

# AB41E4/AB42E4 Series



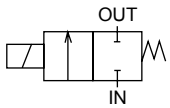
- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- Japan Conformity Certificate No. AB41E4: No. T64349, AB42E4: No. T64352
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- NC (open when energized), NO (closed when energized)
- Port size: Rc1/4, Rc3/8



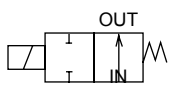
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HV/B/  
HVL  
S ∅ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combust  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

## JIS symbol

- AB41E4: NC (open when energized)



- AB42E4: NO (closed when energized)



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AB41E4	AB42E4
Working fluid	Air/low vacuum [1.33 x 10 <sup>2</sup> Pa (abs)]/water/kerosene/oil (50 mm <sup>2</sup> /s or less)	
Working pressure differential MPa	0 to 5 (Refer to max. working press diff, indiv specs)	0 to 2 (Refer to max. working press diff, indiv specs)
Max. working pressure MPa	5 (≈730 psi, 50 bar)	2 (≈290 psi, 20 bar)
Proof pressure (water pressure) MPa	25 (≈3600 psi, 250 bar)	
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)	
Ambient temperature °C	-10 (14°F) to 50 (122°F)	
Thermal class	Class 130 (B)	
Atmosphere	Outdoors/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)	
Valve structure	Direct acting poppet structure	
Valve seat leakage cm <sup>3</sup> /min(ANR)	0.2 or less (PTFE sealant: 300 or less) (air)	
Mounting orientation	Unrestricted	
Degree of protection	IP65 or equivalent	

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)	
			Air		Water(hot)/Kerosene		Oil (50 mm <sup>2</sup> /s)			When holding		When starting		AC	DC		
			AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz				
<b>NC (open when energized)</b>																	
AB41E4-	Rc1/4 Rc3/8	02 03 -1	1.5	5.0	4.0	4.5	4.0	4.0	4.0	100 VAC 50/60 Hz 110 VAC 60 Hz	18	15	29	24	8/7	11.6	1.0
		-2	2.0	3.0	2.5	2.7	2.5	2.5	2.5	200 VAC 50/60 Hz 220 VAC 60 Hz							
		-3	3.0	1.5	0.9	1.3	0.9	0.9	0.9	(12 VDC) (24 VDC) (48 VDC) (100 VDC) *5							
		-4	3.5	1.2	0.6	0.9	0.6	0.6	0.6								
		-5	4.0	1.0	0.5	0.7	0.5	0.5	0.5								
		-6	5.0	0.6	0.25	0.4	0.25	0.25	0.25								
		02 03 -7	7.0	0.25	0.1	0.2	0.1	0.15	0.1								
<b>NO (closed when energized)</b>																	
AB42E4-	Rc1/4 Rc3/8	-1	1.5	2.0	2.0	2.0	2.0	2.0	2.0	100 VAC 50/60 Hz 110 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5	1.0
		-2	2.0	1.0	1.0	1.0	1.0	1.0	1.0	200 VAC 50/60 Hz 220 VAC 60 Hz							
		-3	3.0	0.7	0.7	0.7	0.7	0.7	0.7	(12 VDC) (24 VDC) (48 VDC) (100 VDC) *5							
		-4	3.5	0.5	0.5	0.5	0.5	0.5	0.5								
		-5	4.0	0.4	0.4	0.4	0.4	0.4	0.4								
		-6	5.0	0.25	0.25	0.25	0.25	0.25	0.25								
		-7	7.0	0.15	0.15	0.15	0.15	0.15	0.15								

\*1 : The port size model No. is 02 for Rc1/4 (8A) and 03 for Rc3/8 (10A).  
 \*2 : Refer to DC column for the max. working pressure differential of AB41E4 type coil with diode.  
 \*3 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.  
 \*4 : When using at low vacuum, vacuum the OUT port side.  
 \*5 : ( ) shows options.

## Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics		
			C[dm <sup>3</sup> /(s·bar)]	b	Cv
<b>NC (open when energized)</b>					
AB41E4- <sup>02</sup> / <sub>03</sub>	Rc1/4 Rc3/8	1.5	0.29	0.53	0.1
		2.0	0.53	0.52	0.15
		3.0	1.1	0.52	0.31
		3.5	1.7	0.49	0.42
			[1.5]	[0.47]	[0.40]
		4.0	2.1	0.48	0.54
			[1.9]	[0.47]	[0.48]
5.0	3.0	0.42	0.80		
	[2.6]	[0.38]	[0.62]		
6.0	4.8	0.29	1.0		
	[4.6]	[0.37]	[0.82]		
<b>NO (closed when energized)</b>					
AB42E4- <sup>02</sup> / <sub>03</sub>	Rc1/4 Rc3/8	1.5	0.29	0.53	0.1
		2.0	0.53	0.52	0.15
		3.0	1.1	0.52	0.31
		3.5	1.7	0.49	0.42
			[1.5]	[0.47]	[0.40]
		4.0	2.1	0.48	0.54
			[1.9]	[0.47]	[0.48]
5.0	3.0	0.42	0.80		
	[2.6]	[0.38]	[0.62]		
6.0	4.8	0.29	1.0		
	[4.6]	[0.37]	[0.82]		

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

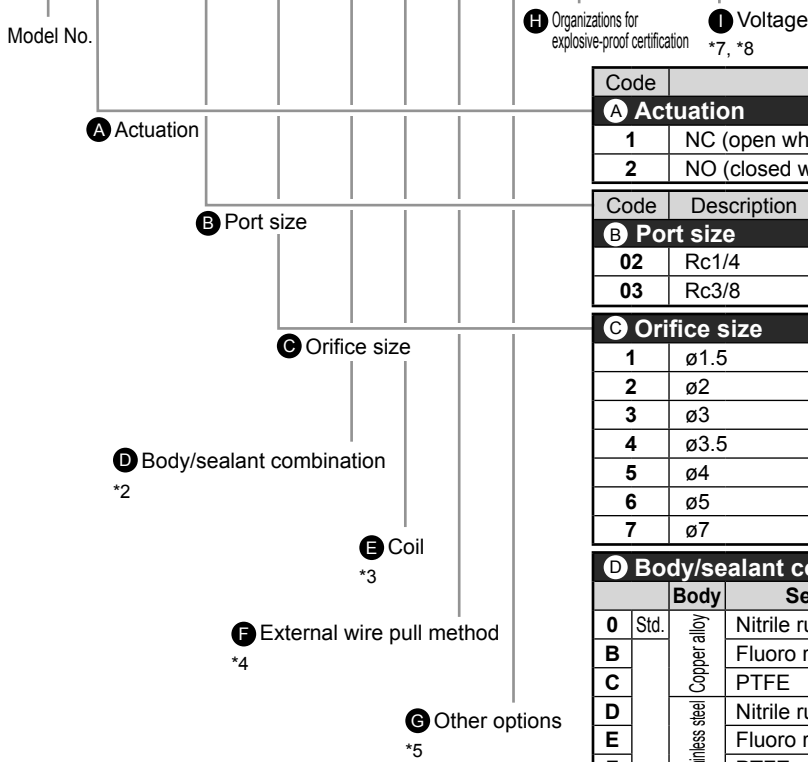
\*2 : Dimensions shown in [ ] are for stainless steel body.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S <sup>◇</sup> B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

# AB41E4/AB42E4 Series

## How to order

**AB41E4-02-3-03TA CN-AC100V**



Model No.

AB41E4  
AB42E4

Code	Description	AB41E4	AB42E4
<b>A Actuation</b>			
1	NC (open when energized)	●	●
2	NO (closed when energized)	●	●

Code	Description	Code	Description	Code	Description	AB41E4	AB42E4
<b>B Port size</b>							
02	Rc1/4	2G	G1/4	2N	1/4NPT	●	●
03	Rc3/8	3G	G3/8	3N	3/8NPT	●	●

Code	Description	AB41E4	AB42E4
<b>C Orifice size</b>			
1	ø1.5	●	●
2	ø2	●	●
3	ø3	●	●
4	ø3.5	●	●
5	ø4	●	●
6	ø5	●	●
7	ø7	●	●

<b>D Body/sealant combination</b>							
	Body	Seal	Treatment	Remarks			
0	Std.	Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)	●	●
B	Option	Copper alloy	Fluoro rubber	-	-	●	●
C			PTFE	-	-	●	●
D			Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)	●	●
E	Option	Stainless steel	Fluoro rubber	-	-	●	●
F			PTFE	-	-	●	●
H			Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)	●	●
J	Option	Copper alloy	Fluoro rubber	-	-	●	●
K			PTFE	-	-	●	●
P			Ethylene propylene rubber	-	-	●	●
L	Option	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)	●	●
M			Fluoro rubber	-	-	●	●
N			PTFE	-	-	●	●
R			Ethylene propylene rubber	-	-	●	●

Refer to Intro Page 39 for reference on material combinations.

<b>E Coil</b>			
3	Thermal class 130 (B) explosion-proof coil	●	●
5	Thermal class 130 (B) diode integrated explosion-proof coil	●	●

<b>F External wire pull method</b>				
T	Std.	Conduit screw connection (G1/2) *9	●	●
L	Option	Pressure proof packing seal (G1/2) connection, cable O.D. ø7.5 to 8.4	●	●
M		Pressure proof packing seal (G1/2) connection, cable O.D. ø8.5 to 9.4	●	●

<b>G Other options</b>				
Blank	Std.	No option	●	●
A	Option	Manual override (locking)	●	●
B		With mounting plate	●	●
AB		Manual override/mounting plate	●	●

<b>H Organizations for explosive-proof certification</b>			
Blank	Japan certification (TIIS) *10	●	●
CN	China certification (NEPSI) *11	●	●

<b>I Voltage</b>				
AC100V	Std.	100 VAC 50/60 Hz	●	●
AC200V		200 VAC 50/60 Hz	●	●
DC12V	Option	12 VDC	●	●
DC24V		24 VDC	●	●
DC48V		48 VDC	●	●
DC100V		100 VDC	●	●

### [Example of model No.]

**AB41E4-02-3-03TACN-AC100V**

Model: AB41E4

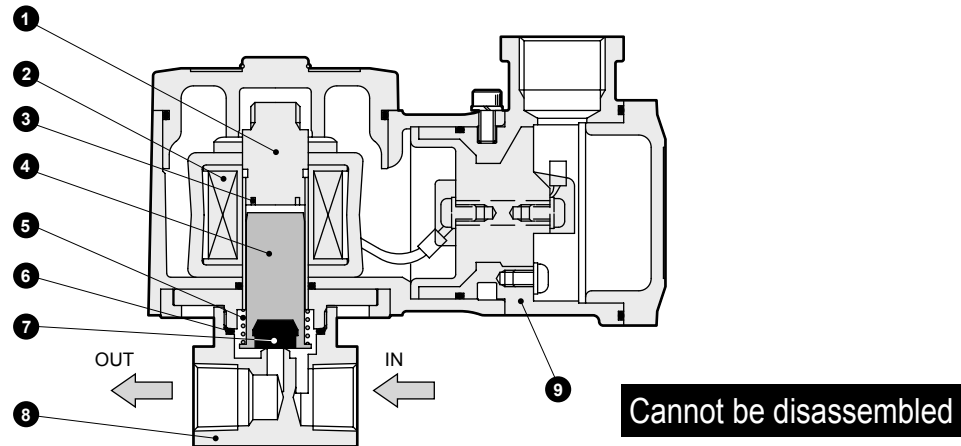
- A** Actuation : NC (open when energized)
- B** Port size : Rc1/4
- C** Orifice size : ø3
- D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- E** Coil : Thermal class 130 (B) explosion-proof coil
- F** External wire pull method : Conduit screw connection (1/2NPT)
- G** Other options : Manual override (locking)
- H** Organizations for explosive-proof certification: China Certification (NEPSI)
- I** Voltage : 100 VAC 50/60 Hz

### ⚠ Precautions for model No. selection

- \*1 : The combinations indicated with ● above are available.
- \*2 : The ethylene propylene rubber seal combination (Item P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- \*3 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*4 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*5 : When Item D is C, F, K or N, the manual override (Item E A or AB) is not available. When Item A is 2, the manual override (Item E A or AB) is not available.
- \*6 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.
- \*7 : 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. The thermal class 130 (B) diode integrated explosion-proof coil (Item E 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*8 : Other voltages as below are also available. Contact CKD for details. 12, 24, 48, 110, 115, 120, 220, 240, 380, 400, 415, 440, 480, 500 VAC (with diode) 110, 220 VAC 6, 110, 200, 220 VDC
- \*9 : China certification will be 1/2 NPT.
- \*10 : Japan certification (TIIS) is included.
- \*11 : China certification (NEPSI) is included.

## Internal structure and parts list

### ● AB41E4 Series

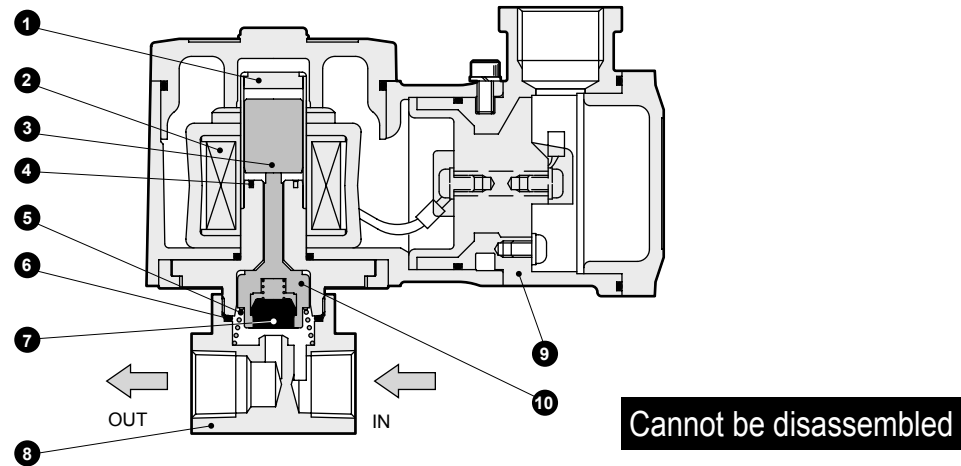


No.	Part name	Material	No.	Part name	Material
1	Core assembly	SUS405 or equiv./316L/403	6	O-ring	NBR (FKM/PTFE/EPDM)
2	Coil assembly	-	7	Valve seal	NBR (FKM/PTFE/EPDM)
3	Shading coil	Cu (Ag for stainless steel body)	8	Body	C3771(SUS303)
4	Plunger	SUS405 or equiv.	9	Coil case	ADC12
5	Plunger spring	SUS304			

NBR: Nitrile rubber  
 FKM: Fluoro rubber  
 EPDM: Ethylene propylene rubber  
 PTFE: Tetrafluoroethylene resin  
 Copper alloy (stainless steel)  
 Aluminum die-casting

( ) shows options.

### ● AB42E4 Series



No.	Part name	Material	No.	Part name	Material
1	Core assembly	SUS405 or equiv./316L/304	8	Body	C3771(SUS303)
2	Coil	-	9	Coil case	ADC12
3	Plunger	SUS405 or equiv.	10	NO Valve	POM(PPS/SUS303/PFA)
4	Shading coil	Cu (Ag for stainless steel body)			Body/sealant combination
5	Spring	SUS304			When O/D/H/L:
6	O-ring	NBR (FKM/PTFE/EPDM)			Polyacetal resin
7	Valve seal	NBR (FKM/PTFE/EPDM)			When B/E/J/M/P/R:
					Polyphenylene sulfide resin
					When C/F/K/N:
					Stainless steel/perfluoroalkoxy resin

( ) shows options.

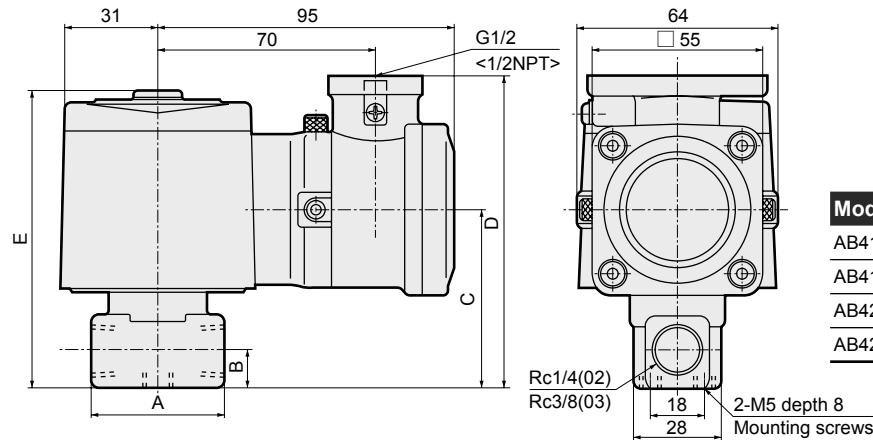
EXA  
 FWD  
 HNB/G  
 USB/G  
 FAB/G  
 FGB/G  
 FVB  
 FWB/G  
 FHB  
 FLB  
 AB  
 AG  
 AP/  
 AD  
 APK/  
 ADK  
 DryAir  
 EX-  
 XPLNprf  
 XPLNprf  
 HVB/  
 HVL  
 S B/  
 NAB  
 LAD/  
 NAD  
 Water-  
 Rela  
 NP/NAP/  
 NVP  
 SNP  
 CHB/G  
 MXB/G  
 Other valves  
 SWD/  
 MWD  
 DustColl  
 CVE/  
 CVSE  
 CCH/  
 CPE/D  
 LifeSci  
 Gas-  
 Combustion  
 Auto-  
 Water  
 Outdoor  
 SpecFld  
 Custom  
 Ending

# AB41E4/AB42E4 Series



## Dimensions

- Conduit screw (G1/2) connection  
AB41E4 **-\*\*-\*-T**  
AB42E4



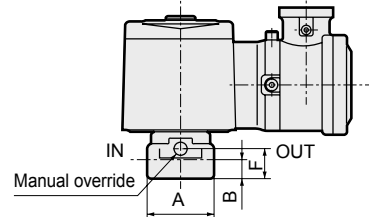
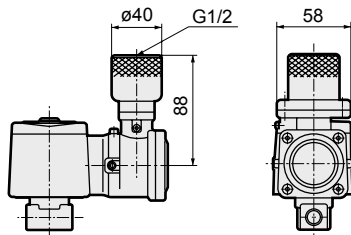
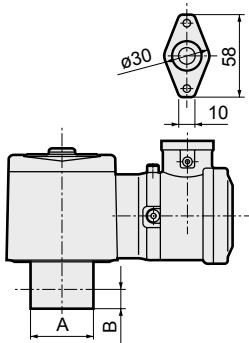
Dimensions in < > are for China certification

Model No.	A	B	C	D	E
AB41E4-02-1 to 6	36	11	54	97	92
AB41E4- <sup>02-7</sup> <sub>03-1 to 7</sub>	40	12	57	100	95
AB42E4-02-1 to 6	36	11	58	101	96
AB42E4- <sup>02-7</sup> <sub>03-1 to 7</sub>	40	12	61	104	99

## Optional dimensions



- Stainless steel body  
AB41E4 **-\*\* [D,E,F,R]**  
AB42E4 **[L,M,N]**
- Pressure proof packing (G1/2) connection  
AB41E4 **-\*\*-\*- [L,M]**  
AB42E4
- Manual override (locking)  
AB41E4 **-\*\*-\*- [A]**

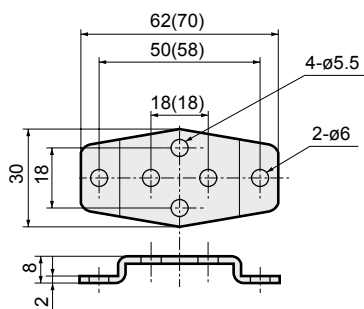


Model No.	A	B	F
AB41E4-02-1 to 6	36	11	19.5
AB41E4- <sup>02-7</sup> <sub>03-1 to 7</sub>	40	12	22.5

Model No.	A	B
AB41E4-02-1 to 6	$\phi 37.5$	11
AB41E4- <sup>02-7</sup> <sub>03-1 to 7</sub>	$\phi 45$	12
AB42E4-02-1 to 6	$\phi 37.5$	11
AB42E4- <sup>02-7</sup> <sub>03-1 to 7</sub>	$\phi 45$	12

- Mounting plate

AB41E4 **-\*\*-\*- [B]**  
AB42E4 **[AB]**



Dimensions shown in ( ) are for mounting plate No. 2.

Mounting plate model	Compatibility
AB4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No. 1)	<ul style="list-style-type: none"> <li>● AB41E4-02/03-1 to 7</li> <li>● AB41E4-02-1 to 6</li> <li>● AB42E4-02/03-1 to 7</li> <li>● AB42E4-02-1 to 6</li> </ul> Copper alloy body Stainless steel body Copper alloy body Stainless steel body
AB4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No. 2)	<ul style="list-style-type: none"> <li>● AB41E4-02-7</li> <li>● AB41E4-03-1 to 7</li> <li>● AB42E4-02-7</li> <li>● AB42E4-03-1 to 7</li> </ul> Stainless steel body Stainless steel body Stainless steel body Stainless steel body

\* Material: Steel/Zinc plated

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# MEMO

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EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
<b>AB</b>
<b>AG</b>
<b>AP/ AD</b>
<b>APK/ ADK</b>
<b>DryAir</b>
<b>EX- XPLNprf</b>
<b>XPLNprf</b>
HVB/ HVL
S <sup>◇</sup> B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending



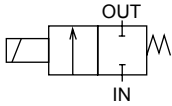
# AB41E4-Z Series

- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- Japan Conformity Certificate No.: No. T64361
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- NC (open when energized)
- Port size: Rc1/4, Rc3/8



## JIS symbol

- NC (open when energized)



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications
Working fluid	For dry air (atmospheric dew point -60°C and over)/inert gas/low vacuum [1.33 x 10 <sup>2</sup> Pa (abs)]
Working pressure differential MPa	0 to 4 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	5 (≈730 psi, 50 bar)
Proof pressure (water pressure) MPa	25 (≈3600 psi, 250 bar)
Fluid temperature °C	-10 (14°F) to 45 (113°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 45 (113°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoor/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Direct acting poppet structure
Valve seat leakage cm <sup>3</sup> /min(ANR)	0.2 or less
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent

## Individual specifications

1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Max. working pressure differential (MPa)	Rated voltage	Power consumption (W)	Weight (kg)
<b>Model No.</b>						
AB41E4- <sup>02</sup> / <sub>03</sub> -1-****Z	Rc1/4 Rc3/8	1.5	4.0 (≈580 psi)	100 VAC 50/60 Hz	17	1.0
-2-****Z		2.0	2.5 (≈360 psi)	200 VAC 50/60 Hz		
-3-****Z		3.0	0.9 (≈130 psi)	(12 VDC)		
-4-****Z		3.5	0.6 (≈87 psi)	(24 VDC)		
-5-****Z		4.0	0.4 (≈58 psi)	(48 VDC)		
-6-****Z		5.0	0.2 (≈29 psi)	(100 VDC)		
-7-****Z		7.0	0.1 (≈15 psi)	*4		

- \*1 : The port size code is 02 for Rc1/4 (8A) and 03 for Rc3/8 (10A).  
 \*2 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.  
 \*3 : The leakage current must be less than or equal to the values shown below.  
 \*4 : ( ) shows options.  
 \*5 : When using at low vacuum, vacuum the OUT port side.

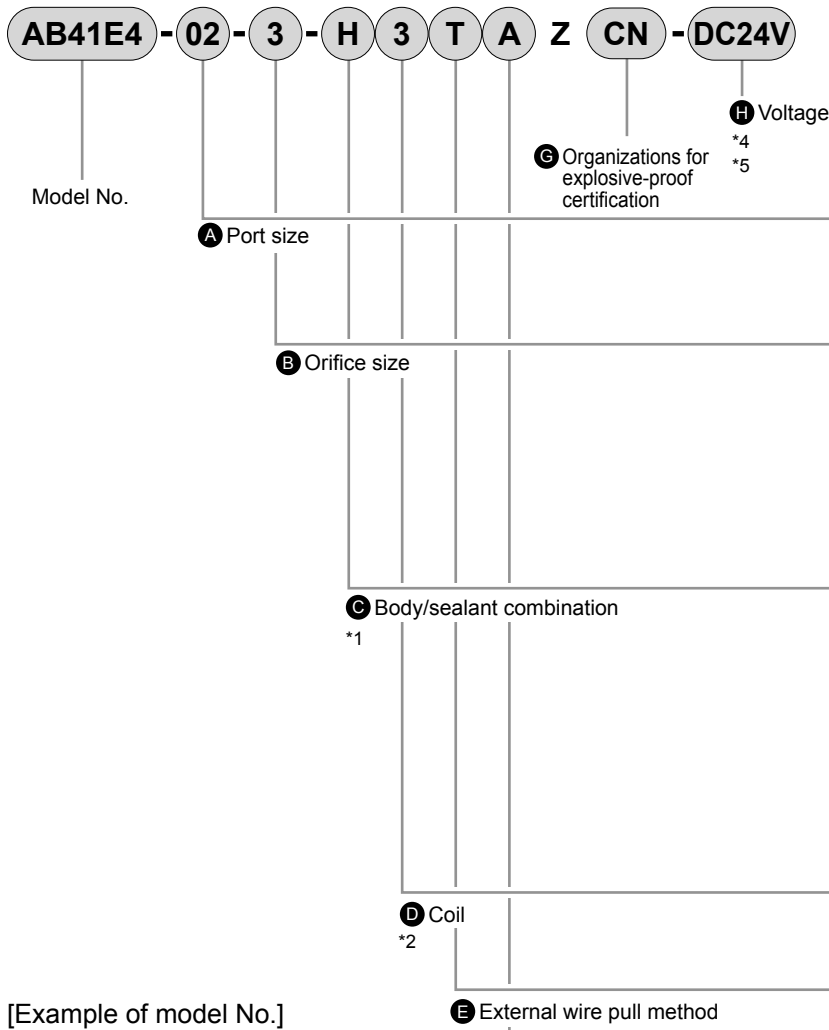
Leakage current	Voltage	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC
	<b>Model No.</b>	AB41E4-*_*-****Z	10 mA or less	5 mA or less	40 mA or less	20 mA or less	10 mA or less

## Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics	
			C[dm <sup>3</sup> /(s·bar)]	b
AB41E4- <sup>02</sup> / <sub>03</sub> -1-****Z	Rc1/4 Rc3/8	1.5	0.29	0.53
		2.0	0.53	0.52
		3.0	1.1	0.52
		3.5	1.7 [1.5]	0.49 [0.47]
		4.0	2.1 [1.9]	0.48 [0.47]
		5.0	3.0 [2.6]	0.42 [0.38]
		7.0	4.8 [4.6]	0.29 [0.37]

- \*1 : Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.  
 \*2 : Dimensions shown in [ ] are for stainless steel body.

## How to order



[Example of model No.]

**AB41E4-02-3-H5TAZCN-AC100V**

Model: AB41E4

- A** Port size : Rc1/4
- B** Orifice size :  $\phi$ 3
- C** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- D** Coil : Thermal class 130 (B) diode integrated explosion-proof coil
- E** External wire pull method : Conduit screw connection (1/2NPT)
- F** Other options : Manual override (locking)
- G** Organizations for explosive-proof certification : China Certification (NEPSI)
- H** Voltage : 100 VAC 50/60 Hz

### ⚠ Precautions for model No. selection

- \*1 : Do not use fluid containing oil with ethylene propylene rubber, since it is not oil-resistant.
- \*2 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*3 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*4 : Thermal class 130 (B) explosion-proof coil ( 3 ) can be used with 12 VDC, 24 VDC, 48 VDC and 100 VDC only.  
The thermal class 130 (B) diode integrated explosion-proof coil ( 5 ) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*5 : Other voltages as below are also available. Contact CKD for details.  
AC (diode integrated) 110, 220 V
- \*6 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.  
Note that tropicalization is not available when the manual override option (A) is selected.
- \*7 : China certification will be 1/2 NPT.
- \*8 : Japan certification (TIIS) is included.
- \*9 : China certification (NEPSI) is included.

Code	Description	Code	Description	Code	Description
<b>A Port size</b>					
<b>02</b>	Rc1/4	<b>2G</b>	G 1/4	<b>2N</b>	1/4NPT
<b>03</b>	Rc3/8	<b>3G</b>	G 3/8	<b>3N</b>	3/8NPT

Code	Description
<b>B Orifice size</b>	
<b>1</b>	$\phi$ 1.5
<b>2</b>	$\phi$ 2
<b>3</b>	$\phi$ 3
<b>4</b>	$\phi$ 3.5
<b>5</b>	$\phi$ 4
<b>6</b>	$\phi$ 5
<b>7</b>	$\phi$ 7

<b>C Body/sealant combination</b>				
	Body	Seal	Treatment	Remarks
<b>H</b>	Copper alloy	Nitrile rubber	Oil-prohibited	—
<b>J</b>		Fluoro rubber		—
<b>P</b>		Ethylene propylene rubber		—
<b>L</b>	Stainless steel	Nitrile rubber		—
<b>M</b>		Fluoro rubber		—
<b>R</b>		Ethylene propylene rubber		—

Refer to Intro Page 39 for reference on material combinations.

<b>D Coil</b>	
<b>3</b>	Thermal class 130 (B) explosion-proof coil
<b>5</b>	Thermal class 130 (B) diode integrated explosion-proof coil

<b>E External wire pull method</b>	
<b>T</b>	Conduit screw connection (G1/2) *7
<b>L</b>	Pressure proof packing seal (G1/2) connection, cable O.D. $\phi$ 7.5 to 8.4
<b>M</b>	Pressure proof packing seal (G1/2) connection, cable O.D. $\phi$ 8.5 to 9.4

<b>F Other options</b>	
<b>Blank</b>	No option
<b>A</b>	Manual override (locking)
<b>B</b>	With mounting plate
<b>AB</b>	Manual override/mounting plate

<b>G Organizations for explosive-proof certification</b>	
<b>Blank</b>	Japan certification (TIIS) *8
<b>CN</b>	China certification (NEPSI) *9

<b>H Voltage</b>		
<b>AC100V</b>	Standard	100 VAC 50/60 Hz
<b>AC200V</b>		200 VAC 50/60 Hz
<b>DC12V</b>	Option	12 VDC
<b>DC24V</b>		24 VDC
<b>DC48V</b>		48 VDC
<b>DC100V</b>		100 VDC

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S $\phi$ B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CCH/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

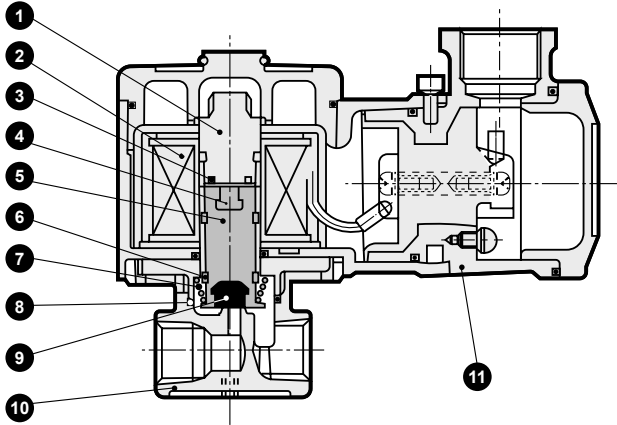


# AB41E4-Z Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/  
AD
- APK/  
ADK
- DryAir
- EX-  
XPLNprf
- XPLNprf
- HVB/  
HVL
- S $\diamond$ B/  
NAB
- LAD/  
NAD
- Water-  
Rela
- NP/NAP/  
NVP
- SNP
- CHB/G
- MXB/G
- Other  
valves
- SWD/  
MWD
- DustColl
- CVE/  
CVSE
- CCH/  
CPE/D
- LifeSci
- Gas-  
Combus
- Auto-  
Water
- Outdoor
- SpecFld
- Custom
- Ending

## Internal structure and parts list

● AB41E4-Z Series



**Cannot be disassembled**

No.	Part name	Material	
1	Core assembly	SUS405 or equiv./316/403	Stainless steel
2	Coil assembly	-	-
3	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
4	Plunger cushion	PFA	Tetrafluoroethylene resin
5	Plunger	SUS405 or equiv.	Stainless steel
6	Wear ring	POM	Acetal resin
7	Plunger spring	SUS304	Stainless steel
8	O-ring	NBR (FKM/EPDM)	NBR: Nitrile rubber (FKM: Fluoro rubber)
9	Valve seal	NBR (FKM/EPDM)	(EPDM: Ethylene propylene rubber)
10	Body	C3771(SUS303)	Copper alloy (stainless steel)
11	Coil case	ADC12	Aluminum die-casting

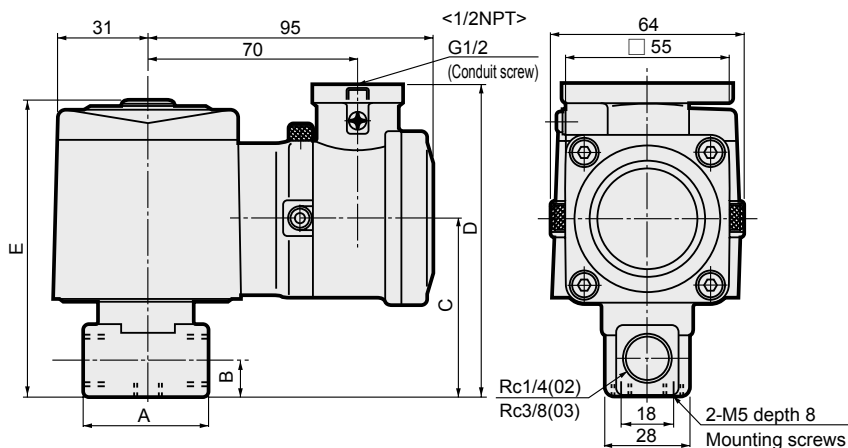
( ) shows options.

## Dimensions



● Conduit screw (G1/2) connection  
AB41E4-\*\*-HJT\*Z

H  
J  
P



Model No.	A	B	C	D	E
AB41E4-02-1 to 6- ****Z	36	11	54	97	92
AB41E4-02-7 -03-1 to 7 ****Z	40	12	57	100	95

## Optional dimensions

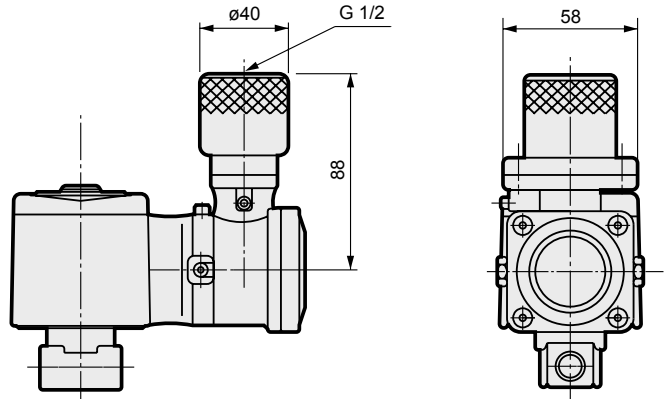
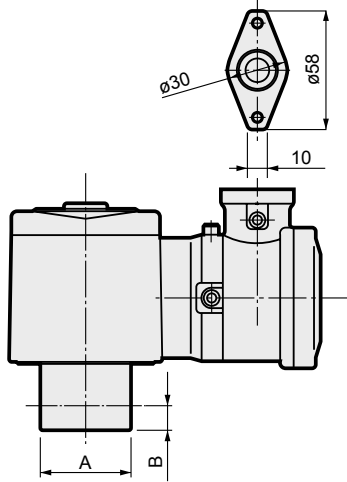


\* Refer to the dimensions of conduit screw connection (G1/2) on page 432 for common dimensions.

- Stainless steel body  
AB41E4-\*. \*-\*\*Z

L  
M  
R

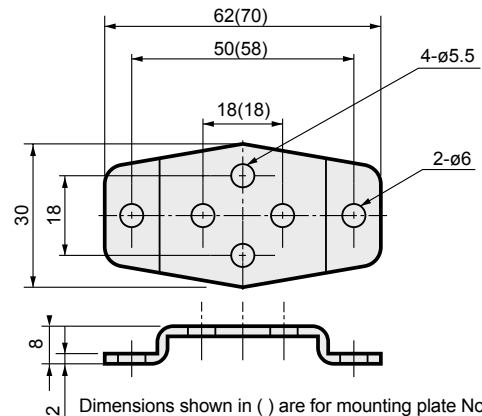
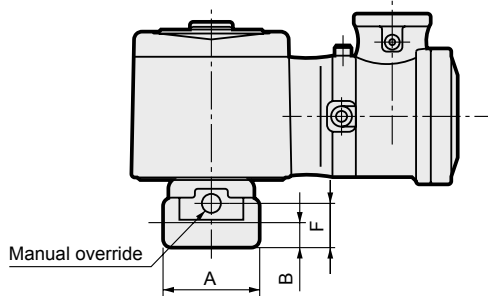
- Pressure proof packing (G1/2) connection  
AB41E4-\*. \*-\*\*L/M\*Z



Model No.	A	B
AB41E4-02-1 to 6-****Z	ø37.5	11
AB41E4-02-7-03-1 to 7-****Z	ø45	12

- Manual override (locking)  
AB41E4-\*. \*-\*\*A Z

- Mounting plate  
AB41E4-\*. \*-\*\*B Z



Model No.	A	B	F
AB41E4-02-1 to 7-***AZ	36	11	19.5
AB41E4-03-1 to 7-***AZ	40	12	22.5

Mounting plate model	Compatibility
AB4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	<ul style="list-style-type: none"> <li>● Copper alloy body AB41E4-02/03-1 to 7-[H/J/P]</li> <li>● Stainless steel body AB41E4-02-1 to 6-[H/P/J]</li> </ul>
AB4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	<ul style="list-style-type: none"> <li>● Stainless steel body AB41E4-02-7-[L/M/R]</li> <li>AB41E4-03-1 to 7-[L/M/R]</li> </ul>

\* Material: Steel/Zinc plated

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
SøB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

Explosion-proof direct acting 3-port solenoid valve  
General purpose

# AG41E4/AG43E4/AG44E4 Series

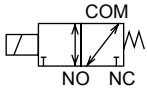


- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- Japan Conformity Certificate No.: No. T64346
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- Universal, NC pressurization, NO pressurization
- Port size: Rc1/4, Rc3/8

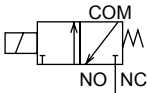


## JIS symbol

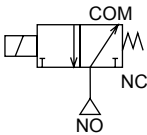
- AG41E4: Universal



- AG43E4: NC pressurization



- AG44E4: NO pressurization



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AG41E4/AG43E4/AG44E4
Working fluid	Air/low vacuum [1.33 x 10 <sup>2</sup> Pa (abs)]/water/kerosene/oil (50 mm <sup>2</sup> /s or less)
Working pressure differential MPa	0 to 1.5 (refer to max. working pressure differential in individual specifications)
Proof pressure (water pressure) MPa	25 (≈3600 psi, 250 bar)
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoors/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Direct acting poppet structure
Valve seat leakage cm <sup>3</sup> /min(ANR)	0.2 or less (PTFE sealant: 300 or less) (air)
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)		Max. working pressure differential (MPa)						Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consump (W)		Weight(kg)	
		TOP	BODY	Air		Water(hot)/Kerosene		Oil (50 mm <sup>2</sup> /s)				When holding	When starting		AC	DC			
Model No.				AC	DC	AC	DC	AC	DC			50 Hz	60 Hz	50 Hz	60 Hz	50 Hz/60 Hz	DC		
<b>Universal</b>																			
AG41E4- <sup>02</sup> / <sub>03</sub> -	-1	Rc1/4	2.0	2.0	1.0	0.7	1.0	0.7	0.4	0.3	1	100 VAC 50/60 Hz 110 VAC 60 Hz	22	17	35	27	10/8	11.6	1.1
	-2	Rc3/8	2.3	2.3	0.7	0.4	0.7	0.4	0.25	0.15									
<b>NC pressurization</b>																			
AG43E4- <sup>02</sup> / <sub>03</sub> -	-4	Rc1/4	3.0	3.0	0.7	0.7	0.7	0.7	0.7	0.7	1	200 VAC 50/60 Hz 220 VAC 60 Hz	22	17	35	27	10/8	11.6	1.1
	-5	Rc3/8	3.5	3.0	0.4	0.4	0.4	0.4	0.4	0.4									
<b>NO pressurization</b>																			
AG44E4- <sup>02</sup> / <sub>03</sub> -	-1	Rc1/4	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45	1.5	(12 VDC) (24 VDC) (48 VDC) (100 VDC) *6	22	17	35	27	10/8	11.6	1.1
	-3	Rc3/8	2.0	3.0	1.2	0.75	1.5	0.9	1.0	0.45									
	-4	Rc3/8	3.0	3.0	0.4	0.3	0.5	0.3	0.3	0.2									

\*1 : The port size model No. is 02 for Rc1/4 (8A) and 03 for Rc3/8 (10A).

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

\*3 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.

\*4 : NO port pressurization is not possible for PTFE seal of AG41E4.

\*5 : When using at low vacuum, vacuum the port side specified as below.

Universal: COM/NC/NO port, NC pressurization: NO port, NO pressurization: NC port

\*6 : ( ) shows options.

## Flow characteristics

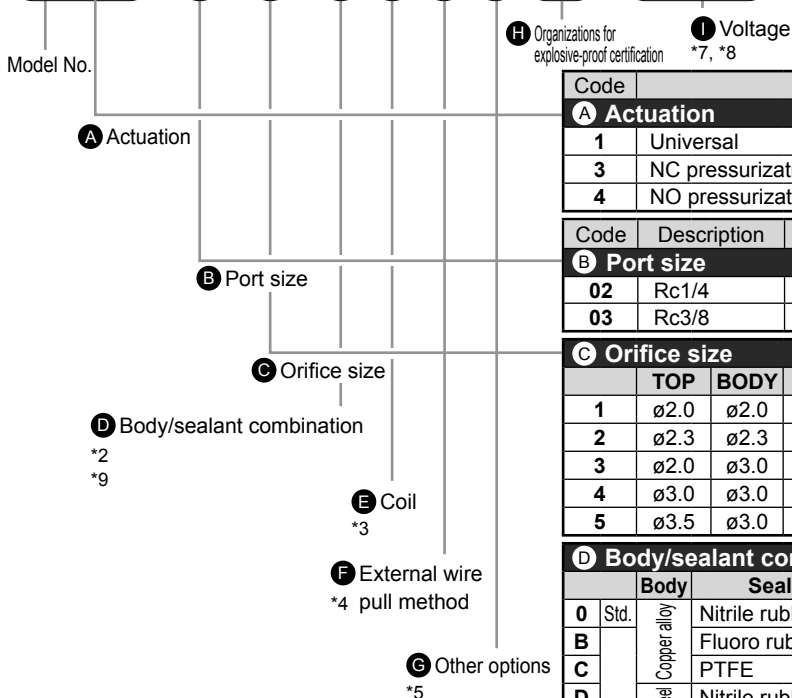
Model No.	Port size	Orifice size (mm)		Flow characteristics						
		TOP	BODY	C[dm <sup>3</sup> /(s·bar)]		b		Cv		
				TOP	BODY	TOP	BODY	TOP	BODY	
<b>Universal</b>										
AG41E4- <sup>02</sup> / <sub>03</sub> -	-1	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
	-2	Rc3/8	2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19
<b>NC pressurization</b>										
AG43E4- <sup>02</sup> / <sub>03</sub> -	-4	Rc1/4	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
	-5	Rc3/8	3.5	3.0	1.5	1.1	0.62	0.52	0.40	0.31
<b>NO pressurization</b>										
AG44E4- <sup>02</sup> / <sub>03</sub> -	-1	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
	-3	Rc3/8	2.0	3.0	0.53	1.1	0.54	0.52	0.15	0.31
	-4	Rc3/8	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31

\*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

# AG41E4/AG43E4/AG44E4 Series

## How to order

AG41E4-02-2-03TACN-AC200V



[Example of model No.]

**AG41E4-02-2-03TACN-AC200V**

Model: AG41E4

- A** Actuation : Universal
- B** Port size : Rc1/4
- C** Orifice size : TOP $\phi$ 2.3/BODY $\phi$ 2.3
- D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- E** Coil : Thermal class 130 (B) explosion-proof coil
- F** External wire pull method : Conduit screw connection (1/2NPT)
- G** Other options : Manual override (locking)
- H** Organizations for explosive-proof certification : China Certification (NEPSI)
- I** Voltage : 200 VAC 50/60 Hz

### ⚠ Precautions for model No. selection

- \*1 : The combinations indicated with ● above are available.
- \*2 : The ethylene propylene rubber seal combination (Item **D** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- \*3 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*4 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*5 : When Item **D** is C, F, K or N, the manual override (Item **G** A, AB) is not available.
- \*6 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.
- \*7 : 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. The thermal class 130 (B) diode integrated explosion-proof coil (Item **E** 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*8 : Other voltages as below are also available. Contact CKD for details. 12, 24, 48, 110, 115, 120, 220, 240, 380, 400, 415, 440, 480, 500 VAC (with diode) 110, 220 VAC 6, 110, 200, 220 VDC
- \*9 : Even if nitrile rubber sealant is selected for AG44E4, the seal material on the NO side will be fluoro rubber.
- \*10 : China certification will be 1/2 NPT.
- \*11 : Japan certification (TIIS) is included.
- \*12 : China certification (NEPSI) is included.

Code		Description			Model No.			
					AG41E4	AG43E4	AG44E4	
<b>A Actuation</b>								
<b>1</b>		Universal			●			
<b>3</b>		NC pressurization				●		
<b>4</b>		NO pressurization					●	
<b>B Port size</b>								
<b>02</b>	Rc1/4	<b>2G</b>	G1/4	<b>2N</b>	1/4NPT	●	●	
<b>03</b>	Rc3/8	<b>3G</b>	G3/8	<b>3N</b>	3/8NPT	●	●	
<b>C Orifice size</b>								
	<b>TOP</b>	<b>BODY</b>						
<b>1</b>	$\phi$ 2.0	$\phi$ 2.0				●	●	
<b>2</b>	$\phi$ 2.3	$\phi$ 2.3				●	●	
<b>3</b>	$\phi$ 2.0	$\phi$ 3.0					●	
<b>4</b>	$\phi$ 3.0	$\phi$ 3.0					●	
<b>5</b>	$\phi$ 3.5	$\phi$ 3.0				●	●	
<b>D Body/sealant combination</b>								
	<b>Body</b>	<b>Seal</b>	<b>Treatment</b>	<b>Remarks</b>				
<b>0</b>	Std.	Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)			
<b>B</b>			Fluoro rubber	-	-			
<b>C</b>			PTFE	-	-			
<b>D</b>		Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)			
<b>E</b>			Fluoro rubber	-	-			
<b>F</b>			PTFE	-	-			
<b>H</b>			Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)			
<b>J</b>	Option	Copper alloy	Fluoro rubber	-	-			
<b>K</b>			PTFE	-	-			
<b>P</b>			Ethylene propylene rubber	-	-			
<b>L</b>		Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)			
<b>M</b>			Fluoro rubber	-	-			
<b>N</b>			PTFE	-	-			
<b>R</b>			Ethylene propylene rubber	-	-			
Refer to Intro Page 39 for reference on material combinations.								
<b>E Coil</b>								
<b>3</b>		Thermal class 130 (B) explosion-proof coil				●	●	●
<b>5</b>		Thermal class 130 (B) diode integrated explosion-proof coil				●	●	●
<b>F External wire pull method</b>								
<b>T</b>	Std.	Conduit screw connection (G1/2) *10				●	●	●
<b>L</b>	Option	Pressure proof packing seal (G1/2) connection, cable O.D. $\phi$ 7.5 to 8.4				●	●	●
<b>M</b>		Pressure proof packing seal (G1/2) connection, cable O.D. $\phi$ 8.5 to 9.4				●	●	●
<b>G Other options</b>								
<b>Blank</b>	Std.	No option				●	●	●
<b>A</b>	Option	Manual override (locking)				●	●	●
<b>B</b>		With mounting plate				●	●	●
<b>AB</b>		Manual override/mounting plate				●	●	●
<b>H Organizations for explosive-proof certification</b>								
<b>Blank</b>		Japan certification (TIIS) *11				●	●	●
<b>CN</b>		China certification (NEPSI) *12				●	●	●
<b>I Voltage</b>								
<b>AC100V</b>	Std.	100 VAC 50/60 Hz				●	●	●
<b>AC200V</b>		200 VAC 50/60 Hz				●	●	●
<b>DC12V</b>	Option	12 VDC				●	●	●
<b>DC24V</b>		24 VDC				●	●	●
<b>DC48V</b>		48 VDC				●	●	●
<b>DC100V</b>		100 VDC				●	●	●

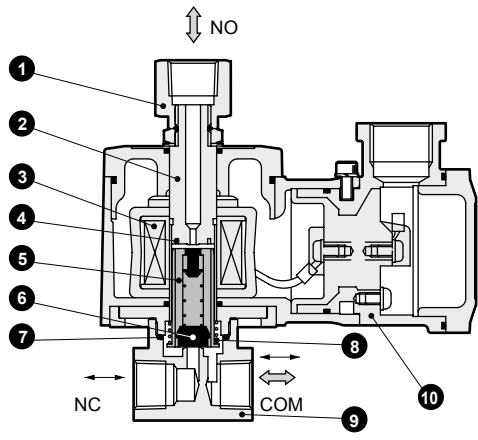
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S $\phi$ B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

# AG41E4/AG43E4/AG44E4 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S◇B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

## Internal structure and parts list

### ● AG41E4 Series

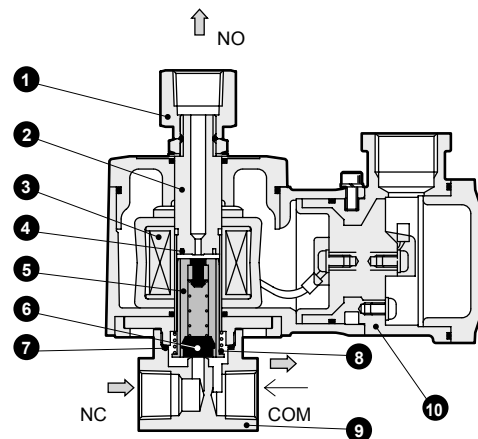


**Cannot be disassembled**

No.	Part name	Material
1	Socket	C3604(SUS303) : Copper alloy (stainless steel)
2	Core assembly	SUS405 or equiv./316L/403 : Stainless steel
3	Coil	- : -
4	Shading coil	Cu (Ag for stainless steel body) : Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. : Stainless steel
6	Valve seal	NBR (FKM/PTFE/EPDM) : NBR : Nitrile rubber FKM : Fluoro rubber
7	O-ring	NBR (FKM/PTFE/EPDM) : EPDM : Ethylene propylene rubber PTFE : Tetrafluoroethylene resin
8	Plunger spring	SUS304 : Stainless steel
9	Body	C3771(SUS303) : Copper alloy (stainless steel)
10	Coil case	ADC12 : Aluminum die-casting

( ) shows options.

### ● AG43E4 Series

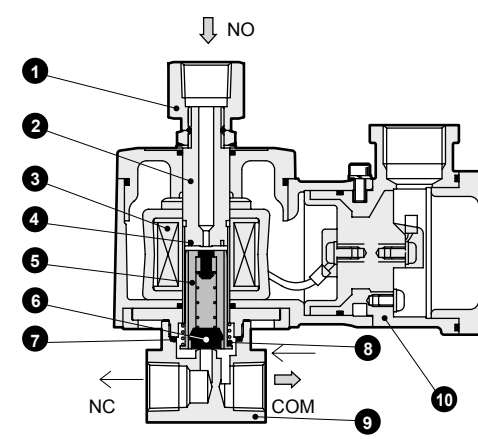


**Cannot be disassembled**

No.	Part name	Material
1	Socket	C3604(SUS303) : Copper alloy (stainless steel)
2	Core assembly	SUS405 or equiv./316L/403 : Stainless steel
3	Coil	- : -
4	Shading coil	Cu (Ag for stainless steel body) : Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. : Stainless steel
6	Valve seal	NBR (FKM/PTFE/EPDM) : NBR : Nitrile rubber FKM : Fluoro rubber
7	O-ring	NBR (FKM/PTFE/EPDM) : EPDM : Ethylene propylene rubber PTFE : Tetrafluoroethylene resin
8	Plunger spring	SUS304 : Stainless steel
9	Body	C3771(SUS303) : Copper alloy (stainless steel)
10	Coil case	ADC12 : Aluminum die-casting

( ) shows options.

### ● AG44E4 Series



**Cannot be disassembled**

No.	Part name	Material
1	Socket	C3604(SUS303) : Copper alloy (stainless steel)
2	Core assembly	SUS405 or equiv./316L/403 : Stainless steel
3	Coil	- : -
4	Shading coil	Cu (Ag for stainless steel body) : Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. : Stainless steel
6	Valve seal	NBR (FKM/EPDM) : NBR : Nitrile rubber FKM : Fluoro rubber
7	O-ring	NBR (FKM/EPDM) : EPDM : Ethylene propylene rubber
8	Plunger spring	SUS304 : Stainless steel
9	Body	C3771(SUS303) : Copper alloy (stainless steel)
10	Coil case	ADC12 : Aluminum die-casting

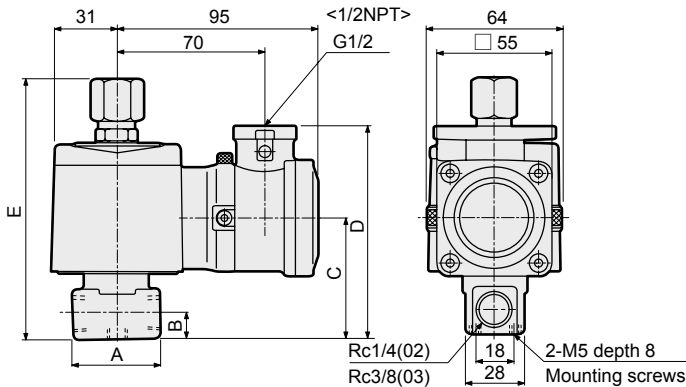
( ) shows options.

# AG41E4/AG43E4/AG44E4 Series

## Dimensions and optional dimensions

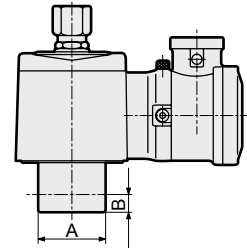


- Conduit screw (G1/2) connection  
AG4\*E4-\*.\*\*\* **T**



Dimensions in < > are for China certification

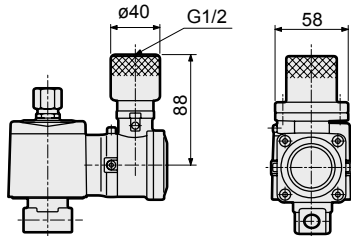
- Stainless steel body  
AG4\*E4-\*.\*\*\* **D,E,F,R**  
**L,M,N**



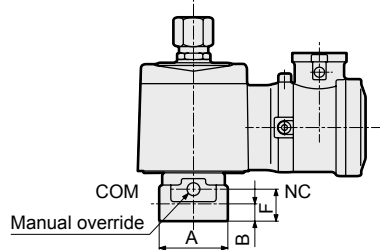
Model No.	A	B	C	D	E
AG41E4-02-1/2	36	11	54	97	116
AG41E4-03-1/2	40	12	57	100	122
AG43E4-02-4/5	36	11	54	97	116
AG43E4-03-4/5	40	12	57	100	122
AG44E4-02-1/3/4	36	11	54	97	116
AG44E4-03-1/3/4	40	12	57	100	122

Model No.	A	B
AG41E4-02-1/2	ø37.5	11
AG41E4-03-1/2	ø45	12
AG43E4-02-4/5	ø37.5	11
AG43E4-03-4/5	ø45	12
AG44E4-02-1/3/4	ø37.5	11
AG44E4-03-1/3/4	ø45	12

- Pressure proof packing (G1/2) connection  
AG4\*E4-\*.\*\*\* **L,M**

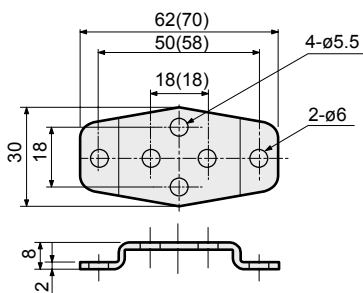


- Manual override (locking)  
AG4\*E4-\*.\*\*\* **A**



Model No.	A	B	F
AG41E4-02-1/2	36	11	19.5
AG41E4-03-1/2	40	12	22.5
AG43E4-02-4/5	36	11	19.5
AG43E4-03-4/5	40	12	22.5
AG44E4-02-1/3/4	36	11	19.5
AG44E4-03-1/3/4	40	12	22.5

- Mounting plate  
AG4\*E4-\*.\*\*\* **B**



Dimensions shown in ( ) are for mounting plate No. 2.

Mounting plate model	Compatibility	
AG4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	● AG41E4-02/03-1/2	Copper alloy body
	● AG41E4-02-1/2	Stainless steel body
	● AG43E4-02/03-4/5	Copper alloy body
	● AG43E4-02-4/5	Stainless steel body
AG4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	● AG44E4-02/03-1/3/4	Copper alloy body
	● AG44E4-02-1/3/4	Stainless steel body
	● AG41E4-03-1/2	Stainless steel body
	● AG43E4-03-4/5	Stainless steel body
	● AG44E4-03-1/3/4	Stainless steel body

\* Material: Steel/Zinc plated

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- SøB/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

Explosion-proof direct acting 3-port solenoid valve for dry air  
General purpose

# AG4\*E4 -Z Series



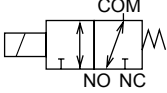
- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- Japan Conformity Certificate No.: No. T64362
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- Universal, NC pressurization, NO pressurization
- Port size: Rc1/4, Rc3/8



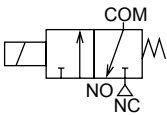
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK

## JIS symbol

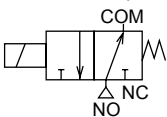
● AG41E4-Z: Universal



● AG43E4-Z: NC pressurization



● AG44E4-Z: NO pressurization



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Standard specifications
Working fluid	For dry air (atmospheric dew point -60°C and over)/inert gas/low vacuum [1.33 x 10 <sup>2</sup> Pa (abs)]
Working pressure differential MPa	0 to 0.75 (refer to max. working pressure differential in individual specifications.)
Proof pressure (water pressure) MPa	25 (≈3600 psi, 250 bar)
Fluid temperature °C	-10 (14°F) to 45 (113°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 45 (113°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoor/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Direct acting poppet structure
Valve seat leakage cm <sup>3</sup> /min(ANR)	0.2 or less
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)		Max. working pressure differential (MPa)	Max. working pressure MPa	Rated voltage	Power consumption (W)	Weight (kg)
		TOP	BODY					
<b>Universal</b>	Rc1/4 Rc3/8			0.65	1 (≈150 psi, 10 bar)	100 VAC 50/60 Hz 200 VAC 50/60 Hz (12 VDC) (24 VDC) (48 VDC) (100 VDC) *4	17	1.0
AG41E4- <sup>02</sup> / <sub>03</sub> -1-****Z		2.0	2.0					
-2-****Z		2.3	2.3					
<b>NC pressurization</b>				0.7				
AG43E4- <sup>02</sup> / <sub>03</sub> -4-****Z		3.0	3.0					
-5-****Z		3.5	3.0					
<b>NO pressurization</b>			0.75	1.5 (≈220 psi, 15 bar)				
AG44E4- <sup>02</sup> / <sub>03</sub> -1-****Z	2.0	2.0						
-3-****Z	2.0	3.0						
-4-****Z	3.0	3.0	0.25					

- \*1 : The port size code is 02 for Rc1/4 (8A) and 03 for Rc3/8 (10A).  
 \*2 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.  
 \*3 : The leakage current must be less than or equal to the values shown below.  
 \*4 : ( ) shows options.

Leakage current	Voltage						
	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC	
Model No.							
AG4*E4-*. *-****Z	8 mA or less	4 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less	

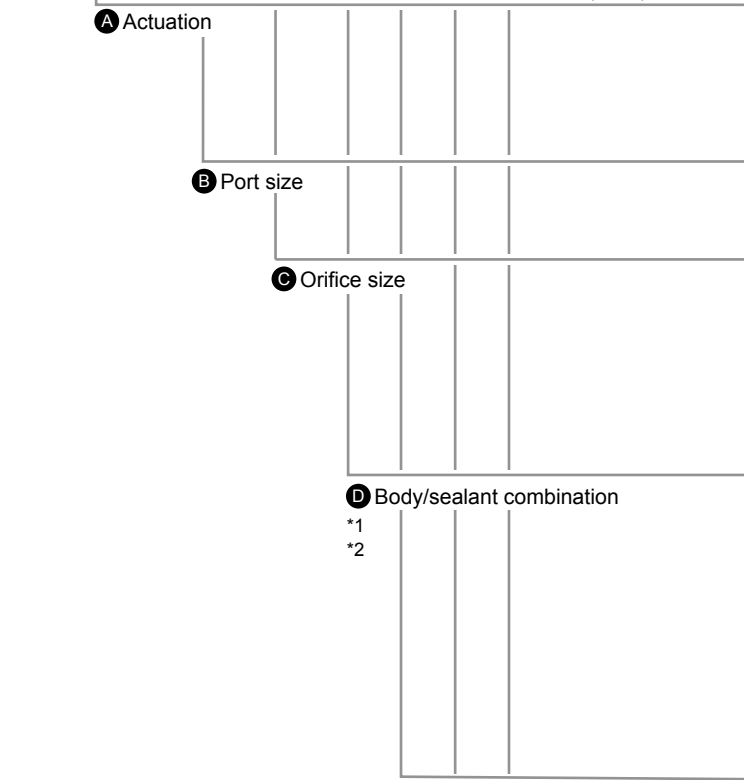
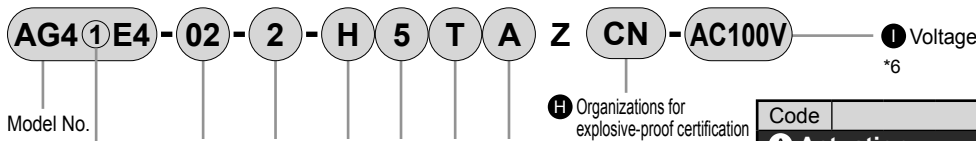
## Flow characteristics

Model No.	Port size	Orifice size (mm)		Flow characteristics			
		TOP	BODY	C[dm <sup>3</sup> /(s·bar)]		b	
				TOP	BODY	TOP	BODY
<b>Universal</b>	Rc1/4 Rc3/8			0.53	0.53	0.54	0.52
AG41E4- <sup>02</sup> / <sub>03</sub> -1-****Z		2.0	2.0				
-2-****Z		2.3	2.3	0.74	0.74	0.66	0.53
<b>NC pressurization</b>				1.1	1.1	0.72	0.52
AG43E4- <sup>02</sup> / <sub>03</sub> -4-****Z		3.0	3.0				
-5-****Z		3.5	3.0	1.5	1.1	0.62	0.52
<b>NO pressurization</b>			0.53	0.53	0.54	0.52	
AG44E4- <sup>02</sup> / <sub>03</sub> -1-****Z	2.0	2.0					
-3-****Z	2.0	3.0					
-4-****Z	3.0	3.0	1.1	1.1	0.72	0.52	

\*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S ◇ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combus  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

## How to order



[Example of model No.]

**AG41E4-02-2-H5TAZCN-AC100V**

Model: AG41E4

- A** Actuation : Universal
- B** Port size : Rc1/4
- C** Orifice size : TOP $\phi$ 2.3/BODY $\phi$ 2.3
- D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- E** Coil : Thermal class 130 (B) diode integrated explosion-proof coil
- F** External wire pull method : Conduit screw connection (1/2NPT)
- G** Other options : Manual override (locking)
- H** Organizations for explosive-proof certification : China Certification (NEPSI)
- I** Voltage : 100 VAC 50/60 Hz

### ⚠ Precautions for model No. selection

- \*1 : Do not use fluid containing oil with ethylene propylene rubber, since it is not oil-resistant.
- \*2 : NO valve seal of AG44 is fluoro rubber.
- \*3 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*4 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*5 : Thermal class 130 (B) explosion-proof coil ( **E** 3) can be used with 12 VDC, 24 VDC, 48 VDC and 100 VDC only.  
The thermal class 130 (B) diode integrated explosion-proof coil ( **E** 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*6 : Other voltages as below are also available. Contact CKD for details.  
AC (diode integrated) 110, 220 V
- \*7 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.  
Note that tropicalization is not available when the manual override option (A) is selected.
- \*8 : China certification will be 1/2 NPT.
- \*9 : Japan certification (TIIS) is included.
- \*10 : China certification (NEPSI) is included.

Model No.

AG41E4	AG43E4	AG44E4
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Code	Description	AG41E4	AG43E4	AG44E4
<b>A Actuation</b>				
1	Universal	●		
3	NC pressurization		●	
4	NO pressurization			●

Code	Description	Code	Description	Code	Description	AG41E4	AG43E4	AG44E4
<b>B Port size</b>								
02	Rc1/4	2G	G1/4	2N	1/4NPT	●	●	●
03	Rc3/8	3G	G3/8	3N	3/8NPT	●	●	●

<b>C Orifice size</b>			AG41E4	AG43E4	AG44E4
	TOP	BODY			
1	$\phi$ 2.0	$\phi$ 2.0		●	●
2	$\phi$ 2.3	$\phi$ 2.3		●	●
3	$\phi$ 2.0	$\phi$ 3.0			●
4	$\phi$ 3.0	$\phi$ 3.0			●
5	$\phi$ 3.5	$\phi$ 3.0			●

<b>D Body/sealant combination</b>					AG41E4	AG43E4	AG44E4
	Body	Seal	Treatment	Remarks			
H	Copper alloy	Nitrile rubber	Oil-prohibited	—	●	●	●
J		Fluoro rubber		—	●	●	●
P		Ethylene propylene rubber		—	●	●	●
L	Stainless steel	Nitrile rubber		—	●	●	●
M		Fluoro rubber		—	●	●	●
R		Ethylene propylene rubber		—	●	●	●

Refer to Intro Page 39 for reference on material combinations.

<b>E Coil</b>					AG41E4	AG43E4	AG44E4
3	Thermal class 130 (B) explosion-proof coil				●	●	●
5	Thermal class 130 (B) diode integrated explosion-proof coil				●	●	●

<b>F External wire pull method</b>					AG41E4	AG43E4	AG44E4
T	Conduit screw connection (G1/2) *8				●	●	●
L	Pressure proof packing seal (G1/2) connection, cable O.D. $\phi$ 7.5 to 8.4				●	●	●
M	Pressure proof packing seal (G1/2) connection, cable O.D. $\phi$ 8.5 to 9.4				●	●	●

<b>G Other options</b>					AG41E4	AG43E4	AG44E4
Blank	No option				●	●	●
A	Manual override (locking)				●	●	●
B	With mounting plate				●	●	●
AB	Manual override/mounting plate				●	●	●

<b>H Organizations for explosive-proof certification</b>					AG41E4	AG43E4	AG44E4
Blank	Japan certification (TIIS) *9				●	●	●
CN	China certification (NEPSI) *10				●	●	●

<b>I Voltage</b>					AG41E4	AG43E4	AG44E4
AC100V	Standard	100 VAC 50/60 Hz			●	●	●
AC200V		200 VAC 50/60 Hz			●	●	●
DC12V	Option	12 VDC			●	●	●
DC24V		24 VDC			●	●	●
DC48V		48 VDC			●	●	●
DC100V		100 VDC			●	●	●

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

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S $\phi$ B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

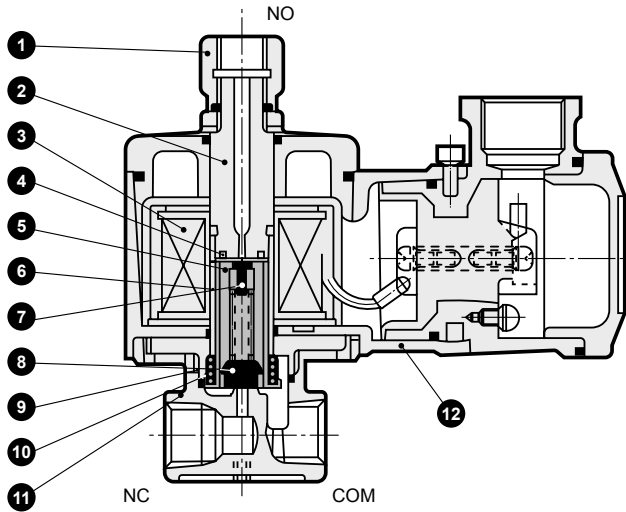


# AG4\*E4-Z Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S◇B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

## Internal structure and parts list

● AG4\*E4-Z Series



The figure shows AG41/43/44E4.

**Cannot be disassembled**

No.	Part name	Material	
1	Socket	C3604(SUS303)	Copper alloy (stainless steel)
2	Core assembly	SUS405 or equiv./316/403	Stainless steel
3	Coil assembly	-	-
4	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv.	Stainless steel
6	Plunger tube	PET	Polyethylene terephthalate
7	NO valve sealant	NBR (FKM/EPDM) *2	NBR: Nitrile rubber
8	NC valve sealant	NBR (FKM/EPDM)	(FKM: Fluoro rubber)
9	O-ring	NBR (FKM/EPDM)	(EPDM: Ethylene propylene rubber)
10	Plunger spring	SUS304	Stainless steel
11	Body	C3771(SUS303)	Copper alloy (stainless steel)
12	Coil case	ADC12	Aluminum die-casting

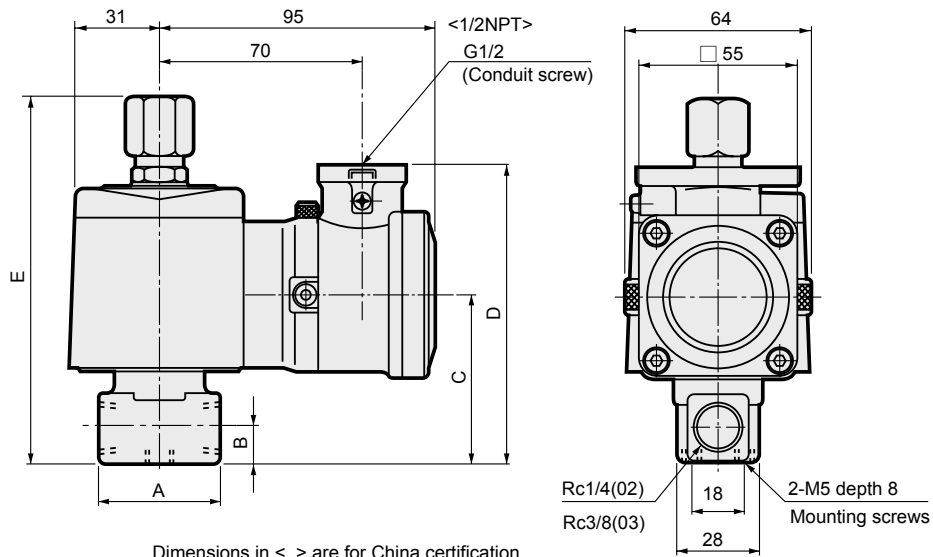
\*1 : ( ) shows options.

\*2 : For AG44 with body/sealant combination code H/L, NO valve seal is FKM.

## Dimensions



● Conduit screw (G1/2) connection  
AG4\*E4-\*\*-HJT\*Z



Dimensions in < > are for China certification

Model No.	A	B	C	D	E
AG4*E4-02-1 to 5-****Z	36	11	54	97	116
AG4*E4-03-1 to 5-****Z	40	12	57	100	122

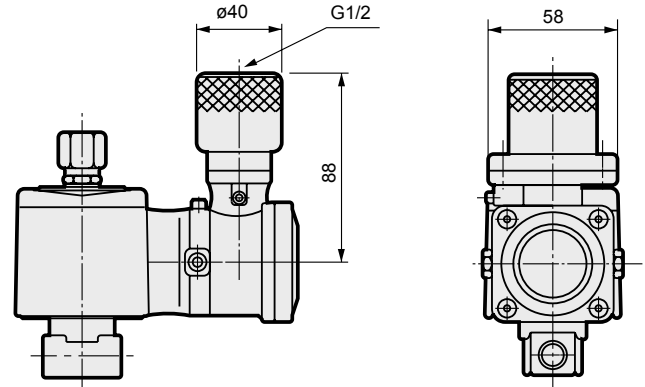
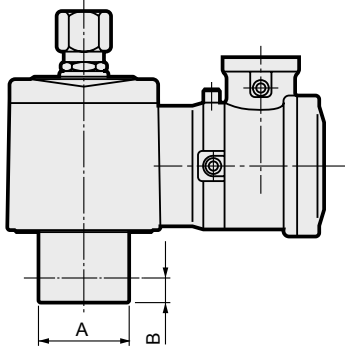
## Optional dimensions



\* Refer to the dimensions of conduit screw connection (G1/2) on page 440 for common dimensions.

- Stainless steel body  
AG4\*E4-\*-\***L**\*\*\*Z  
M  
R

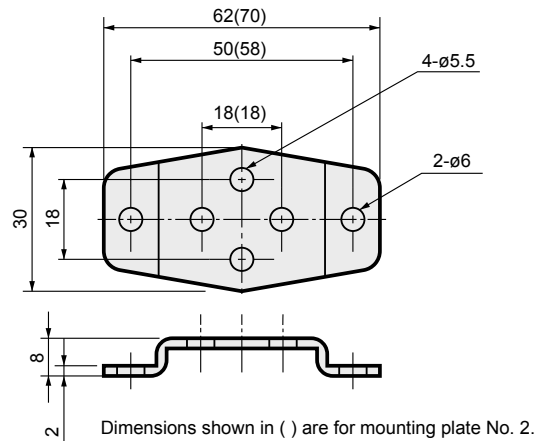
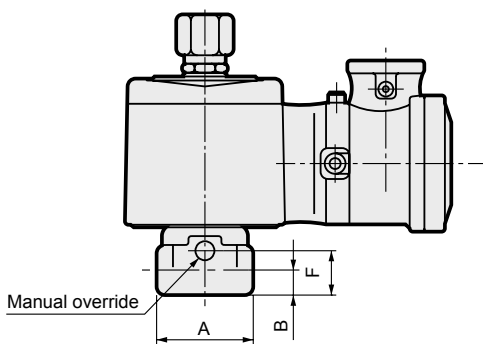
- Pressure proof packing (G1/2) connection  
AG4\*E4-\*-\***L/M**\*Z



Model No.	A	B
AG4*E4-02-1 to 5-***Z	ø37.5	11
AG4*E4-03-1 to 5-***Z	ø45	12

- Manual override (locking)  
AG4\*E4-\*-\***A**\*\*\*Z

- Mounting plate  
AG4\*E4-\*-\***B**Z



Model No.	A	B	F
AG4*E4-02-1 to 5-***AZ	36	11	19.5
AG4*E4-03-1 to 5-***AZ	40	12	22.5

Mounting plate model	Compatibility
AG4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	<ul style="list-style-type: none"> <li>● Copper alloy body AG4*E4-02/03-1 to 5-<b>H/J/P</b></li> <li>● Stainless steel body AG4*E4-02-1 to 5-<b>L/M/R</b></li> </ul>
AG4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	<ul style="list-style-type: none"> <li>● Stainless steel body AG4*E4-03-1 to 5-<b>L/M/R</b></li> </ul>

\* Material: Steel/Zinc plated

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S <sup>◇</sup> B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

# AP11E4/AP12E4 Series



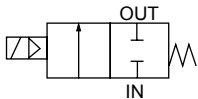
- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- Japan Conformity Certificate No. AP11E4: No. T64349, AP12E4: No. T64352
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- NC (open when energized), NO (closed when energized)
- Port size: Rc1/2 to Rc1 ● Piston drive



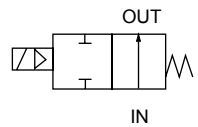
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S ◇ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combus  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

## JIS symbol

● AP11E4: NC (open when energized)



● AP12E4: NO (closed when energized)



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AP11E4/AP12E4
Working fluid	Air/water/kerosene/oil (50 mm <sup>2</sup> /s or less)
Working pressure differential MPa	0.05 to 1.2 (refer to max. working pressure differential in individual specifications)
Max. working pressure MPa	2 (≈290 psi, 20 bar)
Proof pressure (water pressure) MPa	10 (≈1500 psi, 100 bar)
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoors/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Pilot operated poppet, piston drive
Valve seat leakage (*1) cm <sup>3</sup> /min(ANR)	0.2 or less (PTFE sealant: 300 or less) (air)
Mounting orientation	Free (within working pressure range)
Degree of protection	IP65 or equivalent

\*1: Pneumatic pressure used for measurement is: 0.05 to 1.2 MPa for AP11E4 (NC [open when energized]), and 0.05 to 0.5 MPa for AP12E4 (NO [closed when energized]).

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)					Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water/kerosene		Oil (50 mm <sup>2</sup> /s)		When holding	When starting		AC	DC		
Model No.				AC	DC	AC	DC	AC	DC	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz/60 Hz	DC	
<b>NC (open when energized)</b>																
AP11E4	-15A	Rc1/2	15							100 VAC 50/60 Hz 110 VAC 60 Hz						1.9
	-20A	Rc3/4	20	0.05	1.2	0.6	1.0	0.6	0.6	200 VAC 50/60 Hz 220 VAC 60 Hz	18	15	29	24	8/7	11.6
	-25A	Rc1	25							(12 VDC) (24 VDC) (48 VDC) (100 VDC)*3						3.0
<b>NO (closed when energized)</b>																
AP12E4	-15A	Rc1/2	15							100 VAC 50/60 Hz 110 VAC 60 Hz						1.9
	-20A	Rc3/4	20	0.05	0.5	0.5	0.5	0.5	0.5	200 VAC 50/60 Hz 220 VAC 60 Hz	22	18	35	29	8.7/ 6.7	15.5
	-25A	Rc1	25							(12 VDC) (24 VDC) (48 VDC) (100 VDC)*3						3.0

\*1 : Refer to DC column for the max. working pressure differential of AP11E4 type coil with diode.

\*2 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.

\*3 : ( ) shows options.

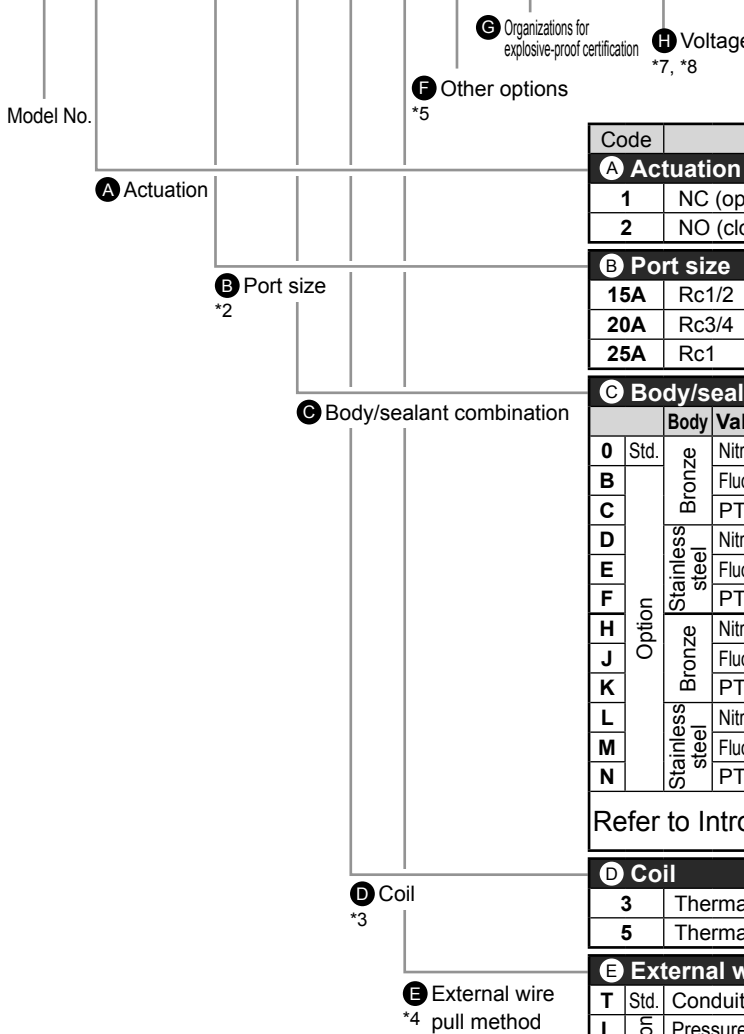
## Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics				
			C[dm <sup>3</sup> /(s·bar)]	b	Cv	S(mm <sup>2</sup> )	
<b>NC (open when energized)</b>							
AP11E4	-15A	Rc1/2	15	21	0.22	4.5	-
	-20A	Rc3/4	20	-	-	9.3	162
	-25A	Rc1	25	-	-	12.0	231
<b>NO (closed when energized)</b>							
AP12E4	-15A	Rc1/2	15	21	0.22	4.5	-
	-20A	Rc3/4	20	-	-	9.3	162
	-25A	Rc1	25	-	-	12.0	231

\*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

## How to order

AP1 ① E4 - 25A - 0 3 T A CN - AC200V



[Example of model No.]

**AP11E4-25A-03TACN-AC100V**

Model: AP11E4

- A** Actuation : NC (open when energized)
- B** Port size : Rc1
- C** Body/sealant combination : Body - bronze, valve seal - nitrile rubber  
: O-ring - nitrile rubber
- D** Coil : Thermal class 130 (B) explosion-proof coil
- E** External wire pull method : Conduit screw connection (1/2NPT)
- F** Other options : With manual override (locking)
- G** Organizations for explosive-proof certification : China Certification (NEPSI)
- H** Voltage : 100 VAC 50/60 Hz

Code		Description		Model No.					
<b>A Actuation</b>									
1	NC (open when energized)	●		AP11E4	AP12E4				
2	NO (closed when energized)		●						
<b>B Port size</b>									
15A	Rc1/2	●	●						
20A	Rc3/4	●	●						
25A	Rc1	●	●						
<b>C Body/sealant combination</b>									
	Body	Valve seal	O-ring	Treatment	Remarks				
0	Std.	Bronze	Nitrile rubber	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	●	●	
B	Option		Fluoro rubber	Fluoro rubber		-	-	●	●
C			PTFE	Fluoro rubber		-	-	●	●
D		Stainless steel	Nitrile rubber	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	●	●	
E	Fluoro rubber		Fluoro rubber	-		-	●	●	
F	PTFE		PTFE	-		-	●	●	
H	Option	Bronze	Nitrile rubber	Nitrile rubber	Oil-prohibited	Air/water/kerosene/oil (up to 60°C)	●	●	
J			Fluoro rubber	Fluoro rubber		-	-	●	●
K			PTFE	Fluoro rubber		-	-	●	●
L	Option	Stainless steel	Nitrile rubber	Nitrile rubber	Oil-prohibited	Air/water/kerosene/oil (up to 60°C)	●	●	
M			Fluoro rubber	Fluoro rubber		-	-	●	●
N			PTFE	PTFE		-	-	●	●
Refer to Intro Page 39 for reference on material combinations.									
<b>D Coil</b>									
3	Thermal class 130 (B) explosion-proof coil	●	●						
5	Thermal class 130 (B) diode integrated explosion-proof coil	●	●						
<b>E External wire pull method</b>									
T	Std.	Conduit screw connection (G1/2) *9				●	●		
L	Option	Pressure proof packing seal (G1/2) connection, cable O.D. ø7.5 to 8.4				●	●		
M		Pressure proof packing seal (G1/2) connection, cable O.D. ø8.5 to 9.4				●	●		
<b>F Other options</b>									
Blank	Std.	No option				●	●		
A		Manual override (locking)				●			
<b>G Organizations for explosive-proof certification</b>									
Blank		Japan certification (TIIS) *10				●	●		
CN		China certification (NEPSI) *11				●	●		
<b>H Voltage</b>									
AC100V	Std.	100 VAC 50/60 Hz				●	●		
AC200V		200 VAC 50/60 Hz				●	●		
DC12V	Option	12 VDC				●	●		
DC24V		24 VDC				●	●		
DC48V		48 VDC				●	●		
DC100V		100 VDC				●	●		

## ⚠ Precautions for model No. selection

- \*1 : The combinations indicated with ● above are available.
- \*2 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- \*3 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*4 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*5 : When Item C is C, F, K or N, the manual override (F A) is not available. When Item A is 2, the manual override (F A) is not available.
- \*6 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.  
Note that tropicalization is not available when the manual override option (A) is selected.
- \*7 : 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz.  
The thermal class 130 (B) diode integrated explosion-proof coil (D 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*8 : Other voltages as below are also available. Contact CKD for details.  
12, 24, 48, 110, 115, 120, 220, 240, 380, 400, 415, 440, 480, 500 VAC  
(with diode) 110, 220 VAC 6, 110, 200, 220 VDC
- \*9 : China certification will be 1/2 NPT.
- \*10 : Japan certification (TIIS) is included.
- \*11 : China certification (NEPSI) is included.

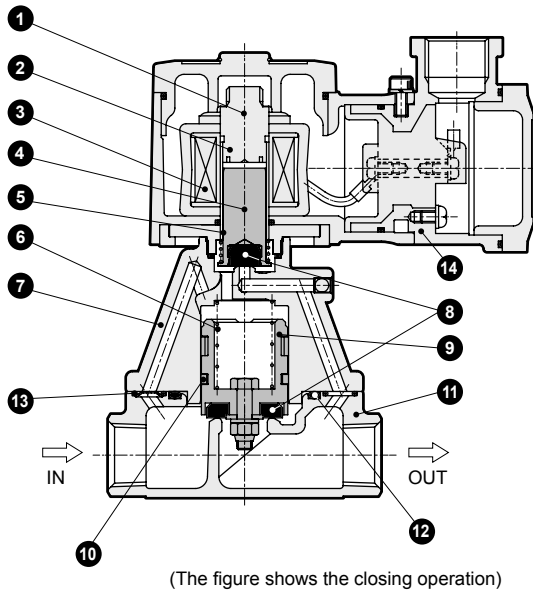
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

# AP11E4/AP12E4 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S◇B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

## Internal structure and parts list

### ● AP11E4 Series



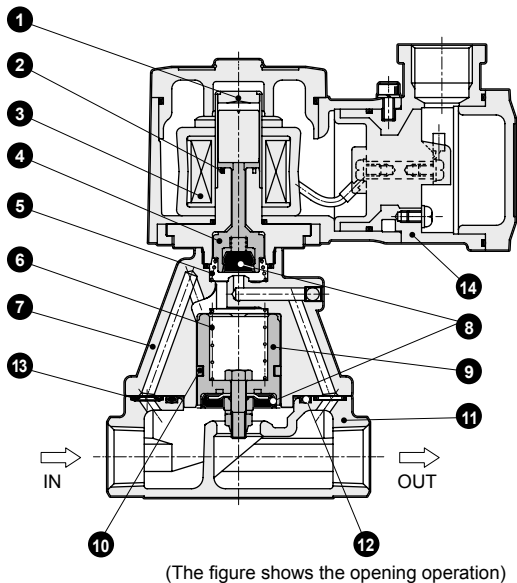
**Cannot be disassembled**

No.	Part name	Material	
1	Core assembly	SUS405 or equiv./SUS316L/ SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)*1	Bronze casting (S.S. casting)
8	Valve seal	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604/SUS303/SUS304 (SUS303/SUS304)	Stainless steel/copper alloy (Stainless steel)
10	Piston ring	SUS304/PTFE	Stainless steel/ tetrafluoroethylene resin
11	Body	CAC408(SCS13)*1	Bronze casting (S.S. casting)
12	O-ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304(SUS303)	Stainless steel
14	Coil case	ADC12	Aluminum die-casting

( ) shows options.

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

### ● AP12E4 Series



**Cannot be disassembled**

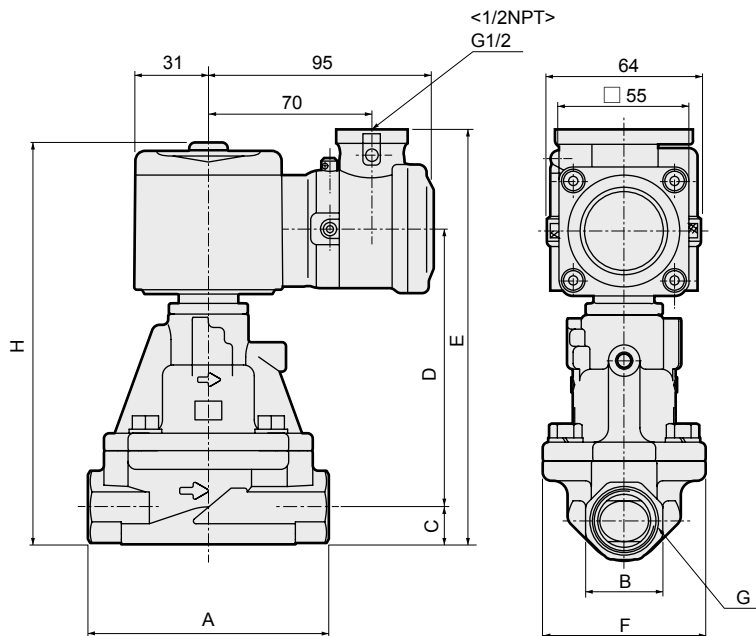
No.	Part name	Material	
1	Plunger/core assembly	SUS405 or equiv./ SUS316L/SUS304	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	NO valve	POM (PPS/SUS303/PFA)	Body/sealant combination When O/D/H/L: Polyacetal resin When B/E/J/M: Polyphenylene sulfide resin When C/F/K/N: Stainless steel/ perfluoroalkoxy resin
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)*1	Bronze casting (S.S. casting)
8	Valve seal	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604/SUS303/SUS304 (SUS303/SUS304)	Stainless steel/copper alloy (Stainless steel)
10	Piston ring	SUS304/PTFE	Stainless steel/ tetrafluoroethylene resin
11	Body	CAC408(SCS13)*1	Bronze casting (S.S. casting)
12	O-ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304(SUS303)	Stainless steel
14	Coil case	ADC12	Aluminum die-casting

( ) shows options.

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

## Dimensions

- Conduit screw (G1/2) connection  
AP11E4-\*\*-\*\*T  
AP12E4

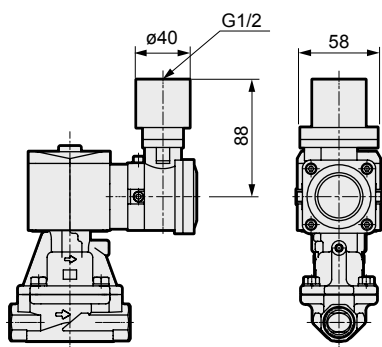


Dimensions in < > are for China certification

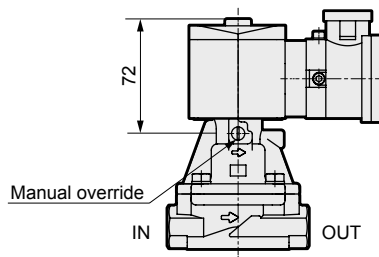
Model No.	A	B	C	D	E	F	G	H
AP11E4-15A-**-T	90	27	14	94.5	151.5	57	Rc1/2	146.5
AP11E4-20A-**-T	100	32	17	103.5	163.5	65	Rc3/4	158.5
AP11E4-25A-**-T	110	41	20.5	118	181.5	76	Rc1	176.5
AP12E4-15A-**-T	90	27	14	98.5	155.5	57	Rc1/2	150.5
AP12E4-20A-**-T	100	32	17	107.5	167.5	65	Rc3/4	162.5
AP12E4-25A-**-T	110	41	20.5	122	185.5	76	Rc1	180.5

## Optional dimensions

- Pressure proof packing (G1/2) connection  
AP11E4-\*\*-\*\* **L,M**  
AP12E4



- Manual override (locking)  
AP11E4-\*\*-\*\* **A**



EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S $\phi$ B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

# AP21E4/AP22E4 Series



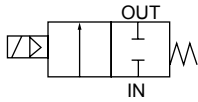
- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- NC (open when energized), NO (closed when energized)
- Japan Conformity Certificate No. AP21E4: No. T64349, AP22E4: No. T64352
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- Port size: Rc1<sup>1</sup>/<sub>4</sub> to Rc2, 32 to 50 flange ● Piston drive



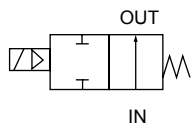
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USB/G  
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FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S ◇ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combus  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

## JIS symbol

- AP21E4: NC (open when energized)



- AP22E4: NO (closed when energized)



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AP21E4/AP22E4
Working fluid	Air/water/kerosene/oil (50 mm <sup>2</sup> /s or less)
Working pressure differential MPa	0.05 to 1.2 (refer to max. working pressure differential in individual specifications)
Max. working pressure MPa	1.6 (≈230 psi, 16 bar)
Proof pressure (water pressure) MPa	3.2 (≈460 psi, 32 bar)
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoors/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Pilot operated poppet, piston drive
Valve seat leakage (*1) cm <sup>3</sup> /min	1 or less (PTFE sealant: 400 or less) (air)
Mounting orientation	Free (within working pressure range)
Degree of protection	IP65 or equivalent

\*1: Pneumatic pressure used for measurement is: 0.05 to 1.2 MPa for AP21E4 (NC [open when energized]), and 0.05 to 0.5 MPa for AP22E4 (NO [closed when energized]).

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)	
				Air		Water/kerosene		Oil (50 mm <sup>2</sup> /s)			When holding		When starting		AC 50 Hz/ 60 Hz	DC		
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz				
<b>NC (open when energized)</b>																		
AP21E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	0.05	1.2	0.6	1.0	0.6	0.6	0.6	100 VAC 50/60 Hz 110 VAC 60 Hz	18	15	29	24	8/7	11.6	
	-32F	32 flange																4.0
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43															
	-40F	40 flange																8.5
	-50A	Rc2	53															
	-50F	50 flange																10.5
<b>NO (closed when energized)</b>																		
AP22E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	0.05	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz	22	18	35	29	8.7 /6.7	15.5	
	-32F	32 flange																4.0
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43															
	-40F	40 flange																8.5
	-50A	Rc2	53															
	-50F	50 flange																10.5

\*1 : Refer to DC column for the max. working pressure differential of AP21E4 type coil with diode.

\*2 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.

\*3 : ( ) shows options.

## Flow characteristics

Model No.	Port size	Orifice size (mm)	Cv	Effective cross-sectional area (mm <sup>2</sup> )	
<b>NC (open when energized)</b>					
AP21E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	25	460
	-32F	32 flange			
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43	34	
	-40F	40 flange			
	-50A	Rc2	53	53	
	-50F	50 flange			
<b>NO (closed when energized)</b>					
AP22E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	25	460
	-32F	32 flange			
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43	34	
	-40F	40 flange			
	-50A	Rc2	53	53	
	-50F	50 flange			

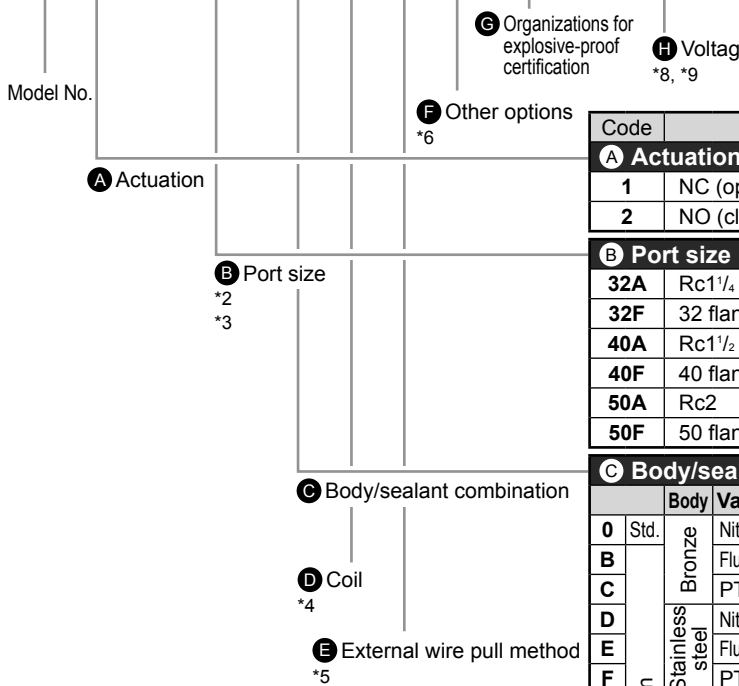
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S <sup>⊕</sup> B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending



# AP21E4/AP22E4 Series

## How to order

**AP2** ① **E4** - **50F** - **0** **3** **T** **A** **CN** - **AC100V**



[Example of model No.]

**AP21E4-50F-03TACN-AC100V**

Model: AP21E4

- A** Actuation : NC (open when energized)
- B** Port size : 50 flange
- C** Body/sealant combination : Body - bronze/  
sealant - nitrile rubber  
O-ring - nitrile rubber
- D** Coil : Thermal class 130 (B)  
explosion-proof coil
- E** External wire pull method : Conduit screw connection (1/2NPT)
- F** Other options : Manual override (locking)
- G** Organizations for explosive-proof certification : China Certification (NEPSI)
- H** Voltage : 100 VAC 50/60 Hz

## ⚠ Precautions for model No. selection

- \*1 : The combinations indicated with ● above are available.
- \*2 : The companion flange is JIS B2210 10K. (Flange is not enclosed with the product and must be purchased separately.)
- \*3 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- \*4 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*5 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*6 : When Item ③ is C, F, K or N, the manual override (Item ② A) is not available. When Item ① is 2, the manual override (Item ② A) is not available.
- \*7 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.
- \*8 : 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.  
The thermal class 130 (B) diode integrated explosion-proof coil (⑤ 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*9 : Other voltages as below are also available. Contact CKD for details.  
12, 24, 48, 110, 115, 120, 220, 240, 380, 400, 415, 440, 480, 500 VAC (with diode) 110, 220 VAC 6, 110, 200, 220 VDC
- \*10 : China certification will be 1/2 NPT.
- \*11 : Japan certification (TIIS) is included.
- \*12 : China certification (NEPSI) is included.

Code		Description		Model No.	
				AP21E4	AP22E4

A Actuation			
1	NC (open when energized)	●	
2	NO (closed when energized)		●

B Port size			
32A	Rc1 <sup>1</sup> / <sub>4</sub>	●	●
32F	32 flange	●	●
40A	Rc1 <sup>1</sup> / <sub>2</sub>	●	●
40F	40 flange	●	●
50A	Rc2	●	●
50F	50 flange	●	●

C Body/sealant combination							
	Body	Valve seal	O-ring	Treatment	Remarks		
0	Std.				Air/water/kerosene/oil (up to 60°C)	●	●
B	Bronze	Nitrile rubber	Nitrile rubber	-	-	●	●
C		Fluoro rubber	Fluoro rubber		-	●	●
D		PTFE	Fluoro rubber		-	●	●
E	Stainless steel	Nitrile rubber	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	●	●
F		Fluoro rubber	Fluoro rubber		-	●	●
G		PTFE	PTFE		-	●	●
H	Option	Nitrile rubber	Nitrile rubber	Oil-prohibited	Air/water/kerosene/oil (up to 60°C)	●	●
J		Fluoro rubber	Fluoro rubber		-	●	●
K		PTFE	Fluoro rubber		-	●	●
L	Stainless steel	Nitrile rubber	Nitrile rubber	Oil-prohibited	Air/water/kerosene/oil (up to 60°C)	●	●
M		Fluoro rubber	Fluoro rubber		-	●	●
N		PTFE	PTFE		-	●	●

Refer to Intro Page 39 for reference on material combinations.

D Coil			
3	Thermal class 130 (B) explosion-proof coil	●	●
5	Thermal class 130 (B) diode integrated explosion-proof coil	●	●

E External wire pull method				
T	Std. Conduit screw connection (G1/2) *10	●	●	
L	Option	Pressure proof packing (G1/2) connection, cable O.D. ø7.5 to 8.4	●	●
M		Pressure proof packing (G1/2) connection, cable O.D. ø8.5 to 9.4	●	●

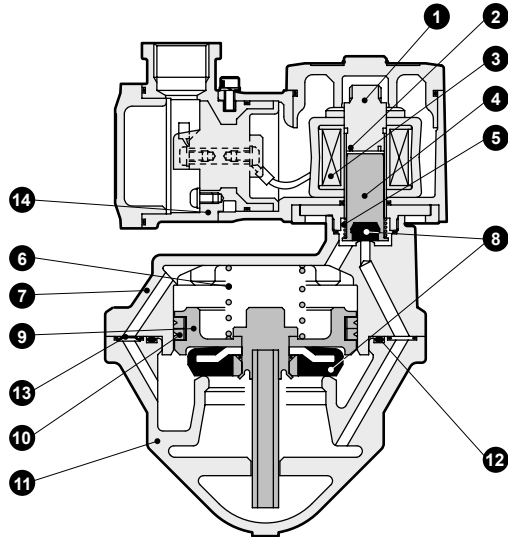
F Other options			
Blank	Std. No option	●	●
A	Manual override (locking)	●	

G Organizations for explosive-proof certification			
Blank	Japan certification (TIIS) *11	●	●
CN	China certification (NEPSI) *12	●	●

H Voltage				
AC100V	Std.	100 VAC 50/60 Hz	●	●
AC200V		200 VAC 50/60 Hz	●	●
DC12V	Option	12 VDC	●	●
DC24V		24 VDC	●	●
DC48V		48 VDC	●	●
DC100V		100 VDC	●	●

## Internal structure and parts list

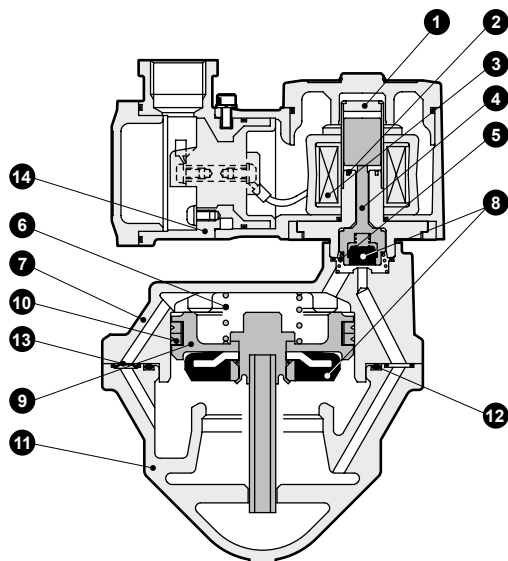
### ● AP21E4 Series



(The figure shows the closing operation)

**Cannot be disassembled**

### ● AP22E4 Series



(The figure shows the opening operation)

**Cannot be disassembled**

No.	Part name	Material	
1	Core assembly	SUS405 or equiv./ SUS316L/SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
8	Valve seal	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604/SUS303/SUS304 (SUS303/SUS304)	Stainless steel/ copper alloy (stainless steel)
10	Seal ring set	SUS304/PTFE	Stainless steel/ tetrafluoroethylene resin
11	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
12	O-ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304	Stainless steel
14	Coil case	ADC12	Aluminum die-casting

( ) shows options.

No.	Part name	Material	
1	Plunger/core assembly	SUS405 or equiv./SUS316L/ SUS304	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	NO valve	POM (PPS/SUS303/PFA)	Body/sealant combination When O/D/H/L: Polyacetal resin When B/E/J/M: Polyphenylene sulfide resin When C/F/K/N: Stainless steel/ perfluoroalkoxy resin
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
8	Valve seal	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	Main valve assembly	C3604/SUS303/SUS304 (SUS303/SUS304)	Stainless steel/ copper alloy (stainless steel)
10	Seal ring set	SUS304/PTFE	Stainless steel/ tetrafluoroethylene resin
11	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
12	O-ring	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
13	Orifice plate	SUS304	Stainless steel
14	Coil case	ADC12	Aluminum die-casting

( ) shows options.

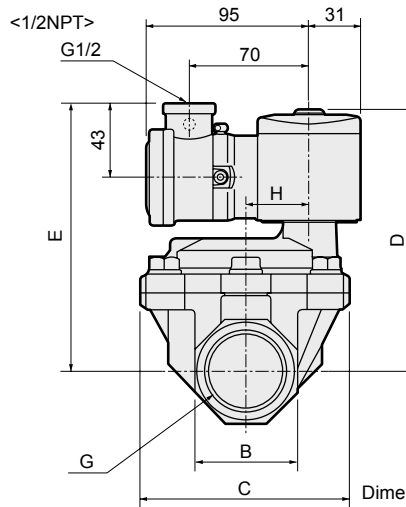
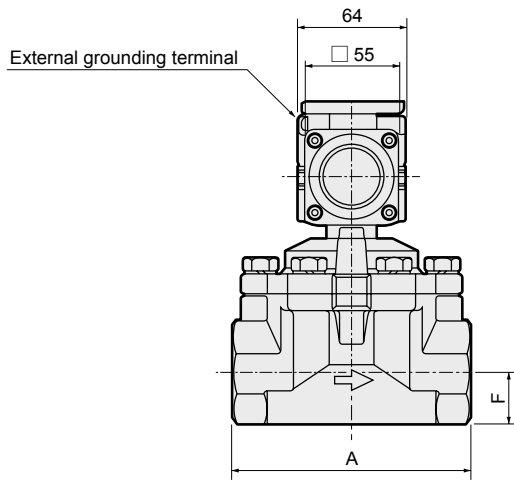
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S ♂ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combus  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

# AP21E4/AP22E4 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S $\diamond$ B/NAB
- LAD/NAD
- Water-Rela
- NPN/NP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

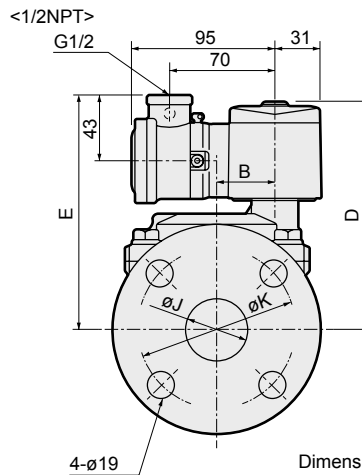
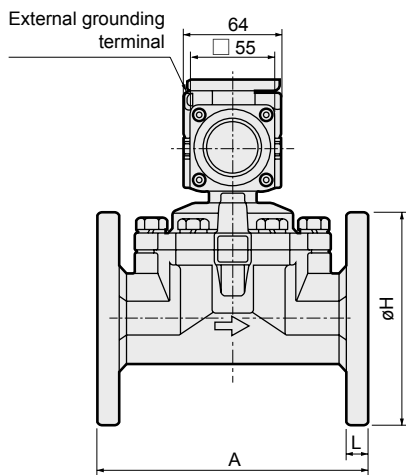
## Dimensions

- Conduit screw (G1/2) connection (Rc screw-in)  
AP21E4\_32A/40A/50A-\*\*T  
AP22E4



Model No.	A	B	C	D	E	F	G	H
AP21E4-32A-**T	125	54	112	147	152	27	Rc1 1/4	32
AP21E4-40A-**T	140	60	122	153	158	30	Rc1 1/2	38
AP21E4-50A-**T	160	74	132	161	166	37	Rc2	45
AP22E4-32A-**T	125	54	112	151	156	27	Rc1 1/4	32
AP22E4-40A-**T	140	60	122	157	162	30	Rc1 1/2	38
AP22E4-50A-**T	160	74	132	165	170	37	Rc2	45

- Conduit screw (G1/2) connection (flange)  
AP21E4\_32F/40F/50F-\*\*T  
AP22E4



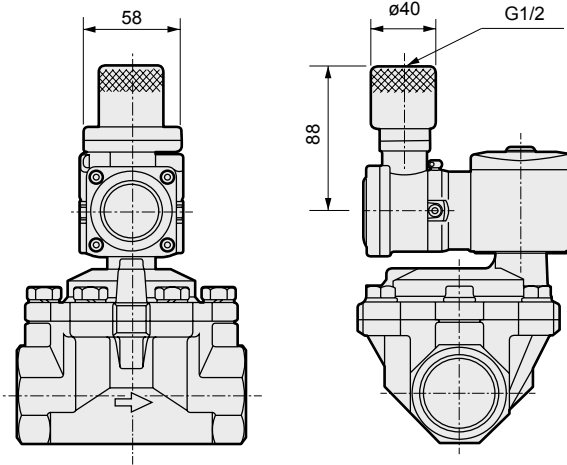
Model No.	A	B	D	E	H	J	K	L
AP21E4-32F-**T	170	32	147	152	135	36(35)	100	12
AP21E4-40F-**T	180	38	153	158	140	42	105	14
AP21E4-50F-**T	180	45	161	166	155	53(52)	120	14
AP22E4-32F-**T	170	32	151	156	135	36(35)	100	12
AP22E4-40F-**T	180	38	157	162	140	42	105	14
AP22E4-50F-**T	180	45	165	170	155	53(52)	120	14

Dimensions shown in ( ) are for stainless steel body.

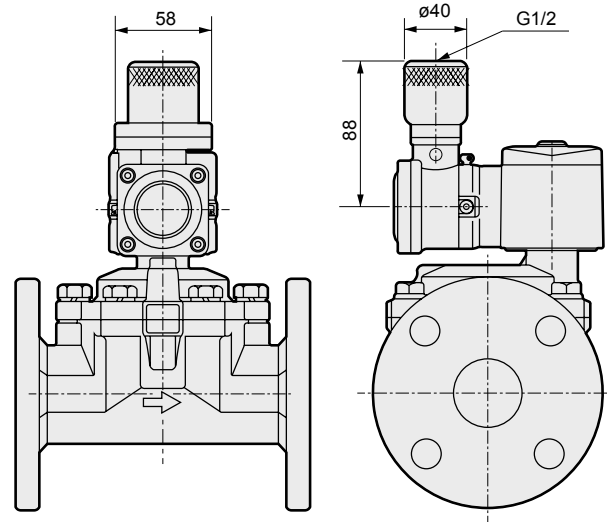
## Optional dimensions



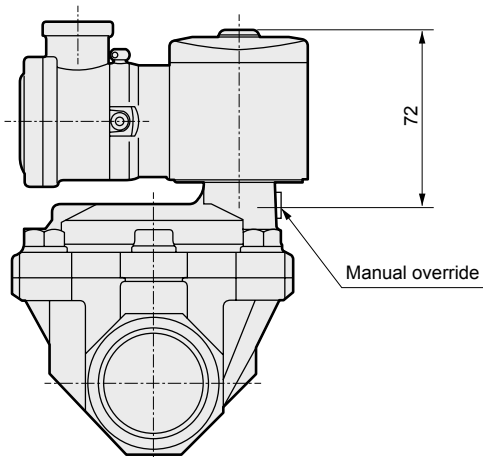
- Pressure proof packing (G1/2) connection (Rc screw-in)  
AP21E4-32A/40A/50A-\*\* [L,M]  
AP22E4



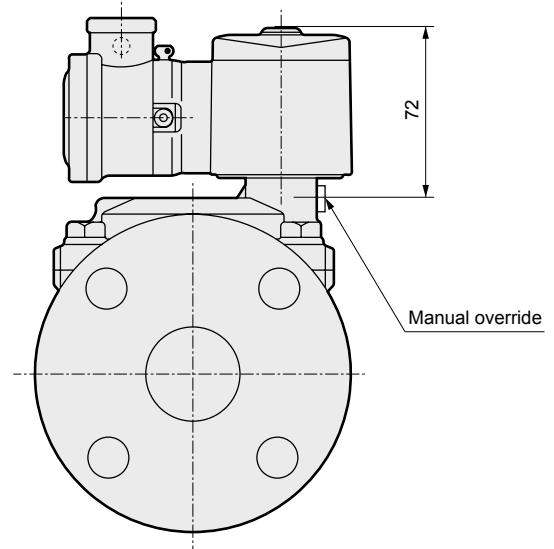
- Pressure proof packing (G1/2) connection (flange)  
AP21E4-32F/40F/50F-\*\* [L,M]  
AP22E4



- Manual override (locking) (Rc screw-in)  
AP21E4-32A/40A/50A-\*\*\* [A]

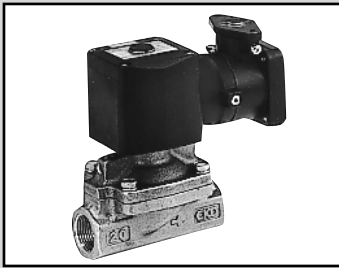


- Manual override (locking) (flange)  
AP21E4-32F/40F/50F-\*\*\* [A]



EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S ⌀ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

# AD11E4/AD12E4 Series



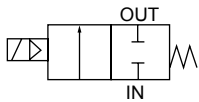
- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- NC (open when energized), NO (closed when energized)
- Japan Conformity Certificate No. AD11E4: No. T64349, AD12E4: No. T64352
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- Port size: Rc1/2 to Rc1 ● Diaphragm drive



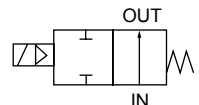
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK

## JIS symbol

- AD11E4: NC (open when energized)



- AD12E4: NO (closed when energized)



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AD11E4/AD12E4
Working fluid	Air/water/kerosene/oil (50 mm <sup>2</sup> /s or less)
Working pressure differential MPa	0.02 to 1 (refer to max. working pressure differential in individual specifications)
Max. working pressure MPa	2 (≈290 psi, 20 bar)
Proof pressure (water pressure) MPa	8 (≈1200 psi, 80 bar)
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoors/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Pilot operated poppet, diaphragm drive
Valve seat leakage (*1) cm <sup>3</sup> /min(ANR)	0.2 or less (air)
Mounting orientation	Free (within working pressure range)
Degree of protection	IP65 or equivalent

\*1: Pneumatic pressure used for measurement is 0.02 to 1 MPa for AD11E4 (NC [open when energized]), and 0.02 to 0.5 MPa for AD12E4 (NO [closed when energized]).

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water/kerosene		Oil (50 mm <sup>2</sup> /s)			When holding		When starting		AC 50 Hz/60 Hz	DC	
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz			
<b>NC (open when energized)</b>																	
AD11E4	-15A	Rc1/2	15	0.02	1	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60 Hz 110 VAC 60 Hz	18	15	29	24	8/7	11.6
	-20A	Rc3/4	20								200 VAC 50/60 Hz 220 VAC 60 Hz						
	-25A	Rc1	25								(12 VDC) (24 VDC) (48 VDC) (100 VDC) *3						
<b>NO (closed when energized)</b>																	
AD12E4	-15A	Rc1/2	15	0.02	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5
	-20A	Rc3/4	20								200 VAC 50/60 Hz 220 VAC 60 Hz						
	-25A	Rc1	25								(12 VDC) (24 VDC) (48 VDC) (100 VDC) *3						

\*1 : Refer to DC column for the max. working pressure differential of AD11E4 type coil with diode.

\*2 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.

\*3 : ( ) shows options.

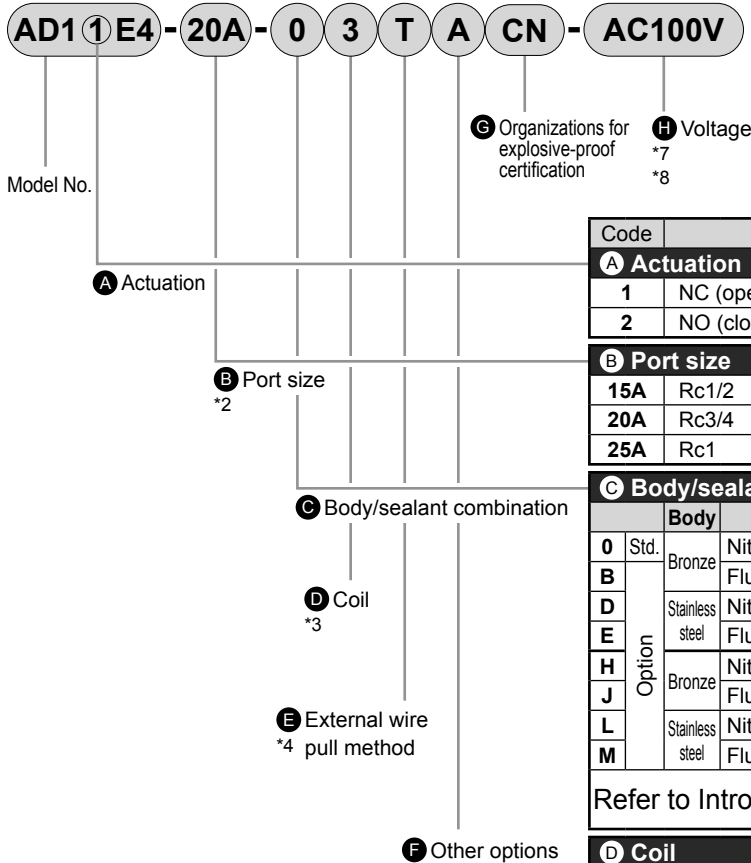
## Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics				
			C[dm <sup>3</sup> /(s·bar)]	b	Cv	S(mm <sup>2</sup> )	
<b>NC (open when energized)</b>							
AD11E4	-15A	Rc1/2	15	21	0.22	4.5	-
	-20A	Rc3/4	20	-	-	9.3	162
	-25A	Rc1	25	-	-	12.0	231
<b>NO (closed when energized)</b>							
AD12E4	-15A	Rc1/2	15	21	0.22	4.5	-
	-20A	Rc3/4	20	-	-	9.3	162
	-25A	Rc1	25	-	-	12.0	231

\*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S ◇ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combus  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

## How to order



[Example of model No.]

### AD11E4-20A-03TACN-AC100V

Model: AD11E4

- A** Actuation : NC (open when energized)
- B** Port size : Rc 3/4
- C** Body/sealant combination : Body - bronze/sealant - nitrile rubber
- D** Coil : Thermal class 130 (B) explosion-proof coil
- E** External wire pull method : Conduit screw connection (1/2NPT)
- F** Other options : Manual override (locking)
- G** Organizations for explosive-proof certification : China Certification (NEPSI)
- H** Voltage : 100 VAC 50/60 Hz

### ⚠ Precautions for model No. selection

- \*1 : The combinations indicated with ● above are available.
- \*2 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- \*3 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*4 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*5 : When Item **A** is 2, the manual override (Item **F** A) is not available.
- \*6 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.
- \*7 : 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. The thermal class 130 (B) diode integrated explosion-proof coil (● 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*8 : Other voltages as below are also available. Contact CKD for details. 12, 24, 48, 110, 115, 120, 220, 240, 380, 400, 415, 440, 480, 500 VAC (with diode) 110, 220 VAC 6, 110, 200, 220 VDC
- \*9 : China certification will be 1/2 NPT.
- \*10 : Japan certification (TIIS) is included.
- \*11 : China certification (NEPSI) is included.

Code		Description		Model No.	
<b>A Actuation</b>					
1	NC	(open when energized)	●		
2	NO	(closed when energized)		●	
<b>B Port size</b>					
15A	Rc1/2		●	●	
20A	Rc3/4		●	●	
25A	Rc1		●	●	
<b>C Body/sealant combination</b>					
	Body	Seal	Treatment	Remarks	
0	Std. Bronze	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	
B	Option Bronze	Fluoro rubber	-	-	
D	Std. Stainless steel	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	
E	Option Stainless steel	Fluoro rubber	-	-	
H	Option Bronze	Nitrile rubber	Oil-prohibited	Air/water/kerosene/oil (up to 60°C)	
J	Option Bronze	Fluoro rubber	Oil-prohibited	-	
L	Std. Stainless steel	Nitrile rubber	Oil-prohibited	Air/water/kerosene/oil (up to 60°C)	
M	Option Stainless steel	Fluoro rubber	Oil-prohibited	-	
Refer to Intro Page 39 for reference on material combinations.					
<b>D Coil</b>					
3	Thermal class 130 (B) explosion-proof coil		●	●	
5	Thermal class 130 (B) diode integrated explosion-proof coil		●	●	
<b>E External wire pull method</b>					
T	Std.	Conduit screw connection (G1/2) *9	●	●	
L	Option	Pressure proof packing (G1/2) connection, cable O.D. ø7.5 to 8.4	●	●	
M	Option	Pressure proof packing (G1/2) connection, cable O.D. ø8.5 to 9.4	●	●	
<b>F Other options</b>					
Blank	Std.	No option	●	●	
A		Manual override (locking)	●		
<b>G Organizations for explosive-proof certification</b>					
Blank		Japan certification (TIIS) *10	●	●	
CN		China certification (NEPSI) *11	●	●	
<b>H Voltage</b>					
AC100V	Std.	100 VAC 50/60 Hz	●	●	
AC200V	Std.	200 VAC 50/60 Hz	●	●	
DC12V	Option	12 VDC	●	●	
DC24V	Option	24 VDC	●	●	
DC48V	Option	48 VDC	●	●	
DC100V	Option	100 VDC	●	●	

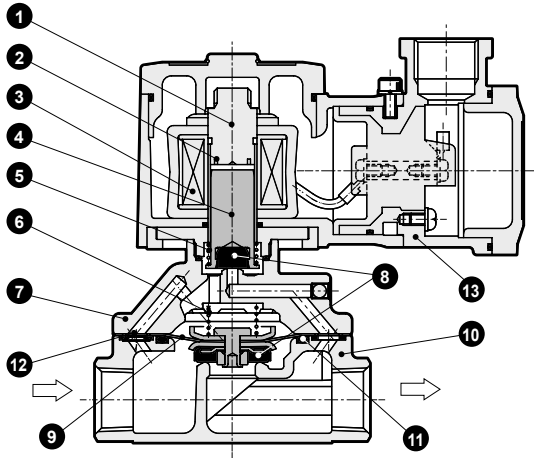
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
HVL
SøB/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

# AD11E4/AD12E4 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S◇B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

## Internal structure and parts list

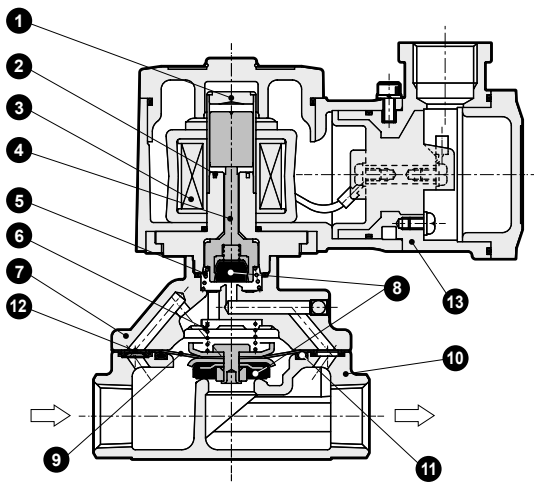
### ● AD11E4 Series



(The figure shows the closing operation)

**Cannot be disassembled**

### ● AD12E4 Series



(The figure shows the opening operation)

**Cannot be disassembled**

No.	Part name	Material	
1	Core assembly	SUS405 or equiv./ SUS316L/SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
8	Seal	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 (S.S. casting)
11	O-ring	NBR(FKM)	Nitrile rubber (fluoro rubber)
12	Orifice plate	SUS304	Stainless steel
13	Coil case	ADC12	Aluminum die-casting

( ) shows options.

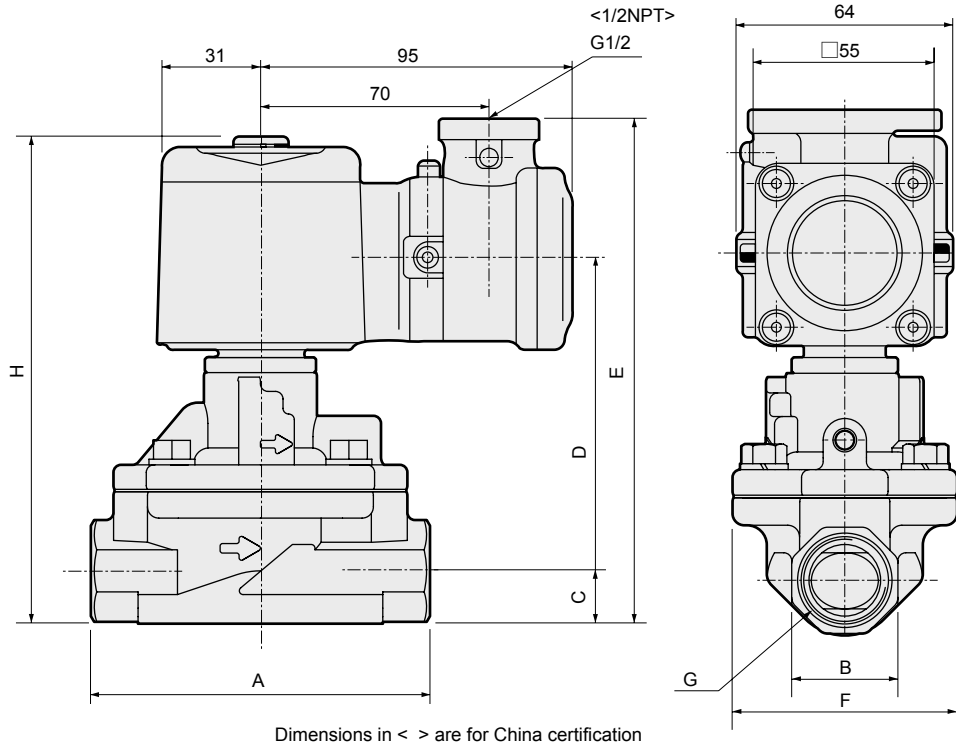
No.	Part name	Material	
1	Plunger/core assembly	SUS405 or equiv./ SUS316L/SUS304	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	NO valve	POM(PPS)	Body/sealant combination When O/D/H/L: Polyacetal resin When B/E/J/M: Polyphenylene sulfide resin
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
8	Seal	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 (S.S. casting)
11	O-ring	NBR(FKM)	Nitrile rubber (fluoro rubber)
12	Orifice plate	SUS304	Stainless steel
13	Coil case	ADC12	Aluminum die-casting

( ) shows options.

## Dimensions and optional dimensions

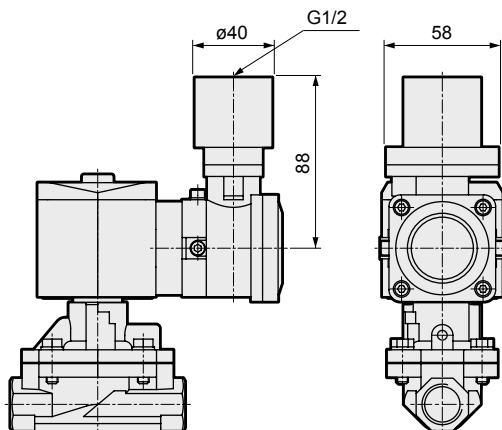


- Conduit screw (G1/2) connection  
AD11E4-15A/20A/25A-\*\* **T**  
AD12E4

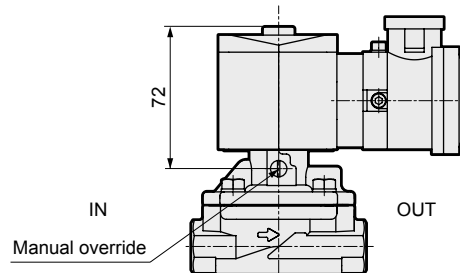


Model No.	A	B	C	D	E	F	G	H
AD11E4-15A-**T	90	27	14	75.5	132.5	57	Rc1/2	127.5
AD11E4-20A-**T	100	32	17	81.5	141.5	65	Rc3/4	136.5
AD11E4-25A-**T	110	41	20.5	87	150.5	76	Rc1	145.5
AD12E4-15A-**T	90	27	14	80.5	137.5	57	Rc1/2	132.5
AD12E4-20A-**T	100	32	17	86.5	146.5	65	Rc3/4	141.5
AD12E4-25A-**T	110	41	20.5	92	155.5	76	Rc1	150.5

- Pressure proof packing (G1/2) connection  
AD11E4-15A/20A/25A-\*\* **L,M**  
AD12E4



- Manual override (locking)  
AD11E4-15A/20A/25A-\*\*\* **A**



EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending



# AD21E4/AD22E4 Series



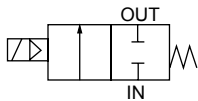
- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- NC (open when energized), NO (closed when energized)
- Japan Conformity Certificate No. AD21E4: No. T64349, AD22E4: No. T64352
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- Port size: Rc1<sup>1</sup>/<sub>4</sub> to Rc2, 32 to 50 flange ● Diaphragm drive



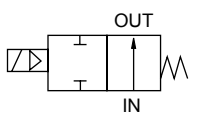
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S ◇ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combus  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

## JIS symbol

- AD21E4: NC (open when energized)



- AD22E4: NO (closed when energized)



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AD21E4/AD22E4
Working fluid	Air/water/kerosene/oil (50 mm <sup>2</sup> /s or less)
Working pressure differential MPa	0.02 to 0.7 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	1 (≈150 psi, 10 bar)
Proof pressure (water pressure) MPa	3.2 (≈460 psi, 32 bar)
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoors/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Pilot operated poppet, diaphragm drive
Valve seat leakage (*1) cm <sup>3</sup> /min(ANR)	1 or less (air)
Mounting orientation	Free (within working pressure range)
Degree of protection	IP65 or equivalent

\*1: Pneumatic pressure used for measurement is 0.02 to 0.7 MPa for AD21E4 (NC [open when energized]), and 0.02 to 0.5 MPa for AD22E4 (NO [closed when energized]).

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water/kerosene		Oil (50 mm <sup>2</sup> /s)			When holding	When starting	AC	DC			
				AC	DC	AC	DC	AC	DC						50 Hz/60 Hz	50 Hz/60 Hz	
<b>NC (open when energized)</b>																	
AD21E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	0.02	0.7	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60 Hz 110 VAC 60 Hz	18	15	29	24	8/7	11.6
	-32F	32 flange															
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43														
	-40F	40 flange															
	-50A	Rc2	53														
	-50F	50 flange															
<b>NO (closed when energized)</b>																	
AD22E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	0.02	0.5	0.5	0.5	0.5	0.5	0.5	100 VAC 50/60 Hz 110 VAC 60 Hz	22	18	35	29	8.7/6.7	15.5
	-32F	32 flange															
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43														
	-40F	40 flange															
	-50A	Rc2	53														
	-50F	50 flange															

\*1 : Refer to DC column for the max. working pressure differential of AD21E4 type coil with diode.

\*2 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.

\*3 : ( ) shows options.

## Flow characteristics

Model No.	Port size	Orifice size (mm)	Cv	Effective cross-sectional area (mm <sup>2</sup> )	
<b>NC (open when energized)</b>					
AD21E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	25	460
	-32F	32 flange			
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43	34	625
	-40F	40 flange			
	-50A	Rc2	53	53	975
	-50F	50 flange			
<b>NO (closed when energized)</b>					
AD22E4	-32A	Rc1 <sup>1</sup> / <sub>4</sub>	35	25	460
	-32F	32 flange			
	-40A	Rc1 <sup>1</sup> / <sub>2</sub>	43	34	625
	-40F	40 flange			
	-50A	Rc2	53	53	975
	-50F	50 flange			

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S <sup>∅</sup> B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

# AD21E4/AD22E4 Series

## How to order

**AD2** **1** **E4** - **40F** - **0** **3** **T** **A** **CN** - **AC100V**

Model No. **A** Actuation **B** Port size **C** Body/sealant combination **D** Coil **E** External wire pull method **F** Other options **G** Organizations for explosive-proof certification **H** Voltage

Model No.

AD21E4  
AD22E4

Code	Description	AD21E4	AD22E4
------	-------------	--------	--------

A Actuation			
1	NC (open when energized)	●	●
2	NO (closed when energized)	●	●

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	Seal	Treatment	Remarks	AD21E4	AD22E4	
0	Standard	Bronze	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	●	●	
B	Option	Bronze	Fluoro rubber	-	-	●	●	
D		Stainless steel	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	●	●	
E		Stainless steel	Fluoro rubber	-	-	●	●	
H		Bronze	Nitrile rubber	Oil-prohibited	-	Air/water/kerosene/oil (up to 60°C)	●	●
J		Bronze	Fluoro rubber		-	-	●	●
L		Stainless steel	Nitrile rubber		-	Air/water/kerosene/oil (up to 60°C)	●	●
M	Stainless steel	Fluoro rubber	-	-	-	●	●	

Refer to Intro Page 39 for reference on material combinations.

D Coil			
3	Thermal class 130 (B) explosion-proof coil	●	●
5	Thermal class 130 (B) diode integrated explosion-proof coil	●	●

E External wire pull method				
T	Standard	Conduit screw connection (G1/2) *10	●	●
L	Option	Pressure proof packing seal (G1/2) connection, cable O.D. ø7.5 to 8.4	●	●
M		Pressure proof packing seal (G1/2) connection, cable O.D. ø8.5 to 9.4	●	●

F Other options				
Blank	Standard	No option	●	●
A		Manual override (locking)	●	●

G Organizations for explosive-proof certification				
Blank		Japan certification (TIIS) *11	●	●
CN		China certification (NEPSI) *12	●	●

H Voltage				
AC100V	Std.	100 VAC 50/60 Hz	●	●
AC200V		200 VAC 50/60 Hz	●	●
DC12V	Option	12 VDC	●	●
DC24V		24 VDC	●	●
DC48V		48 VDC	●	●
DC100V		100 VDC	●	●

[Example of model No.]

**AD21E4-40F-03TACN-AC100V**

Model: AD21E4

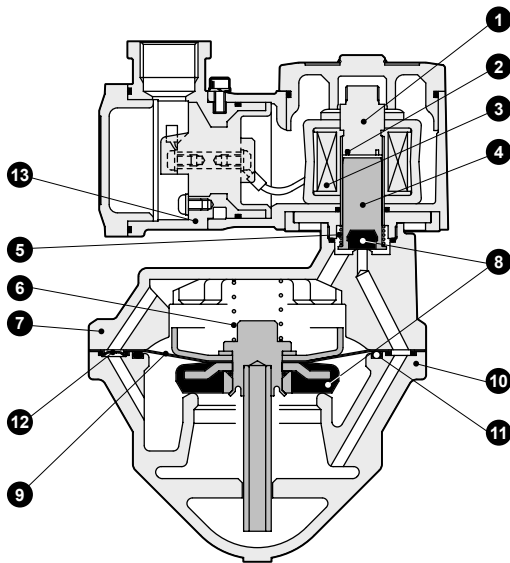
- A** Actuation : NC (open when energized)
- B** Port size : 40 flange
- C** Body/sealant combination : Body - bronze/sealant - nitrile rubber
- D** Coil : Thermal class 130 (B) explosion-proof coil
- E** External wire pull method : Conduit screw connection (1/2NPT)
- F** Other options : Manual override (locking)
- G** Organizations for explosive-proof certification : China Certification (NEPSI)
- H** Voltage : 100 VAC 50/60 Hz

## ⚠ Precautions for model No. selection

- \*1 : The combinations indicated with ● above are available.
- \*2 : The companion flange is JIS B2210 10K. (Flange is not enclosed with the product and must be purchased separately.)
- \*3 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- \*4 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*5 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*6 : When Item **A** is 2, the manual override (Item **F** A) is not available.
- \*7 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information. Note that tropicalization is not available when the manual override option (A) is selected.
- \*8 : 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. The thermal class 130 (B) diode integrated explosion-proof coil (**D** 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*9 : Other voltages as below are also available. Contact CKD for details.  
12, 24, 48, 110, 115, 120, 220, 240, 380, 400, 415, 440, 480, 500 VAC (with diode) 110, 220 VAC  
6, 110, 200, 220 VDC
- \*10 : China certification will be 1/2 NPT.
- \*11 : Japan certification (TIIS) is included.
- \*12 : China certification (NEPSI) is included.

## Internal structure and parts list

### ● AD21E4 Series



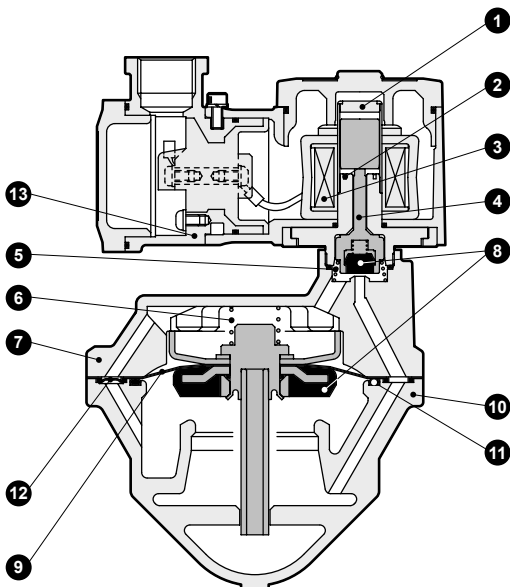
(The figure shows the closing operation)

**Cannot be disassembled**

No.	Part name	Material	
1	Core assembly	SUS405 or equiv./SUS316L/ SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
8	Seal	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 (S.S. casting)
11	O-ring	NBR(FKM)	Nitrile rubber (fluoro rubber)
12	Orifice plate	SUS304	Stainless steel
13	Coil case	ADC12	Aluminum die-casting

( ) shows options.

### ● AD22E4 Series



(The figure shows the opening operation)

**Cannot be disassembled**

No.	Part name	Material	
1	Plunger/core assembly	SUS405 or equiv./ SUS316L/SUS304	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	NO valve	POM(PPS)	Body/sealant combination When O/D/H/L: Polyacetal resin When B/E/J/M: Polyphenylene sulfide resin
5	Spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
8	Seal	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 (S.S. casting)
11	O-ring	NBR(FKM)	Nitrile rubber (fluoro rubber)
12	Orifice plate	SUS304	Stainless steel
13	Coil case	ADC12	Aluminum die-casting

( ) shows options.

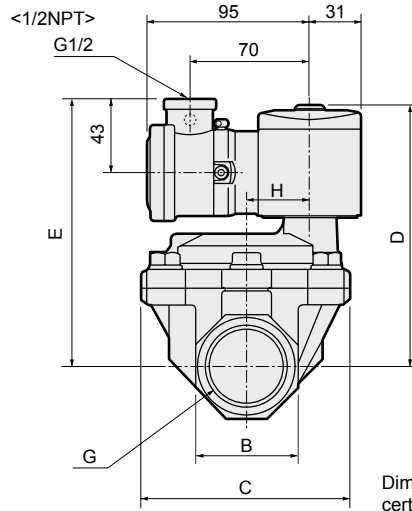
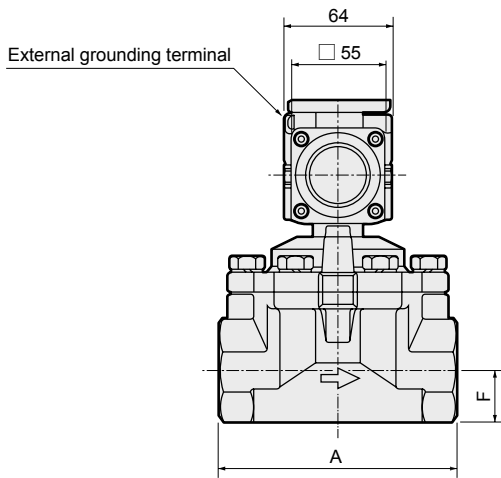
EXA  
FWD  
HNB/G  
USB/G  
FAB/G  
FGB/G  
FVB  
FWB/G  
FHB  
FLB  
AB  
AG  
AP/  
AD  
APK/  
ADK  
DryAir  
EX-  
XPLNprf  
XPLNprf  
HVB/  
HVL  
S ♂ B/  
NAB  
LAD/  
NAD  
Water-  
Rela  
NP/NAP/  
NVP  
SNP  
CHB/G  
MXB/G  
Other  
valves  
SWD/  
MWD  
DustColl  
CVE/  
CVSE  
CCH/  
CPE/D  
LifeSci  
Gas-  
Combus  
Auto-  
Water  
Outdoor  
SpecFld  
Custom  
Ending

# AD21E4/AD22E4 Series



## Dimensions

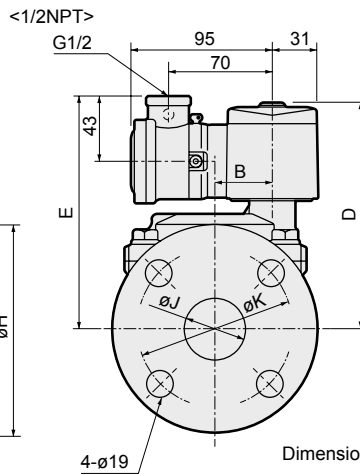
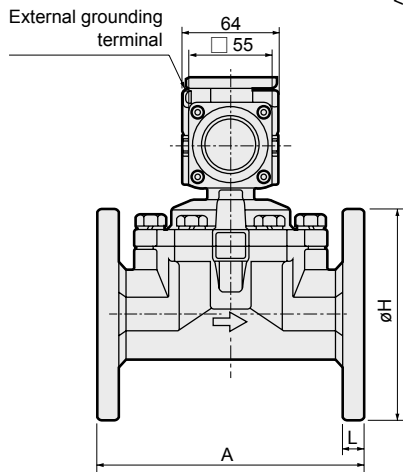
- Conduit screw (G1/2) connection (Rc screw-in)  
AD21E4 -32A/40A/50A-\*\*T  
AD22E4



Dimensions in < > are for China certification

Model No.	A	B	C	D	E	F	G	H
AD21E4-32A-**T	125	54	112	147.5	152.5	27	Rc1 <sup>1</sup> / <sub>4</sub>	32
AD21E4-40A-**T	140	60	122	153.5	158.5	30	Rc1 <sup>1</sup> / <sub>2</sub>	38
AD21E4-50A-**T	160	74	132	161.5	166.5	37	Rc2	45
AD22E4-32A-**T	125	54	112	151.5	156.5	27	Rc1 <sup>1</sup> / <sub>4</sub>	32
AD22E4-40A-**T	140	60	122	157.5	162.5	30	Rc1 <sup>1</sup> / <sub>2</sub>	38
AD22E4-50A-**T	160	74	132	165.5	170.5	37	Rc2	45

- Conduit screw (G1/2) connection (flange)  
AD21E4 -32F/40F/50F-\*\*T  
AD22E4



Dimensions in < > are for China certification

Model No.	A	B	D	E	H	J	K	L
AD21E4-32F-**T	170	32	147.5	152.5	135	36(35)	100	12
AD21E4-40F-**T	180	38	153.5	158.5	140	42	105	14
AD21E4-50F-**T	180	45	161.5	166.5	155	53(52)	120	14
AD22E4-32F-**T	170	32	151.5	156.5	135	36(35)	100	12
AD22E4-40F-**T	180	38	157.5	162.5	140	42	105	14
AD22E4-50F-**T	180	45	165.5	170.5	155	53(52)	120	14

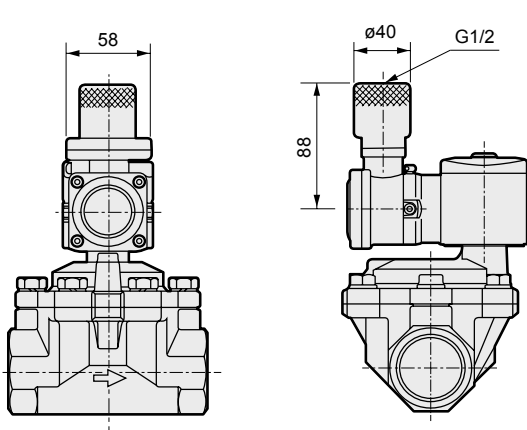
Dimensions shown in ( ) are for stainless steel body.

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S<sup>◇</sup>B/NAB
- LAD/NAD
- Water-Rela
- NPN/NP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

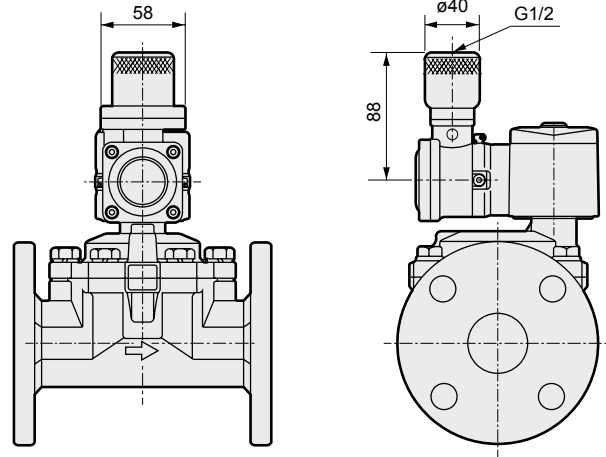
## Optional dimensions



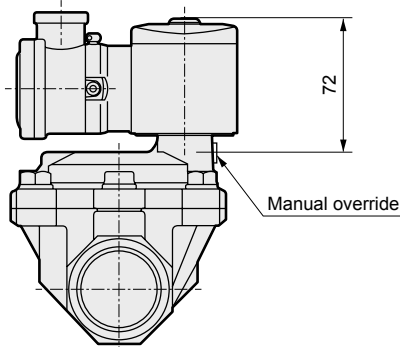
- Pressure proof packing (G1/2) connection (Rc screw-in)  
AD21E4 -32A/40A/50A-\*\* L,M  
AD22E4



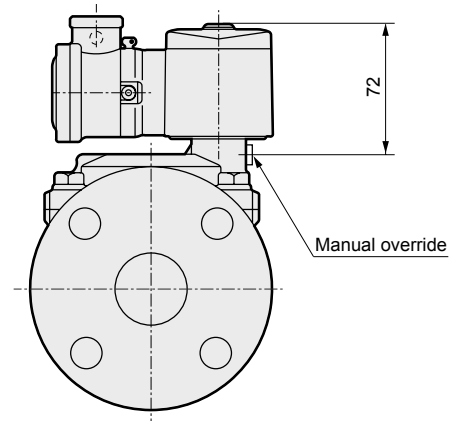
- Pressure proof packing (G1/2) connection (flange)  
AD21E4 -32F/40F/50F-\*\* L,M  
AD22E4



- Manual override (locking) (Rc screw-in)  
AD21E4-32A/40A/50A-\*\*\* A



- Manual override (locking) (flange)  
AD21E4-32F/40F/50F-\*\*\* A



EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S ⚡ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

Explosion-proof pilot kick 2-port solenoid valve  
General purpose

# ADK11E4/ADK12E4 Series

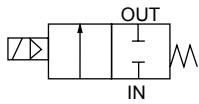


- Pressure and explosion proof construction d2G4 (flame-proof grade 2/ignitability G4)
- NC (open when energized), NO (closed when energized)
- Japan Conformity Certificate No. ADK11E4: No. T64355, ADK12E4: No. T64358
- China Conformity Certificate No. 2020322307003155
- China explosion-proof standard NEPSI acquired GYB20. 2593X
- Port size: Rc1/2, Rc3/4, Rc1 ● Diaphragm drive

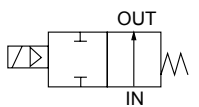


## JIS symbol

- ADK11E4: NC (open when energized)



- ADK12E4: NO (closed when energized)



## Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	ADK11E4/ADK12E4
Working fluid	Air/low vacuum (1.33 x 10 <sup>3</sup> Pa)/water/kerosene/oil (50 mm <sup>2</sup> /s or less)
Working pressure differential MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	2 (≈290 psi, 20 bar)
Proof pressure (water pressure) MPa	4 (≈580 psi, 40 bar)
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	Class 130 (B)
Atmosphere	Outdoors/explosive gas (flame-proof grade 1 to 2/ignitability G1 to G4)
Valve structure	Pilot kick poppet, diaphragm drive
Valve seat leakage (*1) cm <sup>3</sup> /min(ANR)	1 or less (air)
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent

\*1: Pneumatic pressure used for measurement is 0.02 to 1 MPa for ADK11E4 (NC [open when energized]), and 0.02 to 0.6 MPa for ADK12E4 (NO [closed when energized]).  
When used at a pressure less than 0.02 MPa, the sealant may be unstable. Contact CKD in this case.

## Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)	
				Air		Water/kerosene		Oil (50 mm <sup>2</sup> /s)			When holding		When starting		AC	DC		
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	DC		
<b>NC (open when energized)</b>																		
ADK11E4	-15A	Rc1/2	16							100 VAC 50/60 Hz 110 VAC 60 Hz							1.4	
	-20A	Rc3/4	23	0	1	0.6	1	0.6	0.6	0.5	200 VAC 50/60 Hz 220 VAC 60 Hz	20	16	80	64	10/8.5	15	1.5
	-25A	Rc1	28								(12 VDC) (24 VDC) (48 VDC) (100 VDC) *4							1.9
<b>NO (closed when energized)</b>																		
ADK12E4	-15A	Rc1/2	16								100 VAC 50/60 Hz 110 VAC 60 Hz							1.5
	-20A	Rc3/4	23	0	0.6	0.6	0.6	0.6	0.5	0.5	200 VAC 50/60 Hz 220 VAC 60 Hz	25	21	100	84	12/10	15	1.7
	-25A	Rc1	28								(12 VDC) (24 VDC) (48 VDC) (100 VDC) *4							2.1

\*1 : Refer to DC column for the max. working pressure differential of coil with diode.

\*2 : The voltage fluctuation range must be within -10 to +5% of the rated voltage.

\*3 : When using at low vacuum, vacuum the OUT port side.

\*4 : ( ) shows options.

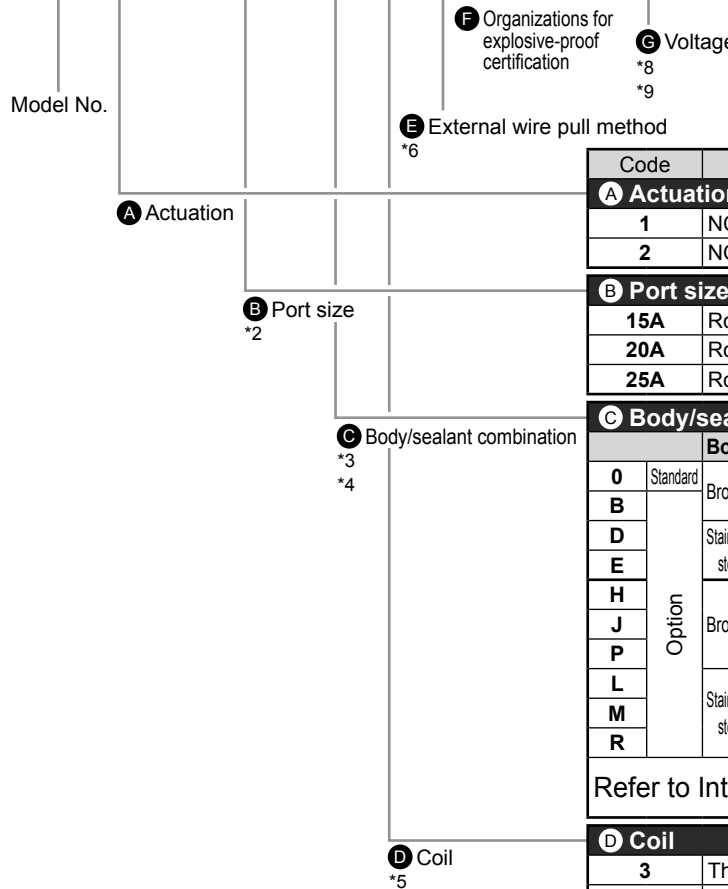
## Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics				
			C[dm <sup>3</sup> /(s·bar)]	b	Cv	S(mm <sup>2</sup> )	
<b>NC (open when energized)</b>							
ADK11E4	-15A	Rc1/2	16	20	0.31	4.5	-
	-20A	Rc3/4	23	-	-	8.6	162
	-25A	Rc1	28	-	-	12.0	231
<b>NO (closed when energized)</b>							
ADK12E4	-15A	Rc1/2	16	20	0.31	4.5	-
	-20A	Rc3/4	23	-	-	8.6	162
	-25A	Rc1	28	-	-	12.0	231

\*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

## How to order

**ADK1 2 E4 - 20A - 0 3 T CN - AC100V**



Code		Description		Model No.		
				ADK11E4	ADK12E4	
<b>A Actuation</b>						
<b>1</b>		NC (open when energized)		●		
<b>2</b>		NO (closed when energized)			●	
<b>B Port size</b>						
<b>15A</b>		Rc1/2		●	●	
<b>20A</b>		Rc3/4		●	●	
<b>25A</b>		Rc1		●	●	
<b>C Body/sealant combination</b>						
	Body	Seal	Treatment	Remarks		
<b>0</b>	Standard	Bronze	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)	
<b>B</b>			Fluoro rubber	-	-	
<b>D</b>	Option	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)	
<b>E</b>			Fluoro rubber	-	-	
<b>H</b>	Option	Bronze	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)	
<b>J</b>			Fluoro rubber		-	-
<b>P</b>			EPM rubber		-	-
<b>L</b>	Option	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)	
<b>M</b>			Fluoro rubber	-	-	
<b>R</b>			EPM rubber	-	-	
Refer to Intro Page 39 for reference on material combinations.						
<b>D Coil</b>						
<b>3</b>		Thermal class 130 (B) explosion-proof coil		●	●	
<b>5</b>		Thermal class 130 (B) diode integrated explosion-proof coil		●	●	
<b>E External wire pull method</b>						
<b>T</b>	Standard	Conduit screw connection (G1/2) *10		●	●	
<b>L</b>	Option	Pressure proof packing seal (G1/2) connection, cable O.D. ø7.5 to 8.4		●	●	
<b>M</b>		Pressure proof packing seal (G1/2) connection, cable O.D. ø8.5 to 9.4		●	●	
<b>F Organizations for explosive-proof certification</b>						
<b>Blank</b>		Japan certification (TIIS) *11		●	●	
<b>CN</b>		China certification (NEPSI) *12		●	●	
<b>G Voltage</b>						
<b>AC100V</b>	Std.	100 VAC 50/60 Hz		●	●	
<b>AC200V</b>		200 VAC 50/60 Hz		●	●	
<b>DC12V</b>	Option	12 VDC		●	●	
<b>DC24V</b>		24 VDC		●	●	
<b>DC48V</b>		48 VDC		●	●	
<b>DC100V</b>		100 VDC		●	●	

[Example of model No.]

**ADK12E4-20A-03TCN-AC100V**

Model: ADK12E4

- A** Actuation : NO (closed when energized)
- B** Port size : Rc3/4
- C** Body/sealant combination : Body - bronze/sealant - nitrile rubber
- D** Coil : Thermal class 130 (B) explosion-proof coil
- E** External wire pull method : Conduit screw connection (1/2NPT)
- F** Organizations for explosive-proof certification : China Certification (NEPSI)
- G** Voltage : 100 VAC 50/60 Hz

## ⚠ Precautions for model No. selection

- \*1 : The combinations indicated with ● above are available.
- \*2 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- \*3 : The max. working pressure differential of the ethylene propylene rubber seal combination (Item **C** P/R) is 0.6 MPa.
- \*4 : The ethylene propylene rubber seal combination (Item **C** P/R) cannot be used with air. (Compressed air contains oil, and ethylene propylene rubber is not oil-resistant.)
- \*5 : For the thermal class 130 (B) diode integrated coil, the AC power supply voltage is converted into a DC coil voltage by the diode.
- \*6 : A pressure proof packing seal (G3/4) connection is also available. Contact CKD for more information. Note that the conduit connection (G3/4) is not available.
- \*7 : Tropicalization (rust-proof coating) is available as a measure against rust. Contact CKD for more information.
- \*8 : 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. The thermal class 130 (B) diode integrated explosion-proof coil (**D** 5) can be used with 100 VAC 50/60 Hz or 200 VAC 50/60 Hz.
- \*9 : Other voltages as below are also available. Contact CKD for details.  
12, 24, 48, 110, 115, 120, 220, 240, 380, 400, 415, 440, 480, 500 VAC (with diode) 110, 220 V  
6, 110, 200, 220 VDC
- \*10 : China certification will be 1/2 NPT.
- \*11 : Japan certification (TIIS) is included.
- \*12 : China certification (NEPSI) is included.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S ⚡ B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

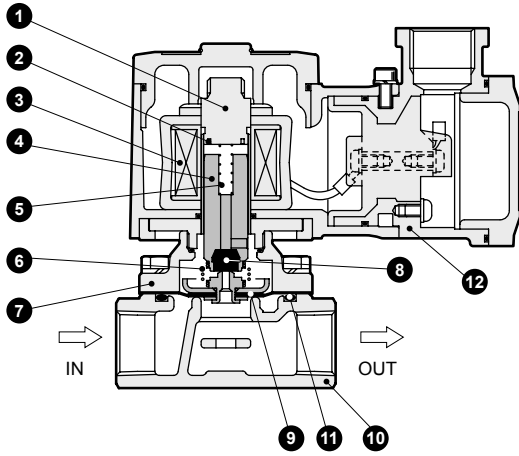


# ADK11E4/ADK12E4 Series

- EXA
- FWD
- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- DryAir
- EX-XPLNprf
- XPLNprf
- HVB/HVL
- S◇B/NAB
- LAD/NAD
- Water-Rela
- NP/NAP/NVP
- SNP
- CHB/G
- MXB/G
- Other valves
- SWD/MWD
- DustColl
- CVE/CVSE
- CCH/CPE/D
- LifeSci
- Gas-Combus
- Auto-Water
- Outdoor
- SpecFld
- Custom
- Ending

## Internal structure and parts list

### ● ADK11E4 Series



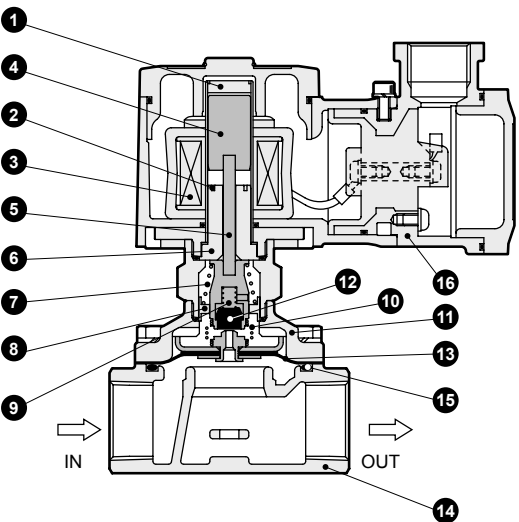
**Cannot be disassembled**

No.	Part name	Material	
1	Core assembly	SUS405 or equiv./ SUS316L/SUS403	Stainless steel
2	Shading coil *1	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger assembly	SUS405 or equiv./NBR (SUS405 or equiv./FKM or EPDM)	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Kick spring	SUS304	Stainless steel
7	Body	C3771(SCS13)	Copper alloy (stainless steel casting)
8	Seal	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber, ethylene propylene rubber)
9	Diaphragm assembly	SUS304/NBR (SUS304/FKM or EPDM)	Stainless steel/nitrile rubber (Stainless steel/fluoro rubber or ethylene propylene rubber)
10	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
11	O-ring	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber, ethylene propylene rubber)
12	Coil case	ADC12	Aluminum die-casting

( ) shows options.

\*1 No shading coil is used for DC coil or coil with diode.

### ● ADK12E4 Series



**Cannot be disassembled**

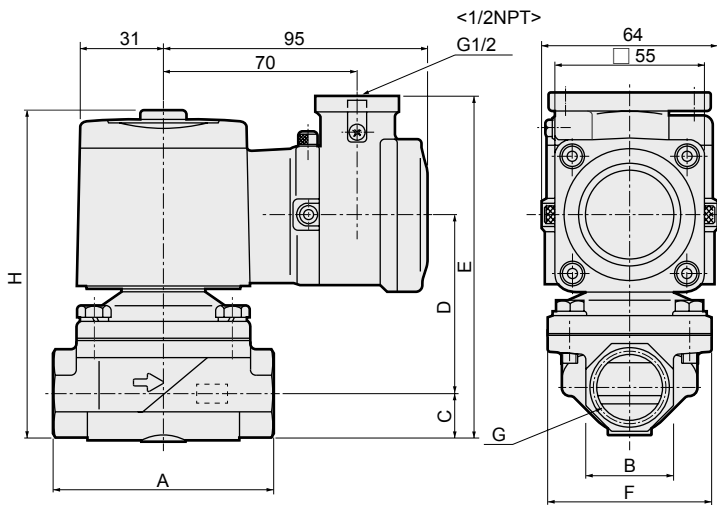
No.	Part name	Material	
1	Core assembly	SUS403/SUS316L/ SUS304	Stainless steel
2	Shading coil *1	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil		
4	Plunger	SUS405 or equiv.	Stainless steel
5	Push rod	SUS304	Stainless steel
6	Fixed core	SUS405 or equiv.	Stainless steel
7	Spring	SUS304	Stainless steel
8	Spring holder	POM(SUS303)	Acetal resin (stainless steel)
9	NO valve assembly	SUS303/SUS304/NBR (SUS303/SUS304/FKM or EPDM)	Stainless steel/nitrile rubber (stainless steel/fluoro rubber or ethylene propylene rubber)
10	Kick spring	SUS304	Stainless steel
11	Body	C3771(SCS13)	Copper alloy (stainless steel casting)
12	Seal	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber, ethylene propylene rubber)
13	Diaphragm assembly	SUS304/NBR (SUS304/FKM or EPDM)	Stainless steel/nitrile rubber (Stainless steel/fluoro rubber or ethylene propylene rubber)
14	Body	CAC408(SCS13)	Bronze casting (S.S. casting)
15	O-ring	NBR (FKM, EPDM)	Nitrile rubber (fluoro rubber, ethylene propylene rubber)
16	Coil case	ADC12	Aluminum die-casting

( ) shows options.

\*1 No shading coil is used for DC coil or coil with diode.

## Dimensions

- Conduit screw (G1/2) connection  
ADK11E4-15A/20A/25A-\*\*T

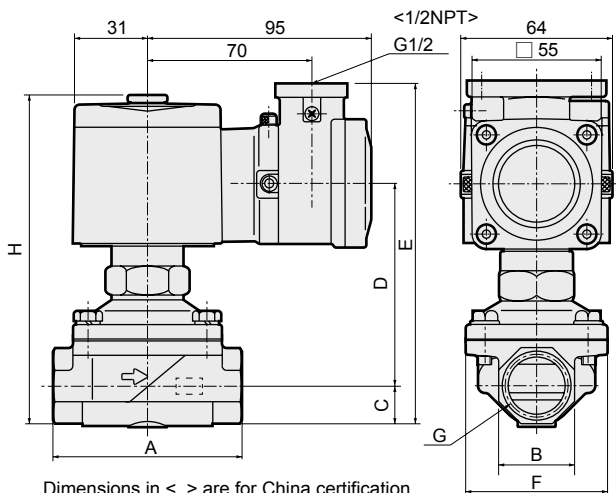


Dimensions in < > are for China certification

Model No.	A	B	C	D	E	F	G	H
ADK11E4-15A-**T	71	27(29)	14.5	59	116.5	50	Rc1/2	111.5
ADK11E4-20A-**T	80	32(35)	17.5	62.5	123	60	Rc3/4	118
ADK11E4-25A-**T	90	41(45)	21.5(22.5)	68	132.5(133.5)	71	Rc1	127.5(128.5)

Dimensions shown in ( ) are for stainless steel body.

- Conduit screw (G1/2)  
ADK12E4-15A/20A/25A-\*\*T



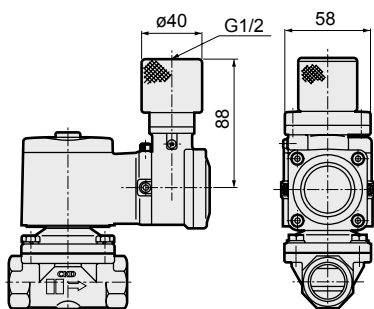
Dimensions in < > are for China certification

Model No.	A	B	C	D	E	F	G	H
ADK12E4-15A-**T	71	27(29)	14.5	79.5	137	50	Rc1/2	132
ADK12E4-20A-**T	80	32(35)	17.5	83	143.5	60	Rc3/4	138.5
ADK12E4-25A-**T	90	41(45)	21.5(22.5)	88.5	153(154)	71	Rc1	148(149)

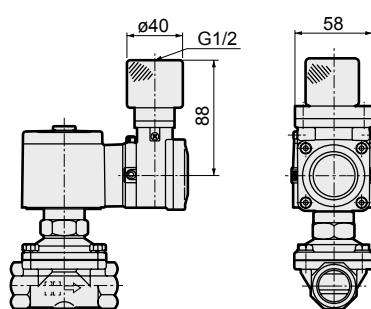
Dimensions shown in ( ) are for stainless steel body.

## Optional dimensions

- Pressure proof packing (G1/2) connection  
ADK11E4-15A/20A/25A-\*\***L,M**



- Pressure proof packing (G1/2) connection  
ADK12E4-15A/20A/25A-\*\***L,M**



EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S&B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
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Ending