

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

ADK11/ADK12 Series

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





JIS symbol

ADK11: NC (normally closed) type



ADK12: NO (normally open) type



Common	specifica	ations

e Item	Standard specifications	Optional specifications						
Working fluid	Air, low vacuum (1.33 x 10 ³ Pa (abs)), water, kerosene, oil (50 mm ² /s or less)	Hot water						
Working pressure differential range MPa	0 to 1.0 (refer to max. working pressure	differential in individual specifications.)						
Max. working pressure MPa		2						
Withstanding pressure (water) MPa	4	4						
Fluid temperature (Note 1) °C	-10 to 60	-10 to 90						
Ambient temperature °C	-10 to 60							
Heat proof class	В	Н						
Atmosphere	Place free of corrosive gas and explosive gas							
Valve structure	Pilot kick type poppet	Pilot kick type poppet, diaphragm structure						
Valve seat leakage (Note 2) cm³/min. (ANR)	1 or le	1 or less (air)						
Mounting attitude	Fr	Free						
Body, sealant	Bronze, nitrile rubber	Bronze, ethylene propylene diene rubber						

Note 1: No freezing

Note 2: For ADK11 (NC (normally closed) type), these values apply to pneumatic pressure 0.02 to 1.0 MPa, and for ADK12 (NO (normally open) type), these apply to pneumatic pressure 0.02 to 0.6 MPa. When used at a pressure less than 0.02 MPa, the sealant may be unstable. Consult with CKD in this case.

Individual specifications

Item		0 :6	Min. working	Max	Max. working pressure diff. (MPa)				ЛРа)		Apparent power (VA)				Power consumption (W)		Weight
	Port size	Orifice (mm)	pressure dff.	Α	ir	Water, k	erosene	Oil (50	mm²/s)	Rated voltage	Hole	ding	Star	ting	AC	DC	(kg)
Model no.	SIZE	(111111)	(MPa)	AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz		(Ng)
NC (normally closed) type																	
ADK11-8A	Rc1/4	12			0.7		0.7	0.7	0.6	100 VAC 50/60 Hz	24	19	61	54	10/8	11*2	0.65
ADK11-10A	Rc3/8	12			0.7		0.7	0.7	0.0	110 VAC 60 Hz	24	19	61	54	10/8	(10.4)	0.65
ADK11-15A	Rc1/2	16	0	1		1				200 VAC 50/60 Hz						4.4*0	0.9
ADK11-20A	Rc3/4	23			0.6		0.6	0.6	0.5	220 VAC 60 Hz	25	21	84	75	10/8.5	14*3 [17]	1.0
ADK11-25A	Rc1	28								12 VDC							1.4
NO (normally open)	type									24 VDC							
ADK12-15A	Rc1/2	16								48 VDC							1.0
ADK12-20A	Rc3/4	23	0	0.6	0.6	0.6	0.6	0.5	0.5	100 VDC	30	25	180	150	13/11	14	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:} The value in () is the power consumption for the type with DIN terminal box.

^{*3:} The value in [] is the power consumption for the coil with diode.

^{*4:} Refer to DC column for the maximum working pressure differential of coil with diode.

^{*5:} Voltage fluctuation should be within ±10% of the rated voltage.

^{*6:} Consider using the AB71 Series if the pressure is 0.02 MPa or less.

^{*7:} When using with a low vacuum, vacuum the OUT port side.

Optional specifications

Sealant	Fluoro	rubber	Ethylene propylene diene rubber			
Coil (heat proof class)	В	Н	В	Н		
Fluid temperature °C	5 to 60	5 to 90	-10 to 60 (Note 1)	-10 to 90 (Note 1)		
Ambient temperature °C		-10	to 60			
Valve seat leakage (Note 2) cm9min. (ANR)		1 or le	ss (air)			

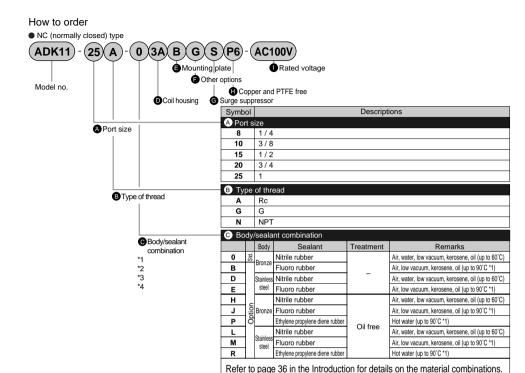
Note 1: No freezing

Note 2: For ADK11 (NC (normally closed) type), these values apply to pneumatic pressure 0.02 to 1.0 MPa, and for ADK12 (NO (normally open) type), these apply to pneumatic pressure 0.02 to 0.6 MPa. When used at a pressure less than 0.02 MPa, the sealant may be unstable. Consult with CKD in this case.

Flow characteristics

Model no.	Port size	Orifice	Flow characteristics						
Model no.	Poit size	(mm)	C [dm3/(s·bar)]	b	Cv flow factor	S (mm²)			
NC (normally closed) type									
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 (normally open) type									
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 sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.



D to 0

<Example 1 of model number>

ADK11-15A-02C-AC100V

Series: APK11

A Port size: 1/2

B Type of thread: Rc

Body/sealant combination : Body - bronze, sealant - nitrile rubber

D Coil housing: Grommet lead wire

(B) to (G): Blank

Rated voltage

: 100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number> ADK11-20N-B4ABS-AC200V

Series: ADK11

A Port size: 3/4

B Type of thread: NPT

 Body/sealant combination Body - bronze, sealant - fluoro rubber

Coil housing

Open frame lead wire (class H coil)

Mounting plate: Selected

Other options: Blank

G Surge suppressor: Selected Rated voltage

: 200 VAC 50/60 Hz, 220 VAC 60 Hz

A Note on model no. selection

Refer to the following page for details on the coil housing,

Note on

other options and voltage, etc.

*1: ©: When selecting 4A, 4M or 4N.

*2: Only (A) (port size) 15 (1/2), 20 (3/4) or 25 (1) is available for (C) P/R

*3: The maximum working pressure differential is 0.6 MPa for the ethylene propylene diene rubber seal combination (© P/R).

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

For ① to ①, the combinations indicated with symbols can be manufactured. Note that if options E to H are not required, no symbol is indicated.

3M 3N 4M 4N 5M 5N

3J 5I

) c	oil	housing		_		3	3	Other o	options			G	(1)	Rated voltage	U
						ate		able gla			duit	Sor	Effee		
esc	rin	otions				(Marine ca		ne cable	gland)	(Condu	it pipe)	anddr	불	Descriptions	
					Mounting plate	A-15a	A-15b	A-15c	CTC19	G1/2	Surge suppressor	Copper and PTFE free	2000/pilono	F	
C.	Std.	Gromme	lead v	vire										100 VAC, 200 VAC	_
E		DIN term	inal bo	х	(G1/2)	В						s	P6	100 VAC, 200 VAC,	F۱
G		DIN term			(Pg11)							ľ	' '	12 VCD, 24 VDC, 48 VDC, 100 VDC	F
Н		DIN term		x + small light	(Pg11)						Н			100 VAC, 200 VAC, 24 VDC	_
A			Lead							G	Н			100 VAC, 200 VAC	F
И		Open		rminal box	(G1/2)							_		12 VCD, 24 VDC, 48 VDC, 100 VDC	_
N		frame type	_	minal box + ligh		В	D	E	F			S	P6	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	F
<u>. </u>	_			al box (IP65 or equivale	, , , ,									100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
J	Option		_	box + light (IP65 or equivaler	(G1/2)							_		100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	Α
	0	Open	Lead		(0.1/0)	_		_		G	Н	S	-	400 1/40 000 1/40	
N.		frame type (Heat proof class H)		rminal box rminal box + lig	(G1/2)	В	D	E	F				P6	100 VAC, 200 VAC	Α
N A		(neat proof class n)	Lead		JII(G 1/2)					G	н		_		Α
Ň				rminal box	(G1/2)	-		Т		G					Α
v''		Open frame type	_	minal box + ligh		В							P6	100 VAC, 200 VAC	A
H		(Diode integrated)	-	al box (IP65 or equivale		-	D	E	F				' '	100 VAC, 200 VAC	
J			-	box + light (IP65 or equivaler	, , , , , ,										F d
_				son right for or organisto.	-/ (O1/2)									Refer to the following precautions for ① to ①.	E
													AA 1	Refer to the following precautions for 10 to 10.	pr
															Н
	ä	-										-			Н
	Π	1	1	Grommet	lead wire	300 m	m			(-	Conduit G (CTC19)	S
										H	1 1	_	U	● H (G1/2)	S
															N N
															_
															(
}				DIN termin	nal box										-
1			-												N
_															0
		rarm.		Open fram	ne										S
A A	ı	DESCRIPTION.	8	grommet I	ead wire		m								P
A	1		7	4A (heat p5A (diode											P
				2 3 (0.000	grato	-,									C

Refer to page 224 for coil selection.

Open frame HP terminal box

 4M, 4N (heat proof class H) ● 5M, 5N (diode integrated)

Open frame HP terminal box

(IP65 or equivalent)

5I, 5J (diode integrated)

A Note on model no. selection

Note on **1**

*5: 5A, 5M, 5N, 5I and 5J are coils for which AC power is converted to DC with a diode

Note on (3) to (6)

- *6: Select one among D, E, F, G and H for E.
- *7: The surge suppressor is an accessory for the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
- *8: As standard, the surge suppressor is incorporated in the coil with diode and the 24 VDC coil (@ 2H), so the surge suppressor symbol S cannot be selected.
- *9: Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.

Note on

- *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. Note that the coils D 5A/5M/5N/5I/5J can be used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- *11: For voltages other than above, consult with 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.

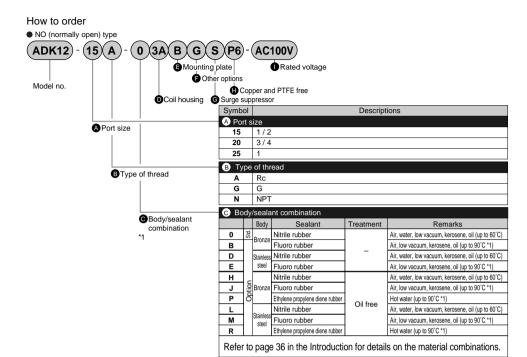
CVSE

CPE/

CPD

analysis

HNB/G



D to D

<Example 1 of model number>

ADK12-20A-03A-DC24V

Series: ADK12

A Port size: 3/4

Type of thread: Rc

Body/sealant combinationBody - bronze, sealant - nitrile rubber

D Coil housing: Open frame lead wire

(a) to (b): Blank

Rated voltage: 24 VDC

<Example 2 of model number>

ADK12-15G-B3NBD-AC100V

Series: ADK12

A Port size: 1/2

B Type of thread: G

Body/sealant combination
 Body - bronze, sealant - fluoro rubber

Coil housing: Open frame type with HP terminal box + light (G1/2)

Mounting plate: Selected

Other options: Cable gland A-15a

G Surge suppressor: Blank

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

A Note on model no. selection

Refer to the following page for details on the coil housing,

other options and voltage, etc.

Note on

*1: ©: When selecting 4A, 4M or 4N.

For ① to ①, the combinations indicated with symbols can be manufactured. Note that if options E to H are not required, no symbol is indicated.

D 0	oil	housing		3	(3)	Other o	ptions			G H Rated voltage				
				late		ble gla		Con		Surge suppressor	Efree			
Descript	ions			ing p	(Marine cabl		le gland) (Cond		Conduit pipe)		Hab	Descriptions		
			Mounting plate	A-15a	A-15b	A-15c	CTC19	CTC19 G1/2		Copper and PTFE free				
3A	Std		Lead wire					G	Н			100 VAC, 200 VAC		
3M	3M Open frame type		HP terminal box (G1/2)									12 VDC, 24 VDC, 48 VDC, 100 VDC		
			HP terminal box + light (G1/2)	В	D	E	F			S	P6	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC		
31			HP terminal box (IP65 or equivalent) (G1/2)		-	_	ı .					100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC		
3J	1		HP terminal box + light (IP65 or equivalent) (G1/2)					_				100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC		
_4A	vi .≦ frame type		Lead wire	_				G	н	S		400.740.000.740		
4M 4N			HP terminal box (G1/2)	В	D	E	F				P6	100 VAC, 200 VAC		
4N 5A	۱°	(non-pron coop ry	HP terminal box + light (G1/2) Lead wire					G	н					
5M	ł		HP terminal box (G1/2)					-	- 11					
5N	1	Open frame type	HP terminal box + light (G1/2)	В	D						P6	100 VAC, 200 VAC		
51	1		HP terminal box (IP65 or equivalent) (G1/2)	_		E	F				•	1.00 1.10, 200 1.10		
5J	1		HP terminal box + light (IP65 or equivalent) (G1/2)	1										
3A 4A 5A	-		Open frame grommet lead wire 4A (heat proof clas 5A (diode integrate)	s H)	n			G	_		to	Refer to the following precautions for ① to ①. Conduit G (CTC19) H (G1/2)		
3N 4M 4N 5M 5N 3I 3J 5I 5J			Open frame HP ter 4M. 4N (heat proof) 5M. 5N (diode integrated) Open frame HP ter (IP65 or equivalent) 51, 5J (diode integrated)	class F grated) minal b	l)									

Refer to page 224 for coil selection.

A Note on model no. selection

Note on **1**

*2: 5A, 5M, 5N, 5I and 5J are coils for which AC power is converted to DC with a diode.

Note on **(3)** to **(6)**

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

Note on

- *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. Note that the coils D 5A/5M/5N/5I/5J can be used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- *8: For voltages other than above, consult with 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.

PJ CVE/ CVSE CPE/

CPD

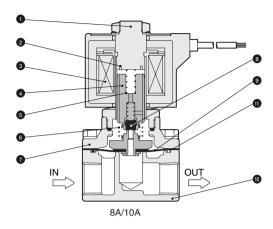
Medical analysis

HNB/G HSR/G FAB/G FGB/G

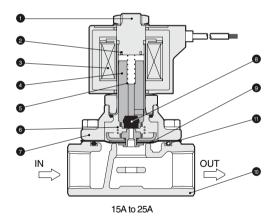
FWB/G FHB FLB AB AG AP/ AD APK/ ADK For dry air Explosion proof HVB/ HVL SAB/ SVB NP/NAP/ NVP CHB/G MXB/G Other G.P. systems PD/FAD/

Internal structure and parts list

● ADK11-8A/10A



ADK11-15A/20A/25A



No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, 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 equivalent, SUS304, NBR (SUS405 or equivalent, SUS304, FKM or EPDM) *2,3	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Kick spring	SUS304	Stainless steel
7	Stuffing	C3771 (SCS13)	Brass (stainless steel casting)
8	Sealant	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene diene rubber)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM or EPDM) *3	Stainless steel, nitrile rubber (stainless steel, fluoro rubber or ethylene propylene diene rubber)
10	Body	CAC408 (SCS13)	Bronze casting (stainless steel casting)
_11	O ring	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene diene rubber)

^() shows options.

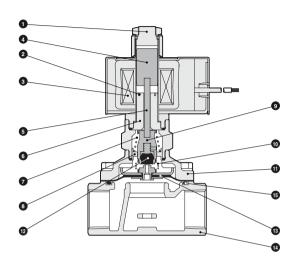
*1: When using the DC coil or a coil with diode, no shedding coil is used.

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

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

Internal structure and parts list

ADK12 Series



No.	Parts 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 equivalent	Stainless steel
5	Push rod	SUS304	Stainless steel
6	Fixed ferrous core	SUS405 or equivalent	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 or EPDM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber or ethylene propylene diene rubber)
10	Kick spring	SUS304	Stainless steel
11	Stuffing	C3771 (SCS13)	Brass (stainless steel casting)
12	Sealant	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene diene rubber)
13	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM or EPDM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber or ethylene propylene diene rubber)
14	Body	CAC408 (SCS13)	Bronze casting (stainless steel casting)
15	O ring	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber or ethylene propylene diene rubber)

() shows options.
*1: When the body/sealant combination symbol is other than O and H, the material is SUS430, SUS316L, SUS304.

*2: When using the DC coil or a coil with diode, no shedding coil is used.

HNB/G

USB/G

FAB/G FGB/G

FVB

FWB/G FHB

FLB

AB

AG AP/ AD

APK/ ADK

For dry air Explosion proof HVB/ HVL

SAB/ SVB NP/NAP/ NVP CHB/G

MXB/G Other G.P.

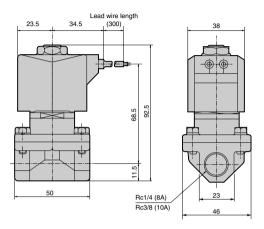
systems PD/FAD/ PJ CVE/ CVSE

CPE/ CPD Medical analysis

Dimensions: ADK11 Series

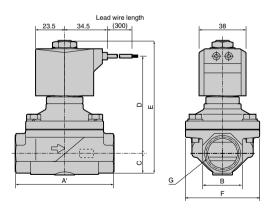


Grommet lead wire type
 ADK11-8A/10A-*2C



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

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



Note 1: The dimensions are the same for the G or NPT thread port size. Note 2: Dimensions shown in () are for SUS body.

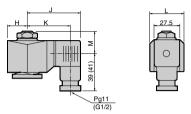
Model no.	Α	В	С	D	Е	F	G
ADK11-15A-02C	71	27 (29)	14.5	75.5	102	50	Rc1/2
ADK11-20A-02C	80	32 (35)	17.5	79	108.5	60	Rc3/4
ADK11-25A-02C	90	41 (45)	22.5	84.5	119	71	Rc1

Optional dimensions: ADK11 Series

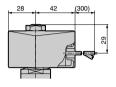


* Refer to the grommet lead wire type dimensions on the left page for common dimensions.

 DIN terminal box ADK11-8A to 25A-* 2E 2G 2H



 Open frame lead wire ADK11-8A to 25A-* 3A 4A 5A

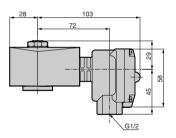




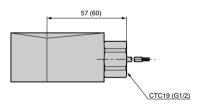
Dimensions shown in () are for G1/2.

Model no.	Н	J	K	L	M
ADK11-8A~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~25A-*2□-DC	28	72	60.5 (60)	46	22

 Open frame type + HP terminal box ADK11-8A to 25A-* 3 M / 4M 5 lΝ 4N

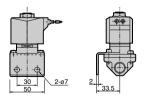


Open frame type + conduit ADK11-8A to 25A-* ЗА 4A 5A

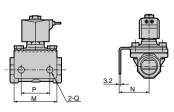


Dimensions shown in () are for G1/2.

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



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



Model no.	М	Ν	Р	Q
ADK11-15A-***B	56	45	40	ø9
ADK11-20A-***B	63	50	45	ø9
ADK11-25A-***B	75	56	50	ø11

FAB/G

FGB/G FVB

FWB/G

FHB FLB

AB AG

AP/ AD

APK/ ADK For

dry air Explosion proof HVB/ HVL

SAB/ SVB NP/NAP/ NVP

> CHB/G MXB/G

Other G.P. systems PD/FAD/

PJ CVE/ CVSE CPE/ CPD

Medical analysis Custom

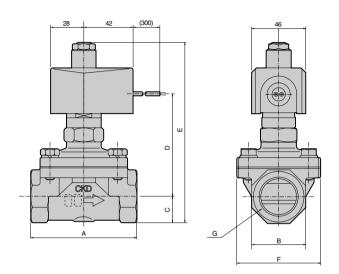
order

General purpose valve Pilot kick type 2 port solenoid valve

Dimensions: ADK12 Series



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



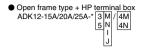
Note 1: The dimensions are the same for the G or NPT thread port size.

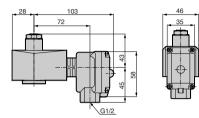
Model no.	Α	В	С	D	Е	F	G
ADK12-15A-03A	71	27 (29)	14.5	77	134.5	50	Rc1/2
ADK12-20A-03A	80	32 (35)	17.5	80.5	141	60	Rc3/4
ADK12-25A-03A	90	41 (45)	22.5	86	151.5	71	Rc1

Optional dimensions: ADK12 Series

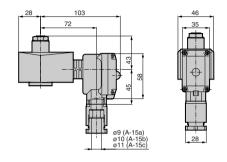


* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

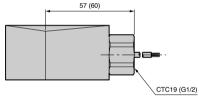




 Open frame type + cable gland ADK12-15A/20A/25A-* 3 M D 4 N E 5 F

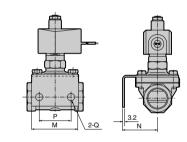


Open frame type + conduit G H ADK12-15A/20A/25A-* 3A 4A 5A



Dimensions shown in () are for G1/2.

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



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

HNB/G

USB/G FAB/G

FGB/G

FVB FWB/G

> FHB FLB

AB

AG AP/ AD

APK/ ADK For dry air

Explosion proof HVB/ HVL SAB/ SVB

NP/NAP/ NVP CHB/G

MXB/G Other G.P.

systems PD/FAD/ PJ CVE/

CVSE

CPE/ CPD Medical analysis

Custom order General purpose valve Pilot kick type 2 port solenoid valve