



Pilot operated 2 port solenoid valve
(general purpose valve)

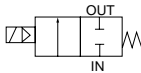
AD11/AD12 Series

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

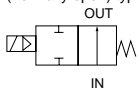


JIS symbol

- 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 50/60 Hz	DC		
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz				
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	0.4	
AD11-10A	Rc3/8	10		*5	1.0	0.7	1.0	0.7	0.7	0.7						110 VAC 60 Hz	(7)	*6
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	1.2	
AD11-20A	Rc3/4	20		1.0	0.6	0.7	0.6	0.6	0.6	220 VAC 60 Hz						(10.4)	*4	1.2
AD11-25A	Rc1	25		1.0	0.6	0.7	0.6	0.6	0.6	12 VDC						(7)	*6	1.9
NO (normally open) type																		
AD12-15A	Rc1/2	15	0.02							24 VDC							1.2	
AD12-20A	Rc3/4	20		0.5	0.5	0.5	0.5	0.5	0.5	48 VDC							1.5	
AD12-25A	Rc1	25		0.5	0.5	0.5	0.5	0.5	0.5	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
A Actuation	A Actuation		
	1 NC (normally closed) type	●	
	2 NO (normally open) type		●
B Port size	B Port size		
	8 1 / 4	●	
	10 3 / 8	●	
	15 1 / 2	●	●
	20 3 / 4	●	●
	25 1	●	●
C Type of thread	C Type of thread		
	A Rc	●	●
	G G	●	●
	N NPT	●	●
D Body/sealant combination	D Body/sealant combination		
	0 Body: Bronze, Sealant: Nitrile rubber, Treatment: Oil free, Remarks: Air, water, kerosene, oil (up to 60°C)	●	●
	B Body: Bronze, Sealant: Fluoro rubber, Treatment: Oil free, Remarks: Air, kerosene, oil (up to 90°C *1)	●	●
	D Body: Stainless steel, Sealant: Nitrile rubber, Treatment: Oil free, Remarks: Air, water, kerosene, oil (up to 60°C)	●	●
	E Body: Stainless steel, Sealant: Fluoro rubber, Treatment: Oil free, Remarks: Air, kerosene, oil (up to 90°C *1)	●	●
	H Body: Option: Bronze, Sealant: Nitrile rubber, Treatment: Oil free, Remarks: Air, water, kerosene, oil (up to 60°C)	●	●
	J Body: Option: Bronze, Sealant: Fluoro rubber, Treatment: Oil free, Remarks: Air, kerosene, oil (up to 90°C *1)	●	●
	L Body: Stainless steel, Sealant: Nitrile rubber, Treatment: Oil free, Remarks: Air, water, kerosene, oil (up to 60°C)	●	●
	M Body: Stainless steel, Sealant: Fluoro rubber, Treatment: Oil free, Remarks: 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	Diode integrated 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			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)
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Note on model no. selection

Note on (E)

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

Note on (E) to (I)

- *8: The manual override (E) A) cannot be mounted on the port size 8 (1/4) or 10 (3/8).
- *9: The mounting plate (E) B) can be mounted only on the port size 8 (1/4) or 10 (3/8).
- *10: Select one among D, E, F, G and H for (E).
- *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 (I)

- *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

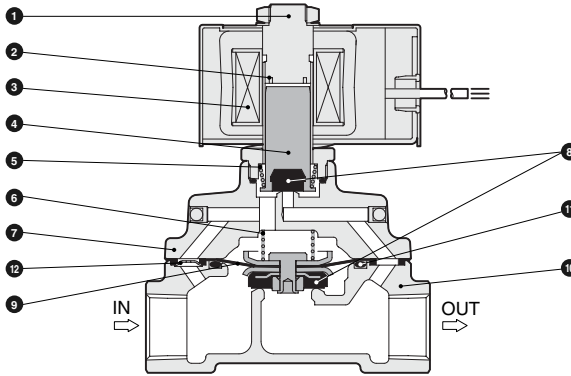
Custom
order

General purpose valve
Pilot operated 2 port Solenoid valve

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.

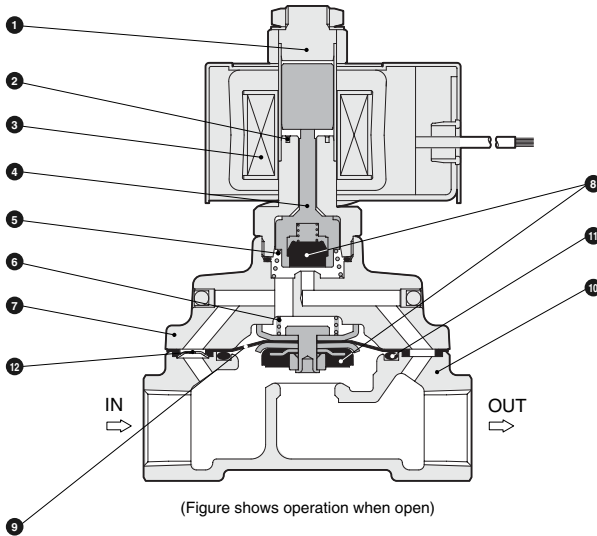
*2: When using the DC coil or a coil with diode, no shading coil is used.

*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

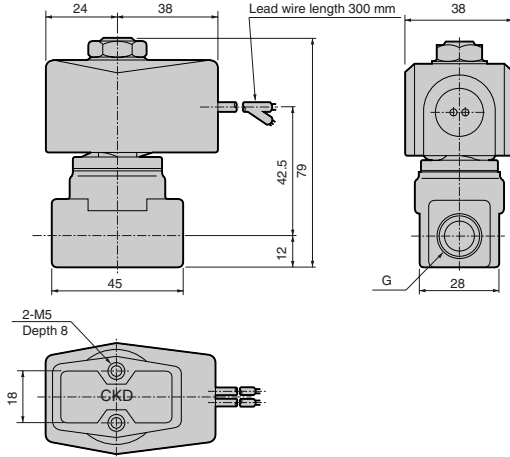
Dimensions: AD11 Series



● Open frame lead wire type

AD11-8A/10A-^{*}

3A
4A
5A



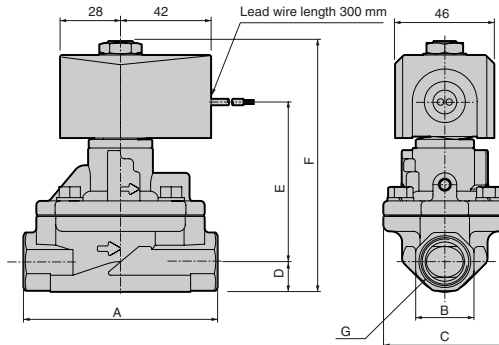
Model no.	G	
AD11-8A- [*] <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>A</td></tr> </table>	A	Rc1/4
A		
AD11-10A- [*] <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>A</td></tr> </table>	A	Rc3/8
A		

*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- [*] <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>A</td></tr> </table>	A	90	27 (29)	57	14 (14.5)	73.5	116.5 (117)	Rc1/2
A								
AD11-20A- [*] <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>A</td></tr> </table>	A	100	32 (35)	65	17 (17.5)	79.5	125.5 (126)	Rc3/4
A								
AD11-25A- [*] <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>A</td></tr> </table>	A	110	41 (44)	76	20.5 (22)	85	134.5 (136)	Rc1
A								

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

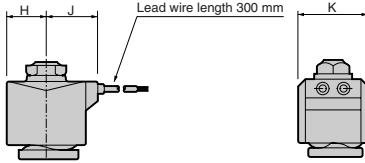
*2: Dimensions shown in () are for stainless steel body.

Optional dimensions: AD11 Series



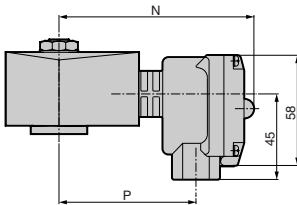
* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

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



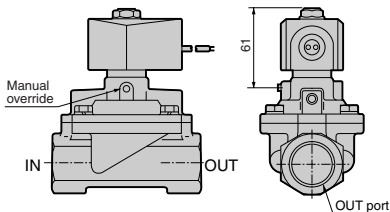
Model no.	H	J	K
AD11-8A to 10A-* 2C	20	27	34
AD11-15A to 25A-* 2C	23.5	30.5	38
AD11-8A to 25A-* 6C	24	30.5	39

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

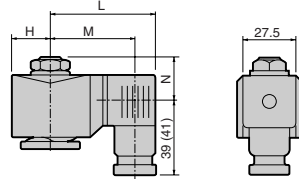


Model no.	N	P
AD11-8A to 10A-* 3M	99	68
AD11-15A to 25A-* 3M	103	72

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



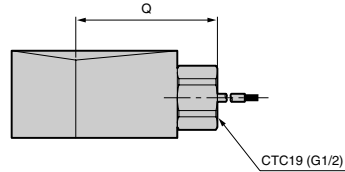
- DIN terminal box
AD11-8A to 25A-***2E**/**6G**
H



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

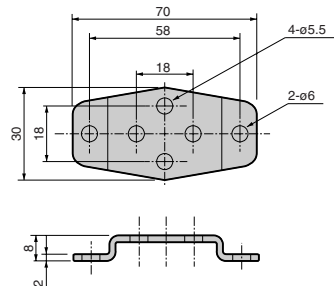
- Open frame type + conduit
AD11-8A to 25A-***3A**/**4A**
5A/**G**
H



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

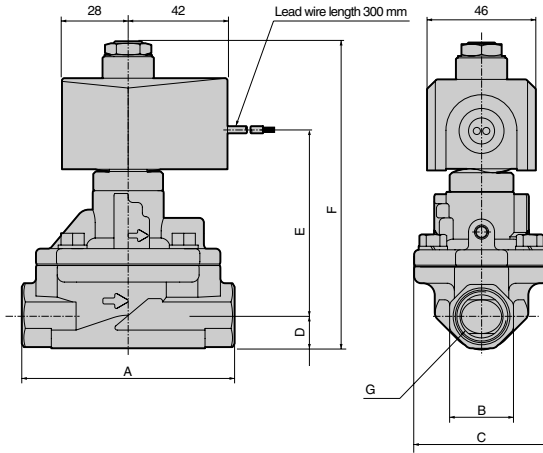
Dimensions: AD12 Series



● 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.

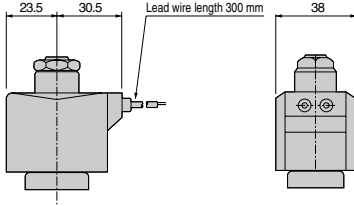
*2: Dimensions shown in () are for stainless steel body.

Optional dimensions: AD12 Series

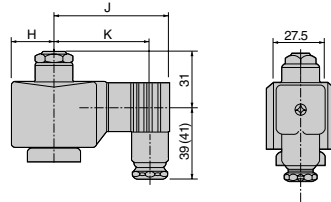


* Refer to the open frame lead wire type dimensions on the left page for common dimensions.

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



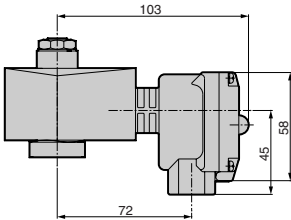
- DIN terminal box
AD12-15A/20A/25A-**2E**
2G
2H



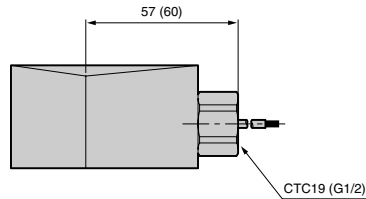
Dimensions shown in () are for G1/2.

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

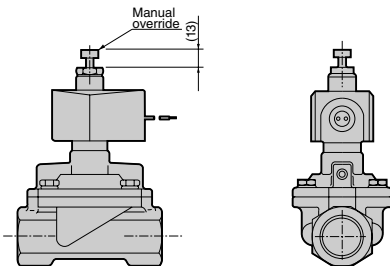


- Open frame type + conduit
AD12-15A to 25A-**3A**/**G**
4A/**H**
5A



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