

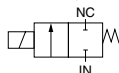


US (resin body type) Series

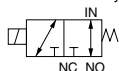
- NC (normally closed) type, universal type
- Port size: M6, barbed joint (applicable bore size $\phi 6 \times \phi 4$)

JIS symbol

- USB (2 port valve)
: NC (normally closed) type



- USG (3 port valve)
: Universal type



Common specifications

Item	USB/USG
Withstanding pressure (water) MPa	1.5 (US*2), 2 (US*3)
Fluid temperature °C	0 to 60 (no freezing)
Ambient temperature °C	0 to 50
Heat proof class	B
Atmosphere	Place free of corrosive gas and explosive gas
Valve seat leakage cm ³ /min.	0.2 or less
Port size	M6/barbed joint (applicable bore size $\phi 6 \times \phi 4$)
Mounting attitude	Free
Rated voltage	24 VDC
Treatment	Oil free

Individual specifications

Item Model no.	Working fluid	Orifice (mm)	Cv flow factor	C [dm ³ /(s·bar)]	b	Max. working pressure diff. (MPa)	Power consumption (W)
2 port valve for water (E) Wetted metal: 2 (SUS316 or equivalent)							
USB2- * -1	Water, pure water	1	0.03	0.13	0.36	0.6	3
		1.5	0.06	0.27	0.28	0.3	3
USB3- * -1	(Note 1)	1.6	0.08	0.32	0.30	0.7	4
		2.3	0.13	0.45	0.30	0.3	4
3 port valve for water (E) Wetted metal: 2 (SUS316 or equivalent)							
USG2- * -1	Water, pure water	1	0.03	0.13	0.36	0.6 (0.2 when NO pressurized)	3
		1.5	0.06	0.27	0.28	0.3 (0.1 when NO pressurized)	3
USG3- * -1	(Note 1)	1.6	0.08	0.32	0.30	0.2 (0.08 when NO pressurized)	4
2 port valve for air (E) Wetted metal: 1 (SUS405 or equivalent)							
USB2- * -1	Air, dry air, low vacuum	1	0.03	0.13	0.36	0.7	3
		1.5	0.06	0.27	0.28	0.3	3
USB3- * -1	(1.33 x 10 ² Pa (abs))	1.6	0.08	0.32	0.30	0.9	4
		2.3	0.13	0.45	0.30	0.3	4
3 port valve for air (E) Wetted metal: 1 (SUS405 or equivalent)							
USG2- * -1	Air, dry air, low vacuum	1	0.03	0.13	0.36	0.7 (0.3 when NO pressurized)	3
		1.5	0.06	0.27	0.28	0.3 (0.1 when NO pressurized)	3
USG3- * -1	(1.33 x 10 ² Pa (abs))	1.6	0.08	0.32	0.30	0.3 (0.1 when NO pressurized)	4

Note 1: Check the compatibility between the wetted part material and working fluid before using chemicals for washing.

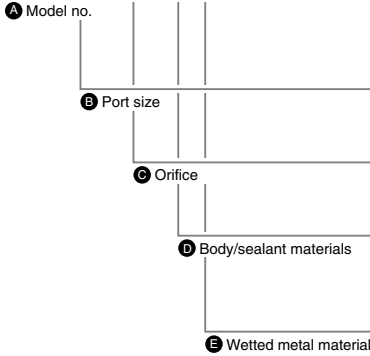
Note 2: When using a 3 port valve in a continuously energized state, use a fluoro rubber seal.

Note 3: Effective sectional area S and sonic conductance C are converted as $S = 5.0 \times C$.

US (resin body type) series

How to order

USB2 - M6 - 1 - S 2 - DC24V

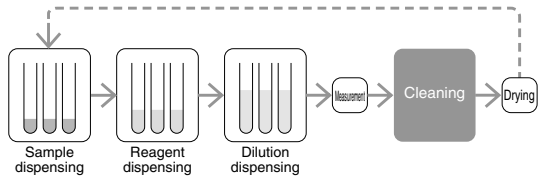


Symbol		A Model no.			
		2 port valve	3 port valve		
Descriptions		USB2	USB3	USG2	USG3
B Port size					
M6	M6	●	●	● (Note 1)	●
T6	Barbed joint	●	●	●	●
C Orifice					
1	Refer to the right.	ø1	ø1.6	ø1	ø1.6
2	Refer to the right.	ø1.5	ø2.3	ø1.5	ø1.5
D Body/sealant materials					
	Body	Sealant			
G	PPS	NBR	●	●	●
S	PPS	FKM	●	●	●
E Wetted metal material					
1	SUS405 or equivalent	●	●	●	●
2	SUS316 or equivalent	●	●	●	●

⚠ Note on model no. selection

Note 1: The NO port of USG2 is M5.

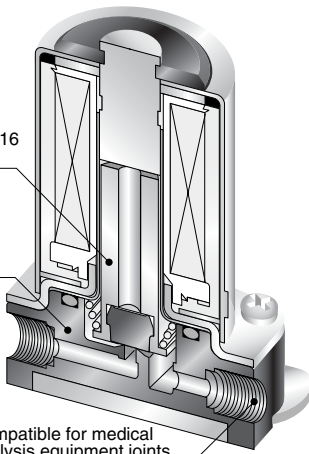
Applications



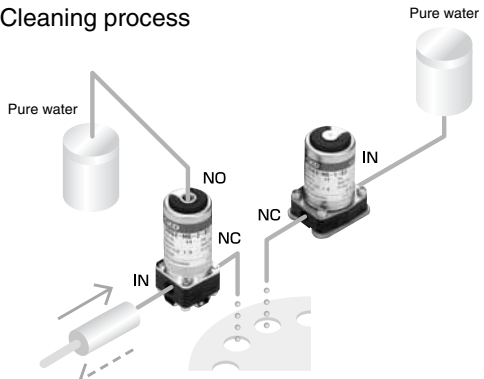
Wetted metal material SUS316 or equivalent

Body material PPS

Compatible for medical analysis equipment joints



Cleaning process



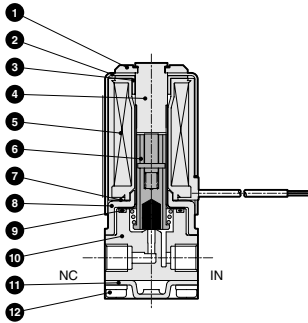
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
For
dry air
Explosion
proof
HVB/
HVL
SAB/
SVB
NP/NAP/
NVP
CHB/G
MXB/G
Other G.P.
systems
PD/FAD/
PJ
CVE/
CVSE
CPE/
CPD
Medical
analysis
Custom
order

Compact direct acting 3 port solenoid valve

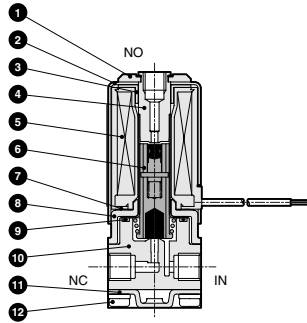
US_G^B2 (resin body type) Series

Internal structure and parts list

● USB2



● USG2

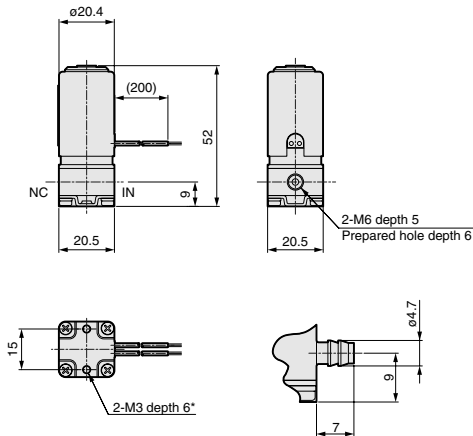


No.	Parts name	Material	No.	Parts name	Material
1	Clip	PBT	7	Waving washer	S65C
2	Bonnet	SPC	8	Core B	SPC
3	Sub core	SPC	9	O ring	NBR (FKM)
4	Coil assembly	SUS316 (SUS405 or equivalent), SUS316L	10	Body	PPS
5	Core assembly	-	11	Holding plate	SPC
6	Plunger assembly	SUS316 (SUS405 or equivalent), NBR (FKM)	12	Pan head machine screw	SWRM

Materials in () are selectable based on options.

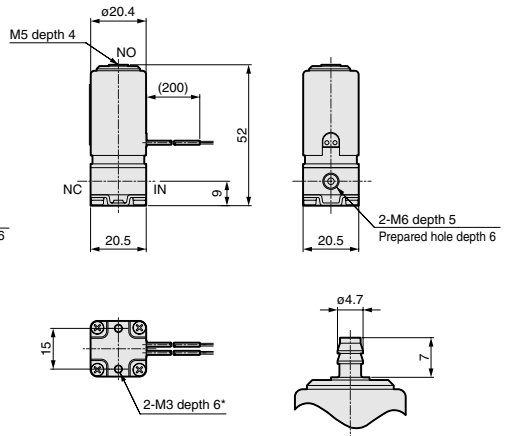
Dimensions

● USB2



<For option symbol "T6">
Barbed joint dimensions

● USG2



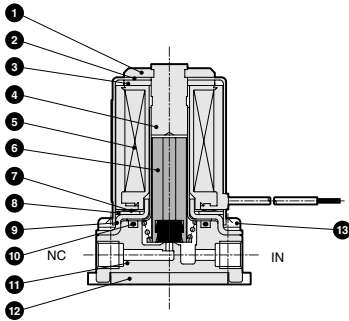
<For option symbol "T6">
NO port barbed joint dimensions
(IN and NC ports are the same as those of the 2 port valve)

* Do not screw in more than 6 mm when installing the product.

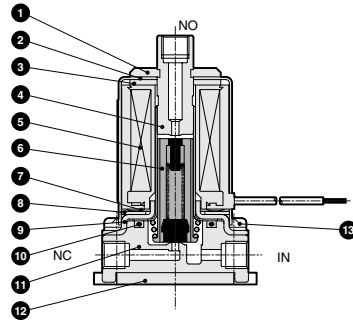
US_G^B3 (resin body type) series

Internal structure and parts list

● USB3



● USG3

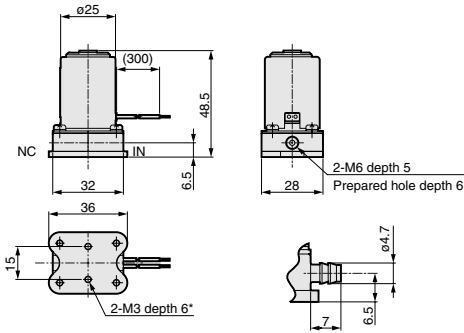


No.	Parts name	Material	No.	Parts name	Material
1	Clip	PBT	8	Sub core	SPC
2	Bonnet	SPC	9	Core B	SPC
3	Bonnet piece	SPC	10	O ring	NBR (FKM)
4	Core assembly	SUS316 (SUS405 or equivalent), SUS316L	11	Body	PPS
5	Coil assembly	-	12	Holding plate	SPC
6	Plunger assembly	SUS316 (SUS405 or equivalent), NBR (FKM)	13	Pan head machine screw	SWRM
7	Waving washer	S65C			

Materials in () are selectable based on options.

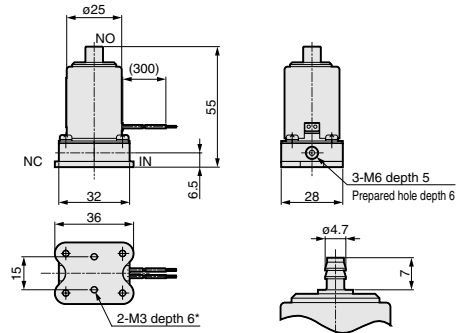
Dimensions

● USB3



<For option symbol "T6">
Barbed joint dimensions

● USG3



<For option symbol "T6">
NO port barbed joint dimensions
(IN and NC ports are the same as those of the 2 port valve)

* Do not screw in more than 6 mm when installing the product.

- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/
AD
- APK/
ADK
- For
dry air
- Explosion
proof
- HVB/
HVL
- SAB/
SVB
- NP/NAP/
NVP
- CHB/G
- MXB/G
- Other G.P.
systems
- PD/FAD/
PJ
- CV/
CVSE
- CPE/
CPD
- Medical
analysis
- Custom
order

Compact direct acting 3 port solenoid valve

Compact direct acting 2, 3 port solenoid valve

Electronic Catalog file list

Compact direct acting 2, 3 port solenoid valve

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

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
● 2 port solenoid valve HNB1: Page 5, USB2: Page 9, USB3: Page 11			
HNB1	HNB_HNG	hnb1	CKD-HNB1
USB2	USB_USG	usb2	CKD-USB2
USB3		usb3	CKD-USB3
● 3 port solenoid valve HNG1: Page 7, USG2: Page 13, USG3: Page 15			
HNG1	HNB_HNG	hng1	CKD-HNG1
USG2	USB_USG	usg2	CKD-USG2
USG3		usg3	CKD-USG3



Safety precautions

Always read this section before starting use.

Compact direct acting 2, 3 port solenoid valve

Design & Selection

WARNING

1 Working fluid

- (1) When using this valve for dry air, the life can be shortened considerably due to wear. Use a valve for dry air.
- (2) This valve cannot be used for maintaining the vacuum. Consult with CKD when the vacuum needs to be maintained.

CAUTION

1 Continuous energizing

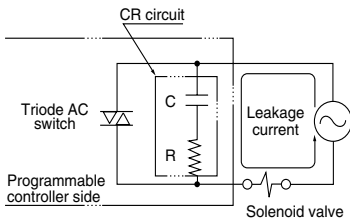
Consult with CKD when using the 3 port valve in a continuously energized state.

2 Fluid viscosity

The fluid viscosity must be 50 mm²/s or less. Malfunctions could occur if the viscosity is higher than 50 mm²/s.

3 Leakage current from other fluid control components

When operating the solenoid valve with a programmable controller, etc., check that the output leakage current from the programmable controller is within the following specifications. Failure to observe this could lead to malfunctions.



Model no.	Voltage		AC		AC diode		DC	
	100 V	200 V	100 V	200 V	100 V	200 V	12 V	24 V
USB, USG	—	—	0.2 mA or less	0.1 mA or less	2 mA or less	1 mA or less	—	—
HNB, HNG	—	—	—	—	1 mA or less	1 mA or less	—	—

Installation, Piping & Wiring

CAUTION

1 Piping

Always hold the socket with a spanner, etc., if the NO side is a socket.

Maintenance

CAUTION

1 For USB/USG

When disassembling or assembling, tighten the core assembly and socket with the following tightening torques.

Model no.	Core assembly tightening torque	Socket tightening torque
USB2	10 to 22 N·m	-
USG2	10 to 22 N·m	-
USB3	18 to 32 N·m	-
USG3	18 to 32 N·m	4 to 8 N·m

<<Precautions for each model>>

USB/USG (resin body type)

CAUTION

1 Metal is wetted. (This is not a metal free valve.)

Do not use a metal (M6) joint because it could damage the port.

2 Use a PP or fluorine resin joint. Refer to the recommended torque below.

Recommended tightening torque: 0.1 to 0.15 N·m