



Pilot kick 2-port solenoid valve  
(general purpose valve)

# ADK11/ADK12 Series

- NC, NO
- Port size: Rc1/4 to Rc1
- Diaphragm drive

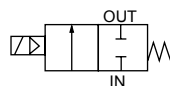


Excluding ADK12  
Refer to the Ending for details.

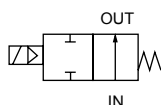


## JIS symbol

● ADK11: NC



● ADK12: NO



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions	Standard specifications	Optional specifications
Working fluid	Air/low vacuum (1.33 x 10 <sup>5</sup> Pa (abs))/water/kerosene/oil (50mm <sup>2</sup> /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 <sup>3</sup> /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), and 0.02 to 0.6 MPa for ADK12 (NO).  
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

Descriptions 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 <sup>2</sup> /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	
<b>NC</b>																	
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 <sup>-2</sup> (10.4)	0.65	
ADK11-10A	Rc3/8	12															
ADK11-15A	Rc1/2	16															
ADK11-20A	Rc3/4	23															
ADK11-25A	Rc1	28															
<b>NO</b>																	
ADK12-15A	Rc1/2	16	0	0.6	0.6	0.6	0.6	0.5	100 VDC	30	25	180	150	13/11	14	1.0	
ADK12-20A	Rc3/4	23															
ADK12-25A	Rc1	28															

\*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, 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 <sup>3</sup> /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), and 0.02 to 0.6 MPa for ADK12 (NO).  
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 <sup>3</sup> /(s·bar)]	b	Cv	S(mm <sup>2</sup> )
<b>NC</b>						
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
<b>NO</b>						
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  $S \approx 5.0 \times C$ .

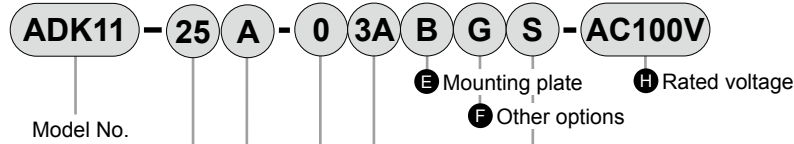
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S $\diamond$ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH / CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

# 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
- SAB/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
- SpecFld
- Custom
- Ending

## How to order

● NC



Code	Content
<b>A Port size</b>	
8	1/4
10	3/8
15	1/2
20	3/4
25	1

Code	Content
<b>B Thread</b>	
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 free	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		Water (up to 90°C *1)
L	Stainless steel	Nitrile rubber	Oil free	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 the following page 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 C

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


For Items 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.

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

⚠ 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)

Refer to page 249 for coil selection.

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

### Notes for ②

\*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
SAB/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
SpecFld
Custom
Ending

# ADK11/ADK12 Series

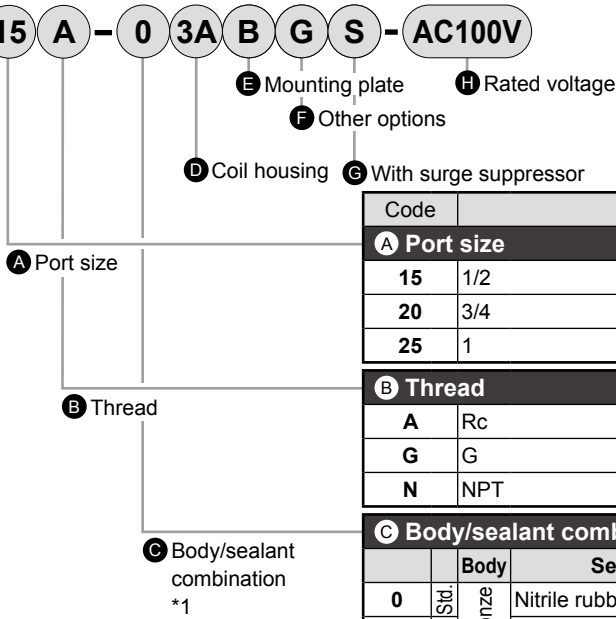
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S $\Delta$ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH /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

## How to order

● NO

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

Model No.



Code	Content
<b>A Port size</b>	
15	1/2
20	3/4
25	1

Code	Content
<b>B Thread</b>	
A	Rc
G	G
N	NPT

<b>C Body/sealant combination</b>				
	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 free	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 free	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 the following page 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 C** : 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 ⑦ are not required, they should be left blank.

① Coil housing			②	③ Other options					④	⑤ Rated voltage													
Content	Mounting plate	Cable gland (marine cable gland)	Conduit (conduit piping)	A-15a	A-15b	A-15c	CTC19	G1/2	With surge suppressor	Content													
											3A	3M	3N	3I	3J	4A	4M	4N	5A	5M	5N	5I	5J
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)	B	D	E	F				S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC												
3I		HP terminal box (IP65 or equivalent) (G1/2)									100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC												
3J		HP 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	100 VAC, 200 VAC												
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)																					
5N		HP terminal box with lamp (G1/2)	B	D	E	F																	
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"> <li>● Open frame lead wire 300 mm</li> <li>● 4A (Thermal class 180 (H))</li> <li>● 5A (diode integrated)</li> </ul>
3M 3N 4M 4N 5M 5N		<ul style="list-style-type: none"> <li>● Open frame HP terminal box</li> <li>● 4M, 4N (Thermal class 180 (H))</li> <li>● 5M, 5N (diode integrated)</li> </ul>
3I 3J 5I 5J		<ul style="list-style-type: none"> <li>● Open frame HP terminal box (IP65 or equivalent)</li> <li>● 5I, 5J (diode integrated)</li> </ul>

G H		<ul style="list-style-type: none"> <li>● Conduit</li> <li>● G(CTC19)</li> <li>● H(G1/2)</li> </ul>
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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 ② to ④

- \*3 : For Item ②, 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.

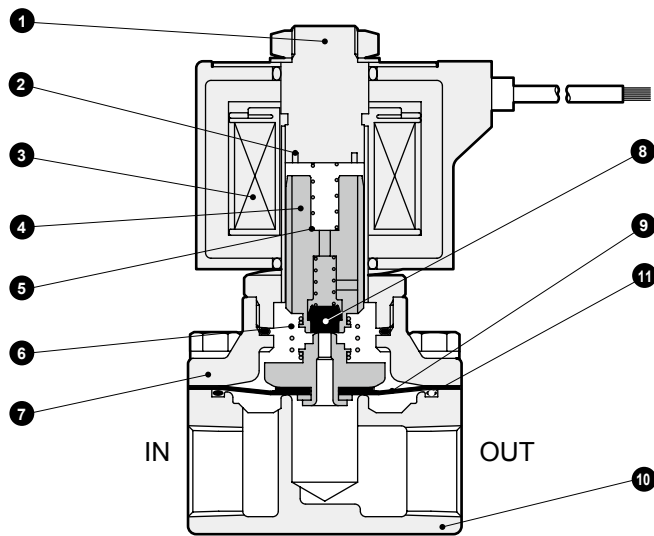
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
SAB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustCoil
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combust
Auto-Water
SpecFld
Custom
Ending

# ADK11/ADK12 Series

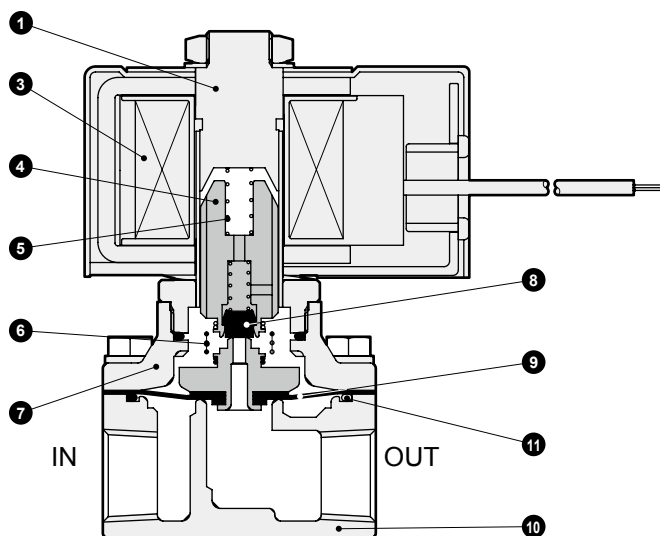
## Internal structure and parts list

- 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
- SAB/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
- SpecFld
- Custom
- Ending

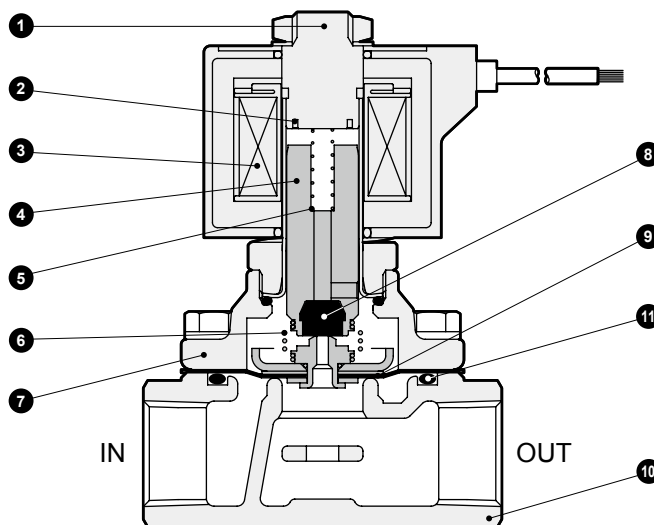
● ADK11-8A/10A (AC)



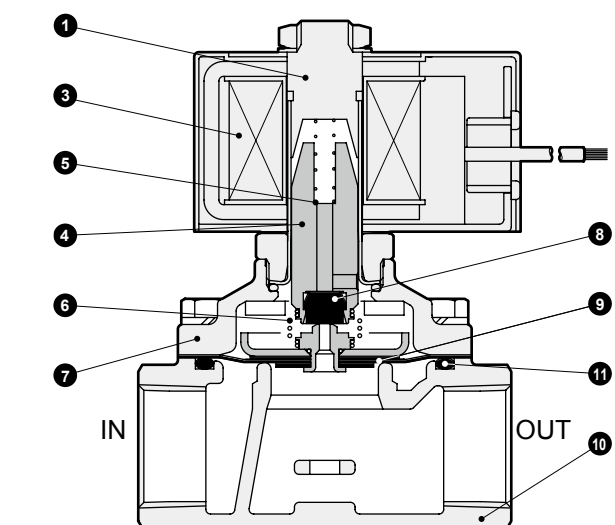
● ADK11-8A/10A (DC/diode integrated)



● 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	SUS303/SUS304/NBR (SUS303/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.

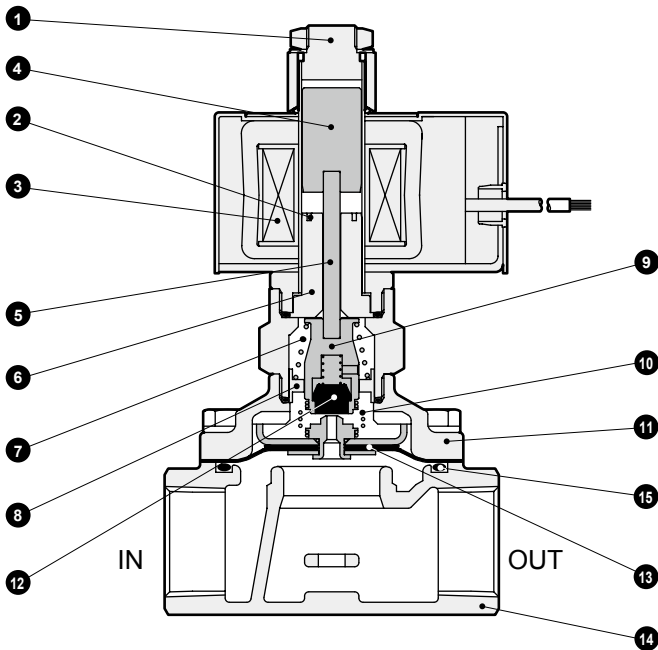
\*2 : SUS304 is not used for port size 15 (1/2) to 25 (1).

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

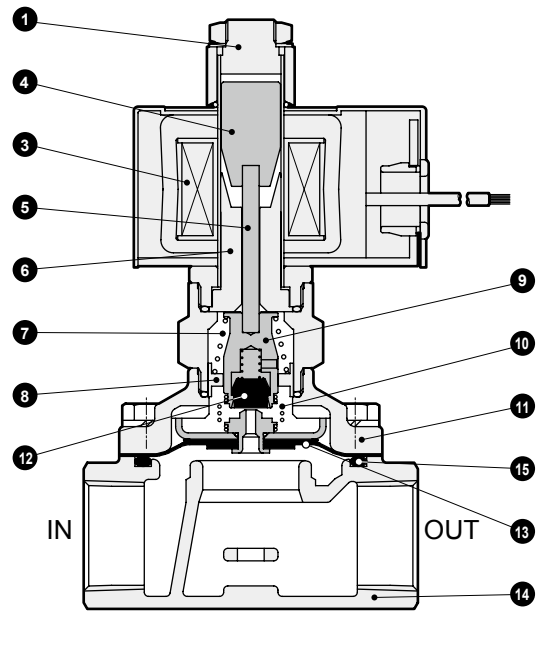


## Internal structure and parts list

● 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	SUS303/SUS304/NBR (SUS303/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
<b>APK/ ADK</b>
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
SpecFld
Custom
Ending



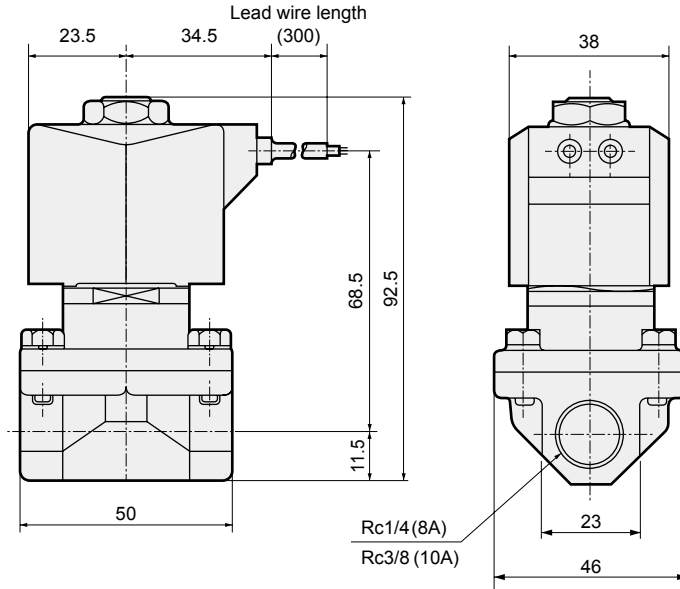
# ADK11/ADK12 Series



## Dimensions: ADK11 Series

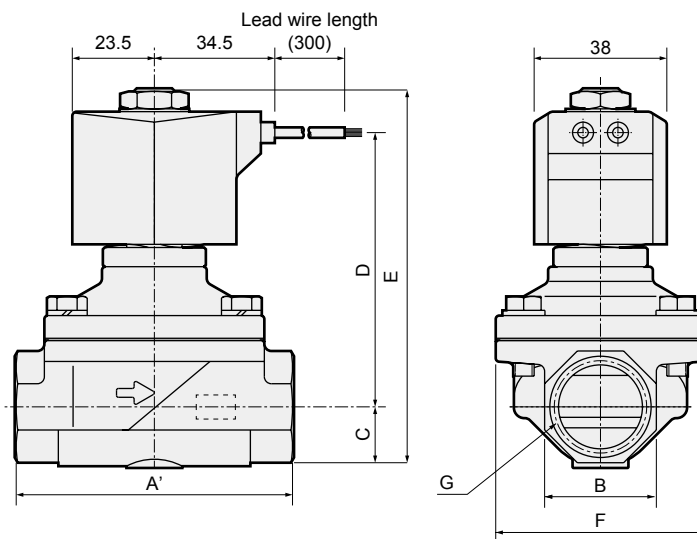
- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- SAB/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water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

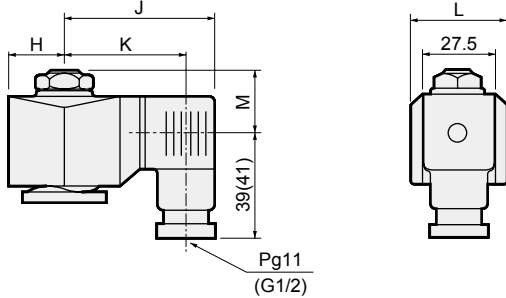
## Optional dimensions: ADK11 Series



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

- With DIN terminal box  
ADK11-8A to 25A-\*

2E  
2G  
2H

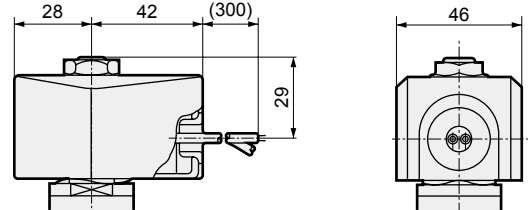


Dimensions shown in ( ) are for G1/2.

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

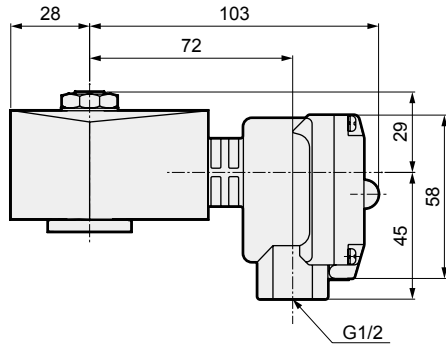
- Open frame lead wire  
ADK11-8A to 25A-\*

3A  
4A  
5A



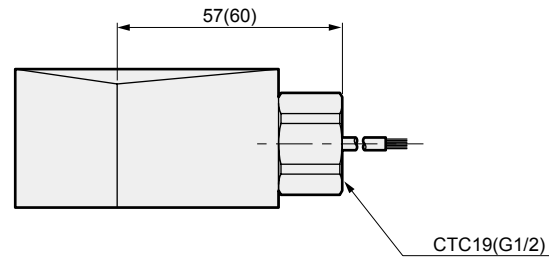
- Open frame + HP terminal box  
ADK11-8A to 25A-\*

3M / 4M  
5N / 4N  
J



- Open frame + conduit  
ADK11-8A to 25A-\*

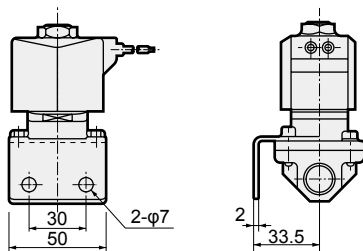
3A G  
4A H  
5A



Dimensions shown in ( ) are for G1/2.

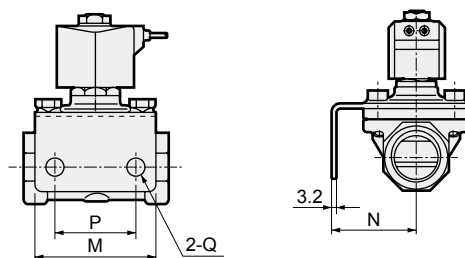
- Mounting plate  
ADK11-8A/10A-\*\*\*B

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	φ9
ADK11-20A-***B	63	50	45	φ9
ADK11-25A-***B	75	56	50	φ11

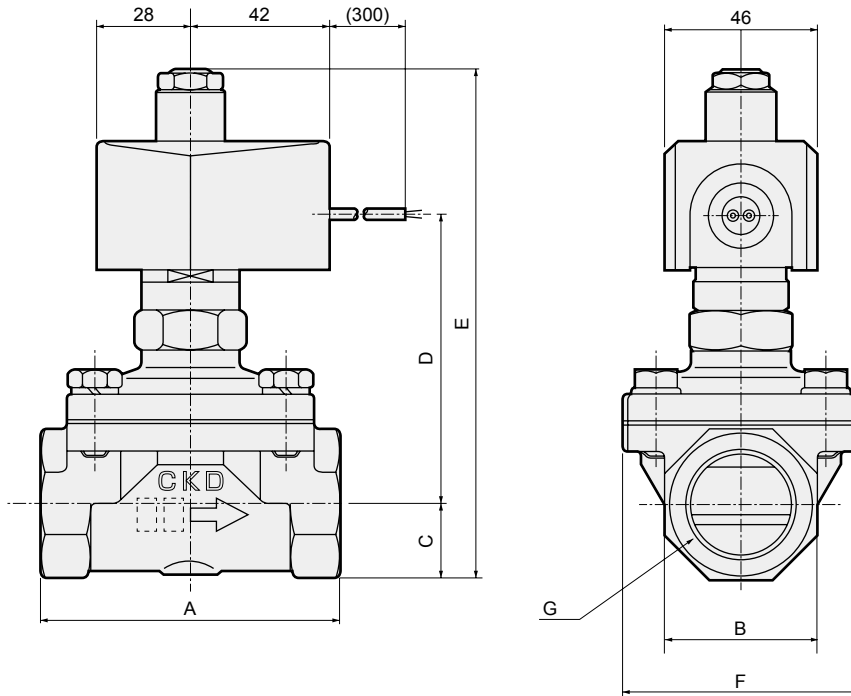
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S□B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH / CPE/D
LifeSci
Gas- Combus
Auto- Water
SpecFld
Custom
Ending

# ADK11/ADK12 Series

## 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

- 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 $\nabla$ 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
- SpecFld
- Custom
- Ending

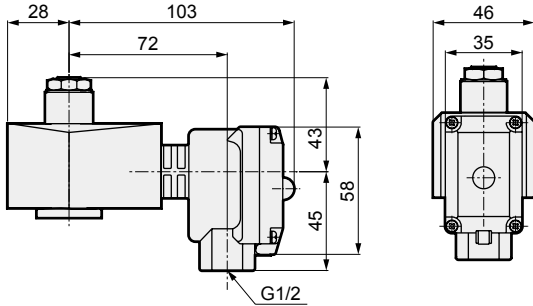
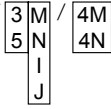
## Optional dimensions: ADK12 Series



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

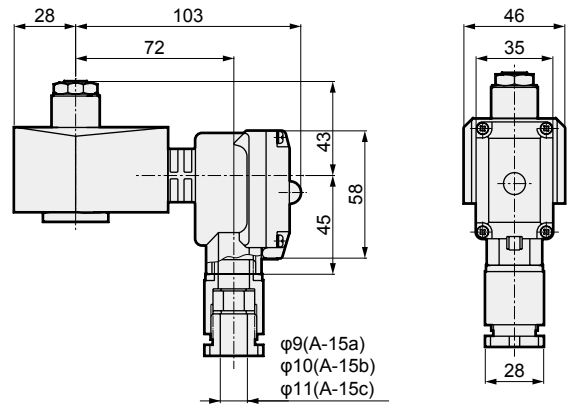
● Open frame + HP terminal box

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



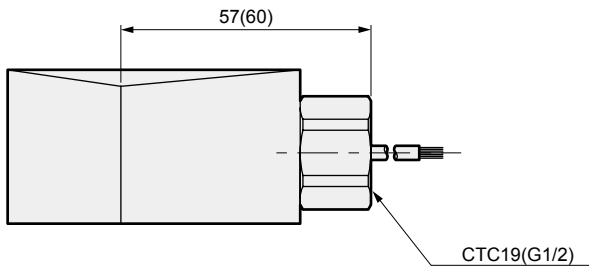
● Open frame + cable gland

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



● Open frame + conduit

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



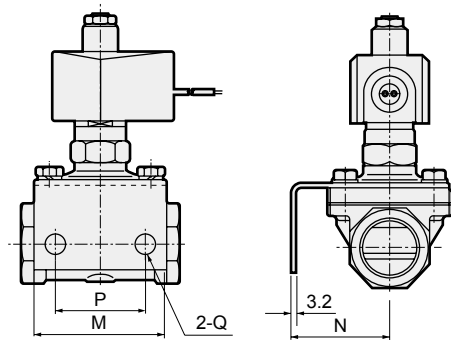
Dimensions shown in ( ) are for G1/2.

● Mounting plate

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



Material: Steel  
Zinc plated



Model No.	M	N	P	Q
ADK12-15A-***B	56	45	40	φ9
ADK12-20A-***B	63	50	45	φ9
ADK12-25A-***B	75	56	50	φ11

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
<b>APK/ADK</b>
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
SΔB/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
SpecFld
Custom
Ending



Pilot kick 2-port solenoid valve  
(general purpose valve)

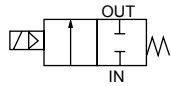
# ADK21 Series

- NC
- Port size: Rc1<sup>1</sup>/<sub>4</sub> to Rc2, 32 to 50 flange
- Diaphragm drive

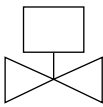


EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
SAB/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH /  
CPE/D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

## JIS symbol



## Mounting orientation



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions	Standard specifications
Working fluid	Air/low vacuum (1.33 x 10 <sup>3</sup> Pa (abs))/water/kerosene/oil (50mm <sup>2</sup> /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 <sup>3</sup> /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

Descriptions 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 <sup>2</sup> /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					
ADK21-32A	Rc1 <sup>1</sup> / <sub>4</sub>	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	Rc1 <sup>1</sup> / <sub>2</sub>	43								12 VDC									9		
ADK21-40F	40 flange																			24 VDC	
ADK21-50A	Rc2	53																		48 VDC	7
ADK21-50F	50 flange																				

\*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 <sup>3</sup> /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 <sup>2</sup> )
ADK21-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	25	460
ADK21-32F	32 flange			
ADK21-40A	Rc1 <sup>1</sup> / <sub>2</sub>	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 <sup>◇</sup> 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
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	Content			
<b>A Port size</b>				
32A	Rc1 <sup>1</sup> / <sub>4</sub>			
32F	32 flange			
40A	Rc1 <sup>1</sup> / <sub>2</sub>			
40F	40 flange			
50A	Rc2			
50F	50 flange			
<b>B Body/sealant combination</b>				
	Body	Seal	Treatment	Remarks
0	Std.	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 *3)
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 *3)
H	Option Bronze	Nitrile rubber	Oil free	Air/water/low vacuum/kerosene/oil (up to 60°C)
J		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		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 the following page 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
Content			Cable gland		Conduit		With surge suppressor	Content
			(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
3M		With HP terminal box (G1/2)	D	E	F			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
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"> <li>● Open frame lead wire 300 mm</li> <li>● With CTC19 thread for direct conduit piping</li> </ul>
3M 3N 4M 4N 5M 5N		<ul style="list-style-type: none"> <li>● Open frame HP terminal box</li> <li>● 4M, 4N (Thermal class 180 (H))</li> <li>● 5M, 5N (diode integrated)</li> </ul>

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

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

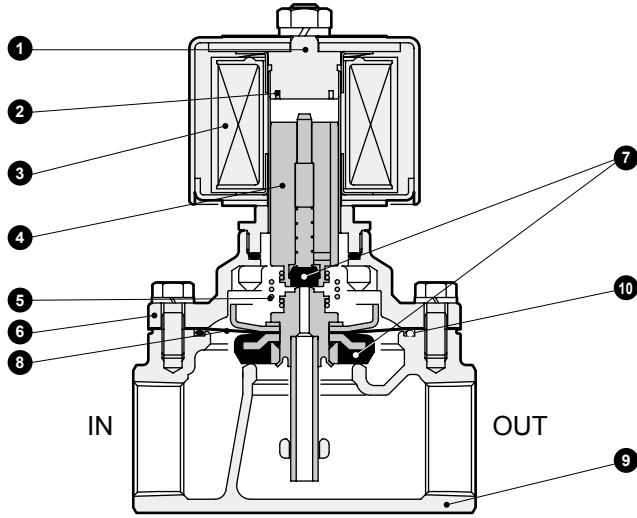
- \*9 : For voltages other than above, contact CKD.
- \*10 : The lead wire is available in the standard 300 mm length, and 500 mm, 1000 mm, 2000 mm and 3000 mm lengths. Contact CKD for more information.

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
SAB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustCoil
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
SpecFld
Custom
Ending

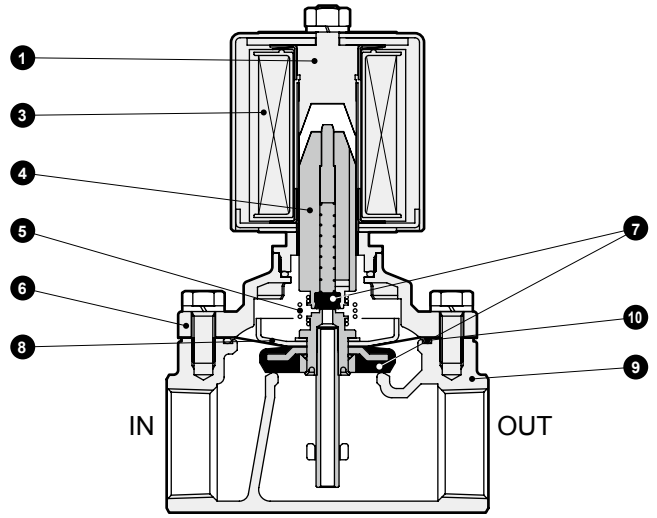
# ADK21 Series

## 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.

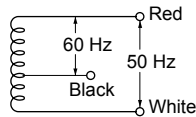
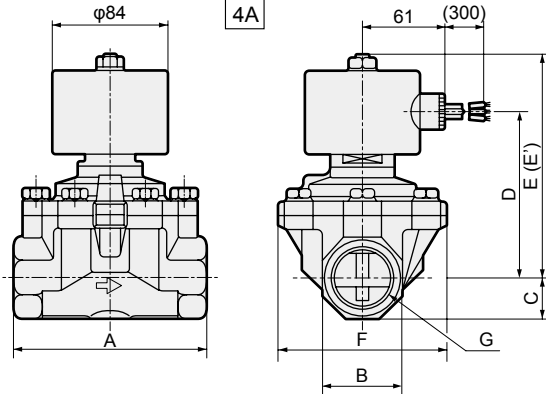
## Dimensions



### ● Open frame lead wire (Rc screw-in)

ADK21-32A/40A/50A-\*3A

4A



● Conduit size  
Thin steel conduit thread  
JIS B 0204 CTC19

● Lead wire  
**30/0.18(0.75 mm<sup>2</sup>)**

Length 300 mm

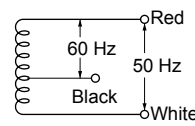
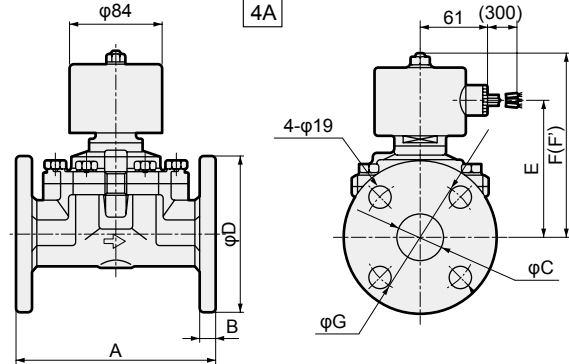
The dimension (E') applies only to the ADK21-32A/40A/50A-\*3A DC specifications.

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

### ● 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 mm<sup>2</sup>)**

Length 300 mm

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

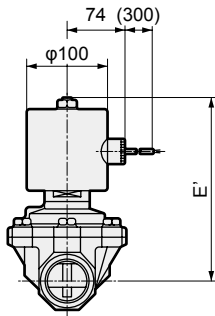
Model No.	A	B	C	D	E	F	F'	G
ADK21-32F-*□A	170	12	36	135	116.5	158.5	183.5	100
ADK21-40F-*□A	180	14	42	140	123.5	165.5	190.5	105
ADK21-50F-*□A	180	14	53	155	132.5	174.5	199.5	120

## Optional dimensions



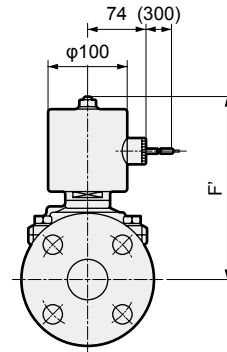
\* Refer to the open frame lead wire dimensions on the left page for common dimensions.

- 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

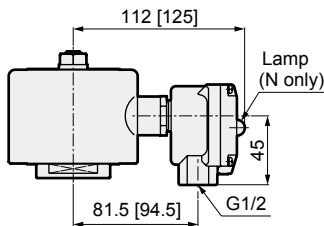
- Open frame diode integrated lead wire (flange)  
ADK21-32F/40F/50F-\*5A



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<sup>△</sup> to 50<sup>△</sup> -\*5 

3	M
4	N
5	



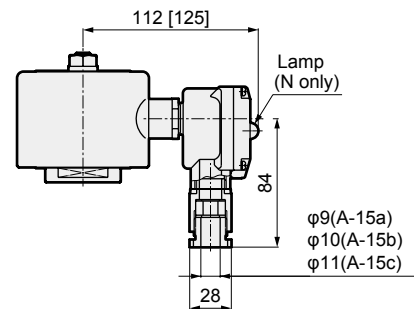
[ ] shows ADK21-32<sup>△</sup> to 50<sup>△</sup> -\*5 

M
N

 type.

- Open frame + cable gland  
ADK21-32<sup>△</sup> to 50<sup>△</sup> -\*5 

3	M	D
4	N	E
5		F



[ ] shows ADK21-32<sup>△</sup> to 50<sup>△</sup> -\*5 

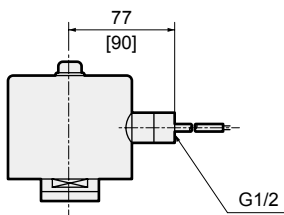
M
N

 type.

- Open frame + conduit  
ADK21-32<sup>△</sup> to 50<sup>△</sup> -\*5 

3A
4A
5A

 H



[ ] shows ADK21-32<sup>△</sup> to 50<sup>△</sup> -\*5 

M
N

 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
SpecFld
Custom
Ending