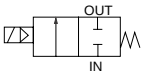
Pilot kick type 2 port solenoid valve
(general purpose valve)

APK11 Series

- NC (normally closed) type
- Port size: Rc 1/4 to Rc1
- Piston structure

JIS symbol



Common specifications

Item	Standard specifications	Optional specifications
Working fluid	Air, low vacuum (1.33 x 10^3 Pa (abs)), water, kerosene, oil (20 mm^2/s or less)	Steam
Working pressure differential range MPa	0 to 1.0 (refer to max. working pressure differential in 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^3/min. (ANR)	0.2 or less (air)	400 or less (air)
Mounting attitude	Limited to range between vertical position with coil facing upward and horizontal position (Note 3)	
Body, sealant	Bronze, nitrile rubber	Bronze, PTFE

Note 1: No freezing
Note 2: This applies to pneumatic pressures 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 position.

Individual specifications

Model no. / Item	Port size	Orifice (mm)	Min. working pressure diff. (MPa)	Max. working pressure diff. (MPa)							Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
				Air		Water, kerosene		Oil (20 mm^2/s)		Steam		Holding		Starting		AC	DC	
				AC	DC	AC	DC	AC	DC	AC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz		
APK11-8A	Rc1/4	12	0	1.0	0.7	1.0	0.7	0.7	0.6	1.0	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz 12 VDC 24 VDC 48 VDC 100 VDC	24	19	61	54	10/8	11	0.7
APK11-10A	Rc3/8	12																0.7
APK11-15A	Rc1/2	16			0.6		0.6		0.5			32	26	123	106	13/11	20	1.0
APK11-20A	Rc3/4	23																1.3
APK11-25A	Rc1	28																1.7

*1: The model numbers above show the basic port size (Rc). Refer to How to order for other combinations.
*2: Voltage fluctuation should be within ±10% of the rated voltage.
*3: Refer to DC column for the 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	
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) cm³/min. (ANR)	0.2 or less (air)		400 or less (air)	

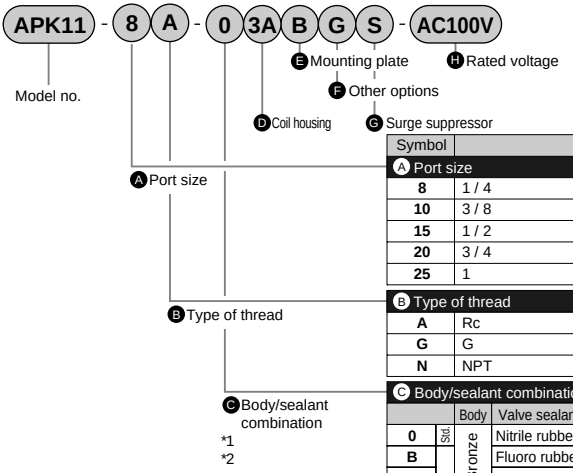
Note 1: No freezing
Note 2: This applies to pneumatic pressures between 0.05 and 1.0 MPa. When using at a pressure less than 0.05 MPa, the sealant may be unstable. Consult with CKD in this case.

Flow characteristics

Model no.	Port size	Orifice (mm)	Flow characteristics			
			C [dm³/(s·bar)]	b	Cv flow factor	S (mm²)
APK11-8A	Rc1/4	12	9.4	0.41	2.2	–
APK11-10A	Rc3/8	12	15	0.37	2.7	–
APK11-15A	Rc1/2	16	20	0.31	4.5	–
APK11-20A	Rc3/4	23	–	–	8.6	162
APK11-25A	Rc1	28	–	–	12	231

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

How to order



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

B Type of thread	
A	Rc
G	G
N	NPT

C Body/sealant combination

		Body	Valve sealant	O ring	Treatment	Remarks
0	Std.	Bronze	Nitrile rubber	Nitrile rubber	–	Air, water, low vacuum, kerosene, oil (up to 60˚C)
B	Option		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		Stainless steel	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)
H		Bronze	Nitrile rubber	Nitrile rubber	Oil free	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		Stainless steel	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
J 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 lead wire (class H coil)
E Mounting plate: Selected
F Other options: Blank
G Surge suppressor: Selected
H Rated voltage
: 200 VAC 50/60 Hz, 220 VAC 60 Hz

⚠ Note on model no. selection

Note on C

*1: Ⓒ: When selecting 4A, 4M or 4N.
*2: When using the PTFE valve sealant with class H coil, the O ring material will be fluoro rubber for steam.

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

Ⓓ Coil housing				Ⓔ	Ⓕ Other options					Ⓖ	Ⓗ Rated voltage
Descriptions				Mounting plate	Cable gland (Marine cable gland)			Conduit (Conduit pipe)		Surge suppressor	Descriptions
					A-15a	A-15b	A-15c	CTC19	G1/2		
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	Option	Open frame type	Lead wire	**B**	**D**	**E**	**F**	**G**	**H**	**S**	100 VAC, 200 VAC, 12 VCD, 24 VDC, 48 VDC, 100 VDC
3M			HP terminal box (G1/2)								
3N			HP terminal box + light (G1/2)								100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A		Open frame type (Heat proof class H)	Lead wire	**B**	**D**	**E**	**F**	**G**	**H**	**S**	100 VAC, 200 VAC
4M			HP terminal box (G1/2)								
4N			HP terminal box + light (G1/2)								
5A		Open frame type (Diode integrated)	Lead wire	**B**	**D**	**E**	**F**	**G**	**H**		100 VAC, 200 VAC
5M			HP terminal box (G1/2)								
5N			HP terminal box + light (G1/2)								

⚠ Refer to the following precautions for Ⓓ to Ⓗ.

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)

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

● Open frame HP terminal box
● 4M, 4N (heat proof class H)
● 5M, 5N (diode integrated)

3I
3J
5I
5J

● Open frame HP terminal box (IP65 or equivalent)
● 5I, 5J (diode integrated)

Refer to page 224 for coil selection.

G
H

● Conduit
● G (CTC19)
● H (G1/2)

⚠ Note on model no. selection

Note on Ⓓ

*3: 5A, 5M and 5N are coils for which AC power is converted to DC with a diode.
*4: A waterproof coil (excluding heat proof class H) with square terminal box is available. Contact CKD for more information.

Note on Ⓔ to Ⓖ

*5: The mounting plate (Ⓔ B) can be mounted only on Ⓐ (port size) 8 (1/4) or 10 (3/8).
*6: Select one among D, E, F, G and H for Ⓕ.
*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: The surge suppressor is incorporated in the coil with diode as standard.
*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 Ⓓ 5A/5M/5N 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.

Coil selection guide

● Coil housing types and selection guide
Wide coil variation is available.
Refer to the structure and features to select the optimum model.

APK11/ADK1*

Coil variations				Appearance
Open frame type	Heat proof class B mold	● AC dedicated (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP61 or equivalent ● Outdoor use not available	Grommet lead wire	● Lead wire length 300 mm	2C
	Heat proof class B mold	● DC and AC (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP61 or equivalent ● Outdoor use not available	DIN terminal box	● Easy wiring and maintenance ● Reliable electric protection (ground terminal) ● Light available (optional - 100, 200 VAC and 24 VDC only)	2E 2G 2H
	Heat proof class B mold	● DC and AC (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP65 or equivalent ● Outdoor use not available	Lead wire	● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted	3A
	Heat proof class B mold	● DC and AC (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP21 or equivalent ● Outdoor use not available	HP terminal box	● Easy wiring ● Light available (optional - 100, 200 VAC / 24, 100 VDC only)	3M 3N
	Heat proof class B mold	● DC and AC (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP65 or equivalent ● Outdoor use not available	HP terminal box	● Easy wiring ● Light available (optional - 100, 200 VAC / 24, 100 VDC only)	3I 3J *1
	Heat proof class H taped	● AC dedicated (50/60 Hz common) ● Heat proof temperature 180˚C ● High temperature fluid and high ambient temperature available ● Outdoor use not available ● Protection property symbols: IP00	Lead wire	● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted	4A
			HP terminal box	● Easy wiring ● Light available (optional - 100, 200 VAC only)	4M 4N
	Heat proof class B mold with diode	● A diode is mounted on the coil section for direct-current conversion (AC-DC conversion) ● AC dedicated (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP65 or equivalent ● Perfect for places where beat can be a problem ● Outdoor use not available	Lead wire	● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted	5A
	Heat proof class B mold with diode	● A diode is mounted on the coil section for direct-current conversion (AC-DC conversion) ● AC dedicated (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP21 or equivalent ● Perfect for places where beat can be a problem ● Outdoor use not available	HP terminal box	● Easy wiring ● Light available (optional - 100, 200 VAC only)	5M 5N
	Heat proof class B mold with diode	● A diode is mounted on the coil section for direct-current conversion (AC-DC conversion) ● AC dedicated (50/60 Hz common) ● Heat proof temperature 130˚C ● Protection property symbols: IP65 or equivalent ● Perfect for places where beat can be a problem ● Outdoor use not available	HP terminal box	● Easy wiring ● Light available (optional - 100, 200 VAC only)	5I 5J *1
			Conduit	● Use a conduit (CTC19 or G1/2) when using direct conduit wiring for the open frame lead wire.	G H

1: Only ADK1 is supported.