



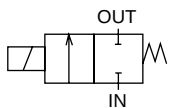
Explosion-proof direct acting 2-port solenoid valve General purpose

AB41EX4 Series

- Pressure and explosion proof construction Ex d IIB T4 (group IIB/temperature class T4)
- Organizations for explosive-proof certification: Japan certification (TIIS), Korea certification (KOSHA)
- NC (open when energized)
- Port size: Rc1/4, Rc3/8



JIS symbol



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AB41EX4
Working fluid	Air/low vacuum [1.33×10^2 Pa (abs)]/water/kerosene/oil (50 mm ² /s or less)
Working pressure differential MPa	0 to 5 (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 60 (140°F) (no freezing)
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	AC: Class 180 (H) AC diode integrated, DC: Class 130 (B)
Atmosphere	Outdoors/explosive gas (group IIB/temperature class T4)
Valve structure	Direct acting poppet structure
Valve seat leakage cm ³ /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 Model No.	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 mm²/s)			When holding		When starting		AC	DC	
			AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz/60 Hz		
NC (open when energized)																
AB41EX4- ⁰² / ₀₃ -1	Rc1/4 Rc3/8	1.5	5.0	4.0	4.5	4.0	4.0	4.0	100 VAC 50/60 Hz	18	15	29	24	8/7	11.6	1.2
-2		2.0	3.0	2.5	2.7	2.5	2.5	2.5								
-3		3.0	1.5	0.9	1.3	0.9	0.9	0.9	200 VAC 50/60 Hz							
-4		3.5	1.2	0.6	0.9	0.6	0.6	0.6	(12 VDC) (24 VDC)							
-5		4.0	1.0	0.5	0.7	0.5	0.5	0.5	(48 VDC)							
-6		5.0	0.6	0.25	0.4	0.25	0.25	0.25	(100 VDC)							
-7		7.0	0.25	0.1	0.2	0.1	0.15	0.1	*5							

*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 +10% of the rated voltage.

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

*5 : () shows options.

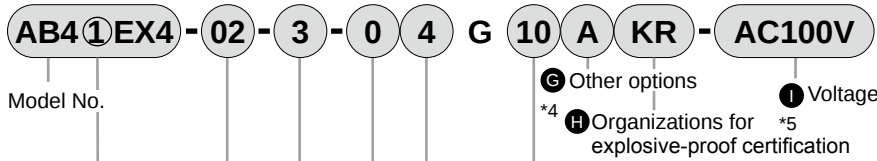
Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics			
			C[dm³/(s·bar)]	b	Cv	
NC (open when energized)						
AB41EX4- ⁰² / ₀₃ -	-1	Rc1/4 Rc3/8	1.5	0.29	0.53	0.1
	-2		2.0	0.53	0.52	0.15
	-3		3.0	1.1	0.52	0.31
	-4		3.5	1.7	0.49	0.42
				[1.5]	[0.47]	[0.40]
	-5		4.0	2.1	0.48	0.54
				[1.9]	[0.47]	[0.48]
	-6		5.0	3.0	0.42	0.80
				[2.6]	[0.38]	[0.62]
	-7		7.0	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.

How to order



[Example of model No.]

AB41EX4-02-3-04G10AKR-AC100V

Model : AB41EX4

- A** Actuation : NC (open when energized)
- B** Port size : Rc1/4
- C** Orifice size : $\phi 3$
- D** Body/sealant combination : Body - copper alloy, sealant - nitrile rubber
- E** Coil : Thermal class 180 (H) explosion-proof coil (for AC)
- F** Applicable cable O.D. : $\phi 9.5$ to $\phi 10.5$
- G** Other options : Manual override (locking)
- H** Organizations for explosive-proof certification : Korea certification (KOSHA)
- I** Voltage : 100 VAC 50/60 Hz

⚠ Precautions for model No. selection

- *1 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- *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 B diode integrated coil, the AC power supply voltage is converted into DC coil voltage by the diode.
- *4 : When Item **D** is C, F, K or N, the manual override (Item **G** A, AB) is not available.
- *5 : 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
- *6 : Japan certification (TIIS) is included.
- *7 : Korea certification (KOSHA) is included.

Code		Description			
A Actuation					
1	NC (open when energized)				
B Port size					
02	Rc1/4				
03	Rc3/8				
C Orifice size					
1	ø1.5				
2	ø2				
3	ø3				
4	ø3.5				
5	ø4				
6	ø5				
7	ø7				
D Body/sealant combination					
	Body	Seal	Treatment	Remarks	
0	Std.	Copper alloy	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
B			Fluoro rubber		-
C			PTFE		-
D	Stainless steel	Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
E			Fluoro rubber		-
F			PTFE		-
H	Option	Copper alloy	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
J			Fluoro rubber		-
K			PTFE		-
P	Stainless steel	Stainless steel	Ethylene propylene rubber	-	-
L			Nitrile rubber		Air/water/low vacuum/kerosene/oil (up to 60°C)
M			Fluoro rubber		-
N			PTFE		-
R			Ethylene propylene rubber		-
E Coil					
3	Thermal class 130 (B) explosion-proof coil (for DC)				
4	Thermal class 180 (H) explosion-proof coil (for AC)				
5	Thermal class 130 (B) diode integrated explosion-proof coil (for AC)				
F Applicable cable O.D.					
9	ø7.5 to ø9.5				
10	ø9.5 to ø10.5				
11	ø10.5 to ø11.5				
13	ø11.5 to ø13.5				
G Other options					
Blank	Std.	No option			
A	Option	Manual override (locking)			
B		With mounting plate			
AB		With manual override/mounting plate			
H Organizations for explosive-proof certification					
Blank	Japan certification (TIIS) *6				
KR	Korea certification (KOSHA) *7				
I 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			

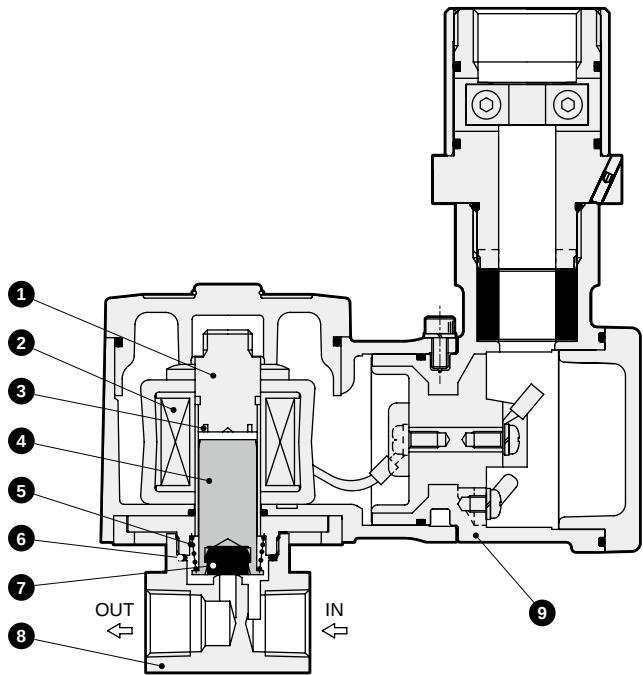
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S $\diamond$ B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AB41EX4 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

● AB41EX4 Series

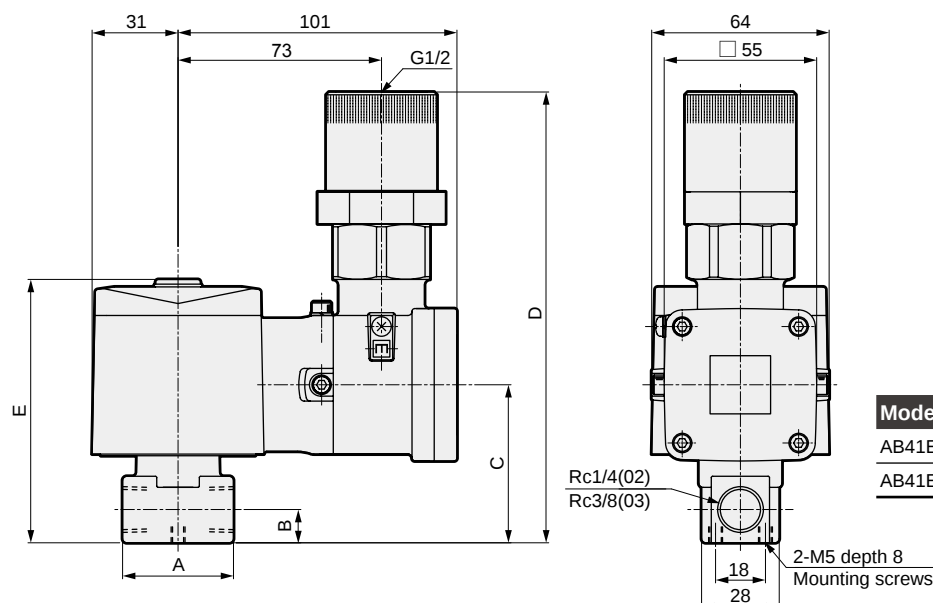


No.	Part name	Material		No.	Part name	Material	
1	Core assembly	SUS405 or equiv./316L/403	Stainless steel	6	O-ring	NBR (FKM/PTFE/EPDM)	NBR: Nitrile rubber
2	Coil assembly	-	-				FKM: Fluoro rubber
3	Shading coil	Cu (Ag for stainless steel body)	Copper (silver - S.S. body)	7	Valve seal	NBR (FKM/PTFE/EPDM)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

() shows options.

Dimensions

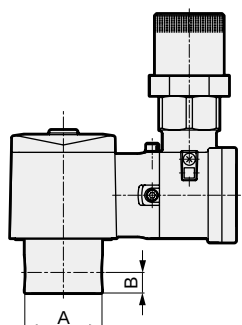
- Standard
AB41EX4



Model No.	A	B	C	D	E
AB41EX4-02-1 to 6	36	11	54	160	92
AB41EX4- ⁰²⁻⁷ _{03-1 to 7}	40	12	57	163	95

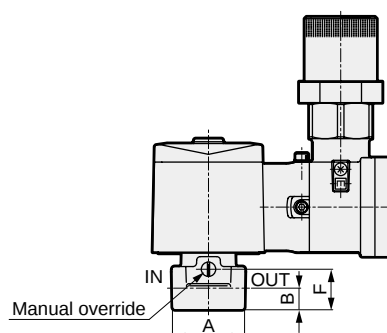
Optional dimensions

- Stainless steel body
AB41EX4-*-*^[D,E,F,R,L,M,N]



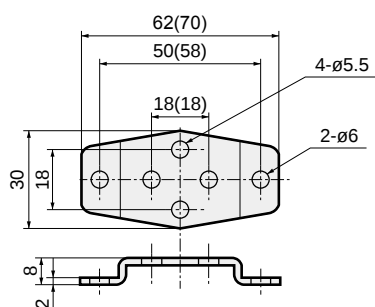
Model No.	A	B
AB41EX4-02-1 to 6	ø37.5	11
AB41EX4- ⁰²⁻⁷ _{03-1 to 7}	ø45	12

- Manual override (locking)
AB41EX4-*-*-*^[A]



Model No.	A	B	F
AB41EX4-02-1 to 6	36	11	19.5
AB41EX4- ⁰²⁻⁷ _{03-1 to 7}	40	12	22.5

- Mounting plate
AB41EX4-*-*-*^[B, AB]



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

Mounting plate model	Compatibility	
AB4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	● AB41EX4-02/03-1 to 7	Copper alloy body
	● AB41EX4-02-1 to 6	Stainless steel body
AB4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	● AB41EX4-02-7	Stainless steel body
	● AB41EX4-03-1 to 7	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
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

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
SMD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combust
Auto-
Water
Outdoor
SpecFld
Custom
Ending



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

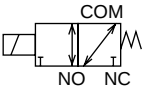
AG41EX4/AG43EX4/AG44EX4 Series

- Pressure and explosion proof construction Ex d IIB T4 (group IIB/temperature class T4)
- Organizations for explosive-proof certification: Japan certification (TIIS), Korea certification (KOSHA)
- Universal, NC pressurization, NO pressurization
- Port size: Rc1/4, Rc3/8

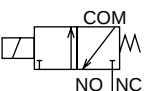


JIS symbol

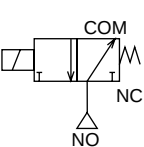
● AG41EX4: Universal



● AG43EX4: NO pressurization



● AG44EX4: NO pressurization



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AG41EX4/AG43EX4/AG44EX4
Working fluid	Air/low vacuum [1.33 x 10 ² Pa (abs)]/water/kerosene/oil (50 mm ² /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	AC: Class 180 (H) AC diode integrated, DC: Class 130 (B)
Atmosphere	Outdoors/explosive gas (group IIB/temperature class T4)
Valve structure	Direct acting poppet structure
Valve seat leakage cm ³ /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 Model No.	Port size	Orifice size (mm)		Max. working pressure differential (MPa)						Max. working pressure MPa	Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water (hot)/Kerosene		Oil (50 mm²/s)				When holding		When starting		AC 50 Hz/ 60 Hz	DC	
		TOP	BODY	AC	DC	AC	DC	AC	DC			50 Hz	60 Hz	50 Hz	60 Hz			
Universal																		
AG41EX4- ⁰² ₀₃ -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	22	17	35	27	10/8	11.6	1.3
	-2	Rc3/8	2.3	2.3	0.7	0.4	0.7	0.4	0.25									
NC pressurization											200 VAC 50/60 Hz							
AG43EX4- ⁰² ₀₃ -4	Rc1/4	3.0	3.0	0.7	0.7	0.7	0.7	0.7	0.7	1		22	17	35	27	10/8	11.6	1.3
	-5	Rc3/8	3.5	3.0	0.4	0.4	0.4	0.4	0.4									
NO pressurization											(12 VDC)							
AG44EX4- ⁰² ₀₃ -1	Rc1/4	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45	1.5	(24 VDC)	22	17	35	27	10/8	11.6	1.3
		-3	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 +10% of the rated voltage.
*4 : NO port pressurization is not possible for the PTFE seal of AG41EX4.
*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[dm³/(s·bar)]		b		Cv		
				TOP	BODY	TOP	BODY	TOP	BODY	
Universal										
AG41EX4- ⁰² / ₀₃	-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
NC pressurization										
AG43EX4- ⁰² / ₀₃	-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
NO pressurization										
AG44EX4- ⁰² / ₀₃	-1	Rc1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
	-3		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

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

AG41EX4/AG43EX4/AG44EX4 Series

How to order

How to order

AG4①EX4 - 02 - 2 - 0 4 G 10 A KR - AC200V

Model No.

A Actuation

B Port size

*2

C Orifice size

D Body/sealant combination

*3

*7

G Other options
*5

H Organizations for explosive-proof certification
*6

I Voltage

Model No.

AG41EX4

AG43EX4

AG44EX4

Code	Description	AG41EX4	AG43EX4	AG44EX4
------	-------------	---------	---------	---------

A Actuation				
-------------	--	--	--	--

1	Universal	●		
3	NC pressurization		●	
4	NO pressurization			●

B Port size				
-------------	--	--	--	--

02	Rc1/4	●	●	●
03	Rc3/8	●	●	●

C Orifice size				
----------------	--	--	--	--

	TOP	BODY			
1	ø2.0	ø2.0		●	
2	ø2.3	ø2.3		●	
3	ø2.0	ø3.0			●
4	ø3.0	ø3.0			●
5	ø3.5	ø3.0			●

D Body/sealant combination					
----------------------------	--	--	--	--	--

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

E Coil				
--------	--	--	--	--

3	Thermal class 130 (B) explosion-proof coil (for DC)	●	●	●
4	Thermal class 180 (H) explosion-proof coil (for AC)	●	●	●
5	Thermal class 130 (B) diode integrated explosion-proof coil (for AC)	●	●	●

F Applicable cable O.D.				
-------------------------	--	--	--	--

9	ø7.5 to ø9.5	●	●	●
10	ø9.5 to ø10.5	●	●	●
11	ø10.5 to ø11.5	●	●	●
13	ø11.5 to ø13.5	●	●	●

G Other options				
-----------------	--	--	--	--

Blank	Std.	No option	●	●	●
A	Option	Manual override (locking)	●	●	●
B		With mounting plate	●	●	●
AB		Manual override/mounting plate	●	●	●

H Organizations for explosive-proof certification				
---	--	--	--	--

Blank	Japan certification (TIIS) *8	●	●	●
KR	Korea certification (KOSHA) *9	●	●	●

I Voltage				
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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.]

AG41EX4-02-2-04G10AKR-AC200V

Model : AG41EX4

E Coil

*4

- A Actuation : Universal
- B Port size : Rc1/4
- C Orifice size : TOPø2.3/BODYø2.3
- D Body/sealant combination : Body - copper alloy, sealant - nitrile rubber

- E Coil : Thermal class 180 (H) explosion-proof coil (for AC)

- F Applicable cable O.D. : ø9.5 to ø10.5

- G Other options : Manual override (locking)

- H Organizations for explosive-proof certification : Korea certification (KOSHA)

- I Voltage : 200 VAC 50/60 Hz

⚠ Precautions for model No. selection

*1 : The combinations indicated with ● above are available.

*2 : As G and NPT threads can be used for piping port threads, contact CKD for details.

*3 : 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.)

*4 : For the thermal class B diode integrated coil, the AC power supply voltage is converted into DC coil voltage by the diode.

*5 : When Item D is C, F, K or N, the manual override (Item G A, AB) is not available.

*6 : 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

*7 : Even if nitrile rubber sealant is selected for AG44EX4, the seal material on the NO side will be fluoro rubber.

*8 : Japan certification (TIIS) is included.

*9 : Korea certification (KOSHA) 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

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

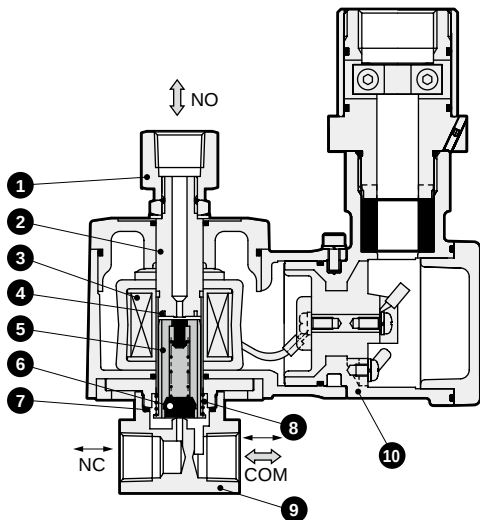
Ending

AG41EX4/AG43EX4/AG44EX4 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- Combust
Auto- Water
Outdoor
SpecFld
Custom
Ending

Internal structure and parts list

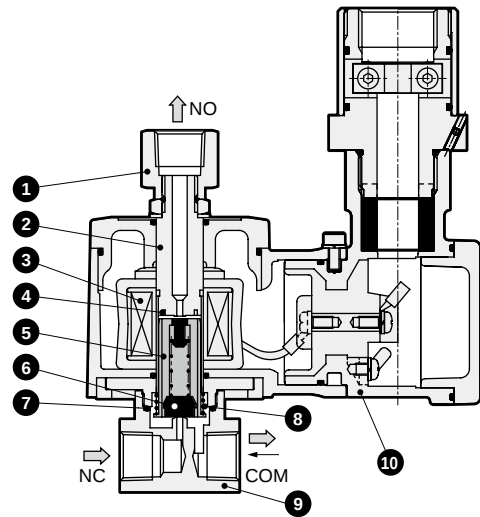
● AG41EX4 Series



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 EPDM : Ethylene propylene rubber
7	O-ring	NBR (FKM/PTFE/EPDM) : 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.

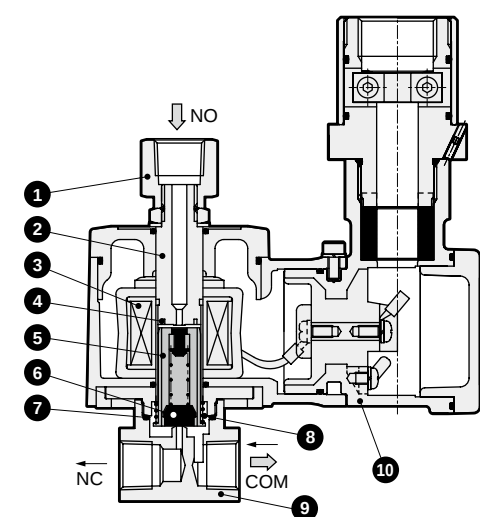
● AG43EX4 Series



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 EPDM : Ethylene propylene rubber
7	O-ring	NBR (FKM/PTFE/EPDM) : 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.

● AG44EX4 Series



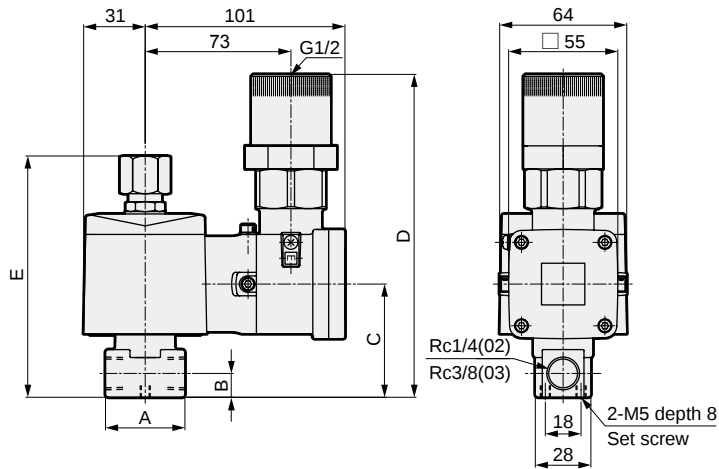
No.	Part name	Material
1	Socket	C3604(SUS303) : Copper alloy (stainless steel)
2	Core assembly	SUS405 or equiv./316L/403 : Stainless steel
3	Coil	- : -
4	Shading coil	Cu (Ag for stainless steel body) : Copper (silver for stainless steel body)
5	Plunger	SUS405 or equiv. : Stainless steel
6	Valve seal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

() shows options.

AG41EX4/AG43EX4/AG44EX4 Series

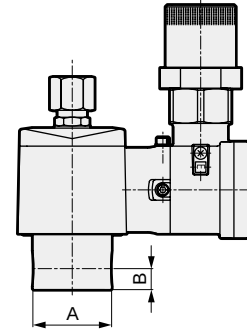
Dimensions and optional dimensions

● Standard AG4*EX4



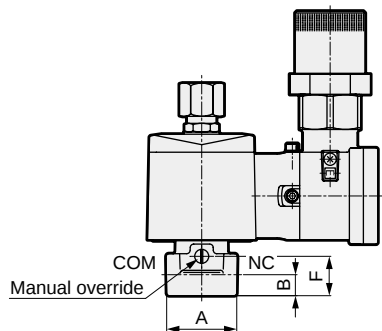
Model No.	A	B	C	D	E
AG41EX4-02-1/2	36	11	54	160	116
AG41EX4-03-1/2	40	12	57	163	122
AG43EX4-02-4/5	36	11	54	160	116
AG43EX4-03-4/5	40	12	57	163	122
AG44EX4-02-1/3/4	36	11	54	160	116
AG44EX4-03-1/3/4	40	12	57	163	122

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



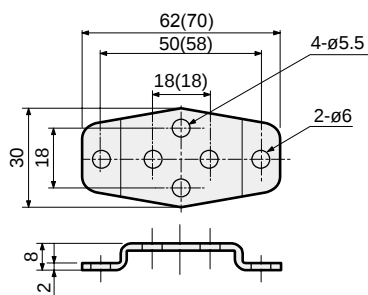
Model No.	A	B
AG41EX4-02-1/2	ø37.5	11
AG41EX4-03-1/2	ø45	12
AG43EX4-02-4/5	ø37.5	11
AG43EX4-03-4/5	ø45	12
AG44EX4-02-1/3/4	ø37.5	11
AG44EX4-03-1/3/4	ø45	12

● Manual override (locking) AG4*EX4-*. *-*** A



Model No.	A	B	F
AG41EX4-02-1/2	36	11	19.5
AG41EX4-03-1/2	40	12	22.5
AG43EX4-02-4/5	36	11	19.5
AG43EX4-03-4/5	40	12	22.5
AG44EX4-02-1/3/4	36	11	19.5
AG44EX4-03-1/3/4	40	12	22.5

● Mounting plate AG4*EX4-*. *-*** B



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

Mounting plate model	Compatibility	
AG4-GE-100106-MOUNT-PLATE-KIT (Mounting plate No.1)	● AG41EX4-02/03-1/2	Copper alloy body
	● AG41EX4-02-1/2	Stainless steel body
	● AG43EX4-02/03-4/5	Copper alloy body
	● AG43EX4-02-4/5	Stainless steel body
	● AG44EX4-02/03-1/3/4	Copper alloy body
AG4-GE-100159-MOUNT-PLATE-KIT (Mounting plate No.2)	● AG44EX4-02-1/3/4	Stainless steel body
	● AG41EX4-03-1/2	Stainless steel body
	● AG43EX4-03-4/5	Stainless steel body
	● AG44EX4-03-1/3/4	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
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

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



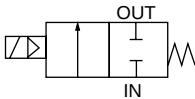
Explosion-proof pilot operated 2-port solenoid valve General purpose

AP11EX4 Series

- Pressure and explosion proof construction Ex d IIB T4 (group IIB/temperature class T4)
- Organizations for explosive-proof certification: Japan certification (TIIS), Korea certification (KOSHA)
- NC (open when energized)
- Port size: Rc1/2 to Rc1 ● Piston drive



JIS symbol



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AP11EX4
Working fluid	Air/water/kerosene/oil (50 mm ² /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	AC: Class 180 (H) AC diode integrated, DC: Class 130 (B)
Atmosphere	Outdoors/explosive gas (group IIB/temperature class T4)
Valve structure	Pilot operated poppet, piston drive
Valve seat leakage (*) cm ³ /min(ANR)	0.2 or less (PTFE sealant: 300 or less) (air)
Mounting orientation	Free (within working pressure differential range)
Degree of protection	IP65 or equivalent

*: Value at pneumatic pressure of 0.05 to 1.2 MPa.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	Port size	Orifice size (mm)	Min. working press diff (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)	
				Air		Water/kerosene		Oil (50 mm ² /s)			When holding		When starting		AC	DC		
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz/ 60 Hz			
NC (open when energized)																		
AP11EX4 -15A	Rc1/2	15	0.05	1.2	0.6	1.0	0.6	0.6	0.6	100 VAC 50/60 Hz	18	15	29	24	8/7	11.6	2.1	
	-20A	Rc3/4								20							200 VAC 50/60 Hz	2.5
	-25A	Rc1								25							(12 VDC) (24 VDC) (48 VDC) (100 VDC) *3	3.2

*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 +10% of the rated voltage.

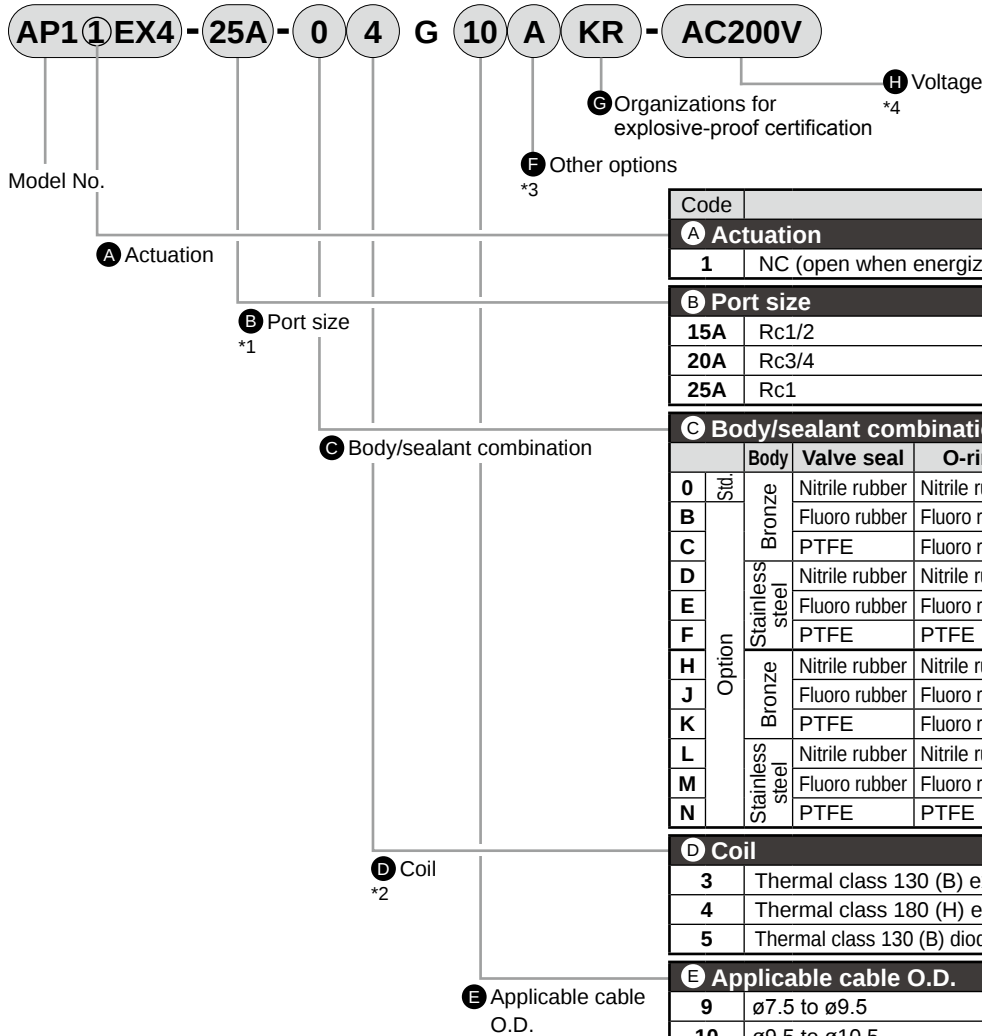
*3 : () shows options.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics			
			C[dm³/(s·bar)]	b	Cv	S(mm²)
NC (open when energized)						
AP11EX4 -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



[Example of model No.]

AP11EX4-25A-04G10AKR-AC100V

Model : AP11EX4

- 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 180 (H) explosion-proof coil (for AC)
- E** Applicable cable O.D. : ø9.5 to ø10.5
- F** Other options : Manual override (locking)
- G** Organizations for explosive-proof certification : Korea certification (KOSHA)
- H** Voltage : 100 VAC 50/60 Hz

⚠ Precautions for model No. selection

- *1 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- *2 : For the thermal class B diode integrated coil, the AC power supply voltage is converted into DC coil voltage by the diode.
- *3 : When Item **C** is C, F, K or N, the manual override (**F** A) is not available.
- *4 : 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
- *5 : Japan certification (TIIS) is included.
- *6 : Korea certification (KOSHA) is included.

Code		Description				
A Actuation						
1	NC (open when energized)					
B Port size						
15A	Rc1/2					
20A	Rc3/4					
25A	Rc1					
C Body/sealant combination						
	Body	Valve seal	O-ring	Treatment	Remarks	
0	Std.	Bronze	Nitrile rubber	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)
B			Fluoro rubber	Fluoro rubber		-
C			PTFE	Fluoro rubber		-
D	Option	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	-	Air/water/kerosene/oil (up to 60°C)
M			Fluoro rubber	Fluoro rubber		-
N			PTFE	PTFE		-
D Coil						
3	Thermal class 130 (B) explosion-proof coil (for DC)					
4	Thermal class 180 (H) explosion-proof coil (for AC)					
5	Thermal class 130 (B) diode integrated explosion-proof coil (for AC)					
E Applicable cable O.D.						
9	ø7.5 to ø9.5					
10	ø9.5 to ø10.5					
11	ø10.5 to ø11.5					
13	ø11.5 to ø13.5					
F Other options						
Blank	Std.	No option				
A		Manual override (locking)				
G Organizations for explosive-proof certification						
Blank	Japan certification (TIIS) *5					
KR	Korea certification (KOSHA) *6					
H Voltage						
AC100V	Std.	Option	100 VAC 50/60 Hz			
AC200V			200 VAC 50/60 Hz			
DC12V			12 VDC			
DC24V			24 VDC			
DC48V			48 VDC			
DC100V			100 VDC			

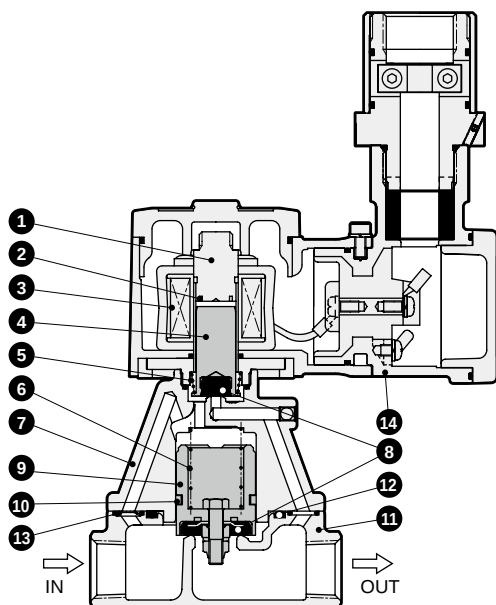
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S ◇ B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
Outdoor
SpecFld
Custom
Ending

AP11EX4 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

● AP11EX4 Series



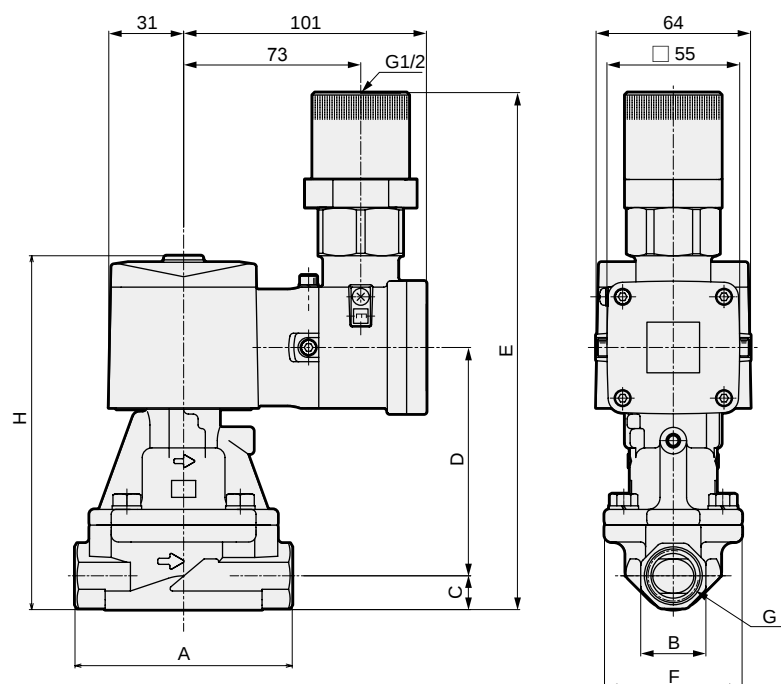
No.	Part name	Material	
1	Core assembly	SUS405 or equiv./ SUS316L/SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless steel
7	Body	CAC408(SCS13) *	Bronze casting (S.S. casting)
8	Valve seal	NBR (FKM, PTFE)	Nitrile rubber (fluoro rubber, tetrafluoroethylene resin)
9	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) *	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.

* 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

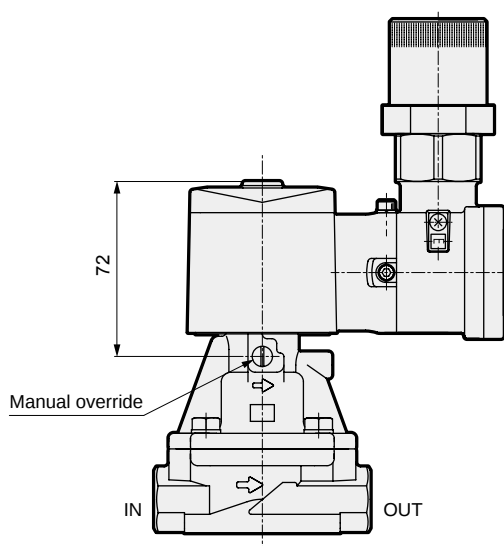
- Standard
AP11EX4



Model No.	A	B	C	D	E	F	G	H
AP11EX4-15A	90	27	14	94.5	214.5	57	Rc1/2	146.5
AP11EX4-20A	100	32	17	103.5	226.5	65	Rc3/4	158.5
AP11EX4-25A	110	41	20.5	118	244.5	76	Rc1	176.5

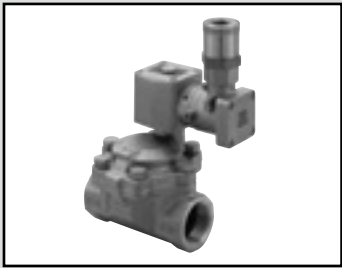
Optional dimensions

- Manual override (locking)
AP11EX4-*-*****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

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-
Combust
Auto-
Water
Outdoor
SpecFld
Custom
Ending



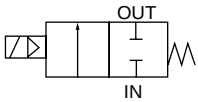
Explosion-proof pilot operated 2-port solenoid valve General purpose

AP21EX4 Series

- Pressure and explosion proof construction Ex d IIB T4 (group IIB/temperature class T4)
- Organizations for explosive-proof certification: Japan certification (TIIS), Korea certification (KOSHA)
- NC (open when energized)
- Port size: Rc1¹/₄ to Rc2, 32 to 50 flange ● Piston drive



JIS symbol



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AP21EX4
Working fluid	Air/water/kerosene/oil (50 mm ² /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	AC: Class 180 (H) AC diode integrated, DC: Class 130 (B)
Atmosphere	Outdoors/explosive gas (group IIB/temperature class T4)
Valve structure	Pilot operated poppet, piston drive
Valve seat leakage (*) cm ³ /min	1 or less (PTFE sealant: 400 or less) (air)
Mounting orientation	Free (within working pressure differential range)
Degree of protection	IP65 or equivalent

*: Value at pneumatic pressure of 0.05 to 1.2 MPa.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Port size	Orifice Diameter (mm)	Min. working Pressure difference (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)																												
				Air		Water/kerosene		Oil (50 mm²/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																													
NC (open when energized)																																													
AP21EX4-32A	Rc1¼	35	0.05	1.2	0.6	1.0	0.6	0.6	0.6	100 VAC 50/60 Hz	18	15	29	24	8/7	11.6	4.2																												
-32F	32 flange									200 VAC 50/60 Hz							7.7																												
-40A	Rc1½	43								(12 VDC) (24 VDC) (48 VDC) (100 VDC) *3																																			
-40F	40 flange																								8.7																				
-50A	Rc2	53																																											
-50F	50 flange																																							10.7					

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

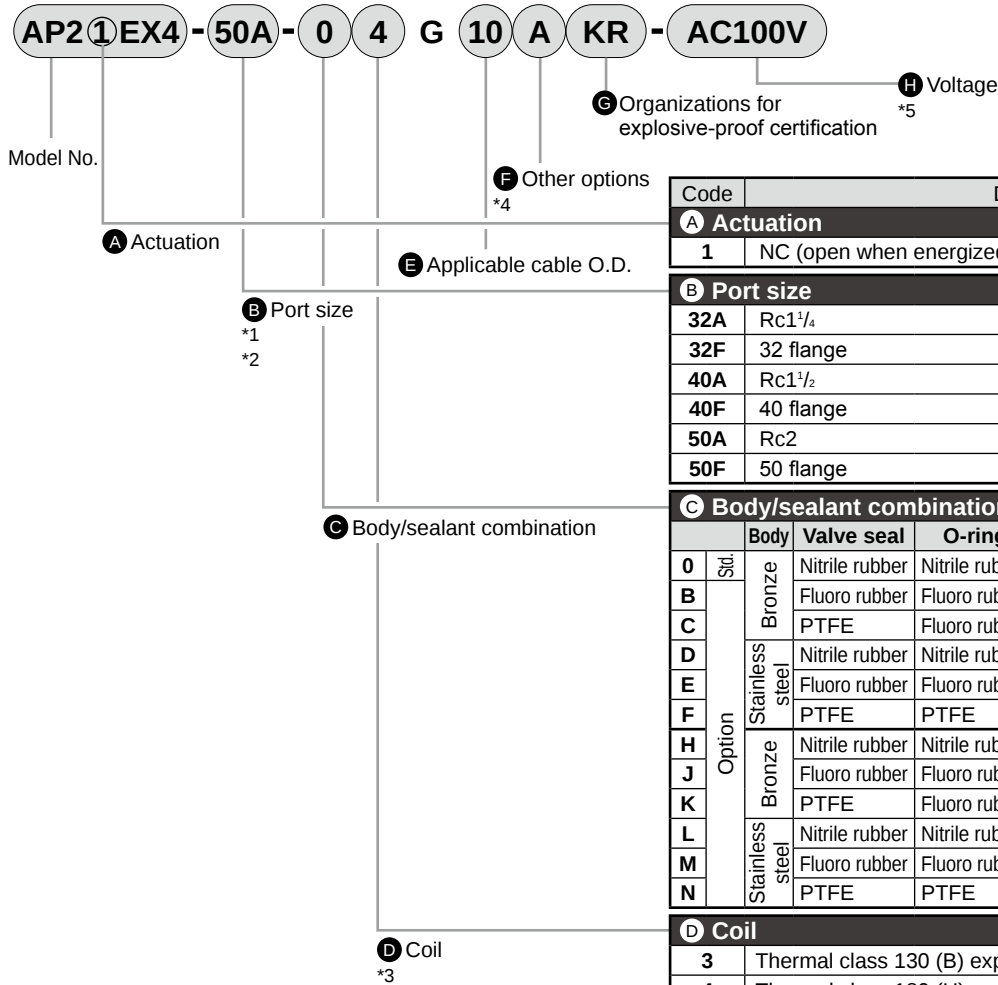
*2 : The voltage fluctuation range must be within -10 to +10% of the rated voltage.

*3 : () shows options.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Cv	Effective cross-sectional area (mm ²)
NC (open when energized)				
AP21EX4-32A	Rc1 ¹ / ₄	35	25	460
-32F	32 flange			
-40A	Rc1 ¹ / ₂	43	34	625
-40F	40 flange			
-50A	Rc2	53	53	975
-50F	50 flange			

How to order



[Example of model No.]

AP21EX4-50F-04G10AKR-AC100V

Model : AP21EX4

- 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** Type of coil : Thermal class 180 (H) explosion-proof coil (for AC)
- E** Applicable cable O.D. : ø9.5 to ø10.5
- F** Other options : Manual override (locking)
- G** Organizations for explosive-proof certification : Korea certification (KOSHA)
- H** Voltage : 100 VAC 50/60 Hz

⚠ Precautions for model No. selection

- *1 : The companion flange is JIS B2210 10K. (Flange is not enclosed with the product and must be purchased separately.)
- *2 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- *3 : For the thermal class B diode integrated coil, the AC power supply voltage is converted into DC coil voltage by the diode.
- *4 : When Item **C** is C, F, K or N, the manual override (Item **F** A) is not available.
- *5 : 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
- *6 : Japan certification (TIIS) is included.
- *7 : Korea certification (KOSHA) is included.

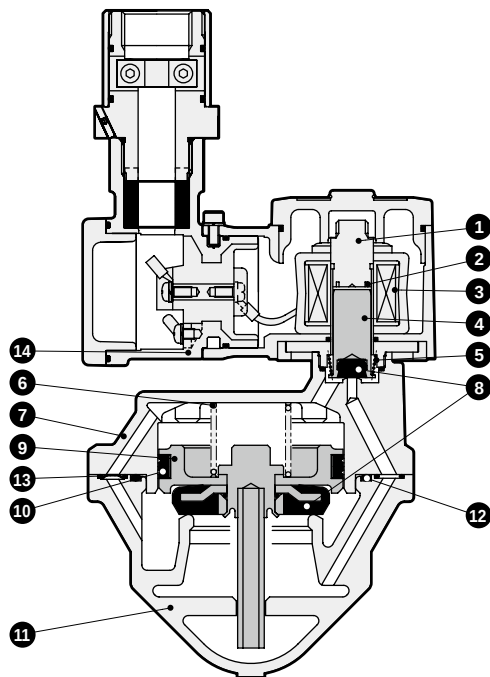
Code		Description				
A Actuation						
1	NC (open when energized)					
B Port size						
32A	Rc1 ¹ / ₄					
32F	32 flange					
40A	Rc1 ¹ / ₂					
40F	40 flange					
50A	Rc2					
50F	50 flange					
C Body/sealant combination						
	Std.	Body	Valve seal	O-ring	Treatment	Remarks
0	Option	Bronze	Nitrile rubber	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)
B			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		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			Nitrile rubber	Nitrile rubber		Air/water/kerosene/oil (up to 60°C)
M		Stainless steel	Fluoro rubber	Fluoro rubber	-	-
N			PTFE	PTFE		-
D Coil						
3	Thermal class 130 (B) explosion-proof coil (for DC)					
4	Thermal class 180 (H) explosion-proof coil (for AC)					
5	Thermal class 130 (B) diode integrated explosion-proof coil (for AC)					
E Applicable cable O.D.						
9	ø7.5 to ø9.5					
10	ø9.5 to ø10.5					
11	ø10.5 to ø11.5					
13	ø11.5 to ø13.5					
F Other options						
Blank	Std.	No option				
A	Manual override (locking)					
G Organizations for explosive-proof certification						
Blank	Japan certification (TIIS) *6					
KR	Korea certification (KOSHA) *7					
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				

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/SWD
MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AP21EX4 Series

Internal structure and parts list

● AP21EX4 Series



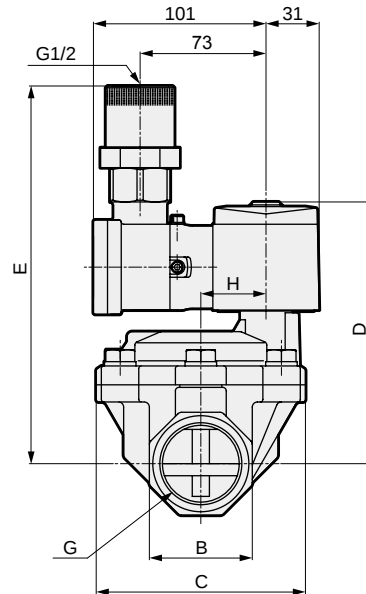
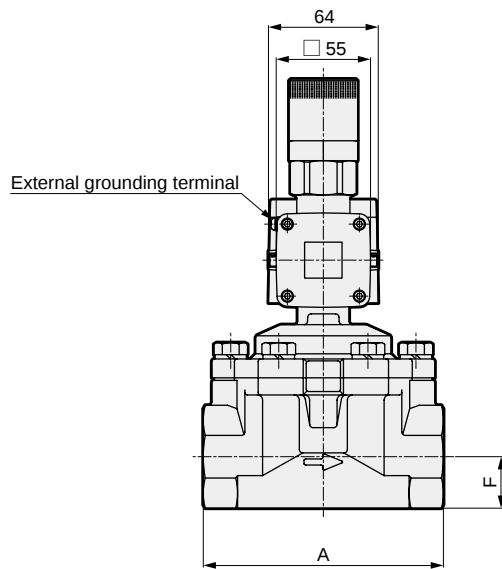
No.	Part name	Material	
1	Core assembly	SUS405 or equiv./SUS316L/ SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless 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.

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

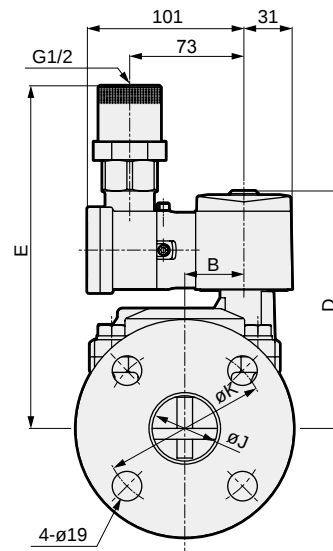
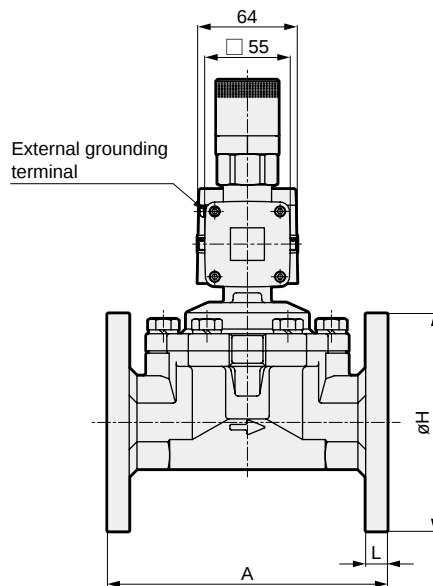
Dimensions

- Standard (Rc screw-in)
AP21EX4-32A/40A/50A



Model No.	A	B	C	D	E	F	G	H
AP21EX4-32A	125	54	112	147	215	27	Rc1 1/4	32
AP21EX4-40A	140	60	122	153	221	30	Rc1 1/2	38
AP21EX4-50A	160	74	132	161	229	37	Rc2	45

- Standard (flange)
AP21EX4-32F/40F/50F



Model No.	A	B	D	E	H	J	K	L
AP21EX4-32F	170	32	147	215	135	36 (35)	100	12
AP21EX4-40F	180	38	153	221	140	42	105	14
AP21EX4-50F	180	45	161	229	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 [◇] 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

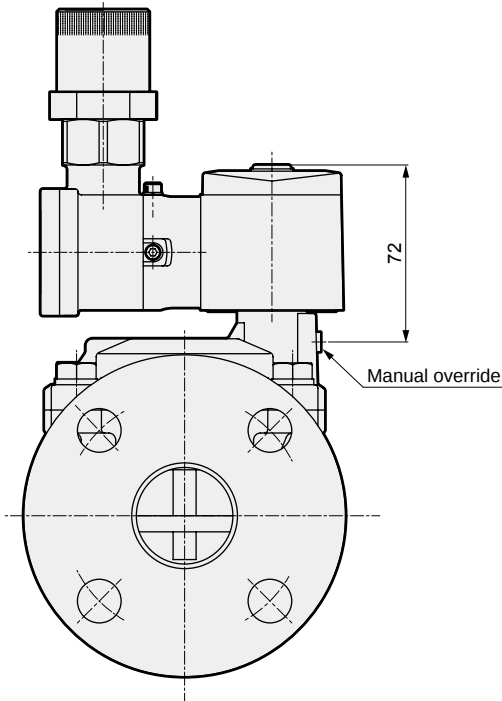
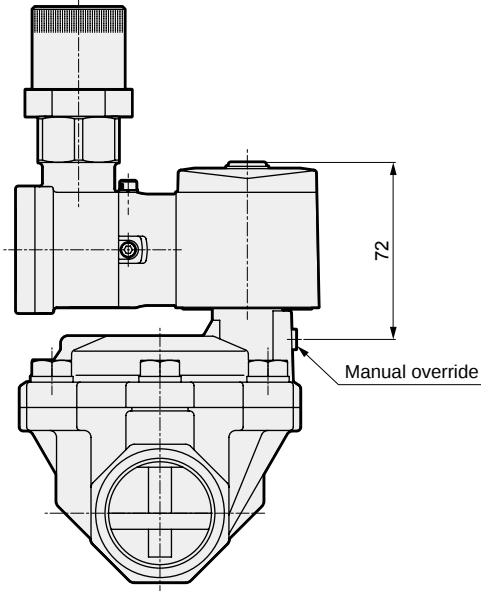
AP21EX4 Series

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Optional dimensions

CAD

- Manual override (locking) (Rc screw-in)
AP21EX4-32A/40A/50A-*** A
- Manual override (locking) (flange)
AP21EX4-32F/40F/50F-*** A



MEMO

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

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-
Combust
Auto-
Water
Outdoor
SpecFld
Custom
Ending



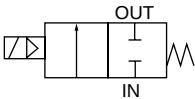
Explosion-proof pilot operated 2-port solenoid valve General purpose

AD11EX4 Series

- Pressure and explosion proof construction Ex d IIB T4 (group IIB/temperature class T4)
- Organizations for explosive-proof certification: Japan certification (TIIS), Korea certification (KOSHA)
- NC (open when energized)
- Port size: Rc1/2 to Rc1 ● Diaphragm drive



JIS symbol



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AD11EX4
Working fluid	Air/water/kerosene/oil (50 mm ² /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	AC: Class 180 (H) AC diode integrated, DC: Class 130 (B)
Atmosphere	Outdoors/explosive gas (group IIB/temperature class T4)
Valve structure	Pilot operated poppet, diaphragm drive
Valve seat leakage (*) cm ³ /min(ANR)	0.2 or less (air)
Mounting orientation	Free (within working pressure differential range)
Degree of protection	IP65 or equivalent

*: Value at pneumatic pressure of 0.02 to 1 MPa.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	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 mm²/s)			When holding		When starting		AC	DC	
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz/60 Hz		
NC (open when energized)																	
AD11EX4 -15A	Rc1/2	15	0.02 (≈2.9 psi, 0.2 bar)	1	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60 Hz	18	15	29	24	8/7	11.6	1.7
-20A	Rc3/4	20								200 VAC 50/60 Hz							1.9
-25A	Rc1	25								(12 VDC) (24 VDC) (48 VDC) (100 VDC) *3							2.3

*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 +10% of the rated voltage.

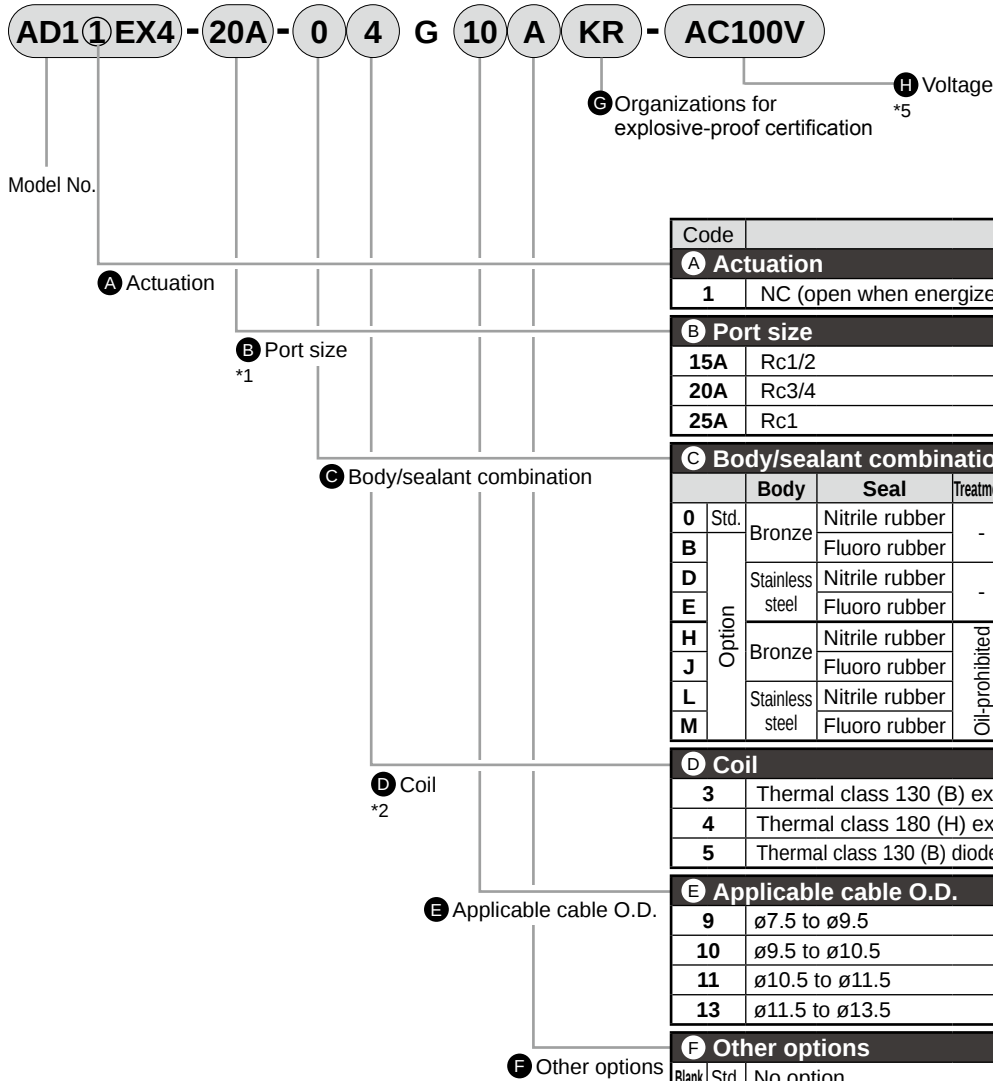
*3 : () shows options.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics			
			C[dm³/(s·bar)]	b	Cv	S(mm²)
NC (open when energized)						
AD11EX4 -15A	Rc1/2	15	21	0.22	4.5	-
-20A	Rc3/4	20	-	-	9.3	162
-25A	Rc1	25	-	-	12.0	231

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

How to order



Code		Description			
A Actuation					
1	NC (open when energized)				
B Port size					
15A	Rc1/2				
20A	Rc3/4				
25A	Rc1				
C Body/sealant combination					
	Body	Seal	Treatment	Remarks	
0	Bronze	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)	
B		Fluoro rubber		-	
D		Stainless steel	Nitrile rubber	-	Air/water/kerosene/oil (up to 60°C)
E			Fluoro rubber		-
H	Bronze	Nitrile rubber	Oil-prohibited	Air/water/kerosene/oil (up to 60°C)	
J		Fluoro rubber		-	
L	Stainless steel	Nitrile rubber		Air/water/kerosene/oil (up to 60°C)	
M		Fluoro rubber		-	
D Coil					
3	Thermal class 130 (B) explosion-proof coil (for DC)				
4	Thermal class 180 (H) explosion-proof coil (for AC)				
5	Thermal class 130 (B) diode integrated explosion-proof coil (for AC)				
E Applicable cable O.D.					
9	ø7.5 to ø9.5				
10	ø9.5 to ø10.5				
11	ø10.5 to ø11.5				
13	ø11.5 to ø13.5				
F Other options					
Blank	Std.	No option			
A		Manual override (locking)			
G Organizations for explosive-proof certification					
Blank	Japan certification (TIIS) *4				
KR	Korea certification (KOSHA) *5				
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.]

AP11EX4-20A-04G10AKR-AC100V

Model : AP11EX4

- A** Actuation : NC (open when energized)
- B** Port size : Rc 3/4
- C** Body/sealant combination : Body - bronze, sealant - nitrile rubber
- D** Type of coil : Thermal class 180 (H) explosion-proof coil (for AC)
- E** Applicable cable O.D. : ø9.5 to ø10.5
- F** Other options : Manual override (locking)
- G** Organizations for explosive-proof certification : Korea certification (KOSHA)
- H** Voltage : 100 VAC 50/60 Hz

⚠ Precautions for model No. selection

- *1 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- *2 : For the thermal class B diode integrated coil, the AC power supply voltage is converted into DC coil voltage by the diode.
- *3 : 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
- *4 : Japan certification (TIIS) is included.
- *5 : Korea certification (KOSHA) is included.

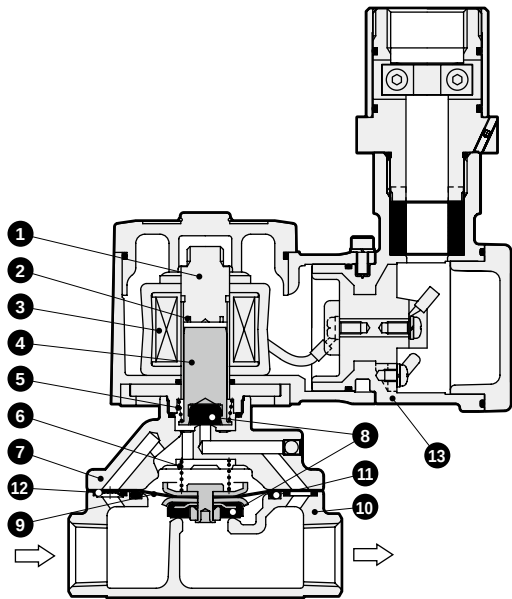
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S◇B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

AD11EX4 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

● AD11EX4 Series

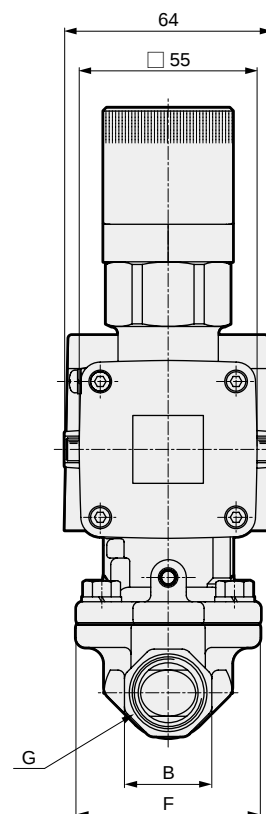
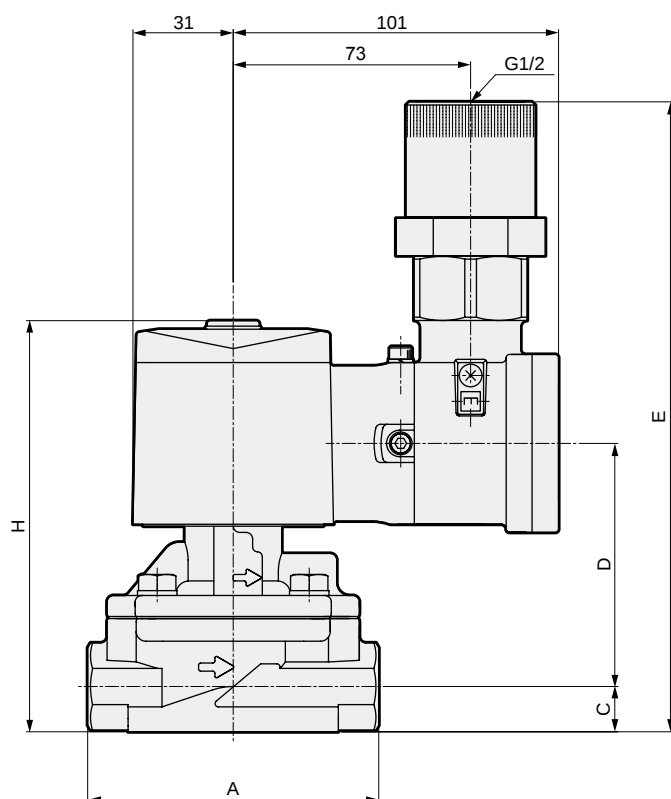


No.	Part name	Material	
1	Core assembly	SUS405 or equiv./SUS316L/ SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless 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.

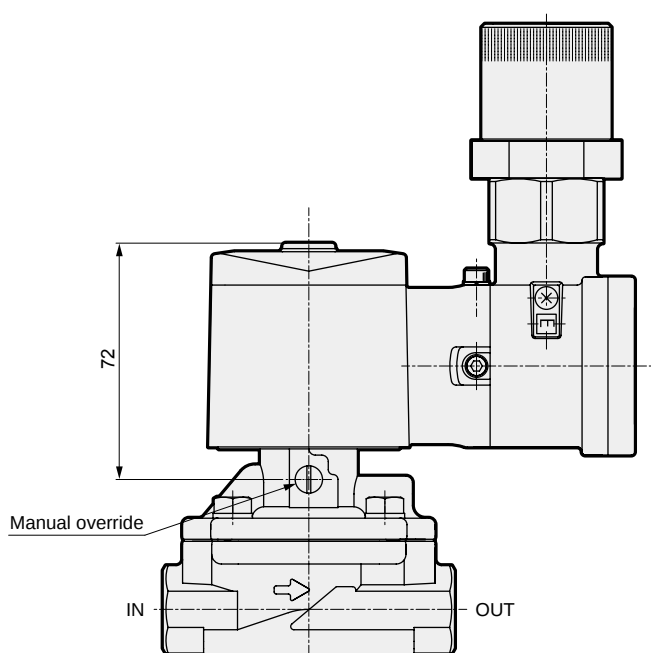
Dimensions and optional dimensions

- Standard
AD11EX4-15A/20A/25A



Model No.	A	B	C	D	E	F	G	H
AD11EX4-15A	90	27	14	75.5	195.5	57	Rc1/2	127.5
AD11EX4-20A	100	32	17	81.5	204.5	65	Rc3/4	136.5
AD11EX4-25A	110	41	20.5	87	213.5	76	Rc1	145.5

- Manual override (locking)
AD11EX4-15A/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

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



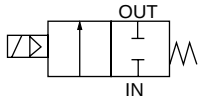
Explosion-proof pilot operated 2-port solenoid valve General purpose

AD21EX4 Series

- Pressure and explosion proof construction Ex d IIB T4 (group IIB/temperature class T4)
- Organizations for explosive-proof certification: Japan certification (TIIS), Korea certification (KOSHA)
- NC (open when energized)
- Port size: Rc1¹/₄ to Rc2, 32 to 50 flange
- Diaphragm drive



JIS symbol



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	AD21EX4
Working fluid	Air/water/kerosene/oil (50 mm ² /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) 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	AC: Class 180 (H) AC diode integrated, DC: Class 130 (B)
Atmosphere	Outdoors/explosive gas (group IIB/temperature class T4)
Valve structure	Pilot operated poppet, diaphragm drive
Valve seat leakage (*) cm ³ /min(ANR)	1 or less (air)
Mounting orientation	Free (within working pressure differential range)
Degree of protection	IP65 or equivalent

*: Value at pneumatic pressure of 0.02 to 0.7 MPa.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	Port size	Orifice size (mm)	Min. working pressure difference (MPa)	Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consump (W)		Weight (kg)
				Air		Water/kerosene		Oil (50 mm²/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			
NC (open when energized)																	
AD21EX4 -32A	Rc1 ¹ / ₄	35	0.02	0.7	0.6	0.7	0.6	0.6	0.6	100 VAC 50/60 Hz	18	15	29	24	8/7	11.6	4.0
-32F	32 flange									200 VAC 50/60Hz							7.5
-40A	Rc1 ¹ / ₂	43								5.0							
-40F	40 flange									8.5							
-50A	Rc2	53								6.5							
-50F	50 flange									10.5							

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

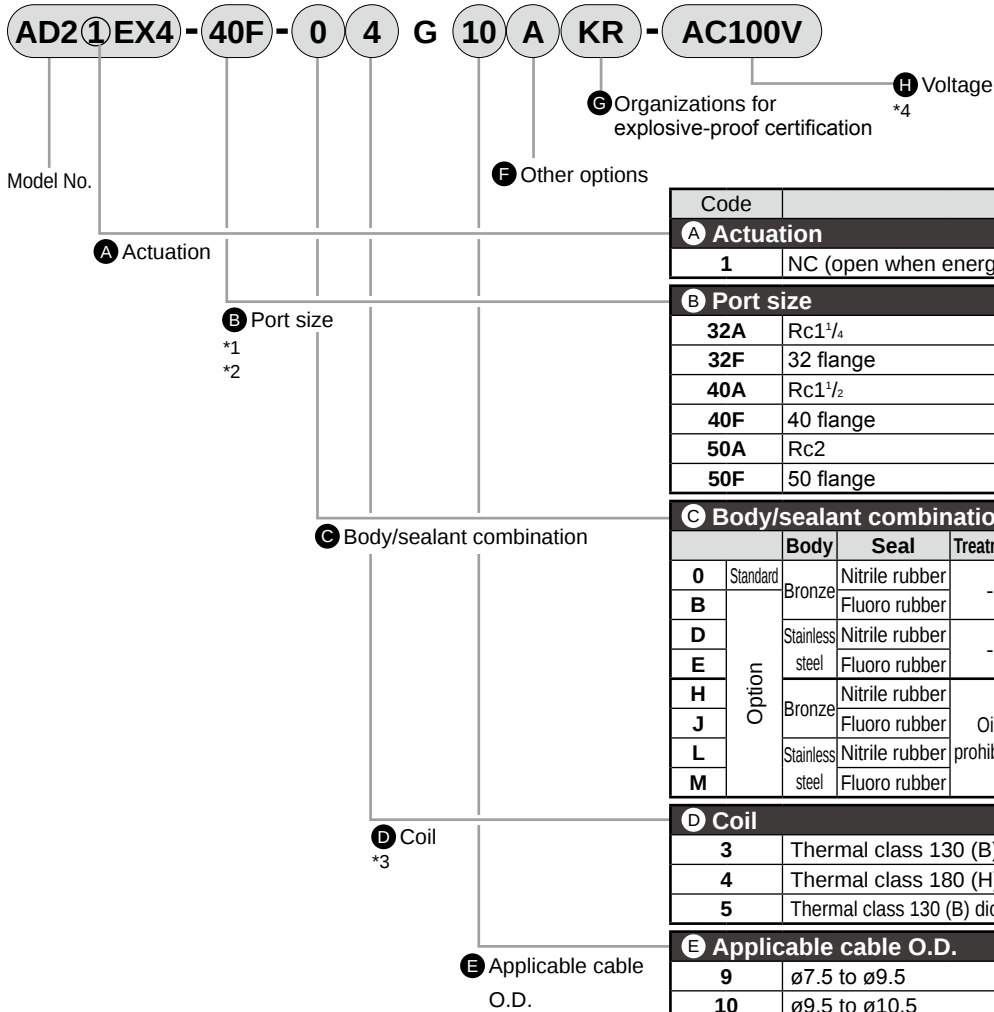
*2 : The voltage fluctuation range must be within -10 to +10% of the rated voltage.

*3 : () shows options.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Cv	Effective cross-sectional area (mm ²)
NC (open when energized)				
AD21EX4 -32A	Rc1 ¹ / ₄	35	25	460
	-32F 32 flange			
	-40A Rc1 ¹ / ₂	43	34	625
	-40F 40 flange			
	-50A Rc2	53	53	975
	-50F 50 flange			

How to order



[Example of model No.]

AD21EX4-40F-04G10AKR-AC100V

Model : AD21EX4

- A** Actuation : NC (open when energized)
B Port size : 40 flange
C Body/sealant combination : Body - bronze, sealant - nitrile rubber
O-ring - nitrile rubber
D Type of coil : Thermal class 180 (H) explosion-proof coil (for AC)
E Applicable cable O.D. : ø9.5 to ø10.5
F Other options : Manual override (locking)
G Organizations for explosive-proof certification : Korea certification (KOSHA)
H Voltage : 100 VAC 50/60 Hz

⚠ Precautions for model No. selection

- *1 : The companion flange is JIS B2210 10K. (Flange is not enclosed with the product and must be purchased separately.)
*2 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
*3 : For the thermal class B diode integrated coil, the AC power supply voltage is converted into DC coil voltage by the diode.
*4 : 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
*5 : Japan certification (TIIS) is included.
*6 : Korea certification (KOSHA) is included.

Code		Description			
A Actuation					
1	NC (open when energized)				
B Port size					
32A	Rc1¼				
32F	32 flange				
40A	Rc1½				
40F	40 flange				
50A	Rc2				
50F	50 flange				
C Body/sealant combination					
	Body	Seal	Treatment	Remarks	
0	Standard	Bronze	Nitrile rubber	Air/water/kerosene/oil (up to 60°C)	
B			Fluoro rubber		-
D	Option	Stainless steel	Nitrile rubber	Air/water/kerosene/oil (up to 60°C)	
E			Fluoro rubber	-	
H		Bronze	Nitrile rubber	Air/water/kerosene/oil (up to 60°C)	
J			Fluoro rubber		-
L		Stainless steel	Nitrile rubber	prohibited	Air/water/kerosene/oil (up to 60°C)
M			Fluoro rubber		-
D Coil					
3	Thermal class 130 (B) explosion-proof coil (for DC)				
4	Thermal class 180 (H) explosion-proof coil (for AC)				
5	Thermal class 130 (B) diode integrated explosion-proof coil (for AC)				
E Applicable cable O.D.					
9	ø7.5 to ø9.5				
10	ø9.5 to ø10.5				
11	ø10.5 to ø11.5				
13	ø11.5 to ø13.5				
F Other options					
Blank	Standard	No option			
A		Manual override (locking)			
G Organizations for explosive-proof certification					
Blank	Japan certification (TIIS) *5				
KR	Korea certification (KOSHA) *6				
H Voltage					
AC100V	Std.	Option	100 VAC 50/60 Hz		
AC200V			200 VAC 50/60 Hz		
DC12V			12 VDC		
DC24V			24 VDC		
DC48V			48 VDC		
DC100V			100 VDC		

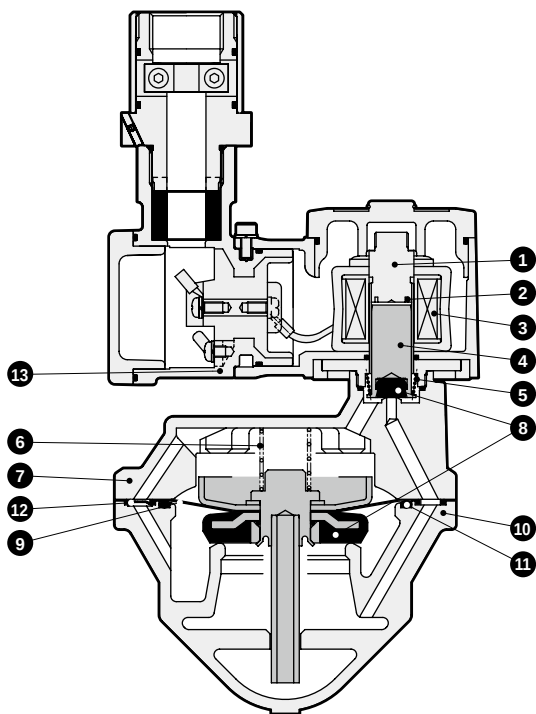
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S ◇ B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
Outdoor
SpecFld
Custom
Ending

AD21EX4 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

● AD21EX4 Series

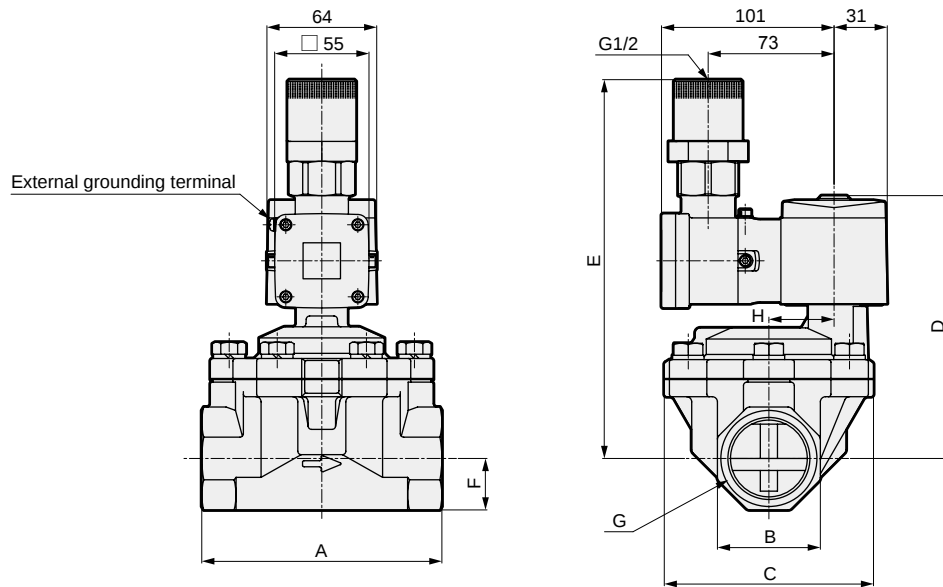


No.	Part name	Material	
1	Core assembly	SUS405 or equiv./SUS316L/ SUS403	Stainless steel
2	Shading coil	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger	SUS405 or equiv.	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Valve spring	SUS304	Stainless 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.

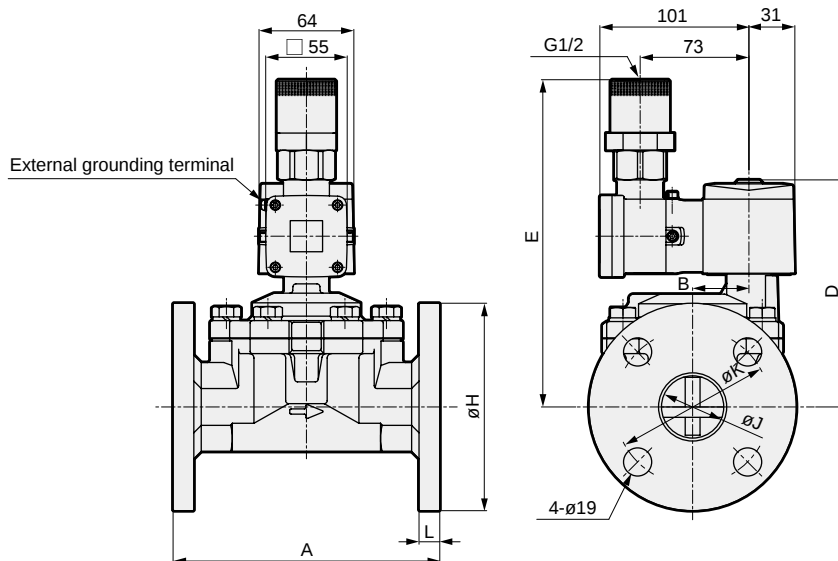
Dimensions

- Standard (Rc screw-in)
AD21EX4-32A/40A/50A



Model No.	A	B	C	D	E	F	G	H
AD21EX4-32A	125	54	112	147.5	215.5	27	Rc1 $\frac{1}{4}$	32
AD21EX4-40A	140	60	122	153.5	221.5	30	Rc1 $\frac{1}{2}$	38
AD21EX4-50A	160	74	132	161.5	229.5	37	Rc2	45

- Standard (flange)
AD21EX4-32F/40F/50F



Model No.	A	B	D	E	H	J	K	L
AD21EX4-32F	170	32	147.5	215.5	135	36 (35)	100	12
AD21EX4-40F	180	38	153.5	221.5	140	42	105	14
AD21EX4-50F	180	45	161.5	229.5	155	53 (52)	120	14

Dimensions shown in () are for stainless steel body.

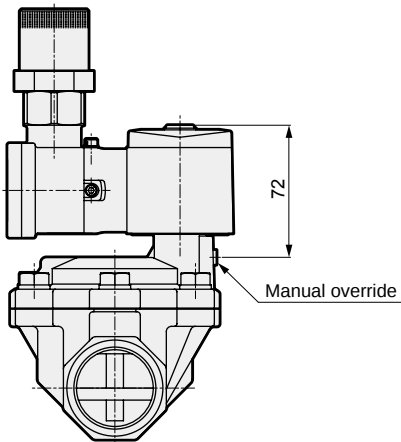
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S $\diamond$ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

AD21EX4 Series

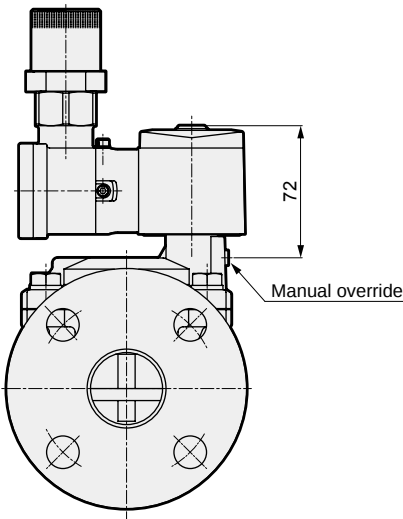
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/ AD
APK/ ADK
DryAir
EX- XPLNprf
XPLNprf
HVB/ HVL
S ⬠ B/ NAB
LAD/ NAD
Water- Rela
NP/NAP/ NVP
SNP
CHB/G
MXB/G
Other valves
SWD/ MWD
DustColl
CVE/ CVSE
CCH/ CPE/D
LifeSci
Gas- Combus
Auto- Water
Outdoor
SpecFld
Custom
Ending

Optional dimensions

● Manual override (locking) (Rc screw-in)
AD21EX4-32A/40A/50A-*****A**



● Manual override (locking) (flange)
AD21EX4-32F/40F/50F-*****A**



MEMO

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

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-
Combust
Auto-
Water
Outdoor
SpecFld
Custom
Ending



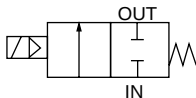
Explosion-proof pilot kick 2-port solenoid valve General purpose

ADK11EX4 Series

- Pressure and explosion proof construction Ex d IIB T4 (group IIB/temperature class T4)
- Organizations for explosive-proof certification: Japan certification (TIIS), Korea certification (KOSHA)
- NC (open when energized)
- Port size: Rc1/2, Rc3/4, Rc1 ● Diaphragm drive



JIS symbol



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	ADK11EX4
Working fluid	Air/low vacuum (1.33 x 10 ³ Pa)/water/kerosene/oil (50 mm ² /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) *2
Ambient temperature °C	-10 (14°F) to 50 (122°F)
Thermal class	AC: Class 180 (H) AC diode integrated, DC: Class 130 (B)
Atmosphere	Outdoors/explosive gas (group IIB/temperature class T4)
Valve structure	Pilot kick poppet, diaphragm drive
Valve seat leakage (*1) cm ³ /min(ANR)	1 or less (air)
Mounting orientation	Unrestricted
Degree of protection	IP65 or equivalent

*1 : Value at pneumatic pressure of 0.02 to 1 MPa.
When used at a pressure less than 0.02 MPa, the sealant may be unstable. Contact CKD in this case.
*2 : When the sealant material is fluoro rubber, the fluid temperature is 5 to 60°C.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item Model No.	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 mm²/s)			When holding		When starting		AC			
				AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	DC		
NC (open when energized)																		
ADK11EX4	-15A	Rc1/2	16	0	1	0.6	1	0.6	0.6	0.5	100 VAC 50/60 Hz	20	16	80	64	10/8.5	15	1.4
	-20A	Rc3/4	23								200 VAC 50/60 Hz							1.5
	-25A	Rc1	28								(12 VDC) (24 VDC) (48 VDC) (100 VDC) *4							1.9

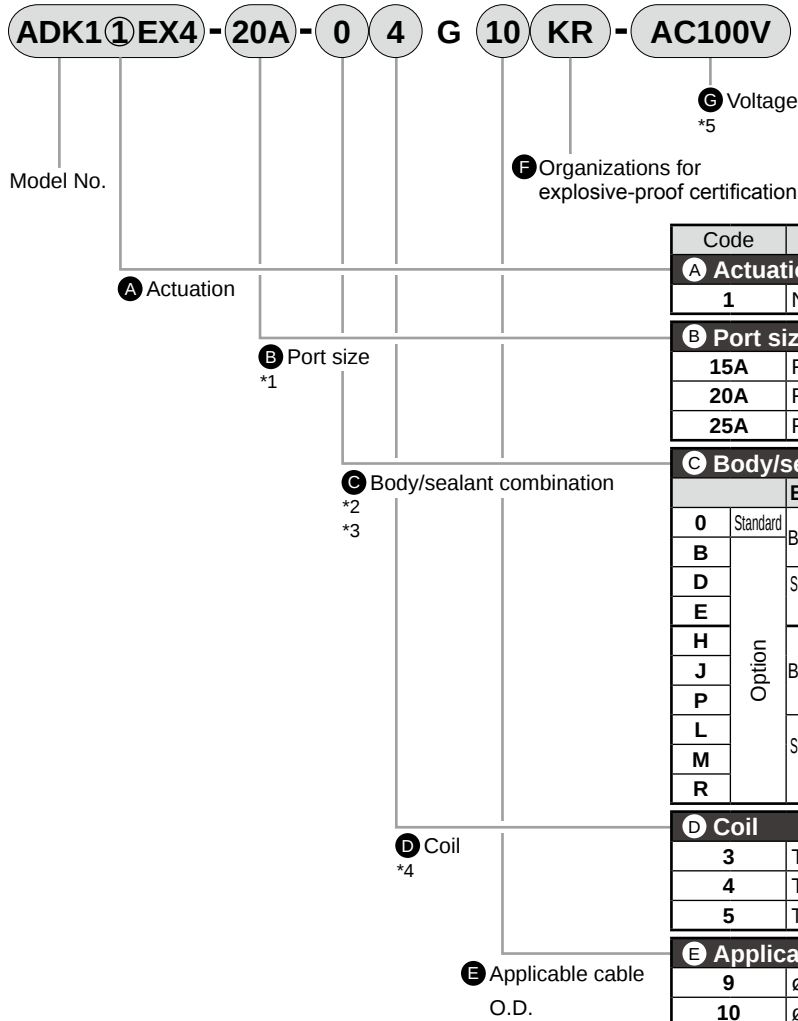
*1 : Refer to DC column for the max. working pressure differential of coil with diode.
*2 : The voltage fluctuation range must be within -10 to +10% of the rated voltage.
*3 : When using at low vacuum, vacuum the OUT port side.
*4 : () shows options.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics				
			C[dm³/(s·bar)]	b	Cv	S(mm²)	
NC (open when energized)							
ADK11EX4	-15A	Rc1/2	16	20	0.31	4.5	-
	-20A	Rc3/4	23	-	-	8.6	162
	-25A	Rc1	28	-	-	12.0	231

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

How to order



Code	Description				
A Actuation					
1	NC (open when energized)				
B Port size					
15A	Rc1/2				
20A	Rc3/4				
25A	Rc1				
C Body/sealant combination					
		Body	Seal	Treatment	Treatment
0	Standard	Bronze	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
B			Fluoro rubber		-
D		Stainless steel	Nitrile rubber	-	Air/water/low vacuum/kerosene/oil (up to 60°C)
E			Fluoro rubber		-
H		Bronze	Nitrile rubber	Oil-prohibited	Air/water/low vacuum/kerosene/oil (up to 60°C)
J			Fluoro rubber		-
P			EPM rubber		-
L		Stainless steel	Nitrile rubber		Air/water/low vacuum/kerosene/oil (up to 60°C)
M			Fluoro rubber		-
R			EPM rubber	-	
D Coil					
3	Thermal class 130 (B) explosion-proof coil (for DC)				
4	Thermal class 180 (H) explosion-proof coil (for AC)				
5	Thermal class 130 (B) diode integrated explosion-proof coil (for AC)				
E Applicable cable O.D.					
9	ø7.5 to ø9.5				
10	ø9.5 to ø10.5				
11	ø10.5 to ø11.5				
13	ø11.5 to ø13.5				
F Organizations for explosive-proof certification					
Blank	Japan certification (TIIS) *6				
KR	Korea certification (KOSHA) *7				
G 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.]

ADK11EX4-20A-04G10KR-AC100V

Model : ADK11EX4

- A** Actuation : NC (open when energized)
- B** Port size : Rc3/4
- C** Body/sealant combination : Body - bronze/sealant - nitrile rubber
- D** Coil : Thermal class 180 (H) explosion-proof coil (for AC)
- E** Applicable cable O.D. : ø9.5 to ø10.5
- F** Organizations for explosive-proof certification : Korea certification (KOSHA)
- G** Voltage : 100 VAC 50/60 Hz

⚠ Precautions for model No. selection

- *1 : As G and NPT threads can also be used for piping port threads, contact CKD for details.
- *2 : The max. working pressure differential of the ethylene propylene rubber seal combination (Item **C** P/R) is 0.6 MPa.
- *3 : 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.)
- *4 : For the thermal class B diode integrated coil, the AC power supply voltage is converted into DC coil voltage by the diode.
- *5 : 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
- *6 : Japan certification (TIIS) is included.
- *7 : Korea certification (KOSHA) is included.

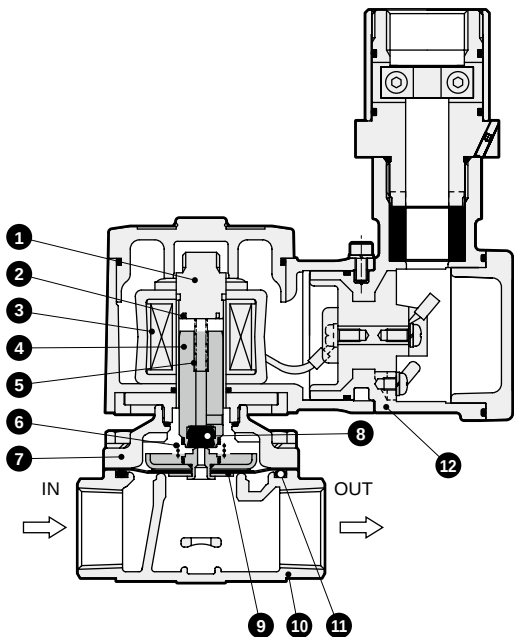
EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S◇B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

ADK11EX4 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

● ADK11EX4 Series



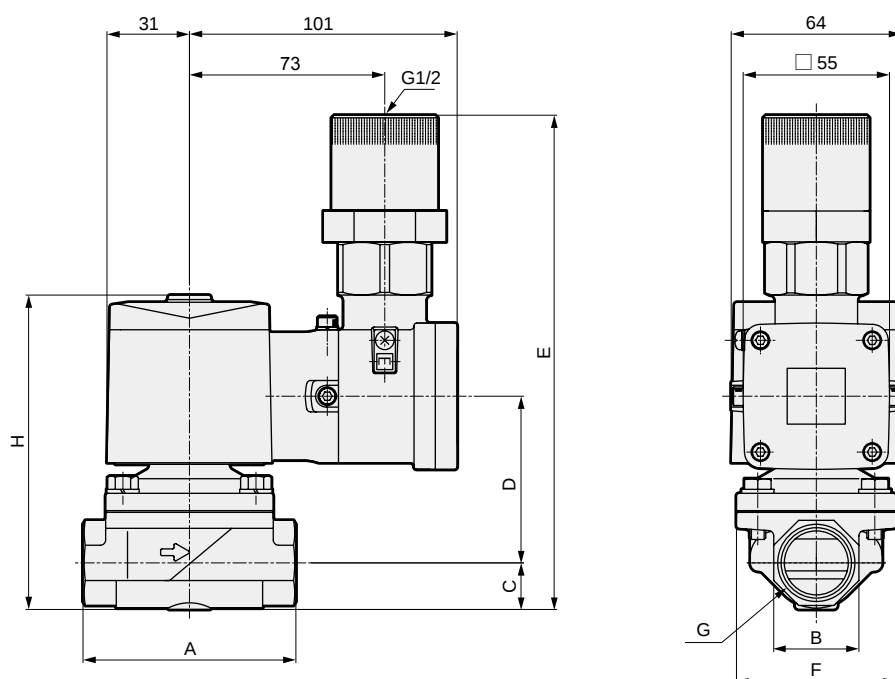
No.	Part name	Material	
1	Core assembly	SUS405 or equiv./ SUS316L/SUS403	Stainless steel
2	Shading coil *	Cu (Ag for stainless steel body)	Copper (silver for stainless steel body)
3	Coil	-	-
4	Plunger assembly	SUS405 or equiv./NBR (SUS405 or equiv./FKM or EPDM)	Stainless steel
5	Plunger spring	SUS304	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.

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

Dimensions

- Standard
ADK11EX4-15A/20A/25A



Model No.	A	B	C	D	E	F	G	H
ADK11EX4-15A	71	27(29)	14.5	59	179.5	50	Rc1/2	111.5
ADK11EX4-20A	80	32(35)	17.5	62.5	186	60	Rc3/4	118
ADK11EX4-25A	90	41(45)	21.5(22.5)	68	195.5(196.5)	71	Rc1	127.5(128.5)

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◇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