

AP/APK/AD/ADK

(General purpose valve)

General purpose pilot operated 2 port solenoid valve

■ For air, vacuum, water, oil

Overview

The general purpose valve series enables control of various types of fluids including water, air, oil and vacuums. In addition to the high reliability and high quality of the valve, the variety of options and variations are available.

Features

Various working fluids control

Various types of fluids can be handled by selecting the proper body material and sealant.

Wide option range

Including open frame, coil with diode, and terminal boxes.

A great variety of series and variation

A wide selection is available from the Rc1/4 to large 50 flanges with series such as pilot operated diaphragm and piston valves, and pilot kick type diaphragm and piston valves.



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Pilot operated 2 port solenoid valve

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Pilot kick type 2 port solenoid valve

Piston structure

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Electronic Catalog file list	300
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⚠ Always read the precautions in the Introduction and page 226 before starting use.

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 operated/Pilot kick type 2 port solenoid valve

Series variation

General purpose pilot operated 2 port solenoid valve

No. of port	Model	Structure	Actuation	Working fluid							
				Air	Low vacuum (1.33 x 10 ³ Pa (abs))	Water	Kerosene	Oil (50 mm ² /s or less)	Hot water	Steam	
2 port		AP11 *1	Pilot operated (Piston structure)	NC (normally closed) type	●		●	●	●		●
		AP12 *1		NO (normally open) type	●		●	●	●		●
		AP21		NC (normally closed) type	●		●	●	●		●
		AP22		NO (normally open) type	●		●	●	●		●
		AD11 *1	Pilot operated (Diaphragm structure)	NC (normally closed) type	●		●	●	●		
		AD12 *1		NO (normally open) type	●		●	●	●		
		AD21		NC (normally closed) type	●		●	●	●		
		AD22		NO (normally open) type	●		●	●	●		
		APK11	Pilot kick type (Piston kick drive)	NC (normally closed) type	●	●	●	●	●*2		●
		APK21		NC (normally closed) type	●	●	●	●	●*2		●
		ADK11	Pilot kick type (Diaphragm structure)	NC (normally closed) type	●	●	●	●	●	●	
		ADK12		NO (normally open) type	●	●	●	●	●	●	
ADK21		NC (normally closed) type		●	●	●	●	●			

*2: 20 mm²/s or less for APK11/12 Series.

	Port size											Page
	Rc1/4	Rc3/8	Rc1/2	Rc3/4	Rc1	Rc1 1/4	32 flange	Rc1 1/2	40 flange	Rc2	50 flange	
	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}							228
	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}							228
						●	●	●	●	●	●	238
						●	●	●	●	●	●	238
	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*4}							248
			● ^{*3}	● ^{*3}	● ^{*4}							248
						●	●	●	●	●	●	258
						●	●	●	●	●	●	258
	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}							268
						●	●	●	●	●	●	276
	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}	● ^{*3}							282
			● ^{*3}	● ^{*3}	● ^{*3}							282
						●	●	●	●	●	●	294

*3: Refer to each How to order column for the thread types.

Refer to page 222 for details on the coil system.

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
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 CPD
 Medical
 analysis
 Custom
 order













General purpose valve
 Pilot operated/Pilot kick type 2 port solenoid valve

Coil selection guide

● Coil housing types and selection guide

A wide variety is available to match applications.

Refer to the structure and features to select the optimum model.

AP/AD*		Appearance			
Coil variations	Heat proof class B mold	<ul style="list-style-type: none"> ● AC dedicated (50/60 Hz common) ● Heat proof temperature 130°C ● Protection property symbols: IP61 or equivalent ● Outdoor use not available 	Grommet lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm 	 2C 6C	
		<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Easy wiring and maintenance ● Reliable electric protection (ground terminal) ● Light available (optional - 100, 200 VAC and 24 VDC only) 	 2E 2G 2H 6E 6G 6H	
		<ul style="list-style-type: none"> ● DC and AC (50/60 Hz common) ● Heat proof temperature 130°C ● Protection property symbols: IP65 or equivalent ● Outdoor use not available 	Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted 	 3A	
		<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC / 24, 100 VDC only) 	 3M 3N	
		<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC / 24, 100 VDC only) 	 3I 3J	
		<ul style="list-style-type: none"> ● AC dedicated (50/60 Hz common) ● Heat proof temperature 130°C ● High temperature fluid and high ambient temperature available ● Outdoor use not available ● Protection property symbols: IP00 	Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted 	 4A	
	Open frame type	Heat proof class B taped	<ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 4M 4N	
			HP terminal box <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 5A	
			Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted 	 5M 5N	
		Heat proof class B mold with diode	<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 5I 5J
			<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 G H
			Conduit <ul style="list-style-type: none"> ● Use a conduit (CTC19 or G1/2) when using direct conduit wiring for the open frame lead wire. 		

● Repair parts table per coil option

Coil option symbol	Voltage	Repair parts			
		Plunger assembly	Core assembly	Coil assembly	Actuator assembly *1
0 or 2C	AC	○	○	○	○
6C *2	DC	—	—	—	○
2E 2G 2H	AC	○	○	○	○
2E 2G 2H	DC	○	○	○	○
6E 6G 6H *2	DC	—	—	—	○
3A	AC	○	○	○	○
	DC		○	○	○
3M 3N	AC	○	○	○	○
	DC		○	○	○
3I 3J	AC	○	○	○	○
	DC		○	○	○
4A	AC	○	○	○	○
4M 4N	AC	○	○	○	○
5A	AC	○	○	○	○
5M 5N	AC	○	○	○	○
5I 5J	AC	○	○	○	○

*1: The actuator assembly includes the coil assembly, core assembly and plunger assembly.

*2: As 6C, 6E, 6G and 6H are dedicated parts, they are provided as part of the actuator assembly.

HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
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For
dry air
Explosion
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CPD
Medical
analysis
Custom
order












General purpose valve
Pilot operated/Pilot kick type 2 port solenoid valve

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*		Appearance			
Coil variations	Heat proof class B mold	<ul style="list-style-type: none"> ● AC dedicated (50/60 Hz common) ● Heat proof temperature 130°C ● Protection property symbols: IP61 or equivalent ● Outdoor use not available 	Grommet lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm 	 2C	
	Heat proof class B mold	<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● DC and AC (50/60 Hz common) ● Heat proof temperature 130°C ● Protection property symbols: IP65 or equivalent ● Outdoor use not available 	Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted 	 3A	
	Heat proof class B mold	<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC / 24, 100 VDC only) 	 3M 3N	
	Heat proof class B mold	<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC / 24, 100 VDC only) 	 3J 3I *1	
	Open frame type	Heat proof class H tapped	<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted 	 4A
		Heat proof class B mold with diode	<ul style="list-style-type: none"> ● 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 heat can be a problem ● Outdoor use not available 	HP terminal box <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 4M 4N
		Heat proof class B mold with diode	<ul style="list-style-type: none"> ● 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 heat can be a problem ● Outdoor use not available 	Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Conduit (CTC19) for direct conduit wiring can be mounted 	 5A
		Heat proof class B mold with diode	<ul style="list-style-type: none"> ● 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 heat can be a problem ● Outdoor use not available 	HP terminal box <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 5M 5N
		Heat proof class B mold with diode	<ul style="list-style-type: none"> ● 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 heat can be a problem ● Outdoor use not available 	HP terminal box <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 5I 5J *1
Conduit		<ul style="list-style-type: none"> ● 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.

APK21/ADK21

Open frame type		Appearance		
Open frame type	Heat proof class B mold	<ul style="list-style-type: none"> ● DC and AC ● Heat proof temperature 130°C ● Protection property symbols: IP65 or equivalent ● Outdoor use not available 	Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Direct conduit wiring thread CTC19 integrated 	 3A
	Heat proof class B mold	<ul style="list-style-type: none"> ● DC and AC ● Heat proof temperature 130°C ● Protection property symbols: IP21 or equivalent ● Outdoor use not available 	HP terminal box <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC / 24, 100 VDC only) 	 3M 3N
	Heat proof class H taped	<ul style="list-style-type: none"> ● AC dedicated ● Heat proof temperature 180°C ● High temperature fluid and high ambient temperature available ● Protection property symbols: IP00 ● Outdoor use not available 	Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Direct conduit wiring thread CTC19 integrated 	 4A
			HP terminal box <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 4M 4N
	Heat proof class B mold with diode	<ul style="list-style-type: none"> ● 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 heat can be a problem ● Outdoor use not available 	Lead wire <ul style="list-style-type: none"> ● Lead wire length 300 mm ● Direct conduit wiring thread CTC19 integrated 	 5A
	Heat proof class B mold with diode	<ul style="list-style-type: none"> ● 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 heat can be a problem ● Outdoor use not available 	HP terminal box <ul style="list-style-type: none"> ● Easy wiring ● Light available (optional - 100, 200 VAC only) 	 5M 5N
			Conduit <ul style="list-style-type: none"> ● Use a conduit (G1/2) when using direct conduit wiring for the open frame lead wire. 	 H

- 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 operated/Pilot kick type 2 port solenoid valve



Safety precautions

Always read this section before starting use.

Pilot operated 2 port solenoid valve (AP/AD) and pilot kick type 2 port solenoid valve (APK/ADK)

Design & Selection

WARNING

1 Working fluid

- (1) When using this valve for dry air or inert gas, the life can be shortened considerably due to wear. Use a valve for dry air.
- (2) This valve cannot be used for maintaining the vacuum.

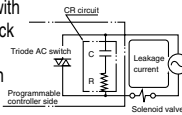
CAUTION

1 Fluid viscosity

The fluid viscosity must be 50 mm²/s or less. Malfunctions could occur if the viscosity is higher than 50 mm²/s. (This value is 20 mm²/s or less for the APK Series.)

2 Leakage current from other fluid control components

When operating the solenoid valve with a programmable controller, etc., check that the output leakage current from the programmable controller is within the following specifications.



Series no.	Voltage		AC diode		DC	
	100 V	200 V	100 V	200 V	12 V	24 V
AP, AD	6 mA or less	3 mA or less	2 mA or less	1 mA or less	2 mA or less	1 mA or less
APK, ADK	6 mA or less	3 mA or less	2 mA or less	1 mA or less	2 mA or less	1 mA or less

Installation, Piping & Wiring

CAUTION

1 Installation

- (1) As a general rule, the valve must be installed vertically with the coil facing upward.

2 Piping

- (1) If the pipe vibrates when the solenoid valve is opened and closed, securely fix the piping.
- (2) When passing steam, steam generated from a boiler will contain a large amount of drainage. Always install a drain trap.
- (3) When passing steam, water replenished to the boiler will contain matters such as "calcium salt" and "magnesium salt". These matters will react with oxygen and carbon oxide causing scales and sludge, so always install a "water softener" and a filter for steam.
- (4) When the regulator and solenoid valve are directly coupled, the parts could mutually vibrate causing resonance and chattering.
- (5) If the piping cross-section area on the fluid inlet is reduced, the operation may become unstable due to a differential pressure fault during valve operation. The piping on the fluid inlet must have a size that matches the valve port size.

3 Wiring

- (1) Refer to page 53 in the Introduction for details on connecting the terminal box.

When Using

CAUTION

1 Instantaneous leakage

With the pilot operated type or pilot kick type 2 port valve, if sudden pressure is applied when the pump starts while the valve is closed, the valve may open for an instant causing fluid to leak. Caution is required during use.

2 Operation

Do not apply back pressure. The valve could malfunction.

3 Water hammer

If water hammering occurs causing a problem, consider using the CKD "WHL type" or "RSV type" solenoid valve or a motor valve.

4 Manual operation

Always observe the following points when using a manual override.

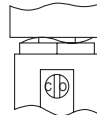
<For NO (normally open) type>

Opening: Insert a flat-tip screwdriver into the slit on the manual shaft, and turn it approx. 120° to the right or left. The plunger will rise up, and the valve will open.

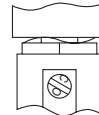
The open state is held even when the screwdriver is removed.

Always return the valve to the original position after use.

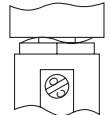
Closing: Turn the manual shaft from the open position to the vertical position. The plunger will lower and the valve will close. (Refer to the following drawings.)



Valve closed



Valve opened



Valve opened

<For NO (normally open) type>

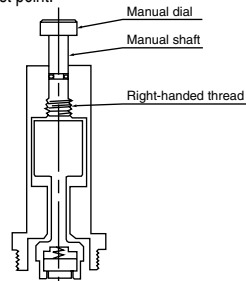
(1) Closing the valve with manual operations

The manual shaft is threaded, so hold the manual dial and rotate the shaft clockwise.

When the manual dial has been rotated downward 5 to 6 mm and no longer rotates, the solenoid valve will switch to closing operation.

(2) Resetting (when not using manual override)

Always rotate the manual dial counterclockwise and return it to the highest point.



Maintenance

CAUTION

1 Thermal insulation cover

When piping for steam or hot water, etc., use an insulating cover structure that can be disassembled for maintenance purposes. Avoid placing an insulating cover on the entire solenoid valve or on the coil section. The coil could burn.

2 Tightening torque

When disassembling or assembling, tighten the body bolt, core assembly and nut with the following tightening torques.

		Body bolt tightening torque	Core assembly tightening torque	Nut tightening torque
AP ¹¹ ₁₂	8A	3 to 4 N·m	30 to 45 N·m (45 to 60 N·m for (APK11-15A to 25A))	8 to 16 N·m
AD ¹¹ ₁₂	10A			
APK11	15A	5 to 7 N·m		
ADK ¹¹ ₁₂	20A			
	25A	9 to 12 N·m		
AP ²¹ ₂₂	32 ^A _F		18 to 28 N·m	
AD ²¹ ₂₂	40 ^A _F			
	50 ^A _F			
APK21	32 ^A _F	80 to 120 N·m		
ADK21	40 ^A _F			
	50 ^A _F			

Working Environment

CAUTION

IP65 (IEC60529 (IEC529:1989-11)) standards are applied to the test. Avoid use in conditions where water or cutting oil directly contacts the valve.

Explanation of protection property symbols and examination method of IP65

●Protective structure

Note: IP-65 is a standard as followings.

■IEC (International Electrotechnical Commission) standards

(IEC60529 (IEC529:1989-11))

IP- * * □ □

Protection property symbols (International Protection)

1st characteristic number (protection grade for foreign solid)

Grade	Degree of protection
6	Dust proof type Powder and dust do not enter inside.

2nd characteristic number (protection grade for entry of water)

Grade	Degree of protection	Overview of test method (fresh water is used)
5	Protection for jet No harmful effects occur even when water is sprayed with nozzles from all directions.	Using the following test device, spray water for 1 minute per 1 m ² of test sample (exterior) surface area from all directions, for a total of 3 minutes or more. 2.5 to 3 m 12.5 L/min. Spray nozzle inner diameter: φ6.3 mm

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

Photo operated/Pilot kick type 2 port solenoid valve



Pilot operated 2 port solenoid valve
(general purpose valve)

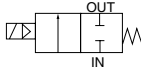
AP11/AP12 Series

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

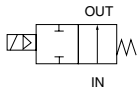


JIS symbol

- AP11:
NC (normally closed) type



- AP12:
NO (normally open) type



Common specifications

Item	Standard specifications	Optional specifications
Working fluid	Air, water, kerosene, oil (50 mm ² /s or less)	Steam
Working pressure differential range MPa	0.05 to 1.2 (refer to max. working pressure differential in individual specifications.)	
Max. working pressure MPa	2	1
Withstanding pressure (water) MPa	10	
Fluid temperature (Note 1) °C	-10 to 60	-10 to 180
Ambient temperature °C	-20 to 60	-20 to 100
Heat proof class	B	H
Atmosphere	Place free of corrosive gas and explosive gas	
Valve structure	Pilot operated poppet, piston structure	
Valve seat leakage (Note 2) cm ³ /min./ANR	0.2 or less (air)	300 or less (air)
Mounting attitude	Free (within working pressure differential range)	
Body, sealant	Bronze, nitrile rubber	Bronze, PTFE

Note 1: No freezing

Note 2: For AP11 (NC (normally closed) type), these values apply to pneumatic pressure 0.05 to 1.2 MPa, and for AP12 (NO (normally open) type), these apply to pneumatic pressure 0.05 to 0.9 MPa.

Individual specifications

Item Model no.	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 (50 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	DC		
NC (normally closed) type																			
AP11-8A	Rc1/4	10	0.05	1.2	0.9	1.0	0.9	0.9	0.9	1.0	100 VAC 50/60 Hz	12	10	17	14	5.2/3.8	11 (8.1) ⁴ (7) ⁵	0.9	
AP11-10A	Rc3/8	10		1.2	0.9	1.0	0.9	0.9	0.9	1.0		110 VAC 60 Hz	18	15	29	24	6.7/5.7	11 (10.4) ⁴ (7) ⁵	0.9
AP11-15A	Rc1/2	15		1.2	0.6	1.0	0.6	0.6	0.6	1.0	200 VAC 50/60 Hz								1.4
AP11-20A	Rc3/4	20		1.2	0.6	1.0	0.6	0.6	0.6	1.0									
AP11-25A	Rc1	25		1.2	0.6	1.0	0.6	0.6	0.6	1.0									
NO (normally open) type																			
AP12-8A	Rc1/4	10	0.05	0.9	0.9	0.9	0.9	0.9	0.9	0.9	220 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5 (14)	1.0	
AP12-10A	Rc3/8	10		0.9	0.9	0.9	0.9	0.9	0.9	0.9								12 VDC 24 VDC 48 VDC	1.4
AP12-15A	Rc1/2	15		0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.8								
AP12-20A	Rc3/4	20		0.5	0.5	0.5	0.5	0.5	0.5	0.5									
AP12-25A	Rc1	25		0.5	0.5	0.5	0.5	0.5	0.5	0.5									

*1: The model numbers above show the basic port size (Rc). Refer to How to order for other combinations.

*2: Refer to DC column for the maximum working pressure differential of AP11 type coil with diode.

*3: Voltage fluctuation should be within ±10% of the rated voltage.

*4: Power consumption of coil housing 2E/2G/2H is indicated.

*5: Power consumption of coil housing 6C/6E/6G/6H is indicated.

Optional specifications

Sealant	Fluoro rubber		PTFE	
	B	H	B	H
Coil (heat proof class)				
Fluid temperature (Note 1) °C	-10 to 60	-10 to 90	-10 to 60	-10 to 180
Ambient temperature °C	-20 to 60	-20 to 100 (Note 3)	-20 to 60	-20 to 100 (Note 3)
Valve seat leakage (Note 2) cm ³ /min. (ANR)	0.2 or less (air)		300 or less (air)	

Note 1: No freezing

Note 2: For AP11 (NC (normally closed) type), these values apply to pneumatic pressure 0.05 to 1.2 MPa, and for AP12 (NO (normally open) type), these apply to pneumatic pressure 0.05 to 0.9 MPa.

Note 3: The range is -20 to 80°C when using the HP terminal box with indicator light for the coil housing.

Flow characteristics

Model no.	Port size	Orifice (mm)	Flow characteristics			
			C [dm ³ /((s·bar))]	b	Cv flow factor	S (mm ²)
NC (normally closed) type						
AP11-8A	Rc1/4	10	8.1	0.17	1.4	-
AP11-10A	Rc3/8	10	10	0.19	1.8	-
AP11-15A	Rc1/2	15	21	0.22	4.5	-
AP11-20A	Rc3/4	20	-	-	9.3	162
AP11-25A	Rc1	25	-	-	12.0	231
NO (normally open) type						
AP12-8A	Rc1/4	10	8.1	0.17	1.4	-
AP12-10A	Rc3/8	10	10	0.19	1.8	-
AP12-15A	Rc1/2	15	21	0.22	4.5	-
AP12-20A	Rc3/4	20	-	-	9.3	162
AP12-25A	Rc1	25	-	-	12.0	231

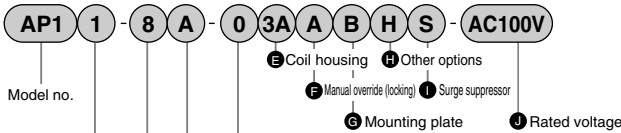
*1: Effective sectional area S and sonic conductance C are converted as $S = 5.0 \times C$.

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 operated 2 port solenoid valve

AP11/AP12 Series

How to order



Symbol	Descriptions				
A Actuation					
1	NC (normally closed) type				
2	NO (normally open) type				
B Port size					
8	1 / 4				
10	3 / 8				
15	1 / 2				
20	3 / 4				
25	1				
C Type of thread					
A	Rc				
G	G				
N	NPT				
D Body/sealant combination					
	Body	Sealant	O ring	Treatment	Remarks
0	Std	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	Fluoro rubber		
B	Bronze	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	Fluoro rubber		
C	Stainless steel	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	PTFE		
D	Option	Nitrile rubber	Nitrile rubber	Oil free	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	PTFE		
E	Bronze	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	Fluoro rubber		
J	Stainless steel	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	PTFE		
K	Option	Nitrile rubber	Nitrile rubber	Oil free	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	PTFE		
L	Bronze	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	Fluoro rubber		
M	Stainless steel	Nitrile rubber	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	PTFE		
N	Option	Nitrile rubber	Nitrile rubber	Oil free	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber	Fluoro rubber		
		PTFE	PTFE		

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

E to J

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

<Example 1 of model number>

AP11-15A-03A-AC100V Series: AP11

- A** Actuation: NC (normally closed) type
- B** Port size: 1/2
- C** Type of thread: Rc
- D** Body/sealant combination
: Body - bronze, sealant - nitrile rubber,
O ring - nitrile rubber
- E** Coil housing: Open frame lead wire
- F** to **I**: Blank
- J** Rated voltage
: 100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number>

AP12-25N-E3MAD-AC200V Series: AP12

- A** Actuation: NO (normally open) type
- B** Port size: 1
- C** Type of thread: NPT
- D** Body/sealant combination
: Body - stainless steel, sealant - fluoro rubber,
O ring - fluoro rubber
- E** Coil housing: Open frame HP terminal box (G1/2)
- F** Manual override (locking): Selected
- G** Mounting plate: Blank
- H** Other options: Cable gland A-15a
- I** Surge suppressor: Blank
- J** Rated voltage
: 200 VAC 50/60 Hz, 220 VAC 60 Hz

▲ Note on model no. selection






Note on D

- *1: (E): 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.
- *3: For (B) (port size) 8 (1/4) or 10 (3/8), the standard body material is brass.
- *4: When (D) is C, F, K or N, the coil housings (E) 6C, 6E, 6G and 6H cannot be selected.


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

E	Coil housing		F	G	H Other options					I	J	Rated voltage
	Descriptions	Manual override (locking)			Mounting plate	Cable gland (Marine cable gland)			Conduit (Conduit pipe)			
A-15a			A-15b	A-15c		CTC19	G1/2	S				
3A	Open frame lead wire	A	B					G	H	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
2C	Grommet lead wire										100 VAC, 200 VAC	
2E	DIN terminal box (G1/2)	A	B							S	100 VAC, 200 VAC	
2G	DIN terminal box (Pg11)										12 VDC, 24 VDC, 48 VDC, 100 VDC	
2H	DIN terminal box + small light (Pg11)								H		100 VAC, 200 VAC, 24 VDC	
3M	Open frame type HP terminal box (G1/2)	A	B	D	E	F				S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N	Open frame type HP terminal box + light (G1/2)										100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
3I	Open frame type HP terminal box (IP65 or equivalent) (G1/2)										100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3J	Open frame type HP terminal box + light (IP65 or equivalent) (G1/2)										100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	
4A	Open frame type Lead wire	A	B					G	H	S	100 VAC, 200 VAC	
4M	Open frame type HP terminal box (G1/2) (heat proof class H)			D	E	F					100 VAC, 200 VAC	
4N	Open frame type HP terminal box + light (G1/2)											
5A	Open frame type Lead wire	A	B					G	H		100 VAC, 200 VAC	
5M	Open frame type HP terminal box (G1/2)											
5N	Open frame type HP terminal box + light (G1/2)			D	E	F					100 VAC, 200 VAC	
5I	Open frame type HP terminal box (IP65 or equivalent) (G1/2)											
5J	Open frame type HP terminal box + light (IP65 or equivalent) (G1/2)											
6C	Grommet lead wire 7W											
6E	DIN terminal box (G1/2) 7W	A	B							S	12 VDC, 24 VDC	
6G	DIN terminal box (Pg11) 7W											
6H	DIN terminal box + small light (Pg11) 7W								H		24 VDC	

Refer to the following precautions for (E) to (J).

2C 6C		● Grommet lead wire 300 mm
2E 2G 2H 6E 6G 6H		● 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 222 for coil selection.

G H		● Conduit ● G (CTC19) ● H (G1/2)
--------	---	--

Note on model no. selection

Note on (E)

- *5: 5A, 5M, 5N, 5I and 5J are coils for which AC power is converted to DC with a diode.
- *6: A DC coil for steam is available for AP11. Contact CKD for more information.
* 6C, 6E, 6G and 6H are available only for AP11.
- *7: The coil housings 6C, 6E and 6G are 12 VDC and 24 VDC dedicated. 6H is 24 VDC dedicated.

Note on (F) to (I)

- *8: The mounting plate (G B) can be mounted only on (B) (port size) 8 (1/4) or 10 (3/8).
- *9: When (I) is C, F, K or N, the manual override (F A) is not available.
- *10: Select one among D, E, F, G and H for (I).
- *11: 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.
- *12: As standard, the surge suppressor is incorporated in the coil with diode and the 24 VDC coil (E) 2H/6H), so the surge suppressor symbol S cannot be selected.
- *13: Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.
Note that the tropicalization is not available when the manual override option A and the coil option 6C/6E/6G/6H are selected.

Note on (J)

- *14: 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 (E) 5A/5M/5N/5I/5J can be used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- *15: For voltages other than above, consult with CKD.
- *16: 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

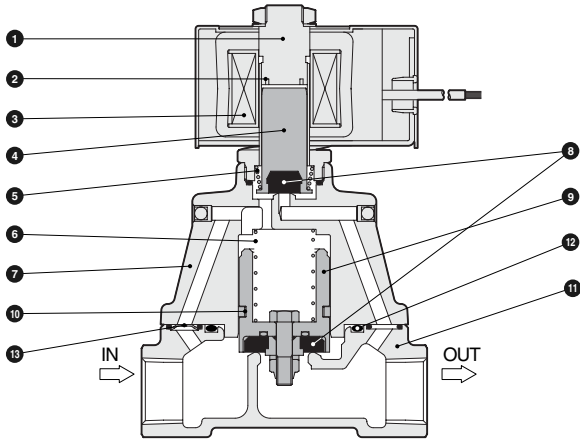
Custom
order

General purpose valve
Pilot operated 2 port Solenoid valve

AP11/AP12 Series

Internal structure and parts list

● AP11 Series



(Figure shows operation when closed)

No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403 *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	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	Bronze (SCS13) *3	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Piston ring	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	Bronze (SCS13) *3	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304 (SUS303) *3	Stainless steel

() shows options.

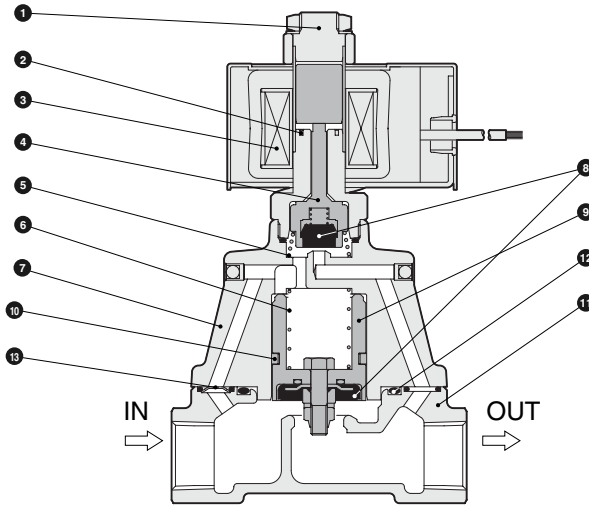
*1: When the body/sealant combination symbol is other than O and H, or the coil housing symbol is 6C, 6E, 6G or 6H, the material is SUS405 or equivalent, SUS316L, SUS430.

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

*3: For port size 8 (1/4) or 10 (3/8), the body stuffing material is C3771 (brass) as standard, and the orifice plate material is SUS303 (stainless steel) for both the standard and options.

Internal structure and parts list

● AP12 Series



(Figure shows operation when open)

No.	Parts name	Material	
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	NO valve assembly	POM, NBR (SUS303, PFA, FKM or PTFE)	Acetal resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber or tetrafluoroethylene resin)
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	Bronze (SCS13) *1	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Piston ring	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	Bronze (SCS13) *1	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304 (SUS303)	Stainless steel

() shows options.

*1: For port size 8 (1/4) or 10 (3/8), the body stuffing material is C3771 (brass) as standard, and the orifice plate material is SUS303 (stainless steel) for both the standard and options.

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 operated 2 port solenoid valve

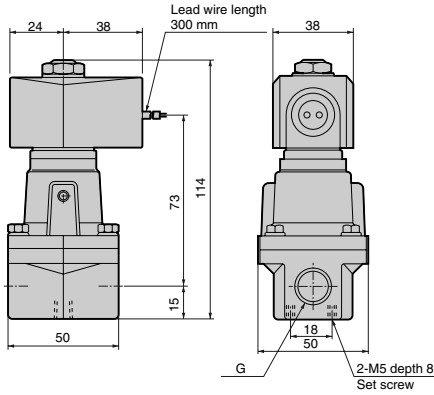
AP11/AP12 Series

Dimensions: AP11 Series



● Open frame lead wire type

AP11-8A/10A-*	3A
	4A
	5A

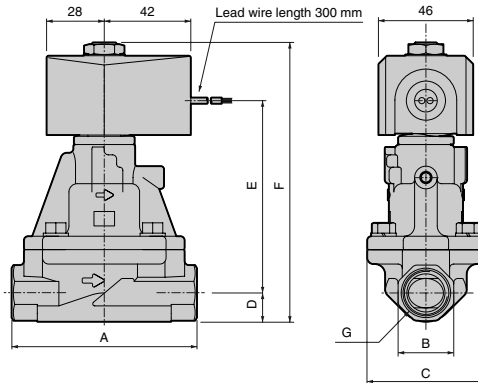


Model no.	G
AP11-8A-*	Rc1/4
AP11-10A-*	Rc3/8

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

● Open frame lead wire type

AP11-15A/20A/25A-*	3A
	4A
	5A



Model no.	A	B	C	D	E	F	G
AP11-15A-*	90	27 (29)	57	14 (14.5)	92.5	135.5 (136)	Rc1/2
AP11-20A-*	100	32 (35)	65	17 (17.5)	100.5	146.5 (147)	Rc3/4
AP11-25A-*	110	41 (44)	76	20.5 (22)	116	165.5 (167)	Rc1

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

*2: Dimensions shown in () are for stainless steel body.

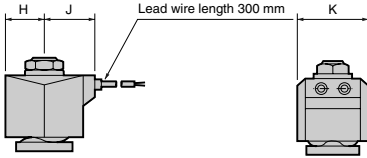
Optional dimensions: AP11 Series



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

● Grommet lead wire type

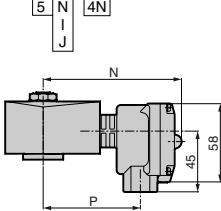
AP11-8A to 25A-^{2C}/_{6C}



Model no.	H	J	K
AP11-8A to 10A- ^{2C}	20	27	34
AP11-15A to 25A- ^{2C}	23.5	30.5	38
AP11-8A to 25A- ^{6C}	24	30.5	39

● Open frame type + HP terminal box

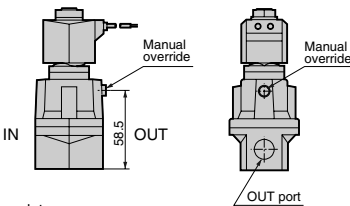
AP11-8A to 25A-^{3M}/_{5N} / ^{4M}/_{4N}



Model no.	N	P
AP11-8A to 10A- ³ / ₅	99	68
AP11-15A to 25A- ³ / ₅	103	72

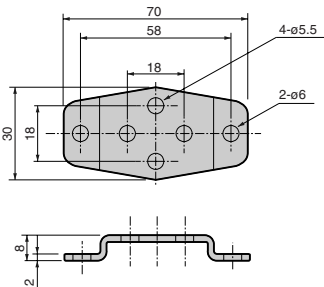
● Manual override (locking)

AP11-8A/10A-^{**}A



● Mounting plate

AP11-8A/10A-^{**}B

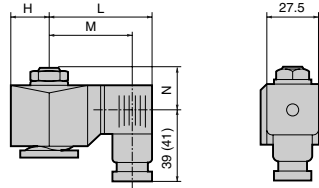


Mounting plate: GE-100159

* Mounting plate is not available for port size 15 (1/2) to 25 (1).

● DIN terminal box

AP11-8A to 25A-²/₆ ^E/_G ^H/_H

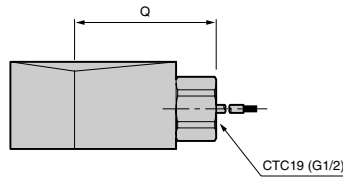


Dimensions shown in () are for G1/2.

Model no.	H	L	M	N	Model no.	H	L	M	N
AP11-8A to 10A- ² / ₆ - ^{AC}	20	62 (63.5)	20.5	22	AP11-15A to 25A- ² / ₆ - ^{AC}	23.5	65.5 (66.5)	22	22
AP11-8A to 10A- ² / ₆ - ^{DC}	21	63.5 (64.5)	20.5	22	AP11-15A to 25A- ² / ₆ - ^{DC}	23.5	66 (66.5)	22	22
AP11-8A to 25A- ⁶ / ₆ - ^{DC}	24	68 (68.5)	22						

● Open frame type + conduit

AP11-8A to 25A-^{3A}/_{4A} / ^{5A}/_{5A} ^G/_H ^H/_H

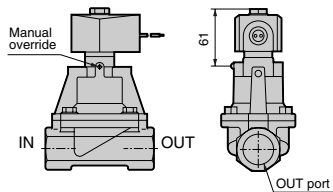


Dimensions shown in () are for G1/2.

Model no.	Q
AP11-8A to 10A	53 (56)
AP11-15A to 25A	57 (60)

● Manual override (locking)

AP11-15A/20A/25A-^{**}A



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

CV/
CVSE

CPE/
CPD

Medical
analysis

Custom
order

General purpose valve

Pilot operated 2 port solenoid valve

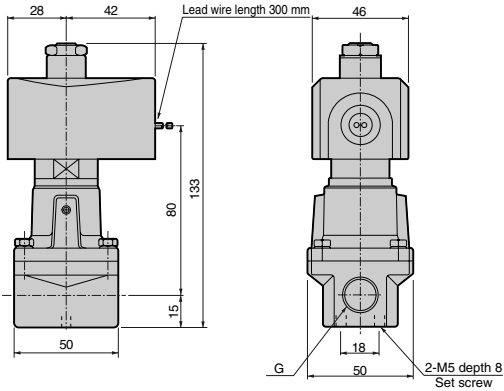
AP11/AP12 Series

Dimensions: AP12 Series



● Open frame lead wire type

AP12-8A/10A-*	3A
	4A
	5A

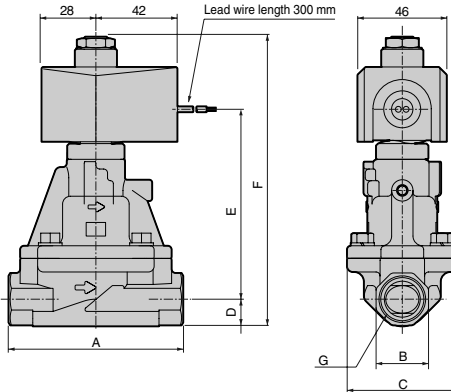


Model no.	G
AP12-8A-*	Rc1/4
AP12-10A-*	Rc3/8

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

● Open frame lead wire type

AP12-15A/20A/25A-*	3A
	4A
	5A



Model no.	A	B	C	D	E	F	G
AP12-15A-*	90	27 (29)	57	14 (14.5)	96.5	148.5 (149)	Rc1/2
AP12-20A-*	100	32 (35)	65	17 (17.5)	104.5	159.5 (160)	Rc3/4
AP12-25A-*	110	41 (44)	76	20.5 (22)	120	178.5 (180)	Rc1

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

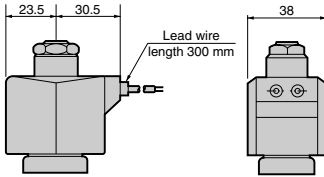
*2: Dimensions shown in () are for stainless steel body.

Optional dimensions: AP12 Series



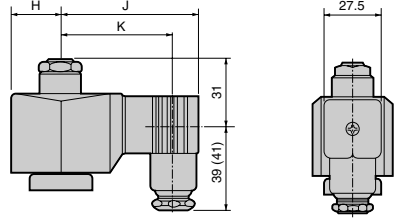
* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

- Grommet lead wire type
AP12-8A to 25A-*** **[2C]**



- DIN terminal box
AP12-8A to 25A-***

[2E]
[2G]
[2H]

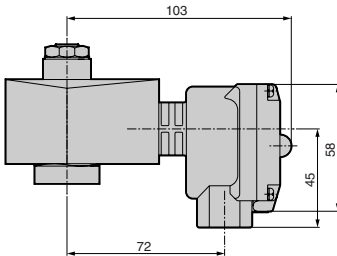


Dimensions shown in () are for G1/2.

Voltage	H	J	K
AC	23.5	65.5	54 (53.5)
DC	28	72	60.5 (60)

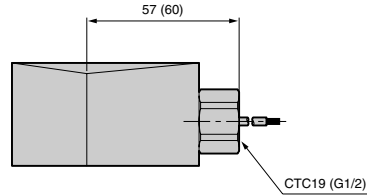
- Open frame type + HP terminal box
AP12-8A to 25A-***

[3M]
[4M]
[5N]
[4N]
[1I]
[1J]



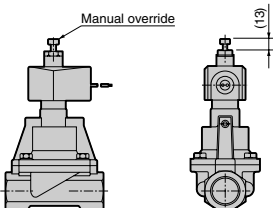
- Open frame type + conduit
AP12-8A to 25A-***

[3A]
[4A]
[5A]
[G]
[H]

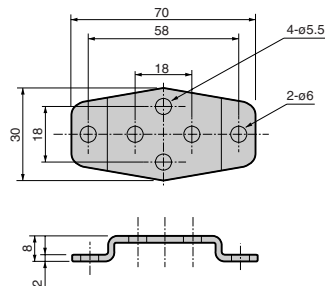


Dimensions shown in () are for G1/2.

- Manual override (locking)
AP12-15A/20A/25A-*** **[A]**



- Mounting plate
AP12-8A/10A-*** **[B]**



Mounting plate: GE-100159

* Mounting plate is not available for port size 15 (1/2) to 25 (1).

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 operated 2 port solenoid valve



Pilot operated 2 port solenoid valve
(general purpose valve)

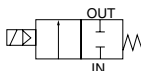
AP21/AP22 Series

- NC (normally closed) type, NO (normally open) type
- Port size: Rc1 1/4 to Rc2, 32 to 50 flange
- Piston structure

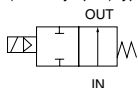


JIS symbol

- AP21:
NC (normally closed) type



- AP22:
NO (normally open) type



Common specifications

Item	Standard specifications	Optional specifications
Working fluid	Air, water, kerosene, oil (50 mm ² /s or less)	Steam
Working pressure differential range MPa	0.05 to 1.2 (refer to max. working pressure differential in individual specifications.)	
Max. working pressure MPa	1.6	1
Withstanding pressure (water) MPa		3.2
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 operated poppet, piston structure	
Valve seat leakage (Note 2) cm ³ /min./ANR	1 or less (air)	400 or less (air)
Mounting attitude	Free (within working pressure differential range)	
Body, sealant	Bronze, nitrile rubber	Bronze, PTFE

Note 1: No freezing

Note 2: For AP21 (NC (normally closed) type), these values apply to pneumatic pressure 0.05 to 1.2 MPa, and for AP22 (NO (normally open) type), these apply to pneumatic pressure 0.05 to 0.5 MPa.

Individual specifications

Item Model no.	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 (50 mm ² /s)		Steam			Holding		Starting		AC	DC	
				AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	DC
NC (normally closed) type																			
AP21-32A	Rc1 1/4	35	0.05	1.2	0.6	1.0	0.6	0.6	0.6	0.6	1.0	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	18	15	29	24	6.7/5.7	11 (10.4/14 (7) *5	3.5
AP21-32F	32 flange																		7
AP21-40A	Rc1 1/2	43	0.05	1.2	0.6	1.0	0.6	0.6	0.6	0.6	1.0	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	18	15	29	24	6.7/5.7	11 (10.4/14 (7) *5	4.5
AP21-40F	40 flange																		8
AP21-50A	Rc2	53	0.05	1.2	0.6	1.0	0.6	0.6	0.6	0.6	1.0	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	18	15	29	24	6.7/5.7	11 (10.4/14 (7) *5	6
AP21-50F	50 flange																		10
NO (normally open) type																			
AP22-32A	Rc1 1/4	35	0.05	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5 (14)	3.5
AP22-32F	32 flange																		7
AP22-40A	Rc1 1/2	43	0.05	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5 (14)	4.5
AP22-40F	40 flange																		8
AP22-50A	Rc2	53	0.05	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5 (14)	6
AP22-50F	50 flange																		10

*1: The model numbers above show the basic port size. Refer to How to order for other combinations.

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

*3: Voltage fluctuation should be within ±10% of the rated voltage.

*4: Power consumption of coil housing 2E/2G/2H is indicated.

*5: Power consumption of coil housing 6C/6E/6G/6H is indicated.

Optional specifications

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

Note 1: No freezing

Note 2: For AP21 (NC (normally closed) type), these values apply to pneumatic pressure 0.05 to 1.2 MPa, and for AP22 (NO (normally open) type), these apply to pneumatic pressure 0.05 to 0.5 MPa.

Flow characteristics

Model no.	Port size	Orifice (mm)	Cv flow factor	Effective sectional area (mm ²)
NC (normally closed) type				
AP21-32A	Rc1 1/4	35	25	460
AP21-32F	32 flange			
AP21-40A	Rc1 1/2	43	34	625
AP21-40F	40 flange			
AP21-50A	Rc2	53	53	975
AP21-50F	50 flange			
NO (normally open) type				
AP22-32A	Rc1 1/4	35	25	460
AP22-32F	32 flange			
AP22-40A	Rc1 1/2	43	34	625
AP22-40F	40 flange			
AP22-50A	Rc2	53	53	975
AP22-50F	50 flange			

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

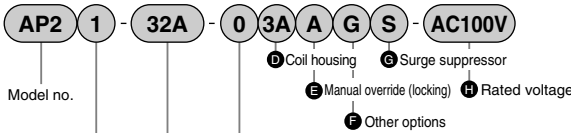
Medical
analysis

Custom
order

General purpose valve
Pilot operated 2 port solenoid valve

AP21/AP22 Series

How to order



Symbol	Descriptions					
A Actuation						
1	NC (normally closed) type					
2	NO (normally open) type					
B Port size						
32A	Rc1 1/4					
32F	32 flange					
40A	Rc1 1/2					
40F	40 flange					
50A	Rc2					
50F	50 flange					
C Body/sealant combination						
Option	Body	Sealant	O ring	Treatment	Remarks	
0 3 4 5	Bronze	Nitrile rubber	Nitrile rubber	Oil free	Air, water, kerosene, oil (up to 60°C)	
		Fluoro rubber	Fluoro rubber		Air, kerosene, oil (up to 90°C *3)	
		PTFE	Fluoro rubber		Steam (up to 180°C *3)	
		Stainless steel	Nitrile rubber		Nitrile rubber	Air, water, kerosene, oil (up to 60°C)
			Fluoro rubber		Fluoro rubber	Air, kerosene, oil (up to 90°C *3)
			PTFE		PTFE	Steam (up to 180°C *3)
	Option	Bronze	Nitrile rubber		Nitrile rubber	Air, water, kerosene, oil (up to 60°C)
			Fluoro rubber		Fluoro rubber	Air, kerosene, oil (up to 90°C *3)
			PTFE		Fluoro rubber	Steam (up to 180°C *3)
		Stainless steel	Nitrile rubber		Nitrile rubber	Air, water, kerosene, oil (up to 60°C)
			Fluoro rubber		Fluoro rubber	Air, kerosene, oil (up to 90°C *3)
			PTFE		PTFE	Steam (up to 180°C *3)

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>

AP21-32A-02C-AC100V
Series: AP21

- A** Actuation: NC (normally closed) type
- B** Port size: Rc1 1/4
- C** Body/sealant combination
: Body - bronze, sealant - nitrile rubber, O ring - nitrile rubber
- D** Coil housing: Grommet lead wire
- E** to **G** : Blank
- H** Rated voltage:
100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number>

AP22-40F-H3AAS-AC200V
Series: AP22

- A** Actuation: NO (normally open) type
- B** Port size: 40 flange
- C** Body/sealant combination
: Body - bronze, sealant - nitrile rubber, O ring - nitrile rubber (oil free)
- D** Coil housing: Open frame lead wire
- E** Manual override (locking): 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

- *1: The companion flange is JIS B2210 10K. (No flange is enclosed with the product, but must be purchased separately.)
- *2: G and NPT threads are used for piping port. Contact CKD for details.






Note on C

- *3: C: When selecting 4A, 4M or 4N.
- *4: When using the PTFE valve sealant with class H coil, the O ring material will be fluoro rubber for steam.
- *5: When C is C, F, K or N, the coil housings 0 6C, 6E, 6G and 6H cannot be selected.


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

D	Coil housing		E	F Other options						G	H Rated voltage		HNB/G
	Descriptions	Manual override (locking)		Cable gland (Marine cable gland)			Conduit (Conduit pipe)		Surge suppressor		Descriptions	HNB/G	
				A-15a	A-15b	A-15c	CTC19	G1/2					
3A	Open frame lead wire	A						G	H	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	USB/G	
2C	Grommet lead wire										100 VAC, 200 VAC	FAB/G	
2E	DIN terminal box (G1/2)	A								S	100 VAC, 200 VAC	FGB/G	
2G	DIN terminal box (Pg11)										12 VDC, 24 VDC, 48 VDC, 100 VDC	FVB	
2H	DIN terminal box + small light (Pg11)								H			100 VAC, 200 VAC, 24 VDC	FWB/G
3M	HP terminal box (G1/2)											100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	FHB
3N	Open frame type HP terminal box + light (G1/2)	A	D	E	F					S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	FLB	
3I	HP terminal box (IP65 or equivalent) (G1/2)										100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	AB	
3J	HP terminal box + light (IP65 or equivalent) (G1/2)										100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC	AG	
4A	Open frame type Lead wire	A						G	H	S	100 VAC, 200 VAC	AP/AD	
4M	HP terminal box (G1/2)			D	E	F						APK/ADK	
4N	HP terminal box + light (G1/2)											For dry air	
5A	Open frame type Lead wire	A						G	H	S	100 VAC, 200 VAC	Explosion proof	
5M	HP terminal box (G1/2)											HVB/HVL	
5N	HP terminal box + light (G1/2)			D	E	F						SAB/SVB	
5I	HP terminal box (IP65 or equivalent) (G1/2)											NP/NAP/NVP	
5J	HP terminal box + light (IP65 or equivalent) (G1/2)											CHB/G	
6C	Grommet lead wire 7W	A								S	12 VDC, 24 VDC	MXB/G	
6E	DIN terminal box (G1/2) 7W											Other G.P. systems	
6G	DIN terminal box (Pg11) 7W											PD/FAD/PJ	
6H	DIN terminal box + small light (Pg11) 7W								H			CV/E/CVSE	

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

2C 6C		● Grommet lead wire 300 mm
2E 2G 2H 6E 6G 6H		● 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 222 for coil selection.

G H		● Conduit ● G (CTC19) ● H (G1/2)
--------	---	--

Note on model no. selection

Note on (D)

- *6: 5A, 5M, 5N, 5I and 5J are coils for which AC power is converted to DC with a diode.
- *7: A DC coil for steam is available for AP21. Contact CKD for more information.
- *8: Only AP21 can be selected for 6C, 6E, 6G or 6H.
- *9: The coil housings 6C, 6E and 6G are 12 VDC and 24 VDC dedicated. 6H is 24 VDC dedicated.

Note on (E) to (G)

- *10: When (C) is C, F, K, or N, the manual override ((E) A) is not available.
- *11: Select one among D, E, F, G and H for (E).
- *12: 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.
- *13: As standard, the surge suppressor is incorporated in the coil with diode and the 24 VDC coil ((D) 2H/6H), so the surge suppressor symbol S cannot be selected.
- *14: Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.
Note that the tropicalization is not available when the manual override option A and the coil option 6C/6E/6G/6H are selected.

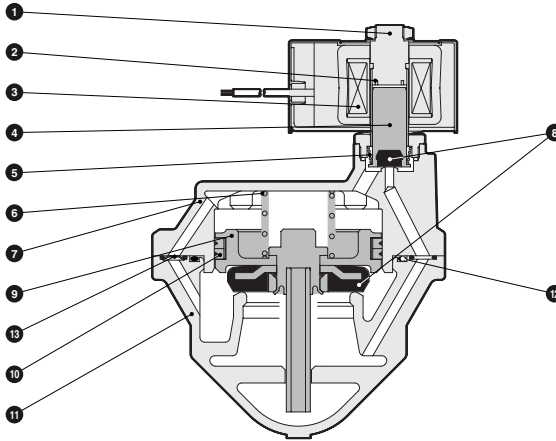
Note on (H)

- *15: 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.
- *16: For voltages other than above, consult with CKD.
- *17: 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.

AP21/AP22 Series

Internal structure and parts list

● AP21 Series



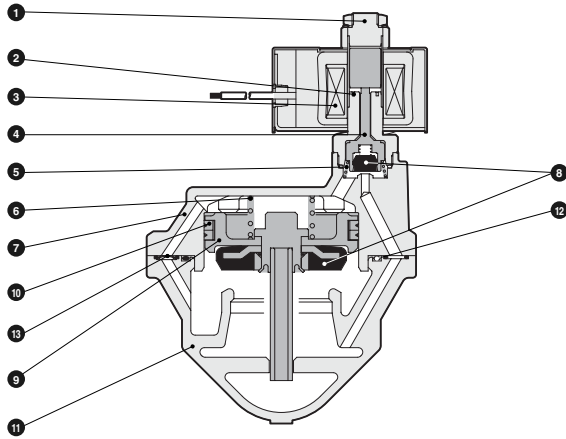
No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403 *1	Stainless steel
2	Shading coil *2	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equivalent	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC408 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Seal ring set	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	CAC408 (SCS13)	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
13	Orifice plate	SUS304	Stainless steel

() shows options.

*1: When the body/sealant combination symbol is other than O and H, or the coil housing symbol is 6C, 6E, 6G or 6H, the material is SUS405 or equivalent, SUS316L, SUS430.
 *2: When using the DC coil or a coil with diode, no shedding coil is used.

Internal structure and parts list

● AP22 Series



No.	Parts name	Material	
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	NO valve assembly	POM, NBR (SUS303, PFA, FKM or PTFE)	Acetal resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber or tetrafluoroethylene resin)
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC408 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM or PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
9	Main valve assembly	C3604, SUS303, SUS304 (SUS303, SUS304)	Stainless steel, brass (stainless steel)
10	Seal ring set	SUS304, PTFE	Stainless steel, tetrafluoroethylene resin
11	Body	CAC408 (SCS13)	Bronze casting (stainless steel casting)
12	O ring	NBR (FKM or PTFE)	Nitrile rubber (fluoro rubber or tetrafluoroethylene resin)
13	Orifice plate	SUS304	Stainless steel

() shows options.

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/
AD

APK/
ADK

For
dry air

Explosion
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Custom
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General purpose valve
Pilot operated 2 port solenoid valve

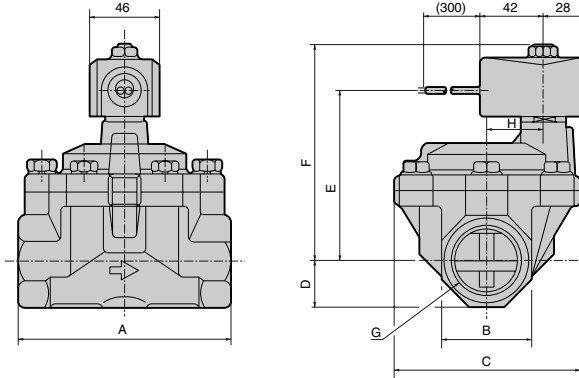
AP21/AP22 Series

Dimensions: AP21 Series

- Open frame lead wire type (Rc screw-in type)

AP21-32A/40A/50A-^{*}

3A
4A
5A

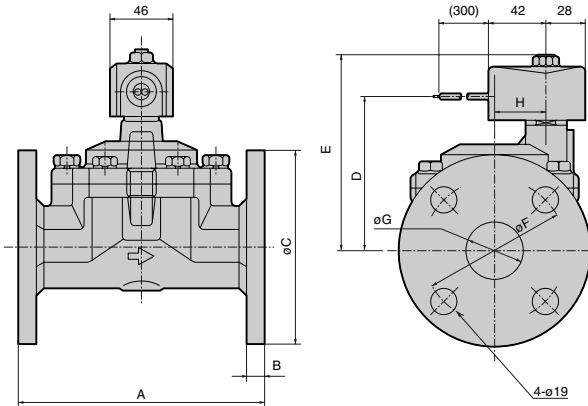


Model no.	A	B	C	D	E	F	G	H
AP21-32A- [*] □A	125	54	112	27	106.5	135.5	Rc1 1/4	32
AP21-40A- [*] □A	140	60	122	30	112.5	141.5	Rc1 1/2	38
AP21-50A- [*] □A	160	74	132	37	120.5	149.5	Rc2	45

- Open frame lead wire type (flange type)

AP21-32F/40F/50F-^{*}

3A
4A
5A



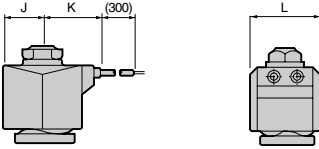
Model no.	A	B	C	D	E	F	G	H
AP21-32F- [*] □A	170	12	135	106.5	135.5	100	36	32
AP21-40F- [*] □A	180	14	140	112.5	141.5	105	42	38
AP21-50F- [*] □A	180	14	155	120.5	149.5	120	53	45

Optional dimensions: AP21 Series



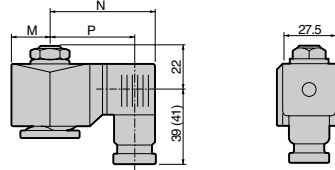
* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

- Grommet lead wire type
AP21-32^ø to 50^ø-***2C** / **6C**



Model no.	J	K	L
AP21-32^ø to 50^ø -*2C	23.5	34.5	38
AP21-32^ø to 50^ø -*6C	24	30.5	39

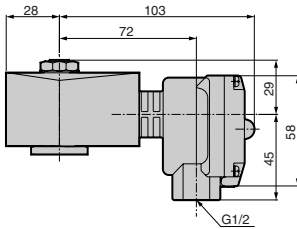
- DIN terminal box
AP21-32^ø to 50^ø-***2E**
6G
H



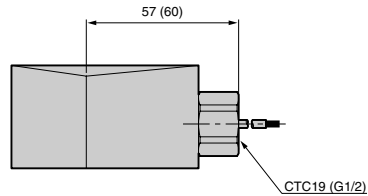
Dimensions shown in () are for G1/2.

Voltage	M	N	P
AC (2E/2G/2H)	23.5	65.5	54 (53.5)
DC (2E/2G/2H)	23.5	66	54.5 (54)
DC (6E/6G/6H)	24	68	56.5 (56)

- Open frame type + HP terminal box
AP21-32^ø to 50^ø-***3M** / **4M**
5N / **4N**
I / **J**

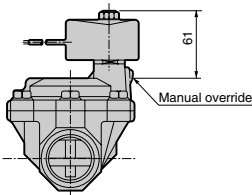


- Open frame type + conduit
AP21-32^ø to 50^ø-***3A** / **4A**
5A
G / **H**

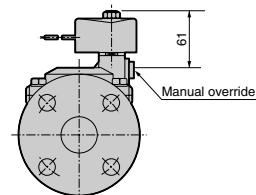


Dimensions shown in () are for G1/2.

- Manual override (locking, Rc screw-in type)
AP21-32A/40A/50A-*****A**



- Manual override (locking, flange type)
AP21-32F/40F/50F-*****A**



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 operated 2 port solenoid valve

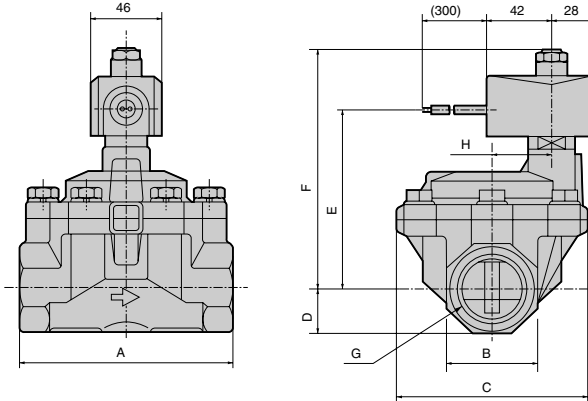
AP21/AP22 Series

Dimensions: AP22 Series

- Open frame lead wire type (Rc screw-in type)

AP22-32A/40A/50A-*

3A
4A
5A

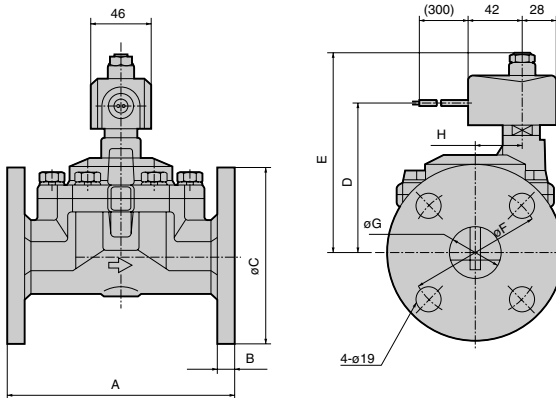


Model no.	A	B	C	D	E	F	G	H
AP22-32A-*□A	125	54	112	27	110.5	149	Rc1 1/4	32
AP22-40A-*□A	140	60	122	30	116.5	155	Rc1 1/2	38
AP22-50A-*□A	160	74	132	37	124.5	163	Rc2	45

- Open frame lead wire type (flange type)

AP22-32F/40F/50F-*

3A
4A
5A



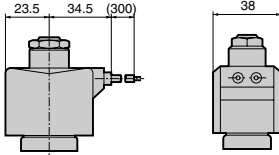
Model no.	A	B	C	D	E	F	G	H
AP22-32F-*□A	170	12	135	110.5	149	100	36	32
AP22-40F-*□A	180	14	140	116.5	155	105	42	38
AP22-50F-*□A	180	14	155	124.5	163	120	53	45

Optional dimensions: AP22 Series



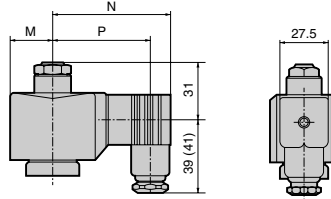
* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

- Grommet lead wire type
AP22-32² to 50² - *2C



- DIN terminal box
AP22-32² to 50² - *

2E
2G
2H

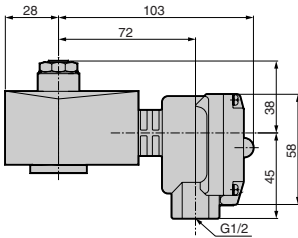


Dimensions shown in () are for G1/2.

Voltage	M	N	P
AC	23.5	65.5	54 (53.5)
DC	28	72	60.5 (60)

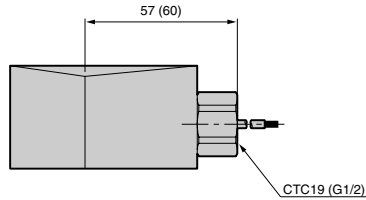
- Open frame type + HP terminal box
AP22-32² to 50² - *3

M / 4M
N / 4N
I / J



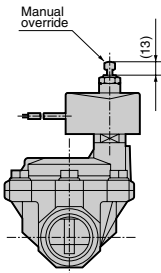
- Open frame type + conduit
AP22-32² to 50² - *

3A / G
4A / H
5A

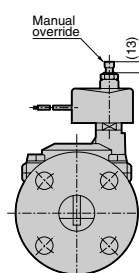


Dimensions shown in () are for G1/2.

- Manual override (locking, Rc screw-in type)
AP22-32A/40A/50A - **A



- Manual override (locking, flange type)
AP22-32F/40F/50F - **A



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 operated 2 port solenoid valve



Pilot operated 2 port solenoid valve
(general purpose valve)

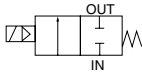
AD11/AD12 Series

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

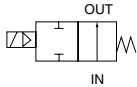


JIS symbol

- AD11:
NC (normally closed) type



- AD12:
NO (normally open) type



Common specifications

Item	Standard specifications
Working fluid	Air, water, kerosene, oil (50 mm ² /s or less)
Working pressure differential range MPa	0.02 to 1.0 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	2
Withstanding pressure (water) MPa	8
Fluid temperature (Note 1) °C	-10 to 60
Ambient temperature °C	-20 to 60
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot operated poppet, diaphragm structure
Valve seat leakage (Note 2) cm ³ /min. (ANR)	0.2 or less (air)
Mounting attitude	Free (within working pressure differential range)
Body, sealant	Bronze, nitrile rubber

Note 1: No freezing

Note 2: For AD11 (NC (normally closed) type), these values apply to pneumatic pressure 0.02 to 1.0 MPa, and for AD12 (NO (normally open) type), these apply to pneumatic pressure 0.02 to 0.5 MPa.

Individual specifications

Item Model no.	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 (50 mm ² /s)			Holding		Starting		AC	DC	
				AC	DC	AC	DC	AC	DC								
NC (normally closed) type																	
AD11-8A	Rc1/4	10	0.02	1.0	0.7	1.0	0.7	0.7	0.7	100 VAC 50/60 Hz	18	15	29	24	6.7/5.7	12 (7) ^{*6}	0.4
AD11-10A	Rc3/8	10		1.0	0.7	1.0	0.7	0.7	0.7	110 VAC 60 Hz							
AD11-15A	Rc1/2	15	0.02	1.0	0.6	0.7	0.6	0.6	0.6	200 VAC 50/60 Hz	18	15	29	24	6.7/5.7	11 (10.4) ^{*4}	1.2
AD11-20A	Rc3/4	20		1.0	0.6	0.7	0.6	0.6	0.6	220 VAC 60 Hz							
AD11-25A	Rc1	25		1.0	0.6	0.7	0.6	0.6	0.6	12 VDC							
NO (normally open) type																	
AD12-15A	Rc1/2	15	0.02							24 VDC							1.2
AD12-20A	Rc3/4	20								48 VDC							1.5
AD12-25A	Rc1	25								100 VDC	22	18	35	29	8.7/6.7	15.5 (14)	1.9

*1: The model numbers above show the basic port size (Rc). Refer to How to order for other combinations.

*2: Refer to DC column for the maximum working pressure differential of AD11 type coil with diode.

*3: Voltage fluctuation should be within ±10% of the rated voltage.

*4: Power consumption of coil housing 2E/2G/2H is indicated.

*5: The minimum working pressure differential for port size 8 (1/4) and 10 (3/8) is 0.05 MPa for fluoro rubber seal.

*6: Power consumption of coil housing 6C/6E/6G/6H is indicated.

Optional specifications

Sealant	Fluoro rubber	
Coil (heat proof class)	B	H
Fluid temperature (Note 1) °C	-10 to 60	-10 to 90
Ambient temperature °C	-20 to 60	-20 to 100 (Note 3)
Valve seat leakage (Note 2) cm ³ /min. (ANR)	0.2 or less (air)	

Note 1: No freezing

Note 2: For AD11 (NC (normally closed) type), these values apply to pneumatic pressure 0.02 to 1.0 MPa, and for AD12 (NO (normally open) type), these apply to pneumatic pressure 0.02 to 0.5 MPa.

Note 3: The range is -20 to 80°C when using the HP terminal box with indicator light for the coil housing.

Flow characteristics

Model no.	Port size	Orifice (mm)	Flow characteristics			
			C [dm ³ /(s·bar)]	b	Cv flow factor	S (mm ²)
NC (normally closed) type						
AD11-8A	Rc1/4	10	8.1	0.17	1.5	-
AD11-10A	Rc3/8	10	10	0.19	1.8	-
AD11-15A	Rc1/2	15	21	0.22	4.5	-
AD11-20A	Rc3/4	20	-	-	9.3	162
AD11-25A	Rc1	25	-	-	12.0	231
NO (normally open) type						
AD12-15A	Rc1/2	15	21	0.22	4.5	-
AD12-20A	Rc3/4	20	-	-	9.3	162
AD12-25A	Rc1	25	-	-	12.0	231

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

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/
ADAPK/
ADKFor
dry airExplosion
proofHVB/
HVLSAB/
SVBNP/NAP/
NVP

CHB/G

MXB/G

Other G.P.
systemsPD/FAD/
PJCVE/
CVSECPE/
CPDMedical
analysisCustom
order

General purpose valve

Pilot operated 2 port solenoid valve

AD11/AD12 Series

How to order



Model no.

		Model no.				
		AD11	AD12			
Symbol	Descriptions					
A Actuation						
1	NC (normally closed) type	●				
2	NO (normally open) type		●			
B Port size						
8	1 / 4	●				
10	3 / 8	●				
15	1 / 2	●	●			
20	3 / 4	●	●			
25	1	●	●			
C Type of thread						
A	Rc	●	●			
G	G	●	●			
N	NPT	●	●			
D Body/sealant combination						
	Body	Sealant	Treatment	Remarks		
0	Bronze	Nitrile rubber	Oil free	Air, water, kerosene, oil (up to 60°C)	●	●
		Fluoro rubber		Air, kerosene, oil (up to 90°C *1)	●	●
D	Stainless steel	Nitrile rubber		Air, water, kerosene, oil (up to 60°C)	●	●
		Fluoro rubber		Air, kerosene, oil (up to 90°C *1)	●	●
H	Option Bronze	Nitrile rubber		Air, water, kerosene, oil (up to 60°C)	●	●
		Fluoro rubber		Air, kerosene, oil (up to 90°C *1)	●	●
J	Option Stainless steel	Nitrile rubber	Air, water, kerosene, oil (up to 60°C)	●	●	
		Fluoro rubber	Air, kerosene, oil (up to 90°C *1)	●	●	
M	Option Stainless steel	Nitrile rubber	Air, water, kerosene, oil (up to 60°C)	●	●	
		Fluoro rubber	Air, kerosene, oil (up to 90°C *1)	●	●	

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

E to J

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

<Example 1 of model number>

AD11-20A-03A-AC100V
Series: AD11

- A** Actuation: NC (normally closed) type
- B** Port size: Rc3/4
- C** Type of thread: Rc
- D** Body/sealant combination
: Body - bronze, sealant - nitrile rubber
- E** Coil housing: Open frame lead wire
- F** to **I**: Blank
- J** Rated voltage
: 100 VAC 50/60 Hz, 110 VAC 60 Hz

The combinations indicated with ● in the above table are available.

<Example 2 of model number>

AD12-15G-D2CAS-AC200V
Series: AD12

- A** Actuation: NO (normally open) type
- B** Port size: Rc1/2
- C** Type of thread: G
- D** Body/sealant combination
: Body - stainless steel, sealant - nitrile rubber
- E** Coil housing: Grommet lead wire
- F** Manual override (locking): Selected
- G** **H**: Blank
- I** Surge suppressor: Selected
- J** Rated voltage
: 200 VAC 50/60 Hz, 220 VAC 60 Hz

▲ Note on model no. selection






Note on **D**

- *1: **D**: When selecting 4A, 4M or 4N.
- *2: Stainless steel body is not available for **B** (port size) 8 (1/4) or 10 (3/8).
- *3: For **B** (port size) 8 (1/4) or 10 (3/8), the standard body material is brass.


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

E Coil housing		F	G	H Other options				I	J Rated voltage		
Descriptions		Manual override (locking)	Mounting plate	Cable gland (Marine cable gland)			Conduit (Conduit pipe)		Surge suppressor	Descriptions	
				A-15a	A-15b	A-15c	CTC19	G1/2			
3A	Open frame lead wire	A	B				G	H	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
2C	Grommet lead wire									100 VAC, 200 VAC	
2E	DIN terminal box (G1/2)	A	B						S	100 VAC, 200 VAC	
2G	DIN terminal box (Pg11)										12 VDC, 24 VDC, 48 VDC, 100 VDC
2H	DIN terminal box + small light (Pg11)							H			100 VAC, 200 VAC, 24 VDC
3M	HP terminal box (G1/2)	A	B						S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC	
3N	Open frame type HP terminal box + light (G1/2)			D	E	F					100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 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 + light (IP65 or equivalent) (G1/2)										100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A	Open frame type Lead wire	A	B				G	H	S	100 VAC, 200 VAC	
4M	HP terminal box (G1/2)			D	E	F					
4N	HP terminal box + light (G1/2)										
5A	Open frame type Lead wire	A	B				G	H	S	100 VAC, 200 VAC	
5M	HP terminal box (G1/2)			D	E	F					
5N	HP terminal box + light (G1/2)										
5I	HP terminal box (IP65 or equivalent) (G1/2)										
5J	HP terminal box + light (IP65 or equivalent) (G1/2)										
6C	Grommet lead wire 7W	A	B						S	12 VDC, 24 VDC	
6E	DIN terminal box (G1/2) 7W										
6G	DIN terminal box (Pg11) 7W										
6H	DIN terminal box + small light (Pg11) 7W							H			

Refer to the following precautions for (E) to (J).

2C 6C		● Grommet lead wire 300 mm
2E 2G 2H 6E 6G 6H		● 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 222 for coil selection.

G H		● Conduit ● G (CTC19) ● H (G1/2)
--------	---	--

Note on model no. selection

Note on (E)

- 5A, 5M, 5N, 5I and 5J are coils for which AC power is converted to DC with a diode.
- The DC power with DIN terminal box is not available for (E) (port size) 8 (1/4) or 10 (3/8).
- 6C, 6E, 6G and 6H are available only for AD11.
- The coil housings 6C, 6E and 6G are 12 VDC and 24 VDC dedicated. 6H is 24 VDC dedicated.

Note on (E) to (I)

- The manual override (E A) cannot be mounted on the port size 8 (1/4) or 10 (3/8).
- The mounting plate (E B) can be mounted only on the port size 8 (1/4) or 10 (3/8).
- 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.
- As standard, the surge suppressor is incorporated in the coil with diode and the 24 VDC coil (E 2H/6H), so the surge suppressor symbol S cannot be selected.
- Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that the tropicalization is not available when the manual override option A and the coil option 6C/6E/6G/6H are selected.

Note on (I)

- 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 (E 5A/5M/5N/5I/5J) can be used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- For voltages other than above, consult with CKD.
- 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

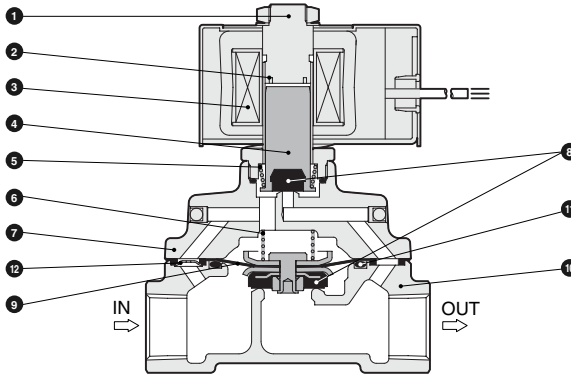
Custom
order

General purpose valve
Pilot operated 2 port Solenoid valve

AD11/AD12 Series

Internal structure and parts list

● AD11 Series



(Figure shows operation when closed)

No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403 *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	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing *3	Bronze (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)
10	Body	Bronze (SCS13) *4	Bronze casting (stainless steel casting)
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
12	Orifice plate *3	SUS304	Stainless steel

() shows options.

*1: When the body/sealant combination symbol is other than O and H, or the coil housing symbol is 6C, 6E, 6G or 6H, the material is SUS405 or equivalent, SUS316L, SUS430.

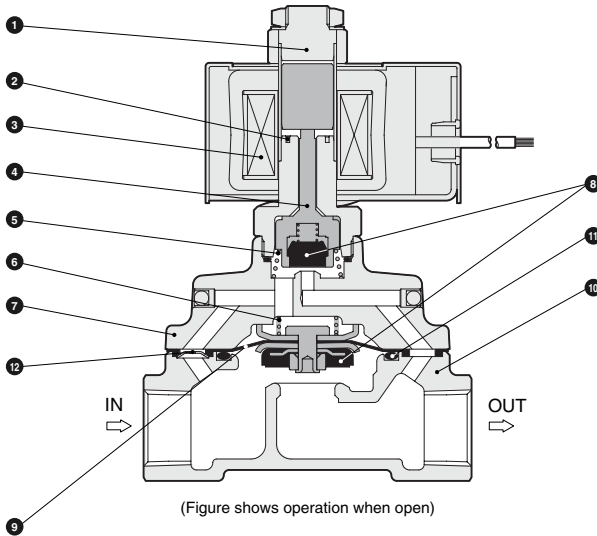
*2: When using the DC coil or a coil with diode, no shading coil is used.

*3: For port size 8 (1/4) or 10 (3/8), stuffing and orifice plate are not available.

*4: For port size 8 (1/4) or 10 (3/8), the standard body material is C3771 (brass).

Internal structure and parts list

● AD12 Series



No.	Parts name	Material	
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	NO valve assembly	POM, NBR (SUS303, PFA, FKM)	Acetal resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber)
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	Bronze (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)
10	Body	Bronze (SCS13)	Bronze casting (stainless steel casting)
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
12	Orifice plate	SUS304	Stainless steel

() shows options.

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

CV/
CVSE

CPE/
CPD

Medical
analysis

Custom
order

General purpose valve
Pilot operated 2 port solenoid valve

AD11/AD12 Series

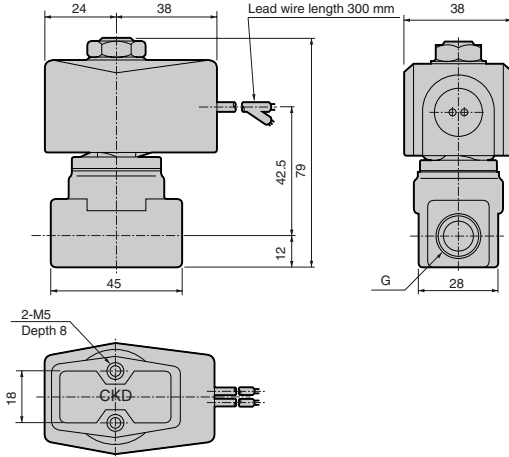
Dimensions: AD11 Series



● Open frame lead wire type

AD11-8A/10A-*

3A
4A
5A



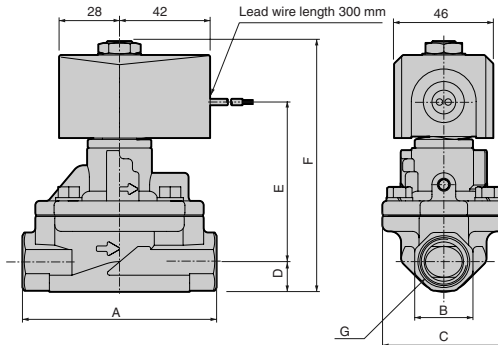
Model no.	G
AD11-8A-*□A	Rc1/4
AD11-10A-*□A	Rc3/8

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

● Open frame lead wire type

AD11-15A/20A/25A-*

3A
4A
5A



Model no.	A	B	C	D	E	F	G
AD11-15A-*□A	90	27 (29)	57	14 (14.5)	73.5	116.5 (117)	Rc1/2
AD11-20A-*□A	100	32 (35)	65	17 (17.5)	79.5	125.5 (126)	Rc3/4
AD11-25A-*□A	110	41 (44)	76	20.5 (22)	85	134.5 (136)	Rc1

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

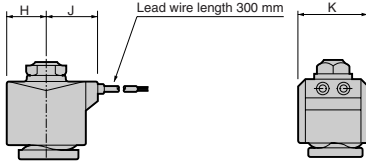
*2: Dimensions shown in () are for stainless steel body.

Optional dimensions: AD11 Series



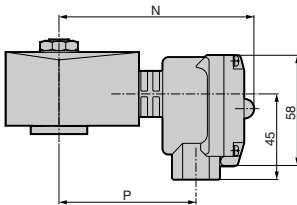
* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

- Grommet lead wire type
AD11-8A to 25A-***2C**/6**C**



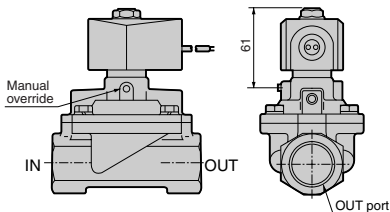
Model no.	H	J	K
AD11-8A to 10A-* 2C	20	27	34
AD11-15A to 25A-* 2C	23.5	30.5	38
AD11-8A to 25A-* 6C	24	30.5	39

- Open frame type + HP terminal box
AD11-8A to 25A-***3M**/4**M**
5N/4**N**
I/**J**

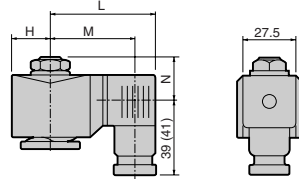


Model no.	N	P
AD11-8A to 10A-* 3M	99	68
AD11-15A to 25A-* 3M	103	72

- Manual override (locking)
AD11-15A/20A/25A-*****A**



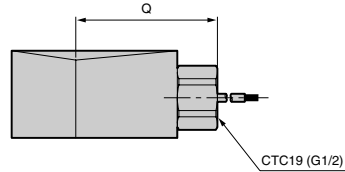
- DIN terminal box
AD11-8A to 25A-***2E**/**6G**
H



Dimensions shown in () are for G1/2.

Model no.	H	L	M	N
AD11-8A/10A-* 2E - AC	20	62	50.5 (50)	20.5
AD11-15A to 25A-* 2E - DC	23.5	65.5	54 (53.5)	22
AD11-15A to 25A-* 2E - DC	23.5	66	54.5 (54)	22
AD11-8A to 25A-* 6E - DC	24	68	56.5 (56)	22

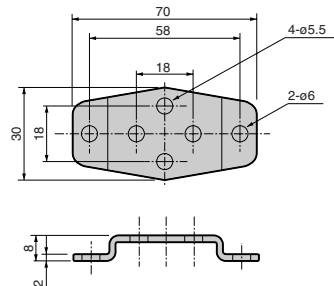
- Open frame type + conduit
AD11-8A to 25A-***3A**/**4A**
5A/**G**
H



Dimensions shown in () are for G1/2.

Model no.	Q
AD11-8A to 10A	53 (56)
AD11-15A to 25A	57 (60)

- Mounting plate
AD11-8A/10A-*****B**



Mounting plate: GE-100159

* Mounting plate is not available for port size 15 (1/2) to 25 (1).

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 Operated 2 port Solenoid valve

AD11/AD12 Series

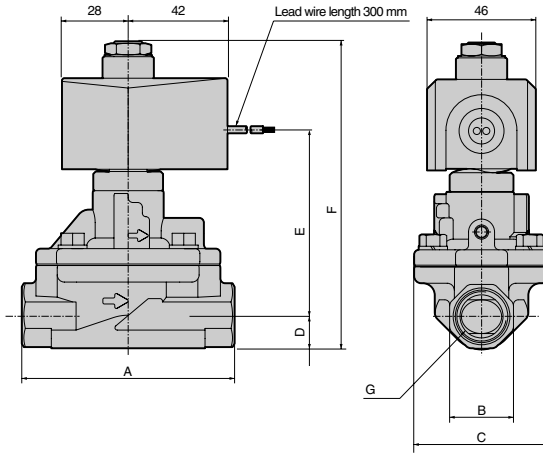
Dimensions: AD12 Series



● Open frame lead wire type

AD12-15A/20A/25A-*

3A
4A
5A



Model no.	A	B	C	D	E	F	G
AD12-15A-* □A	90	27 (29)	57	14 (14.5)	77.5	129.5 (130)	Rc1/2
AD12-20A-* □A	100	32 (35)	65	17 (17.5)	83.5	138.5 (139)	Rc3/4
AD12-25A-* □A	110	41 (44)	76	20.5 (22)	89	147.5 (149)	Rc1

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

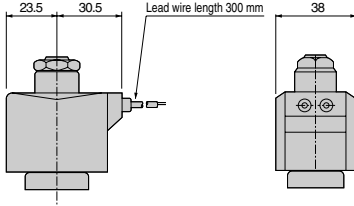
*2: Dimensions shown in () are for stainless steel body.

Optional dimensions: AD12 Series

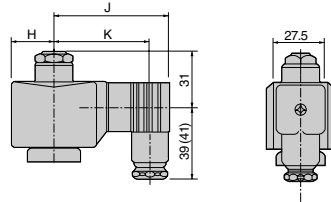


* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

- Grommet lead wire type
AD12-15A/20A/25A-**2C**



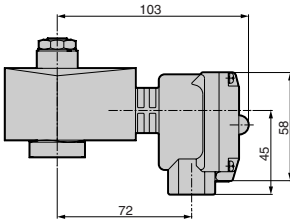
- DIN terminal box
AD12-15A/20A/25A-**2E**
2G
2H



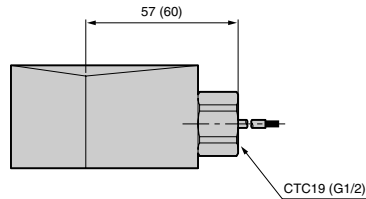
Dimensions shown in () are for G1/2.

Voltage	H	J	K
AC	23.5	65.5	54 (53.5)
DC	28	72	60.5 (60)

- Open frame type + HP terminal box
AD12-15A/20A/25A-**3M**/**4M**
5N/**4N**
1J

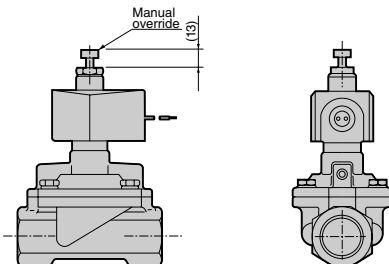


- Open frame type + conduit
AD12-15A to 25A-**3A**/**G**
4A/**H**
5A



Dimensions shown in () are for G1/2.

- Manual override (locking)
AD12-15A/20A/25A-****A**



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

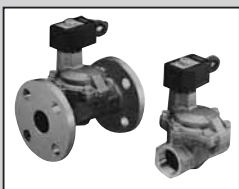
CVB/
CVSE

CPE/
CPD

Medical
analysis

Custom
order

General purpose valve
Pilot operated 2 port solenoid valve



Pilot operated 2 port solenoid valve
(general purpose valve)

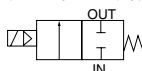
AD21/AD22 Series

- NC (normally closed) type, NO (normally open) type
- Port size: Rc1 1/4 to Rc2, 32 to 50 flange
- Diaphragm structure

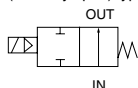


JIS symbol

- AD21:
NC (normally closed) type



- AD22:
NO (normally open) type



Common specifications

Item	Standard specifications
Working fluid	Air, water, kerosene, oil (50 mm ² /s or less)
Working pressure differential range MPa	0.02 to 0.7 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	1
Withstanding pressure (water) MPa	3.2
Fluid temperature °C	-10 to 60 (no freezing)
Ambient temperature °C	-10 to 60
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot operated poppet, diaphragm structure
Valve seat leakage (Note 1) cm ³ /min. (ANR)	1 or less (air)
Mounting attitude	Free (within working pressure differential range)
Body, sealant	Bronze, nitrile rubber

Note 1: For AD21 (NC (normally closed) type), these values apply to pneumatic pressure 0.02 to 0.7 MPa, and for AD22 (NO (normally open) type), these apply to pneumatic pressure 0.02 to 0.5 MPa.

Individual specifications

Item Model no.	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 (50 mm ² /s)			Holding	Starting	AC	DC			
				AC	DC	AC	DC	AC	DC						50 Hz	60 Hz	
NC (normally closed) type																	
AD21-32A	Rc1 1/4	35	0.02	0.7	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	18	15	29	24	6.7/5.7	11 (10.4) ^{*4} (7) ^{*5}	3.5
AD21-32F	32 flange																7
AD21-40A	Rc1 1/2	43	0.02	0.7	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	18	15	29	24	6.7/5.7	11 (10.4) ^{*4} (7) ^{*5}	4.5
AD21-40F	40 flange																8
AD21-50A	Rc2	53	0.02	0.7	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	18	15	29	24	6.7/5.7	11 (10.4) ^{*4} (7) ^{*5}	6
AD21-50F	50 flange																10
NO (normally open) type																	
AD22-32A	Rc1 1/4	35	0.02	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5 (14)	3.5
AD22-32F	32 flange																7
AD22-40A	Rc1 1/2	43	0.02	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5 (14)	4.5
AD22-40F	40 flange																8
AD22-50A	Rc2	53	0.02	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz 200 VAC 50/60 Hz 220 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5 (14)	6
AD22-50F	50 flange																10

*1: The model numbers above show the basic port size. Refer to How to order for other combinations.

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

*3: Voltage fluctuation should be within ±10% of the rated voltage.

*4: Power consumption of coil housing 2E/2G/2H is indicated.

*5: Power consumption of coil housing 6C/6E/6G/6H is indicated.

Optional specifications

Sealant	Fluoro rubber	
Coil (heat proof class)	B	H
Fluid temperature °C	5 to 60	5 to 90
Ambient temperature °C	-10 to 60	-10 to 100 (Note 2)
Valve seat leakage (Note 1) cm ³ /min. (AIR)	1 or less (air)	

Note 1: For AD21 (NC (normally closed) type), these values apply to pneumatic pressure 0.02 to 0.7 MPa, and for AD22 (NO (normally open) type), these apply to pneumatic pressure 0.02 to 0.5 MPa.

Note 2: The range is -20 to 80°C when using the HP terminal box with indicator light for the coil housing.

Flow characteristics

Model no.	Port size	Orifice (mm)	Cv flow factor	Effective sectional area (mm ²)
NC (normally closed) type				
AD21-32A	Rc1 1/4	35	25	460
AD21-32F	32 flange			
AD21-40A	Rc1 1/2	43	34	625
AD21-40F	40 flange			
AD21-50A	Rc2	53	53	975
AD21-50F	50 flange			
NO (normally open) type				
AD22-32A	Rc1 1/4	35	25	460
AD22-32F	32 flange			
AD22-40A	Rc1 1/2	43	34	625
AD22-40F	40 flange			
AD22-50A	Rc2	53	53	975
AD22-50F	50 flange			

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/
ADAPK/
ADKFor
dry airExplosion
proofHVB/
HVLSAB/
SVBNP/NAP/
NVP

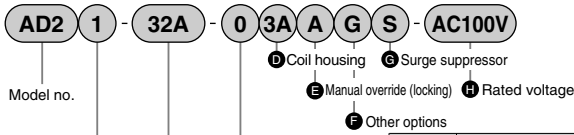
CHB/G

MXB/G

Other G.P.
systemsPD/FAD/
PJCVE/
CVSECPE/
CPDMedical
analysisCustom
order
 General purpose valve
Pilot operated 2 port solenoid valve

AD21/AD22 Series

How to order



Symbol	Descriptions			
A Actuation				
1	NC (normally closed) type			
2	NO (normally open) type			
B Port size				
32A	Rc1 1/4			
32F	32 flange			
40A	Rc1 1/2			
40F	40 flange			
50A	Rc2			
50F	50 flange			
C Body/sealant combination				
	Body	Sealant	Treatment	Remarks
0	Bronze	Nitrile rubber	-	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber		Air, kerosene, oil (up to 90°C*3)
Stainless steel	Nitrile rubber	Air, water, kerosene, oil (up to 60°C)		
	Fluoro rubber	Air, kerosene, oil (up to 90°C*3)		
H	Bronze	Nitrile rubber	Oil free	Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber		Air, kerosene, oil (up to 90°C*3)
	Stainless steel	Nitrile rubber		Air, water, kerosene, oil (up to 60°C)
		Fluoro rubber		Air, kerosene, oil (up to 90°C*3)
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>

AD21-32A-B4A-AC100V

Series: AD21

- A** Actuation: NC (normally closed) type
- B** Port size: Rc1 1/4
- C** Body/sealant combination
: Body - bronze, sealant - fluoro rubber
- D** Coil housing
: Open frame lead wire (class H coil)
- E** to **G**: Blank
- H** Rated voltage
: 100 VAC 50/60 Hz, 110 VAC 60 Hz

<Example 2 of model number>

AD22-40F-02HHS-AC200V

Series: AD22

- A** Actuation: NO (normally open) type
- B** Port size: 40 flange
- C** Body/sealant combination
: Body - bronze, sealant - nitrile rubber
- D** Coil housing: DIN terminal box + small light (Pg11)
- E** Manual override (locking): Blank
- F** Other options: Conduit G1/2
- G** Surge suppressor: Selected
- H** Rated voltage
: 200 VAC 50/60 Hz, 220 VAC 60 Hz

Note on model no. selection

*1: The companion flange is JIS B2210 10K. (No flange is enclosed with the product, but must be purchased separately.)

*2: G and NPT threads are used for piping port. Contact CKD for details.






Note on

*3: **C**: When selecting 4A, 4M or 4N.


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

Descriptions	Ⓓ Coil housing		Ⓔ Other options					Ⓖ Rated voltage		Descriptions
	Manual override (locking)	Cable gland (Marine cable gland)	Conduit (Conduit pipe)			Surge suppressor				
			A-15a	A-15b	A-15c				CTC19	
3A ^{3/8} Open frame lead wire	A						G	H	S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
2C Grommet lead wire									S	100 VAC, 200 VAC
2E DIN terminal box (G1/2)	A								S	100 VAC, 200 VAC
2G DIN terminal box (Pg11)									S	12 VDC, 24 VDC, 48 VDC, 100 VDC
2H DIN terminal box + small light (Pg11)								H	S	100 VAC, 200 VAC, 24 VDC
3M Open frame type HP terminal box (G1/2)	A	D	E	F					S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3N HP terminal box + light (G1/2)									S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
3I HP terminal box (IP65 or equivalent) (G1/2)									S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3J HP terminal box + light (IP65 or equivalent) (G1/2)									S	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A Open frame type Lead wire	A						G	H	S	100 VAC, 200 VAC
4M HP terminal box (G1/2)		D	E	F					S	100 VAC, 200 VAC
4N HP terminal box + light (G1/2)									S	100 VAC, 200 VAC
5A Open frame type Lead wire	A						G	H	S	100 VAC, 200 VAC
5M HP terminal box (G1/2)									S	100 VAC, 200 VAC
5N HP terminal box + light (G1/2)		D	E	F					S	100 VAC, 200 VAC
5I HP terminal box (IP65 or equivalent) (G1/2)									S	100 VAC, 200 VAC
5J HP terminal box + light (IP65 or equivalent) (G1/2)									S	100 VAC, 200 VAC
6C Grommet lead wire 7W	A								S	12 VDC, 24 VDC
6E DIN terminal box (G1/2) 7W									S	12 VDC, 24 VDC
6G DIN terminal box (Pg11) 7W									S	12 VDC, 24 VDC
6H DIN terminal box + small light (Pg11) 7W								H	S	24 VDC

⚠ Refer to the following precautions for Ⓓ to Ⓗ.

2C 6C		● Grommet lead wire 300 mm
2E 2G 2H 6E 6G 6H		● 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 222 for coil selection.

G H		● Conduit ● G (CTC19) ● H (G1/2)
--------	---	--

⚠ Note on model no. selection

Note on Ⓓ

- *4: 5A, 5M, 5N, 5I and 5J are coils for which AC power is converted to DC with a diode.
- *5: 6C, 6E, 6G and 6H are available only for AD21.
- *6: The coil housings 6C, 6E and 6G are 12 VDC and 24 VDC dedicated. 6H is 24 VDC dedicated.

Note on Ⓔ to Ⓖ

- *7: Select one among D, E, F, G and H for Ⓔ.
- *8: 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.
- *9: As standard, the surge suppressor is incorporated in the coil with diode and the 24 VDC coil (Ⓓ 2H/6H), so the surge suppressor symbol S cannot be selected.
- *10: Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.
Note that the tropicalization is not available when the manual override option A and the coil option 6C/6E/6G/6H are selected.

Note on Ⓓ

- *11: 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/5I/5J can be used only with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- *12: For voltages other than above, consult with CKD.
- *13: 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

CV/E/CVSE

CPE/CPD

Medical analysis

Custom order

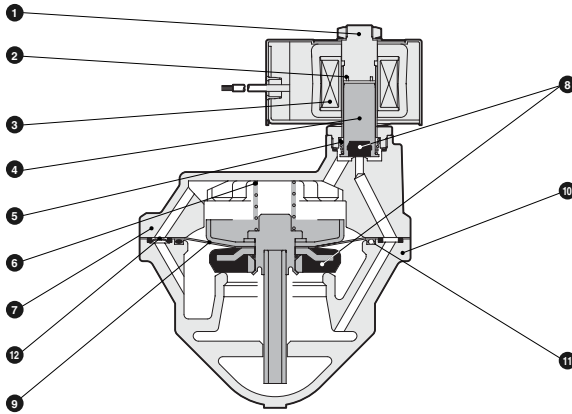
General purpose valve

Pilot operated 2 port Solenoid valve

AD21/AD22 Series

Internal structure and parts list

● AD21 Series



No.	Parts name	Material	
1	Core assembly	SUS405 or equivalent, SUS316L, SUS403 *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	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Stuffing	CAC408 (SCS13)	Bronze casting (stainless steel casting)
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber)
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)
10	Body	CAC408 (SCS13)	Bronze casting (stainless steel casting)
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
12	Orifice plate	SUS304	Stainless steel

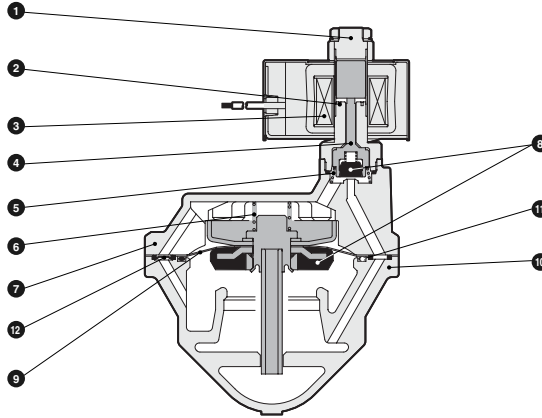
() shows options.

*1: When the body/sealant combination symbol is other than O and H, or the coil housing symbol is 6C, 6E, 6G or 6H, the material is SUS405 or equivalent, SUS316L, SUS430.

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

Internal structure and parts list

● AD22 Series



No.	Parts name	Material		
1	Plunger/core assembly	SUS405 or equivalent, SUS316L, SUS304	Stainless steel	HNB/G
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)	USB/G
3	Coil	-	-	FAB/G
4	NO valve assembly	POM, NBR (SUS303, PFA, FKM)	Acetal resin, nitrile rubber (stainless steel, perfluoroalkoxy resin, fluoro rubber)	FGB/G
5	Spring	SUS304	Stainless steel	FVB
6	Valve spring	SUS304	Stainless steel	FWB/G
7	Stuffing	CAC408 (SCS13)	Bronze casting (stainless steel casting)	FHB
8	Sealant	NBR (FKM)	Nitrile rubber (fluoro rubber)	FLB
9	Diaphragm assembly	SUS303, SUS304, NBR (SUS303, SUS304, FKM)	Stainless steel, nitrile rubber (stainless steel, fluoro rubber)	AB
10	Body	CAC408 (SCS13)	Bronze casting (stainless steel casting)	AG
11	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)	AP/AD
12	Orifice plate	SUS304	Stainless steel	APK/ADK

() shows options.

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 operated 2 port solenoid valve

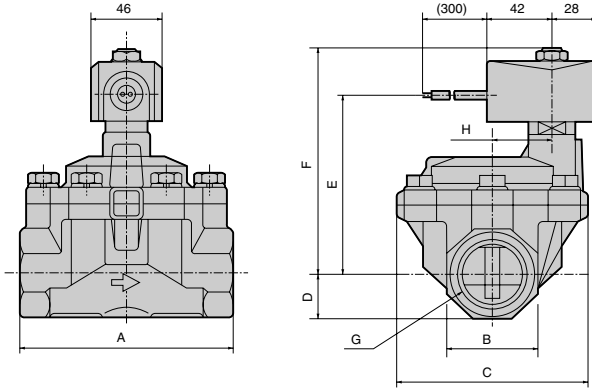
AD21/AD22 Series

Dimensions: AD21 Series

- Open frame lead wire type (Rc screw-in type)

AD21-32A/40A/50A-^{*}

3A
4A
5A

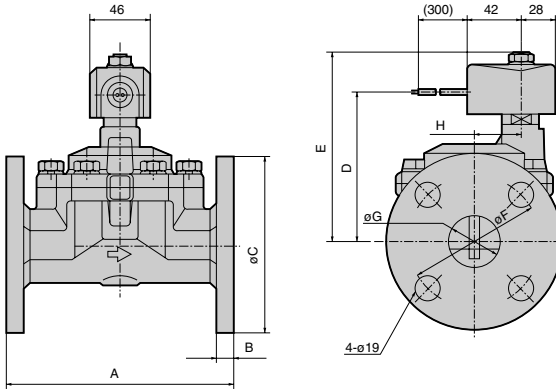


Model no.	A	B	C	D	E	F	G	H	
AD21-32A- [*] <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>A</td></tr></table>	A	125	54	112	27	107	136	Rc1 1/4	32
A									
AD21-40A- [*] <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>A</td></tr></table>	A	140	60	122	30	113	142	Rc1 1/2	38
A									
AD21-50A- [*] <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>A</td></tr></table>	A	160	74	132	37	121	150	Rc2	45
A									

- Open frame lead wire type (flange type)

AD21-32F/40F/50F-^{*}

3A
4A
5A



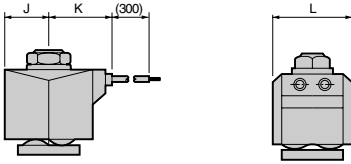
Model no.	A	B	C	D	E	F	G	H	
AD21-32F- [*] <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>A</td></tr></table>	A	170	12	135	107	136	100	36	32
A									
AD21-40F- [*] <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>A</td></tr></table>	A	180	14	140	113	142	105	42	38
A									
AD21-50F- [*] <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>A</td></tr></table>	A	180	14	155	121	150	120	53	45
A									

Optional dimensions: AD21 Series



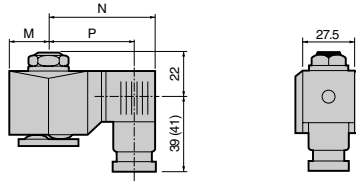
* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

- Grommet lead wire type
AD21-32^ø to 50^ø - ***2C**/**6C**



Model no.	J	K	L
AD21-32^ø to 50^ø -*2C	23.5	34.5	38
AD21-32^ø to 50^ø -*6C	24	30.5	39

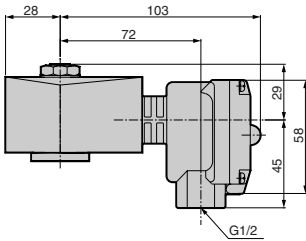
- DIN terminal box
AD21-32^ø to 50^ø - ***2**/**6** **E**/**G**/**H**



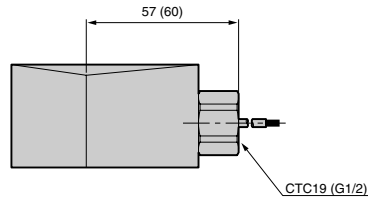
Dimensions shown in () are for G1/2.

Voltage	M	N	P
AC (2E/2G/2H)	23.5	65.5	54 (53.5)
DC (2E/2G/2H)	23.5	66	54.5 (54)
DC (6E/6G/6H)	24	68	56.5 (56)

- Open frame type + HP terminal box
AD21-32^ø to 50^ø - ***3**/**5** **M**/**N**/**I**/**J** **4M**/**4N**

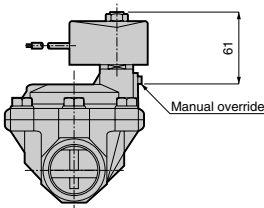


- Open frame type + conduit
AD21-32^ø to 50^ø - ***3A**/**4A**/**5A** **G**/**H**

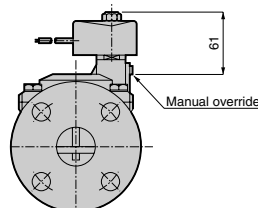


Dimensions shown in () are for G1/2.

- Manual override (locking, Rc screw-in type)
AD21-32A/40A/50A - ****A**



- Manual override (locking, flange type)
AD21-32F/40F/50F - ****A**



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

CVB/
CVSE

CPE/
CPD

Medical
analysis

Custom
order

General purpose valve
Pilot Operated 2 port Solenoid valve

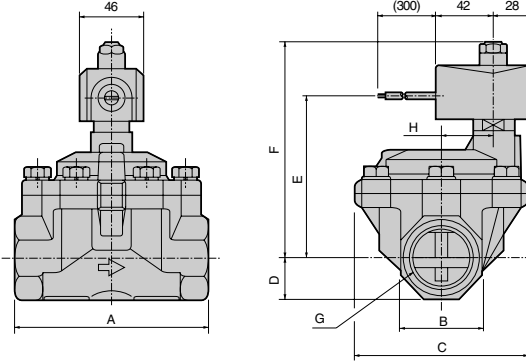
AD21/AD22 Series

Dimensions: AD22 Series

- Open frame lead wire type (Rc screw-in type)

AD22-32A/40A/50A-*

3A
4A
5A

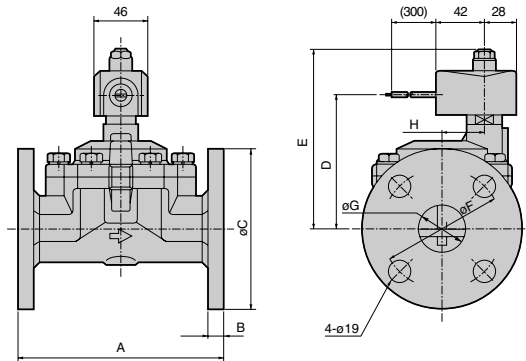


Model no.	A	B	C	D	E	F	G	H
AD22-32A-*□A	125	54	112	27	111	149.5	Rc1 1/4	32
AD22-40A-*□A	140	60	122	30	117	155.5	Rc1 1/2	38
AD22-50A-*□A	160	74	132	37	125	163.5	Rc2	45

- Open frame lead wire type (flange type)

AD22-32F/40F/50F-*

3A
4A
5A



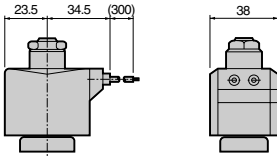
Model no.	A	B	C	D	E	F	G	H
AD22-32F-*□A	170	12	135	111	149.5	100	36	32
AD22-40F-*□A	180	14	140	117	155.5	105	42	38
AD22-50F-*□A	180	14	155	125	163.5	120	53	45

Optional dimensions: AD22 Series

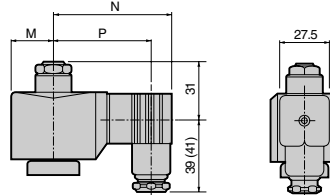


* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

- Grommet lead wire type
AD22-32^ø to 50^ø - * [2C]



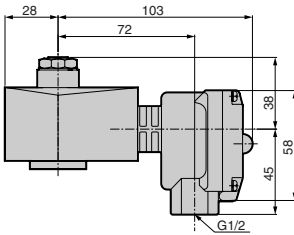
- DIN terminal box
AD22-32^ø to 50^ø - *



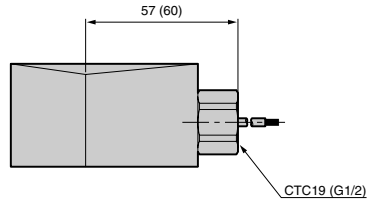
Dimensions shown in () are for G1/2.

Voltage	M	N	P
AC	23.5	65.5	54 (53.5)
DC	28	72	60.5 (60)

- Open frame type + HP terminal box
AD22-32^ø to 50^ø - * [M/4M]
[N/4N]
[J]

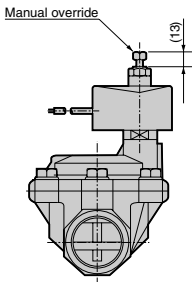


- Open frame type + conduit
AD22-32^ø to 50^ø - * [3A]
[4A]
[5A] [G]
[H]

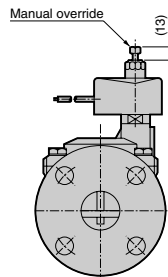


Dimensions shown in () are for G1/2.

- Manual override (locking, Rc screw-in type)
AD22-32A/40A/50A-*** [A]



- Manual override (locking, flange type)
AD22-32F/40F/50F-*** [A]



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 operated 2 port solenoid valve

Pilot kick type 2 port solenoid valve

(General purpose valve)

General purpose pilot operated 2, 3 port solenoid valve (general purpose valve)

Pilot operated piston structure AP

Electronic Catalog file list is applied to "CAD DATA 2006".

Model no.	DXF		MICRO CADAM	
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)	
● AP11/12: pages 234 to 237				
AP11-8A/10A	AP1	ap11_8a_10a	CKD-AP11-8A/10A	
AP11-15A		ap11_15a	CKD-AP11-15A	
AP11-20A		ap11_20a	CKD-AP11-20A	
AP11-25A		ap11_25a	CKD-AP11-25A	
AP11-32A		ap11_32a	CKD-AP11-32A	
AP11-40A		ap11_40a	CKD-AP11-40A	
AP11-50A		ap11_50a	CKD-AP11-50A	
AP11-32F		ap11_32f	CKD-AP11-32F	
AP11-40F		ap11_40f	CKD-AP11-40F	
AP11-50F		ap11_50f	CKD-AP11-50F	
AP11-8A/10A-A		ap11_8a_10a_a	CKD-AP11-8A/10A-A	
AP11-15A-A		ap11_15a_a	CKD-AP11-15A-A	
AP11-20A-A		ap11_20a_a	CKD-AP11-20A-A	
AP11-25A-A		ap11_25a_a	CKD-AP11-25A-A	
AP11-32A-A		ap11_32a_a	CKD-AP11-32A-A	
AP11-40A-A		ap11_40a_a	CKD-AP11-40A-A	
AP11-50A-A		ap11_50a_a	CKD-AP11-50A-A	
AP11-32F-A		ap11_32f_a	CKD-AP11-32F-A	
AP11-40F-A		ap11_40f_a	CKD-AP11-40F-A	
AP11-50F-A		ap11_50f_a	CKD-AP11-50F-A	
AP12-8A/10A		ap12_8a_10a	CKD-AP12-8A/10A	
AP12-15A		ap12_15a	CKD-AP12-15A	
AP12-20A		ap12_20a	CKD-AP12-20A	
AP12-25A		ap12_25a	CKD-AP12-25A	
AP12-32A		ap12_32a	CKD-AP12-32A	
AP12-40A		ap12_40a	CKD-AP12-40A	
AP12-50A		ap12_50a	CKD-AP12-50A	
AP12-32F		ap12_32f	CKD-AP12-32F	
AP12-40F		ap12_40f	CKD-AP12-40F	
AP12-50F		ap12_50f	CKD-AP12-50F	
AP12-15A-A		ap12_15a_a	CKD-AP12-15A-A	
AP12-20A-A		ap12_20a_a	CKD-AP12-20A-A	
AP12-25A-A		ap12_25a_a	CKD-AP12-25A-A	
AP12-32A-A		ap12_32a_a	CKD-AP12-32A-A	
AP12-40A-A		ap12_40a_a	CKD-AP12-40A-A	
AP12-50A-A		ap12_50a_a	CKD-AP12-50A-A	
AP12-32F-A		ap12_32f_a	CKD-AP12-32F-A	
AP12-40F-A		ap12_40f_a	CKD-AP12-40F-A	
AP12-50F-A		ap12_50f_a	CKD-AP12-50F-A	
(AP AD) grommet/DIN terminal box/ open frame/SUS body		ap_ad_f	CKD-AP/AD-F	
Mounting plate, cable gland, conduit		ap_ad_other_f	CKD-AP/AD-OTHER-F	
● AP21/22: pages 244 to 247				
AP21-32A		AP2	ap21_32a	CKD-AP21-32A
AP21-40A			ap21_40a	CKD-AP21-40A
AP21-50A			ap21_50a	CKD-AP21-50A
AP21-32F			ap21_32f	CKD-AP21-32F
AP21-40F			ap21_40f	CKD-AP21-40F
AP21-50F			ap21_50f	CKD-AP21-50F
AP21-32A-A			ap21_32a_a	CKD-AP21-32A-A
AP21-40A-A			ap21_40a_a	CKD-AP21-40A-A
AP21-50A-A			ap21_50a_a	CKD-AP21-50A-A
AP21-32F-A			ap21_32f_a	CKD-AP21-32F-A
AP21-40F-A			ap21_40f_a	CKD-AP21-40F-A
AP21-50F-A			ap21_50f_a	CKD-AP21-50F-A
AP22-32A			ap22_32a	CKD-AP22-32A
AP22-40A			ap22_40a	CKD-AP22-40A
AP22-50A			ap22_50a	CKD-AP22-50A
AP22-32F			ap22_32f	CKD-AP22-32F
AP22-40F			ap22_40f	CKD-AP22-40F
AP22-50F			ap22_50f	CKD-AP22-50F
AP22-32A-A			ap22_32a_a	CKD-AP22-32A-A
AP22-40A-A	ap22_40a_a		CKD-AP22-40A-A	
AP22-50A-A	ap22_50a_a		CKD-AP22-50A-A	
AP22-32F-A	ap22_32f_a		CKD-AP22-32F-A	
AP22-40F-A	ap22_40f_a		CKD-AP22-40F-A	
AP22-50F-A	ap22_50f_a		CKD-AP22-50F-A	
(AP AD) grommet/DIN terminal box/ open frame/SUS body	ap_ad_f		CKD-AP/AD-F	
Mounting plate, cable gland, conduit	ap_ad_other_f		CKD-AP/AD-OTHER-F	

Pilot kick type 2 port solenoid valve

(General purpose valve)

Pilot operated diaphragm structure AD

Electronic Catalog file list is applied to "CAD DATA 2006".

Model no.	DXF		MICRO CADAM	
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)	
● AD11/12: pages 254 to 257				
AD11-8A/10A	AD1	ad11_8a_10a	CKD-AD11-8A/10A	
AD11-15A		ad11_15a	CKD-AD11-15A	
AD11-20A		ad11_20a	CKD-AD11-20A	
AD11-25A		ad11_25a	CKD-AD11-25A	
AD11-32A		ad11_32a	CKD-AD11-32A	
AD11-40A		ad11_40a	CKD-AD11-40A	
AD11-50A		ad11_50a	CKD-AD11-50A	
AD11-32F		ad11_32f	CKD-AD11-32F	
AD11-40F		ad11_40f	CKD-AD11-40F	
AD11-50F		ad11_50f	CKD-AD11-50F	
AD11-15A-A		ad11_15a_a	CKD-AD11-15A-A	
AD11-20A-A		ad11_20a_a	CKD-AD11-20A-A	
AD11-25A-A		ad11_25a_a	CKD-AD11-25A-A	
AD11-32A-A		ad11_32a_a	CKD-AD11-32A-A	
AD11-40A-A		ad11_40a_a	CKD-AD11-40A-A	
AD11-50A-A		ad11_50a_a	CKD-AD11-50A-A	
AD11-32F-A		ad11_32f_a	CKD-AD11-32F-A	
AD11-40F-A		ad11_40f_a	CKD-AD11-40F-A	
AD11-50F-A		ad11_50f_a	CKD-AD11-50F-A	
AD12-15A		ad12_15a	CKD-AD12-15A	
AD12-20A		ad12_20a	CKD-AD12-20A	
AD12-25A		ad12_25a	CKD-AD12-25A	
AD12-32A		ad12_32a	CKD-AD12-32A	
AD12-40A		ad12_40a	CKD-AD12-40A	
AD12-50A		ad12_50a	CKD-AD12-50A	
AD12-32F		ad12_32f	CKD-AD12-32F	
AD12-40F		ad12_40f	CKD-AD12-40F	
AD12-50F		ad12_50f	CKD-AD12-50F	
AD12-15A-A		ad12_15a_a	CKD-AD12-15A-A	
AD12-20A-A		ad12_20a_a	CKD-AD12-20A-A	
AD12-25A-A		ad12_25a_a	CKD-AD12-25A-A	
AD12-32A-A		ad12_32a_a	CKD-AD12-32A-A	
AD12-40A-A		ad12_40a_a	CKD-AD12-40A-A	
AD12-50A-A		ad12_50a_a	CKD-AD12-50A-A	
AD12-32F-A		ad12_32f_a	CKD-AD12-32F-A	
AD12-40F-A		ad12_40f_a	CKD-AD12-40F-A	
AD12-50F-A		ad12_50f_a	CKD-AD12-50F-A	
(AP AD) grommet/DIN terminal box/ open frame/SUS body			ap_ad_f	CKD-AP/AD-F
Mounting plate, cable gland, conduit			ap_ad_other_f	CKD-AP/AD-OTHER-F
● AD21/22: pages 264 to 267				
AD21-32A		AD2	ad21_32a	CKD-AD21-32A
AD21-40A			ad21_40a	CKD-AD21-40A
AD21-50A			ad21_50a	CKD-AD21-50A
AD21-32F			ad21_32f	CKD-AD21-32F
AD21-40F			ad21_40f	CKD-AD21-40F
AD21-50F			ad21_50f	CKD-AD21-50F
AD21-32A-A			ad21_32a_a	CKD-AD21-32A-A
AD21-40A-A			ad21_40a_a	CKD-AD21-40A-A
AD21-50A-A			ad21_50a_a	CKD-AD21-50A-A
AD21-32F-A			ad21_32f_a	CKD-AD21-32F-A
AD21-40F-A	ad21_40f_a		CKD-AD21-40F-A	
AD21-50F-A	ad21_50f_a		CKD-AD21-50F-A	
AD22-32A	ad22_32a		CKD-AD22-32A	
AD22-40A	ad22_40a		CKD-AD22-40A	
AD22-50A	ad22_50a		CKD-AD22-50A	
AD22-32F	ad22_32f		CKD-AD22-32F	
AD22-40F	ad22_40f		CKD-AD22-40F	
AD22-50F	ad22_50f		CKD-AD22-50F	
AD22-32A-A	ad22_32a_a		CKD-AD22-32A-A	
AD22-40A-A	ad22_40a_a		CKD-AD22-40A-A	
AD22-50A-A	ad22_50a_a		CKD-AD22-50A-A	
AD22-32F-A	ad22_32f_a		CKD-AD22-32F-A	
AD22-40F-A	ad22_40f_a		CKD-AD22-40F-A	
AD22-50F-A	ad22_50f_a		CKD-AD22-50F-A	
(AP AD) grommet/DIN terminal box/ open frame/SUS body			ap_ad_f	CKD-AP/AD-F
Mounting plate, cable gland, conduit			ap_ad_other_f	CKD-AP/AD-OTHER-F

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 operated/Pilot kick type 2 port solenoid valve

Pilot kick type 2 port solenoid valve

(General purpose valve)

Pilot kick type piston structure APK

Electronic Catalog file list is applied to "CAD DATA 2006".

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
● APK11: pages 272 to 273			
APK11-8A/10A	APK1	apk11_8a_10a	CKD-APK11-8A/10A
APK11-15A		apk11_15a	CKD-APK11-15A
APK11-20A		apk11_20a	CKD-APK11-20A
APK11-25A		apk11_25a	CKD-APK11-25A
Accessory for APK1* (DIN terminal box open frame)		apk1_f	CKD-APK1-F
APK/ADK common accessory (Mounting plate, cable gland, conduit)		adk_apk_other_f	CKD-ADK/APK-OTHER-F
● APK21: pages 278 to 279			
APK21-32A	APK2	apk21_32a	CKD-APK21-32A
APK21-40A		apk21_40a	CKD-APK21-40A
APK21-50A		apk21_50a	CKD-APK21-50A
APK21-32F		apk21_32f	CKD-APK21-32F
APK21-40F		apk21_40f	CKD-APK21-40F
APK21-50F		apk21_50f	CKD-APK21-50F
Accessory for APK2* (Open frame round terminal)			adk2_apk2_f
APK/ADK common accessory (Mounting plate, cable gland, conduit)		adk_apk_other_f	CKD-ADK/APK-OTHER-F

Pilot kick type diaphragm structure ADK

Model no.	DXF		MICRO CADAM	
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)	
● ADK11: pages 288 to 291				
ADK11-8A/10A	ADK1	adk11_8a_10a	CKD-ADK11-8A/10A	
ADK11-15A		adk11_15a	CKD-ADK11-15A	
ADK11-20A		adk11_20a	CKD-ADK11-20A	
ADK11-25A		adk11_25a	CKD-ADK11-25A	
ADK12-15A		adk12_15a	CKD-ADK12-15A	
ADK12-20A		adk12_20a	CKD-ADK12-20A	
ADK12-25A		adk12_25a	CKD-ADK12-25A	
APK/ADK common accessory (Mounting plate, cable gland, conduit)			adk_apk_other	CKD-ADK/APK-OTHER-F
Accessory for ADK1* (DIN terminal box open frame)			adk1_f	CKD-ADK1-F
● ADK21: pages 296 to 297				
ADK21-32A	ADK2	adk21_32a	CKD-ADK21-32A	
ADK21-40A		adk21_40a	CKD-ADK21-40A	
ADK21-50A		adk21_50a	CKD-ADK21-50A	
ADK21-32F		adk21_32f	CKD-ADK21-32F	
ADK21-40F		adk21_40f	CKD-ADK21-40F	
ADK21-50F		adk21_50f	CKD-ADK21-50F	
Accessory for APK ADK2* (Open frame round terminal)			adk2_apk2vf	CKD-ADK2/APK2-F
APK/ADK common accessory (Mounting plate, cable gland, conduit)		adk_apk_other	CKD-ADK/APK-OTHER-F	