Pilot operated 2 port solenoid valve
(general purpose valve)

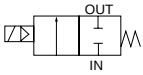
AP11/AP12 Series

- NC (normally closed) type, NO (normally open) type
- Port size: Rc1/4 to Rc1
- Piston structure

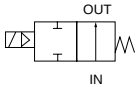
CE Refer to Ending 17 for more details. CAD

JIS symbol

● AP11: NC (normally closed) type



● AP12: NO (normally open) type



Common specifications

Descriptions	Standard specifications	Optional specifications
Working fluid	Air, water, kerosene, oil (50 mm^2/s or less)	Steam
Working pressure differential range MPa	0.05 to 1.2 (Refer to max. working pressure differential on individual specifications.)	
Max. working pressure MPa	2	1
Withstanding pressure (water) MPa	10	
Fluid temperature (Note 1) ℃	-10 to 60	-10 to 180
Ambient temperature ℃	-20 to 60	-20 to 100
Heat proof class	B	H
Atmosphere	Place free of corrosive gas and explosive gas	
Valve structure	Pilot operated poppet structure, piston structure	
Valve seat leakage (Note 2) cm^3/min. (ANR)	0.2 or less (air)	300 or less (air)
Mounting attitude	Free (within working pressure differential range)	
Body, sealant	Bronze, nitrile rubber	Bronze, PTFE

Note 1: No freezing

Note 2: For AP11 (NC (normally closed)), these values apply at pneumatic pressure 0.05 to 1.2 MPa, and for AP12 (NO (normally open)), these apply at pneumatic pressure 0.05 to 0.9 MPa.

Individual specifications

Descriptions / Model no.	Port size	Orifice (mm)	Min. working pressure diff. (MPa)	Max. working pressure diff. (MPa)							Rated voltage	Apparent power (VA)				Power consumption (W)		Mass (kg)
				Air		Water, kerosene		Oil (50 mm^2/s)		Steam		Holding		Starting		AC	DC	
				AC	DC	AC	DC	AC	DC	AC		50Hz	60Hz	50Hz	60Hz	50/60Hz		
NC (normally closed) type																		
AP11-8A	Rc1/4	10	0.05	1.2	0.9	1.0	0.9	0.9	0.9	1.0	100 VAC 50/60Hz	12	10	17	14	5.2/3.8	11 (8.1)	0.9
AP11-10A	Rc3/8	10		1.2	0.9	1.0	0.9	0.9	0.9	1.0								0.9
AP11-15A	Rc1/2	15		1.2	0.6	1.0	0.6	0.6	0.6	1.0	110 VAC 60Hz	18	15	29	24	6.7/5.7	11 (10.4)	1.4
AP11-20A	Rc3/4	20		1.2	0.6	1.0	0.6	0.6	0.6	1.0								1.8
AP11-25A	Rc1	25		1.2	0.6	1.0	0.6	0.6	0.6	1.0	200 VAC 50/60Hz							2.5
NO (normally open) type																		
AP12-8A	Rc1/4	10	0.05	0.9	0.9	0.9	0.9	0.9	0.9	0.9	220 VAC 60Hz	22	18	35	29	8.7/6.7	15.5 (14)	1.0
AP12-10A	Rc3/8	10		0.9	0.9	0.9	0.9	0.9	0.9	0.9								1.0
AP12-15A	Rc1/2	15		0.5	0.5	0.5	0.5	0.5	0.5	0.5	12 VDC 24 VDC 48 VDC 100 VDC							1.4
AP12-20A	Rc3/4	20		0.5	0.5	0.5	0.5	0.5	0.5	0.5								1.8
AP12-25A	Rc1	25		0.5	0.5	0.5	0.5	0.5	0.5	0.5								2.5

*1: The types above apply up to the basic port size (Rc). Refer to How to order for other combinations.
*2: Refer to column for maximum working pressure differential of AP11 coil with diodes.
*3: Variation of rated voltage should be within ±10%.
*4: The values in ( ) in the power consumption DC column apply for the type with DIN terminal box.

Optional specifications

Sealant	Fluoro rubber		PTFE	
Coil (heat proof class)	B	H	B	H
Fluid temperature (Note 1) ℃	-10 to 60	-10 to 90	-10 to 60	-10 to 180
Ambient temperature ℃	-20 to 60	-20 to 100 (Note 3)	-20 to 60	-20 to 100 (Note 3)
Valve seat leakage (Note 2) cm³/min. (ANR)	0.2 or less (air)		300 or less (air)	

Note 1: No freezing

Note 2: For AP11 (NC (normally closed)), these values apply at pneumatic pressure 0.05 to 1.2 MPa, and for AP12 (NO (normally open)), these apply at pneumatic pressure 0.05 to 0.9 MPa.

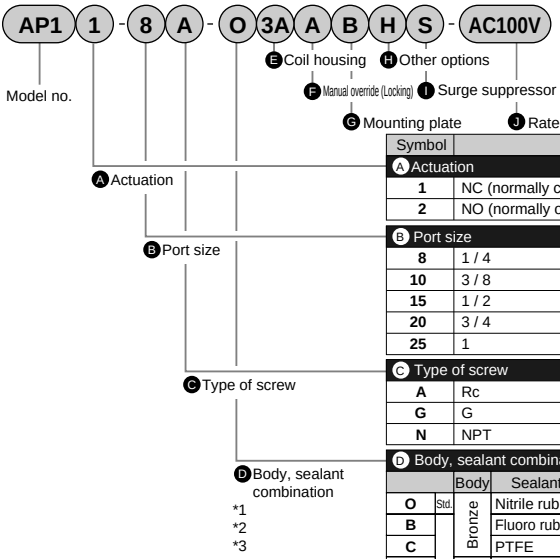
Note 3: The range is -20 to 80℃ when using the square terminal box with an indicator light for the coil housing.

Flow characteristics

Model no.	Port size	Orifice (mm)	Flow characteristics			
			C[dm³/(s·bar)]	b	Cv flow factor	S (mm²)
NC (normally closed) type						
AP11- 8A	Rc 1/4	10	8.1	0.17	1.4	-
AP11-10A	Rc 3/8	10	10	0.19	1.8	-
AP11-15A	Rc 1/2	15	21	0.22	4.5	-
AP11-20A	Rc 3/4	20	-	-	9.3	162
AP11-25A	Rc 1	25	-	-	12.0	231
NO (normally open) type						
AP12- 8A	Rc 1/4	10	8.1	0.17	1.4	-
AP12-10A	Rc 3/8	10	10	0.19	1.8	-
AP12-15A	Rc 1/2	15	21	0.22	4.5	-
AP12-20A	Rc 3/4	20	-	-	9.3	162
AP12-25A	Rc 1	25	-	-	12.0	231

*1: Effective sectional area S and sonic conductance C are converted as S ≒ 5.0 x C.

How to order



Symbol	Descriptions
A Actuation	
1	NC (normally closed) type
2	NO (normally open) type
B Port size	
8	1 / 4
10	3 / 8
15	1 / 2
20	3 / 4
25	1
C Type of screw	
A	Rc
G	G
N	NPT

D Body, sealant combination

		Body	Sealant	O ring	Treat	Remarks
O	Std.	Bronze	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60℃)
B	Option	Bronze	Fluoro rubber	Fluoro rubber	-	Air, kerosene, oil (up to 90℃ *1)
C	Option	Bronze	PTFE	Fluoro rubber	-	Steam (up to 180℃ *1)
D	Option	Stainless steel	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60℃)
E	Option	Stainless steel	Fluoro rubber	Fluoro rubber	-	Air, kerosene, oil (up to 90℃ *1)
F	Option	Stainless steel	PTFE	PTFE	-	Steam (up to 180℃ *1)
H	Option	Bronze	Nitrile rubber	Nitrile rubber	Oil-prohibit	Air, water, kerosene, oil (up to 60℃)
J	Option	Bronze	Fluoro rubber	Fluoro rubber	Oil-prohibit	Air, kerosene, oil (up to 90℃ *1)
K	Option	Bronze	PTFE	Fluoro rubber	Oil-prohibit	Steam (up to 180℃ *1)
L	Option	Stainless steel	Nitrile rubber	Nitrile rubber	Oil-prohibit	Air, water, kerosene, oil (up to 60℃)
M	Option	Stainless steel	Fluoro rubber	Fluoro rubber	Oil-prohibit	Air, kerosene, oil (up to 90℃ *1)
N	Option	Stainless steel	PTFE	PTFE	Oil-prohibit	Steam (up to 180℃ *1)

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

E to J

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

<Example 1 of model number>

AP11-15A-03A-AC100V

Series: AP11
- A Actuation : NC (normally closed) type
- B Port size : 1/2
- C Type of thread: Rc
- D Body, sealant combination
  : Body - bronze, sealant - nitrile rubber
  O ring - nitrile rubber
- E Coil housing : Open frame lead wire
- F to I : Blank
- J Rated voltage
  :100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number>

AP12-25N-E3KAD-AC200V

Series: AP12
- A Actuation : NO (normally open) type
- B Port size : 1
- C Type of thread : NPT
- D Body, sealant combination
  : Body - stainless steel, sealant - fluoro rubber
  O ring - fluoro rubber
- E Coil housing: Open frame square terminal box (G 1/2)
- F Manual override (Locking): Selected
- G Mounting plate: Blank
- H Other options: Cable gland A-15a
- I Surge suppressor: Blank
- J Rated voltage
  : 200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Note on model no. selection

Note on (D)

*1: (D): When selecting 4A, 4K, 4H.
*2: When using the valve sealant PTFE with H type coil combinations, an O-ring made of fluoro rubber for steam will be enclosed.
*3: The standard body material for the (B) (port size) 8 (1/4) and 10 (3/8) is brass.

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

Ⓔ Coil housing				Ⓕ	Ⓖ	Ⓗ Other options					Ⓘ	Ⓙ Rated voltage
						Cable gland (Marine cable gland)			Conduit (Conduit pipe)			
Descriptions				Manual override (Locking)	Mounting plate	A-15a	A-15b	A-15c	CTC 19	G 1 / 2	Surge suppressor	Descriptions
3A	Std.	Open frame lead wire		A	B				G	H	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2C		Grommet lead wire		A	B						S	100 VAC, 200 VAC
2E		DIN terminal box	(G1/2)									100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2G		DIN terminal box	(Pg11)									
2H		DIN terminal box + small light	(Pg11)							H		100 VAC, 200 VAC, 24 VDC
3K	Option	Open frame type	Square terminal box (G1/2)	A	B	D	E	F			S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3H			Square terminal box + light (G1/2)									100 VAC, 200 VAC, 24 VDC, 100 VDC
3P			Square terminal box (IP65 or equivalent) (G1/2)									100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3Q			Square terminal box + light (IP65 or equivalent) (G1/2)									100 VAC, 200 VAC, 24 VDC, 100 VDC
4A		Open frame type (Heat proof class H)	Lead wire	A	B				G	H	S	100 VAC, 200 VAC
4K			Square terminal box (G1/2)			D	E	F				
4H			Square terminal box + light (G1/2)									
5A		Open frame type (Diode integrated)	Lead wire	A	B	D	E	F	G	H		100 VAC, 200 VAC
5K			Square terminal box									
5H			Square terminal box + light									
5P			Square terminal box (IP65 or equivalent) (G1/2)									
5Q			Square terminal box + light (IP65 or equivalent) (G1/2)									

⚠ Refer to the following precautions for (E) to (J).

2C		●Grommet lead wire 300 mm
2E 2G 2H		●DIN terminal box
3A 4A 5A		●Open frame Grommet lead wire 300 mm ●4A (Heat proof class H) ●5A (Diode integrated)
3K 3H 4K 4H 5K 5H		●Open frame square terminal box ●4K, 4H (Heat proof class H) ●5K, 5H (Diode integrated)
3P 3Q 5P 5Q		●Open frame square terminal box (IP65 or equivalent) ●5P, 5Q (Diode integrated)

G H		●Conduit ●G (CTC19) ●H (G1/2)

Refer to page 222 for coil selection.

⚠ Note on model no. selection

Note on (E)

*4: 5A, 5K, 5H, 5P and 5Q are coils which convert AC power to DC with a diode.
*5: A DC coil for steam is available for AP11. Contact CKD for more information.

Note on (F) to (I)

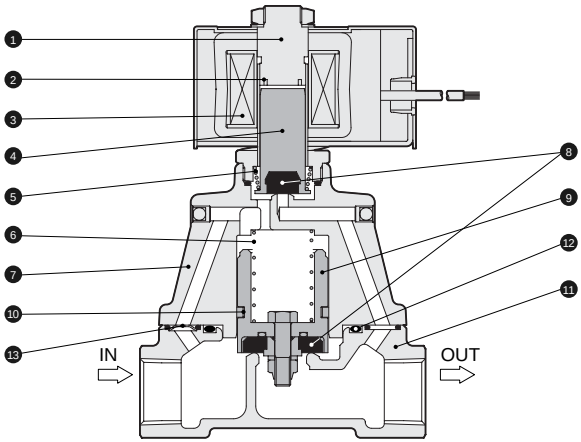
*6: The mounting plate ((G) B) is provided only with the (B) (port size) 8 (1/4) or 10 (3/8).
*7: When (D) is C, F, K or N, manual override (item (F) A) is not available.
*8: Select one among D, E, F, G and H for (H).
*9: The surge suppressor is an accessory for the lead wire coil. When using the coil with terminal box, the surge suppressor is mounted in the terminal box.
*10: Surge suppressor is incorporated in coil with diode and (E) 2H 24 VDC coil as standard.
*11: Tropic care treatment (rust-proof coating) is available as a measure against rust. Contact CKD for more information.
Note that the tropic care treatment is not available when the manual override option (A) is selected.

Note on (J)

*12: 100 VAC coil is compatible with 100 VAC 50/60 Hz, 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz, 220 VAC 60 Hz. Note that (E) 5A, 5K, 5H, 5P, and 5Q coils are used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
*13: Consult with CKD about other than above voltage.
*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.

Internal structure and main parts materials

● AP11 Series



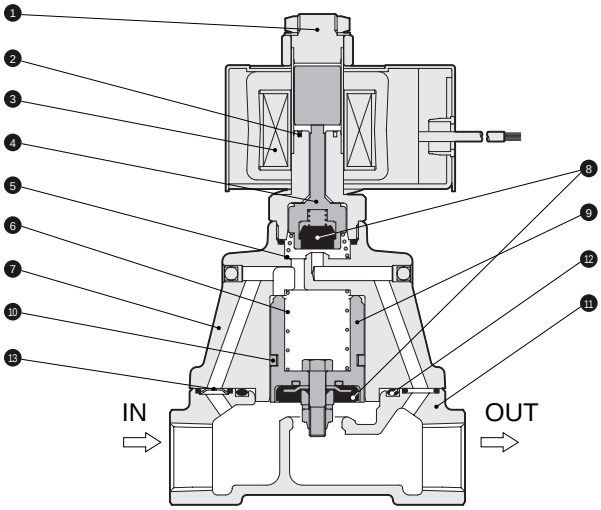
(Figure shows close on operating)

No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403*1	Stainless steel
2	Shading coil *2	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equivalent	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13)*3	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Piston ring	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	CAC407 (SCS13)*3	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304 (SUS303)*3	Stainless steel

Options are shown in ( ).
*1: When the body and sealant combination symbol is other than O or H, the material is SUS405 or equivalent, SUS316L, SUS430.
*2: When using the DC coil or a coil with a diode, no shedding coil is used.
*3: For port size 8 (1/4) or 10 (3/8), the body stuffing material is C3771 (brass) as a standard.
The orifice plate material is SUS303 (stainless steel) for the standard and options.

Internal structure and main parts materials

● AP12 Series



(Figure shows open on operating)

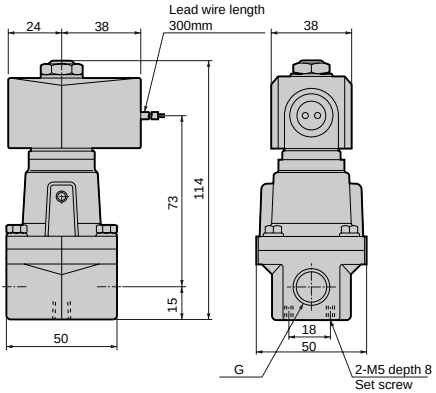
No.	Parts name	Material	
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel
2	Shading coil	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	NO valve assembly	POM/NBR (SUS303, PFA, FKM or PTFE)	Acetyl resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber or tetrafluoroethylene resin).
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13) *1	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Piston ring	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	CAC407 (SCS13) *1	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304 (SUS303)	Stainless steel

Options are shown in ( ).
*1: For port size 8 (1/4) or 10 (3/8), the body stuffing material is C3771 (brass) as a standard.
The orifice plate material is SUS303 (stainless steel) for the standard and options.

Dimensions: AP11 Series

CAD (Page 298)

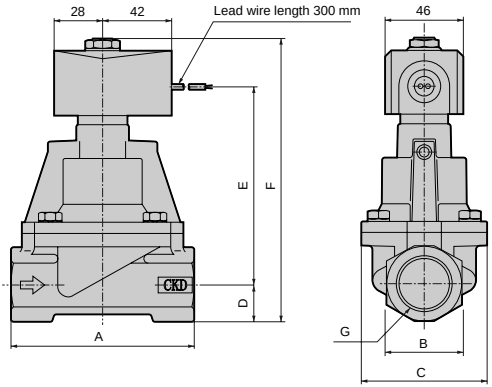
● Open frame lead wire type
AP11-8A/10A-* 3A / 4A / 5A



Model no.	G
AP11-8A-A**	Rc1/4
AP11-10A-A**	Rc3/8

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

● Open frame lead wire type
AP11-15A/20A/25A-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G
AP11-15A-A**	90	29	57	14.5	92.5	136	Rc1/2
AP11-20A-A**	100	35	65	17.5	100.5	147	Rc3/4
AP11-25A-A**	110	44	76	22	116	167	Rc1

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

Optional dimensions: AP11 Series

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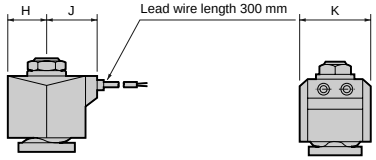
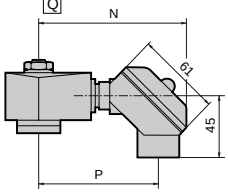
* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AP11-8A to 25A-* 2C



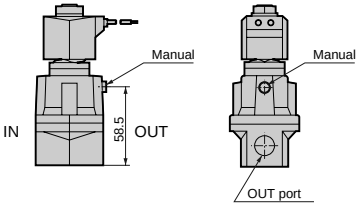
Model no.	H	J	K
AP11-8A to 10A-*2C	20	27	34
AP11-15A to 25A-*2C	23.5	30.5	38

● Open frame type + square terminal box
AP11-8A to 25A-* 3 5 / K H P Q / 4K 4H

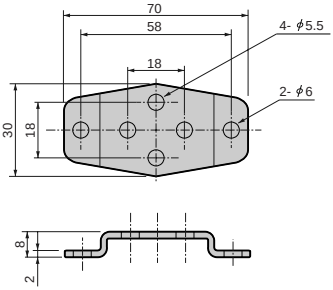


Model no.	N	P
AP11-8A to 10A-***	106	87
AP11-15A to 25A-***	110	91

● Manual override (locking)
AP11-8A/10A-*** A

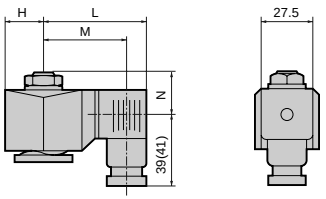


● Mounting plate
AP11-8A/10A-*** B



Mounting plate: GE-100159
Port size 15 (1/2) to 25 (1) mounting plate is not used.

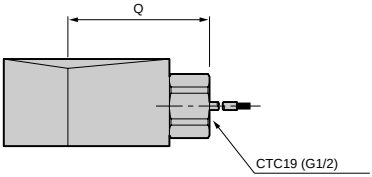
● DIN terminal box
AP11-8A to 25A-* 2E 2G 2H



Dimensions shown in ( ) are for the G1/2.

Model no.	H	L	M	N	Model no.	H	L	M	N
AP11-8A to 10A-*2*-AC	20	62	50.5 (50)	20.5	AP11-15A to 25A-*2*-AC	23.5	65.5	54 (53.5)	22
AP11-8A to 10A-*2*-DC	21	63.5	52 (51.5)	20.5	AP11-15A to 25A-*2*-DC	23.5	66	54.5 (54)	22

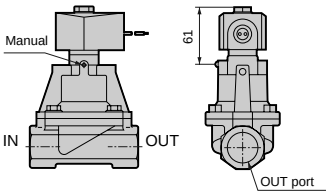
● Open frame type + conduit
AP11-8A to 25A-* 3A 4A 5A / G H



Dimensions shown in ( ) are for the G1/2.

Model no.	Q
AP11-8A to 10A	53(56)
AP11-15A to 25A	57(60)

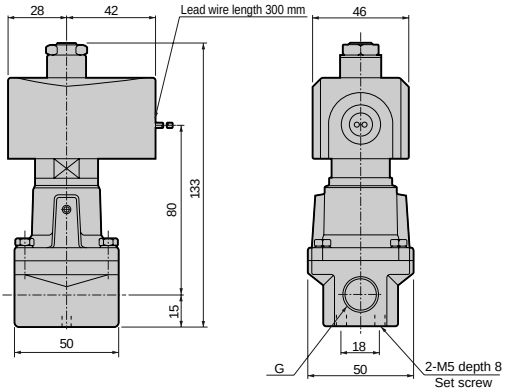
● Manual override (locking)
AP11-15A/20A/25A-*** A



Dimensions: AP12 Series

CAD (Page 298)

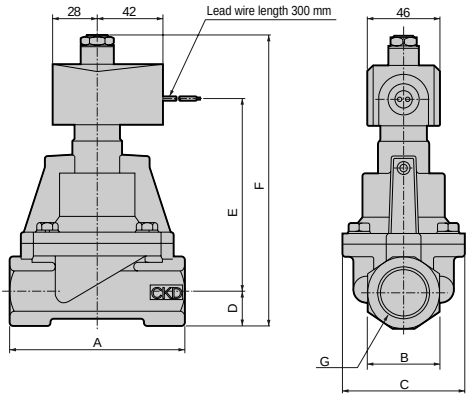
● Open frame lead wire type
AP12-8A/10A-* 3A / 4A / 5A



Model no.	G
AP12-8A-A**	Rc1/4
AP12-10A-A**	Rc3/8

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

● Open frame lead wire type
AP12-15A/20A/25A-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G
AP12-15A-*□A	90	29	57	14.5	96.5	149	Rc1/2
AP12-20A-*□A	100	35	65	17.5	104.5	160	Rc3/4
AP12-25A-*□A	110	44	76	22	120	180	Rc1

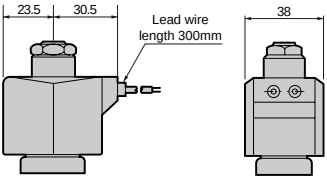
*1: The dimensions are the same for the G or NPT thread port size.

Optional dimensions: AP12 Series

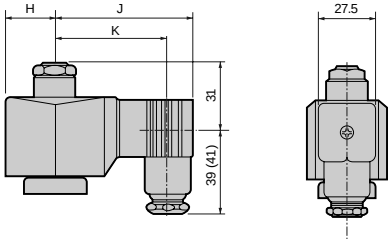
CAD (Page 298)

* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AP12-8A to 25A-* 2C



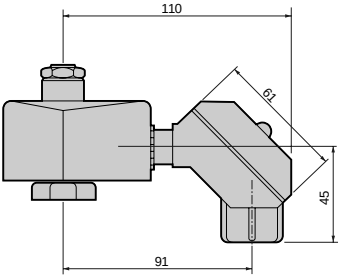
● DIN terminal box
AP12-8A to 25A-* 2E / 2G / 2H



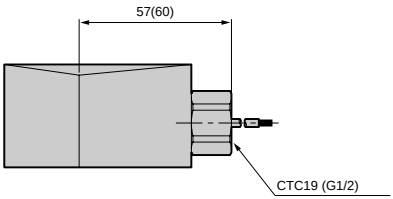
Dimensions shown in ( ) are for the G1/2.

Voltage	H	J	K
AC	23.5	65.5	54(53.5)
DC	28	72	60.5(60)

● Open frame type + square terminal box
AP12-8A to 25A-* 3 / 5 K / H / P / Q / 4K / 4H

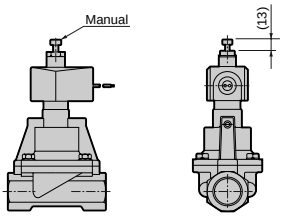


● Open frame type + conduit
AP12-8A to 25A-* 3A / 4A / 5A G / H

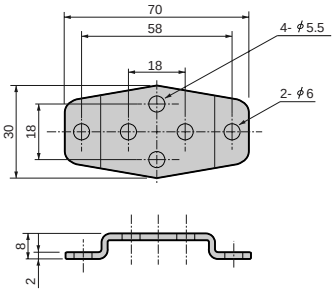


Dimensions shown in ( ) are for the G1/2.

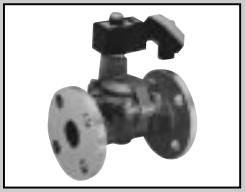
● Manual override (locking)
AP12-15A/20A/25A-*** A



● Mounting plate
AP12-8A/10A-*** B



Mounting plate: GE-100159
Port size 15 (1/2) to 25 (1) mounting plate is not used.



Pilot operated 2 port solenoid valve
(general purpose valve)

AP21/AP22 Series

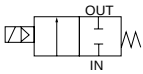
- NC (normally closed) type, NO (normally open) type
- Port size: Rc1 1/4 to Rc2, 32 to 50 flange
- Piston structure

CE Refer to Ending 17 for more details.

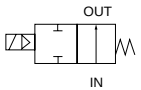
CAD

JIS symbol

- AP21:
  NC (normally closed) type



- AP22:
  NO (normally open) type



Common specifications

Descriptions	Standard specifications	Optional specifications
Working fluid	Air, water, kerosene, oil (50 mm^2/s or less)	Steam
Working pressure differential range MPa	0.05 to 1.2 (Refer to max. working pressure differential on individual specifications.)	
Max. working pressure MPa	1.6	1
Withstanding pressure (water) MPa	3.2	
Fluid temperature ℃	-10 to 60 (Note 1)	5 to 180
Ambient temperature ℃	-10 to 60	
Heat proof class	B	H
Atmosphere	Place free of corrosive gas and explosive gas	
Valve structure	Pilot operated poppet structure, piston structure	
Valve seat leakage (Note 2) cm^3/min. (ANR)	1 or less (air)	400 or less (air)
Mounting attitude	Free (within working pressure differential range)	
Body, sealant	Bronze, nitrile rubber	Bronze, PTFE

Note 1: No freezing

Note 2: For AP21 (NC (normally closed)), these values apply at pneumatic pressure 0.05 to 1.2 MPa, and for AP22 (NO (normally open)), these apply at pneumatic pressure 0.05 to 0.5 MPa.

Individual specifications

Descriptions / Model no.	Port size	Orifice	Min. working pressure diff. (MPa)	Max. working pressure diff. (MPa)							Rated voltage	Apparent power (VA)				Power consumption (W)		Mass (kg)
				Air		Water, kerosene		Oil (50 mm^2/s)		Steam		Holding		Starting		AC	DC	
				AC	DC	AC	DC	AC	DC	AC		50Hz	60Hz	50Hz	60Hz	50/60Hz		
NC (normally closed) type																		
AP21-32A	Rc1 1/4	35	0.05	1.2	0.6	1.0	0.6	0.6	0.6	1.0	100 VAC 50/60Hz 110 VAC 60Hz 200 VAC 50/60Hz 220 VAC 60Hz 12 VDC 24 VDC 48 VDC 100 VDC	18	15	29	24	6.7/5.7	11 (10.4)	3.5
AP21-32F	32 flange																	7
AP21-40A	Rc1 1/2	43																4.5
AP21-40F	40 flange																	8
AP21-50A	Rc2	53																6
AP21-50F	50 flange																	10
NO (normally open) type																		
AP22-32A	Rc1 1/4	35	0.05	0.5	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60Hz 110 VAC 60Hz 200 VAC 50/60Hz 220 VAC 60Hz 12 VDC 24 VDC 48 VDC 100 VDC	22	18	35	29	8.7/6.7	15.5 (14)	3.5
AP22-32F	32 flange																	7
AP22-40A	Rc1 1/2	43																4.5
AP22-40F	40 flange																	8
AP22-50A	Rc2	53																6
AP22-50F	50 flange																	10

*1: The types above apply up to the basic port size. Refer to How to order for other combinations.
*2: Refer to DC column for maximum working pressure differential of coil with diode.
*3: Variation of rated voltage should be within ±10%.
*4: The values in ( ) in the power consumption DC column apply for the type with DIN terminal box.

Optional specifications

Sealant	Fluoro rubber		PTFE	
Coil (heat proof class)	B	H	B	H
Fluid temperature ℃	-10 to 60 (Note 1)	-10 to 90 (Note 1)	-10 to 60 (Note 1)	5 to 180
Ambient temperature ℃	-10 to 60			
Valve seat leakage (Note 2) cm³/min. (ANR)	1 or less (air)		400 or less (air)	

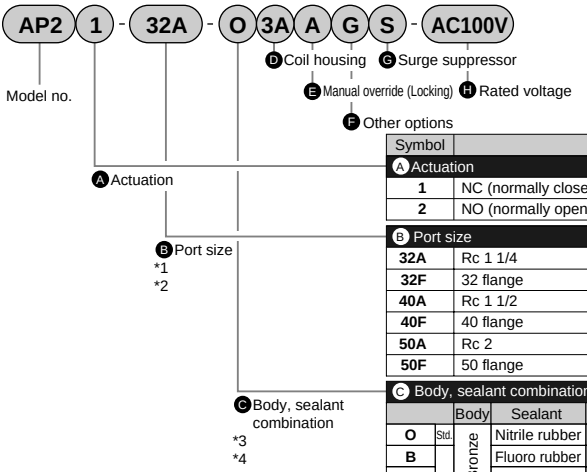
Note 1: No freezing

Note 2: For AP21 (NC (normally closed)), these values apply at pneumatic pressure 0.05 to 1.2 MPa, and for AP22 (NO (normally open)), these apply at pneumatic pressure 0.05 to 0.5 MPa.

Flow characteristics

Model no.	Port size	Orifice (mm)	Cv flow factor	Effective sectional area (mm²)
NC (normally closed) type				
AP21-32A	Rc 1 1/4	35	25	460
AP21-32F	32 flange			
AP21-40A	Rc 1 1/2	43	34	625
AP21-40F	40 flange			
AP21-50A	Rc 2	53	53	975
AP21-50F	50 flange			
NO (normally open) type				
AP22-32A	Rc 1 1/4	35	25	460
AP22-32F	32 flange			
AP22-40A	Rc 1 1/2	43	34	625
AP22-40F	40 flange			
AP22-50A	Rc 2	53	53	975
AP22-50F	50 flange			

How to order



Symbol	Descriptions
A Actuation	
1	NC (normally closed) type
2	NO (normally open) type
B Port size	
32A	Rc 1 1/4
32F	32 flange
40A	Rc 1 1/2
40F	40 flange
50A	Rc 2
50F	50 flange

C Body, sealant combination

		Body	Sealant	O ring	Treat	Remarks
O	Std.	Bronze	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60℃)
B	Option	Bronze	Fluoro rubber	Fluoro rubber	-	Air, kerosene, oil (up to 90℃ *3)
C	Option	Bronze	PTFE	Fluoro rubber	-	Steam (up to 180℃ *3)
D	Option	Stainless steel	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60℃)
E	Option	Stainless steel	Fluoro rubber	Fluoro rubber	-	Air, kerosene, oil (up to 90℃ *3)
F	Option	Stainless steel	PTFE	PTFE	-	Steam (up to 180℃ *3)
H	Option	Bronze	Nitrile rubber	Nitrile rubber	Oil-prohibit	Air, water, kerosene, oil (up to 60℃)
J	Option	Bronze	Fluoro rubber	Fluoro rubber	Oil-prohibit	Air, kerosene, oil (up to 90℃ *3)
K	Option	Bronze	PTFE	Fluoro rubber	Oil-prohibit	Steam (up to 180℃ *3)
L	Option	Stainless steel	Nitrile rubber	Nitrile rubber	Oil-prohibit	Air, water, kerosene, oil (up to 60℃)
M	Option	Stainless steel	Fluoro rubber	Fluoro rubber	Oil-prohibit	Air, kerosene, oil (up to 90℃ *3)
N	Option	Stainless steel	PTFE	PTFE	Oil-prohibit	Steam (up to 180℃ *3)

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

D to H

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

<Example 1 of model number>

AP21-32A-02C-AC100V

Series : AP21
A Actuation : NC (normally closed) type
B Port size : Rc11/4
C Body, sealant combination
: Body - bronze, sealant - nitrile rubber, O ring - nitrile rubber
D Coil housing : Grommet lead wire
E to G : Blank
H Rated voltage :
100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number>

AP22-40F-H3AAS-AC200V

Series: AP22
A Actuation: NO (normally open) type
B Port size: Flange 40
C Body, sealant combination
: Body - bronze, sealant - nitrile rubber
O ring - nitrile rubber (oil-prohibited)
D Coil housing: Open frame lead wire
E Manual override (Locking): Selected
F Other options: Blank
G Surge suppressor: With surge suppressor
H Rated voltage:
200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Note on model no. selection

*1: The phase flange is JIS B2210 10K.(No flange is enclosed with the product, but must be purchased separately.)
*2: G and NPT threads are used for piping port. Contact CKD for details.

Note on (C)

*3: (C): When selecting 4A, 4K, 4H.
*4: When using the valve sealant PTFE with H type coil combinations, an O-ring made of fluoro rubber for steam will be enclosed.

For (D) to (H), the combinations indicated with symbols can be manufactured.
Note that if the (E) to (G) options are not required, no symbol is indicated.

(D) Coil housing				(E)	(F) Other options					(G)	(H) Rated voltage
Descriptions				Manual override (Locking)	Cable gland (Marine cable gland)			Conduit (Conduit pipe)		Surge suppressor	Descriptions
					A-15a	A-15b	A-15c	CTC 19	G 1 / 2		
3A		Open frame lead wire		A				G	H	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2C		Grommet lead wire		A						S	100 VAC, 200 VAC
2E		DIN terminal box	(G1/2)	A						S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2G		DIN terminal box	(Pg11)	A						S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2H		DIN terminal box + small light	(Pg11)	A					H	S	100 VAC, 200 VAC, 24 VDC
3K	Option	Open frame type	Square terminal box (G1/2)	A	D	E	F			S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3H			Square terminal box + light (G1/2)	A	D	E	F			S	100 VAC, 200 VAC, 24 VDC, 100 VDC
3P			Square terminal box (IP65 or equivalent) (G1/2)	A	D	E	F			S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3Q			Square terminal box + light (IP65 or equivalent) (G1/2)	A	D	E	F			S	100 VAC, 200 VAC, 24 VDC, 100 VDC
4A		Open frame type (Heat proof class H)	Lead wire	A				G	H	S	100 VAC, 200 VAC
4K			Square terminal box (G1/2)	A	D	E	F				
4H			Square terminal box + light (G1/2)	A	D	E	F				
5A		Open frame type (Diode integrated)	Lead wire	A				G	H		100 VAC, 200 VAC
5K			Square terminal box (G1/2)	A	D	E	F				
5H			Square terminal box + light (G1/2)	A	D	E	F				
5P			Square terminal box (IP65 or equivalent) (G1/2)	A	D	E	F				
5Q			Square terminal box + light (IP65 or equivalent) (G1/2)	A	D	E	F				

⚠ Refer to the following precautions for (D) to (H).

2C

● Grommet lead wire 300 mm

2E
2G
2H

● DIN terminal box

3A
4A
5A

● Open frame
Grommet lead wire 300 mm
● 4A (Heat proof class H)
● 5A (Diode integrated)

3K
3H
4K
4H
5K
5H

● Open frame square terminal box
● 4K, 4H (Heat proof class H)
● 5K, 5H (Diode integrated)

3P
3Q
5P
5Q

● Open frame square terminal box
(IP65 or equivalent)
● 5P, 5Q (Diode integrated)

Refer to page 222 for coil selection.

G
H

● Conduit
● G (CTC19)
● H (G1/2)

⚠ Note on model no. selection

Note on (D)

*5: 5A, 5K, 5H, 5P and 5Q are coils which convert AC power to DC with a diode.
*6: A DC coil for steam is available for AP21. Contact CKD for more information.

Note on (E) to (G)

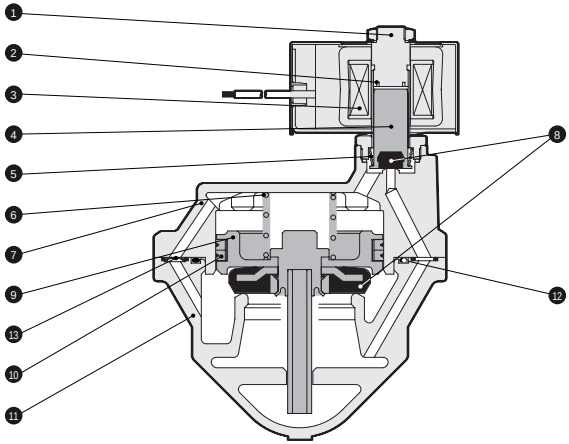
*7: When (C) is C, F, K, or N, manual override (item (E) A) is not available.
*8: Select one among D, E, F, G and H for (F).
*9: The surge suppressor is an accessory for the lead wire coil. When using the coil with terminal box, the surge suppressor is mounted in the terminal box.
*10: Surge suppressor is incorporated in coil with diode and (D) 2H 24 VDC coil as standard.
*11: Tropic care treatment (rust-proof coating) is available as a measure against rust. Contact CKD for more information.
Note that the tropic care treatment is not available when the manual override option (A) is selected.

Note on (H)

*12: 100 VAC coil is compatible with 100 VAC 50/60 Hz, 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz, 220 VAC 60 Hz. Note that (D) 5A, 5K, 5H, 5P, and 5Q coils are used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
*13: Consult with CKD about other than above voltage.
*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.

Internal structure and main parts materials

●AP21 Series

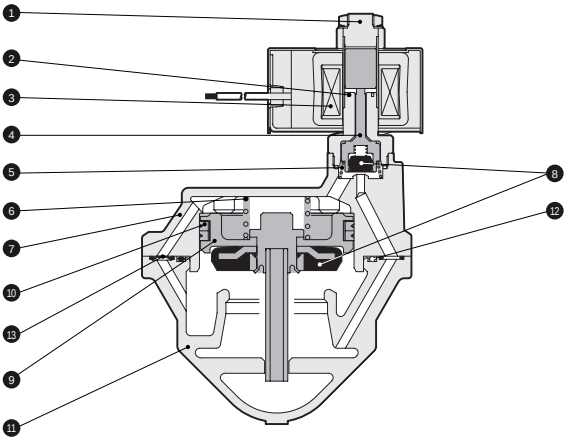


No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403 *1	Stainless steel
2	Shading coil *2	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equivalent	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Seal ring set	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
13	Orifice plate	SUS304	Stainless steel

Options are shown in ( ).
*1: When the body and sealant material combination symbol is other than O or H, the material is SUS405 or equivalent, SUS316L, SUS430.
*2: When using the DC coil or a coil with a diode, no shedding coil is used.

Internal structure and main parts materials

● AP22 Series



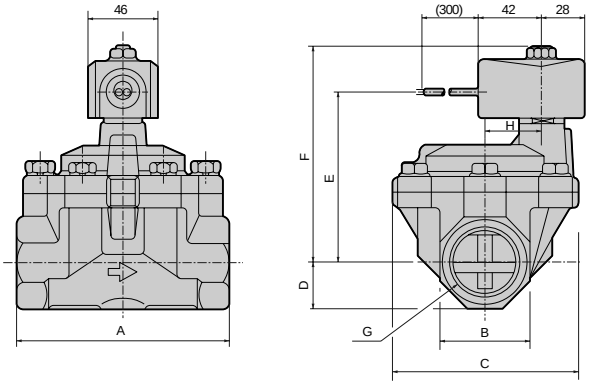
No.	Parts name	Material	
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel
2	Shading coil	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	NO valve assembly	POM/NBR (SUS303, PFA, FKM or PTFE)	Acetyl resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber or tetrafluoroethylene resin).
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM or PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Seal ring set	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
13	Orifice plate	SUS304	Stainless steel

Options are shown in ( ).

Dimensions: AP21 Series

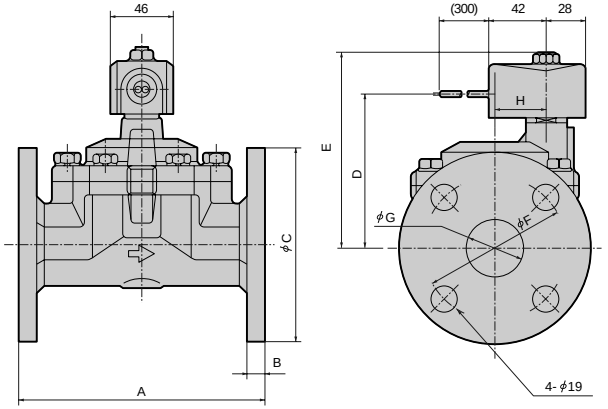
CAD (Page 299)

●Open frame lead wire type (Rc screw in type)
AP21-32A/40A/50A-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G	H
AP21-32A-*□A	125	54	112	27	106.5	135.5	Rc1¼	32
AP21-40A-*□A	140	60	122	30	112.5	141.5	Rc1½	38
AP21-50A-*□A	160	74	132	37	120.5	149.5	Rc2	45

●Open frame lead wire type (flange type)
AP21-32F/40F/50F-* 3A / 4A / 5A



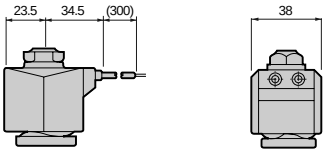
Model no.	A	B	C	D	E	F	G	H
AP21-32F-*□A	170	12	135	106.5	135.5	100	36	32
AP21-40F-*□A	180	14	140	112.5	141.5	105	42	38
AP21-50F-*□A	180	14	155	120.5	149.5	120	53	45

Optional dimensions: AP21 Series

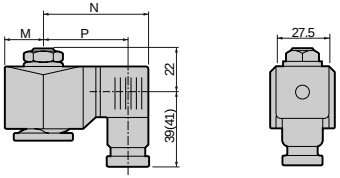
CAD (Page 299)

* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AP21-32[A/B]to 50[A/B]-*[2C]



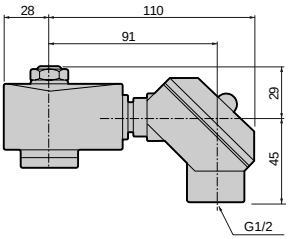
● DIN terminal box
AP21-32[A/B]to 50[A/B]-*[2E / 2G / 2H]



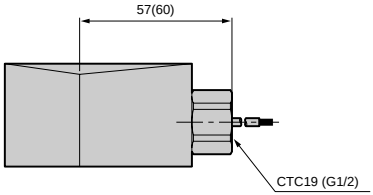
Dimensions shown in ( ) are for the G1/2.

Voltage	M	N	P
AC	23.5	65.5	54 (53.5)
DC	23.5	66	54.5 (54)

● Open frame type + square terminal box
AP21-32[A/B]to 50[A/B]-*[3 / 5] [K / H / P / Q]•[4K / 4H]

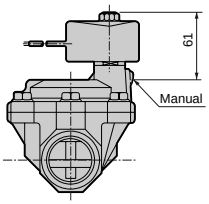


● Open frame type + conduit
AP21-32[A/B]to 50[A/B]-*[3A / 4A / 5A] [G / H]

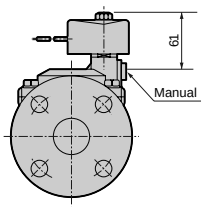


Dimensions shown in ( ) are for the G1/2.

● Manual (locking, Rc screw in type)
AP21-32A/40A/50A-***[A]



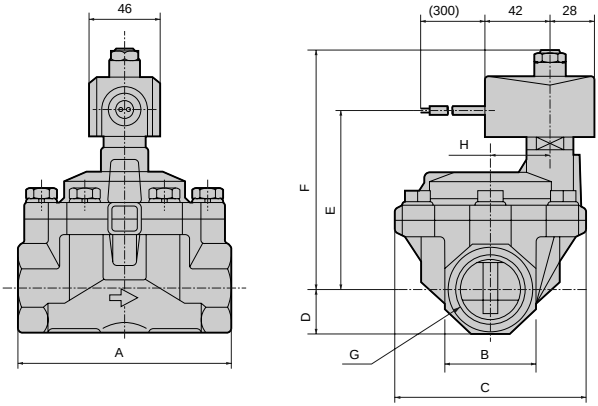
● Manual (locking, flange type)
AP21-32F/40F/50F-***[A]



Dimensions: AP22 Series

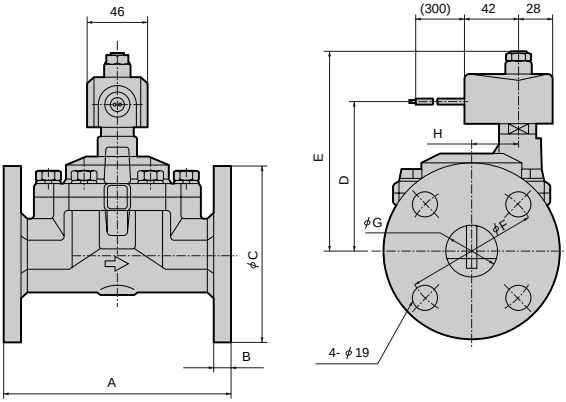
CAD (Page 299)

● Open frame lead wire type (Rc screw in type)
AP22-32A/40A/50A-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G	H
AP22-32A-*□A	125	54	112	27	110.5	149	Rc1 1/4	32
AP22-40A-*□A	140	60	122	30	116.5	155	Rc1 1/2	38
AP22-50A-*□A	160	74	132	37	124.5	163	Rc2	45

● Open frame lead wire type (flange type)
AP22-32F/40F/50F-* 3A / 4A / 5A



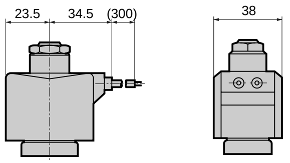
Model no.	A	B	C	D	E	F	G	H
AP22-32F-*□A	170	12	135	110.5	149	100	36	32
AP22-40F-*□A	180	14	140	116.5	155	105	42	38
AP22-50F-*□A	180	14	155	124.5	163	120	53	45

Optional dimensions: AP22 Series

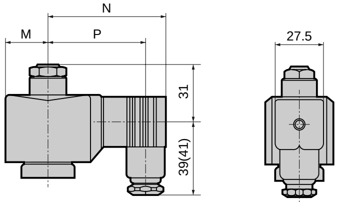
CAD (Page 299)

* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AP22-32$^{A}_{F}$ to 50$^{A}_{F}$-* 2C



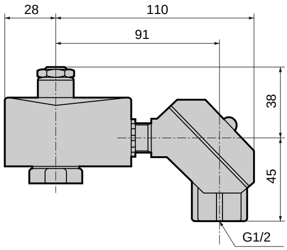
● DIN terminal box
AP22-32$^{A}_{F}$ to 50$^{A}_{F}$-* 2E / 2G / 2H



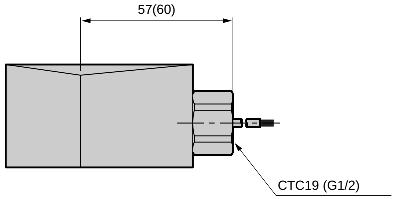
Dimensions shown in ( ) are for the G1/2.

Voltage	M	N	P
AC	23.5	65.5	54 (53.5)
DC	28	72	60.5 (60)

● Open frame type + square terminal box
AP22-32$^{A}_{F}$ to 50$^{A}_{F}$-* 3 / 5 K / H / P / Q · 4K / 4H

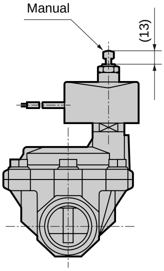


● Open frame type + conduit
AP22-32$^{A}_{F}$ to 50$^{A}_{F}$-* 3A / 4A / 5A G / H

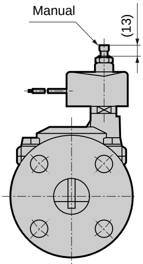


Dimensions shown in ( ) are for the G1/2.

● Manual (locking, Rc screw in type)
AP22-32A/40A/50A-*** A



● Manual (locking, flange type)
AP22-32F/40F/50F-*** A



Pilot operated 2 port solenoid valve
(general purpose valve)

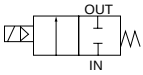
AD11/AD12 Series

- NC (normally closed) type, NO (normally open) type
- Port size: Rc1/4 to Rc1
- Diaphragm structure

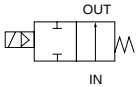
Refer to Ending 17 for more details.

JIS symbol

● AD11: NC (normally closed) type



● AD12: NO (normally open) type



Common specifications

Descriptions	Standard specifications
Working fluid	Air, water, kerosene, oil (50 mm²/s or less)
Working pressure differential range MPa	0.02 to 1.0 (Refer to max. working pressure differential on individual specifications.)
Max. working pressure MPa	2
Withstanding pressure (water) MPa	8
Fluid temperature (Note 1) ˚C	-10 to 60
Ambient temperature ˚C	-20 to 60
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot operated poppet, diaphragm structure
Valve seat leakage (Note 2) cm³/min. (ANR)	0.2 or less (air)
Mounting attitude	Free (within working pressure differential range)
Body/sealant	Bronze, nitrile rubber

Note 1: No freezing

Note 2: For AD11 (NC (normally closed)), these values apply at pneumatic pressure 0.02 to 1.0 MPa, and for AD12 (NO (normally open)), these apply at pneumatic pressure 0.02 to 0.5 MPa.

Individual specifications

Descriptions / Model no.	Port size	Orifice (mm)	Min. working pressure diff. (MPa)	Max. working pressure diff. (MPa) Air AC	Air DC	Water, kerosene AC	Water, kerosene DC	Oil (50 mm²/s) AC	Oil (50 mm²/s) DC	Rated voltage	Apparent power (VA) Holding 50Hz	Holding 60Hz	Starting 50Hz	Starting 60Hz	Power consumption (W) AC 50/60Hz	Power consumption (W) DC	Mass (kg)
NC (normally closed) type																	
AD11-8A	Rc1/4	10	0.02	1.0	0.7	1.0	0.7	0.7	0.7	100 VAC 50/60Hz	18	15	29	24	6.7/5.7	12	0.4
AD11-10A	Rc3/8	10	*5	1.0	0.7	1.0	0.7	0.7	0.7	110 VAC 60Hz							0.4
AD11-15A	Rc1/2	15	0.02	1.0	0.6	0.7	0.6	0.6	0.6	200 VAC 50/60Hz	18	15	29	24	6.7/5.7	11 (10.4)	1.2
AD11-20A	Rc3/4	20		1.0	0.6	0.7	0.6	0.6	0.6	220 VAC 60Hz							1.2
AD11-25A	Rc1	25		1.0	0.6	0.7	0.6	0.6	0.6	12 VDC							1.9
NO (normally open) type										24 VDC							
AD12-15A	Rc1/2	15	0.02	0.5	0.5	0.5	0.5	0.5	0.5	48 VDC	22	18	35	29	8.7/6.7	15.5 (14)	1.2
AD12-20A	Rc3/4	20								100 VDC							1.5
AD12-25A	Rc1	25															1.9

*1: The types above apply up to the basic port size (Rc). Refer to How to order for other combinations.
*2: Refer to DC column for maximum working pressure differential of coil with diode for AD11.
*3: Variation of rated voltage should be within ±10%.
*4: The values in ( ) in the power consumption DC column apply for the type with DIN terminal box.
*5: The minimum working pressure differential for the port size 8 (1/4) and 10 (3/8) is 0.05 MPa for fluoro rubber sealant.

Optional specifications

Sealant	Fluoro rubber	
Coil (heat proof class)	B	H
Fluid temperature (Note 1) ˚C	-10 to 60	-10 to 90
Ambient temperature ˚C	-20 to 60	-20 to 100 (Note 3)
Valve seat leakage (Note 2) cm^3/min. (ANR)	0.2 or less (air)	

Note 1: No freezing

Note 2: For AD11 (NC (normally closed)), these values apply at pneumatic pressure 0.02 to 1.0 MPa, and for AD12 (NO (normally open)), these apply at pneumatic pressure 0.02 to 0.5 MPa.

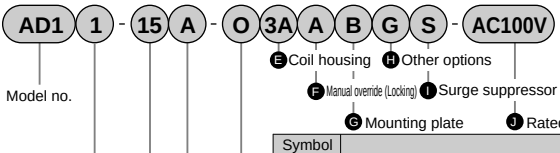
Note 3: The range is -20 to 80℃ when using the square terminal box with light for the coil housing.

Flow characteristics

Model no.	Port size	Orifice (mm)	Flow characteristics			
			C[dm^3/(s•bar)]	b	Cv flow factor	S (mm^2)
NC (normally closed) type						
AD11-8A	Rc 1/4	10	8.1	0.17	1.5	-
AD11-10A	Rc 3/8	10	10	0.19	1.8	-
AD11-15A	Rc 1/2	15	21	0.22	4.5	-
AD11-20A	Rc 3/4	20	-	-	9.3	162
AD11-25A	Rc 1	25	-	-	12.0	231
NO (normally open) type						
AD12-15A	Rc 1/2	15	21	0.22	4.5	-
AD12-20A	Rc 3/4	20	-	-	9.3	162
AD12-25A	Rc 1	25	-	-	12.0	231

*1: Effective sectional area S and sonic conductance C are converted as S ≒ 5.0 x C.

How to order



Symbol	Descriptions	Model no. AD11	Model no. AD12
A Actuation			
1	NC (normally closed) type	●	
2	NO (normally open) type		●
B Port size			
8	1 / 4	●	
10	3 / 8	●	
15	1 / 2	●	●
20	3 / 4	●	●
25	1	●	●
C Type of screw			
A	Rc	●	●
G	G	●	●
N	NPT	●	●
D Body, sealant combination			

		Body	Sealant	Treat	Remarks		
O	Std.	Bronze	Nitrile rubber	-	Air, water, kerosene, oil (up to 60˚C)	●	●
B	Option	Bronze	Fluoro rubber	-	Air, kerosene, oil (up to 90˚C *1)	●	●
D	Option	Stainless steel	Nitrile rubber	-	Air, water, kerosene, oil (up to 60˚C)	●	●
E	Option	Stainless steel	Fluoro rubber	-	Air, kerosene, oil (up to 90˚C *1)	●	●
H	Option	Bronze	Nitrile rubber	Oil-prohibit	Air, water, kerosene, oil (up to 60˚C)	●	●
J	Option	Bronze	Fluoro rubber	Oil-prohibit	Air, kerosene, oil (up to 90˚C*1)	●	●
L	Option	Stainless steel	Nitrile rubber	Oil-prohibit	Air, water, kerosene, oil (up to 60˚C)	●	●
M	Option	Stainless steel	Fluoro rubber	Oil-prohibit	Air, kerosene, oil (up to 90˚C *1)	●	●

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

E to J

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

The combinations indicated with a ● in the above table can be manufactured.

<Example 1 of model number>
AD11-20A-03A-AC100V
Series : AD11
A Actuation : NC (normally closed) type
B Port size : Rc3/4
C Type of thread : Rc
D Body, sealant combination
: Body - bronze, sealant - nitrile rubber
E Coil housing : Open frame lead wire
F to G : Blank
J Rated voltage
:100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number>
AD12-15G-D2CAS-AC200V
Series: AD12
A Actuation : NO (normally open) type
B Port size : Rc1/2
C Type of thread : G
D Body, sealant combination
: Body - stainless steel, sealant - nitrile rubber
E Coil housing : Grommet lead wire
F Manual override (Locking) : Selected
G H : Blank
I Surge suppressor : With surge suppressor
J Rated voltage
: 200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Note on model no. selection

Note on (D)

*1: (D): When selecting 4A, 4K, 4H.
*2: The stainless steel body is not available for (B) (port size) 8 (1/4) or 10 (3/8).
*3: The standard body material for the (B) (port size) 8 (1/4) and 10 (3/8) is brass.

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

(E) Coil housing				(F) Manual override (Locking)	(G) Mounting plate	(H) Other options: Cable gland (Marine cable gland) A-15a	A-15b	A-15c	Conduit (Conduit pipe) CTC 19	G 1 / 2	(I) Surge suppressor	(J) Rated voltage
3A	Std.	Open frame lead wire		**A**	**B**				**G**	**H**	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2C	Option	Grommet lead wire		**A**	**B**						**S**	100 VAC, 200 VAC
2E		DIN terminal box	(G1/2)									100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2G		DIN terminal box	(Pg11)									
2H		DIN terminal box + small light	(Pg11)							**H**		100 VAC, 200 VAC, 24 VDC
3K		Open frame type	Square terminal box (G1/2)	**A**	**B**	**D**	**E**	**F**			**S**	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3H			Square terminal box + light (G1/2)									100 VAC, 200 VAC, 24 VDC, 100 VDC
3P			Square terminal box (IP65 or equivalent) (G1/2)									100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3Q			Square terminal box + light (IP65 or equivalent) (G1/2)									100 VAC, 200 VAC, 24 VDC, 100 VDC
4A		Open frame type (Heat proof class H)	Lead wire	**A**	**B**				**G**	**H**	**S**	100 VAC, 200 VAC
4K			Square terminal box (G1/2)			**D**	**E**	**F**				
4H			Square terminal box + light (G1/2)									
5A		Open frame type (Diode integrated)	Lead wire	**A**	**B**				**G**	**H**		100 VAC, 200 VAC
5K			Square terminal box			**D**	**E**	**F**				
5H			Square terminal box + light									
5P			Square terminal box (IP65 or equivalent) (G1/2)									
5Q			Square terminal box + light (IP65 or equivalent) (G1/2)									

⚠ Refer to the following precautions for (E) to (J).

2C		● Grommet lead wire 300 mm
2E 2G 2H		● DIN terminal box
3A 4A 5A		● Open frame Grommet lead wire 300 mm ● 4A (Heat proof class H) ● 5A (Diode integrated)
3K 3H 4K 4H 5K 5H		● Open frame square terminal box ● 4K, 4H (Heat proof class H) ● 5K, 5H (Diode integrated)
3P 3Q 5P 5Q		● Open frame square terminal box (IP65 or equivalent) ● 5P, 5Q (Diode integrated)

G H		● Conduit ● G (CTC19) ● H (G1/2)

Refer to page 222 for coil selection.

⚠ Note on model no. selection

Note on (E)

*4: 5A, 5K, 5H, 5P and 5Q are coils which convert AC power to DC with a diode.
*5: The DC power with DIN terminal box is not available for (B) (port size) 8 (1/4) or 10 (3/8).
*6: Port size 8 (1/4) or 10 (3/8) cannot be mounted on the manual override ((F) A).

Note on (G) to (I)

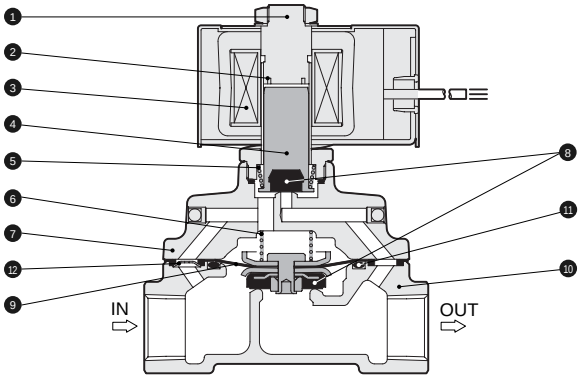
*7: The mounting plate ((G) B) can be mounted only on the port size 8 (1/4) and 10 (3/8).
*8: Select one among D, E, F, G and H for (H).
*9: The surge suppressor is an accessory for the lead wire coil. When using the coil with terminal box, the surge suppressor is mounted in the terminal box.
*10: Surge suppressor is incorporated in coil with diode and (E) 2H 24 VDC coil as standard.
*11: Tropic care treatment (rust-proof coating) is available as a measure against rust. Note that the tropic care treatment is not available when the manual override option (A) is selected.

Note on (J)

*12: 100 VAC coil is compatible with 100 VAC 50/60 Hz,110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz, 220 VAC 60 Hz. Note that (E) 5A, 5K, 5H, 5P, and 5Q coils are used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
*13: Consult with CKD about other than above voltage.
*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.

Internal structure and main parts materials

●AD11 Series



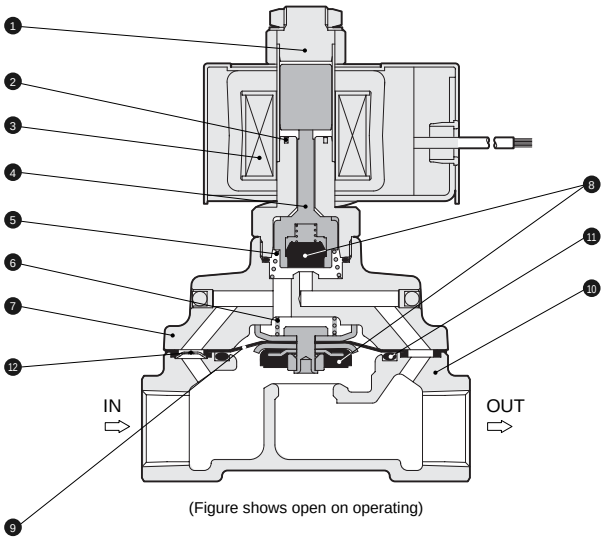
(Figure shows close on operating)

No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403*1	Stainless steel
2	Shading coil *2	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equivalent	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing *3	CAC407 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)
10	Body	CAC407 (SCS13) *4	Bronze casting (stainless steel casting)
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
12	Orifice plate *3	SUS304	Stainless steel

Options are shown in ( ).
*1: When the body and sealant material combination symbol is other than O or H, the material is SUS405 or equivalent, SUS316L, SUS430.
*2: When using the DC coil or a coil with a diode, no shedding coil is used.
*3: For port size 8 (1/4) or 10 (3/8), stuffing and orifice plate are not available.
*4: For port size 8 (1/4) or 10 (3/8), the body material is C3771 (brass) as a standard.

Internal structure and main parts materials

● AD12 Series



(Figure shows open on operating)

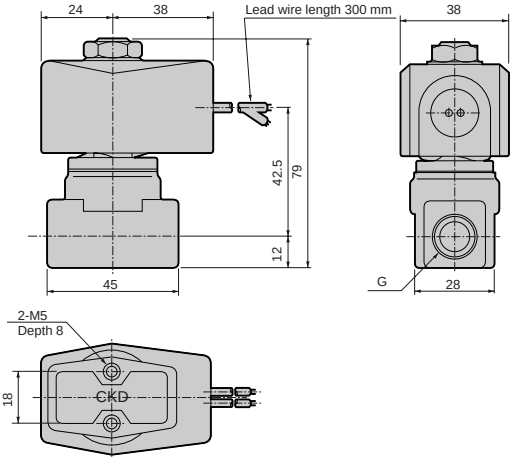
No.	Parts name	Material	
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel
2	Shading coil	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	NO valve assembly	POM/NBR (SUS303, PFA, FKM or PTFE)	Acetyl resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber or tetrafluoroethylene resin).
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)
10	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
12	Orifice plate	SUS304	Stainless steel

Options are shown in ( ).

Dimensions: AD11 Series

CAD (Page 300)

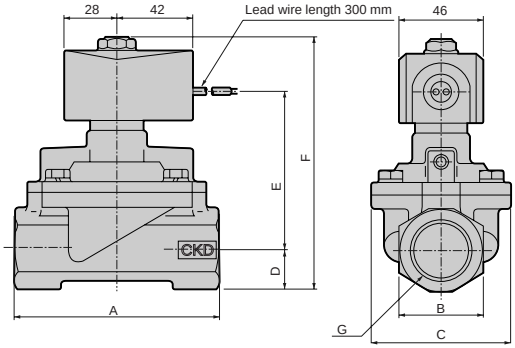
● Open frame lead wire type
AD11-8A/10A-* 3A / 4A / 5A



Model no.	G
AD11-8A-*□A	Rc1/4
AD11-10A-*□A	Rc3/8

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

● Open frame lead wire type
AD11-15A/20A/25A-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G
AD11-15A-*□A	90	29	57	14.5	73.5	117	Rc1/2
AD11-20A-*□A	100	35	65	17.5	79.5	126	Rc3/4
AD11-25A-*□A	110	44	76	22	85	136	Rc1

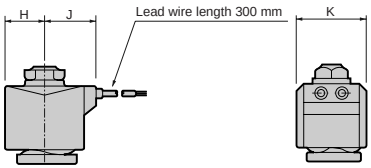
*1: The dimensions are the same for the G or NPT thread port size.

Optional dimensions: AD11 Series

CAD (Page 300)

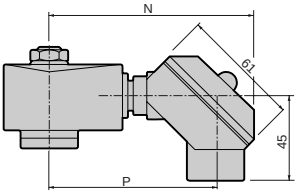
* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AD11-8A to 25A-* 2C



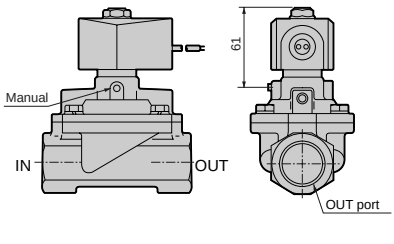
Model no.	H	J	K
AD11-8A to 10A-*2C	20	27	34
AD11-15A to 25A-*2C	23.5	30.5	38

● Open frame type + square terminal box
AD11-8A to 25A-* 3 5 · K H P Q 4K 4H

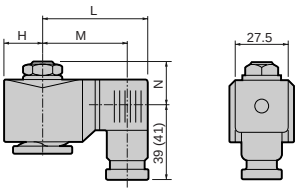


Model no.	N	P
AD11-8A to 10A-*□□	106	87
AD11-15A to 25A-*□□	110	91

● Manual override (locking)
AD11-15A/20A/25A-*** A



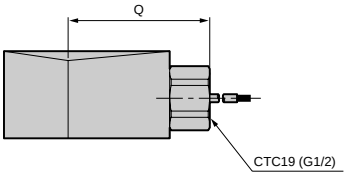
● DIN terminal box
AD11-8A to 25A-* 2E 2G 2H



Dimensions shown in ( ) are for the G1/2.

Model no.	H	L	M	N
AD11-8A/10A-*2□-AC	20	62	50.5 (50)	20.5
AD11-15A to 25A-*2□-AC	23.5	65.5	54 (53.5)	22
AD11-15A to 25A-*2□-DC	23.5	66	54.5 (54)	22

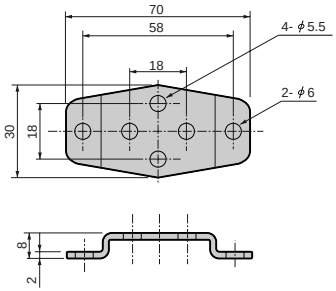
● Open frame type + conduit
AD11-8A to 25A-* 3A 4A 5A G H



Dimensions shown in ( ) are for the G1/2.

Model no.	Q
AD11-8A to 10A	53(56)
AD11-15A to 25A	57(60)

● Mounting plate
AD11-8A/10A-*** B

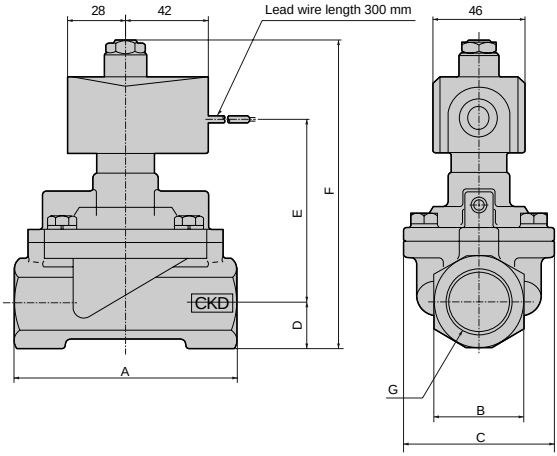


Mounting plate: GE-100159
Port size 15 (1/2) to 25 (1) mounting plate is not used.

Dimensions: AD12 Series

CAD (Page 300)

● Open frame lead wire type
AD12-15A/20A/25A-* 3A / 4A / 5A



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

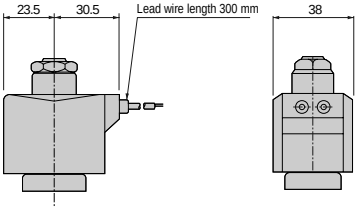
Model no.	A	B	C	D	E	F	G
AD12-15A-*□A	90	29	57	14.5	77.5	130	Rc1/2
AD12-20A-*□A	100	35	65	17.5	83.5	139	Rc3/4
AD12-25A-*□A	110	44	76	22	89	149	Rc1

Optional dimensions: AD12 Series

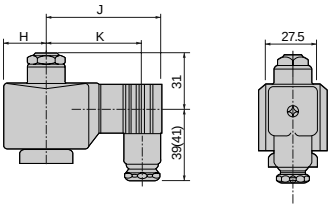
CAD (Page 300)

* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AD12-15A/20A/25A-* 2C



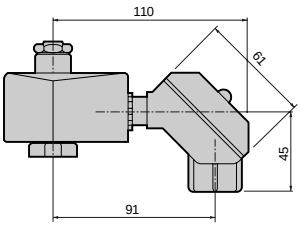
● DIN terminal box
AD12-15A/20A/25A-* 2E / 2G / 2H



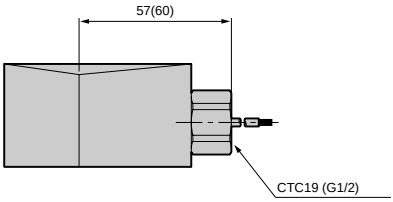
Dimensions shown in ( ) are for the G1/2.

Voltage	H	J	K
AC	23.5	65.5	54 (53.5)
DC	28	72	60.5 (60)

● Open frame type + square terminal box
AD12-15A/20A/25A-* 3/5 · K/H/P/Q · 4K/4H

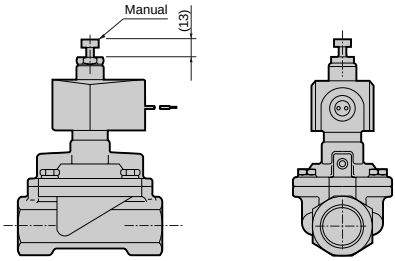


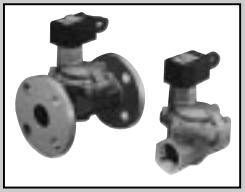
● Open frame type + conduit
AD12-15A to 25A-* 3A/4A/5A · G/H



Dimensions shown in ( ) are for the G1/2.

● Manual override (locking)
AD12-15A/20A/25A-*** A





Pilot operated 2 port solenoid valve
(general purpose valve)

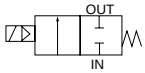
AD21/AD22 Series

- NC (normally closed) type, NO (normally open) type
- Port size: Rc1 1/4 to Rc2, 32 to 50 flange
- Diaphragm structure

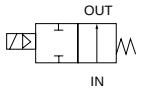
CE Refer to Ending 17 for more details. CAD

JIS symbol

● AD21: NC (normally closed) type



● AD22: NO (normally open) type



Common specifications

Descriptions	Standard specifications
Working fluid	Air, water, kerosene, oil (50 mm^2/s or less)
Working pressure differential range MPa	0.02 to 0.7 (Refer to max. working pressure differential on individual specifications.)
Max. working pressure MPa	1
Withstanding pressure (water) MPa	3.2
Fluid temperature ˚C	-10 to 60 (no freezing)
Ambient temperature ˚C	-10 to 60
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot operated poppet, diaphragm structure
Valve seat leakage (Note 1) cm^3/min. (ANR)	1 or less (air)
Mounting attitude	Free (within working pressure differential range)
Body/sealant	Bronze, nitrile rubber

Note 1: For AD21 (NC (normally closed)), these values apply at pneumatic pressure 0.02 to 0.7 MPa, and for AD22 (NO (normally open)), these apply at pneumatic pressure 0.02 to 0.5 MPa.

Individual specifications

Descriptions / Model no.	Port size	Orifice (mm)	Min. working pressure diff. (MPa)	Max. working pressure diff. (MPa)						Rated voltage	Apparent power (VA)				Power consumption (W)		Mass (kg)
				Air		Water, kerosene		Oil (50 mm^2/s)			Holding		Starting		AC	DC	
				AC	DC	AC	DC	AC	DC		50Hz	60Hz	50Hz	60Hz	50/60Hz		
NC (normally closed) type																	
AD21-32A	Rc1 1/4	35	0.02	0.7	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60Hz 110 VAC 60Hz 200 VAC 50/60Hz 220 VAC 60Hz 12 VDC 24 VDC 48 VDC 100 VDC	18	15	29	24	6.7/5.7	11 (10.4)	3.5
AD21-32F	32 flange																7
AD21-40A	Rc1 1/2	43															4.5
AD21-40F	40 flange																8
AD21-50A	Rc2	53															6
AD21-50F	50 flange																10
NO (normally open) type																	
AD22-32A	Rc1 1/4	35	0.02	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60Hz 110 VAC 60Hz 200 VAC 50/60Hz 220 VAC 60Hz 12 VDC 24 VDC 48 VDC 100 VDC	22	18	35	29	8.7/6.7	15.5 (14)	3.5
AD22-32F	32 flange																7
AD22-40A	Rc1 1/2	43															4.5
AD22-40F	40 flange																8
AD22-50A	Rc2	53															6
AD22-50F	50 flange																10

*1: The types above apply up to the basic port size. Refer to How to order for other combinations.
*2: Refer to DC column for maximum working pressure differential of coil with diode.
*3: Variation of rated voltage should be within ±10%.
*4: The values in ( ) in the power consumption DC column apply for the type with DIN terminal box.

Optional specifications

Sealant	Fluoro rubber	
Coil (heat proof class)	B	H
Fluid temperature ℃	5 to 60	5 to 90
Ambient temperature ℃	-10 to 60	-10 to 100 (Note 2)
Valve seat leakage (Note 1) cm^3/min. (ANR)	1 or less (air)	

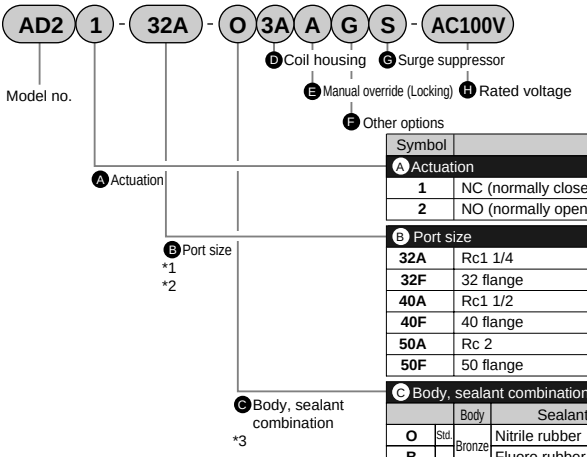
Note 1: For AD21 (NC (normally closed)), these values apply at pneumatic pressure 0.02 to 0.7 MPa, and for AD22 (NO (normally open)), these apply at pneumatic pressure 0.02 to 0.5 MPa.

Note 2: The range is -20 to 80℃ when using the square terminal box with light for the coil housing.

Flow characteristics

Model no.	Port size	Orifice (mm)	Cv flow factor	Effective sectional area (mm^2)
NC (normally closed) type				
AD21-32A	Rc 1 1/4	35	25	460
AD21-32F	32 flange			
AD21-40A	Rc 1 1/2	43	34	625
AD21-40F	40 flange			
AD21-50A	Rc 2	53	53	975
AD21-50F	50 flange			
NO (normally open) type				
AD22-32A	Rc 1 1/4	35	25	460
AD22-32F	32 flange			
AD22-40A	Rc 1 1/2	43	34	625
AD22-40F	40 flange			
AD22-50A	Rc 2	53	53	975
AD22-50F	50 flange			

How to order



Symbol	Descriptions
A Actuation	
1	NC (normally closed) type
2	NO (normally open) type
B Port size	
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc 2
50F	50 flange

C Body, sealant combination

		Body	Sealant	Treat	Remarks
O	Std.	Bronze	Nitrile rubber	-	Air, water, kerosene, oil (up to 60˚C)
B			Fluoro rubber		Air, kerosene, oil (up to 90˚C *3)
D		Stainless steel	Nitrile rubber		Air, water, kerosene, oil (up to 60˚C)
E			Fluoro rubber		Air, kerosene, oil (up to 90˚C *3)
H	Option	Bronze	Nitrile rubber	Oil-prohibit	Air, water, kerosene, oil (up to 60˚C)
J			Fluoro rubber		Air, kerosene, oil (up to 90˚C *3)
L		Stainless steel	Nitrile rubber		Air, water, kerosene, oil (up to 60˚C)
M			Fluoro rubber		Air, kerosene, oil (up to 90˚C *3)

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

D to H

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

<Example 1 of model number>

AD21-32A-B4A-AC100V

Series: AD21
- A Actuation: NC (normally closed) type
- B Port size: Rc1 1/4
- C Body, sealant combination
  : Body - bronze, sealant - fluoro rubber
- D Coil housing
  : Open frame type lead wire (H class coil)
- E to G: Blank
- H Rated voltage
  :100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number>

AD22-40F-02HHS-AC200V

Series: AD22
- A Actuation: NO (normally open) type
- B Port size: Flange 40
- C Body, sealant combination
  : Body - bronze, sealant - nitrile rubber
- D Coil housing: DIN terminal box with small indicator light (Pg11)
- E Manual override (locking): Blank
- F Other options: Conduit G 1/2
- G Surge suppressor: With surge suppressor
- H Rated voltage
  : 200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Note on model no. selection

*1: The phase flange is JIS B2210 10K.(No flange is enclosed with the product, but must be purchased separately.)
*2: G and NPT threads are used for piping port. Contact CKD for details.

Note on (C)

*3: (C): When selecting 4A, 4K, 4H.

For (D) to (H), the combinations indicated with symbols can be manufactured.
Note that if the (E) to (G) options are not required, no symbol is indicated.

(D) Coil housing				(E)	(F) Other options					(G)	(H) Rated voltage
Descriptions				Manual override (Locking)	Cable gland (Marine cable gland)			Conduit (Conduit pipe)		Surge suppressor	Descriptions
					A-15a	A-15b	A-15c	CTC 19	G 1 / 2		
3A		Open frame lead wire		A				G	H	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2C		Grommet lead wire		A						S	100 VAC, 200 VAC
2E		DIN terminal box	(G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2G		DIN terminal box	(Pg11)								
2H		DIN terminal box + small light	(Pg11)						H		100 VAC, 200 VAC, 24 VDC
3K	Option	Open frame type	Square terminal box (G1/2)	A	D	E	F			S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3H			Square terminal box + light (G1/2)								100 VAC, 200 VAC, 24 VDC, 100 VDC
3P			Square terminal box (IP65 or equivalent) (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3Q			Square terminal box + light (IP65 or equivalent) (G1/2)								100 VAC, 200 VAC, 24 VDC, 100 VDC
4A		Open frame type (Heat proof class H)	Lead wire	A				G	H	S	100 VAC, 200 VAC
4K			Square terminal box (G1/2)		D	E	F				
4H			Square terminal box + light (G1/2)								
5A		Open frame type (Diode integrated)	Lead wire	A				G	H		100 VAC, 200 VAC
5K			Square terminal box (G1/2)		D	E	F				
5H			Square terminal box + light (G1/2)								
5P			Square terminal box (IP65 or equivalent) (G1/2)								
5Q			Square terminal box + light (IP65 or equivalent) (G1/2)								

⚠Refer to the following precautions for (D) to (H).

2C

● Grommet lead wire 300 mm

2E
2G
2H

● DIN terminal box

3A
4A
5A

● Open frame
Grommet lead wire 300 mm
● 4A (Heat proof class H)
● 5A (Diode integrated)

3K
3H
4K
4H
5K
5H

● Open frame square terminal box
● 4K, 4H (Heat proof class H)
● 5K, 5H (Diode integrated)

3P
3Q
5P
5Q

● Open frame square terminal box
(IP65 or equivalent)
● 5P, 5Q (Diode integrated)

Refer to page 222 for coil selection.

G
H

● Conduit
● G (CTC19)
● H (G1/2)

⚠Note on model no. selection

Note on (D)

*4: 5A, 5K, 5H, 5P and 5Q are coils which convert AC power to DC with a diode.

Note on (E) to (G)

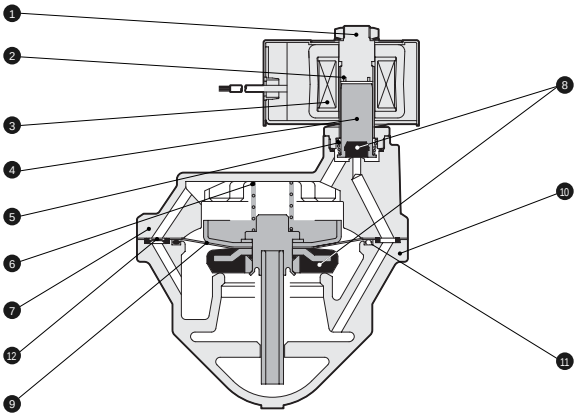
*5: Select one among D, E, F, G and H for (F).
*6: The surge suppressor is an accessory for the lead wire coil. When using the coil with terminal box, the surge suppressor is mounted in the terminal box.
*7: Surge suppressor is incorporated in coil with diode and (D) 2H 24 VDC coil as standard.
*8: Tropic care treatment (rust-proof coating) is available as a measure against rust.
Note that tropical treatment is not available for manual operation option (A).

Note on (H)

*9: 100 VAC coil is compatible with 100 VAC 50/60 Hz,110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz, 220 VAC 60 Hz. Note that (D) 5A, 5K, 5H, 5P, and 5Q coils are used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
*10: Consult with CKD about other than above voltage.
*11: The lead wire is available in the standard 300 mm length, and 500 mm, 1000 mm, 2000 mm and 3000 mm lengths. Contact CKD for more information.

Internal structure and main parts materials

●AD21 Series

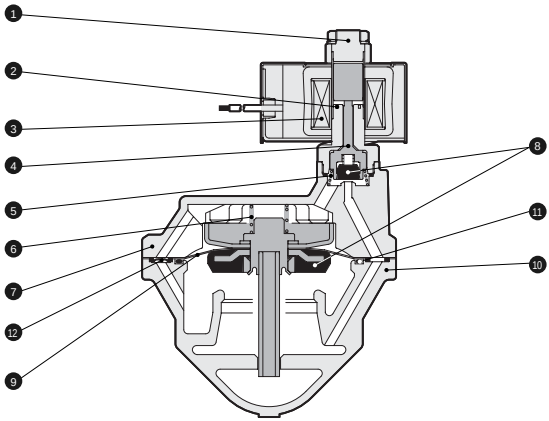


No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403*1	Stainless steel
2	Shading coil *2	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equivalent	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)
10	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
12	Orifice plate	SUS304	Stainless steel

Options are shown in ( ).
*1: When the body and sealant combination symbol is other than O or H, the material is SUS405 or equivalent, SUS316L, SUS430.
*2: When using the DC coil or a coil with a diode, no shedding coil is used.

Internal structure and main parts materials

●AD22 Series



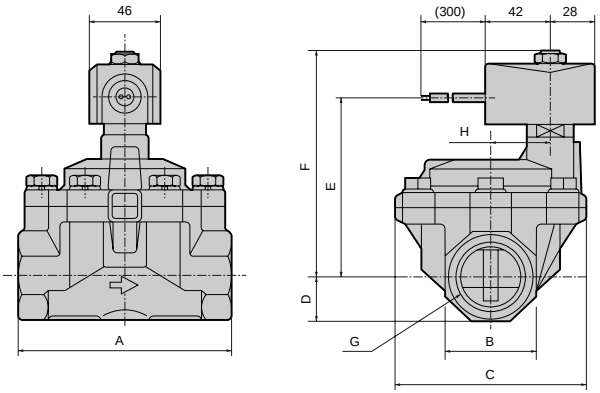
No.	Parts name	Material	
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel
2	Shading coil	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	NO valve assembly	POM/NBR (SUS303, PFA, FKM or PTFE)	Acetyl resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber or tetrafluoroethylene resin).
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)
10	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
12	Orifice plate	SUS304	Stainless steel

Options are shown in ( ).

Dimensions: AD21 Series

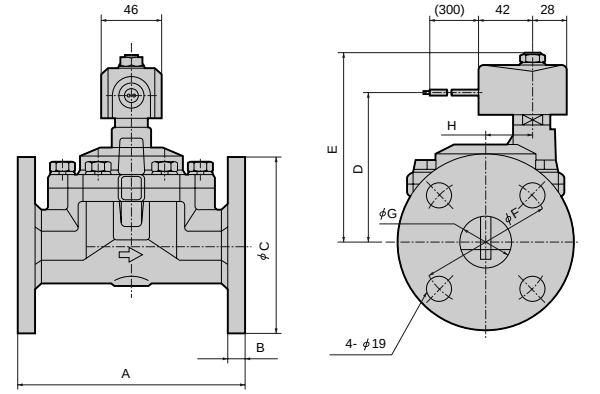
CAD (Page 301)

● Open frame lead wire type (Rc screw in type)
AD21-32A/40A/50A-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G	H
AD21-32A-*□A	125	54	112	27	107	136	Rc1¼	32
AD21-40A-*□A	140	60	122	30	113	142	Rc1½	38
AD21-50A-*□A	160	74	132	37	121	150	Rc2	45

● Open frame lead wire type (flange type)
AD21-32F/40F/50F-* 3A / 4A / 5A



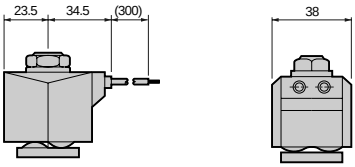
Model no.	A	B	C	D	E	F	G	H
AD21-32F-*□A	170	12	135	107	136	100	36	32
AD21-40F-*□A	180	14	140	113	142	105	42	38
AD21-50F-*□A	180	14	155	121	150	120	53	45

Optional dimensions: AD21 Series

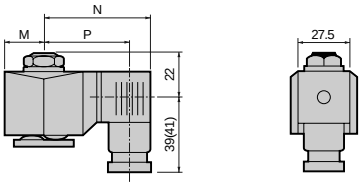
CAD (Page 301)

* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AD21-32⬚ to 50⬚-* [2C]



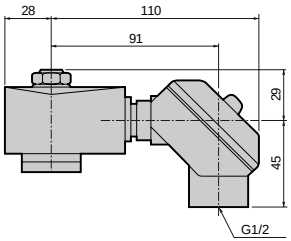
● DIN terminal box
AD21-32⬚ to 50⬚-* [2E] [2G] [2H]



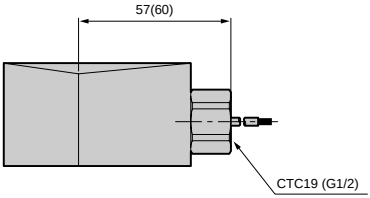
Dimensions shown in ( ) are for the G1/2.

Voltage	M	N	P
AC	23.5	65.5	54 (53.5)
DC	23.5	66	54.5 (54)

● Open frame type + square terminal box
AD21-32⬚ to 50⬚-* [3 5] [K H P Q] • [4K 4H]

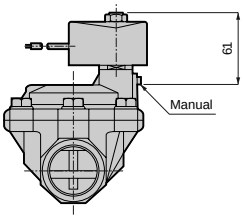


● Open frame type + conduit
AD21-32⬚ to 50⬚-* [3A 4A 5A] [G H]

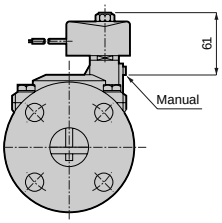


Dimensions shown in ( ) are for the G1/2.

● Manual (locking, Rc screw in type)
AD21-32A/40A/50A-*** [A]



● Manual (locking, flange type)
AD21-32F/40F/50F-*** [A]



Dimensions: AD22 Series

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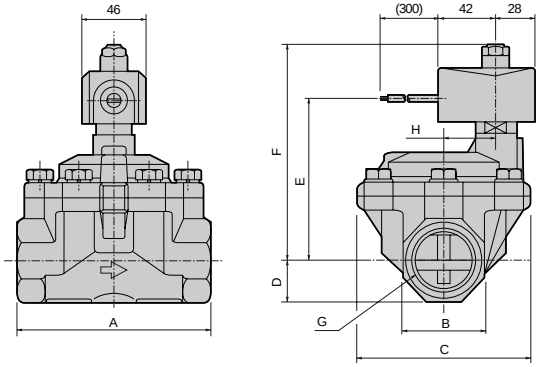
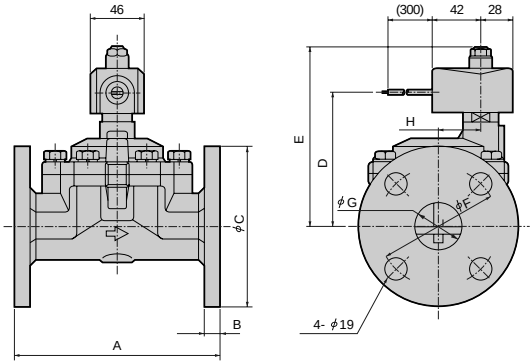
● Open frame lead wire type (Rc screw in type)
AD22-32A/40A/50A-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G	H
AD22-32A-*□A	125	54	112	27	111	149.5	Rc1¼	32
AD22-40A-*□A	140	60	122	30	117	155.5	Rc1½	38
AD22-50A-*□A	160	74	132	37	125	163.5	Rc2	45

● Open frame lead wire type (flange type)
AD22-32F/40F/50F-* 3A / 4A / 5A



Model no.	A	B	C	D	E	F	G	H
AD22-32F-*□A	170	12	135	111	149.5	100	36	32
AD22-40F-*□A	180	14	140	117	155.5	105	42	38
AD22-50F-*□A	180	14	155	125	163.5	120	53	45

Optional dimensions: AD22 Series

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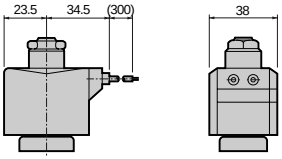
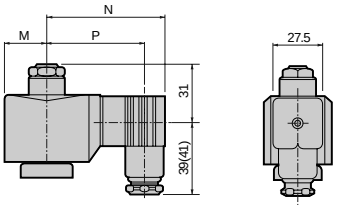
* Refer to open frame lead wire type dimensions on a left page for common dimensions.

● Grommet lead wire type
AD22-32⍈ to 50⍈-* 2C



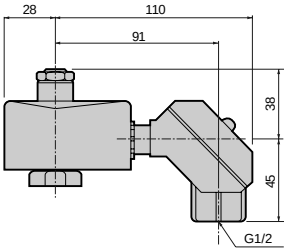
● DIN terminal box
AD22-32⍈ to 50⍈-* 2E / 2G / 2H



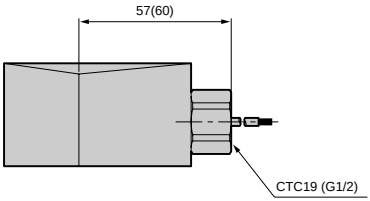
Dimensions shown in ( ) are for the G1/2.

Voltage	M	N	P
AC	23.5	65.5	54 (53.5)
DC	28	72	60.5 (60)

● Open frame type + square terminal box
AD22-32⍈ to 50⍈-* 3 / 5 K / H / P / Q · 4K / 4H

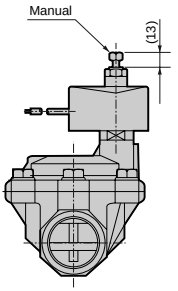


● Open frame type + conduit
AD22-32⍈ to 50⍈-* 3A / 4A / 5A G / H



Dimensions shown in ( ) are for the G1/2.

● Manual (locking, Rc screw in type)
AD22-32A/40A/50A-*** A



● Manual (locking, flange type)
AD22-32F/40F/50F-*** A