Pilot kick 2-port solenoid valve
General purpose

ADK11/ADK12 Series

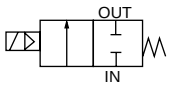
- NC (open when energized), NO (closed when energized)
- Port size: Rc1/4 to Rc1
- Diaphragm drive

CE Excluding ADK12
Refer to the Ending for details.

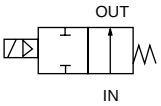
RoHS CAD

JIS symbol

- ADK11: NC (open when energized)



- ADK12: 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 10^3 Pa (abs))/water/kerosene/oil (50mm^2/s or less)	Hot water
Working pressure differential MPa	0 to 1.0 (refer to max. working pressure differential in individual specifications.)	
Max. working pressure MPa	2 (≈290 psi, 20 bar)	
Proof pressure (water pressure) MPa	4 (≈580 psi, 40 bar)	
Fluid temperature (*1) °C	-10 (14°F) to 60 (140°F)	-10 (14°F) to 90 (194°F)
Ambient temperature °C	-10 (14°F) to 60 (140°F)	
Thermal class	Class 130 (B)	Class 180 (H)
Atmosphere	Place free of corrosive gas and explosive gas	
Valve structure	Pilot kick poppet, diaphragm drive	
Valve seat leakage (*2) cm^3/min(ANR)	1 or less (air)	
Mounting orientation	Unrestricted	
Body/seal material	Bronze/nitrile rubber	Bronze/ethylene propylene rubber

*1 : No freezing.
*2 : Pneumatic pressure used for measurement is 0.02 to 1.0 MPa for ADK11 (NC [open when energized]), and 0.02 to 0.6 MPa for ADK12 (NO [closed when energized]).
When used at a pressure less than 0.02 MPa, the operation or sealant may be unstable. Contact CKD in this case.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item / Model No.	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa) Air AC	Air DC	Water/kerosene AC	Water/kerosene DC	Oil (50 mm^2/s) AC	Oil (50 mm^2/s) DC	Rated voltage	Apparent power (VA) When holding 50 Hz	When holding 60 Hz	When starting 50 Hz	When starting 60 Hz	Power consump (W) AC 50/60 Hz	Power consump (W) DC	Weight (kg)
NC (open when energized)																	
ADK11-8A	Rc1/4	12	0	1	0.7	1	0.7	0.7	0.6	100 VAC 50/60 Hz *8	24	19	61	54	10/8	11*2 (10.4)	0.65
ADK11-10A	Rc3/8	12															0.65
ADK11-15A	Rc1/2	16			0.6		0.6	0.6	0.5	200 VAC 50/60 Hz *8	25	21	84	75	10/8.5	14*3 [15.5]	0.9
ADK11-20A	Rc3/4	23															1.0
ADK11-25A	Rc1	28								12 VDC							1.4
NO (closed when energized)										24 VDC							
ADK12-15A	Rc1/2	16	0	0.6	0.6	0.6	0.6	0.5	0.5	48 VDC	30	25	180	150	13/11	14	1.0
ADK12-20A	Rc3/4	23								100 VDC							1.2
ADK12-25A	Rc1	28															1.6

*1 : The model numbers above show the basic port size (Rc). Refer to How to order for other combinations.
*2 : Values shown in ( ) are power consumption of the type with DIN terminal box.
*3 : Values shown in [ ] are power consumption of the type with coil with diode.
*4 : Refer to DC column for the max. working pressure differential of coil with diode.
*5 : The voltage fluctuation range must be within ±10% of the rated voltage.
*6 : For 0.02 MPa or less pressure, as operation may become unstable depending on the usage method, the AB71 Series is recommended.
*7 : When using at low vacuum, vacuum the OUT port side.
*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.

Optional specifications

Sealant	Fluoro rubber		Ethylene propylene rubber	
Coil (thermal class)	Class 130 (B)	Class 180 (H)	Class 130 (B)	Class 180 (H)
Fluid temperature °C	5 to 60	5 to 90	-10 to 60 (*1)	-10 to 90 (*1)
Ambient temperature °C	-10 to 60			
Valve seat leakage (*2) cm^3/min (ANR)	1 or less (air)			

*1 : No freezing.
*2 : Pneumatic pressure used for measurement is 0.02 to 1.0 MPa for ADK11 (NC [open when energized]), and 0.02 to 0.6 MPa for ADK12 (NO [closed when energized]).
When used at a pressure less than 0.02 MPa, the sealant may be unstable. Contact CKD in this case.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics			
			C[dm^3/(s·bar)]	b	Cv	S(mm^2)
NC (open when energized)						
ADK11-8A	Rc1/4	12	9.2	0.36	2.0	-
ADK11-10A	Rc3/8	12	11	0.46	2.4	-
ADK11-15A	Rc1/2	16	20	0.31	4.5	-
ADK11-20A	Rc3/4	23	-	-	8.6	162
ADK11-25A	Rc1	28	-	-	12.0	231
NO (closed when energized)						
ADK12-15A	Rc1/2	16	20	0.31	4.5	-
ADK12-20A	Rc3/4	23	-	-	8.6	162
ADK12-25A	Rc1	28	-	-	12.0	231

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

How to order

● NC (open when energized)

ADK11 – 25 A - 0 3A B G S – AC100V

- ADK11: Model No.
- 25: Ⓐ Port size
- A: Ⓑ Thread
- 0: Ⓒ Body/sealant combination
- 3A: Ⓓ Coil housing
- B: Ⓔ Mounting plate
- G: Ⓕ Other options
- S: Ⓖ With surge suppressor
- AC100V: Ⓗ Rated voltage

Code	Description
Ⓐ Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1

Ⓑ Thread	
A	Rc
G	G
N	NPT

Ⓒ Body/sealant combination

		Body	Seal	Treatment	Remarks
0	Std.	Bronze	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
B	Option	Bronze	Fluoro rubber	-	Air/low vacuum/kerosene/oil (up to 90°C *1)
D	Option	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
E	Option	Stainless steel	Fluoro rubber	-	Air/low vacuum/kerosene/oil (up to 90°C *1)
H	Option	Bronze	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
J	Option	Bronze	Fluoro rubber	Oil-prohibited	Air/low vacuum/kerosene/oil (up to 90°C *1)
P	Option	Bronze	Ethylene propylene rubber	Oil-prohibited	Water (up to 90°C *1)
L	Option	Stainless steel	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
M	Option	Stainless steel	Fluoro rubber	Oil-prohibited	Air/low vacuum/kerosene/oil (up to 90°C *1)
R	Option	Stainless steel	Ethylene propylene rubber	Oil-prohibited	Water (up to 90°C *1)

Refer to Intro Page 39 for reference on material combinations.

Ⓓ to Ⓗ

Refer to page 309 for details on the coil housing, other options and voltage, etc.

*1
*2
*3
*4

[Example of model No. 1]

ADK11-15A-02C-AC100V

Model : ADK11
Ⓐ Port size : 1/2
Ⓑ Thread : Rc
Ⓒ Body/sealant combination
: Body - bronze, 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]

ADK11-20N-B4ABS-AC200V

Model : ADK11
Ⓐ Port size : 3/4
Ⓑ Thread : NPT
Ⓒ Body/sealant combination
: Body - bronze, sealant - fluoro rubber
Ⓓ Coil housing : Open frame lead wire (thermal class 180(H) coil)
Ⓔ Mounting plate : With mounting plate
Ⓕ Other options : None
Ⓖ Surge suppressor : With surge suppressor
Ⓗ Rated voltage : 200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Precautions for model No. selection

Notes for Ⓒ

*1 : When Item Ⓒ 4A/4M/4N is selected.
*2 : For Item Ⓒ P/R, Item Ⓐ (port size) 15 (1/2)/20 (3/4)/25 (1) only are available.
*3 : The max. working pressure differential of the ethylene propylene rubber seal combination (Item Ⓒ P/R) is 0.6 MPa.
*4 : 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.)

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

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

⚠ Refer to the following cautions for Ⓓ to Ⓗ.

2C		● 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)

G H		● Conduit ● G(CTC19) ● H(G1/2)

Refer to page 249 for coil selection.

⚠ Precautions for model No. selection

Notes for Ⓓ

*5 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.

Notes for Ⓔ to Ⓖ

*6 : For Item Ⓕ, select an option from D, E, F, G and H.
*7 : 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.
*8 : As standard, the surge suppressor is built into the coil with diode and the 24 VDC coil (Item Ⓓ 2H), so the surge suppressor S cannot be selected.
*9 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.

Notes for Ⓗ

*10 : 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 Ⓓ 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
*11 : For voltages other than above, contact CKD.
*12 : 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.

How to order

● NO (closed when energized)

ADK12 – 15 A – 0 3A B G S – AC100V

- ADK12 – Model No.
- A Port size: 15 / A
- B Thread: 0
- C Body/sealant combination *1: 3A
- D Coil housing: B
- E Mounting plate: G
- F Other options: S
- G With surge suppressor
- H Rated voltage: AC100V

Code	Description
Ⓐ Port size	
15	1/2
20	3/4
25	1
Ⓑ Thread	
A	Rc
G	G
N	NPT

Ⓒ Body/sealant combination

		Body	Seal	Treatment	Remarks
0	Std.	Bronze	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
B	Option	Bronze	Fluoro rubber	-	Air/low vacuum/kerosene/oil (up to 90°C *1)
D	Option	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
E	Option	Stainless steel	Fluoro rubber	-	Air/low vacuum/kerosene/oil (up to 90°C *1)
H	Option	Bronze	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
J	Option	Bronze	Fluoro rubber	Oil-prohibited	Air/low vacuum/kerosene/oil (up to 90°C *1)
P	Option	Bronze	Ethylene propylene rubber	Oil-prohibited	Hot water (up to 90°C *1)
L	Option	Stainless steel	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
M	Option	Stainless steel	Fluoro rubber	Oil-prohibited	Air/low vacuum/kerosene/oil (up to 90°C *1)
R	Option	Stainless steel	Ethylene propylene rubber	Oil-prohibited	Hot water (up to 90°C *1)

Refer to Intro Page 39 for reference on material combinations.

Ⓓ to Ⓗ

Refer to page 311 for details on the coil housing, other options and voltage, etc.

[Example of model No. 1]

ADK12-20A-03A-DC24V

Model : ADK12
- Ⓐ Port size : 3/4
- Ⓑ Thread : Rc
- Ⓒ Body/sealant combination : Body - bronze, sealant - nitrile rubber
- Ⓓ Coil housing : Open frame lead wire
- Ⓔ to Ⓖ : None
- Ⓗ Rated voltage : 24 VDC

[Example of model No. 2]

ADK12-15G-B3NBD-AC100V

Model : ADK12
- Ⓐ Port size : 1/2
- Ⓑ Thread : G
- Ⓒ Body/sealant combination : Body - bronze, sealant - fluoro rubber
- Ⓓ Coil housing : Open frame HP terminal box with light (G1/2)
- Ⓔ Mounting plate : Selected
- Ⓕ Other options : Cable gland A-15a
- Ⓖ Surge suppressor : None
- Ⓗ Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

⚠ Precautions for model No. selection

Notes for Ⓒ

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

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

Ⓓ Coil housing				Ⓔ	Ⓕ Other options					Ⓖ	Ⓗ Rated voltage
Description				Mounting plate	Cable gland (marine cable gland)			Conduit (conduit piping)		With surge suppressor	Description
					A-15a	A-15b	A-15c	CTC19	G1/2		
3A	Std.	Open frame	Lead wire (IP65 or equivalent)	B				G	H	S	100 VAC, 200 VAC 12 VDC, 24 VDC, 48 VDC, 100 VDC
3M	Option		With HP terminal box (G1/2)		D	E	F				
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 terminal box with lamp (IP65 or equivalent) (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A		Open frame (Thermal class 180 (H))	Lead wire	B				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 (IP65 or equivalent)	B				G	H		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 terminal box with lamp (IP65 or equivalent) (G1/2)								

⚠ Refer to the following cautions for Ⓓ to Ⓗ.

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 249 for coil selection.

⚠ Precautions for model No. selection

Notes for Ⓓ

*2 : Coils for 5A/5M/5N/5I/5J have a diode to convert AC to DC voltage.

Notes for Ⓔ to Ⓖ

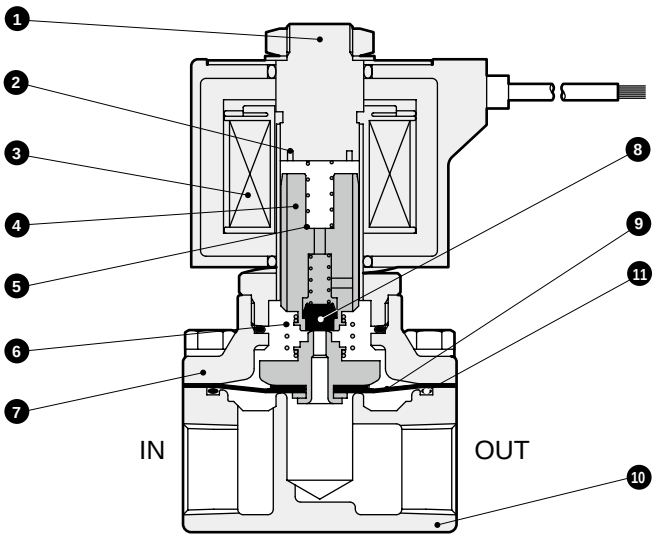
*3 : For Item Ⓕ, select an option from D, E, F, G and H.
*4 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
*5 : Surge suppressor is incorporated as standard in the coil with diode.
*6 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.

Notes for Ⓗ

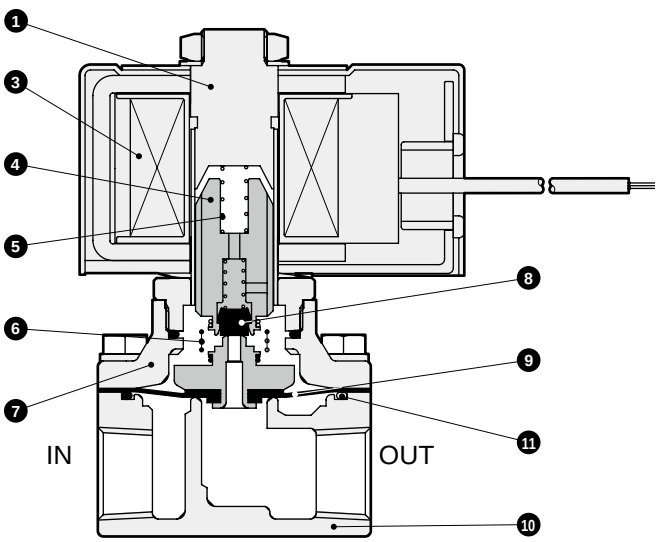
*7 : 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. However, coils for Item Ⓓ 5A/5M/5N/5I/5J can be used with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.
*8 : For voltages other than above, contact CKD.
*9 : The lead wire is available in the standard 300 mm length, and 500 mm, 1000 mm, 2000 mm and 3000 mm lengths. Contact CKD for more information.

Internal structure and parts list

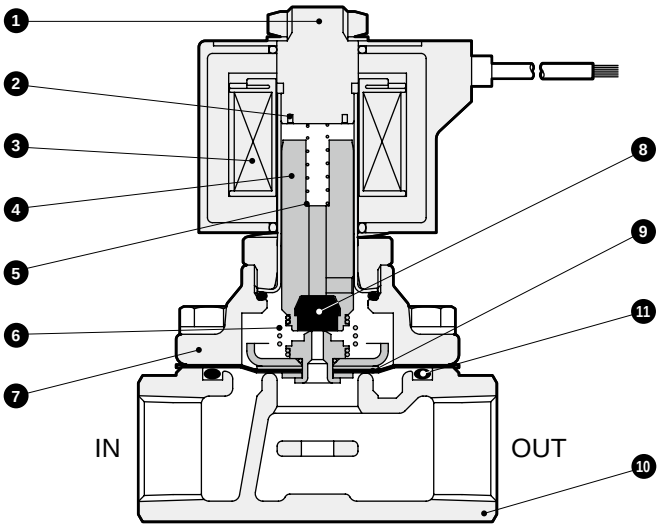
● ADK11-8A/10A (AC)



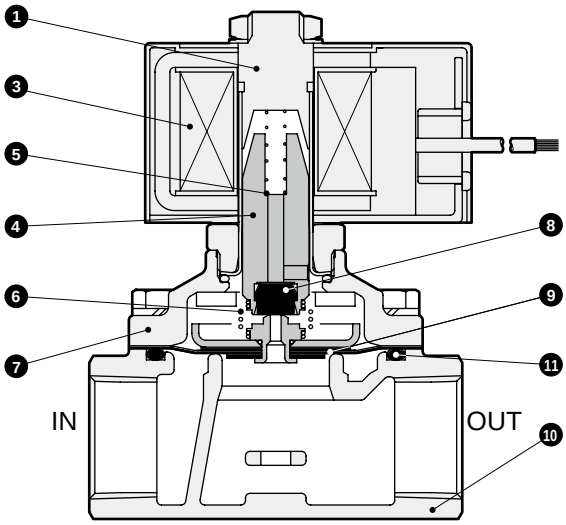
● ADK11-8A/10A (DC/diode integrated)



● ADK11-15A/20A/25A (AC)



● ADK11-15A/20A/25A (DC/diode integrated)

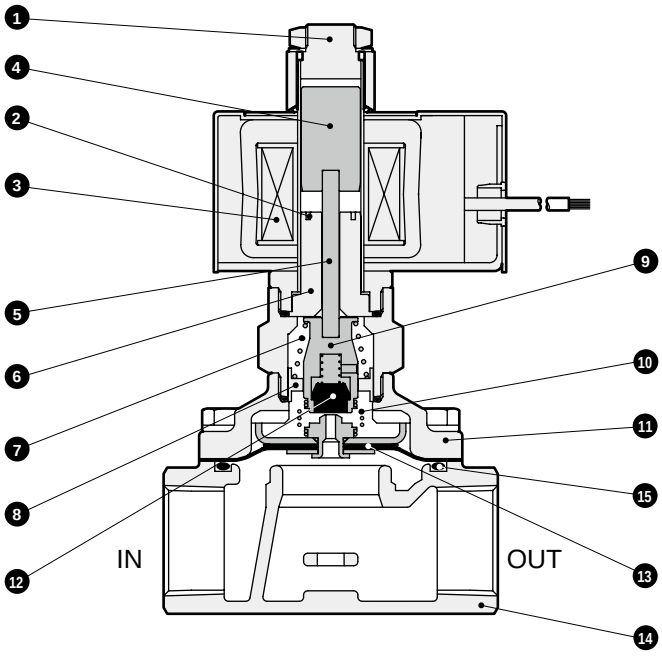


No.	Part name	Material	
1	Core assembly	SUS405 or equiv./SUS316L/SUS403	Stainless steel
2	Shading coil *1	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger assembly	SUS405 or equiv./SUS304/NBR (SUS405 or equiv./SUS304/FKM or EPDM) *2, 3	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Kick spring	SUS304	Stainless steel
7	Body	C3771(SCS13)	Copper alloy (stainless steel casting)
8	Seal	NBR(FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene rubber)
9	Diaphragm assembly	SUS304/NBR (SUS304/FKM or EPDM)*3	Stainless steel/nitrile rubber (stainless steel/fluoro rubber or ethylene propylene rubber)
10	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
11	O-ring	NBR(FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene rubber)

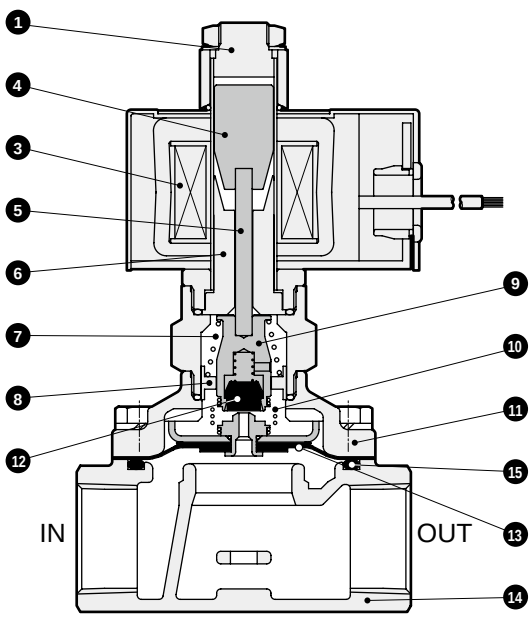
( ) shows options.
*1 : No shading coil is used for DC coil or coil with diode.
*2 : SUS304 is not used for port size 15 (1/2) to 25 (1).
*3 : EPDM is not available for port size 8 (1/4) and 10 (3/8).

Internal structure and parts list

● ADK12-15A/20A/25A (AC)



● ADK12-15A/20A/25A (DC/diode integrated)

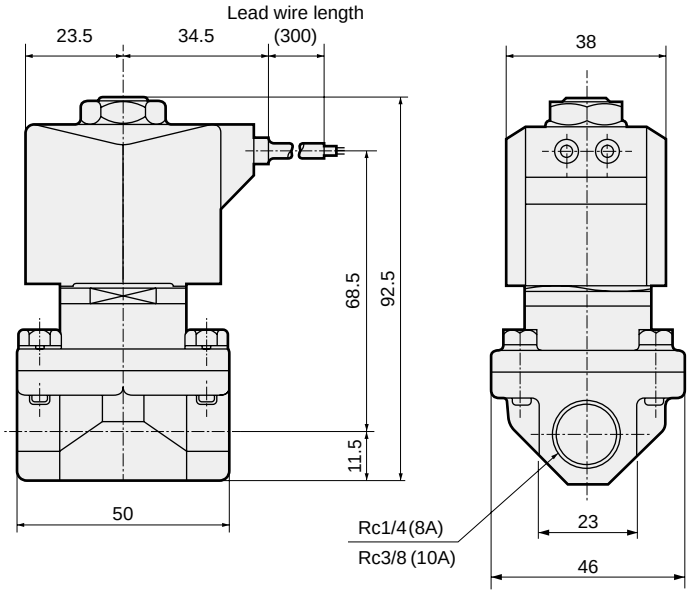


No.	Part name	Material	
1	Core assembly	SUS403/SUS316L/SUS304 *1	Stainless steel
2	Shading coil *2	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Push rod	SUS304	Stainless steel
6	Fixed core	SUS405 or equiv.	Stainless steel
7	Spring	SUS304	Stainless steel
8	Spring holder	POM(SUS303)	Acetal resin (stainless steel)
9	NO valve assembly	SUS303/SUS304/NBR (SUS303/SUS304/FKM, EPDM)	Stainless steel/nitrile rubber (stainless steel/fluoro rubber or ethylene propylene rubber)
10	Kick spring	SUS304	Stainless steel
11	Body	C3771(SCS13)	Copper alloy (stainless steel casting)
12	Seal	NBR(FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene rubber)
13	Diaphragm assembly	SUS304/NBR (SUS304/FKM or EPDM)	Stainless steel/nitrile rubber (stainless steel/fluoro rubber or ethylene propylene rubber)
14	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
15	O-ring	NBR(FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene rubber)

( ) shows options.
*1 : When the body/sealant combination is other than 0 and H: SUS430/SUS316L/SUS304.
*2 : No shading coil is used for DC coil or coil with diode.

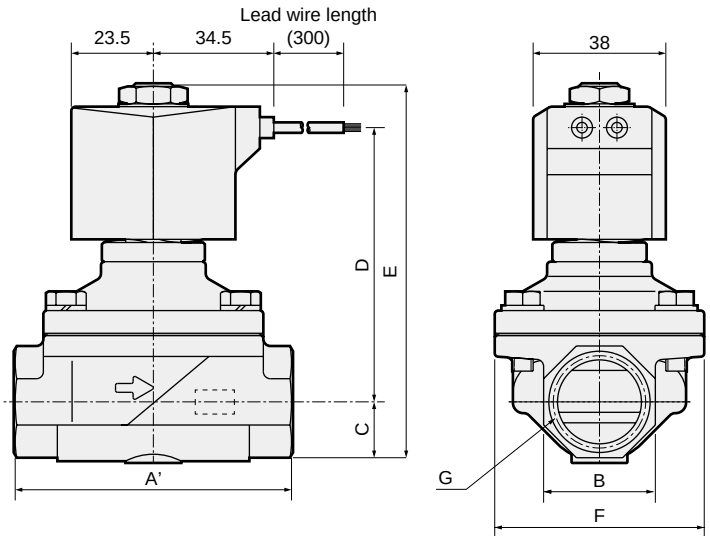
Dimensions: ADK11 Series

● Grommet lead wire
ADK11-8A/10A-*2C



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

● Grommet lead wire
ADK11-15A/20A/25A-*2C



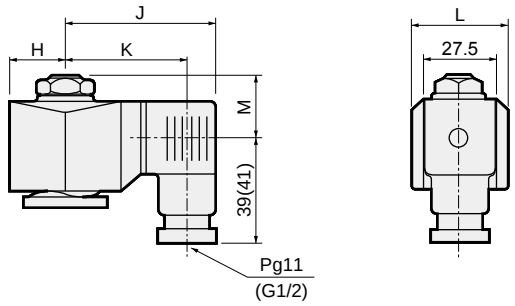
*1 : The dimensions are the same for port sizes of G and NPT threads.
*2 : Dimensions shown in ( ) are for SUS body.

Model No.	A	B	C	D	E	F	G
ADK11-15A-02C	71	27(29)	14.5	75.5	102	50	Rc1/2
ADK11-20A-02C	80	32(35)	17.5	79	108.5	60	Rc3/4
ADK11-25A-02C	90	41(45)	21.5(22.5)	84.5	118(119)	71	Rc1

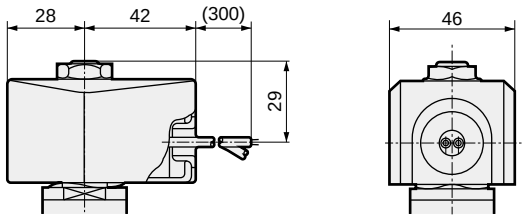
Optional dimensions: ADK11 Series

* Refer to the dimensions of grommet lead wire on page 314 for common dimensions.

● With DIN terminal box
ADK11-8A to 25A-* [2E / 2G / 2H]



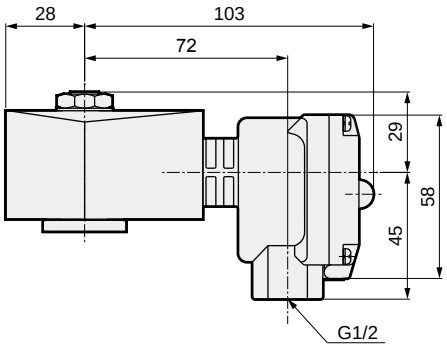
● Open frame lead wire
ADK11-8A to 25A-* [3A / 4A / 5A]



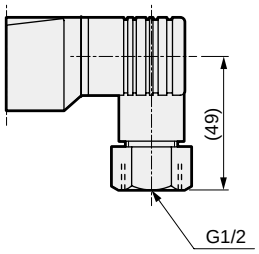
Dimensions shown in ( ) are for G1/2.

Model No.	H	J	K	L	M
ADK11-8A to 25A-*2□-AC	23.5	65.5	54(53.5)	38	22
ADK11-8A/10A-*2□-DC	23.5	66	54.5(54)	38	22
ADK11-15A to 25A-*2□-DC	28	72	60.5(60)	46	22

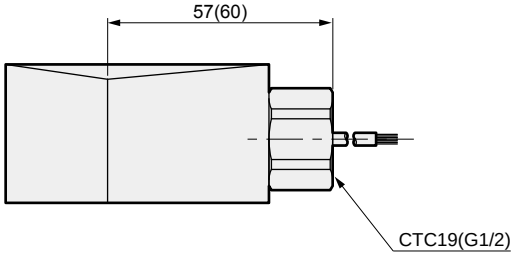
● Open frame + HP terminal box
ADK11-8A to 25A-* [3 / 5] [M / N / I / J] / [4M / 4N]



● DIN terminal box with small lamp + conduit (G1/2)
ADK11-8A to 25A-* [2H] [H]



● Open frame + conduit
ADK11-8A to 25A-* [3A / 4A / 5A] [G / H]

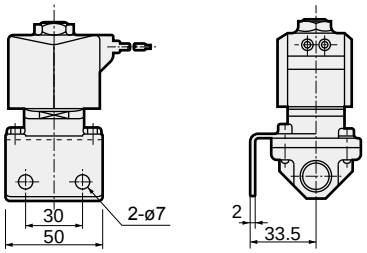


Dimensions shown in ( ) are for G1/2.

Optional dimensions: ADK11 Series

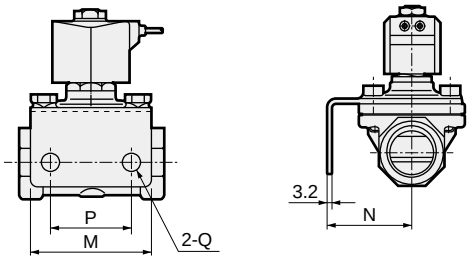
● Mounting plate
ADK11-8A/10A-***B

Material: Steel
Zinc plated



● Mounting plate
ADK11-15A/20A/25A-***B

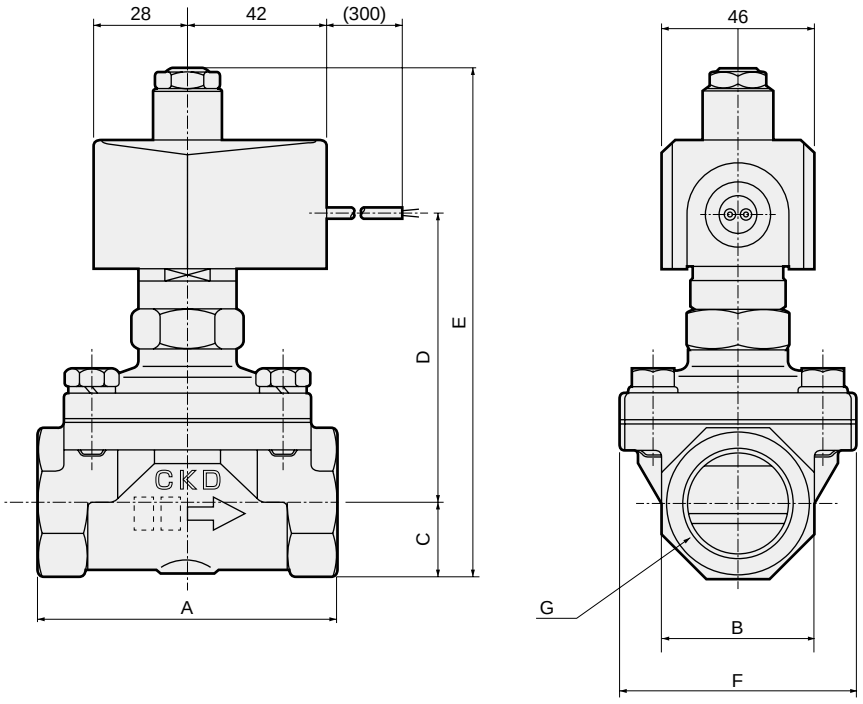
Material: Steel
Zinc plated



Model No.	M	N	P	Q
ADK11-15A-***B	56	45	40	ø9
ADK11-20A-***B	63	50	45	ø9
ADK11-25A-***B	75	56	50	ø11

Dimensions: ADK12 Series

● Open frame lead wire
ADK12-15A/20A/25A-*3A



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

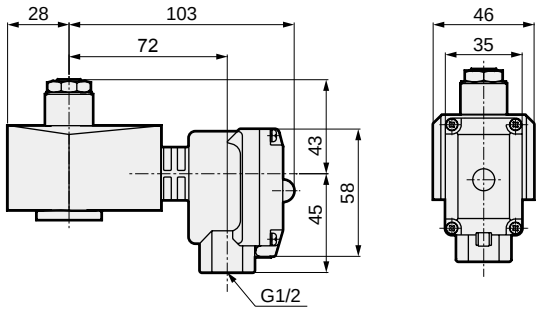
Model No.	A	B	C	D	E	F	G
ADK12-15A-03A	71	27(29)	14.5	77	134.5	50	Rc1/2
ADK12-20A-03A	80	32(35)	17.5	80.5	141	60	Rc3/4
ADK12-25A-03A	90	41(45)	21.5(22.5)	86	150.5(151.5)	71	Rc1

Optional dimensions: ADK12 Series

* Refer to the open frame lead wire dimensions on page 316 for common dimensions.

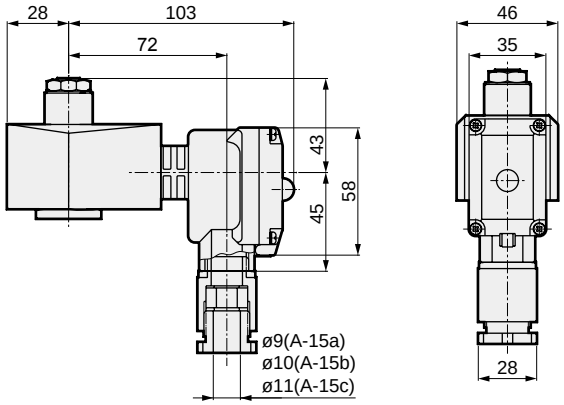
● Open frame + HP terminal box

ADK12-15A/20A/25A-* [3 5] [M N I J] / [4M 4N]



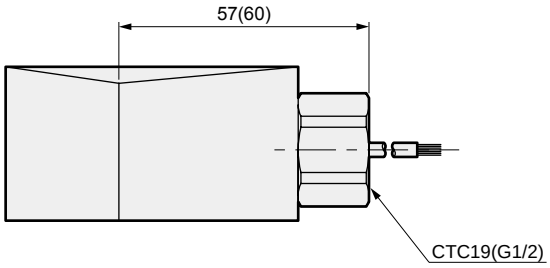
● Open frame + cable gland

ADK12-15A/20A/25A-* [3 4 5] [M N] [D E F]



● Open frame + conduit

ADK12-15A/20A/25A-* [3A 4A 5A] [G H]

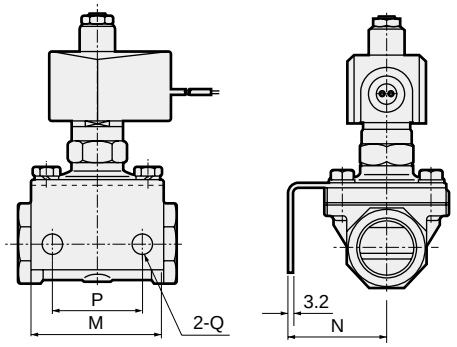


Dimensions shown in ( ) are for G1/2.

● Mounting plate

ADK12-15A/20A/25A-*** [B]

Material: Steel
Zinc plated



Model No.	M	N	P	Q
ADK12-15A-***B	56	45	40	ø9
ADK12-20A-***B	63	50	45	ø9
ADK12-25A-***B	75	56	50	ø11

Mounting plate model	Compatibility
ADK11-8A-MOUNT-PLATE-KIT	● ADK11-8A Series
ADK11-10A-MOUNT-PLATE-KIT	● ADK11-10A Series
ADK11-15A-MOUNT-PLATE-KIT	● ADK11-15A Series
ADK11-20A-MOUNT-PLATE-KIT	● ADK11-20A Series
ADK11-25A-MOUNT-PLATE-KIT	● ADK11-25A Series
ADK12-15A-MOUNT-PLATE-KIT	● ADK12-15A Series
ADK12-20A-MOUNT-PLATE-KIT	● ADK12-20A Series
ADK12-25A-MOUNT-PLATE-KIT	● ADK12-25A Series

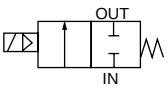
Pilot kick 2-port solenoid valve
General purpose

ADK21 Series

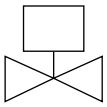
- NC (open when energized)
- Port size: Rc1¼ to Rc2, 32 to 50 flange
- Diaphragm drive

RoHS CAD

JIS symbol



Mounting orientation



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications
Working fluid	Air/low vacuum (1.33 x 10^3 Pa (abs))/water/kerosene/oil (50mm^2/s or less)
Working pressure differential MPa	0 to 0.7 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	1 (≈150 psi, 10 bar)
Proof pressure (water pressure) MPa	3.2 (≈460 psi, 32 bar)
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 60 (140°F)
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot kick poppet, diaphragm drive
Valve seat leakage (*1) cm^3/min(ANR)	1 or less (air)
Mounting orientation	Limited to vertical orientation with the coil on top
Body/seal material	Bronze/nitrile rubber

*1 : Value at pneumatic pressure of 0.02 to 0.7 MPa. When used at a pressure less than 0.02 MPa, the sealant may be unstable. Contact CKD in this case.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item / Model No.	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water/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	50/60 Hz		
ADK21-32A	Rc1¼	35	0	0.7	0.6	0.7	0.6	0.5	0.5	100 VAC 50/60 Hz	64	69	274	289	44/48	20	4.5
ADK21-32F	32 flange									200 VAC 50/60 Hz							8
ADK21-40A	Rc1½	43								12 VDC							5.5
ADK21-40F	40 flange									24 VDC							9
ADK21-50A	Rc2	53								48 VDC							7
ADK21-50F	50 flange									100 VDC							11.5

*1 : The model numbers above are for the basic port 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 : When using at low vacuum, vacuum the OUT port side.

Optional specifications

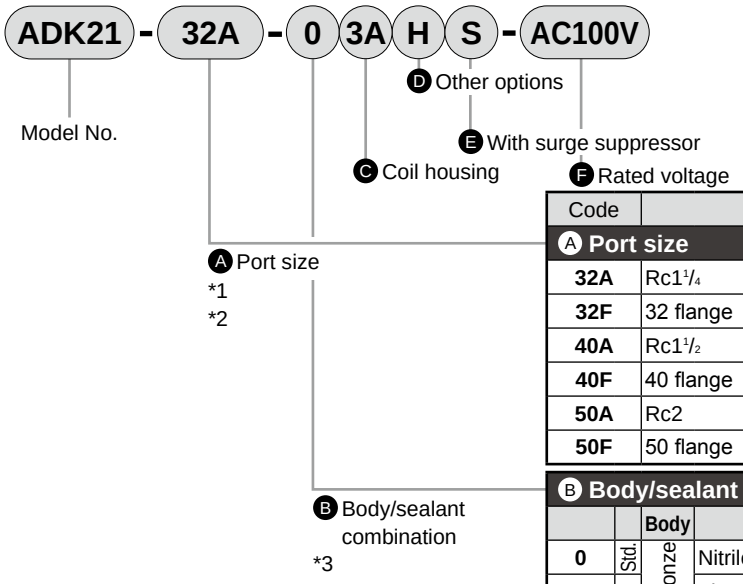
Sealant		Fluoro rubber	
Coil (thermal class)		Class 130 (B)	Class 180 (H)
Fluid temperature	°C	5 to 60	5 to 90
Ambient temperature	°C	-10 to 60	
Valve seat leakage (*1)	cm^3/min (ANR)	1 or less (air)	

*1 : Value at pneumatic pressure of 0.02 to 0.7 MPa. When used at a pressure less than 0.02 MPa, the sealant may be unstable. Contact CKD in this case.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Cv	Effective cross-sectional area (mm^2)
ADK21-32A	Rc1 1/4	35	25	460
ADK21-32F	32 flange			
ADK21-40A	Rc1 1/2	43	34	625
ADK21-40F	40 flange			
ADK21-50A	Rc2	53	53	975
APK21-50F	50 flange			

How to order



Code	Description
Ⓐ Port size	
32A	Rc1¼
32F	32 flange
40A	Rc1½
40F	40 flange
50A	Rc2
50F	50 flange

Ⓑ Body/sealant combination

		Body	Seal	Treatment	Remarks
0	Std.	Bronze	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
B	Option	Bronze	Fluoro rubber	-	Air/low vacuum/kerosene/oil (up to 90°C *3)
D	Option	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
E	Option	Stainless steel	Fluoro rubber	-	Air/low vacuum/kerosene/oil (up to 90°C *3)
H	Option	Bronze	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
J	Option	Bronze	Fluoro rubber	Oil-prohibited	Air/low vacuum/kerosene/oil (up to 90°C *3)
L	Option	Stainless steel	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
M	Option	Stainless steel	Fluoro rubber	Oil-prohibited	Air/low vacuum/kerosene/oil (up to 90°C *3)

Refer to Intro Page 39 for reference on material combinations.

Ⓒ to Ⓕ

Refer to page 321 for details on the coil housing, other options and voltage, etc.

[Example of model No. 1]

ADK21-50F-03A-DC24V

Model : ADK21
Ⓐ Port size : 50 flange
Ⓑ Body/sealant combination
: Body - bronze, sealant - nitrile rubber
Ⓒ Coil housing : Open frame lead wire
Ⓓ Ⓔ : None
Ⓕ Rated voltage : 24 VDC

[Example of model No. 2]

ADK21-40F-B4MD-AC200V

Model : ADK21
Ⓐ Port size : 40 flange
Ⓑ Body/sealant combination
: Body - bronze, sealant - fluoro rubber
Ⓒ Coil housing : Open frame
(Thermal class 180 (H) coil) with HP terminal box
(G1/2)
Ⓓ Other options : Cable gland A-15a
Ⓔ Surge suppressor : None
Ⓕ Rated voltage : 200 VAC 50/60 Hz

⚠ Precautions for model No. selection

*1 : The companion flange is JIS B2210 10K. (Flange is not enclosed with the product and must be purchased separately.)
*2 : As G and NPT threads can also be used for piping port threads, contact CKD for details.

Notes for Ⓑ

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

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

Ⓒ Coil housing				Ⓓ Other options				Ⓔ	Ⓕ Rated voltage
Description				Cable gland (marine cable gland)			Conduit (conduit piping)	With surge suppressor	Description
				A-15a	A-15b	A-15c	G1/2		
3A	Std.	Open frame	Lead wire (IP65 or equivalent)				H	S	100 VAC, 200 VAC 12 VDC, 24 VDC, 48 VDC, 100 VDC
3M	Option		With HP terminal box (G1/2)	D	E	F			
3N			HP terminal box with lamp (G1/2)						100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A		Open frame (Thermal class 180 (H))	Lead wire				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 (IP65 or equivalent)				H		100 VAC, 200 VAC
5M			With HP terminal box (G1/2)	D	E	F			
5N			HP terminal box with lamp (G1/2)						

⚠ Refer to the following cautions for Ⓒ to Ⓕ.

3A 4A 5A		● Open frame lead wire 300 mm ● With CTC19 thread for direct conduit piping
3M 3N 4M 4N 5M 5N		● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)

H		● Conduit (G1/2)

Refer to page 250 for coil selection.

⚠ Precautions for model No. selection

Notes for Ⓒ

*4 : Coils for 5A/5M/5N have a diode to convert AC to DC voltage.

Notes for Ⓓ / Ⓔ

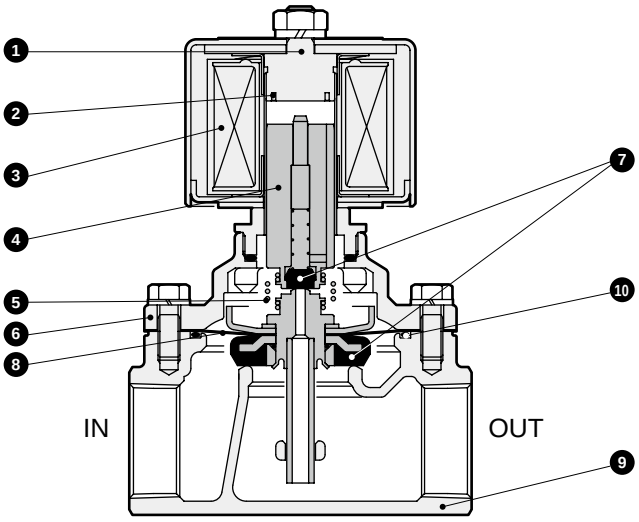
*5 : For Item Ⓓ, select an option from D, E, F and H.
*6 : The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
*7 : Surge suppressor is incorporated as standard in the coil with diode.
*8 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.

Notes for Ⓕ

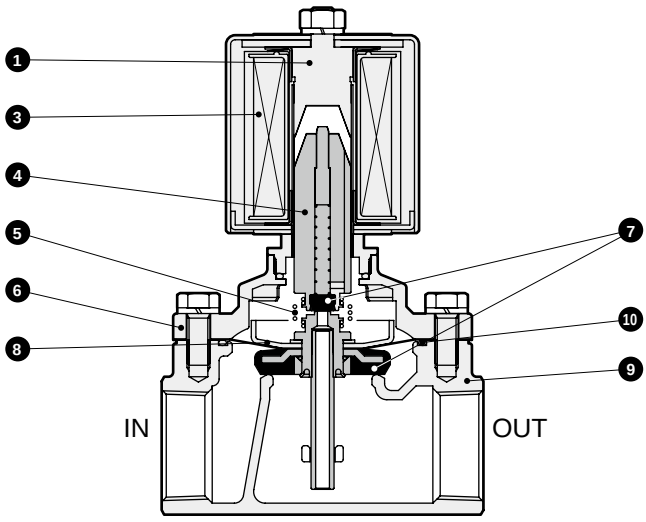
*9 : For voltages other than above, contact CKD.
*10 : The lead wire is available in the standard 300 mm length, and 500 mm, 1000 mm, 2000 mm and 3000 mm lengths. Contact CKD for more information.

Internal structure and parts list

● ADK21-32A/40A/50A (AC)



● ADK21-32A/40A/50A (DC/diode integrated)

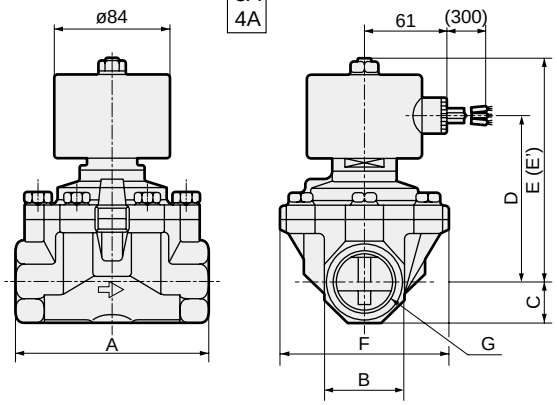


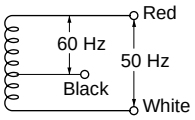
No.	Part name	Material	
1	Core assembly	SUS405 or equiv./SUS316L/SUS403	Stainless steel
2	Shading coil *1	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger assembly	SUS405 or equiv./SUS304/C3604/NBR (SUS405 or equiv./SUS304/FKM)	Stainless steel
5	Kick spring	SUS304	Stainless steel
6	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
7	Seal	NBR(FKM)	Nitrile rubber (fluoro rubber)
8	Diaphragm assembly	SUS303/SUS304/C3604/NBR (SUS303/SUS304/FKM)	Stainless steel/nitrile rubber (stainless steel/fluoro rubber)
9	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
10	O-ring	NBR(FKM)	Nitrile rubber (fluoro rubber)

( ) shows options.
*1 : No shading coil is used for DC coil or coil with diode.

Dimensions CAD

● Open frame lead wire (Rc screw-in)
ADK21-32A/40A/50A-* 3A 4A





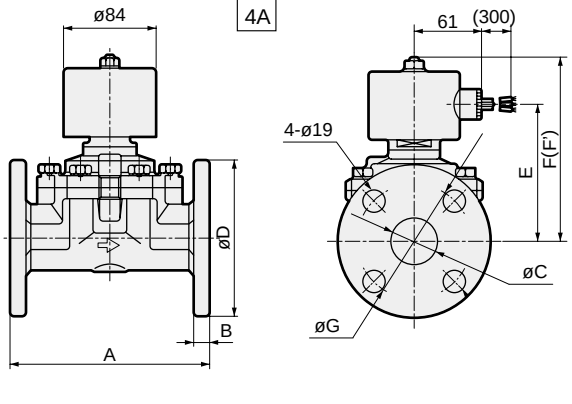
● Conduit size
Thin steel conduit thread
JIS B 0204 CTC19
● Lead wire

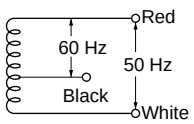
30/0.18(0.75 mm²)	
Length	300 mm

The dimension (E') applies only to the ADK21-32A/40A/50A-*3A DC specifications.

Model No.	A	B	C	D	E	E'	F	G
ADK21-32A-*□A	125	54	27	116.5	158.5	183.5	112	Rc1¼
ADK21-40A-*□A	140	60	30	123.5	165.5	190.5	122	Rc1½
ADK21-50A-*□A	160	74	37	132.5	174.5	199.5	132	Rc2

● Open frame lead wire (flange)
ADK21-32F/40F/50F-* 3A 4A





● Conduit size
Thin steel conduit thread
JIS B 0204 CTC19
● Lead wire

30/0.18(0.75 mm²)	
Length	300 mm

The dimension (F') applies only to the ADK21-32F/40F/50F-*3A DC specifications.

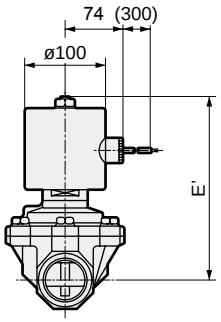
Model No.	A	B	C	D	E	F	F'	G
ADK21-32F-*□A	170	12	36(35)	135	116.5	158.5	183.5	100
ADK21-40F-*□A	180	14	42	140	123.5	165.5	190.5	105
ADK21-50F-*□A	180	14	53(52)	155	132.5	174.5	199.5	120

Dimensions shown in ( ) are for stainless steel body.

Optional dimensions

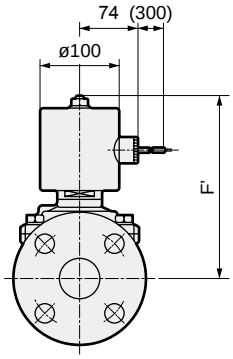
* Refer to the open frame lead wire dimensions on page 322 for common dimensions.

● Open frame diode integrated lead wire (Rc screw-in)
ADK21-32A/40A/50A-* 5A



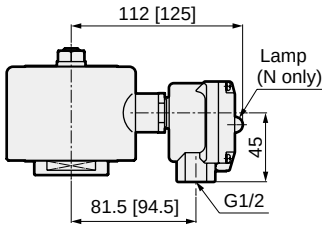
Model No.	E'
ADK21-32A-*5A	183.5
ADK21-40A-*5A	190.5
ADK21-50A-*5A	199.5

● Open frame diode integrated lead wire (flange)
ADK21-32F/40F/50F-* 5A



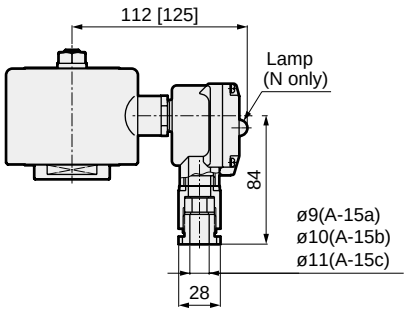
Model No.	F'
ADK21-32F-*5A	183.5
ADK21-40F-*5A	190.5
ADK21-50F-*5A	199.5

● Open frame + HP terminal box
ADK21-32A/F to 50A/F -* 3/4/5 M/N



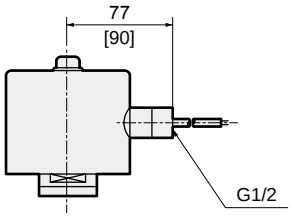
[ ] shows ADK21-32A/F to 50A/F -*5 M/N type.

● Open frame + cable gland
ADK21-32A/F to 50A/F -* 3/4/5 M/N D/E/F



[ ] shows ADK21-32A/F to 50A/F -*5 M/N type.

● Open frame + conduit
ADK21-32A/F to 50A/F -* 3A/4A/5A H



[ ] shows ADK21-32A/F to 50A/F -*5 M/N type.