice size	
1	ø1.5
2	ø2
3	ø3
4	ø3.5
5	ø4
6	ø5
7	ø7

C Body/sealant combination				
	Body	Seal	Treatment	Remarks
Blank	Std. Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
		PTFE		Steam (up to 184°C *2)
		V	Fluoro rubber	Vacuum inspection
D	Std. Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
		PTFE		Steam (up to 184°C *2)
		W	Fluoro rubber	Vacuum inspection
H	Option Copper alloy	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene (up to 60°C)
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
		PTFE		Steam (up to 184°C *2)
		Ethylene propylene rubber		Hot water (up to 90°C *2)
	Std. Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)
		PTFE		Steam (up to 184°C *2)
		Ethylene propylene rubber		Hot water (up to 90°C *2)

Refer to Intro Page 39 for reference on material combinations.

D to I

Refer to page 159 for details on the coil housing, other options and voltage, etc.

[Example of model No. 1]

AB42-02-1-AC100V

Model: AB42

- A** Port size : Rc1/4
- B** Orifice size : ø1.5
- C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- D** Coil housing : Grommet lead wire
- E** to **H** : None
- I** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

[Example of model No. 2]

AB42-03-6-000AS-AC100V

Model: AB42

- A** Port size : Rc3/8
- B** Orifice size : ø5
- C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- D** Coil housing : Grommet lead wire
- E** Manual override (locking) : Selected
- F** / **G** : None
- H** Surge suppressor : With surge suppressor
- I** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

⚠ Precautions for model No. selection






Notes for **C**

- *1 : Leave blank for standard. However, to select options in **D**, **E**, **F**, **G** or **H**, indicate 0 for Item **C**.
- *2 : When Item **D** 4A/4M/4N is selected.
- *3 : For option codes V and W, vacuum is inspected at "leakage rate: 1.33 x 10⁻⁶ Pa·m³/s or less".
- *4 : The ethylene propylene rubber seal combination (Item **C** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)


For Items ④ to ①, the combinations indicated with codes are available.
 Note that if options for Items ⑤ to ⑧ are not required, they should be left blank.

④ Coil housing		⑤	⑥	⑦ Other options			⑧	⑨ Rated voltage				
Description	Std	Manual override (Locking)	Mounting plate	Cable gland			Conduit		With surge suppressor	Description		
				(marine cable gland)			(conduit piping)					
				A-15a	A-15b	A-15c	CTC19	G1/2				
Blank	Grommet lead wire	A	B				G	H	S	100 VAC, 200 VAC		
2E	With DIN terminal box (G1/2)									100 VAC, 200 VAC		
2G	With DIN terminal box (Pg11)									12 VDC, 24 VDC, 48 VDC, 100 VDC		
2H	DIN terminal box with small lamp (Pg11)									100 VAC, 200 VAC, 24 VDC		
3A	Open frame	A	B	D E F			G	H	S	100 VAC, 200 VAC		
3M										Lead wire (IP65 or equivalent)	12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N										With HP terminal box (G1/2)	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
3I										HP terminal box with lamp (G1/2)	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3J										HP terminal box (IP65 or equivalent) (G1/2)	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
4A	Open frame (Thermal class 180 (H))	A	B	D E F			G	H	S	100 VAC, 200 VAC		
4M										Lead wire		
4N										With HP terminal box (G1/2)		
5A	Open frame (diode integrated)	A	B	D E F			G	H	S	100 VAC, 200 VAC		
5M											Lead wire (IP65 or equivalent)	
5N											With HP terminal box (G1/2)	
5I											HP terminal box with lamp (G1/2)	
5J	HP terminal box (IP65 or equivalent) (G1/2)											
	HP term box, lamp (IP65, equiv) (G1/2)											

⚠ Refer to the following cautions for Items ④ to ①.

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		● Conduit ● G(CTC19) ● H(G1/2)
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⚠ Precautions for model No. selection

Notes for ④

- *5 : Leave blank for the standard coil housing. However, to select options in ⑤, ⑥, ⑦ or ⑧, indicate 00 for Item ④.
- *6 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.

Notes for ⑤ to ⑧

- *7 : When Item ③ is C, F, K, N, V or W, the manual override (Item ⑤ A) is not available.
- *8 : For Item ③, select an option from D, E, F, G and H.
- *9 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *10 : As standard, the surge suppressor is built into the coil with diode and the 24 VDC coil (Item ④ 2H), so the surge suppressor S cannot be selected.
- *11 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.

Notes for ⑨

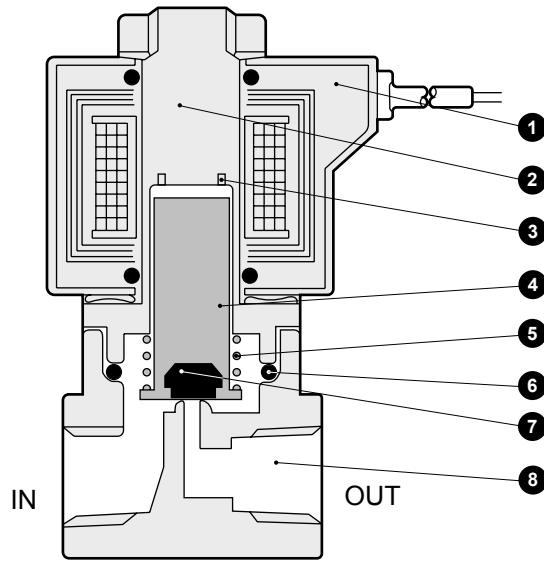
- *13 : 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. However, coils for Item ④ 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *14 : For voltages other than above, contact CKD.
- *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.

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

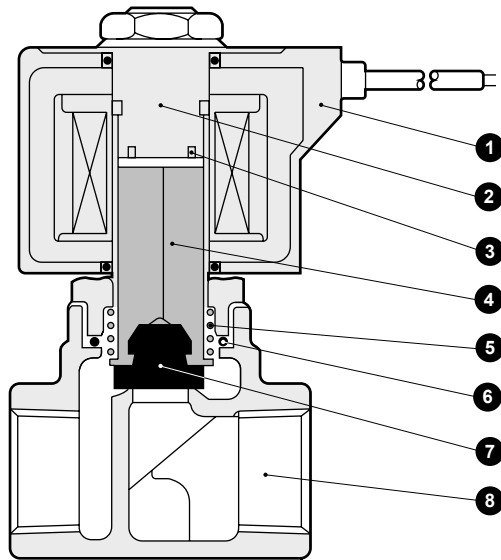
AB31/41/42 Series

Internal structure and parts list

- AB31 Series
- AB41-02/03-1 to 7



- AB41-03/04-8



No.	Part name	Material	No.	Part name	Material
1	Coil	-	5	Plunger spring	SUS304
2	Core assembly	SUS405 or equivalent/316L/403 *1	6	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019)
3	Shading coil	Cu (Ag for stainless steel body) / Copper (silver for stainless steel body)	7	Seal	NBR (FKM/EPDM/PTFE)
4	Plunger	SUS405 or equiv.	8	Body	C3771 or CAC408*3 (SUS303)

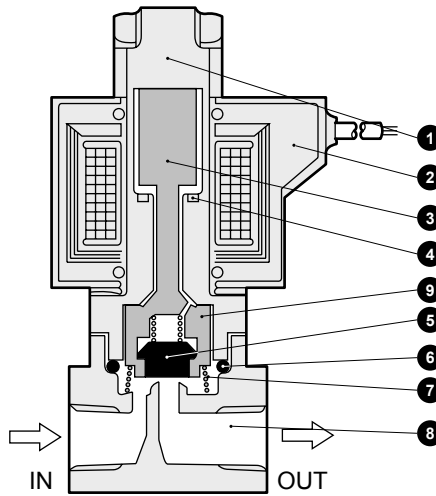
Stainless steel
 NBR: Nitrile rubber
 FKM: Fluoro rubber
 EPDM: Ethylene propylene rubber
 PTFE: Tetrafluoroethylene resin
 Copper alloy or bronze *3 (stainless steel)

*1 : When the body/sealant combination code is other than blank and H, or the coil housing code is 6C, 6E, 6G or 6H, the material is SUS405 or equivalent/ SUS316L/SUS430.
 *2 : () shows options. However, AB41-03-8 PTFE is not available.
 *3 : CAC408 for AB41-03-8 (bronze)

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

Internal structure and parts list

● AB42



No.	Part name	Material	No.	Part name	Material	
1	Core assembly	SUS405 or equiv./316L/304	7	Spring	SUS304	
2	Coil	-	8	Body	C3771(SUS303)	
3	Plunger	SUS405 or equiv.	9	NO Valve	POM (PPS/SUS303/PFA)	
4	Shading coil	Cu (Ag for stainless steel body)				Body/sealant combination When Blank/O/D/H/L/V/W: Polyacetal resin When B/E/J/M/P/R: Polyphenylene sulfide resin When C/F/K/N: Stainless steel/perfluoroalkoxy resin
5	Seal	NBR (FKM/EPDM/PTFE) NBR: nitrile rubber (EPDM: ethylene propylene rubber) (FKM: fluoro rubber) (PTFE: tetrafluoroethylene resin)				
6	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019) NBR: nitrile rubber (EPDM: ethylene propylene rubber) (FKM: fluoro rubber) (PTFE: tetrafluoroethylene resin)				

() shows options.

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

AB31/41/42 Series

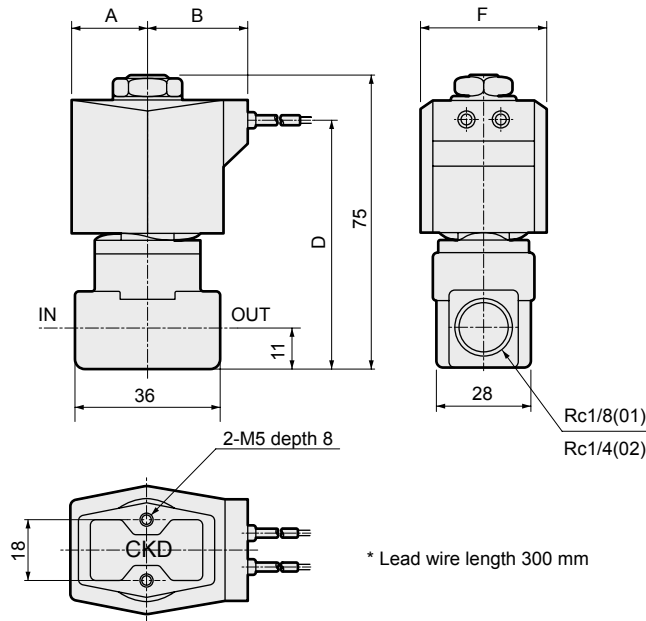


Dimensions: AB31 Series

● Grommet lead wire
AB31-01/02-1 to 6-* Blank

*1 : The AB31 Series is an NC 2-port solenoid valve. The body and sealant materials are combined according to the working fluid, and the orifice and pressure are selected according to the relation of the required flow rate and pressure. The coil specifications are determined according to the fluid temperature and ambient conditions, allowing the optimum valve to be selected.

*2 : The dimensions are the same for port sizes of G and NPT threads.



* Lead wire length 300 mm

Model No.	A	B	D	F
AB31-01-1 to 6-AC -02-1 to 6-AC	20	27	63	34

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

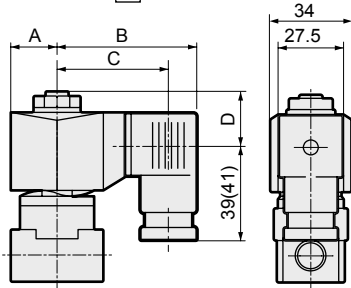
Optional dimensions: AB31 Series



* Refer to the dimensions of grommet lead wire on page 162 for common dimensions.

- With DIN terminal box
AB31-01/02-1 to 6-*

2 E
G
H

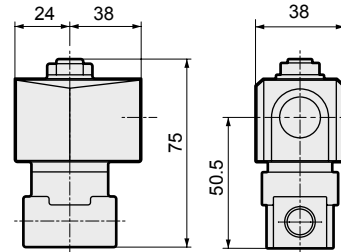


Dimensions shown in () are for G1/2.

Voltage	A	B	C	D
AC (2E/2G/2H)	20	62	50.5(50)	20.5
DC (2E/2G/2H)	21	63.5	52(51.5)	20.5

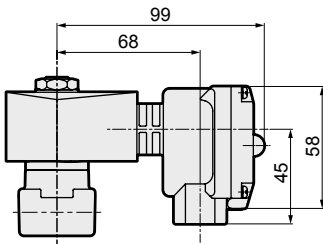
- Open frame lead wire
AB31-01/02-1 to 6-*

3A
4A
5A

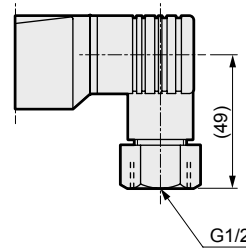


- Open frame + HP terminal box
AB31-01/02-1 to 6-*

3 M / 4M
5 N / 4N
I
J

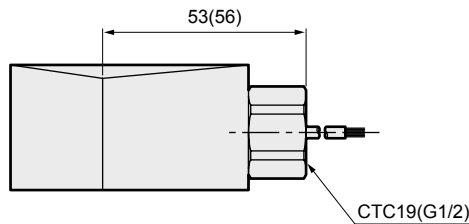


- DIN terminal box with small lamp + conduit (G1/2)
AB31-02/03-1 to 6-*



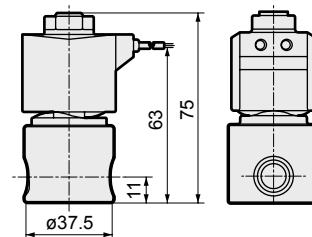
- Open frame + conduit
AB31-01/02-1 to 6-*

3A G
4A H
5A



Dimensions shown in () are for G1/2.

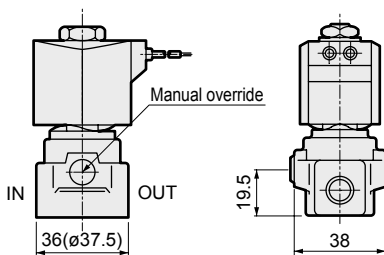
- Stainless steel body + grommet lead wire
AB31-01/02-1 to 6-*



- Manual override (locking)
AB31-01/02-1 to 6-***

A

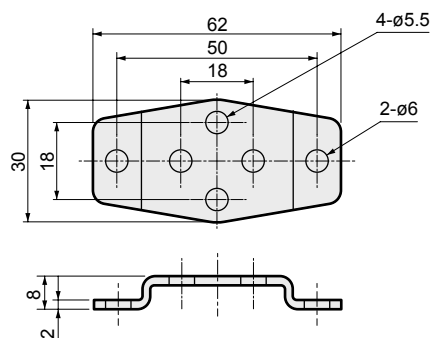
The figure shows copper alloy body.



Dimensions shown in () are for stainless steel body.

- Mounting plate
AB31-01/02-1 to 6-***

B



Mounting plate model	Compatibility
AB3-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	● All of AB31 Series

* Material: Steel/Zinc plated

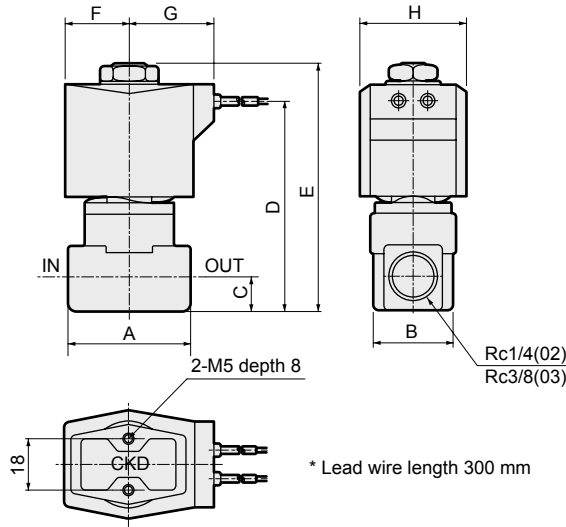
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
SøB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AB31/41/42 Series



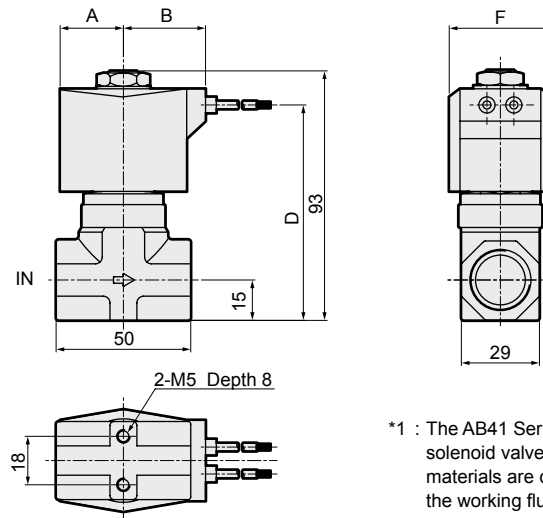
Dimensions: AB41 Series

● Grommet lead wire
AB41-02/03-1 to 7-* Blank / 6C



Model No.	A	B	C	D	E	F	G	H
AB41-02-1 to 6-AC	36	28	11	68	80.5	23.5	30.5	38
AB41-02-7-AC -03-1 to 7-AC	40	28	12	71	83.5	23.5	30.5	38
AB41-02-1 to 6-6C-DC	36	28	11	68	80.5	24	30.5	39
AB41-02-7-6C-DC -03-1 to 7-6C-DC	40	28	12	71	83.5	24	30.5	39

● Grommet lead wire
AB41-03/04-8-* Blank / 6C



Model No.	A	B	D	F
AB41-03-8-AC -04-8-AC	23.5	30.5	80	38
AB41-03-8-6C-DC -04-8-6C-DC	24	30.5	80	39

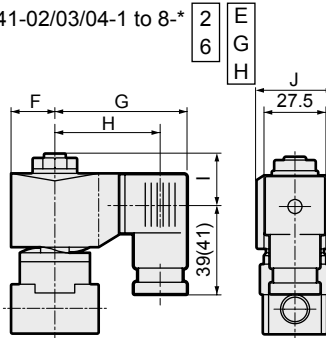
*2 : The dimensions are the same for port sizes of G and NPT threads.

Optional dimensions: AB41 Series



* Refer to the dimensions of grommet lead wire on page 164 for common dimensions.

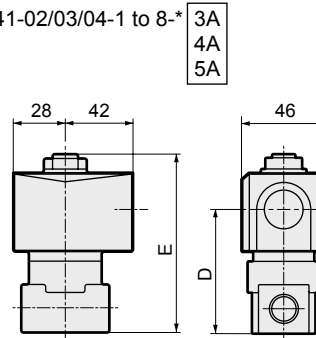
- With DIN terminal box
AB41-02/03/04-1 to 8-*



Dimensions shown in () are for G1/2.

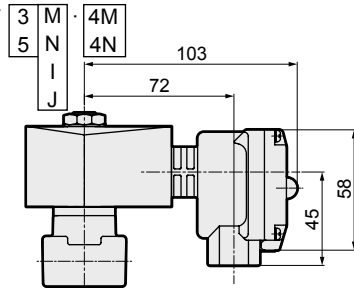
Voltage	F	G	H	I	J
AC (2E/2G/2H)	23.5	65.5	54(53.5)	22	38
DC (2E/2G/2H)	23.5	66	54.5(54)	22	38
DC (6E/6G/6H)	24	68	56.5(56)	22	39

- Open frame lead wire
AB41-02/03/04-1 to 8-*

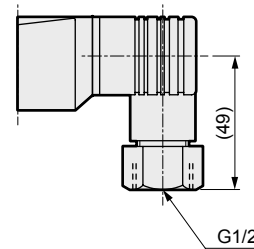


Model No.	D	E
AB41-02-1 to 6-*□A	52.0	80.5
AB41-02-7-*□A -03-1 to 7-*□A	55.0	83.5
AB41-03/04-8-*□A	64	93

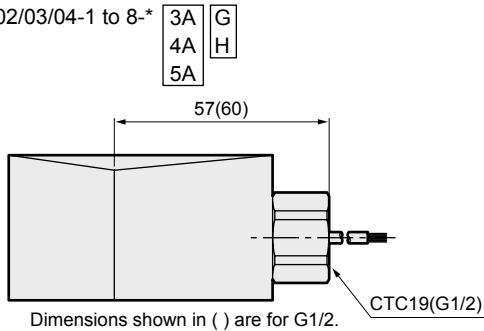
- Open frame + HP terminal box
AB41-02/03/04-1 to 8-*



- DIN terminal box with small lamp + conduit (G1/2)
AB41-02/03/04-1 to 8-*

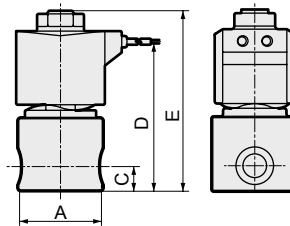


- Open frame + conduit
AB41-02/03/04-1 to 8-*



Dimensions shown in () are for G1/2.

- Stainless steel body + grommet lead wire
AB41-02/03/04-1 to 8-□D/F/R/W/L/M/N/E

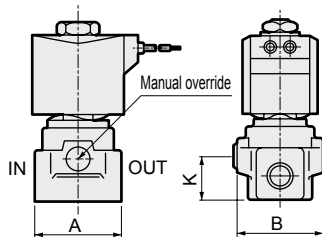


Model No.	A	C	D	E
AB41-02-1 to 6-AC	ø37.5	11	68	80.5
AB41-02-7-AC -03-1 to 7-AC	ø45.0	12	71	83.5
AB41-03-8-AC -04-8-AC	50*1	15	80	93

*1: The max. dimension is ø54.

- Manual override (locking)

AB41-02/03-1 to 7-***A
The figure shows copper alloy body.



Note: The manual override is not supplied with AB41-03/04-8.

Model No.	A	B	K
AB41-02-1 to 6-***A	36(ø37.5)	38	19.5
AB41-02-7-***A -03-1 to 7-***A	40(ø45.0)	40	22.5

Dimensions shown in () are for stainless steel body.

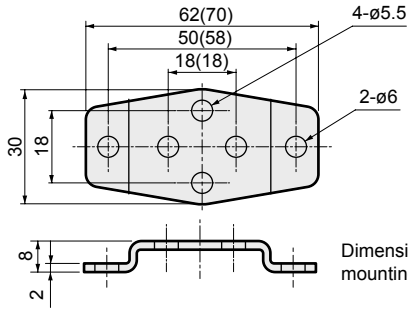
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
SøB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AB31/41/42 Series

Optional dimensions: AB41 Series



- Mounting plate
AB41-02/03/04-1 to 8-*** **B**



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

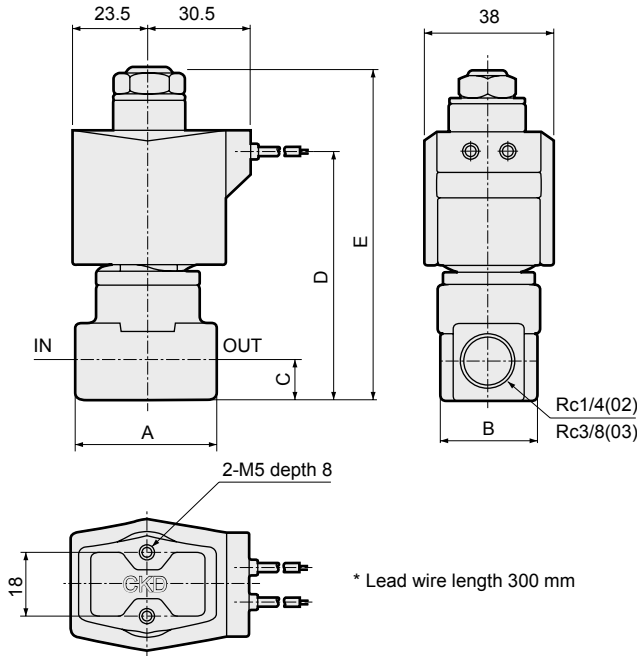
Mounting plate model	Compatibility
AB4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	<ul style="list-style-type: none"> ● AB41-02/03-1 to 7 Series ● Stainless steel body
AB4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	<ul style="list-style-type: none"> ● AB41-03/04-8 Series ● Stainless steel body

* Material: Steel/Zinc plated

Dimensions: AB42 Series



- Grommet lead wire
AB42-02/03-1 to 7



[Reference] Normally-open direct acting 2-port valve is open when not energized and closed when energized. This structure is suitable for use in the open state for long periods.

*1 : The dimensions are the same for port sizes of G and NPT threads.

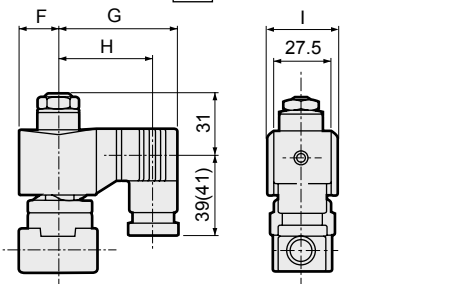
Model No.	A	B	C	D	E
AB42-02-1 to 6	36	28	11	72	94
AB42-02-7	40	28	12	75	97
AB42-03-1 to 7	40	28	12	75	97

Optional dimensions: AB42 Series



* Refer to the dimensions of grommet lead wire above for common dimensions.

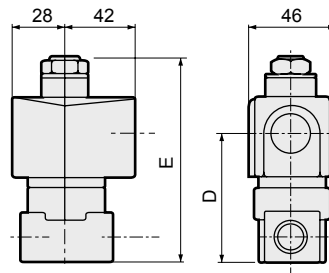
- With DIN terminal box
AB42-02/03-1 to 7-*



Dimensions shown in () are for G1/2.

Voltage	F	G	H	I
AC	23.5	65.5	54(53.5)	38
DC	28	72	60.5(60)	46

- Open frame lead wire
AB42-02/03-1 to 7-*

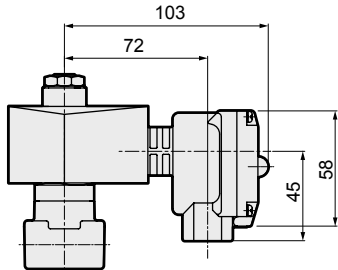
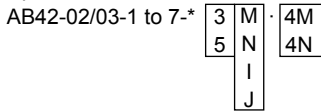


Model No.	D	E
AB42-02-1 to 6	56	94
AB42-02-7	59	97
AB42-03-1 to 7	59	97

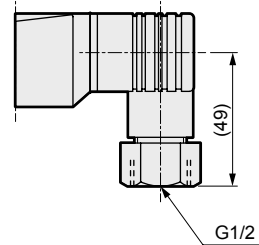
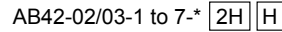
Optional dimensions: AB42 Series



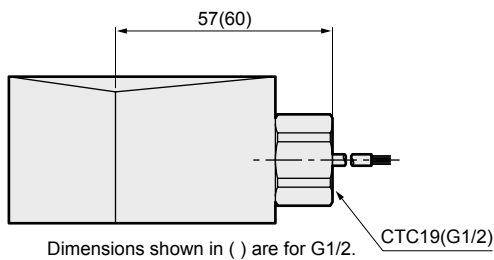
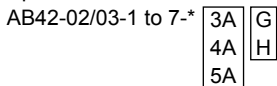
● Open frame + HP terminal box



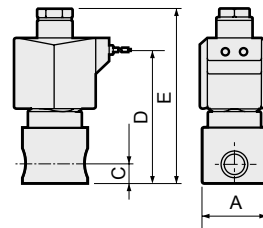
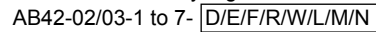
● DIN terminal box with small lamp + conduit (G1/2)



● Open frame + conduit

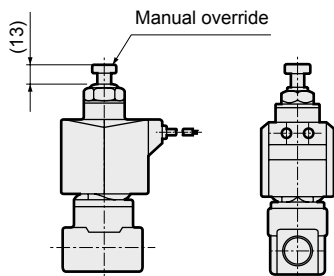
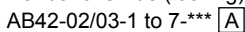


● Stainless steel body + grommet lead wire

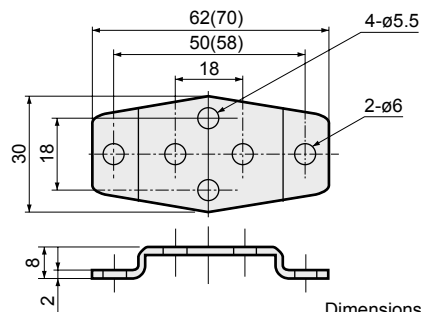
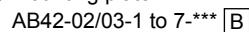


Model No.	A	C	D	E
AB42-02-1 to 6	ø37.5	11	72	94
AB42-02-7	ø45.0	12	75	97
AB42-03-1 to 7	ø45.0	12	75	97

● Manual override (locking)



● Mounting plate

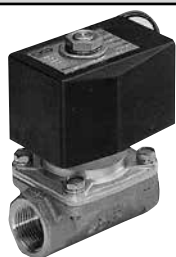


Dimensions shown in () are for mounting plate No. 2.

Mounting plate model	Compatibility
AB4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	<ul style="list-style-type: none"> ● AB42-02/03-1 to 7 Series ● Stainless steel body
AB4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	<ul style="list-style-type: none"> ● Stainless steel body

* Material: Steel/Zinc plated

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



Large bore size direct acting 2-port solenoid valve
General purpose

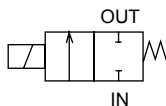
AB71 Series

- NC (open when energized)
- Port size: Rc1/2, Rc3/4, Rc1



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

JIS symbol



Specifications

1 MPa \approx 145.0 psi, 1 MPa = 10 bar

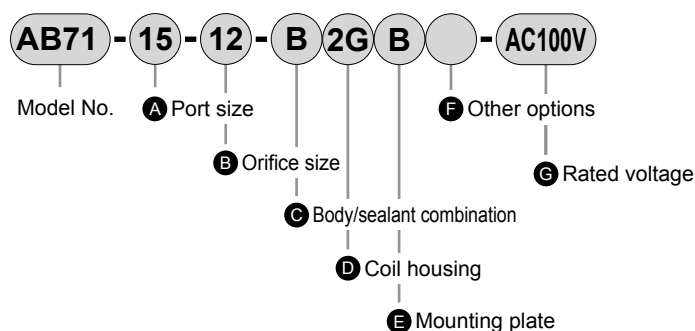
Item	AB71-15-12	AB71-20-15	AB71-25-18
Working fluid	Air/water/kerosene/oil (20 mm ² /s)		
Working pressure	Air AC:0 to 0.1, DC:0 to 0.08	AC:0 to 0.07, DC:0 to 0.04	AC:0 to 0.04, DC:0 to 0.03
differential MPa	Fluids AC:0 to 0.08, DC:0 to 0.08	AC:0 to 0.05, DC:0 to 0.04	AC:0 to 0.03, DC:0 to 0.03
Proof pressure (water pressure) MPa	1 (\approx 150 psi, 10 bar)		
Fluid viscosity mm ² /s	20 or less		
Fluid temperature $^{\circ}$ C	-5 (23 $^{\circ}$ F) to 60 (140 $^{\circ}$ F) (no freezing)		
Ambient temperature $^{\circ}$ C	-10 (14 $^{\circ}$ F) to 60 (140 $^{\circ}$ F)		
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)		
Port size	Rc1/2	Rc3/4	Rc1
Orifice size mm	12	15	18
Mounting orientation	Limited to the range of vertical direction with the coil on top to horizontal direction.		
Weight kg	1.0	1.2	1.6
Electrical specifications			
Rated voltage	100 VAC50/60 Hz, 200 VAC50/60 Hz, 110 VAC60 Hz, 220 VAC60 Hz, 12 VDC, 24 VDC, 48 VDC, 100 VDC		
Apparent power VA	When holding (50/60 Hz)	32/26	
	When starting (50/60 Hz)	123/106	
Power consumption W	AC:13/11(50/60 Hz), DC:20		

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics			
			C[dm ³ /(s·bar)]	b	Cv	S(mm ²)
AB71-15-12	Rc1/2	12	15	0.21	2.8	-
AB71-20-15	Rc3/4	15	-	-	4.3	106
AB71-25-18	Rc1	18	-	-	6.3	148

*1: Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

How to order



Code	Description
A Port size	
15	Rc1/2
20	Rc3/4
25	Rc1
B Orifice size	
12	ø12 (AB71-15 [port size Rc1/2] only)
15	ø15 (AB71-20 [port size Rc3/4] only)
18	ø18 (AB71-25 [port size Rc1] only)
C Body/sealant combination	
	Body Body Seal Treatment
B	Bronze Copper alloy Fluoro rubber -
J	Bronze Copper alloy Fluoro rubber Oil-prohibited

[Example of model No.]

AB71-15-12-B2EB-AC100V

Model: AB71

- A** Port size : Rc1/2
- B** Orifice size : ø12
- C** Body/sealant combination : Body - bronze, stuffing - copper alloy, seal - fluoro rubber
- D** Coil housing : With DIN terminal box (G1/2)
- E** Mounting plate : With
- F** Other options : None
- G** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

D Coil housing			E	F Other options			G Rated voltage				
Description			Mounting plate	Cable gland		Conduit		Description			
				(marine cable gland)	(conduit piping)						
				A-15a	A-15b	A-15c	CTC19	G1/2			
2C	Std.	Grommet lead wire	B						100 VAC, 200 VAC		
2E		With DIN terminal box (G1/2)									
2G		With DIN terminal box (Pg11)									
2H		DIN terminal box with small lamp (Pg11)						H			
3A	Option	Open	B					G	H	100 VAC, 200 VAC	
3M		Frame		Lead wire (IP65 or equivalent)							12 VDC, 24 VDC, 48 VDC, 100 VDC
3N				With HP terminal box (G1/2)	D	E	F				100 VAC, 200 VAC, 24 VDC, 100 VDC
5A	Option	Open Frame	B					G	H	100 VAC, 200 VAC	
5M		(diode integrated)		Lead wire (IP65 or equivalent)							
5N				With HP terminal box (G1/2)	D	E	F				
		HP terminal box with lamp (G1/2)									

For Items (D) to (G), the combinations indicated with codes are available.
Note that if options for Items (E) and (F) are not required, they should be left blank.

⚠ Precautions for model No. selection

Notes for (C)

*1 : Refer to Intro Page 39 for reference on material combinations.

Notes for (D)

- *2 : Refer to page 148 for coil selection.
- *3 : Coils for 5A/5M/5N have a diode to convert AC to DC voltage.
- *4 : When the fluid is air, 5A type is recommended.
- *5 : For availability of coil of thermal class H, contact CKD.

Notes for (F)

*6 : For Item (F), select an option from D, E, F, G and H.

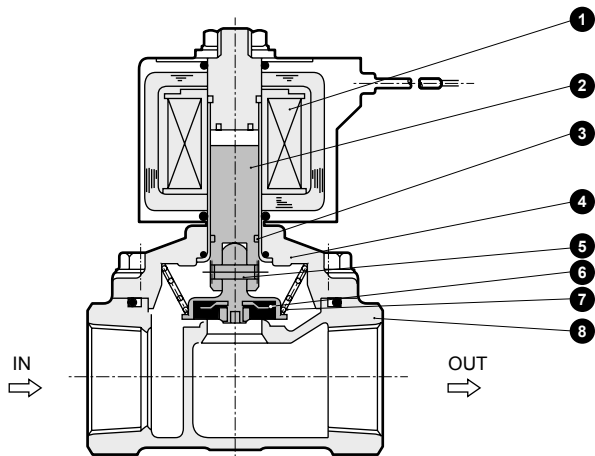
Notes for (G)

- *7 : 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. However, (D) 5A/5K/5H coils can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- *8 : For voltages other than above, contact CKD.
- *9 : The lead wire is available in 300 mm length (standard) and 500 mm length. Contact CKD for more information.

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

AB71 Series

Internal structure and parts list



No.	Part name	Material
1	Coil	-
2	Plunger	SUS405 Stainless steel
3	Wear ring	PTFE Tetrafluoroethylene resin
4	Stuffing assembly (Core assembly)	C3771 SUS405, Cu Copper alloy Stainless steel, copper
5	Spring pin	SUS420 Stainless steel
6	Main valve	SUS304, FKM Stainless steel, fluoro rubber
7	Main valve spring	SUS304 Stainless steel
8	Body	CAC407 Bronze

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

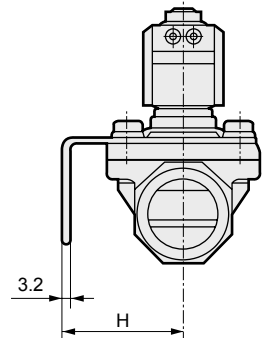
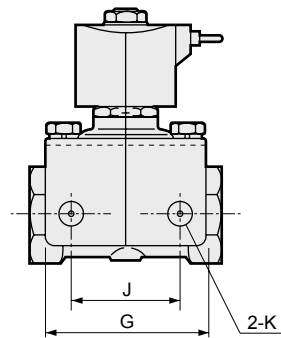
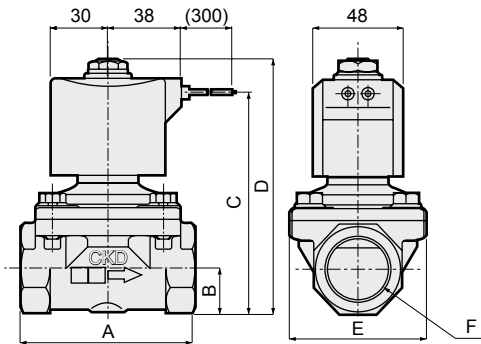
Dimensions



● Grommet lead wire
AB71-**-**2C

● With mounting plate
AB71-**-** B

Material: Steel
Zinc plated



Model No.	A	B	C	D	E	F	G	H	J	K
AB71-15-12	71	14.5	95	110.5	50	Rc1/2	56	45	40	ø9
AB71-20-15	80	17.5	101	116	60	Rc3/4	63	50	45	ø9
AB71-25-18	90	22.5	111	126	71	Rc1	75	56	50	ø11

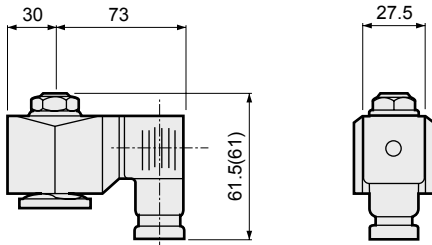
Optional dimensions



- With DIN terminal box

AB71-**-**2

E
G
H

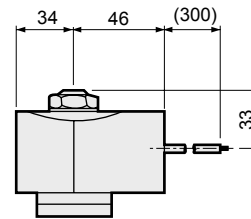


Dimensions shown in () are for G1/2.

- Open frame lead wire

AB71-**-**

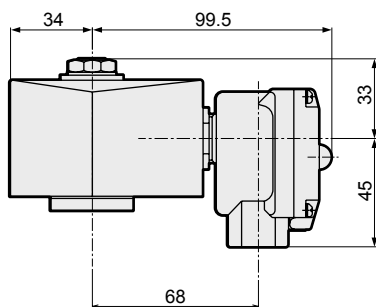
3A
5A



- Open frame + HP terminal box

AB71-**-**

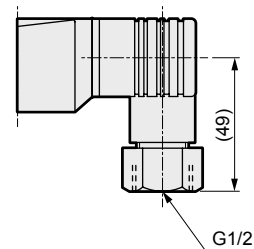
3	M
5	N



- DIN terminal box with small lamp + conduit (G1/2)

AB71-**-**

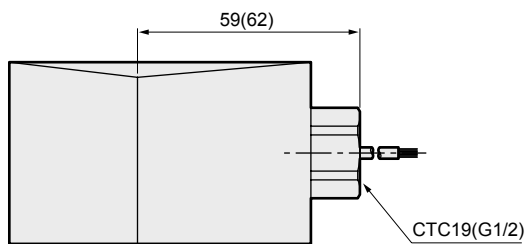
2H	H
----	---



- Open frame + conduit

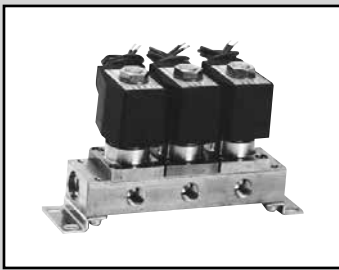
AB71-**-**

3A	G
5A	H



Dimensions shown in () are for G1/2.

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



Direct acting 2-port solenoid valve, manifold/actuator
General purpose

GAB312/GAB352/GAB412/GAB452 Series

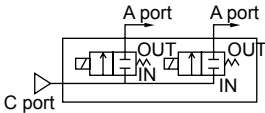
- NC (open when energized)
- Common supply (port C pressurization), individual supply (port A pressurization)

Refer to the Ending for details.

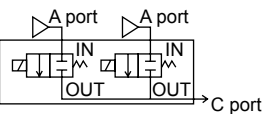


JIS symbol

- GAB312/412
(Common supply/port C pressurization)



- GAB352/452
(Individual supply/port A pressurization)



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications		Optional specifications	
			Hot water	Steam
Working fluid	Air/low vacuum [1.33 x 10 ⁵ Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)			
Working pressure differential MPa	0 to 5 (refer to max. working pressure differential in individual specifications.)			
Max. working pressure MPa	5 (≈730 psi, 50 bar)		1 (≈150 psi, 10 bar)	
Proof pressure (water pressure) MPa	10 (≈1500 psi, 100 bar)			
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)	-10 (14°F) to 184 (363.2°F)	
Ambient temperature °C	-20 (-4°F) to 60 (140°F)		-20 (-4°F) to 100 (212°F)	
Thermal class	Class 130 (B)		Class 180 (H)	
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 (air)		300 or less (air)	
Mounting orientation	Unrestricted			
Body/seal material	Copper alloy/nitrile rubber		Copper alloy/EPM rubber	Copper alloy/PTFE

*1: No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Model No.	Port size	Orifice size (mm)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consumption (W)			
			Air		Water(hot)/Kerosene		Oil (50 mm ² /s)			Steam		When holding		When starting		AC 50/60 Hz	DC
			AC	DC	AC	DC	AC	DC		AC	DC	50 Hz	60 Hz	50 Hz	60 Hz		
GAB312/352-1	-	1.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	100 VAC 50/60 Hz *8	12	10	17	14	5.2/3.8	11 (8.1)*5	
		2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5								
		3.0	1.0	0.5	0.7	0.5	0.5	0.5	0.7								
		3.5	0.6	0.4	0.5	0.4	0.4	0.4	0.5								
		4.0	0.4	0.25	0.3	0.25	0.25	0.25	0.3								
		5.0	0.2	0.15	0.15	0.15	0.15	0.15	0.15								
GAB412/452-1	-	1.5	5.0	4.0	4.5	4.0	4.0	4.0	4.0	200 VAC 50/60 Hz *8	18	15	29	24	6.7/5.7	11 (10.4)*5 (7)*7	
		2.0	3.0	2.5	2.7	2.5	2.5	2.5	1.0								
		3.0	1.5	0.9	1.3	0.9	0.9	0.9	1.0								
		3.5	1.2	0.6	0.9	0.6	0.6	0.6	0.9								
		4.0	1.0	0.5	0.7	0.5	0.5	0.5	0.7								
		5.0	0.6	0.25	0.4	0.25	0.25	0.25	0.4								
		7.0	0.25	0.1	0.2	0.1	0.15	0.1	0.2								

*1 : The model numbers above are for basic orifice sizes. Refer to How to order for other combinations (e.g., for steam).

*2 : For port size, refer to How to order (page 174) and dimensions (page 178).

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

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

*5 : Power consumption of coil housings 2E/2G/2H.

*6 : When using at low vacuum, vacuum the OUT port side.

*7 : Power consumption of coil housings 6C/6E/6G/6H.

*8 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.

Weight

Model No.	Weight (kg)									
	Actuator only	2 stations	3 stations	4 stations	5 stations	6 stations	7 stations	8 stations	9 stations	10 stations
GAB312 GAB352	0.34	1.4	2.0	2.8	3.2	4.0	4.6	5.2	6.0	6.3
GAB412 GAB452	0.42	1.6	2.2	3.1	3.6	4.5	5.1	5.8	6.7	7.1

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

Sealant	Fluoro rubber		Ethylene propylene rubber		PTFE	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)	-10 to 60	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)				300 or less (air)	

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics		
			C[dm ³ /(s·bar)]	b	Cv
GAB312/352-1	-	1.5	0.29	0.53	0.10
		2.0	0.53	0.52	0.15
		3.0	1.1	0.52	0.31
		3.5	1.5	0.47	0.40
		4.0	1.9	0.47	0.48
		5.0	2.6	0.38	0.62
GAB412/452-1	-	1.5	0.29	0.53	0.10
		2.0	0.53	0.5	0.15
		3.0	1.1	0.52	0.31
		3.5	1.5	0.47	0.40
		4.0	1.9	0.47	0.48
		5.0	2.6	0.38	0.62
		7.0	4.6	0.37	0.82

*1: Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

GAB312/352/412/452 Series

How to order

● Common supply (port C pressurization)

GAB312 - **1** - **5** - **B** **3A** **A** **G** **S** - **AC100V**

● Individual supply (port A pressurization)

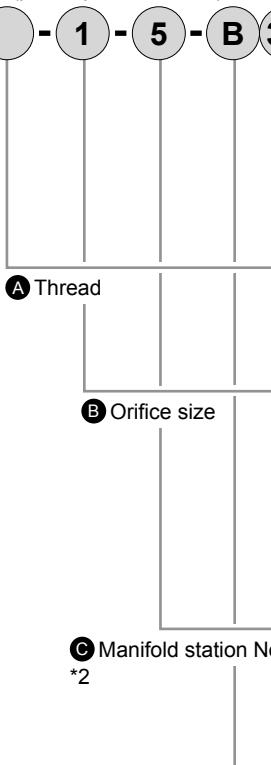
GAB352

● Common supply (port C pressurization)

GAB412

● Individual supply (port A pressurization)

GAB452



- E** Coil housing
- H** With surge suppressor
- F** Manual override (locking)
- I** Rated voltage
- G** Other options

Model No.	
GAB312	GAB412
GAB352	GAB452

Code	Description	GAB312	GAB412			
A Thread						
Blank	Rc	●	●			
G	G	●	●			
N	NPT	●	●			
B Orifice size						
1	ø1.5	●	●			
2	ø2	●	●			
3	ø3	●	●			
4	ø3.5	●	●			
5	ø4	●	●			
6	ø5	●	●			
7	ø7		●			
C Manifold station No.						
2 to 10	2 stations to 10 stations	●	●			
0	Actuator only	●	●			
D Body/sealant combination						
	Body	Seal	Treatment	Remarks	GAB312	GAB412
Blank	Std. Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
		PTFE		Steam (up to 184°C *4)	●	●
D	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
		PTFE		Steam (up to 184°C *4)	●	●
H	Option Copper alloy	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
		PTFE		Steam (up to 184°C *4)	●	●
P	Stainless steel	Ethylene propylene rubber	-	Hot water (up to 90°C *4)	●	●
		Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
N	Stainless steel	PTFE	-	Steam (up to 184°C *4)	●	●
		Ethylene propylene rubber		Hot water (up to 90°C *4)	●	●

Refer to Intro Page 39 for reference on material combinations.

E to I
Refer to page 175 for details on the coil housing, other options and voltage, etc.

The combinations indicated with ● in the above table are available.

[Example of model No. 1]
GAB312G-1-3-AC200V

Model: GAB312 (common supply, port C pressurization)

- A** Thread : G
- B** Orifice size : ø1.5
- C** Manifold station No. : 3 stations
- D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- E** Coil housing : Grommet lead wire
- F to H** : None
- I** Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

[Example of model No. 2]
GAB352-5-2-000AS-AC200V

Model: GAB352 (individual supply/port A pressurization)

- A** Thread : Rc
- B** Orifice size : ø4
- C** Manifold station No. : 2 stations
- D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- E** Coil housing : Grommet lead wire
- F** Manual override (locking) : Selected
- G** Other options : None
- H** Surge suppressor : With surge suppressor
- I** Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Precautions for model No. selection

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

Notes for C to D


- *2 : For 11 or more manifold station No., contact CKD.
- *3 : Leave blank for standard. However, to select options in (E), (F), (G) or (H), indicate 0 for Item (D).
- *4 : When Item (D) 4A/4M/4N is selected.
- *5 : The ethylene propylene rubber seal combination (Item (D) P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- *6 : When Item (D) is C, F, K, P, N or R, the Item (E) coil housings 6C, 6E, 6G and 6H cannot be selected.
- *7 : For PTFE seal, O-ring material of sub-plate connection will be FKM.

For Items (E) to (I), the combinations indicated with codes are available.
 Note that if options for Items (F) to (H) are not required, they should be left blank.

(E) Coil housing		(F) Manual override (Locking)	(G) Other options					(H) With surge suppressor	(I) Rated voltage			
Description			Cable gland			Conduit			Description			
			(marine cable gland)			(conduit piping)						
			A-15a	A-15b	A-15c	CTC19	G1/2					
Blank	Std. Grommet lead wire								100 VAC, 200 VAC			
2E	With DIN terminal box (G1/2)	A							S	100 VAC, 200 VAC		
2G	With DIN terminal box (Pg11)									12 VDC, 24 VDC, 48 VDC, 100 VDC		
2H	DIN terminal box with small lamp (Pg11)							H		100 VAC, 200 VAC, 24 VDC		
3A	Open frame Lead wire (IP65 or equivalent)	A						G	H	100 VAC, 200 VAC		
3M			With HP terminal box (G1/2)								12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N			HP terminal box with lamp (G1/2)	D	E	F				S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
3I			HP terminal box (IP65 or equivalent) (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3J			HP term box, lamp (IP65, equiv) (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
4A	Option Open frame (Thermal class 180 (H)) Lead wire	A						G	H	S	100 VAC, 200 VAC	
4M			With HP terminal box (G1/2)	D	E	F			100 VAC, 200 VAC			
4N			HP terminal box with lamp (G1/2)									
5A	Open frame (diode integrated) Lead wire (IP65 or equivalent)	A						G	H	100 VAC, 200 VAC		
5M			With HP terminal box (G1/2)									
5N			HP terminal box with lamp (G1/2)	D	E	F						
5I			HP terminal box (IP65 or equivalent) (G1/2)									
5J			HP term box, lamp (IP65, equiv) (G1/2)									
6C	Grommet lead wire 7W	A								S	12 VDC, 24 VDC	
6E	With DIN terminal box (G1/2) 7W											
6G	With DIN terminal box (Pg11) 7W											
6H	DIN terminal box with small lamp (Pg11) 7W							H	24 VDC			

⚠ Refer to the following cautions for Items (E) to (I).

Blank 6C		● Grommet lead wire 300 mm
2E 2G 2H 6E 6G 6H		● DIN terminal box
3A 4A 5A		● Open frame lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

G H		● Conduit ● G(CTC19) ● H(G1/2)
----------------	--	--------------------------------------

⚠ Precautions for model No. selection

Notes for (E)

- *8 : Leave blank for the standard coil housing. However, to select options in (F), (G) or (H), indicate 00 for Item (E).
- *9 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
- *10: A DC coil for steam is available for GAB4*2. Contact CKD for more information.
- *11: The coil housings 6C, 6E and 6G are 12 VDC and 24 VDC dedicated. 6H is 24 VDC dedicated.
- *12: For 6C/6E/6G/6H, only GAB4*2 is available.

Notes for (F) to (H)

- *13: When Item (D) is C, F, K or N, the manual override (Item (F)A) is not available.
- *14: For Item (G), select an option from D, E, F, G and H.
- *15: The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *16: As standard, the surge suppressor is built into the coil with diode and the 24 VDC coil (Item (E)2H/6H), so surge suppressor code S cannot be selected.
- *17: Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) and the coil option 6C/6E/6G/6H are selected.

Notes for (I)

- *18: 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. However, coils for Item (E) 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *19: For voltages other than above, contact CKD.
- *20: 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.

Refer to page 148
for coil selection.

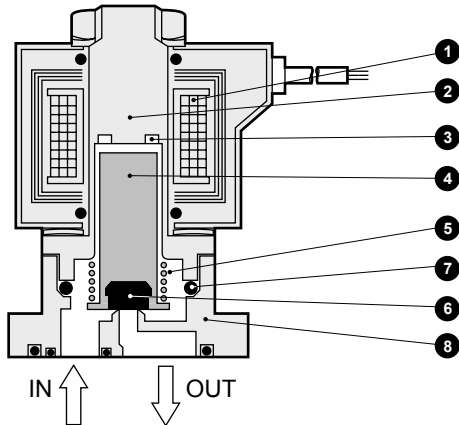
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S ⚡ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

GAB312/352/412/452 Series

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

Internal structure and parts list

● GAB312/GAB352/GAB412/GAB452 actuator



No.	Part name	Material
1	Coil	-
2	Core assembly	SUS405 or equiv./316L/403 *1
3	Shading coil	Cu (Ag for stainless steel body) Copper (silver for stainless steel body)
4	Plunger	SUS405 or equiv.
5	Plunger spring	SUS304
6	Seal	NBR (FKM/EPDM/PTFE)
7	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019)
8	Body	C3771(SCS13)

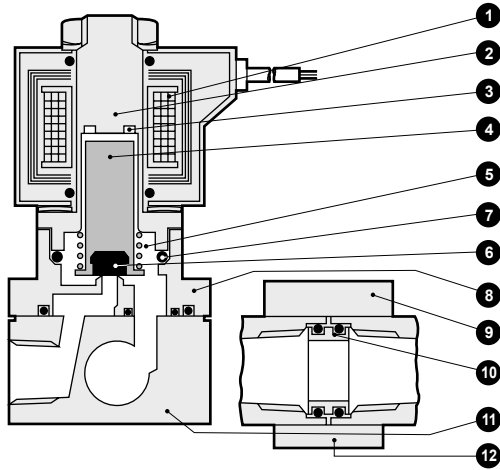
*1 : When the body/sealant combination code is other than blank and H, or the coil housing code is 6C, 6E, 6G or 6H, the material is SUS405 or equivalent/SUS316L/SUS430.

*2 : () shows options.

*3 : 4 body mounting screws and 2 O-rings are attached to the actuator only.

Internal structure and parts list

● GAB312/GAB352/GAB412/GAB452 manifold



No.	Part name	Material
1	Coil	-
2	Core assembly	SUS405 or equiv./316L/403 *1
3	Shading coil	Cu (Ag for stainless steel body) / Copper (silver for stainless steel body)
4	Plunger	SUS405 or equiv.
5	Plunger spring	SUS304
6	Seal	NBR (FKM/EPDM/PTFE)
7	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019)
8	Body	C3771(SCS13)
9	Holder	SPCC
10	Connector	C3604(SUS304)
11	Sub-plate	C3604(SUS303)
12	Connecting plate	SPCC

*1 : When the body/sealant combination code is other than blank and H, or the coil housing code is 6C, 6E, 6G or 6H, the material is SUS405 or equivalent/SUS316L/SUS430.

*2 : () shows options.

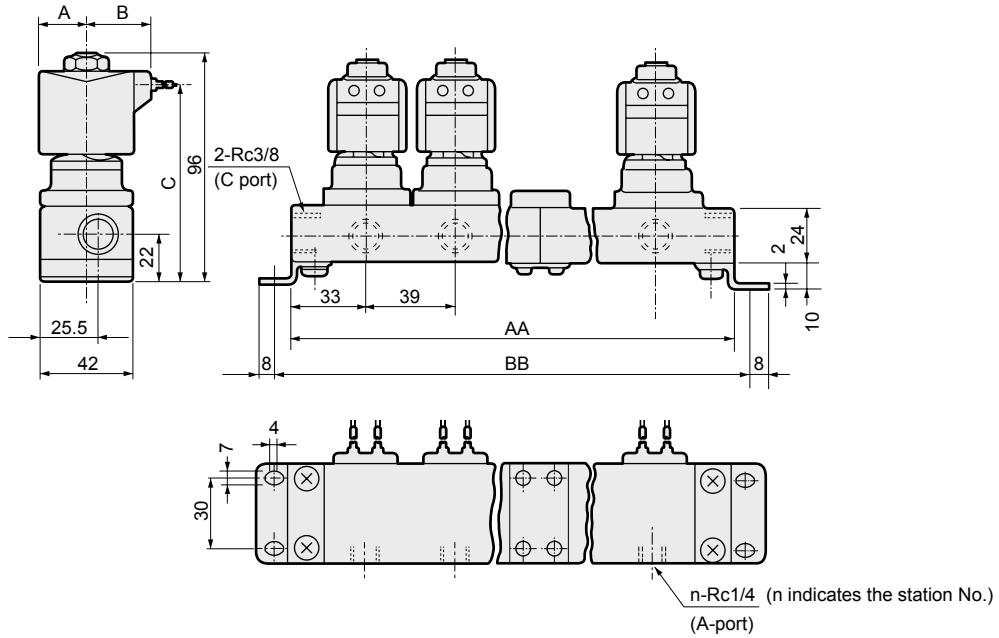
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
Outdoor
SpecFld
Custom
Ending

GAB312/352/412/452 Series



Dimensions: GAB312/352 Series

- Manifold (grommet lead wire)
GAB312/352-1 to 6- [2 to 10] - * [Blank]



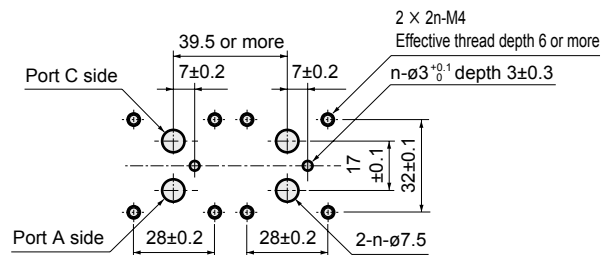
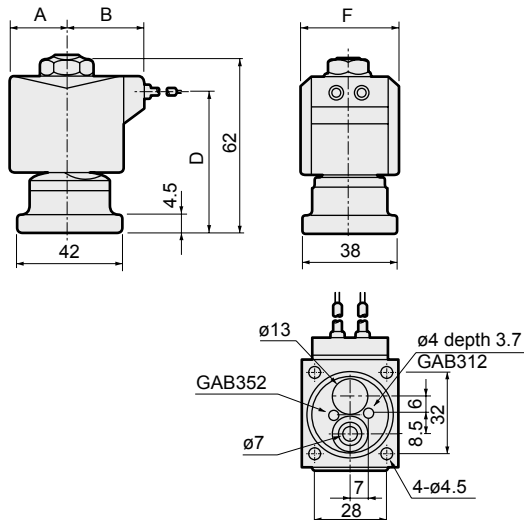
Station No.	AA	BB	Manifold configuration	Station No.	AA	BB	Manifold configuration
2	106	122	2 stations x 1	7	329	345	5 stations + 2 stations
3	145	161	3 stations x 1	8	368	384	5 stations + 3 stations
4	212	228	2 stations x 2	9	435	451	3 stations x 3
5	223	239	5 stations x 1	10	446	462	5 stations x 2
6	290	306	3 stations x 2	Contact CKD for 11 stations or more.			

Model No.	A	B	C
Blank	20	27	84

- *1 : Manifold configuration combines 2-station, 3-station and 5-station units.
- *2 : The dimensions are the same for port sizes of G and NPT threads.

- Actuator (grommet lead wire)
GAB312/352-1 to 6- [0] - * [Blank]

- Recommended dimensions for actuator mounting



■ Machining drawing when using 2 actuators

Model No.	A	B	D	F
Blank	20	27	50	34

GAB312/352/412/452 Series

Optional dimensions: GAB312/352 Series

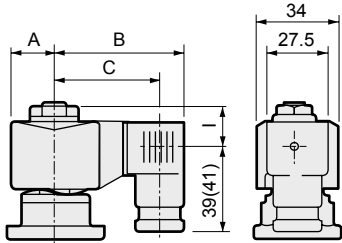


* Refer to the dimensions of grommet lead wire on page 178 for common dimensions.

● With DIN terminal box

GAB312/352-1 to 6-0 to 10-*

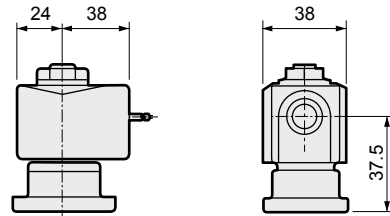
2	E
	G
	H



● Open frame lead wire

GAB312/352-1 to 6-0 to 10-*

3A
4A
5A



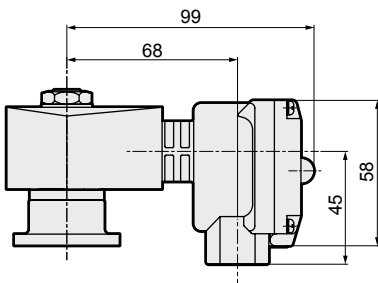
Dimensions shown in () are for G1/2.

Voltage	A	B	C	I
AC (2E/2G/2H)	20	62	50.5(50)	20.5
DC (2E/2G/2H)	21	63.5	52(51.5)	20.5

● Open frame + HP terminal box

GAB312/352-1 to 6-0 to 10-*

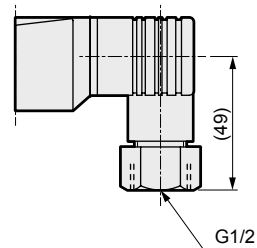
3	M	4M
5	N	4N
	I	
	J	



● DIN terminal box with small lamp + conduit (G1/2)

GAB312/352-1 to 6-0 to 10-*

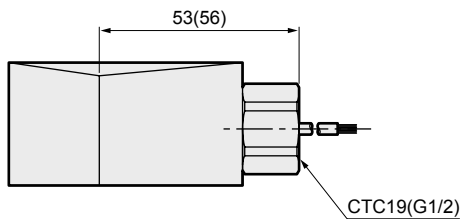
2H	H
----	---



● Open frame + conduit

GAB312/352-1 to 6-0 to 10-*

3A	G
4A	H
5A	

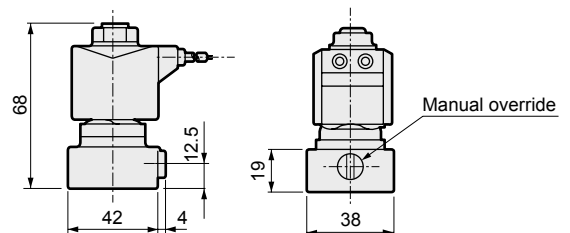


Dimensions shown in () are for G1/2.

● Manual override (locking)

GAB312/352-1 to 6-0 to 10-***

A



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

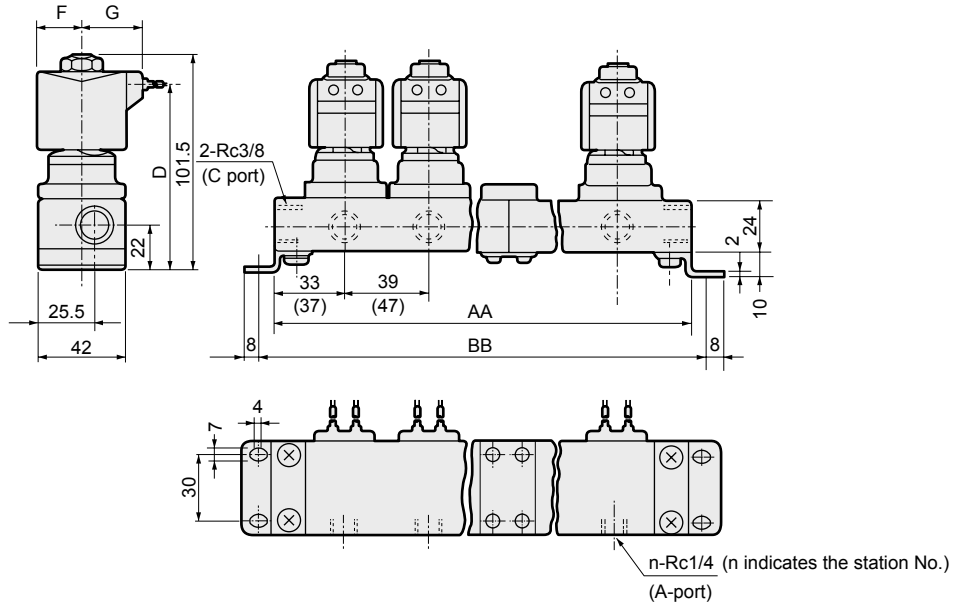
GAB312/352/412/452 Series



Dimensions: GAB412/452 Series

● Manifold (grommet lead wire)

GAB412/452-1 to 7- [2 to 10] - * [Blank] / [6C]



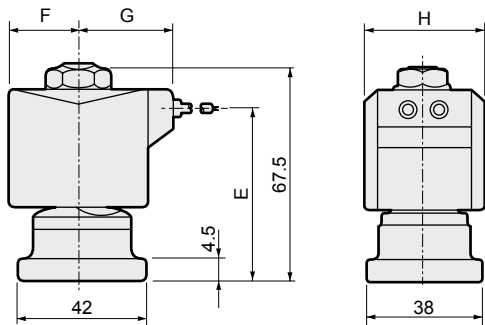
Station No.	AA	BB	Manifold configuration	Station No.	AA	BB	Manifold configuration
2	106(122)	122(138)	2 stations x 1	7	329(385)	345(401)	5 stations + 2 stations
3	145(169)	161(185)	3 stations x 1	8	368(432)	384(448)	5 stations + 3 stations
4	212(244)	228(260)	2 stations x 2	9	435(507)	451(523)	3 stations 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	Contact CKD for 11 stations or more.			

Model No.	F	G	D
Blank	23.5	30.5	89
6C	24	30.5	89

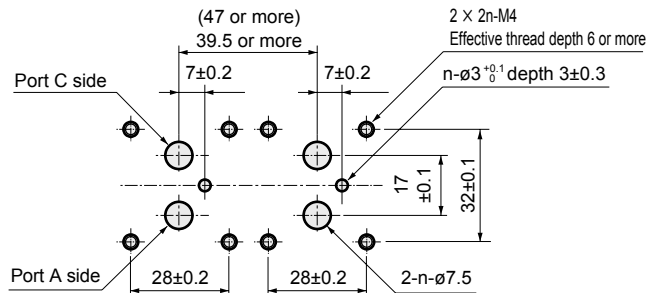
- *1 : Manifold configuration combines 2-station, 3-station and 5-station units.
- *2 : Dimensions shown in () are for open frame.
- *3 : The dimensions are the same for port sizes of G and NPT threads.

● Actuator (grommet lead wire)

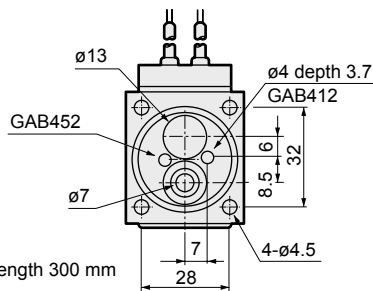
GAB412/452-1 to 7-0 - * [Blank] / [6C]



● Recommended dimensions for actuator mounting



■ Machining drawing when using 2 actuators



* Lead wire length 300 mm

Model No.	F	G	E	H
Blank	23.5	30.5	55	38
6C	24	30.5	55	39

GAB312/352/412/452 Series

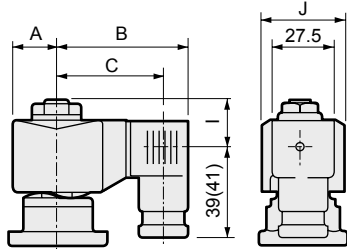
Optional dimensions: GAB412/452 Series



* Refer to the dimensions of grommet lead wire on page 180 for common dimensions.

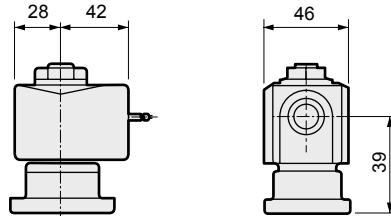
- With DIN terminal box
GAB412/452-1 to 7-0 to 10-*

2	E
6	G
	H



- Open frame lead wire
GAB412/452-1 to 7-0 to 10-*

3	A
4	A
5	A

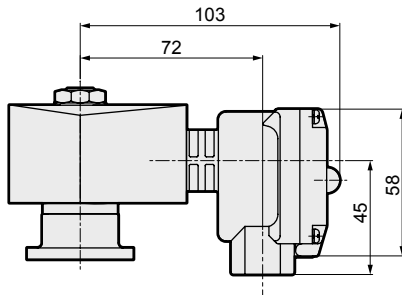


Dimensions shown in () are for G1/2.

Voltage	A	B	C	I	J
AC (2E/2G/2H)	23.5	65.5	54(53.5)	22	38
DC (2E/2G/2H)	23.5	66	54.5(54)	22	38
DC (6E/6G/6H)	24	68	56.5(56)	22	39

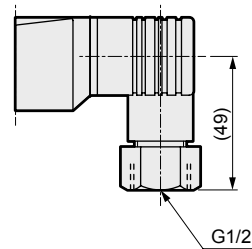
- Open frame + HP terminal box
GAB412/452-1 to 7-0 to 10-*

3	M	4	M	
5	N		4	N
	I			J



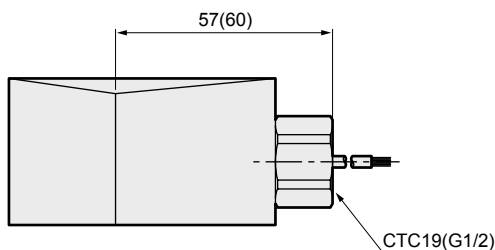
- DIN terminal box with small lamp + conduit (G1/2)
GAB412/452-1 to 7-0 to 10-*

2	H	H
---	---	---



- Open frame + conduit
GAB412/452-1 to 7-0 to 10-*

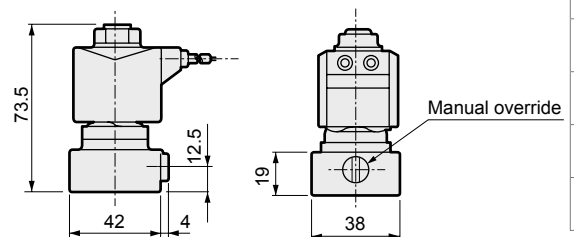
3	A	G
4	A	H
5	A	



Dimensions shown in () are for G1/2.

- Manual override (locking)
GAB412/452-1 to 7-0 to 10-***

A



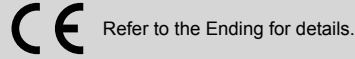
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S ⚡ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending



Direct acting 2-port solenoid valve, manifold/actuator
General purpose

GAB422 Series

- NO (closed when energized)
- Common supply (port C pressurization)

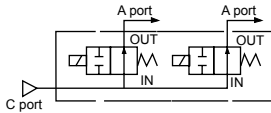


- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB**
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S◇B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combust
- Auto-Water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

Manifold circuit configuration Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

- GAB422 (Common supply/port C pressurization)



Item	Standard specifications	Optional specifications	
Working fluid	Air/low vacuum (1.33 x 10 ⁵ Pa (abs)) / water/kerosene/oil (50 mm ² /s or less)	Hot water	Steam
Working pressure differential MPa	0 to 2 (refer to max. working pressure differential in individual specifications.)		
Max. working pressure MPa	2 (≈290 psi, 20 bar)	1 (≈150 psi, 10 bar)	
Proof pressure (water pressure) MPa	10 (≈1500 psi, 100 bar)		
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)	-10 (14°F) to 184 (363.2°F)
Ambient temperature °C	-20 (-4°F) to 60 (140°F)	-20 (-4°F) to 100 (212°F)	
Thermal class	Class 130 (B)	Class 180 (H)	
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 (air)	300 or less (air)	
Mounting orientation	Unrestricted		
Body/seal material	Copper alloy/nitrile rubber	Copper alloy/EPM rubber	Copper alloy/PTFE

*1 : No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Max. working pressure differential (MPa)							Rated voltage	Apparent power (VA)				Power consumption (W)	
			Air		Water(hot)/Kerosene		Oil (50 mm ² /s)		Steam		When holding		When starting		AC	DC
			AC	DC	AC	DC	AC	DC	AC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	DC
GAB422-1	-	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	100 VAC 50/60 Hz *7 200 VAC 50/60 Hz *7 12 VDC 24 VDC 48 VDC 100 VDC	22	18	35	29	8.7/6.7	15.5 (14)
GAB422-2		2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0							
GAB422-3		3.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7							
GAB422-4		3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5							
GAB422-5		4.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4							
GAB422-6		5.0	0.25	0.25	0.25	0.25	0.25	0.25	0.25							
GAB422-7		7.0	0.15	0.15	0.15	0.15	0.15	0.15	0.15							

- *1 : The model numbers above are for basic orifice sizes. Refer to How to order for other combinations.
- *2 : For port size, refer to How to order (page 184) and dimensions (page 188).
- *3 : The voltage fluctuation range must be within ±10% of the rated voltage.
- *4 : Values shown in () are for the DC voltage type with DIN terminal box.
- *5 : Refer to DC column for the max. working pressure differential of coil with diode.
- *6 : When using at low vacuum, vacuum the OUT port side.
- *7 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.

Weight

Model No.	Weight (kg)									
	Actuator only	2 stations	3 stations	4 stations	5 stations	6 stations	7 stations	8 stations	9 stations	10 stations
GAB422	0.47	1.7	2.4	3.3	3.8	4.8	5.5	6.2	7.2	7.6

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

Sealant	Fluoro rubber		Ethylene propylene rubber		PTFE	
	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Coil (thermal class)						
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)	-10 to 60	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)				300 or less (air)	

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics		
			C[dm ³ /(s·bar)]	b	Cv
GAB422-1	-	1.5	0.29	0.53	0.10
-2		2.0	0.53	0.52	0.15
-3		3.0	1.1	0.52	0.31
-4		3.5	1.5	0.47	0.40
-5		4.0	1.9	0.47	0.48
-6		5.0	2.6	0.38	0.62
-7		7.0	4.6	0.37	0.82

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

GAB422 Series

How to order

GAB422 - **2** - **5** - **0** **3A** **A** **G** **S** - **AC100V**

Model No.

E Coil housing **H** With surge suppressor

F Manual override (locking) **I** Rated voltage

G Other options

A Thread

B Orifice size

C Manifold station No.
*2

D Body/sealant combination
*3
*4
*5
*6

[Example of model No. 1]

GAB422N-2-6-AC100V

Model : GAB422 (normally open/common supply)

A Thread : NPT

B Orifice size : $\phi 2$

C Manifold station No. : 6 stations

D Body/sealant combination : Body - copper alloy, sealant - nitrile rubber

E Coil housing : Grommet lead wire

F to **H** : None

I Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

[Example of model No. 2]

GAB422-3-0-000AS-AC100V

Model : GAB422 (normally open/common supply)

A Thread : Rc

B Orifice size : $\phi 3$

C Manifold station No. : Actuator only

D Body/sealant combination : Body - copper alloy, sealant - nitrile rubber

E Coil housing : Grommet lead wire

F Manual override (locking) : Selected

G Other options : None

H Surge suppressor : With surge suppressor

I Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

Code	Description
A Thread	
Blank	Rc
G	G
N	NPT

B Orifice size	
1	$\phi 1.5$
2	$\phi 2$
3	$\phi 3$
4	$\phi 3.5$
5	$\phi 4$
6	$\phi 5$
7	$\phi 7$

C Manifold station No.	
2	2 stations
to	to
10	10 stations
0	Actuator only

D Body/sealant combination						
	Body	Seal	Treatment	Remarks		
Blank	Std.	Copper alloy	-	Nitrile rubber	Air/water/low vacuum/kerosene (up to 60°C)	
				Fluoro rubber	Air/low vacuum/kerosene (up to 90°C *4)	
				PTFE	Steam (up to 184°C *4)	
D	Stainless steel	-	-	Nitrile rubber	Air/water/low vacuum/kerosene (up to 60°C)	
				Fluoro rubber	Air/low vacuum/kerosene (up to 90°C *4)	
				PTFE	Steam (up to 184°C *4)	
H	Option	Copper alloy	Oil-prohibited	Nitrile rubber	Air/water/low vacuum/kerosene (up to 60°C)	
				Fluoro rubber	Air/low vacuum/kerosene (up to 90°C *4)	
				PTFE	Steam (up to 184°C *4)	
P	Stainless steel	-	-	Ethylene propylene rubber	Hot water (up to 90°C *4)	
				L	Nitrile rubber	Air/water/low vacuum/kerosene (up to 60°C)
					Fluoro rubber	Air/low vacuum/kerosene (up to 90°C *4)
M	Stainless steel	-	-	PTFE	Steam (up to 184°C *4)	
				R	Ethylene propylene rubber	Hot water (up to 90°C *4)

Refer to Intro Page 39 for reference on material combinations.

E to I

Refer to page 185 for details on the coil housing, other options and voltage, etc.

⚠ Precautions for model No. selection

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

Notes for **C** to **D**

*2 : For 11 or more manifold station No., contact CKD.

*3 : Leave blank for standard. However, to select options in **(E)**, **(F)**, **(G)** or **(H)**, indicate 0 for Item **(D)**.

*4 : When Item **(D)** 4A/4M/4N is selected.






*5 : The ethylene propylene rubber seal combination (Item **(D)** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)

*6 : For PTFE seal, O-ring material of sub-plate connection will be FKM.


For Items (E) to (I), the combinations indicated with codes are available.
 Note that if options for Items (F) to (H) are not required, they should be left blank.

(E) Coil housing		(F) Manual override (Locking)	(G) Other options				(H) With surge suppressor	(I) Rated voltage	
Description		A	Cable gland (marine cable gland)			Conduit (conduit piping)		Description	
			A-15a	A-15b	A-15c	CTC 19	G 1/2		
Blank	Std. Grommet lead wire	A						100 VAC, 200 VAC	
2E	With DIN terminal box (G1/2)							100 VAC, 200 VAC	
2G	With DIN terminal box (Pg11)							12 VDC, 24 VDC, 48 VDC, 100 VDC	
2H	DIN terminal box with small lamp (Pg11)						H	100 VAC, 200 VAC, 24 VDC	
3A	Option Open frame	A	Lead wire (IP65 or equivalent)			G	H	100 VAC, 200 VAC	
3M			With HP terminal box(G1/2)						12 VDC, 24 VDC, 48 VDC, 100 VDC
3N			HP terminal box with lamp (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
3I			HP terminal box (IP65 or equivalent)(G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3J			HP term box, lamp (IP65, equiv)(G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A	Option Open frame (Thermal class 180 (H))	A	Lead wire			G	H	100 VAC, 200 VAC	
4M			With HP terminal box(G1/2)						
4N			HP terminal box with lamp (G1/2)						
5A	Option Open frame (diode integrated)	A	Lead wire (IP65 or equivalent)			G	H	100 VAC, 200 VAC	
5M			With HP terminal box(G1/2)						
5N			HP terminal box with lamp (G1/2)						
5I			HP terminal box (IP65 or equivalent)(G1/2)						
5J	HP term box, lamp (IP65, equiv)(G1/2)								

Refer to the following cautions for Items (E) to (I).

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		<ul style="list-style-type: none"> ● Open frame lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		<ul style="list-style-type: none"> ● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		<ul style="list-style-type: none"> ● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		<ul style="list-style-type: none"> ● Conduit ● G(CTC19) ● H(G1/2)
--------	--	--

Precautions for model No. selection

Notes for (E)

- *7 : Leave blank for the standard coil housing. However, to select options in (F), (G) or (H), indicate 00 for Item E.
- *8 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.

Notes for (F) to (H)

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

Notes for (I)

- *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. However, coils for Item (E) 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *15: For voltages other than above, contact 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.

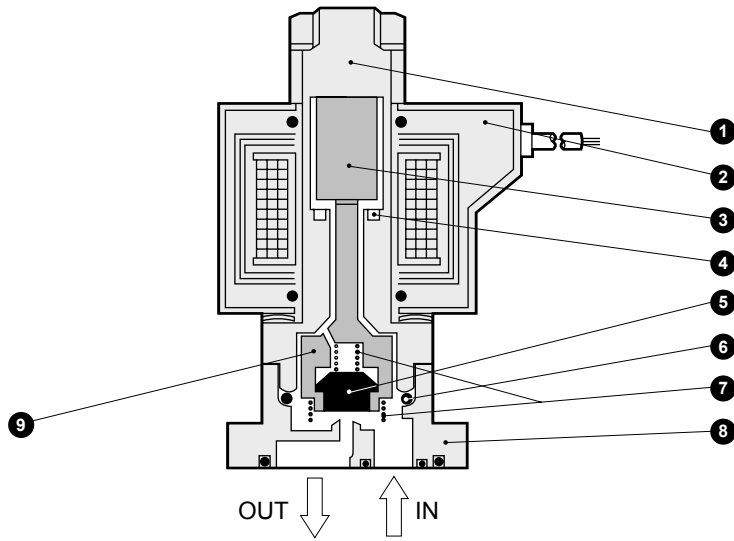
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S/B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

GAB422 Series

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

Internal structure and parts list

● GAB422 actuator



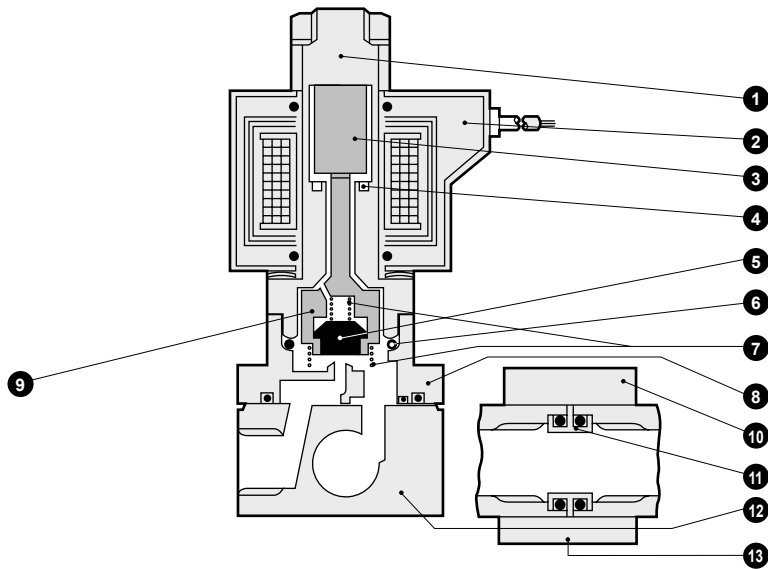
No.	Part name	Material	No.	Part name	Material	
1	Core assembly	SUS405 or equiv./316L/304	8	Body	C3771(SCS13) Copper alloy (stainless steel)	
2	Coil	-	9	NO Valve	POM (PPS/SUS303/PFA) Body/sealant combination When Blank/O/D/H/L/V/W: Polyacetal resin When B/E/J/M/P/R: Polyphenylene sulfide resin When C/F/K/N: Stainless steel/ perfluoroalkoxy resin	
3	Plunger	SUS405 or equiv.				Stainless steel
4	Shading coil	Cu (Ag for stainless steel body)				Copper (silver for stainless steel body)
5	Seal	NBR (FKM/EPDM/PTFE)				NBR: Nitrile rubber FKM: Fluoro rubber EPDM: Ethylene propylene rubber PTFE: Tetrafluoroethylene resin
6	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019)				
7	Spring	SUS304				

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

() shows options.

Internal structure and parts list

● GAB422 manifold



No.	Part name	Material	No.	Part name	Material
1	Core assembly	SUS405 or equiv./316L/304	9	NO Valve	POM (PPS/SUS303/PFA)
2	Coil	-			
3	Plunger	SUS405 or equiv.			
4	Shading coil	Cu (Ag for stainless steel body)			
5	Seal	NBR (FKM/EPDM/PTFE)	10	Holder	SPCC
6	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019)	11	Connector	C3604(SUS304)
7	Spring	SUS304	12	Sub-plate	C3604(SUS303)
8	Body	C3771(SCS13)	13	Connecting plate	SPCC

() shows options.

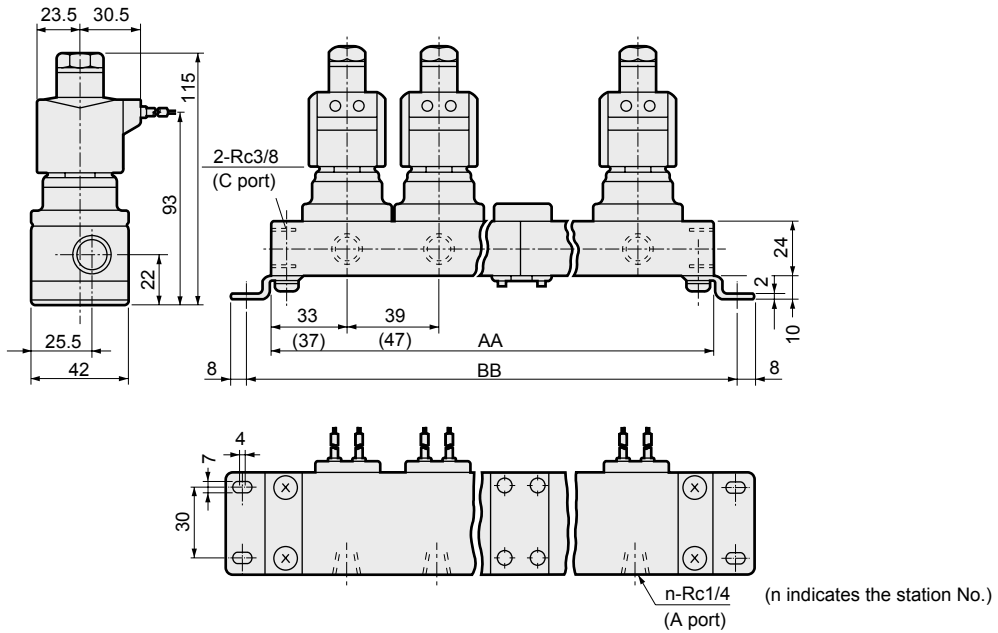
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S ♂ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

GAB422 Series



Dimensions: Manifold

- Grommet lead wire
GAB422-1 to 7-2 to 10



Station No.	AA	BB	Manifold configuration	Station No.	AA	BB	Manifold configuration
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	Contact CKD for 11 stations or more.			

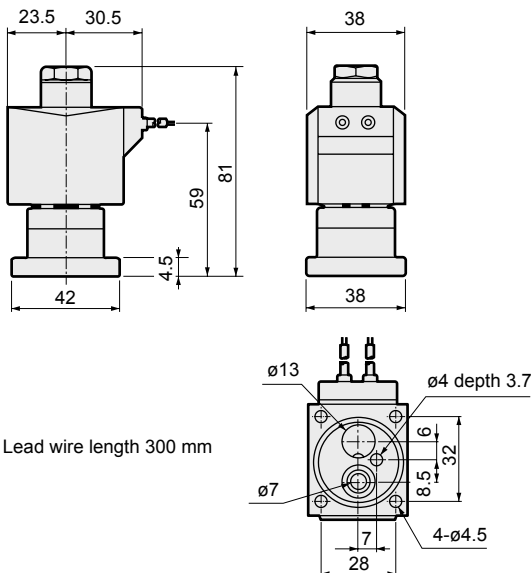
- *1 : Manifold configuration combines 2-station, 3-station and 5-station units.
- *2 : Dimensions shown in () are for open frame.
- *3 : Dimensions for open frame will be applied to the DC voltage type of GAB422 Series with DIN terminal box.
- *4 : The dimensions are the same for port sizes of G and NPT threads.



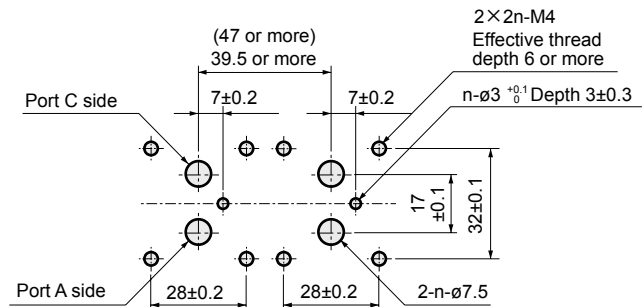
Dimensions: Actuator

- Grommet lead wire
GAB422-1 to 7-0

- Recommended dimensions for actuator mounting



* Lead wire length 300 mm



■ Machining drawing when using 2 actuators

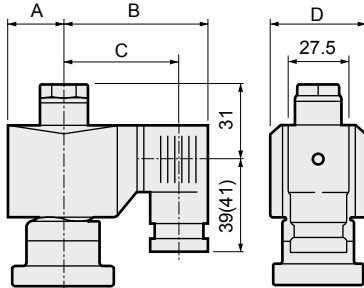
Optional dimensions



* Refer to the dimensions of grommet lead wire on page 188 for common dimensions.

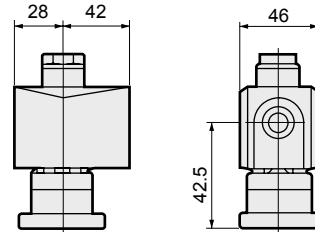
- With DIN terminal box
GAB422-1 to 7-0 to 10-*

2E
2G
2H



- Open frame lead wire
GAB422-1 to 7-0 to 10-*

3A
4A
5A



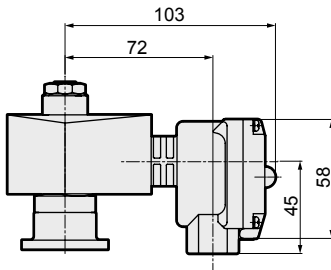
Dimensions shown in () are for G1/2.

Voltage	A	B	C	D
AC	23.5	65.5	54(53.5)	38
DC	28	72	60.5(60)	46

- Open frame + HP terminal box

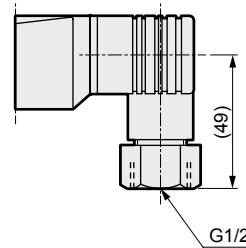
GAB422-1 to 7-0 to 10-*

3M / 4M
5N / 4N
I
J



- DIN terminal box with small lamp + conduit (G1/2)

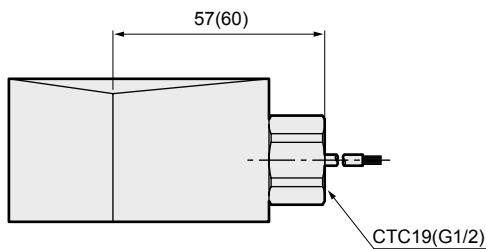
GAB422-1 to 7-0 to 10-* 2H H



- Open frame + conduit

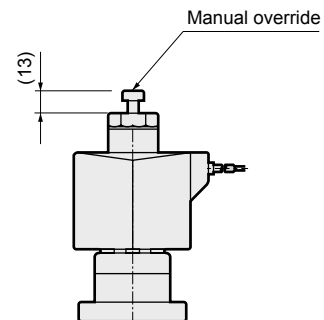
GAB422-1 to 7-0 to 10-*

3A G
4A H
5A



- Manual override (locking)

GAB422-1 to 7-0 to 10-***A



Dimensions shown in () are for G1/2.

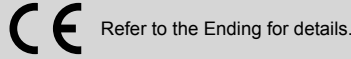
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending



Direct acting 3-port solenoid valve, single unit
General purpose

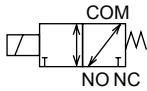
AG31/AG41 Series

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



JIS symbol

- AG31/41: Universal



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications		Optional specifications	
	Air/low vacuum [1.33×10^2 Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)		Hot water	Steam
Working fluid	Air/low vacuum [1.33×10^2 Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)		Hot water	Steam
Working pressure differential MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)			
Max. working pressure MPa	1 (≈150 psi, 10 bar)			
Proof pressure (water pressure) MPa	25 (≈3700 psi, 250 bar)			
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)	-10 (14°F) to 184 (363.2°F)	
Ambient temperature °C	-20 (-4°F) to 60 (140°F)		-20 (-4°F) to 100 (212°F)	
Thermal class	Class 130 (B)		Class 180 (H)	
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 (air)		300 or less (air)	
Mounting orientation	Unrestricted			
Body/seal material	Copper alloy/nitrile rubber		Copper alloy/EPM rubber	Copper alloy/PTFE

*1 : No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)		Max. working pressure differential (MPa)							Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
		TOP	BODY	Air		Water(hot)/Kerosene		Oil (50 mm ² /s)		Steam		When holding		When starting		AC	DC	
				AC	DC	AC	DC	AC	DC	AC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	DC	
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 *7 200 VAC 50/60 Hz *7	14	11	20	16	6/4.2	11 (8.1)	0.36
		2.0	2.0	0.4	0.4(0.35)	0.4	0.4	0.25	0.2(0.15)	0.4								
	-02-1	Rc1/4	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6(0.5)		0.7	22	17	35	27	8.3/6.2	
-02-2	2.0		2.0	0.4	0.4(0.35)	0.4	0.4	0.25	0.2(0.15)	0.4								
AG41-02-1	Rc1/4	2.0	2.0	1.0	0.7(0.45)	1.0	0.7	0.4	0.3(0.25)	1.0	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)	0.48
		-02-2	2.3	2.3	0.7	0.4(0.35)	0.7	0.4	0.25	0.15(0.1)								
CHB/G	Rc3/8	2.0	2.0	1.0	0.7(0.45)	1.0	0.7	0.4	0.3(0.25)	1.0	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)	0.48
		-03-2	2.3	2.3	0.7	0.4(0.35)	0.7	0.4	0.25	0.15(0.1)								

*1 : The model numbers above are for the basic port size (Rc) and orifice size. 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 range must be within ±10% of the rated voltage.

*4 : Values shown in () are for the DC voltage with DIN terminal box, indicating the max. working pressure differential when pressurized from the NO port.

*5 : When using in a continuously energized state, use fluoro rubber seal.

*6 : NO port pressurization is not possible for PTFE seal.

*7 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.

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

Sealant	Fluoro rubber		Ethylene propylene rubber		PTFE	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)	-10 to 60	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)				300 or less (air)	

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

Model No.	Port size	Orifice size (mm)		Flow characteristics					
		TOP	BODY	C[dm ³ /(s·bar)]		b		Cv	
				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
		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-1	Rc1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
		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		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
		2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

AG31/41 Series

How to order

AG31 - **02** - **2** - **B** **3A** **A** **B** **G** **S** - **AC100V**

AG41
Model No.

- D** Coil housing
- E** Manual override (locking)
- F** Mounting plate
- G** Other options
- H** With surge suppressor
- I** Rated voltage

A Port size

B Orifice size

C Body/sealant combination

- *1
- *2
- *3
- *4
- *5

Model No.

AG31 AG41

Code	Description	Code	Description	Code	Description		
A Port size							
01	Rc1/8	1G	G1/8	1N	1/8NPT	●	
02	Rc1/4	2G	G1/4	2N	1/4NPT	●	●
03	Rc3/8	3G	G3/8	3N	3/8NPT		●

		AG31		AG41			
		TOP	BODY	TOP	BODY		
1	ø1.5	ø1.5	ø1.5	ø2.0	ø2.0	●	●
2	ø2.0	ø2.0	ø2.0	ø2.3	ø2.3	●	●

		Body	Seal	Treatment	Remarks		
Blank	Std.	Copper alloy	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)	●	●
B		Copper alloy	Fluoro rubber	-	Air/low vacuum/kerosene (up to 90°C *2)	●	●
C		Copper alloy	PTFE		Steam (up to 184°C *2)	●	●
V		Copper alloy	Fluoro rubber	Vacuum inspection	Low vacuum	●	●
D	Option	Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)	●	●
E		Stainless steel	Fluoro rubber	-	Air/low vacuum/kerosene (up to 90°C *2)	●	●
F		Stainless steel	PTFE		Steam (up to 184°C *2)	●	●
W		Stainless steel	Fluoro rubber	Vacuum inspection	Low vacuum	●	●
H		Copper alloy	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)	●	●
J		Copper alloy	Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)	●	●
K		Copper alloy	PTFE		Steam (up to 184°C *2)	●	●
P		Copper alloy	Ethylene propylene rubber	Oil-prohibited	Hot water (up to 90°C *2)	●	●
L		Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)	●	●
M		Stainless steel	Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)	●	●
N		Stainless steel	PTFE		Steam (up to 184°C *2)	●	●
R		Stainless steel	Ethylene propylene rubber		Hot water (up to 90°C *2)	●	●

Refer to Intro Page 39 for reference on material combinations.

D to I
Refer to page 193 for details on the coil housing, other options and voltage, etc.

The combinations indicated with ● in the above table are available.

[Example of model No. 1]

AG31-02-1-AC100V

Model : AG31

- A** Port size : Rc1/4
- B** Orifice size : TOP-ø1.5, BODY-ø1.5
- C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber

- D** Coil housing : Grommet lead wire
- E to H** : None
- I** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

[Example of model No. 2]

AG41-03-2-000ABS-AC100V

Model : AG41

- A** Port size : Rc3/8
- B** Orifice size : TOP-ø2.3, BODY-ø2.3
- C** Body/sealant : Body - copper alloy/sealant - nitrile rubber
- D** Coil housing : Grommet lead wire
- E** Manual override (locking) : Selected
- F** Mounting plate : With mounting plate
- G** Other options : None
- H** Surge suppressor : With surge suppressor
- I** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

⚠ Precautions for model No. selection






Notes for **C**

- *1 : Leave blank for standard. However, to select options in **D**, **E**, **F**, **G** or **H**, indicate 0 for Item **C**.
- *2 : When Item **C** 4A/4M/4N is selected.
- *3 : The ethylene propylene rubber seal combination (Item **C** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- *4 : For option codes V and W, vacuum is inspected at "leakage rate: 1.33 x 10⁻⁶ Pa·m³/s or less".
- *5 : For PTFE seal, O-ring material of socket will be FKM.


For Items ④ to ①, the combinations indicated with codes are available.
 Note that if options for Items ⑤ to ⑧ are not required, they should be left blank.

④ Coil housing		⑤	⑥	⑦ Other options					⑧	⑨ Rated voltage		
Description	Std.	Manual override (Locking)	Mounting plate	Cable gland			Conduit		With surge suppressor	Description		
				(marine cable gland)			(conduit piping)					
				A-15a	A-15b	A-15c	CTC 19	G 1/2				
Blank	Grommet lead wire	A	B						S	100 VAC, 200 VAC		
2E	With DIN terminal box (G1/2)									100 VAC, 200 VAC		
2G	With DIN terminal box (Pg11)									12 VDC, 24 VDC, 48 VDC, 100 VDC		
2H	DIN terminal box with small lamp (Pg11)									100 VAC, 200 VAC, 24 VDC		
3A	Open Frame	A	B				G		S	100 VAC, 200 VAC		
3M							Lead wire (IP65 or equivalent)	12 VDC, 24 VDC, 48 VDC, 100 VDC				
3N							With HP terminal box(G1/2)	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC				
3I							HP terminal box with lamp (G1/2)	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC				
3J							HP term box (IP65, equiv) (G1/2)	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC				
4A	Open Frame (Thermal class 180 (H))	A	B				G		S	100 VAC, 200 VAC		
4M							Lead wire					
4N				D	E	F						
5A	Open Frame (diode integrated)	A	B				G		S	100 VAC, 200 VAC		
5M							Lead wire (IP65 or equivalent)	G				
5N							With HP terminal box(G1/2)					
5J							HP terminal box with lamp (G1/2)					
5I				D	E	F						
5J												

⚠ Refer to the following cautions for Items ④ to ①.

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame Lead wire 300mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		● Conduit ● G(CTC19) ● H(G1/2)
----------------	--	--------------------------------------

⚠ Precautions for model No. selection

Notes for ④

- *6 : Leave blank for the standard coil housing. However, to select options in ⑤, ⑥, ⑦ or ⑧, indicate 00 for Item ④.
- *7 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
- *8 : A DC coil for steam is available for AG41. Contact CKD for more information.

Notes for ⑤ to ⑧

- *9 : When Item ③ is C, F, K, N, V or W, the manual override (Item ⑤ A) is not available.
- *10 : For Item ⑦, select an option from D, E, F, G and H.
- *11 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *12 : As standard, the surge suppressor is built into the coil with diode and the 24 VDC coil (Item ④ 2H), so the surge suppressor S cannot be selected.
- *13 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.

Notes for ⑨

- *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. However, coils for Item ④ 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *15 : For voltages other than above, contact 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.

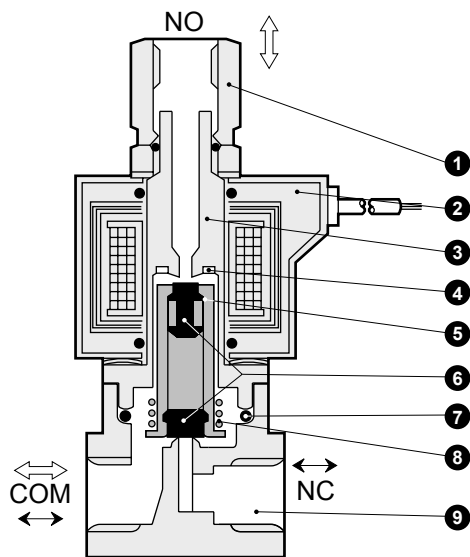
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S/B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AG31/41 Series

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

Internal structure and parts list

● AG31/41 Series



No.	Part name	Material
1	Socket	C3604(SUS303) Copper alloy (stainless steel)
2	Coil	- -
3	Core assembly	SUS405 or equiv./316L/403 *1 Stainless steel
4	Shading coil	Cu (Ag for stainless steel body) Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. Stainless steel
6	Seal	NBR (FKM/EPDM/PTFE) NBR : Nitrile rubber FKM : Fluoro rubber
7	O-ring	NBR (FKM/EPDM/PTFE) (AS568/019) EPDM : ethylene propylene rubber PTFE : tetrafluoroethylene resin
8	Plunger spring	SUS304 Stainless steel
9	Body	C3771(SUS303) Copper alloy (stainless steel)

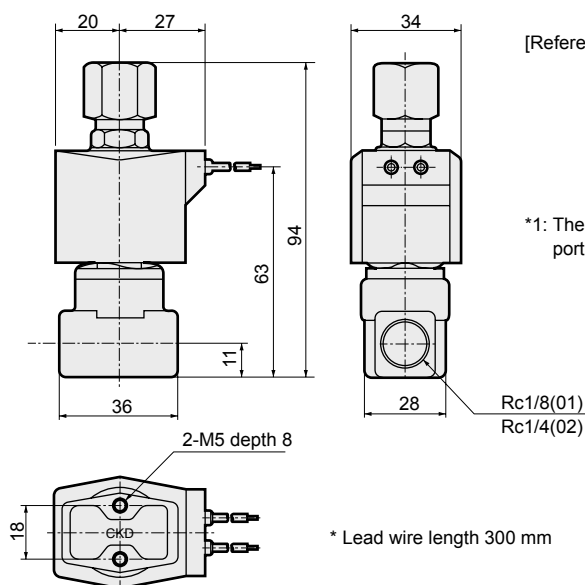
*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

Dimensions: AG31 Series



● Grommet lead wire
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 not energized : COM → NO or NO → COM
When energized : COM → NC or NC → COM

*1: The dimensions are the same for port sizes of G and NPT threads.

* Lead wire length 300 mm

Optional dimensions: AG31 Series

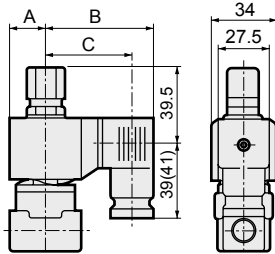


* Refer to the dimensions of grommet lead wire on page 194 for common dimensions.

● With DIN terminal box

AG31-01/02-1 to 2-*

2E
2G
2H



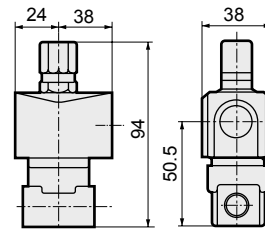
Dimensions shown in () are for G1/2.

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

● Open frame

AG31-01/02-1 to 2-*

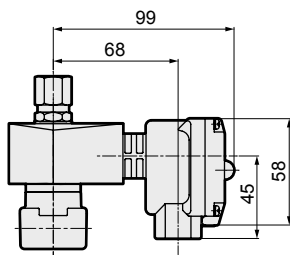
3A
4A
5A



● Open frame + HP terminal box

AG31-01/02-1 to 2-*

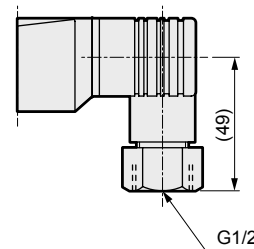
3	M	4M
5	N	4N
	I	
	J	



● DIN terminal box with small lamp + conduit (G1/2)

AG31-01/02-1 to 2-*

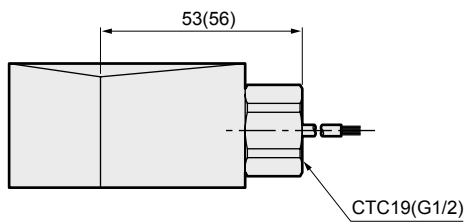
2H	H
----	---



● Open frame + conduit

AG31-01/02-1 to 2-*

3A	G
4A	H
5A	

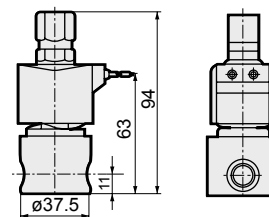


Dimensions shown in () are for G1/2.

● Stainless steel body + grommet lead wire

AG31-01/02-1 to 2-

D/E/F/R/W/L/M/N

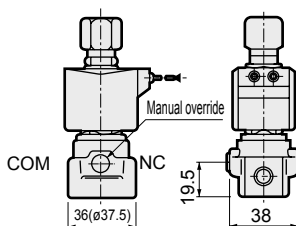


● Manual override (locking)

AG31-01/02-1 to 2-***

A

The figure shows copper alloy body.

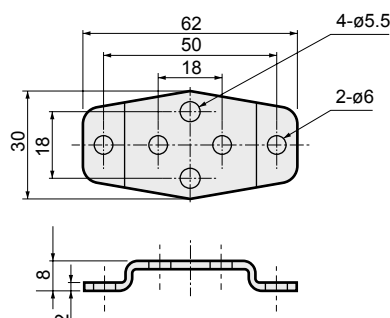


Dimensions shown in () are for stainless steel body.

● Mounting plate

AG31-01/02-1 to 2-***

B



Mounting plate model	Compatibility
AG3-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	● All of AG31 Series

* Material: Steel/Zinc plated

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

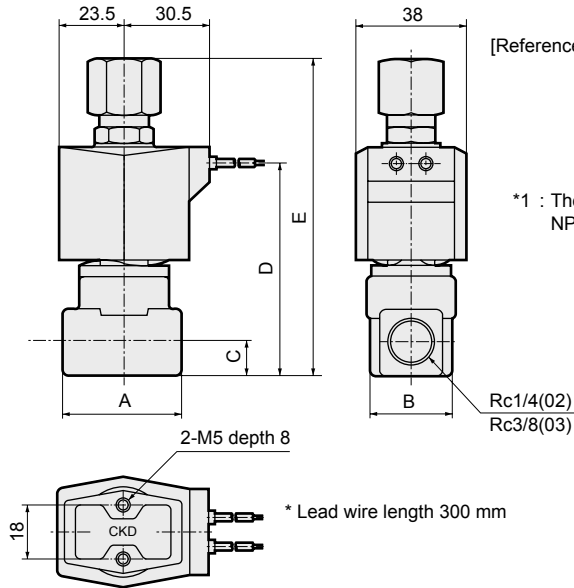
AG31/41 Series

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

Dimensions: AG41 Series



- Grommet lead wire
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 not energized : COM → NO or NO → COM
When energized : COM → NC or NC → COM

*1 : The dimensions are the same for port sizes of G and NPT threads.

Model No.	A	B	C	D	E
AG41-02-1 to 2	36	28	11	68	99.5
AG41-03-1 to 2	40	28	12	71	106

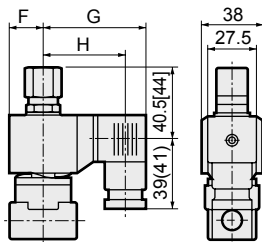
Optional dimensions: AG41 Series



* Refer to the dimensions of grommet lead wire above for common dimensions.

- With DIN terminal box
AG41-02/03-1 to 2-*

- 2E
- 2G
- 2H

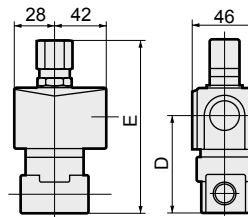


Dimensions shown in [] are for Rc3/8. Dimensions shown in () are for G1/2.

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

- Open frame lead wire
AG41-02/03-1 to 2-*

- 3A
- 4A
- 5A



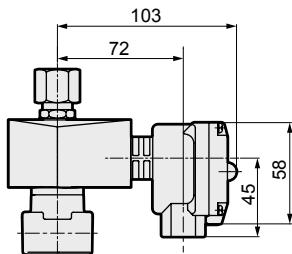
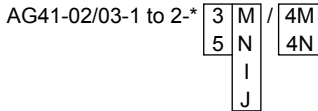
Model No.	D	E
AG41-02-1 to 2-**A	52	99.5
AG41-03-1 to 2-**A	55	106

Optional dimensions: AG41 Series

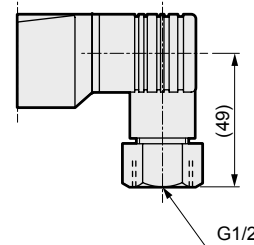
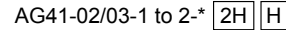


* Refer to the dimensions of grommet lead wire on page 196 for common dimensions.

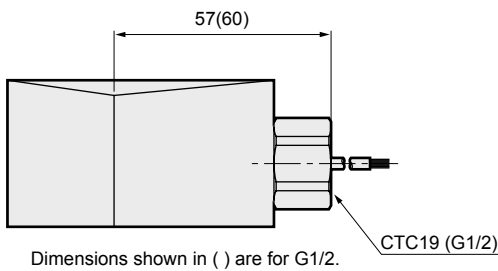
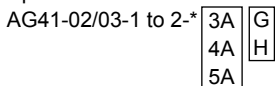
● Open frame + HP terminal box



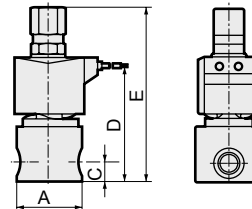
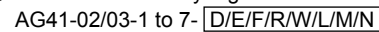
● DIN terminal box with small lamp + conduit (G1/2)



● Open frame + conduit

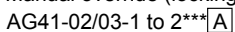


● Stainless steel body + grommet lead wire

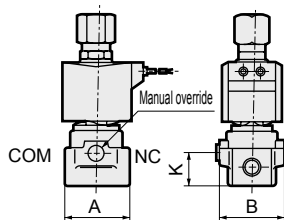


Model No.	A	C	D	E
AG41-02-1 to 2-*	ø37.5	11	68	99.5
AG41-03-1 to 2-*	ø45	12	71	106

● Manual override (locking)



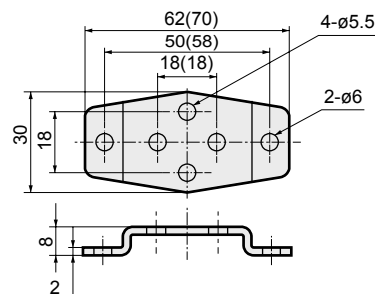
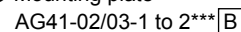
The figure shows copper alloy body.



Model No.	A	B	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.

● Mounting plate

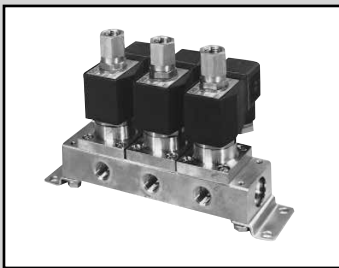


Dimensions shown in () are for mounting plate No. 2.

Mounting plate model	Compatibility
AG4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	<ul style="list-style-type: none"> ● AG41-02/03-1 to 2 Series ● Stainless steel body <p>AG41-02-1 to 2-<u>D/E/F/L/M/N/R/W</u></p>
AG4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	<ul style="list-style-type: none"> ● Stainless steel body <p>AG41-03-1 to 2-<u>D/E/F/L/M/N/R/W</u></p>

* Material: Steel/Zinc plated

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



Direct acting 3-port solenoid valve, manifold/actuator
General purpose

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

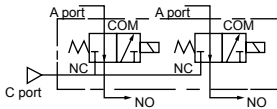
- Universal
- Common supply/individual exhaust, common supply/separate flow

CE Refer to the Ending for details.

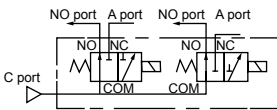


Manifold circuit configuration

- GAG31*/41*
(Common supply/individual exhaust)



- GAG35*/45*
(Common supply/separate flow)



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications		Optional specifications	
	Airflow vacuum [1.33 x 10 ² Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)		Hot water	Steam
Working fluid	Airflow vacuum [1.33 x 10 ² Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)		Hot water	Steam
Working pressure differential MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)			
Max. working pressure MPa	1 (≈150 psi, 10 bar)			
Proof pressure (water pressure) MPa	10 (≈1500 psi, 100 bar)			
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)		-10 (14°F) to 90 (194°F)	-10 (14°F) to 184 (363.2°F)
Ambient temperature °C	-20 (-4°F) to 60 (140°F)		-20 (-4°F) to 100 (212°F)	
Thermal class	Class 130 (B)		Class 180 (H)	
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 (air)		300 or less (air)	
Mounting orientation	Unrestricted			
Body/seal material	Copper alloy/nitrile rubber		Copper alloy/EPM rubber	Copper alloy/PTFE

*1 : No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	NO port size	Orifice size (mm)		Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consumption (W)		
				Air		Water(hot)/Kerosene		Oil (50 mm ² /s)			Steam		When holding		AC	DC	
				AC	DC	AC	DC	AC	DC		AC	DC	50 Hz	60 Hz	50/60 Hz		
GAG311 -1 351 -2	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 *8	14	11	20	16	6/4.2	11 (8.1)
		2.0	2.0	0.4	0.4 (0.35)	0.4	0.4	0.25	0.2 (0.15)	0.4							
GAG312 -1 352 -2	Rc1/4	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6 (0.5)	0.7	200 VAC 50/60 Hz *8	22	17	35	27	8.3/6.2	11 (10.4)
		2.0	2.0	0.4	0.4 (0.35)	0.4	0.4	0.25	0.2 (0.15)	0.4							
GAG412 -1 452 -2	Rc1/4	2.0	2.0	1.0	0.7 (0.45)	1.0	0.7	0.4	0.3 (0.25)	1.0	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)
		2.3	2.3	0.7	0.4 (0.25)	0.7	0.4	0.25	0.15 (0.1)	0.7							
GAG413 -1 453 -2	Rc3/8	2.0	2.0	1.0	0.7 (0.45)	1.0	0.7	0.4	0.3 (0.25)	1.0	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)
		2.3	2.3	0.7	0.4 (0.25)	0.7	0.4	0.25	0.15 (0.1)	0.7							

*1 : The model numbers above are for the basic NO port size (Rc) and orifice size. Refer to How to order for other combinations.

*2 : For A and C port sizes, refer to How to order (page 200) and dimensions (page 204).

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

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

*5 : Values shown in () are for the DC voltage type with DIN terminal box, indicating the max. working pressure when pressurized from the NO port.

*6 : When using in a continuously energized state, use a fluoro rubber seal.

*7 : NO port pressurization is not possible for PTFE seal.

*8 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.

Weight

Model No.	Weight (kg)									
	Actuator only	2 stations	3 stations	4 stations	5 stations	6 stations	7 stations	8 stations	9 stations	10 stations
GAG31* GAG35*	0.35	1.4	2.0	2.8	3.2	4.0	4.6	5.2	6.1	6.4
GAG412 GAG452	0.44	1.6	2.3	3.2	3.7	4.6	5.3	6.0	6.9	7.3
GAG413 GAG453	0.45	1.6	2.3	3.2	3.7	4.6	5.3	6.0	7.0	7.4

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

Sealant	Fluoro rubber		Ethylene propylene rubber		PTFE	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)	-10 to 60	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)				300 or less (air)	

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

Model No.	Port size	Orifice size (mm)		Flow characteristics					
		TOP	BODY	C[dm ³ /(s·bar)]		b		Cv	
				TOP	BODY	TOP	BODY	TOP	BODY
GAG311-1	Rc1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
		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
		2.0	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
		2.3	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
		2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

GAG31*/35*/41*/45* Series

How to order

● Common supply/individual exhaust
(Port C pressurization)

GAG31 1 - 1 - 7 - 0 3A A G S - AC100V

● Common supply/separate flow
(Port C pressurization)

GAG35

● Common supply/individual exhaust
(Port C pressurization)

GAG41

● Common supply/separate flow
(Port C pressurization)

GAG45

Model No.

F Coil housing I With surge suppressor
G Manual override (locking) J Rated voltage
H Other options

A NO port size

B Thread

C Orifice size

D Manifold
*2 station No.

E Body/sealant
combination
*3
*4
*5
*6

[Example of model No. 1]
GAG311-1-4-AC200V

Model: GAG311 (common supply/individual exhaust, port C pressurization)

- A NO port size : 1/8
- B Thread : Rc
- C Orifice size : TOP- ϕ 1.5, BODY- ϕ 1.5
- D Manifold station No. : 4 stations
- E Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- F Coil housing : Grommet lead wire
- G to I : None
- J Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

[Example of model No. 2]
GAG352G-2-7-000AS-AC200V

Model: GAG352 (common supply/separate flow, port C pressurization)

- A NO port size : 1/4
- B Thread : G
- C Orifice size : TOP- ϕ 2.0, BODY- ϕ 2.0
- D Manifold station No. : 7 stations
- E Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- F Coil housing : Grommet lead wire
- G Manual override (locking) : Selected
- H Other options : None
- I Surge suppressor : With surge suppressor
- J Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

Code		Description		Model No.	
				GAG3**	GAG4**
A NO port size					
1	1/8			●	
2	1/4			●	●
3	3/8				●
B Thread					
Blank	Rc			●	●
G	G			●	●
N	NPT			●	●
C Orifice size					
		GAG3**			
		TOP	BODY		
		GAG4**			
		TOP	BODY		
1		ϕ 1.5	ϕ 1.5	ϕ 2.0	ϕ 2.0
2		ϕ 2.0	ϕ 2.0	ϕ 2.3	ϕ 2.3
D Manifold station No.					
2	2 stations			●	●
to	to				
10	10 stations				
0	Actuator only			●	●
E Body/sealant combination					
		Body	Seal	Treatment	Remarks
Blank	Std	Copper alloy	Nitrile rubber	-	Air/water/low vac/kerosene ($\leq 60^\circ\text{C}$)
B	Std	Copper alloy	Fluoro rubber -	-	Air/low vac/kerosene ($\leq 90^\circ\text{C}$ *4)
C	Std	Copper alloy	PTFE	-	Steam (up to 184°C *4)
D	Option	Stainless steel	Nitrile rubber	-	Air/water/low vac/kerosene ($\leq 60^\circ\text{C}$)
E	Option	Stainless steel	Fluoro rubber -	-	Air/low vac/kerosene ($\leq 90^\circ\text{C}$ *4)
F	Option	Stainless steel	PTFE	-	Steam (up to 184°C *4)
H	Option	Copper alloy	Nitrile rubber	-	Air/water/low vac/kerosene ($\leq 60^\circ\text{C}$)
J	Option	Copper alloy	Fluoro rubber	-	Air/low vac/kerosene ($\leq 90^\circ\text{C}$ *4)
K	Option	Copper alloy	PTFE	-	Steam (up to 184°C *4)
P	Option	Copper alloy	Ethylene propylene rubber	Oil-prohibited	Hot water (up to 90°C *4)
L	Option	Stainless steel	Nitrile rubber	-	Air/water/low vac/kerosene ($\leq 60^\circ\text{C}$)
M	Option	Stainless steel	Fluoro rubber	-	Air/low vac/kerosene ($\leq 90^\circ\text{C}$ *4)
N	Option	Stainless steel	PTFE	-	Steam (up to 184°C *4)
R	Option	Stainless steel	Ethylene propylene rubber	-	Hot water (up to 90°C *4)

Refer to Intro Page 39 for reference on material combinations.

F to J

Refer to page 201 for details on the coil housing, other options and voltage, etc.

The combinations indicated with ● in the above table are available.

Precautions for model No. selection

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

Notes for D to E






- *2 : For 11 or more manifold station No., contact CKD.
- *3 : Leave blank for standard. However, to select options in F, G, H or I, indicate 0 for Item E.
- *4 : When Item E 4A/4M/4N is selected.
- *5 : The ethylene propylene rubber seal combination (Item E P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- *6 : For PTFE seal, O-ring material for socket and sub-plate connection will be FKM.

GAG31*/35*/41*/45* Series


For Items (F) to (J), the combinations indicated with codes are available.
Note that if options for Items (G) to (I) are not required, they should be left blank.

F Coil housing		G	H Other options					I	J Rated voltage	
Description		Manual override (Locking)	Cable gland			Conduit		With surge suppressor	Description	
			(marine cable gland)			(conduit piping)				
			A-15a	A-15b	A-15c	CTC19	G1/2			
Blank	Std. Grommet lead wire	A						S	100 VAC, 200 VAC	
2E	With DIN terminal box (G1/2)								100 VAC, 200 VAC	
2G	With DIN terminal box (Pg11)								12 VDC, 24 VDC, 48 VDC, 100 VDC	
2H	DIN terminal box with small lamp (Pg11)					H			100 VAC, 200 VAC, 24 VDC	
3A	Open frame	A				G	H	S	100 VAC, 200 VAC	
3M			Lead wire (IP65 or equivalent)						12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N			With HP terminal box (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
3I			HP terminal box with lamp (G1/2)	D	E	F			100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3J			HP terminal box (IP65 or equivalent) (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
4A	Open frame (Thermal class 180 (H))	A				G	H	S	100 VAC, 200 VAC	
4M			Lead wire							
4N			With HP terminal box(G1/2)	D	E	F				
5A	Open frame (diode integrated)	A				G	H	S	100 VAC, 200 VAC	
5M			Lead wire (IP65 or equivalent)							
5N			With HP terminal box(G1/2)	D	E	F				
5I			HP terminal box with lamp(G1/2)							
5J	HP term box, lamp (IP65, equiv) (G1/2)									

⚠ Refer to the following cautions for Items (F) to (J).

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame Lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		● Conduit ● G(CTC19) ● H(G1/2)
--------	--	--------------------------------------

⚠ Precautions for model No. selection

Notes for (F)

- *7 : Leave blank for the standard coil housing. However, to select options in (G), (H) or (I), indicate 00 for Item (F).
- *8 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
- *9 : A DC coil for steam is available for GAG4**. Contact CKD for more information.

Notes for (G) to (I)

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

Notes for (J)

- *15: 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. However, coils for Item (F) 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *16: For voltages other than above, contact CKD.
- *17: 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.

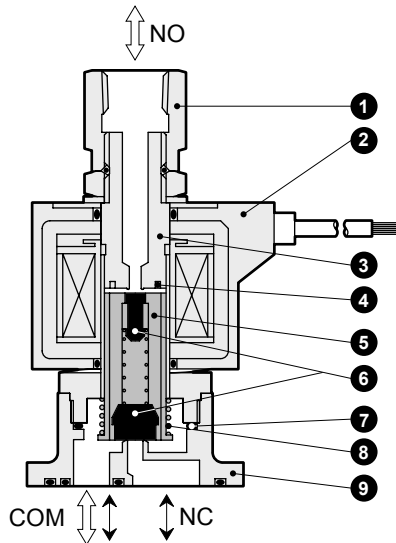
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S/B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

GAG31*/35*/41*/45* Series

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

Internal structure and parts list

● GAG31*/GAG35*/GAG41*/GAG45* actuator



No.	Part name	Material
1	Socket	C3604(SUS303) Copper alloy (stainless steel)
2	Coil	-
3	Core assembly	SUS405 or equiv./316L/403 *1 Stainless steel
4	Shading coil	Cu (Ag for stainless steel body) Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. Stainless steel
6	Seal	NBR (FKM/EPDM/PTFE) NBR: Nitrile rubber FKM: Fluoro rubber
7	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019) EPDM: Ethylene propylene rubber PTFE: Tetrafluoroethylene resin
8	Plunger spring	SUS304 Stainless steel
9	Body	C3771(SCS13) Copper alloy (stainless steel)

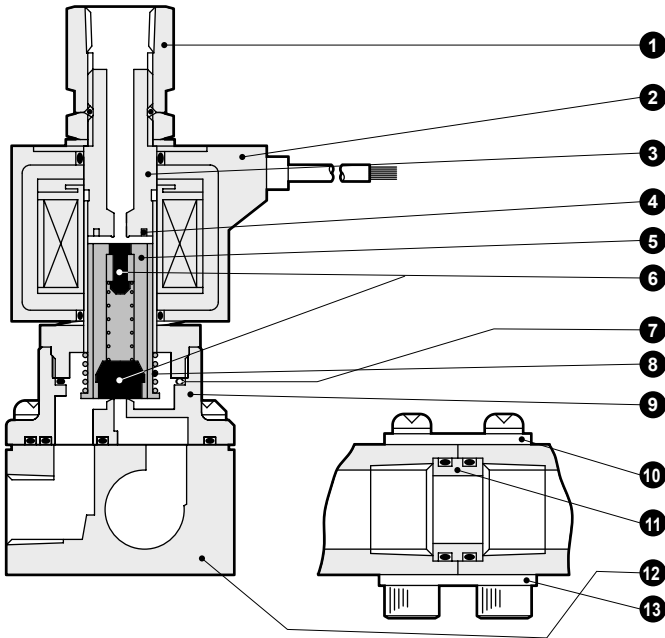
*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

*3 : 4 body mounting screws and 2 O-rings are attached to the actuator only.

Internal structure and parts list

● GAG31*/GAG35*/GAG41*/GAG45* manifold



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

*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

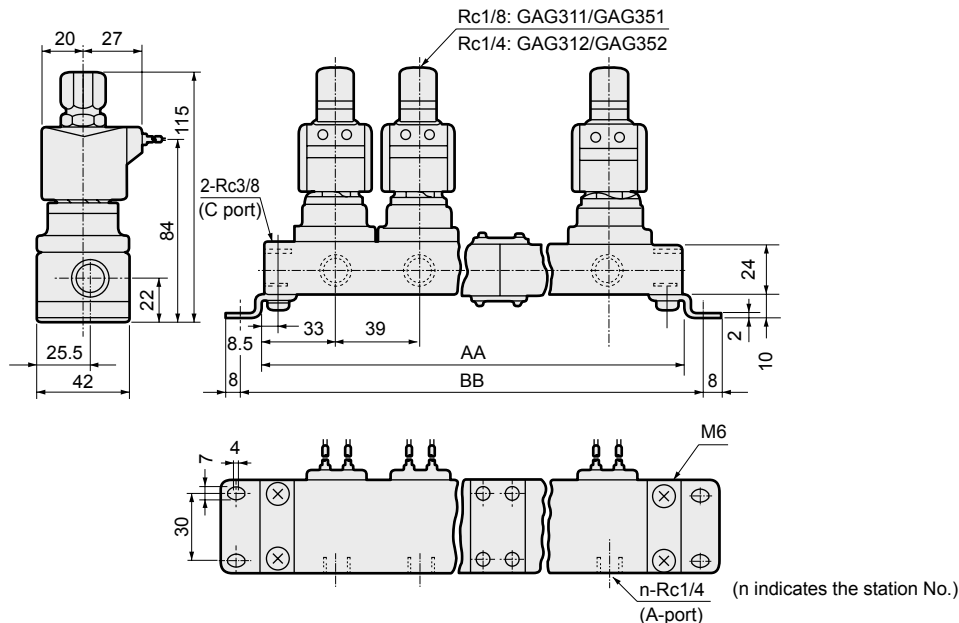
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S ♂ B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
Outdoor
SpecFld
Custom
Ending

GAG31*/35*/41*/45* Series



Dimensions: GAG31*/GAG35* Series

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

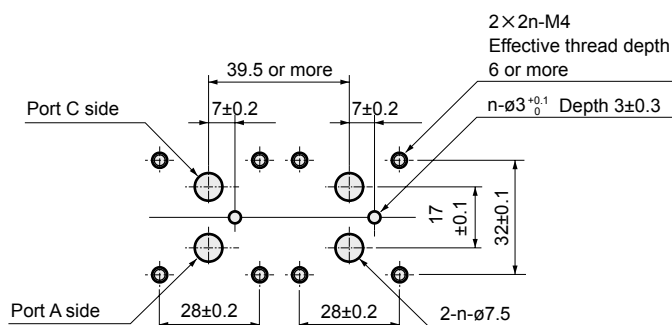
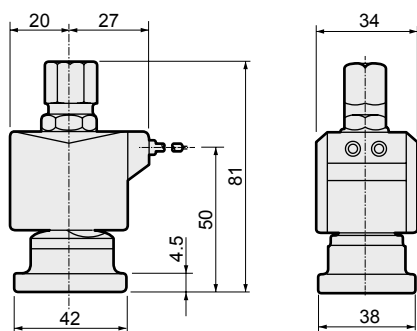


Station No.	AA	BB	Manifold configuration	Station No.	AA	BB	Manifold configuration
2	106	122	2 stations x 1	7	329	345	5 stations + 2 stations
3	145	161	3 stations x 1	8	368	384	5 stations + 3 stations
4	212	228	2 stations x 2	9	435	451	3 stations x 3
5	223	239	5 stations x 1	10	446	462	5 stations x 2
6	290	306	3 stations x 2	Contact CKD for 11 stations or more.			

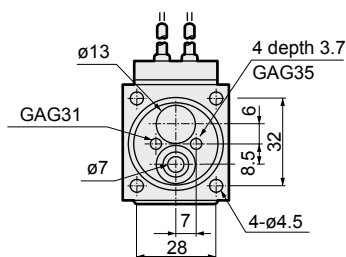
*1 : Manifold configuration combines 2-station, 3-station and 5-station units.
*2 : The dimensions are the same for port sizes of G and NPT threads.

- Actuator (grommet lead wire)
GAG3**-1 to 2- [0]

- Recommended dimensions for actuator mounting



■ Machining drawing when using 2 actuators



Optional dimensions: GAG31*/GAG35*

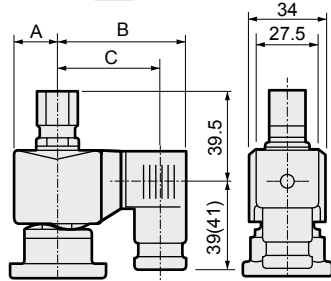


* Refer to the dimensions of grommet lead wire on page 204 for common dimensions.

● With DIN terminal box

GAG3** -1 to 2-0 to 10-*

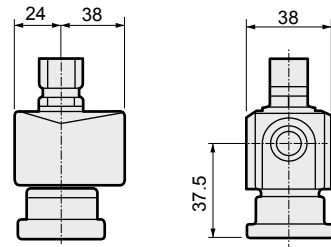
2E
2G
2H



● Open frame lead wire

GAG3** -1 to 2-0 to 10-*

3A
4A
5A



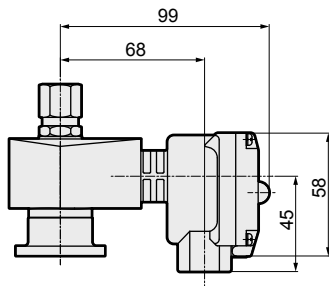
Dimensions shown in () are for G1/2.

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

● Open frame + HP terminal box

GAG3** -1 to 2-0 to 10-*

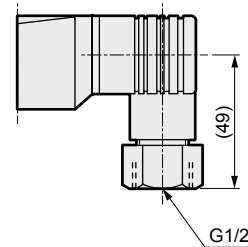
3 M / 4M
5 N / 4N
I
J



● DIN terminal box with small lamp + conduit (G1/2)

GAG3** -1 to 2-0 to 10-*

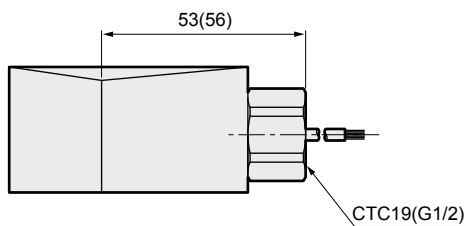
2H H



● Open frame + conduit

GAG3** -1 to 2-0 to 10-*

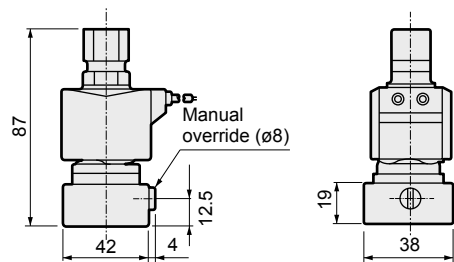
3A G
4A H
5A



● Manual override (locking)

GAG3** -1 to 2-0 to 10-***

A



Dimensions shown in () are for G1/2.

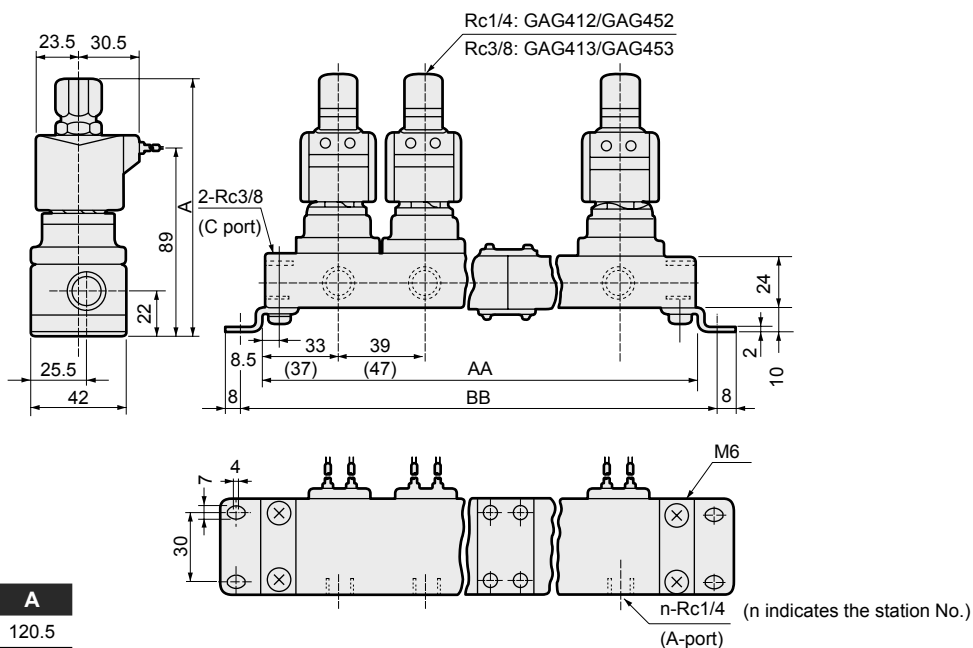
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S ϕ B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combust
Auto-Water
Outdoor
SpecFld
Custom
Ending

GAG31*/35*/41*/45* Series



Dimensions: GAG41*/45* Series

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



Model No.	A
GAG412/452-1 to 2	120.5
GAG413/453-1 to 2	124

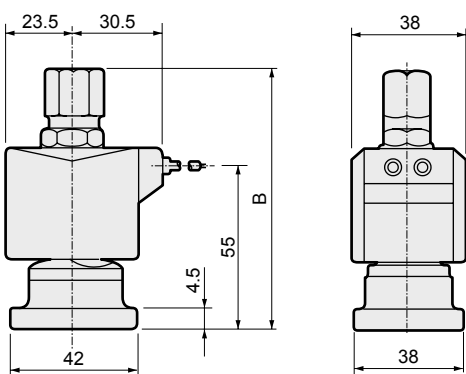
Station No.	AA	BB	Manifold configuration	Station No.	AA	BB	Manifold configuration
2	106(122)	122(138)	2 stations x 1	7	329(385)	345(401)	5 stations + 2 stations
3	145(169)	161(185)	3 stations x 1	8	368(432)	384(448)	5 stations + 3 stations
4	212(244)	228(260)	2 stations x 2	9	435(507)	451(523)	3 stations 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	Contact CKD for 11 stations or more.			

*1 : Manifold configuration combines 2-station, 3-station and 5-station units.

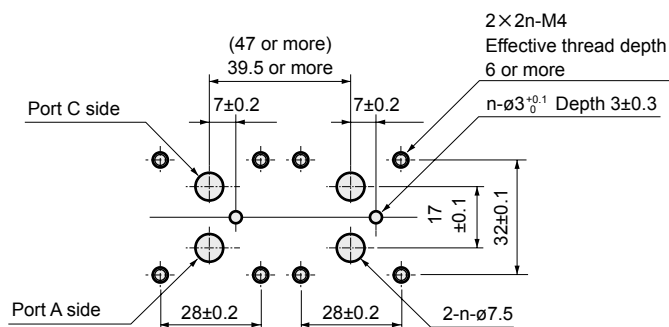
*2 : Dimensions shown in () are for open frame.

*3 : The dimensions are the same for port sizes of G and NPT threads.

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

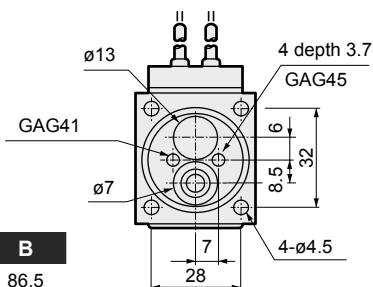


- Recommended dimensions for actuator mounting



■ Machining drawing when using 2 actuators

* Lead wire length 300 mm



Model No.	B
GAG412/452-1 to 2	86.5
GAG413/453-1 to 2	90

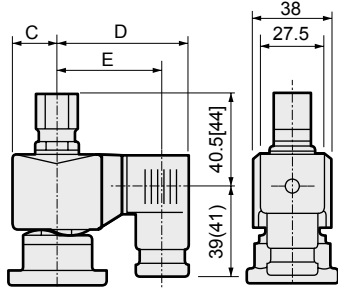


Optional dimensions: GAG41*/45* Series

* Refer to the dimensions of grommet lead wire on page 206 for common dimensions.

- With DIN terminal box
GAG4**-1 to 2-0 to 10-*

2E
2G
2H

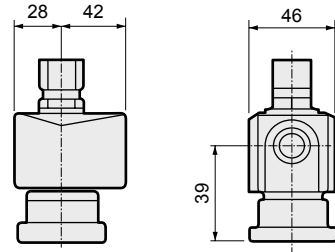


Dimensions shown in () are for G1/2.
Dimensions shown in [] are for Rc3/8.

Voltage	C	D	E
AC	23.5	65.5	54(53.5)
DC	23.5	66	54.5(54)

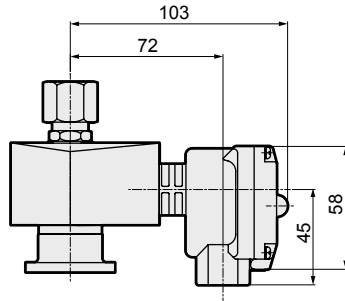
- Open frame lead wire
GAG4**-1 to 2-0 to 10-*

3A
4A
5A



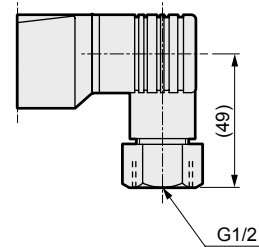
- Open frame + HP terminal box
GAG4**-1 to 2-0 to 10-*

3 M / 4M
5 N / 4N
I
J



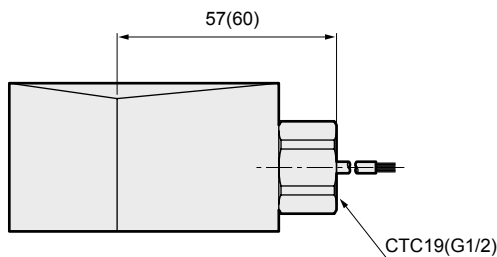
- DIN terminal box with small lamp + conduit (G1/2)
GAG4**-1 to 2-0 to 10-*

2H H



- Open frame + conduit
GAG4**-1 to 2-0 to 10-*

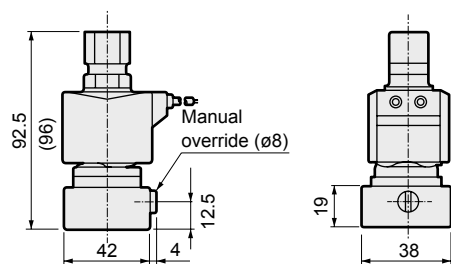
3A G
4A H
5A



Dimensions shown in () are for G1/2.

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

A



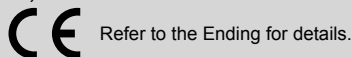
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending



Direct acting 3-port solenoid valve, single unit
General purpose

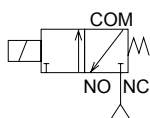
AG33/AG43 Series

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



JIS symbol

- AG33/43: NC pressurization



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications	Optional specifications	
Working fluid	Air/low vacuum [1.33 x 10 ² Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)	Hot water	Steam
Working pressure differential MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)		
Max. working pressure MPa	1 (≈150 psi, 10 bar)		
Proof pressure (water pressure) MPa	25 (≈3700 psi, 250 bar)		
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)	-10 (14°F) to 184 (363.2°F)
Ambient temperature °C	-20 (-4°F) to 60 (140°F)	-20 (-4°F) to 100 (212°F)	
Thermal class	Class 130 (B)		Class 180 (H)
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 (air)		300 or less (air)
Mounting orientation	Unrestricted		
Body/seal material	Copper alloy/nitrile rubber	Copper alloy/EPM rubber	Copper alloy/PTFE

*1: No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)		Max. working pressure differential (MPa)								Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water(hot)/Kerosene		Oil (50 mm ² /s)		Steam			When holding		When starting		AC	DC	
		Model No.	TOP	BODY	AC	DC	AC	DC	AC	DC	AC		DC	50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	
AG33-01-1	Rc1/8	-01-1	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	100 VAC 50/60 Hz *6 200 VAC 50/60 Hz *6 12 VDC 24 VDC 48 VDC 100 VDC	14	11	20	16	6/4.2	11 (8.1)	0.36
		-01-2	2.0	2.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7								
	Rc1/4	-02-1	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0								
		-02-2	2.0	2.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7								
AG43-02-4	Rc1/4	-02-4	3.0	3.0	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)	0.45
		-02-5	3.5	3.0	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4								
	Rc3/8	-03-4	3.0	3.0	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7								
		-03-5	3.5	3.0	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4								

*1 : The model numbers above show the basic port size (Rc) and orifice size. 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 range must be within ±10% of the rated voltage.

*4 : Values shown in () are for the DC voltage type with DIN terminal box.

*5 : When using in vacuum, vacuum the NO port side.

*6 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5J.

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

Sealant	Fluoro rubber		Ethylene propylene rubber		PTFE	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)	-10 to 60	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)				300 or less (air)	

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

Model No.	Port size	Orifice size (mm)		Flow characteristics					
		TOP	BODY	C[dm ³ /(s·bar)]		b		Cv	
				TOP	BODY	TOP	BODY	TOP	BODY
AG33-01-1	Rc1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-01-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-1	Rc1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-02-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
AG43-02-4	Rc1/4	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
-02-5		3.5	3.0	1.5	1.1	0.62	0.52	0.40	0.31
-03-4	Rc3/8	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
-03-5		3.5	3.0	1.5	1.1	0.62	0.52	0.40	0.31

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

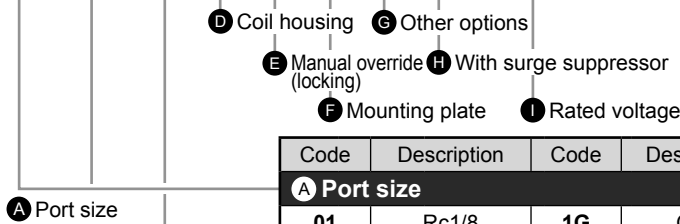
AG33/43 Series

How to order

AG33 - **02** - **2** - **H** **2G** **A** **B** - **AC100V**

AG43

Model No.



Model No.

AG33 AG43

Code	Description	Code	Description	Code	Description		
A Port size							
01	Rc1/8	1G	G1/8	1N	1/8NPT	●	
02	Rc1/4	2G	G1/4	2N	1/4NPT	●	●
03	Rc3/8	3G	G3/8	3N	3/8NPT		●

		AG33		AG43			
		TOP	BODY	TOP	BODY		
1	ø1.5	ø1.5	-	-	-	●	
2	ø2.0	ø2.0	-	-	-	●	
4	-	-	-	ø3.0	ø3.0		●
5	-	-	-	ø3.5	ø3.0		●

		Body	Seal	Treatment	Remarks			
Blank	Std.	Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●	
			Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)	●	●	
			PTFE		Steam (up to 184°C *2)	●	●	
D	Option	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●	
			Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)	●	●	
			PTFE		Steam (up to 184°C *2)	●	●	
H	Option	Copper alloy	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene (up to 60°C)	●	●	
			Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)	●	●	
			PTFE		Steam (up to 184°C *2)	●	●	
P	Option	Copper alloy	Ethylene propylene rubber	Oil-prohibited	Hot water (up to 90°C *2)	●	●	
			Stainless steel		Nitrile rubber	Air/water/low vacuum/kerosene (up to 60°C)	●	●
					Fluoro rubber	Air/low vacuum/kerosene (up to 90°C *2)	●	●
N	Option	Stainless steel		PTFE	Steam (up to 184°C *2)	●	●	
R	Option	Stainless steel	Ethylene propylene rubber	Hot water (up to 90°C *2)	●	●		

Refer to Intro Page 39 for reference on material combinations.

D to I
Refer to page 211 for details on the coil housing, other options and voltage, etc.

The combinations indicated with ● in the above table are available.

[Example of model No. 1]

AG33-02-1-AC100V

Model: AG33

- A** Port size : Rc1/4
- B** Orifice size : TOP-ø1.5, BODY-ø1.5
- C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- D** Coil housing : Grommet lead wire
- E to H** : None
- I** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

[Example of model No. 2]

AG43-03-4-000ABS-AC100V

Model: AG43

- A** Port size : Rc 3/8
- B** Orifice size : TOP-ø3.0, BODY-ø3.0
- C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- D** Coil housing : Grommet lead wire
- E** Manual override (locking) : Selected
- F** Mounting plate : With mounting plate
- G** Other options : None
- H** Surge suppressor : With surge suppressor
- I** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

⚠ Precautions for model No. selection






Notes for **C**

- *1 : Leave blank for standard. However, to select options in **D**, **E**, **F**, **G** or **H**, indicate 0 for Item **C**.
- *2 : When Item **C** 4A/4M/4N is selected.
- *3 : The ethylene propylene rubber seal combination (Item **C** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- *4 : For PTFE seal, O-ring material of socket will be FKM.


For Items ④ to ①, the combinations indicated with codes are available.
 Note that if options for Items ⑤ to ⑧ are not required, they should be left blank.

④ Coil housing		⑤	⑥	⑦ Other options				⑧	⑨ Rated voltage		
Description	Std	Manual override (Locking)	Mounting plate	Cable gland			Conduit		With surge suppressor	Description	
				(marine cable gland)	(conduit piping)						
				A-15a	A-15b	A-15c	CTC19	G1/2			
Blank	Grommet lead wire	A	B						S	100 VAC, 200 VAC	
2E	With DIN terminal box (G1/2)									100 VAC, 200 VAC	
2G	With DIN terminal box (Pg11)									12 VDC, 24 VDC, 48 VDC, 100 VDC	
2H	DIN terminal box with small lamp(Pg11)									100 VAC, 200 VAC, 24 VDC	
3A	Open frame	A	B				G	H	S	100 VAC, 200 VAC	
3M				Lead wire (IP65 or equivalent)						12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N				With HP terminal box(G1/2)	D	E	F			100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
3I				HP terminal box with lamp (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3J				HP term box (IP65, equiv) (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
4A	Open frame (Thermal class 180 (H))	A	B				G	H	S	100 VAC, 200 VAC	
4M				Lead wire	D	E	F				
4N	With HP terminal box(G1/2)										
5A	Open frame (diode integrated)	A	B				G	H	S	100 VAC, 200 VAC	
5M				Lead wire (IP65 or equivalent)							
5N				With HP terminal box(G1/2)	D	E	F				
5I				HP terminal box with lamp (G1/2)							
5J				HP term box (IP65, equiv) (G1/2)							

Refer to the following cautions for Items ④ to ①.

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame ● Lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		● Conduit ● G(CTC19) ● H(G1/2)
----------------	--	--------------------------------------

Precautions for model No. selection

Notes for ④

- *5 : Leave blank for the standard coil housing. However, to select options in ⑤, ⑥, ⑦ or ⑧, indicate 00 for Item ④.
- *6 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
- *7 : A DC coil for steam is available for AG43. Contact CKD for more information.

Notes for ⑤ to ⑧

- *8 : When Item ③ is C, F, K or N, the manual override (Item ⑤A) is not available.
- *9 : For ⑦, select an option from D, E, F, G and H.
- *10 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *11 : As standard, the surge suppressor is built into the coil with diode and the 24 VDC coil (Item ④ 2H), so the surge suppressor S cannot be selected.
- *12 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.

Notes for ⑨

- *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. However, coils for Item ④ 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *14 : For voltages other than above, contact 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.

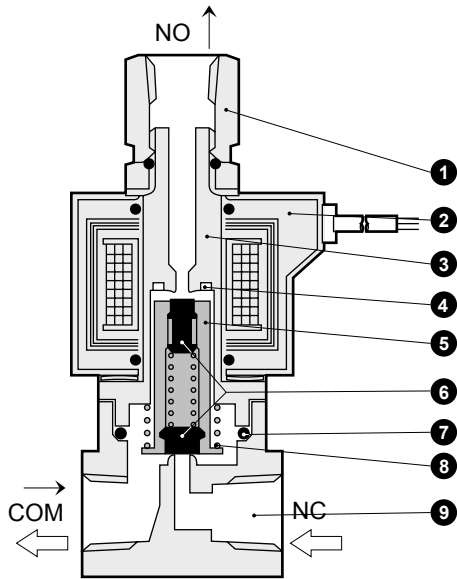
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S/B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AG33/43 Series

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

Internal structure and parts list

● AG33/43 Series



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

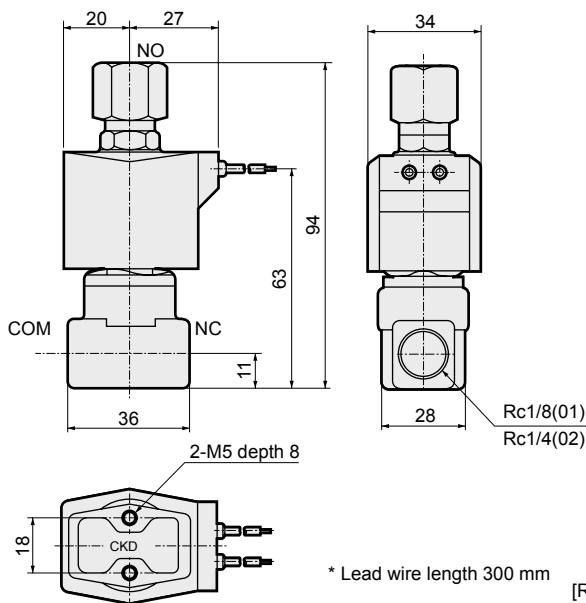
*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

Dimensions: AG33 Series



● Grommet lead wire
AG33-01/02-1 to 2



* Lead wire length 300 mm

[Reference] As the JIS symbol flow shows, this is dedicated for NC port pressurization.
Pressurization from other ports is not possible.
When not energized : COM → NO
When energized : NC → COM

*1 : The dimensions are the same for port sizes of G and NPT threads.

Optional dimensions: AG33 Series

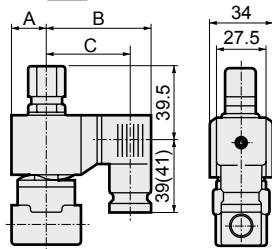


* Refer to the dimensions of grommet lead wire on page 212 for common dimensions.

● With DIN terminal box

AG33-01/02-1 to 2-*

2E
2G
2H



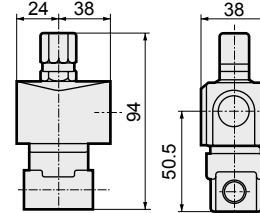
Dimensions shown in () are for G1/2.

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

● Open frame lead wire

AG33-01/02-1 to 2-*

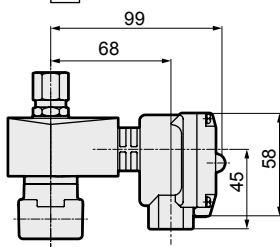
3A
4A
5A



● Open frame + HP terminal box

AG33-01/02-1 to 2-*

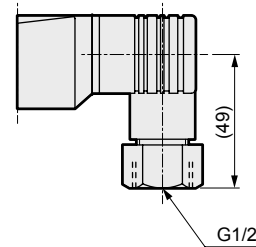
3	M	4M
5	N	4N
	J	



● DIN terminal box with small lamp + conduit (G1/2)

AG33-01/02-1 to 2-*

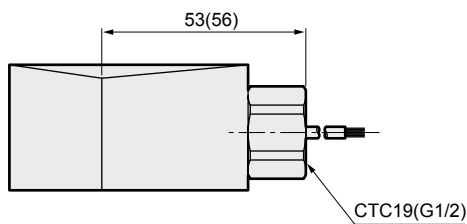
2H	H
----	---



● Open frame + conduit

AG33-01/02-1 to 2-*

3A	G
4A	H
5A	

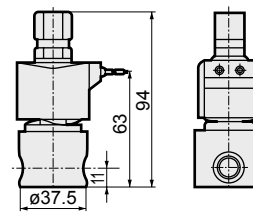


Dimensions shown in () are for G1/2.

● Stainless steel body + grommet lead wire

AG33-01/02-1 to 2-

D/E/F/R/L/M/N

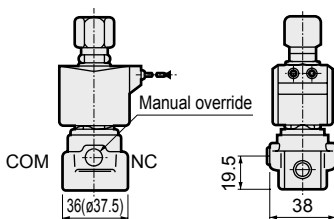


● Manual override (locking)

AG33-01/02-1 to 2-***

A

The figure shows copper alloy body.

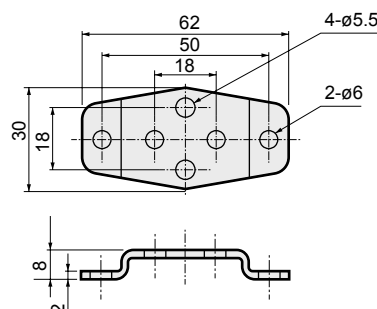


Dimensions shown in () are for stainless steel body.

● Mounting plate

AG33-01/02-1 to 2-***

B



Mounting plate model	Compatibility
AG3-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	● All of AG33 Series

* Material: Steel/Zinc plated

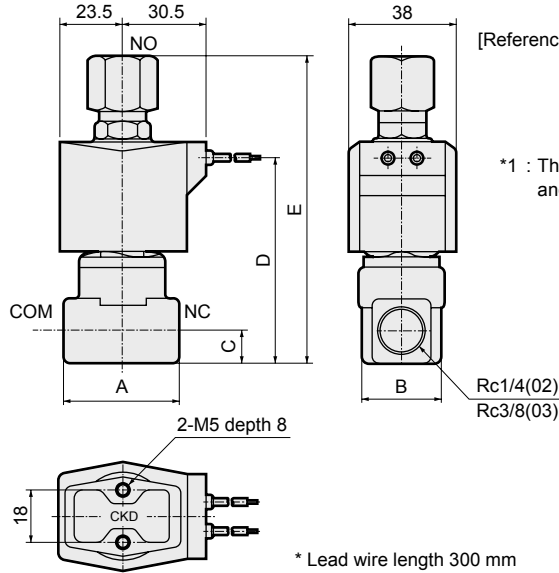
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S/B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AG33/43 Series



Dimensions: AG43 Series

- Grommet lead wire
AG43-02/03-4 to 5



[Reference] As the JIS symbol flow shows, this is dedicated for NC port pressurization. Pressurization from other ports is not possible.
When not energized: COM → NO
When energized: NC → COM

*1 : The dimensions are the same for port sizes of G and NPT threads.

Model No.	A	B	C	D	E
AG43-02-4 to 5	36	28	11	68	99.5
AG43-03-4 to 5	40	28	12	71	106

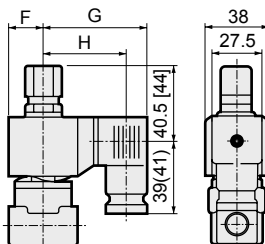
Optional dimensions: AG43 Series



* Refer to the dimensions of grommet lead wire above for common dimensions.

- With DIN terminal box
AG43-02/03-4 to 5-*

2E
2G
2H

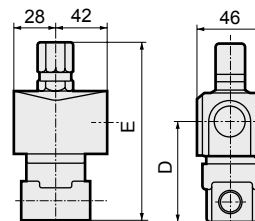


Dimensions shown in [] are for Rc3/8.
Dimensions shown in () are for G1/2.

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

- Open frame lead wire
AG43-02/03-4 to 5-*

3A
4A
5A



Model No.	D	E
AG43-02-4 to 5-**A	52.0	99.5
AG43-03-4 to 5-**A	55.0	106

Optional dimensions: AG43 Series

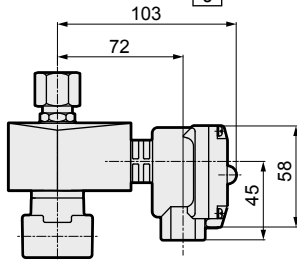


* Refer to the dimensions of grommet lead wire on page 214 for common dimensions.

- Open frame + HP terminal box

AG43-02/03-4 to 5-*

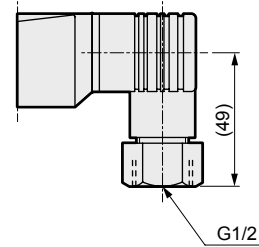
3	M	4M
5	N	4N
	I	
	J	



- DIN terminal box with small lamp + conduit (G1/2)

AG43-02/03-4 to 5-*

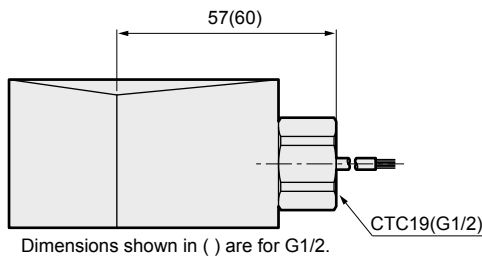
2H	H
----	---



- Open frame + conduit

AG43-02/03-4 to 5-*

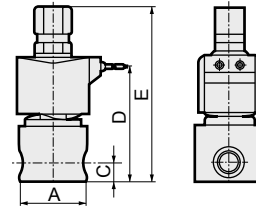
3A	G
4A	H
5A	



- Stainless steel body + grommet lead wire

AG43-02/03-4 to 5-

D/E/F/R/L/M/N



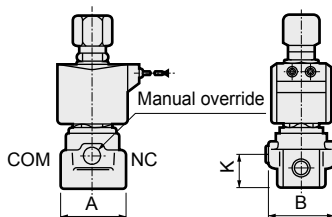
Model No.	A	C	D	E
AG43-02-4 to 5-*	ø37.5	11	68	99.5
AG43-03-4 to 5-*	ø45	12	71	106

- Manual override (locking)

AG43-02/03-4 to 5-***

A

The figure shows copper alloy body.



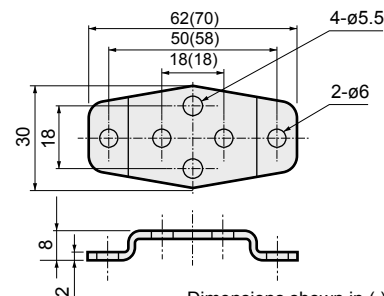
Model No.	A	B	K
AG43-02-4 to 5-***A	36(ø37.5)	38	19.5
AG43-03-4 to 5-***A	40(ø45.0)	40	22.5

Dimensions shown in () are for stainless steel body.

- Mounting plate

AG43-02/03-4 to 5-***

B

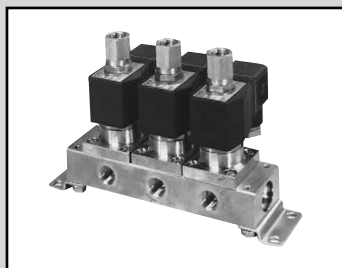


Dimensions shown in () are for mounting plate No. 2.

Mounting plate model	Compatibility	
AG4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	<ul style="list-style-type: none"> ● AG43-02/03-4 to 5 Series ● Stainless steel body AG43-02-4 to 5- <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>D/E/F/L/M/N/R</td></tr></table> 	D/E/F/L/M/N/R
D/E/F/L/M/N/R		
AG4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	<ul style="list-style-type: none"> ● Stainless steel body AG43-03-4 to 5- <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>D/E/F/L/M/N/R</td></tr></table> 	D/E/F/L/M/N/R
D/E/F/L/M/N/R		

* Material: Steel/Zinc plated

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



Direct acting 3-port solenoid valve, manifold/actuator
General purpose

GAG33*/GAG43* Series

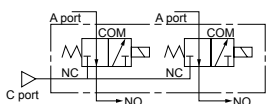
- NC pressurization
- Common supply/individual exhaust

CE Refer to the Ending for details.



JIS symbol

- GAG33*/GAG43*
(Common supply/individual exhaust)



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications	Optional specifications	
Working fluid	Air/low vacuum [1.33×10^2 Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)	Hot water	Steam
Working pressure differential MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)		
Max. working pressure MPa	1 (≈150 psi, 10 bar)		
Proof pressure (water pressure) MPa	10 (≈1500 psi, 100 bar)		
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)	-10 (14°F) to 184 (363.2°F)
Ambient temperature °C	-20 (-4°F) to 60 (140°F)	-20 (-4°F) to 100 (212°F)	
Thermal class	Class 130 (B)	Class 180 (H)	
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 (air)	300 or less (air)	
Mounting orientation	Unrestricted		
Body/seal material	Copper alloy/nitrile rubber	Copper alloy/EPM rubber	Copper alloy/PTFE

*1 : No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	NO port size	Orifice size (mm)		Max. working pressure differential (MPa)							Rated voltage	Apparent power (VA)				Power consump (W)	
				Air		Water(hot)/Kerosene		Oil (50 mm ² /s)		Steam		When holding		When starting		AC 50/60 Hz	DC
				AC	DC	AC	DC	AC	DC	AC		50 Hz	60 Hz	50 Hz	60 Hz		
GAG331-1	Rc1/8	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	100 VAC 50/60 Hz *7	14	11	20	16	6/4.2	11 (8.1)
-2		2.0	2.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7							
GAG332-1	Rc1/4	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	200 VAC 50/60 Hz *7	22	17	35	27	8.3/6.2	11 (10.4)
-2		2.0	2.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7							
GAG432-4	Rc1/4	3.0	3.0	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)
-5		3.5	3.0	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4							
GAG433-4	Rc3/8	3.0	3.0	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7	0.7 (0.55)	0.7	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)
-5		3.5	3.0	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4	0.4 (0.25)	0.4							

*1 : The model numbers above are for the basic NO port size (Rc) and orifice size. Refer to How to order for other combinations.

*2 : For A and C port sizes, refer to How to order (page 218) and dimensions (page 222).

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

*4 : Values shown in () are for the DC voltage with DIN terminal box.

*5 : The voltage fluctuation range must be ±10% of the rated voltage.

*6 : When using at low vacuum, vacuum the NO port side.

*7 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5J.

Weight

Model No.	Weight (kg)									
	Actuator only	2 stations	3 stations	4 stations	5 stations	6 stations	7 stations	8 stations	9 stations	10 stations
GAG33*	0.35	1.4	2.0	2.8	3.2	4.0	4.6	5.2	6.1	6.4
GAG432	0.44	1.6	2.3	3.2	3.7	4.6	5.3	6.0	6.9	7.3
GAG433	0.45	1.6	2.3	3.2	3.7	4.6	5.3	6.0	7.0	7.4

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

Sealant	Fluoro rubber		Ethylene propylene rubber		PTFE	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)	-10 to 60	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)				300 or less (air)	

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

Model No.	Port size	Orifice size (mm)		Flow characteristics					
		TOP	BODY	C[dm ³ /(s·bar)]		b		Cv	
				TOP	BODY	TOP	BODY	TOP	BODY
GAG331-1 -2	Rc1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
GAG332-1 -2	Rc1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
GAG432-4 -5	Rc1/4	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
		3.5	3.0	1.5	1.1	0.62	0.52	0.4	0.31
GAG433-4 -5	Rc3/8	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
		3.5	3.0	1.5	1.1	0.62	0.52	0.4	0.31

*1: Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

GAG33*/43* Series

How to order

● Common supply/individual exhaust (Port C pressurization)

GAG33 **1** - **2** - **6** - **B** **4A** **A** **G** **S** - **AC100V**

● Common supply/individual exhaust (Port C pressurization)

GAG43

- F** Coil housing **I** With surge suppressor
- G** Manual override (locking) **J** Rated voltage
- H** Other options
- E** Body/sealant combination

Model No.

A NO port size

B Thread

C Orifice size

D Manifold station No.
*2

[Example of model No. 1]
GAG331-1-4-AC200V

Model: GAG331 (common supply/individual exhaust, port C pressurization)

- A** NO port size : 1/8
- B** Thread : Rc
- C** Orifice size : TOP- ϕ 1.5, BODY- ϕ 1.5
- D** Manifold station No.: 4 stations
- E** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber

- F** Coil housing : Grommet lead wire
- G** to **I** : None
- J** Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

[Example of model No. 2]
GAG332G-2-7-000AS-AC200V

Model: GAG332 (common supply/individual exhaust, port C pressurization)

- A** NO port size : 1/4
- B** Thread : G
- C** Orifice size : TOP- ϕ 2.0, BODY- ϕ 2.0
- D** Manifold station No. : 7 stations
- E** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- F** Coil housing : Grommet lead wire
- G** Manual override (locking) : Selected
- H** Other options : None
- I** Surge suppressor : With surge suppressor
- J** Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

Code	Description	GAG33*	GAG43*
A NO port size			
1	1/8	●	
2	1/4	●	●
3	3/8		●

B Thread		GAG33*	GAG43*
Blank	Rc	●	●
G	G	●	●
N	NPT	●	●

	GAG33*		GAG43*			
	TOP	BODY	TOP	BODY		
1	ϕ 1.5	ϕ 1.5	-	-	●	
2	ϕ 2.0	ϕ 2.0	-	-	●	
4	-	-	ϕ 3.0	ϕ 3.0		●
5	-	-	ϕ 3.5	ϕ 3.0		●

D Manifold station No.		GAG33*	GAG43*
2 to 10	2 stations to 10 stations	●	●
0	Actuator only	●	●

E Body/sealant combination					*3*5*6	
	Body	Seal	Treatment	Remarks		
Blank	Std. Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
		PTFE		Steam (up to 184°C *4)	●	●
D	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
		PTFE		Steam (up to 184°C *4)	●	●
H	Option Copper alloy	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
		PTFE		Steam (up to 184°C *4)	●	●
L	Stainless steel	Ethylene propylene rubber	-	Hot water (up to 90°C *4)	●	●
		Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)	●	●
		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *4)	●	●
N	Option Stainless steel	PTFE	-	Steam (up to 184°C *4)	●	●
		Ethylene propylene rubber		Hot water (up to 90°C *4)	●	●

Refer to Intro Page 39 for reference on material combinations.

F to J

Refer to page 219 for details on the coil housing, other options and voltage, etc.

The combinations indicated with ● in the above table are available.

⚠ Precautions for model No. selection

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

Notes for **D** to **E**

*2 : For 11 or more manifold station No., contact CKD.

*3 : Leave blank for standard. However, to select options in **F**, **G**, **H** or **I**, indicate 0 for Item **E**.

*4 : When Item **E** 4A/4M/4N is selected.






*5 : The ethylene propylene rubber seal combination (Item **E** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)

*6 : For PTFE seal, O-ring material for socket and sub-plate connection will be FKM.


For Items (F) to (J), the combinations indicated with codes are available.
 Note that if options for Items (G) to (I) are not required, they should be left blank.

(F) Coil housing		(G)	(H) Other options					(I)	(J) Rated voltage	
Description		Manual override (locking)	Cable gland			Conduit		With surge suppressor	Description	
			(marine cable gland)			(conduit piping)				
			A-15a	A-15b	A-15c	CTC19	G1/2			
Blank	Grommet lead wire	A						S	100 VAC, 200 VAC	
2E	With DIN terminal box (G1/2)								100 VAC, 200 VAC	
2G	With DIN terminal box (Pg11)								12 VDC, 24 VDC, 48 VDC, 100 VDC	
2H	DIN terminal box with small lamp (Pg11)					H			100 VAC, 200 VAC, 24 VDC	
3A	Open frame	Lead wire				G H		S	100 VAC, 200 VAC	
3M		With HP terminal box (G1/2)							12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N		HP terminal box with lamp (G1/2)	D	E	F				100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
3I		HP terminal box (IP65 or equivalent) (G1/2)							100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3J		HP term box, lamp (IP65, equiv) (G1/2)							100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
4A	Open frame (Thermal class 180 (H))	Lead wire				G H		S	100 VAC, 200 VAC	
4M		With HP terminal box (G1/2)	D	E	F					
4N		HP terminal box with lamp (G1/2)								
5A	Open frame (diode integrated)	Lead wire				G H		S	100 VAC, 200 VAC	
5M		With HP terminal box (G1/2)	D	E	F					
5N		HP terminal box with lamp (G1/2)								
5I		HP terminal box (IP65 or equivalent) (G1/2)								
5J		HP term box, lamp (IP65, equiv) (G1/2)								

⚠ Refer to the following cautions for Items (F) to (J).

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame ● Lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		● Conduit ● G(CTC19) ● H(G1/2)
----------------	--	--------------------------------------

⚠ Precautions for model No. selection

Notes for (F)

- *7 : Leave blank for the standard coil housing. However, to select options in (G), (H) or (I), indicate 00 for Item (F).
- *8 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
- *9 : A DC coil for steam is available for GAG43*. Contact CKD for more information.

Notes for (G) to (I)

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

Notes for (J)

- *15: 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. However, coils for Item (F) 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *16: For voltages other than above, contact CKD.
- *17: 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.

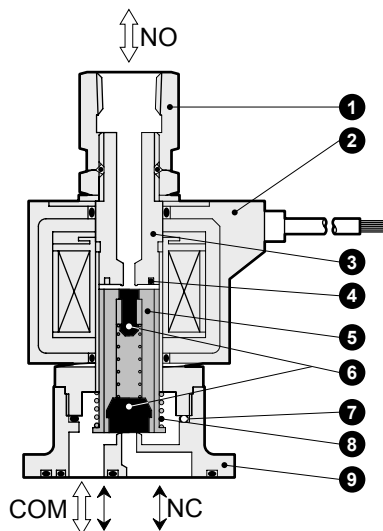
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S [◇] B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

GAG33*/43* Series

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

Internal structure and parts list

● GAG33*/GAG43* Series actuator



No.	Part name	Material
1	Socket	C3604(SUS303) Copper alloy (stainless steel)
2	Coil	- -
3	Core assembly	SUS405 or equiv./316L/403 *1 Stainless steel
4	Shading coil	Cu (Ag for stainless steel body) Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. Stainless steel
6	Seal	NBR (FKM/EPDM/PTFE) NBR: Nitrile rubber FKM: Fluoro rubber
7	O-ring	NBR (FKM/EPDM/PTFE) (Size: AS568-019) EPDM: Ethylene propylene rubber PTFE: Tetrafluoroethylene resin
8	Plunger spring	SUS304 Stainless steel
9	Body	C3771(SCS13) Copper alloy (stainless steel)

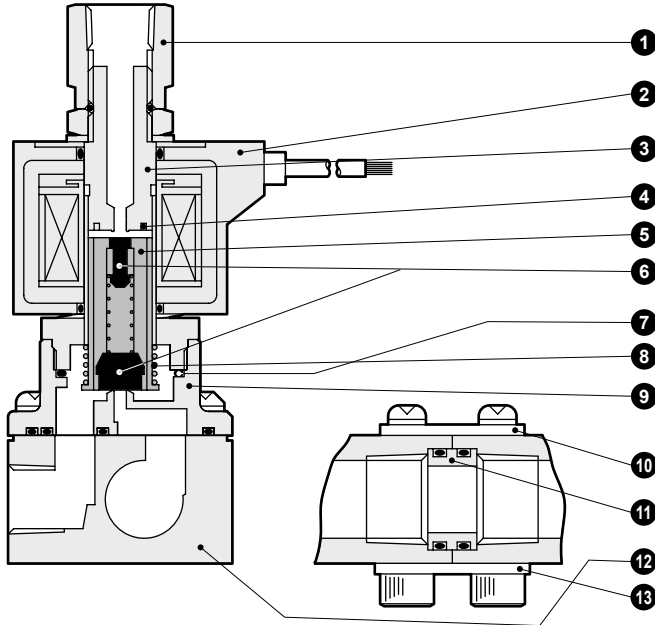
*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

*3 : 4 body mounting screws and 2 O-rings are attached to the actuator only.

Internal structure and parts list

● GAG33*/GAG43* manifold



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

*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

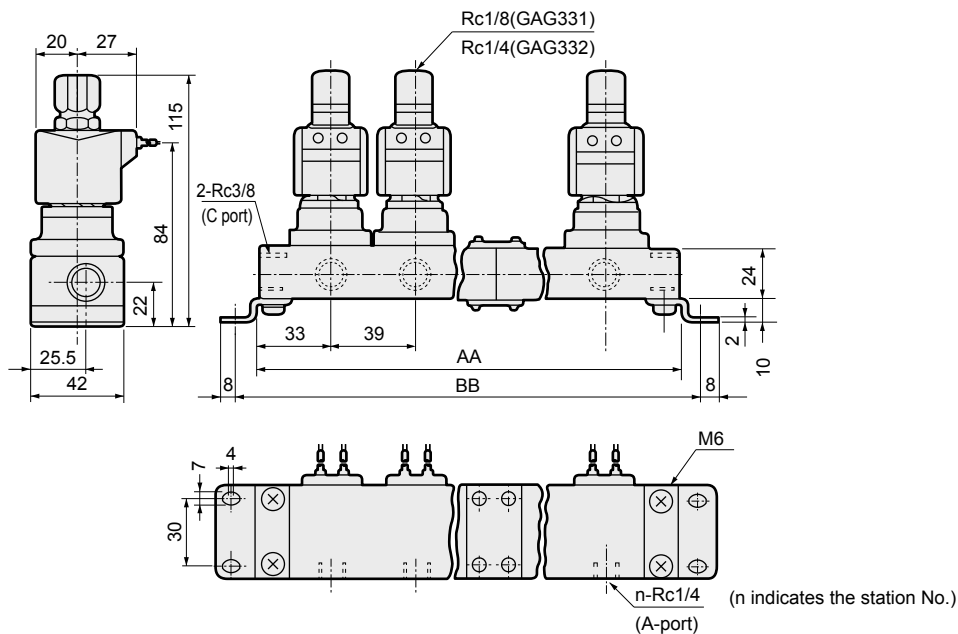
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S ♂ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

GAG33*/43* Series



Dimensions: GAG331/GAG332 Series

- Manifold (grommet lead wire)
GAG33*-1 to 2- [2 to 10]

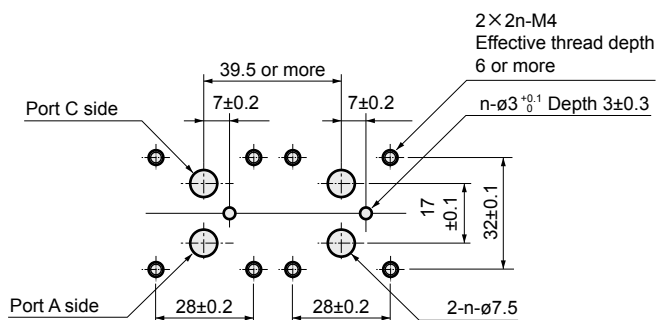
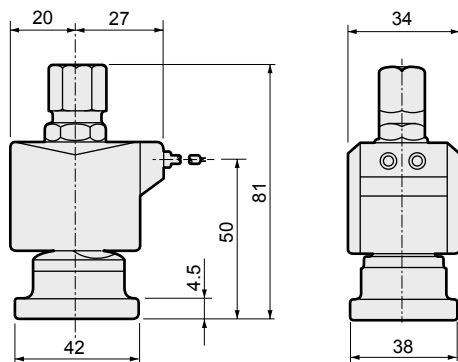


Station No.	AA	BB	Manifold configuration	Station No.	AA	BB	Manifold configuration
2	106	122	2 stations x 1	7	329	345	5 stations + 2 stations
3	145	161	3 stations x 1	8	368	384	5 stations + 3 stations
4	212	228	2 stations x 2	9	435	451	3 stations x 3
5	223	239	5 stations x 1	10	446	462	5 stations x 2
6	290	306	3 stations x 2	Contact CKD for 11 stations or more.			

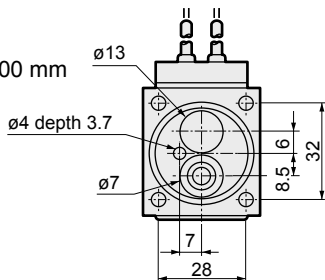
*1 : Manifold configuration combines 2-station, 3-station and 5-station units.
*2 : The dimensions are the same for port sizes of G and NPT threads.

- Actuator (grommet lead wire)
GAG33*-1 to 2- [0]

- Recommended dimensions for actuator mounting



* Lead wire length 300 mm



■ Machining drawing when using 2 actuators

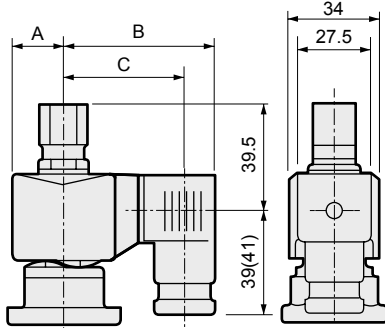
Optional dimensions: GAG331/GAG332 Series



* Refer to the dimensions of grommet lead wire on page 222 for common dimensions.

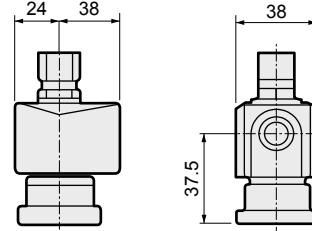
- With DIN terminal box
GAG33*-1 to 2-0 to 10-*

2E
2G
2H



- Open frame lead wire
GAG33*-1 to 2-0 to 10-*

3A
4A
5A

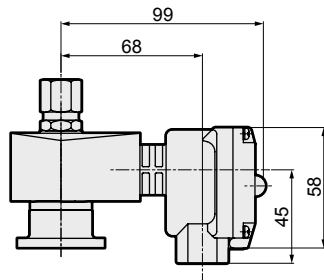


Dimensions shown in () are for G1/2.

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

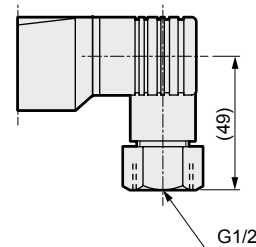
- Open frame + HP terminal box
GAG33*-1 to 2-0 to 10-*

3 M	4M
5 N	4N
I	
J	



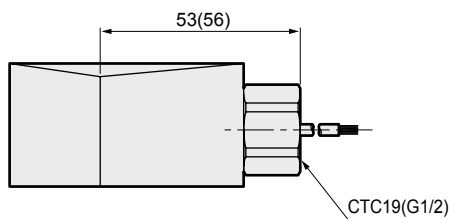
- DIN terminal box with small lamp + conduit (G1/2)
GAG33*-1 to 2-0 to 10-*

2H	H
----	---



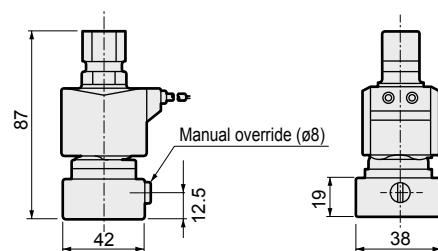
- Open frame + conduit
GAG33*-1 to 2-0 to 10-*

3A	G
4A	H
5A	



- Manual override (locking)
GAG33*-1 to 2-0 to 10-***

A



Dimensions shown in () are for G1/2.

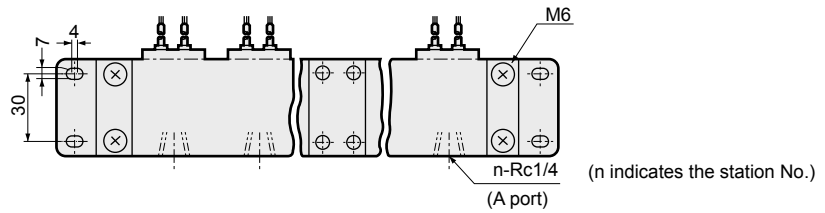
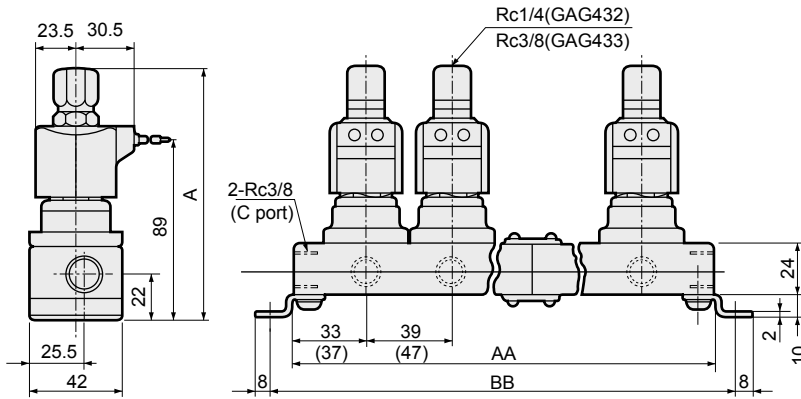
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S&B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

GAG33*/43* Series



Dimensions: GAG432/GAG433 Series

- Manifold (grommet lead wire)
GAG43*-4 to 5- [2 to 10]



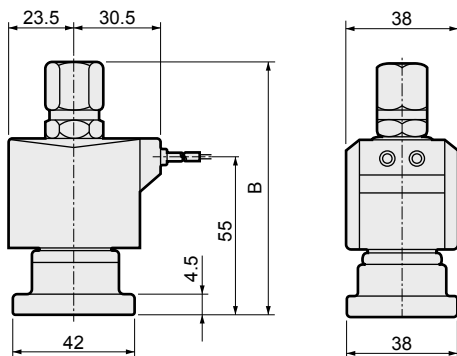
Model No.	A
GAG432-4 to 5	120.5
GAG433-4 to 5	124

Station No.	AA	BB	Manifold configuration	Station No.	AA	BB	Manifold configuration
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	Contact CKD for 11 stations or more.			

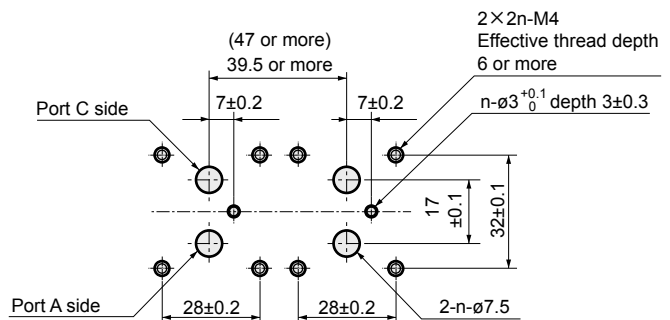
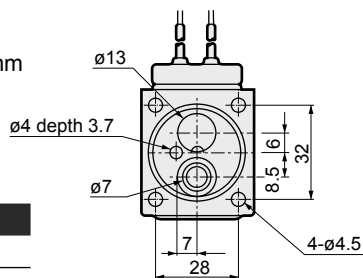
- *1 : Manifold configuration combines 2-station, 3-station and 5-station units.
- *2 : Dimensions shown in () are for open frame.
- *3 : The dimensions are the same for port sizes of G and NPT threads.

- Actuator (grommet lead wire)
GAG43*-4 to 5-[0]

- Recommended dimensions for actuator mounting



* Lead wire length 300 mm



■ Machining drawing when using 2 actuators

Model No.	B
GAG432-4 to 5	86.5
GAG433-4 to 5	90

Optional dimensions: GAG432/GAG433 Series



* Refer to the dimensions of grommet lead wire on page 224 for common dimensions.

- With DIN terminal box

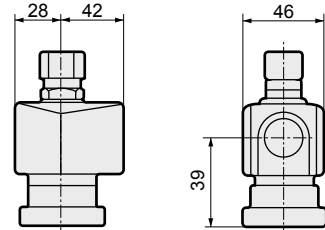
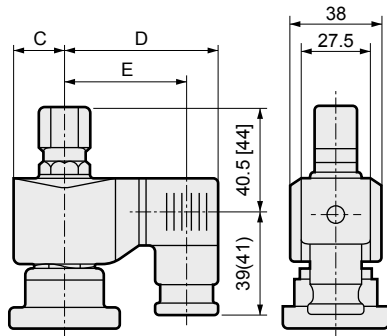
GAG43*-4 to 5-0 to 10-*

2E
2G
2H

- Open frame lead wire

GAG43*-4 to 5-0 to 10-*

3A
4A
5A



Dimensions shown in [] are for Rc3/8.

Dimensions shown in () are for G1/2.

Voltage	C	D	E
AC	23.5	65.5	54(53.5)
DC	23.5	66	54.5(54)

- Open frame + HP terminal box

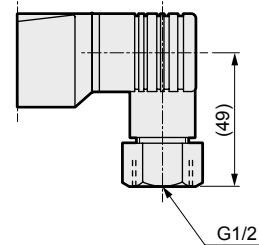
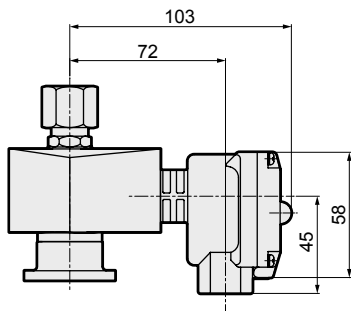
GAG43*-4 to 5-0 to 10-*

3 M	4M
5 N	4N
I	
J	

- DIN terminal box with small lamp + conduit (G1/2)

GAG43*-4 to 5-0 to 10-*

2H	H
----	---



- Open frame + conduit

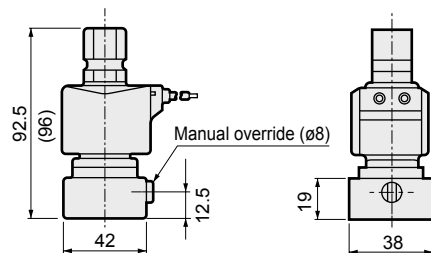
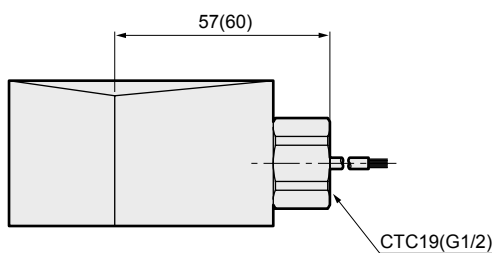
GAG43*-4 to 5-0 to 10-*

3A	G
4A	H
5A	

- Manual override (locking)

GAG43*-4 to 5-0 to 10-***

A



Dimensions shown in () are for G1/2.

Dimensions shown in () are for GAG433.

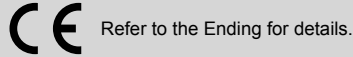
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S&B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending



Direct acting 3-port solenoid valve, single unit
General purpose

AG34/AG44 Series

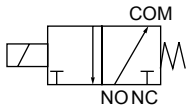
- NO pressurization
- Port size: Rc1/8, Rc1/4, Rc3/8



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

JIS symbol

- AG34/44: NO pressurization



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications	Optional specifications
Working fluid	Air/low vacuum (1.33 x 10 ² Pa (abs)) / water/kerosene/oil (50 mm ² /s or less)	Hot water
Working pressure differential MPa	0 to 1.5 (refer to max. working pressure differential in individual specifications.)	
Max. working pressure MPa	1.5 (≈220 psi, 15 bar)	
Proof pressure (water pressure) MPa	25 (≈3600 psi, 250 bar)	
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)
Ambient temperature °C	-20 (-4°F) to 60 (140°F)	-20 (-4°F) to 100 (212°F)
Thermal class	Class 130 (B)	Class 180 (H)
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 (air)	
Mounting orientation	Unrestricted	
Body/seal material	Copper alloy/nitrile rubber	Copper alloy/ethylene propylene rubber

*1 : No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)		Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)								
				Air		Water(hot)/Kerosene		Oil (50 mm ² /s)			When holding		When starting		AC	DC									
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz											
AG34-01-1	Rc1/8	1.5	1.5	1.0	1.0	1.0	1.0	1.0	0.7	100 VAC 50/60 Hz *6	14	11	20	16	6/4.2	11 (8.1)	0.36								
-01-2		2.0	2.0	0.7	0.45	0.7	0.6 (0.45)	0.3	0.2																
AG34-02-1		Rc1/4	1.5	1.5	1.0	1.0	1.0	1.0	1.0									0.7							
-02-2	2.0		2.0	0.7	0.45	0.7	0.6 (0.45)	0.3	0.2																
AG44-02-1	Rc1/4	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45									200 VAC 50/60 Hz *6	22	17	35	27	8.3/6.2	11 (10.4)	0.48
CHB/G		-02-3	2.0	3.0	1.2	0.75	1.5	0.9	1.0																
MXB/G		-02-4	3.0	3.0	0.4	0.3 (0.25)	0.5	0.3	0.3	0.2 (0.15)															
Other valves		-03-1	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45															
SWD/MWD	Rc3/8	2.0	3.0	1.2	0.75	1.5	0.9	1.0	0.45	12 VDC 24 VDC 48 VDC 100 VDC															
DustColl		-03-4	3.0	3.0	0.4	0.3 (0.25)	0.5	0.3	0.3									0.2 (0.15)							

- *1 : The model numbers above are for the basic port size (Rc) and orifice size. 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 range must be within ±10% of the rated voltage.
- *4 : Values shown in () are for the DC voltage with DIN terminal box.
- *5 : When using at low vacuum, vacuum the NC port side.
- *6 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.

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

Sealant	Fluoro rubber		Ethylene propylene rubber	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)			

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

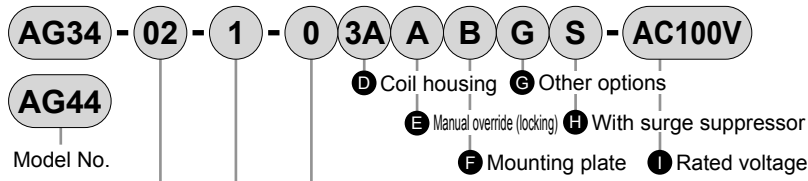
Model No.	Port size	Orifice size (mm)		Flow characteristics					
		TOP	BODY	C[dm ³ /(s·bar)]		b		Cv	
				TOP	BODY	TOP	BODY	TOP	BODY
AG34-01-1	Rc1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-01-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-1	Rc1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-02-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
AG44-02-1	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-3		2.0	3.0	0.53	1.1	0.54	0.52	0.15	0.31
-02-4		3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
-03-1	Rc3/8	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-03-3		2.0	3.0	0.53	1.1	0.54	0.52	0.15	0.31
-03-4		3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

AG34/44 Series

How to order



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

Model No.	
AG34	AG44

Code	Description	Code	Description	Code	Description
A Port size					
01	Rc1/8	1G	G1/8	1N	1/8NPT
02	Rc1/4	2G	G1/4	2N	1/4NPT
03	Rc3/8	3G	G3/8	3N	3/8NPT

	AG34		AG44			
	TOP	BODY	TOP	BODY		
1	ø1.5	ø1.5	ø2.0	ø2.0	●	●
2	ø2.0	ø2.0	-	-	●	
3	-	-	ø2.0	ø3.0		●
4	-	-	ø3.0	ø3.0		●

C Body/sealant combination								
	Body	Seal	Treatment	Remarks				
Blank	Std.							
B	Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)			●	●
D		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)			●	●
E		Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)			●	●
H		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)			●	●
J	Copper alloy	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene (up to 60°C)			●	●
P		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)			●	●
L		Ethylene propylene rubber		Hot water (up to 90°C *2)			●	●
M	Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene (up to 60°C)			●	●
R		Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)			●	●
		Ethylene propylene rubber		Hot water (up to 90°C *2)			●	●

Refer to Intro Page 39 for reference on material combinations.

D to I
 Refer to page 229 for details on the coil housing, other options and voltage, etc.

The combinations indicated with ● in the above table are available.

[Example of model No. 1]

AG34-1G-1-AC100V

Model: AG34

- Ⓐ Port size : G1/8
- Ⓑ Orifice size : TOP-ø1.5, BODY-ø1.5
- Ⓒ Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- Ⓓ Coil housing : Grommet lead wire
- Ⓔ to Ⓕ : None
- Ⓖ Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

[Example of model No. 2]

AG44-03-4-000ABS-AC100V

Model: AG44

- Ⓐ Port size : Rc 3/8
- Ⓑ Orifice size : TOP-ø3.0, BODY-ø3.0
- Ⓒ Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- Ⓓ Coil housing : Grommet lead wire
- Ⓔ Manual override (locking) : Selected
- Ⓖ Mounting plate : With mounting plate
- Ⓔ Other options : None
- Ⓕ Surge suppressor : With surge suppressor
- Ⓖ Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

⚠ Precautions for model No. selection






Notes for Ⓒ

- *1 : Leave blank for standard. However, to select options in Ⓓ, Ⓔ, Ⓕ, Ⓖ or Ⓕ, indicate 0 for Item Ⓒ.
- *2 : When Item Ⓒ 4A/4M/4N is selected.
- *3 : The ethylene propylene rubber seal combination (Item Ⓒ P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- *4 : Even if nitrile rubber seal is selected, the seal material on the NO side will be fluoro rubber.


For Items ④ to ①, the combinations indicated with codes are available.
 Note that if options for Items ⑤ to ⑧ are not required, they should be left blank.

④ Coil housing		⑤	⑥	⑦ Other options			⑧	⑨ Rated voltage					
Description	Manual override (locking)	Mounting plate	Cable gland			Conduit		Description					
			(marine cable gland)			(conduit piping)							
			A-15a	A-15b	A-15c	CTC19	G1/2						
Blank	Std	Grommet lead wire	A	B				S	100 VAC, 200 VAC				
2E		With DIN terminal box (G1/2)								100 VAC, 200 VAC			
2G		With DIN terminal box (Pg11)								12 VDC, 24 VDC, 48 VDC, 100 VDC			
2H		DIN terminal box with small lamp (Pg11)							H	100 VAC, 200 VAC, 24 VDC			
3A	Option	Open frame	A	B				S	100 VAC, 200 VAC				
3M					Lead wire (IP65 or equivalent)				G	H	12 VDC, 24 VDC, 48 VDC, 100 VDC		
3N					With HP terminal box (G1/2)	D	E		F				100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
3I					HP terminal box with lamp (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3J					HP terminal box (IP65 or equivalent) (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
3K					HP term box, lamp (IP65, equiv) (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A	Open frame (Thermal class 180 (H))	Lead wire	A	B				S	100 VAC, 200 VAC				
4M		With HP terminal box (G1/2)			D	E	F						
4N		HP terminal box with lamp (G1/2)											
5A	Open frame (diode integrated)	Lead wire (IP65 or equivalent)	A	B				S	100 VAC, 200 VAC				
5M		With HP terminal box (G1/2)			D	E	F						
5N		HP terminal box with lamp (G1/2)											
5I		HP terminal box (IP65 or equivalent) (G1/2)											
5J		HP term box, lamp (IP65, equiv) (G1/2)											

Refer to the following cautions for Items ④ to ①.

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame ● Lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		● Conduit ● G(CTC19) ● H(G1/2)
----------------	--	--------------------------------------

⚠ Precautions for model No. selection

Notes for ④

- *5 : Leave blank for the standard coil housing. However, to select options in ⑤, ⑥, ⑦ or ⑧, indicate 00 for Item ④.
- *6 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
- *7 : A DC coil for steam is available for AG44. Contact CKD for more information.

Notes for ⑤ to ⑧

- *8 : For Item ⑦, select an option from D, E, F, G and H.
- *9 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *10 : As standard, the surge suppressor is built into the coil with diode and the 24 VDC coil (Item ④ 2H), so the surge suppressor S cannot be selected.
- *11 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.

Notes for ⑨

- *12 : 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. However, coils for Item ④ 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *13 : For voltages other than above, contact CKD.
- *14 : 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.

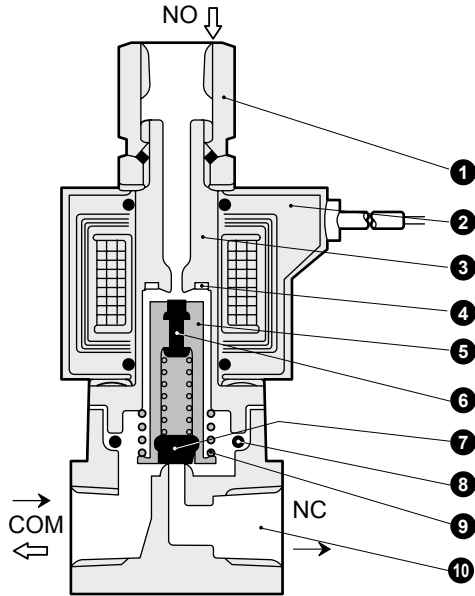
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S/B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combust
Auto-Water
Outdoor
SpecFld
Custom
Ending

AG34/44 Series

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

Internal structure and parts list

● AG34/AG44 Series



No.	Part name	Material
1	Socket	C3604(SUS303) / Copper alloy (stainless steel)
2	Coil	- / -
3	Core assembly	SUS405 or equiv./316L/403 *1 / Stainless steel
4	Shading coil	Cu (Ag for stainless steel body) / Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. / Stainless steel
6	NO valve sealant	FKM (FKM/EPDM)
7	NC valve sealant	NBR (FKM/EPDM) / NBR: Nitrile rubber / FKM: Fluoro rubber / EPDM: Ethylene propylene rubber
8	O-ring	NBR (FKM/EPDM) (Size: AS568-019)
9	Plunger spring	SUS304 / Stainless steel
10	Body	C3771(SUS303) / Copper alloy (stainless steel)

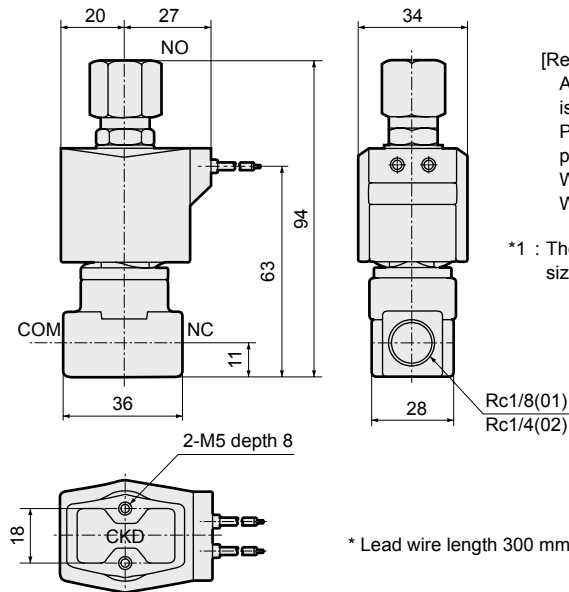
*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

Dimensions: AG34 Series



● Grommet lead wire
AG34-01/02-1 to 2



[Reference]

As the JIS symbol flow shows, this type is dedicated for NO port pressurization. Pressurization from other ports is not possible.
When not energized: NO → COM
When energized : COM → NC

*1 : The dimensions are the same for port sizes of G and NPT threads.

* Lead wire length 300 mm

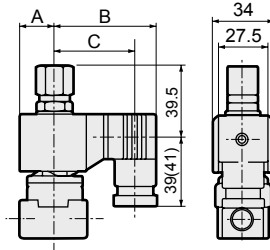
Optional dimensions: AG34 Series



* Refer to the dimensions of grommet lead wire on page 230 for common dimensions.

- With DIN terminal box
AG34-01/02-1 to 2-*

2E
2G
2H

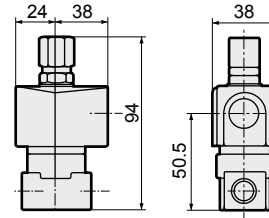


Dimensions shown in () are for G1/2.

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

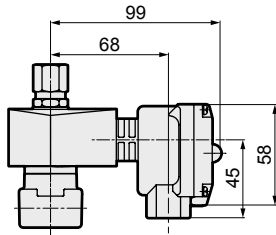
- Open frame lead wire
AG34-01/02-1 to 2-*

3A
4A
5A



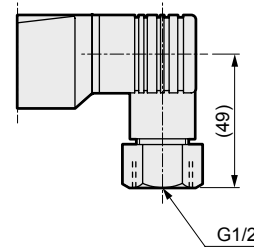
- Open frame + HP terminal box
AG34-01/02-1 to 2-*

3 M / 4M
5 N / 4N
I
J



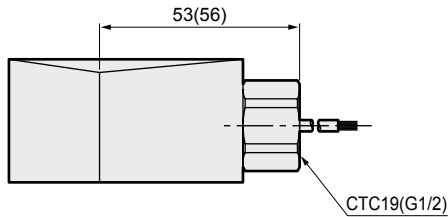
- DIN terminal box with small lamp + conduit (G1/2)
AG34-01/02-1 to 2-*

2H H



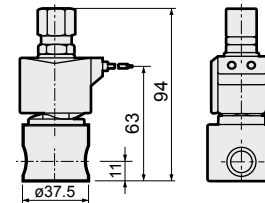
- Open frame + conduit
AG34-01/02-1 to 2-*

3A G
4A H
5A



Dimensions shown in () are for G1/2.

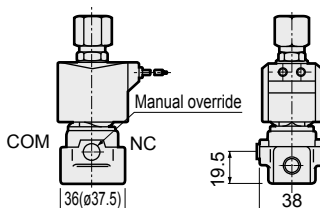
- Stainless steel body + grommet lead wire
AG34-01/02-1 to 2- [D/E/R/L/M]



- Manual override (locking)
AG34-01/02-1 to 2-***

A

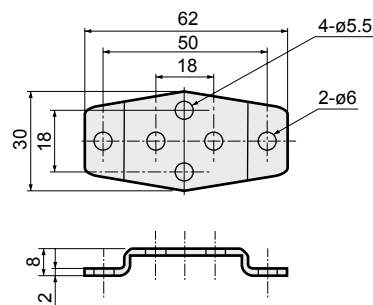
The figure shows copper alloy body.



Dimensions shown in () are for stainless steel body.

- Mounting plate
AG34-01/02-1 to 2-***

B



Mounting plate model	Compatibility
AG3-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	● All of AG34 Series

* Material: Steel/Zinc plated

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

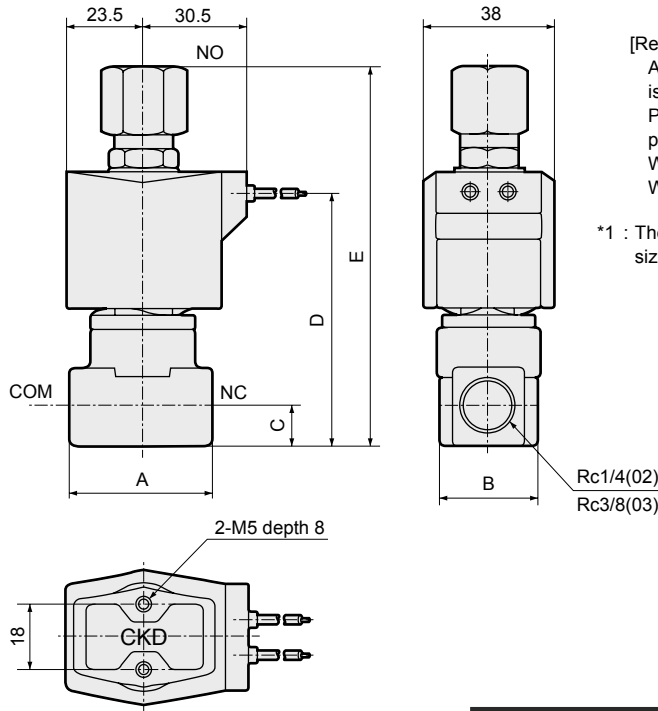
AG34/44 Series

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

Dimensions: AG44 Series



- Grommet lead wire
AG44-02/03-1/3/4



[Reference]
As the JIS symbol flow shows, this type is dedicated for NO port pressurization. Pressurization from other ports is not possible.
When not energized: NO → COM
When energized : COM → NC

*1 : The dimensions are the same for port sizes of G and NPT threads.

* Lead wire length 300 mm

Model No.	A	B	C	D	E
AG44-02-1 to 4	36	28	11	68	99.5
AG44-03-1 to 4	40	28	12	71	106

Optional dimensions: AG44 Series



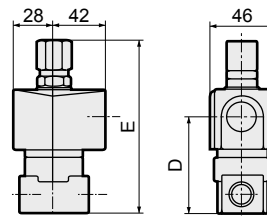
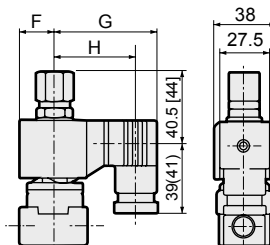
* Refer to the dimensions of grommet lead wire above for common dimensions.

- With DIN terminal box
AG44-02/03-1/3/4-*

- 2E
- 2G
- 2H

- Open frame lead wire

- AG44-02/03-1/3/4-*
- 3A
- 4A
- 5A



Dimensions shown in [] are for Rc3/8.
Dimensions shown in () are for G1/2.

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

Model No.	D	E
AG44-02-1 to 4-□A	52.0	99.5
AG44-03-1 to 4-□A	55.0	106

Optional dimensions: AG44 Series

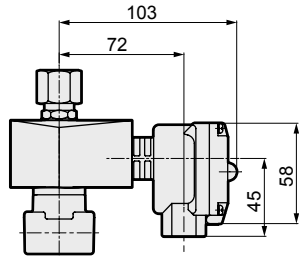


* Refer to the dimensions of grommet lead wire on page 232 for common dimensions.

● Open frame + HP terminal box

AG44-02/03-1/3/4-*

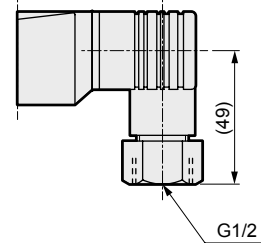
3	M	4M
5	N	4N
	I	
	J	



● DIN terminal box with small lamp + conduit (G1/2)

AG44-02/03-1/3/4-*

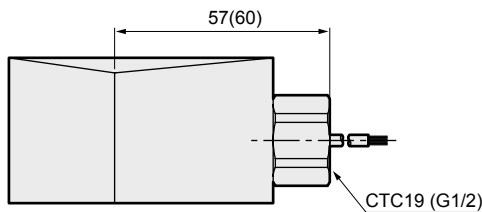
2H	H
----	---



● Open frame + conduit

AG44-02/03-1/3/4-*

3A	G
4A	H
5A	

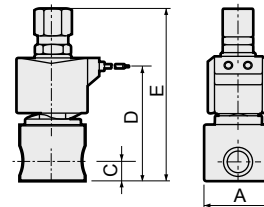


Dimensions shown in () are for G1/2.

● Stainless steel body + grommet lead wire

AG44-02/03-1 to 4-

D	E	L	M	R
---	---	---	---	---



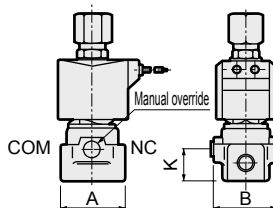
Model No.	A	C	D	E
AG44-02-1 to 4-*	ø37.5	11	68	99.5
AG44-03-1 to 4-*	ø45	12	71	106

● Manual override (locking)

AG44-02/03-1 to 4-***

A

The figure shows copper alloy body.



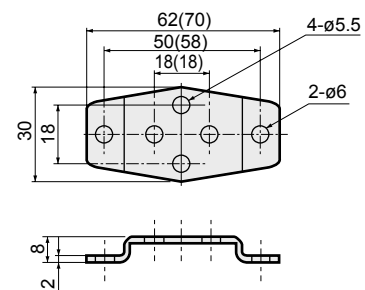
Model No.	A	B	K
AG44-02-1 to 4-***A	36(ø37.5)	38	19.5
AG44-03-1 to 4-***A	40(ø45.0)	40	22.5

Dimensions shown in () are for stainless steel body.

● Mounting plate

AG44-02/03-1 to 4-***

B



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

Mounting plate model	Compatibility
AG4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	<ul style="list-style-type: none"> ● AG44-02/03-1 to 4 Series ● Stainless steel body
AG4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	<ul style="list-style-type: none"> ● Stainless steel body

* Material: Steel/Zinc plated

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



Direct acting 3-port solenoid valve, actuator
General purpose

GAG34*/GAG44* Series

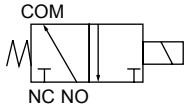
● NO pressurization

CE Refer to the Ending for details.



JIS symbol

● GAG34*/44*: NO pressurization



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications	Optional specifications
Working fluid	Air/low vacuum [1.33×10^5 Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)	Hot water
Working pressure differential MPa	0 to 1.5 (refer to max. working pressure differential in individual specifications.)	
Max. working pressure MPa	1.5 (≈220 psi, 15 bar)	
Proof pressure (water pressure) MPa	10 (≈1500 psi, 100 bar)	
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)
Ambient temperature °C	-20 (-4°F) to 60 (140°F)	-20 (-4°F) to 100 (212°F)
Thermal class	Class 130 (B)	Class 180 (H)
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 (air)	
Mounting orientation	Unrestricted	
Body/seal material	Copper alloy/nitrile rubber	Copper alloy/ethylene propylene rubber

*1 : No freezing.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	NO port size	Orifice size (mm)		Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water(hot)/Kerosene		Oil (50 mm ² /s)			When holding		When starting		AC 50/60 Hz	DC	
				TOP	BODY	AC	DC	AC	DC		AC	DC	50 Hz	60 Hz			
GAG341-1 -2	Rc1/8	1.5	1.5	1.0	1.0	1.0	1.0	1.0	0.7	100 VAC 50/60 Hz *6	14	11	20	16	6/4.2	11 (8.1)	0.35
GAG342-1 -2	Rc1/4	1.5	1.5	1.0	1.0	1.0	1.0	1.0	0.7								
GAG442-1 -3 -4	Rc1/4	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45	200 VAC 50/60 Hz *6	22	17	35	27	8.3/6.2	11 (10.4)	0.44
CHB/G		2.0	3.0	1.2	0.75	1.5	0.9	1.0	0.45								
		3.0	3.0	0.4	0.3 (0.25)	0.5	0.3	0.3	0.2 (0.15)								
GAG443-1 -3 -4	Rc3/8	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45	12 VDC 24 VDC 48 VDC 100 VDC	22	17	35	27	8.3/6.2	11 (10.4)	0.45
MXB/G		2.0	3.0	1.2	0.75	1.5	0.9	1.0	0.45								
Other valves		3.0	3.0	0.4	0.3 (0.25)	0.5	0.3	0.3	0.2 (0.15)								

*1 : The model numbers above are for the basic NO port size (Rc) and orifice size. 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 range must be within ±10% of the rated voltage.

*4 : Values shown in () are for the DC voltage type with DIN terminal box.

*5 : When using at low vacuum, vacuum the NC port side.

*6 : The 100 VAC (50/60 Hz) can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.

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

Sealant	Fluoro rubber		Ethylene propylene rubber	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature (*1) °C	-10 to 60	-10 to 90	0 to 60 (*3)	0 to 90 (*3)
Ambient temperature °C	-20 to 60	-20 to 100 (*2)	-20 to 60	-20 to 100 (*2)
Valve seat leakage cm ³ /min(ANR)	0.2 or less (air)			

*1 : No freezing.

*2 : -20 to 80°C when coil housing is HP terminal box with lamp.

*3 : The lowest temperature is 0°C since the fluid is water.

Flow characteristics

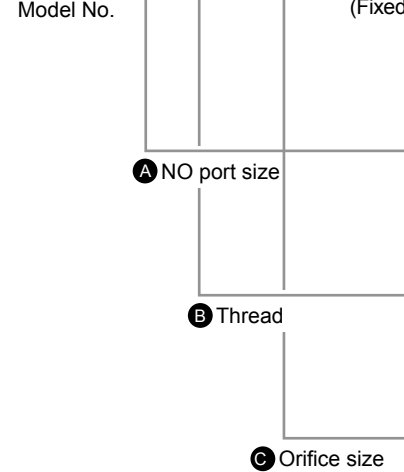
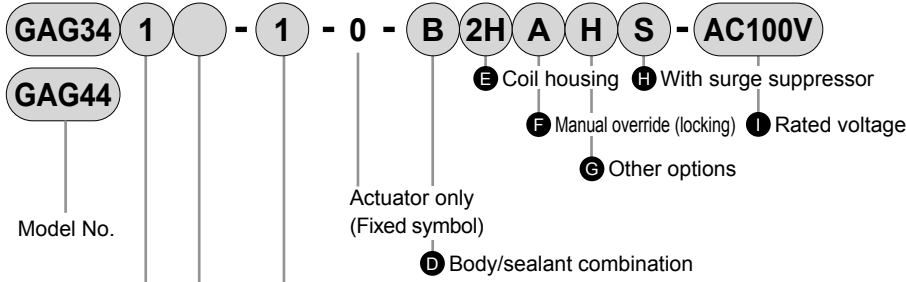
Model No.	Port size	Orifice size (mm)		Flow characteristics					
		TOP	BODY	C[dm ³ /(s·bar)]		b		Cv	
				TOP	BODY	TOP	BODY	TOP	BODY
GAG341-1	Rc1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
GAG342-1	Rc1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
GAG442-1	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
		2.0	3.0	0.53	1.1	0.54	0.52	0.15	0.31
		3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
GAG443-1	Rc3/8	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
		2.0	3.0	0.53	1.1	0.54	0.52	0.15	0.31
		3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31

*1 : Effective cross-sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.

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

GAG34*/44* Series

How to order



Model No.	
GAG34*	GAG44*

Code	Description	GAG34*	GAG44*
A NO port size			
1	1/8	●	
2	1/4	●	●
3	3/8		●

B Thread				GAG34*	GAG44*
Blank	Rc			●	●
G	G			●	●
N	NPT			●	●

	GAG34*		GAG44*		GAG34*	GAG44*
	TOP	BODY	TOP	BODY		
1	ø1.5	ø1.5	ø2.0	ø2.0	●	●
2	ø2.0	ø2.0	-	-	●	
3	-	-	ø2.0	ø3.0		●
4	-	-	ø3.0	ø3.0		●

D Body/sealant combination					*1*3*4	
	Body	Seal	Treatment	Remarks		
Blank	Std. Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●
B	Copper alloy	Fluoro rubber	-	Air/low vacuum/kerosene (up to 90°C *2)	●	●
D	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●
E	Stainless steel	Fluoro rubber	-	Air/low vacuum/kerosene (up to 90°C *2)	●	●
H	Option Copper alloy	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene (up to 60°C)	●	●
J	Option Copper alloy	Fluoro rubber		Air/low vacuum/kerosene (up to 90°C *2)	●	●
P	Option Copper alloy	Ethylene propylene rubber		Hot water (up to 90°C *2)	●	●
L	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene (up to 60°C)	●	●
M	Stainless steel	Fluoro rubber	-	Air/low vacuum/kerosene (up to 90°C *2)	●	●
R	Stainless steel	Ethylene propylene rubber	-	Hot water (up to 90°C *2)	●	●

Refer to Intro Page 39 for reference on material combinations.

E to I
Refer to page 237 for details on the coil housing, other options and voltage, etc.

The combinations indicated with ● in the above table are available.

[Example of model No. 1]
GAG341-1-0-AC200V

- Model: GAG341
- A** NO port size : 1/8
 - B** Thread : Rc
 - C** Orifice size : TOP-ø1.5, BODY-ø1.5
 - D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
 - E** Coil housing : Grommet lead wire
 - F to H** : None
 - I** Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

[Example of model No. 2]
GAG342G-2-0-000AS-AC200V

- Model: GAG342
- A** NO port size : 1/4
 - B** Thread : G
 - C** Orifice size : TOP-ø2.0, BODY-ø2.0
 - D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
 - E** Coil housing : Grommet lead wire
 - F** Manual override (locking) : Selected
 - G** Other options : None
 - H** Surge suppressor : With surge suppressor
 - I** Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Precautions for model No. selection






Notes for D

- *1 : Leave blank for standard. However, to select options in (E), (F), (G) or (H), indicate 0 for Item (C).
- *2 : When Item (D) 4A/4M/4N is selected.
- *3 : The ethylene propylene rubber seal combination (Item (D) P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- *4 : Even if nitrile rubber seal is selected, the seal material on the NO side will be fluoro rubber.


For Items (E) to (I), the combinations indicated with codes are available.
 Note that if options for Items (F) to (H) are not required, they should be left blank.

(E) Coil housing		(F) Manual override (locking)	(G) Other options					(H) With surge suppressor	(I) Rated voltage
Description		A	Cable gland (marine cable gland)			Conduit (conduit piping)		S	Description
			A-15a	A-15b	A-15c	CTC19	G1/2		
Blank	Std. Grommet lead wire	A						S	100 VAC, 200 VAC
2E	With DIN terminal box (G1/2)								100 VAC, 200 VAC
2G	With DIN terminal box (Pg11)								12 VDC, 24 VDC, 48 VDC, 100 VDC
2H	DIN terminal box with small lamp (Pg11)					H			100 VAC, 200 VAC, 24 VDC
3A	Option Open frame	A	Lead wire (IP65 or equivalent)			G H		S	100 VAC, 200 VAC
3M			With HP terminal box (G1/2)						12 VDC, 24 VDC, 48 VDC, 100 VDC
3N			HP terminal box with lamp (G1/2)			D E F			100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
3I			HP terminal box (IP65 or equivalent) (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3J			HP term box, lamp (IP65, equiv) (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A	Option Open frame (Thermal class 180 (H))	A	Lead wire			G H		S	100 VAC, 200 VAC
4M			With HP terminal box (G1/2)			D E F			
4N			HP terminal box with lamp (G1/2)						
5A	Option Open frame (diode integrated)	A	Lead wire (IP65 or equivalent)			G H		S	100 VAC, 200 VAC
5M			With HP terminal box (G1/2)			D E F			
5N			HP terminal box with lamp (G1/2)						
5I			HP terminal box (IP65 or equivalent) (G1/2)						
5J			HP term box, lamp (IP65, equiv) (G1/2)						

Refer to the following cautions for Items (E) to (I).

Blank		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame ● Lead wire 300 mm ● 4A (Thermal class 180 (H)) ● 5A (diode integrated)
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65 or equivalent) ● 5I, 5J (diode integrated)

Refer to page 148 for coil selection.

G H		● Conduit ● G(CTC19) ● H(G1/2)
----------------	--	--------------------------------------

Precautions for model No. selection

Notes for (E)

- *5 : Leave blank for the standard coil housing. However, to select options in (F), (G) or (H), indicate 00 for Item (E).
- *6 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.
- *7 : A DC coil for steam is available for GAG44. Contact CKD for more information.

Notes for (F) to (H)

- *8 : For Item (G), select an option from D, E, F, G and H.
- *9 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
- *10 : As standard, the surge suppressor is built into the coil with diode and the 24 VDC coil (Item (E) 2H), so the surge suppressor S cannot be selected.
- *11 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.

Notes for (I)

- *12 : 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. However, coils for Item (E) 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
- *13 : For voltages other than above, contact CKD.
- *14 : 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.

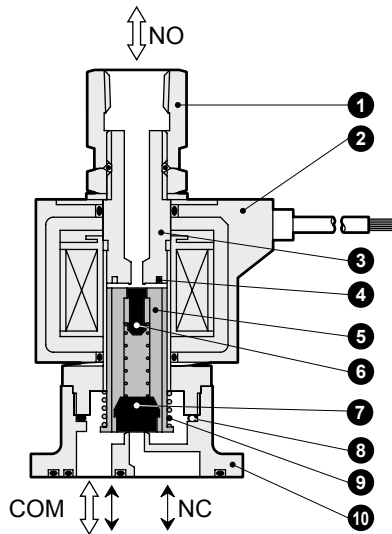
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S/B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combust
Auto-Water
Outdoor
SpecFld
Custom
Ending

GAG34*/44* Series

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

Internal structure and parts list

● GAG34*/GAG44* actuator



No.	Part name	Material
1	Socket	C3604(SUS303) / Copper alloy (stainless steel)
2	Coil	-
3	Core assembly	SUS405 or equiv./316L/403 *1 / Stainless steel
4	Shading coil	Cu (Ag for stainless steel body) / Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. / Stainless steel
6	NO valve sealant	FKM (FKM/EPDM)
7	NC valve sealant	NBR (FKM/EPDM)
8	O-ring	NBR (FKM/EPDM) (Size: AS568-019)
9	Plunger spring	SUS304 / Stainless steel
10	Body	C3771(SUS303) / Copper alloy (stainless steel)

*1 : When the body/sealant combination code is other than blank and H, the material is SUS405 or equivalent/316L/430.

*2 : () shows options.

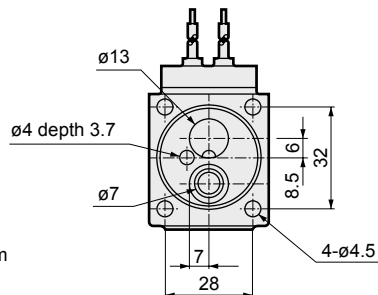
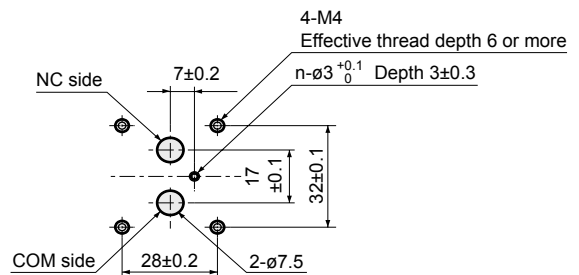
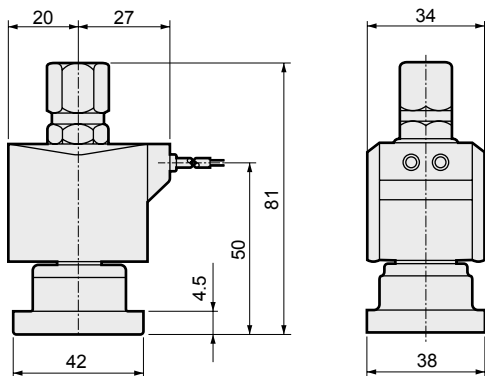
*3 : 4 body mounting screws and 2 O-rings are attached.

Dimensions: GAG341/GAG342 Series



● Actuator (grommet lead wire)
GAG34*-1 to 2-0

● Recommended dimensions for actuator mounting



* Lead wire length 300 mm

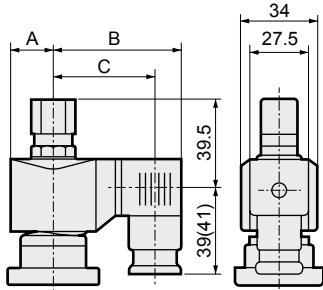
Optional dimensions: GAG341/GAG342 Series



* Refer to the dimensions of grommet lead wire on page 238 for common dimensions.

- With DIN terminal box
GAG34*-1 to 2-0*

2E
2G
2H

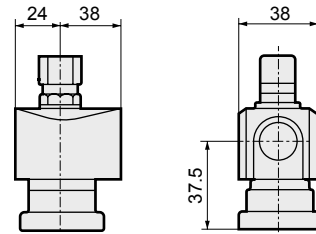


Dimensions shown in () are for G1/2.

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

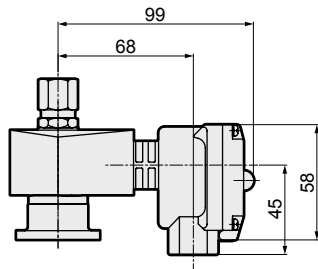
- Open frame lead wire
GAG34*-1 to 2-0*

3A
4A
5A



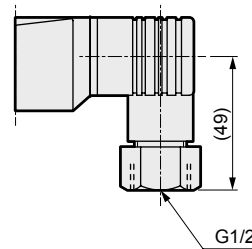
- Open frame + HP terminal box
GAG34*-1 to 2-0*

3 M
4 N
5



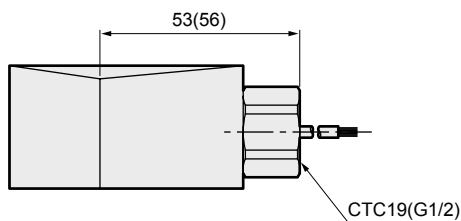
- DIN terminal box with small lamp + conduit (G1/2)
GAG34*-1 to 2-0*

2H H



- Open frame + conduit
GAG34*-1 to 2-0*

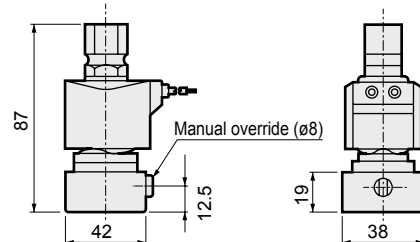
3A G
4A H
5A



Dimensions shown in () are for G1/2.

- Manual override (locking)
GAG34*-1 to 2-0***

A



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

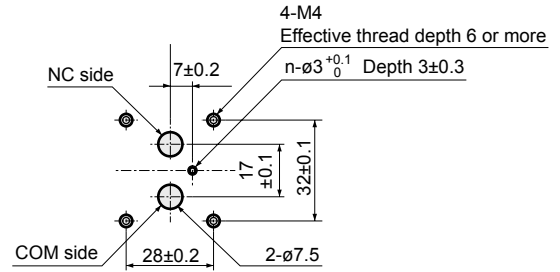
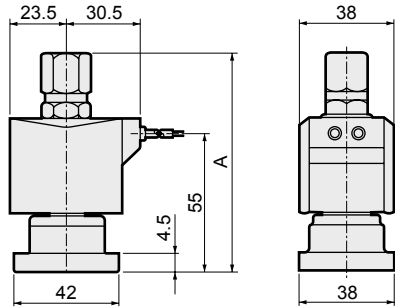
GAG34*/44* Series

Dimensions: GAG442/GAG443 Series

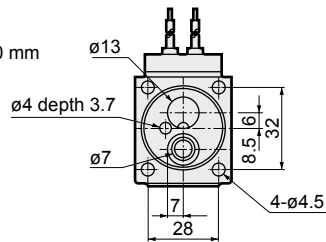


● Actuator (grommet lead wire)
GAG44*-1/3/4-0

● Recommended dimensions for actuator mounting



* Lead wire length 300 mm



Model No.	A
GAG442-1/3/4	86.5
GAG443-1/3/4	90

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

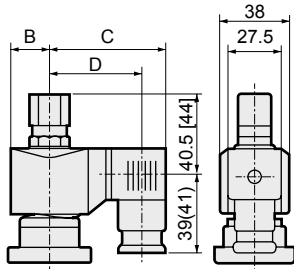
Optional dimensions: GAG442/GAG443 Series



* Refer to the dimensions of grommet lead wire on page 240 for common dimensions.

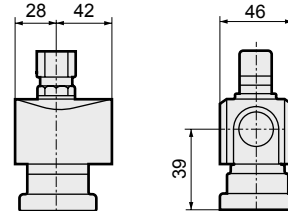
- With DIN terminal box
GAG44*-1/3/4-0-*

2E
2G
2H



- Open frame lead wire
GAG44*-1/3/4-0-*

3A
4A
5A

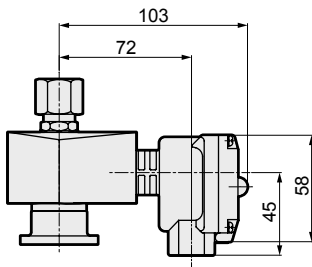


Dimensions shown in () are for G1/2.
Dimensions shown in [] are for Rc3/8.

Voltage	B	C	D
AC	23.5	65.5	54(53.5)
DC	23.5	66	54.5(54)

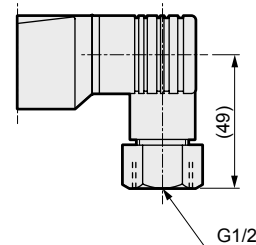
- Open frame + HP terminal box
GAG44*-1/3/4-0-*

3 M
4 N
5



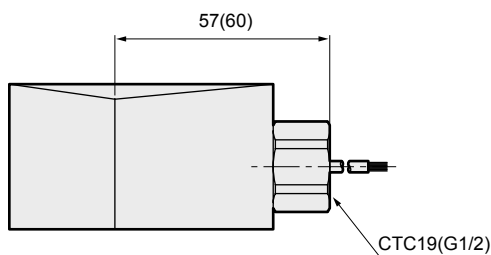
- DIN terminal box with small lamp + conduit (G1/2)
GAG44*-1/3/4-0-*

2H H



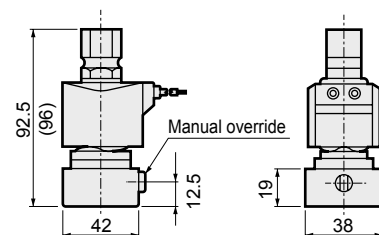
- Open frame + conduit
GAG44*-1/3/4-0-*

3A G
4A H
5A



Dimensions shown in () are for G1/2.

- Manual override (locking)
GAG44*-1/3/4-0-***A



Dimensions shown in () are for GAG443.

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