



Pilot kick 2-port solenoid valve
General purpose

ADK11/ADK12 Series

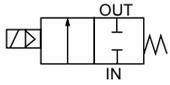
- NC (open when energized), NO (closed when energized)
- Port size: Rc1/4 to Rc1
- Diaphragm drive

Excluding ADK12
Refer to the Ending for details.

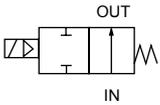


JIS symbol

- 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 ⁵ 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	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	DC														
NC (open when energized)																														
ADK11-8A	Rc1/4	12	0	1	0.7	0.7	0.7	0.6	100 VAC 50/60 Hz	*8	24	19	61	54	10/8	11 ⁻²	0.65													
ADK11-10A	Rc3/8	12															0.65													
ADK11-15A	Rc1/2	16															1	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)																														
ADK12-15A	Rc1/2	16	0	0.6	0.6	0.6	0.5	0.5	24 VDC								1.0													
ADK12-20A	Rc3/4	23							48 VDC													1.2								
ADK12-25A	Rc1	28							100 VDC	30	25	180	150	13/11	14							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 $S \approx 5.0 \times C$.

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

ADK11/ADK12 Series

How to order

● NC (open when energized)

ADK11 - 25 A - 0 3A B G S - AC100V

Model No.

- E** Mounting plate
- H** Rated voltage
- F** Other options
- D** Coil housing
- G** With surge suppressor

A Port size

B Thread

C Body/sealant combination

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

Code	Description			
A Port size				
8	1/4			
10	3/8			
15	1/2			
20	3/4			
25	1			
B Thread				
A	Rc			
G	G			
N	NPT			
C Body/sealant combination				
	Body	Seal	Treatment	Remarks
0	Std.	Bronze	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
		Nitrile rubber		Air/low vacuum/kerosene/oil (up to 90°C *1)
B	Bronze	Fluoro rubber	-	Air/low vacuum/kerosene/oil (up to 90°C *1)
D	Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene/oil (up to 60°C)
E		Fluoro rubber	Air/low vacuum/kerosene/oil (up to 90°C *1)	
H	Option	Bronze	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
		Fluoro rubber		Air/low vacuum/kerosene/oil (up to 90°C *1)
		Ethylene propylene rubber		Water (up to 90°C *1)
L	Stainless steel	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
M		Fluoro rubber		Air/low vacuum/kerosene/oil (up to 90°C *1)
R		Ethylene propylene rubber		Water (up to 90°C *1)
Refer to Intro Page 39 for reference on material combinations.				
D to H				
Refer to page 309 for details on the coil housing, other options and voltage, etc.				

[Example of model No. 1]

ADK11-15A-02C-AC100V

Model : ADK11

- A** Port size : 1/2
- B** Thread : Rc
- C** Body/sealant combination : Body - bronze, sealant - nitrile rubber
- D** Coil housing : Grommet lead wire
- E to G** : None
- H** Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

[Example of model No. 2]

ADK11-20N-B4ABS-AC200V

Model : ADK11

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

⚠ Precautions for model No. selection

Notes for ①

- *1 : When Item ③ 4A/4M/4N is selected.
- *2 : For Item ③ P/R, Item ① (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 ③ P/R) is 0.6 MPa.
- *4 : The ethylene propylene rubber seal combination (Item ③ P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)

For Items ② to ④, the combinations indicated with codes are available.
Note that if options for Items ⑤ to ⑦ are not required, they should be left blank.

① Coil housing		⑤	⑥ Other options					⑦	⑧ Rated voltage	
Description	Mounting plate	Cable gland			Conduit		With surge suppressor	Description		
		(marine cable gland)			(conduit piping)					
		A-15a	A-15b	A-15c	CTC19	G1/2				
2C	Option	Grommet lead wire						100 VAC, 200 VAC		
2E		With DIN terminal box (G1/2)					S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC		
2G		With DIN terminal box (Pg11)						100 VAC, 200 VAC, 24 VDC		
2H		DIN terminal box with small lamp (Pg11)						H		
3A		Open frame	Lead wire (IP65 or equivalent)					G	H	100 VAC, 200 VAC
3M	With HP terminal box (G1/2)							12 VDC, 24 VDC, 48 VDC, 100 VDC		
3N	HP terminal box with lamp (G1/2)							100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC		
3I	HP terminal box (IP65 or equivalent) (G1/2)							100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC		
3J	HP 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					G	H	S	
4M		With HP terminal box (G1/2)							100 VAC, 200 VAC	
4N	HP terminal box with lamp (G1/2)									
5A	Open frame (diode integrated)	Lead wire (IP65 or equivalent)					G	H	100 VAC, 200 VAC	
5M		With HP terminal box (G1/2)								
5N		HP terminal box with lamp (G1/2)								
5I		HP terminal box (IP65 or equivalent) (G1/2)								
5J	HP terminal box with light (IP65 or equivalent) (G1/2)									

Refer to the following cautions for ② to ④.

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)
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Refer to page 249 for coil selection.

Precautions for model No. selection

Notes for ①

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

Notes for ⑤ to ⑦

*6 : For Item ⑤, 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 ② 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 ⑧

*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 ② 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.

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

ADK11/ADK12 Series

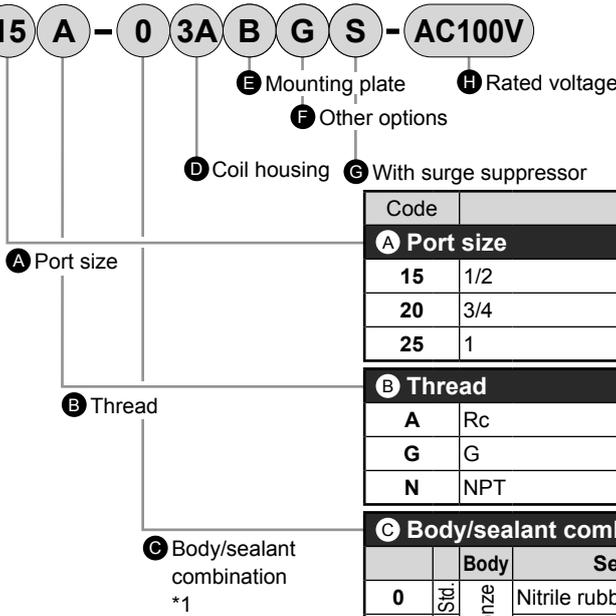
- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S \diamond B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
-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

How to order

● NO (closed when energized)

ADK12 - 15 A - 0 3A B G S - AC100V

Model No.



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

Code	Description
B Thread	
A	Rc
G	G
N	NPT

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

Refer to Intro Page 39 for reference on material combinations.

D to H

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

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

[Example of model No. 2]

ADK12-15G-B3NBD-AC100V

Model : ADK12

- A Port size : 1/2
- B Thread : G
- C Body/sealant combination : Body - bronze, sealant - fluoro rubber
- D Coil housing : Open frame HP terminal box with light (G1/2)
- E Mounting plate : Selected
- F Other options : Cable gland A-15a
- G Surge suppressor: None
- H 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 ① to ④, the combinations indicated with codes are available.
 Note that if options for Items ⑤ to ⑧ are not required, they should be left blank.

① Coil housing			②	③ Other options					④	⑤ Rated voltage					
Description	Mounting plate	Cable gland (marine cable gland)	Conduit (conduit piping)	A-15a	A-15b	A-15c	CTC19	G1/2	With surge suppressor	Description					
											⑥		⑦		⑧
											D	E	F	G	
3A	Open frame	Lead wire (IP65 or equivalent)							G	H	100 VAC, 200 VAC 12 VDC, 24 VDC, 48 VDC, 100 VDC				
3M		With HP terminal box (G1/2)	B	D	E	F				S					
3N		HP terminal box with lamp (G1/2)													
3I		HP terminal box (IP65 or equivalent) (G1/2)													
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)													
4A	Lead wire														
4M	With HP terminal box (G1/2)	B	D	E	F										
4N	HP terminal box with lamp (G1/2)														
5A	Open frame (diode integrated)	Lead wire (IP65 or equivalent)							G	H	100 VAC, 200 VAC				
5M		With HP terminal box (G1/2)	B	D	E	F				S					
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 ① to ④.

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

G H		<ul style="list-style-type: none"> ● Conduit ● G(CTC19) ● H(G1/2)
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Refer to page 249 for coil selection.

⚠ Precautions for model No. selection

Notes for ①

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

Notes for ③ to ④

- *3 : For Item ③, 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 ⑤

- *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 ① 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.

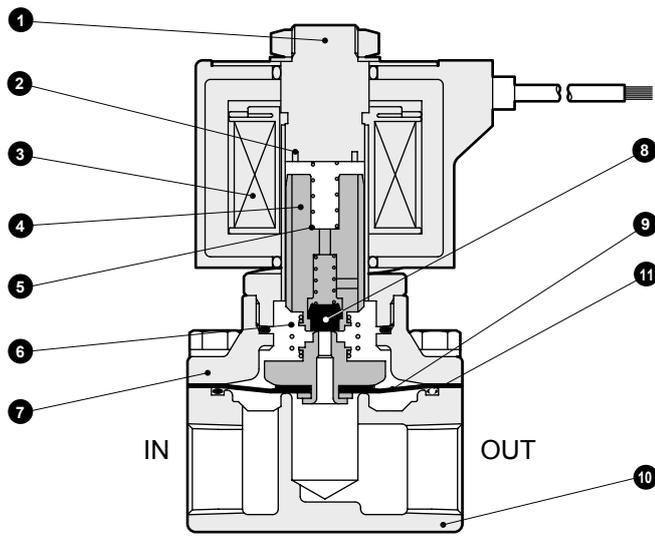
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S [◇] B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

ADK11/ADK12 Series

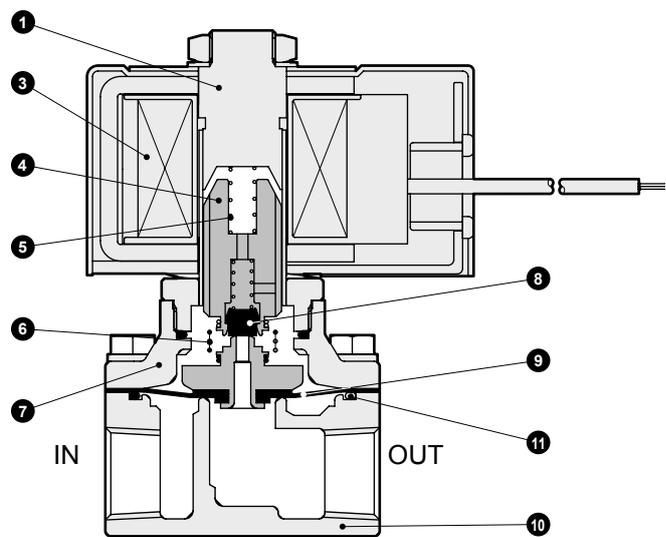
Internal structure and parts list

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

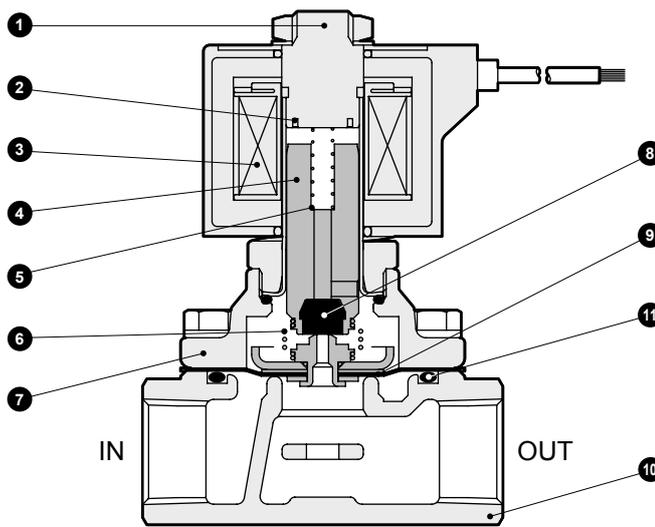
● ADK11-8A/10A (AC)



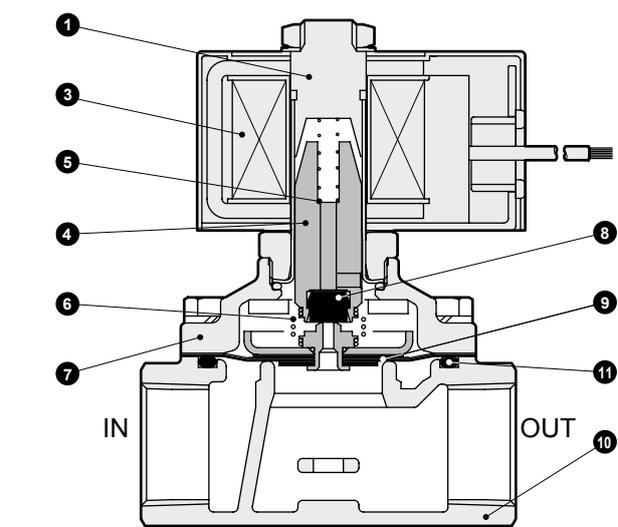
● ADK11-8A/10A (DC/diode integrated)



● 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.

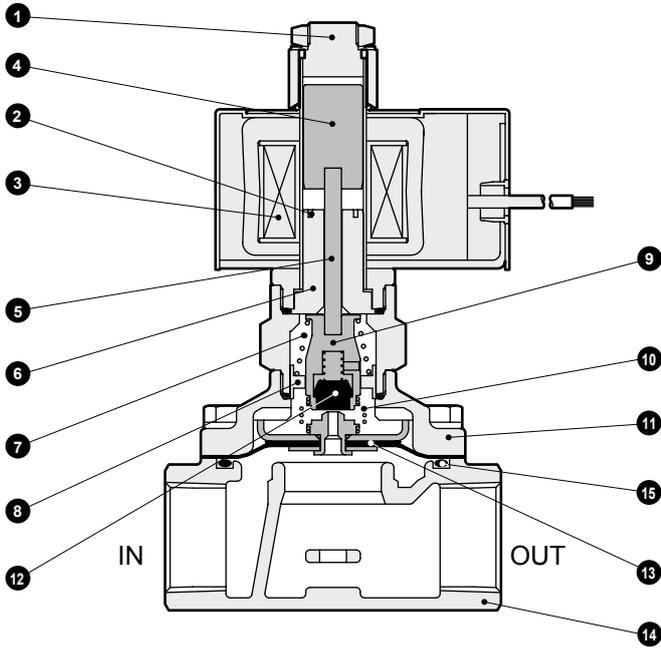
*1 : No shading coil is used for DC coil or coil with diode.

*2 : SUS304 is not used for port size 15 (1/2) to 25 (1).

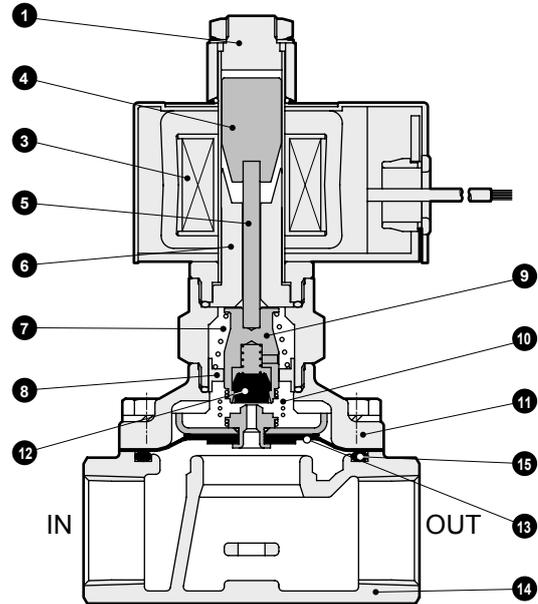
*3 : EPDM is not available for port size 8 (1/4) and 10 (3/8).

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.

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

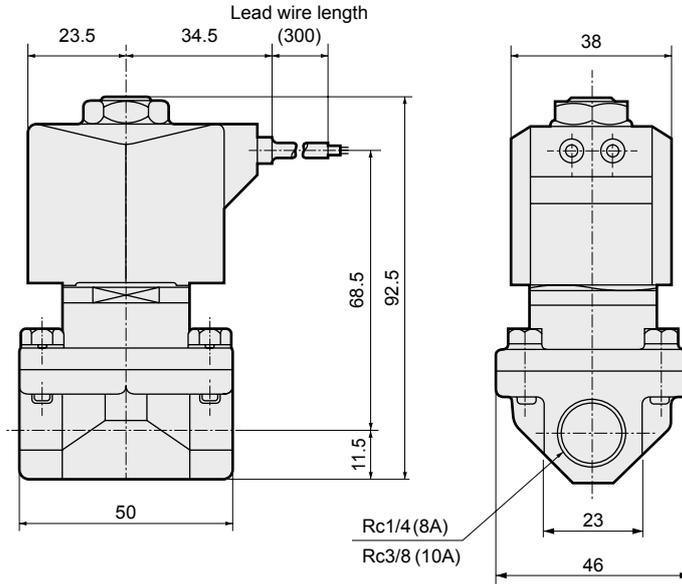
ADK11/ADK12 Series



Dimensions: ADK11 Series

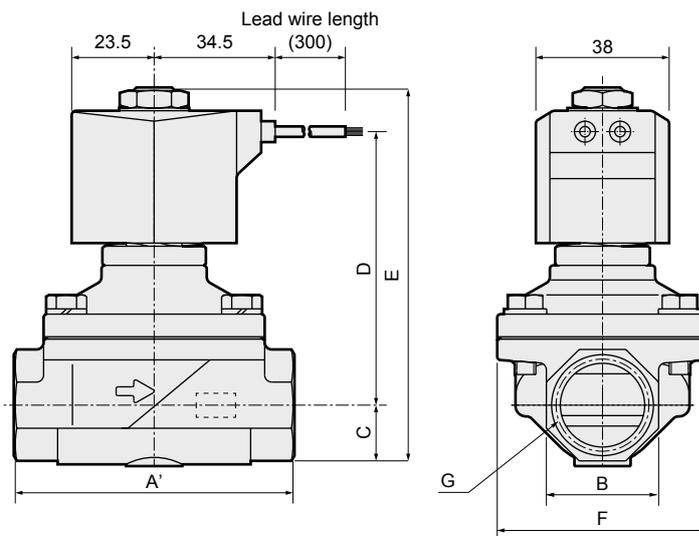
- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S \diamond B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
-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

● 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

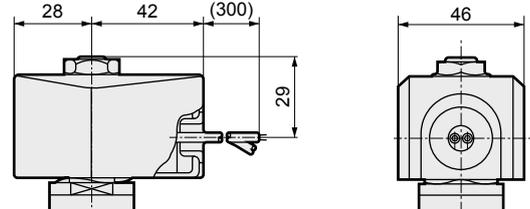
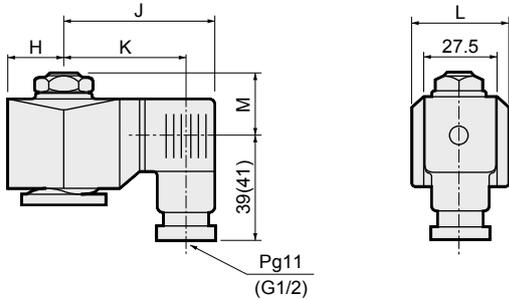
ADK11-8A to 25A-*

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

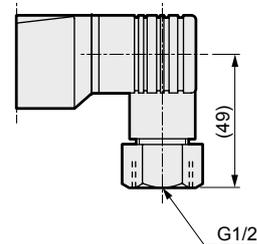
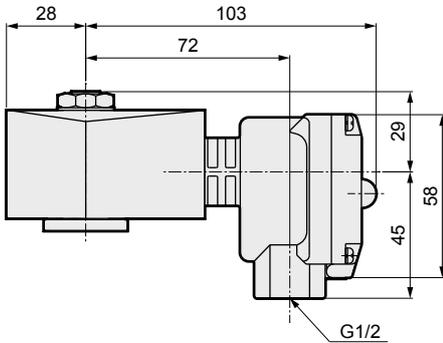
ADK11-8A to 25A-*

3M	4M
5N	4N
J	

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

ADK11-8A to 25A-*

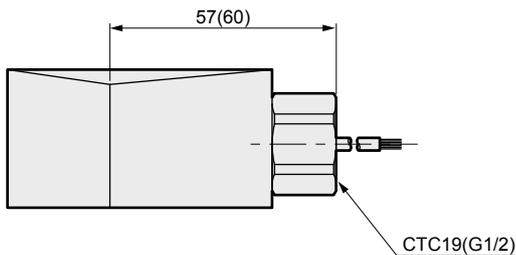
2H	H
----	---



- Open frame + conduit

ADK11-8A to 25A-*

3A	G
4A	H
5A	



Dimensions shown in () are for G1/2.

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

ADK11/ADK12 Series

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

Optional dimensions: ADK11 Series

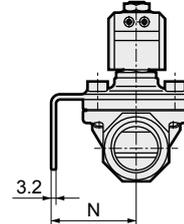
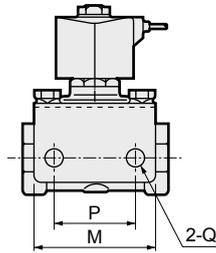
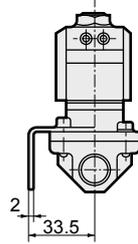
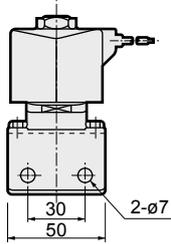


- Mounting plate
ADK11-8A/10A-***B

Material: Steel
Zinc plated

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

Material: Steel
Zinc plated

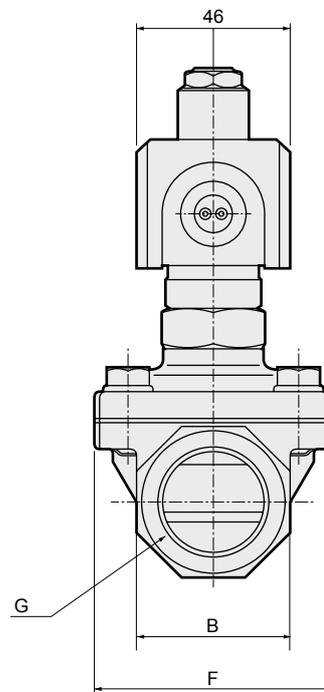
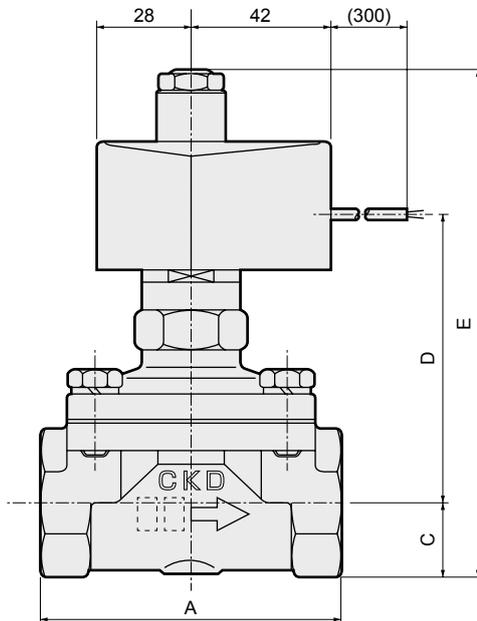


Model No.	M	N	P	Q
ADK11-15A-***B	56	45	40	ø9
ADK11-20A-***B	63	50	45	ø9
ADK11-25A-***B	75	56	50	ø11

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

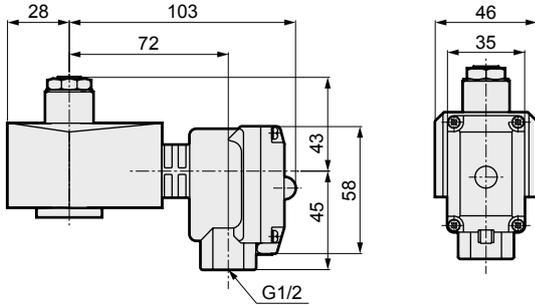


* Refer to the open frame lead wire dimensions on page 316 for common dimensions.

● Open frame + HP terminal box

ADK12-15A/20A/25A-*

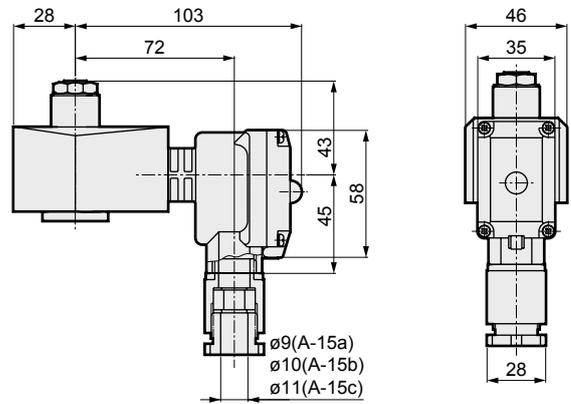
3	M	4	M
5	N	4	N
	I		J



● Open frame + cable gland

ADK12-15A/20A/25A-*

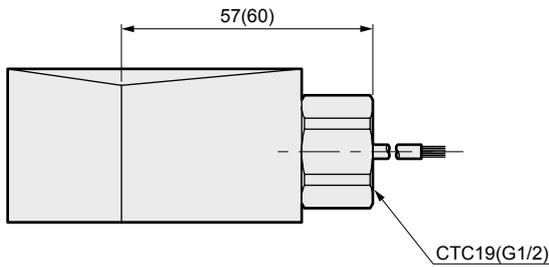
3	M	D
4	N	E
5		F



● Open frame + conduit

ADK12-15A/20A/25A-*

3	A	G
4	A	H
5	A	



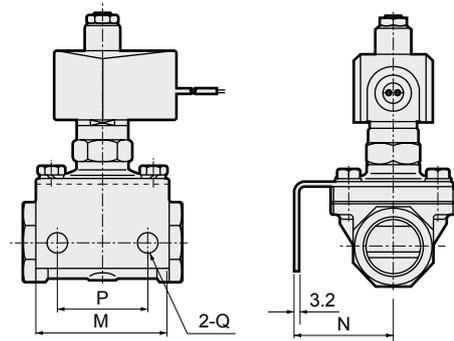
Dimensions shown in () are for G1/2.

● 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

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



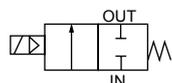
Pilot kick 2-port solenoid valve
General purpose

ADK21 Series

- NC (open when energized)
- Port size: Rc1¹/₄ to Rc2, 32 to 50 flange
- Diaphragm drive



JIS symbol



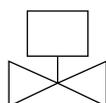
Common specifications

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.

Mounting orientation



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	Rc1 ¹ / ₄	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																							
ADK21-40A	Rc1 ¹ / ₂	43								0	0.7	0.6	0.7	0.6	0.5	0.5		12 VDC	64	69	274	289	44/48	20	5.5								
ADK21-40F	40 flange																	24 VDC															
ADK21-50A	Rc2	53																0	0.7	0.6	0.7	0.6	0.5	0.5		48 VDC	64	69	274	289	44/48	20	7
ADK21-50F	50 flange																									100 VDC							

*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			

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

ADK21 Series

How to order

ADK21 - 32A - 0 3A H S - AC100V

Model No.

D Other options

E With surge suppressor

C Coil housing

F Rated voltage

A Port size

*1

*2

B Body/sealant combination

*3

Code	Description			
A Port size				
32A	Rc1 ¹ / ₄			
32F	32 flange			
40A	Rc1 ¹ / ₂			
40F	40 flange			
50A	Rc2			
50F	50 flange			
B Body/sealant combination				
	Body	Seal	Treatment	Remarks
0	Std.	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
B	Bronze	Fluoro rubber		Air/low vacuum/kerosene/oil (up to 90°C *3)
D	Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene/oil (up to 60°C)
E	Stainless steel	Fluoro rubber		Air/low vacuum/kerosene/oil (up to 90°C *3)
H	Bronze	Nitrile rubber		Air/water/low vacuum/kerosene/oil (up to 60°C)
J	Bronze	Fluoro rubber		Air/low vacuum/kerosene/oil (up to 90°C *3)
L	Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene/oil (up to 60°C)
M	Stainless steel	Fluoro rubber		Air/low vacuum/kerosene/oil (up to 90°C *3)
Refer to Intro Page 39 for reference on material combinations.				

C to F

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

A Port size : 50 flange

B Body/sealant combination

: Body - bronze, sealant - nitrile rubber

C Coil housing : Open frame lead wire

D E : None

F Rated voltage : 24 VDC

[Example of model No. 2]

ADK21-40F-B4MD-AC200V

Model : ADK21

A Port size : 40 flange

B Body/sealant combination

: Body - bronze, sealant - fluoro rubber

C Coil housing : Open frame

(Thermal class 180 (H) coil) with HP terminal box (G1/2)

D Other options : Cable gland A-15a

E Surge suppressor : None

F 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 B

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

For Items © to ƒ, the combinations indicated with codes are available.
 Note that if options ƒ to ƒ are not required, they should be left blank.

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

3A 4A 5A		<ul style="list-style-type: none"> ● Open frame lead wire 300 mm ● With CTC19 thread for direct conduit piping
3M 3N 4M 4N 5M 5N		<ul style="list-style-type: none"> ● Open frame HP terminal box ● 4M, 4N (Thermal class 180 (H)) ● 5M, 5N (diode integrated)

H		<ul style="list-style-type: none"> ● 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 ƒ / ƒ

- *5 : For Item ƒ, 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 ƒ

- *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.

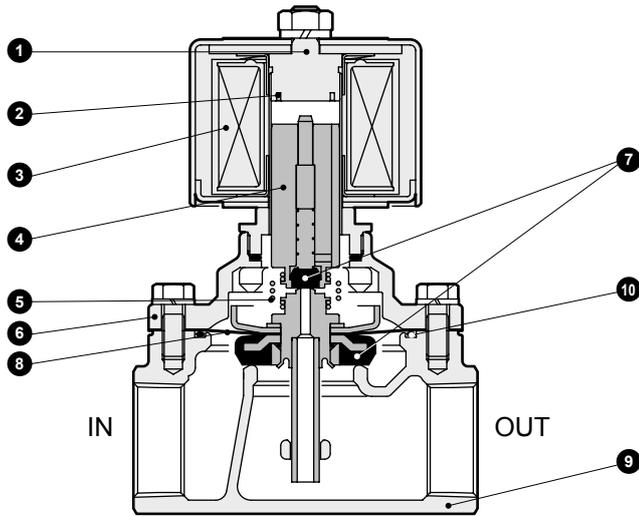
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S ƒ B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

ADK21 Series

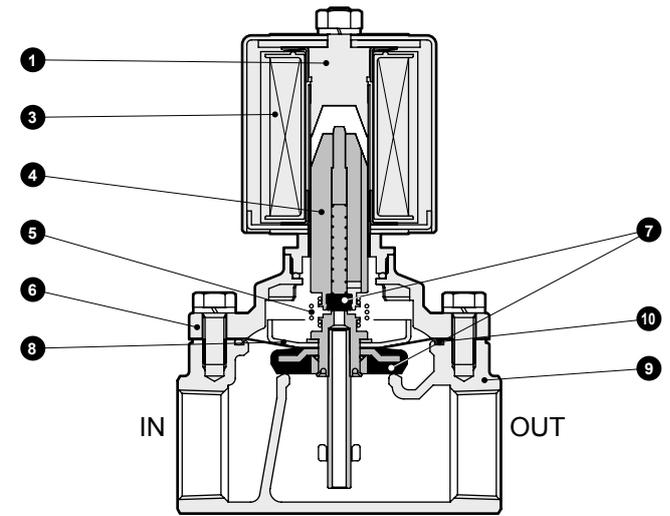
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S ◇ B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combust
Auto-
Water
Outdoor
SpecFld
Custom
Ending

Internal structure and parts list

● ADK21-32A/40A/50A (AC)



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



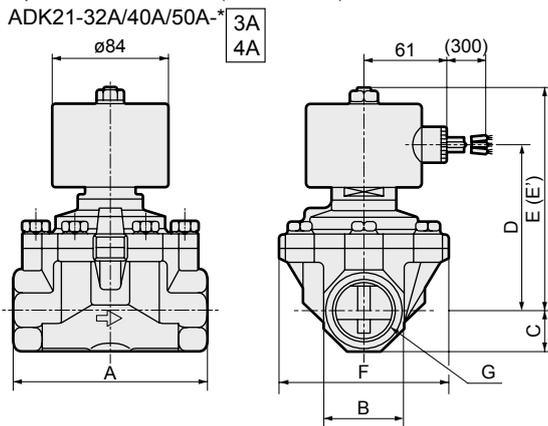
No.	Part name	Material
1	Core assembly	SUS405 or equiv./SUS316L/SUS403 Stainless steel
2	Shading coil *1	Cu (Ag for stainless steel body) Copper (silver for stainless steel body)
3	Coil	-
4	Plunger assembly	SUS405 or equiv./SUS304/C3604/NBR (SUS405 or equiv./SUS304/FKM) Stainless steel
5	Kick spring	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

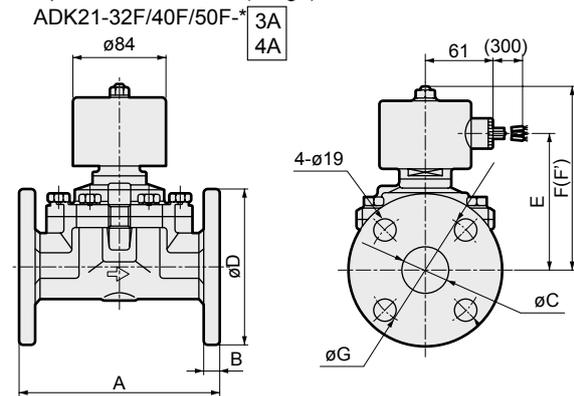
● Open frame lead wire (Rc screw-in)



● Conduit size
Thin steel conduit thread
JIS B 0204 CTC19

● Lead wire
30/0.18(0.75 mm²)
Length 300 mm

● Open frame lead wire (flange)



● 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	Rc1 1/4
ADK21-40A-*□A	140	60	30	123.5	165.5	190.5	122	Rc1 1/2
ADK21-50A-*□A	160	74	37	132.5	174.5	199.5	132	Rc2

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

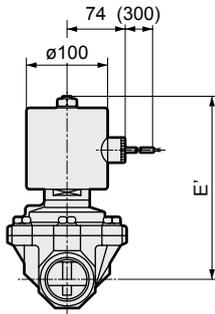
Dimensions shown in () are for stainless steel body.

Optional dimensions



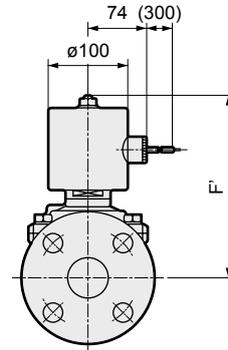
* Refer to the open frame lead wire dimensions on page 322 for common dimensions.

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



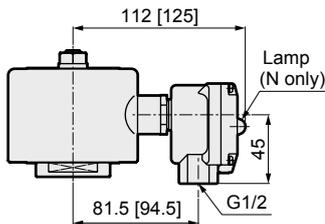
Model No.	E'
ADK21-32A-*5A	183.5
ADK21-40A-*5A	190.5
ADK21-50A-*5A	199.5

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



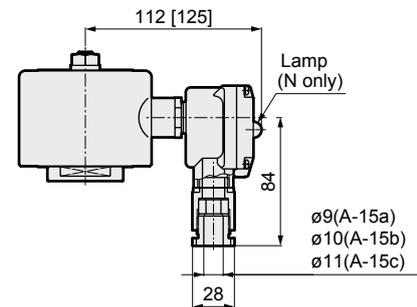
Model No.	F'
ADK21-32F-*5A	183.5
ADK21-40F-*5A	190.5
ADK21-50F-*5A	199.5

- Open frame + HP terminal box
ADK21-32[△] to 50[△] -*5



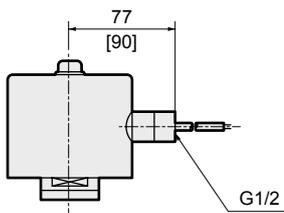
[] shows ADK21-32[△] to 50[△] -*5 type.

- Open frame + cable gland
ADK21-32[△] to 50[△] -*5



[] shows ADK21-32[△] to 50[△] -*5 type.

- Open frame + conduit
ADK21-32[△] to 50[△] -*3A H



[] shows ADK21-32[△] to 50[△] -*5 type.

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