



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

# APK11 Series

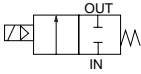
- NC (normally closed) type
- Port size: Rc1/4 to Rc1
- Piston structure



Refer to Ending 17 for more details.



## JIS symbol



## Common specifications

Descriptions	Standard specifications	Optional specifications
Working fluid	Air, low vacuum (1.33 x 10 <sup>5</sup> Pa (abs)), water, kerosene, oil (20 mm <sup>2</sup> /s or less)	Steam
Working pressure differential range MPa	0 to 1.0 (Refer to max. working pressure differential on individual specifications.)	
Max. working pressure MPa	2	1
Withstanding pressure (water) MPa	4	
Fluid temperature °C	-10 to 60 (Note 1)	5 to 180
Ambient temperature °C	-10 to 60	
Heat proof class	B	H
Atmosphere	Place free of corrosive gas and explosive gas	
Valve structure	Pilot kick type poppet, piston structure	
Valve seat leakage (Note 2) cm <sup>3</sup> /min. (ANR)	0.2 or less (air)	400 or less (air)
Mounting attitude	Limited to range between vertical installation with coil facing up and horizontal installation. (Note 3)	
Body/sealant	Bronze, nitrile rubber	Bronze, PTFE

Note 1: No freezing

Note 2: This applies at a pneumatic pressure between 0.05 and 1.0 MPa. When using at a pressure less than 0.05 MPa, the sealant may be unstable. Consult with CKD in this case.

Note 3: If working pressure is less than 0.05 MPa, installation is limited to vertical.

## Individual specifications

Model no. Descriptions	Port size	Orifice (mm)	Min. working pressure diff. (MPa)	Max. working pressure diff. (MPa)								Rated voltage	Apparent power (VA)				Power consumption (W)		Mass (kg)																	
				Air AC	Air DC	Water, kerosene AC	Water, kerosene DC	Oil (20 mm <sup>2</sup> /s) AC	Oil (20 mm <sup>2</sup> /s) DC	Steam AC	Steam DC		50Hz	60Hz	50Hz	60Hz	50/60Hz AC	DC																		
<b>APK11-8A</b>	Rc1/4	12	0	1	0.7	0.7	0.7	0.6	0.6	1	100 VAC 50/60Hz 110 VAC 60Hz 200 VAC 50/60Hz 220 VAC 60Hz 12 VDC 24 VDC 48 VDC 100 VDC	24	19	61	54	10/8	14	0.7																		
<b>APK11-10A</b>	Rc3/8	12																	0.7	0.7	0.7	0.5	1	1.0												
<b>APK11-15A</b>	Rc1/2	16																							0.6	0.6	0.7	0.5	1	1.3						
<b>APK11-20A</b>	Rc3/4	23																													0.6	0.6	0.7	0.5	1	1.7
<b>APK11-25A</b>	Rc1	28																																		

\*1: The types above apply up to the basic port size (Rc). Refer to How to order for other combinations.

\*2: Keep the voltage fluctuation to within ±10% of the rated voltage.

\*3: Refer to DC column for maximum working pressure differential of coil with diode.

\*4: When using with a low vacuum, vacuum the OUT port side.

## Optional specifications

Sealant	Fluoro rubber		PTFE	
	B	H	B	H
Coil (heat proof class)	B	H	B	H
Fluid temperature °C	5 to 60	5 to 90	-10 to 60 (Note 1)	5 to 180
Ambient temperature °C	-10 to 60			
Valve seat leakage (Note 2) cm <sup>3</sup> /min. (ANR)	0.2 or less (air)		400 or less (air)	

Note 1: No freezing

Note 2: This applies at a pneumatic pressure between 0.05 and 1.0 MPa.

When using at a pressure less than 0.05 MPa, the sealant may be unstable.  
Consult with CKD in this case.

## Flow characteristics

Model no.	Port size	Orifice (mm)	Flow characteristics			
			C[dm <sup>3</sup> /(s·bar)]	b	Cv flow factor	S (mm <sup>2</sup> )
<b>APK11-8A</b>	Rc 1/4	12	9.4	0.41	2.2	-
<b>APK11-10A</b>	Rc 3/8	12	15	0.37	2.7	-
<b>APK11-15A</b>	Rc 1/2	16	20	0.31	4.5	-
<b>APK11-20A</b>	Rc 3/4	23	-	-	8.6	162
<b>APK11-25A</b>	Rc 1	28	-	-	12	231

\*1: Effective sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

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

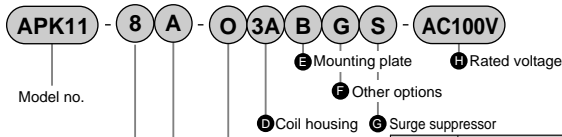
CPE/  
CPD

Medical  
analysis

Custom  
order

General purpose valve  
Pilot kick type 2 port solenoid valve

## How to order



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

<b>B</b> Type of screw	
A	Rc
G	G
N	NPT

<b>C</b> Body, sealant combination						
	Body	Valve sealant	O ring	Treat	Remarks	
Option	Stainless steel	O	Nitrile rubber	Nitrile rubber	Oil-prohibit	Air, water, low vacuum, kerosene, oil (up to 60 °C)
		B	Fluoro rubber	Fluoro rubber		Air, low vacuum, kerosene, oil (up to 90 °C *1)
		C	PTFE	Fluoro rubber		Steam (up to 180 °C *1)
		D	Nitrile rubber	Nitrile rubber		Air, water, low vacuum, kerosene, oil (up to 60 °C)
		E	Fluoro rubber	Fluoro rubber		Air, low vacuum, kerosene, oil (up to 90 °C *1)
		F	PTFE	PTFE		Steam (up to 180 °C *1)
	Bronze	H	Nitrile rubber	Nitrile rubber	Air, water, low vacuum, kerosene, oil (up to 60 °C)	
		J	Fluoro rubber	Fluoro rubber	Air, low vacuum, kerosene, oil (up to 90 °C *1)	
		K	PTFE	Fluoro rubber	Steam (up to 180 °C *1)	
		L	Nitrile rubber	Nitrile rubber	Air, water, low vacuum, kerosene, oil (up to 60 °C)	
		M	Fluoro rubber	Fluoro rubber	Air, low vacuum, kerosene, oil (up to 90 °C *1)	
		N	PTFE	PTFE	Steam (up to 180 °C *1)	

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

**D to H**

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

<Example 1 of model number>

**APK11-20A-02C-AC100V**

Series: APK11

**A** Port size: 3/4

**B** Type of thread: Rc

**C** Body, sealant combination

: Body - bronze, valve sealant - nitrile rubber  
O ring - nitrile rubber

**D** Coil housing: Grommet lead wire

**F** to **I**: Blank

**H** Rated voltage

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

<Example 2 of model number>

**APK11-10G-C4ABS-AC200V**

Series: APK11

**A** Port size: 3/8

**B** Type of thread: G

**C** Body, sealant combination

: Body - bronze, valve sealant - PTFE, O ring - fluoro rubber

**D** Coil housing

: Open frame type lead wire (H class coil)

**E** Mounting plate: With mounting plate

**F** Other options: Blank

**G** Surge suppressor: With surge suppressor

**H** Rated voltage

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

### ▲ Note on model no. selection

Note on (C)





\*1: (C): When selecting 4A, 4K, 4H.

\*2: When using the valve sealant PTFE with H type coil combinations, an O-ring made of fluoro rubber for steam will be enclosed.


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

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

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

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

Refer to page 222 for coil selection.

G H		● Conduit ● G (CTC19) ● H (g1/2)
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### ⚠ Note on model no. selection

#### Note on (D)

- \*3: 5A, 5K, and 5H are coils which convert AC power to DC with a diode.
- \*4: A waterproof specification coil with a square terminal box (excluding heat-resistant class H) is used. Contact CKD for details.

#### Note on (E) to (G)

- \*5: The mounting plate ((E) B) is provided only with the (C) (port size) 8 (1/4) or 10 (3/8).
- \*6: Select one among D, E, F, G and H for (F).
- \*7: The surge suppressor is an accessory for the lead wire coil. When using the coil with terminal box, the surge suppressor is mounted in the terminal box.
- \*8: Surge suppressor is incorporated in coil with diode as standard.
- \*9: Tropic care treatment (rust-proof coating) is available as a measure against rust.

#### Note on (H)

- \*10: 100 VAC coil is compatible with 100 VAC 50/60 Hz, 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz, 220 VAC 60 Hz. Note that (D) 5A, 5K, and 5H coils are used only with 200 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*11: Consult with CKD about other than above voltage.
- \*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.

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

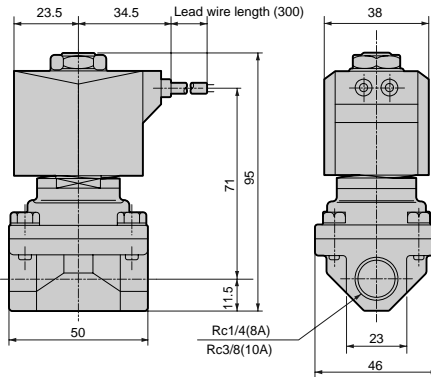
General purpose valve

Pilot kick type 2 port solenoid valve

# APK11 Series

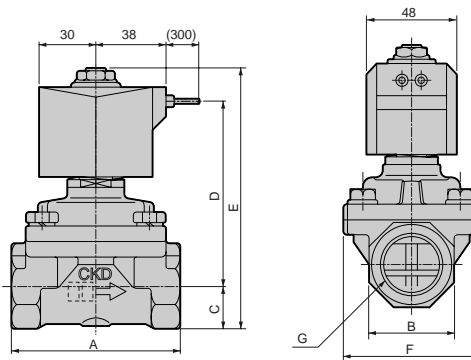
Dimensions  (Page 302)

- Grommet lead wire type  
APK11-8A/10A-\*2C



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

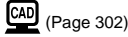
- Grommet lead wire type  
APK11-15A/20A/25A-\*2C



Model no.	A	B	C	D	E	F	G
APK11-15A-*2C	71	29	14.5	89	119.5	50	Rc1/2
APK11-20A-*2C	80	35	17.5	93	126.5	60	Rc3/4
APK11-25A-*2C	90	45	22.5	99	137.5	71	Rc1

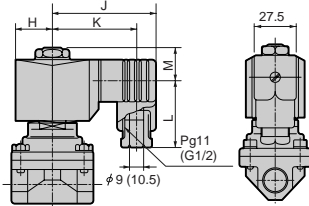
\*1: The dimensions are the same for the G or NPT thread port size.

## Optional dimensions



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

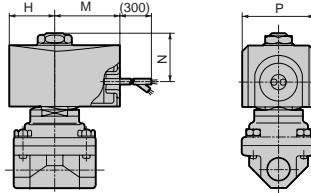
- DIN terminal box  
APK11-8A to 25A-\*



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

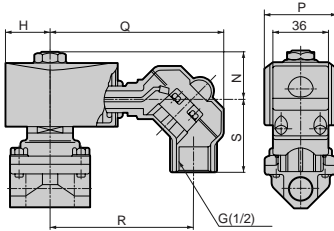
Model no.	H	J	K	L	M
APK11-8A/10A	23.5	65.5	54(53.5)	39(41)	22
APK11-15A/20A/25A	30	73	61.5(61)	39(41)	24

- Open frame lead wire type  
APK11-8A to 25A-\*

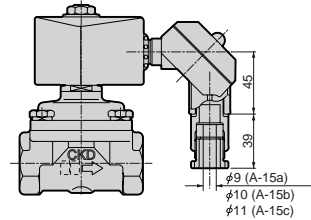


Model no.	H	M	N	P
APK11-8A/10A	28	42	29	46
APK11-15A/20A/25A	34	46	33	56

- Open frame type + square terminal box  
APK11-8A to 25A-\*

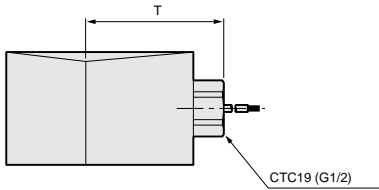


- Open frame type + cable gland  
APK11-8A to 25A-\*



Model no.	H	N	P	Q	R	S
APK11-8A/10A	28	29	46	110	91	45
APK11-15A/20A/25A	34	33	56	103	84	45

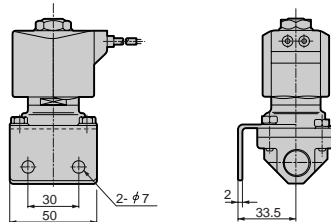
- Open frame type + conduit  
APK11-8A to 25A-\*



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

Model no.	T
APK11-8A/10A	57(60)
APK11-15A to 25A	59(62)

- Mounting plate  
APK11-8A/10A-\*\*\*



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.  
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PD/FAD/  
PJ

CVE/  
CVSE

CPE/  
CPD

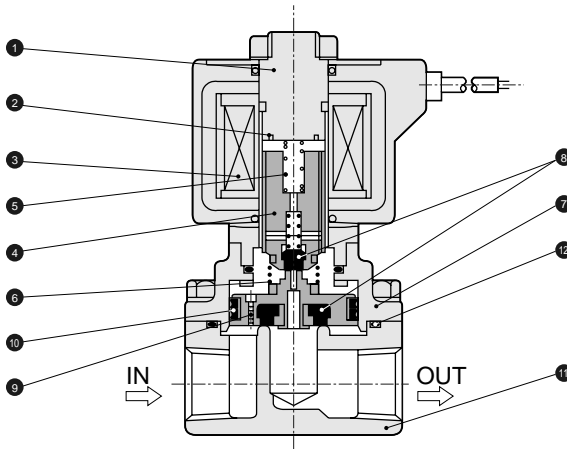
Medical  
analysis

Custom  
order

General purpose valve  
Pilot kick type 2 port solenoid valve

## Internal structure and main parts materials

●APK11-8A/10A



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

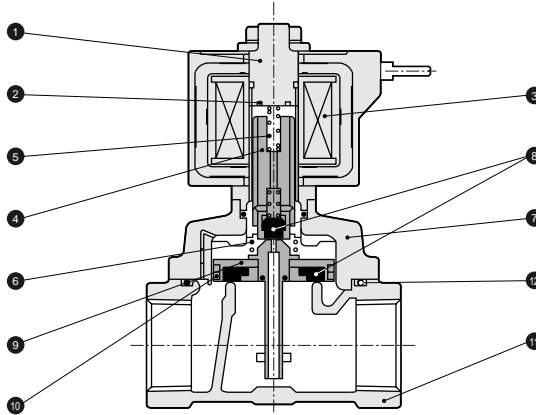
Options are shown in ( ).

\*1: When the body and sealant combination symbol is other than O or H, the material is SUS405 or equivalent, SUS316L, SUS430.

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

## Internal structure and main parts materials

● APK11-15A/20A/25A



No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403*1	Stainless steel
2	Shading coil *2	Cu (Ag when stainless steel body)	Copper (silver when stainless steel body)
3	Coil	-	-
4	Plunger assembly	SUS405 or equivalent, SUS304, NBR (SUS405 or equivalent, SUS304, FKM, PFA or PTFE) *	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Kick spring	SUS304	Stainless steel
7	Stuffing	CAC407 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
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