Medical analysis process components

■ For water, pure water, chemical liquids
(fluids that do not corrode materials at wetted parts)

Overview

In recent years, medicine has greatly advanced and medical engineering has become a great priority. These advances have increased the need for highly functional, performing and accurate biomedical inspections and devices in clinical medicine.

To answer these advanced needs for medical analysis process components, CKD has set the following six target items for medical technology, and has prepared special specification control valves to match these targets. Select the component that matches your needs.

Features

Compact and lightweight
The components have been downsized and lightened to handle changes from centralized medicine to portable medicine.

Low noise
In consideration of hospital environments, the valves function with an extremely quiet drive.

Minimal residue
The fluid accumulation and fluid residue have been minimized to allow for the fluid accuracy and safety in various inspections.

Maintenance-free
The life of the parts has been increased, and a maintenance-free design has been incorporated to improve the reliability of the devices.

High sealing performance
High corrosion resistant materials and a high sealing structure have been incorporated to ensure the purity of inspection fluids.

Wide variation
A variety of models are available to match a diverse range of reagents and inspection fluids.

CONTENTS

⚠ Always read the precautions in the Introduction and page 768 before starting use.

			Model	No. of port	Material		Fluid					
					Sealant	Body	Pure water	Physiological brine	Reagent	Waste liquid	Cleaning liquid	
Solenoid valve	Metal free for chemical liquid	Diaphragm type	MR10	2, 3	FKM	PEEK	●	●	●	●	●	
			MAB1	2	PTFE	PTFE	●	●	●	●	●	
			MAG1	3	PTFE	PTFE	●	●	●	●	●	
			MYB1	2	FKM	PPS	●	●	●	●	●	
			MYG1	3	FKM	PPS	●	●	●	●	●	
			MYB2	2	FKM	PPS	●	●	●	●	●	
			MYG2	3	FKM	PPS	●	●	●	●	●	
			MYB3	2	FKM	PPS	●	●	●	●	●	
			MYG3	3	FKM	PPS	●	●	●	●	●	
			MEB2	2	PTFE FKM	PPS	●	●	●	●	●	
			MEG2	3	PTFE FKM	PPS	●	●	●	●	●	
			MJB3	2	Silicon rubber	PSU	●	●	●	●	●	
			EMB21	2	PTFE	SUS316	●					
						PTFE	●	●	●	●	●	
			EMB41/51	2	PTFE	PTFE	●	●	●	●	●	
			M	2	PTFE FKM	PTFE PVC	●			●		
		Lever type	HMTB1	2	NBR FKM EPDM	PPS	●	●	●		●	
			HMTG1	3			●	●	●		●	
	High corrosion resistant	Poppet type	USB2/3	2	NBR FKM	PPS	●					
			USG2/3	3	NBR FKM	PPS	●					
			UMB1	2	FKM	SUS304 or equiv.	●					
			UMG1	3	FKM	SUS304 or equiv.	●					
			HB	2	NBR (FKM) (PTFE)	SUS316	●					
Pinch valve	Metal free type		HYN	2, 3	-	-	●	●	●	●	●	

Note: Check the compatibility between working fluid and body/sealant materials when selecting.

Orifice (ø/mm)																	Page
0.5	0.9	1	1.5	1.6	2	2.3	3	3.2	4	5	6	7	8	10	12	15	
		●															772
				● 1.6 or equiv.													776
				● 1.6 or equiv.													776
					● 2.0 or equiv.												779
					● 2.0 or equiv.												779
							● 3.0 or equiv.										782
							● 3.0 or equiv.										782
										● 5.0 or equiv.							785
										● 5.0 or equiv.							785
							● 3.0 or equiv.										788
							● 3.0 or equiv.										788
							●										791
							●										793
											●		●	●	●	●	795
					●				●		●		●	●	●		798
				●													802
				●													802
		●	●	●		●											16
		●	●	●													16
	●																805
	●																805
		●	●	●		●	●	●	●			●					807
● Tube ID		● Tube ID					● Tube ID				● Tube ID						811

Safety precautions

Always read this section before starting use.

Medical analysis process components

Design & Selection

⚠ WARNING

1 Working environment

When using in a place where water splashes on the valve, take appropriate measures to protect it.

⚠ CAUTION

(1) Working fluids must not adhere to the product body.
(2) Carefully select the solenoid valve taking the chemical liquid characteristics into consideration. (Presence of crystal deposits when chemical liquids dry, effect to solenoid valve component materials if chemical liquids evaporate, etc.)
(3) When using these components for a chemical liquid having a low boiling point, such as hexane, the chemical liquid in the solenoid valve could evaporate due to heating of the coils, and cause bubbles, etc. in the solenoid valve and pipe. Use an AMD type air operated valve for chemical liquid if formation of bubbles, etc. poses a problem.
(4) When using the solenoid valve with a negative pressure, such as for dispensing control, air may be sucked into the solenoid valve depending on the type of chemical liquid, type of connection joint, and type of tube, etc. Check the state carefully before starting use.

Installation, Piping & Wiring

⚠ CAUTION

1 Tighten the piping with the following torques.

Note that if the solenoid valve body is made of resin, a resin joint must be used. The port could be damaged if a metal joint is used.

<<Stainless steel body solenoid valve>>

Nominal pipe diameter	Tightening torque [N·m]
M5	2.1 to 3
Rc1/8	18 to 20
Rc1/4	23 to 25
Rc3/8	31 to 33

<<Polyvinyl chloride body solenoid valve>>

Nominal pipe diameter	Tightening torque [N·m]
R3/8	1.5 to 2.0
R1/2	2.0 to 2.5
R3/4	2.5 to 3.0

<<Fluorine resin body solenoid valve>>

Nominal pipe diameter	Tightening torque [N·m]
M6	0.05 to 0.08
Rc1/4	0.7 to 1.0
Rc3/8, R3/8	1.0 to 1.5
Rc1/2, R1/2	1.5 to 2.0
R3/4	2.0 to 2.5

<<PPS/PEEK body solenoid valve>>

Nominal pipe diameter	Tightening torque [N·m]
M5, M6	0.10 to 0.15
Rc1/8	0.5 to 0.8
Rc1/4	1.0 to 1.5
Rc3/8	1.0 to 1.5

<<Precautions for each model>>

Safety Precautions for MR10

⚠ CAUTION

(1) Before starting use, check the compatibility between the materials of the product and working fluid.
(2) Do not use for hydrochloric acid, hydrofluoric acid, nitric acid or sodium hypochlorite (soda).
(3) Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Make sure to flush the piping.
(4) When standing the secondary piping, do not make it higher than 2 m. Use tubing or piping with the same or larger bore size as the orifice to fix the pipe.
(5) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.

Safety Precautions for MAB1/MAG1

⚠ CAUTION

(1) Foreign matter in the piping and the environment during piping work could damage the valve seat or diaphragm seal, and lead to leaks. Always flush the piping before installing the valve.
(2) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.
(3) Consult with CKD if the secondary piping is laid at a high level or extremely restricted.
(4) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.

Safety Precautions for MYB$^{1}_{2}$/MYG$^{1}_{2}$/MEB2/MEG2

⚠ CAUTION

(1) Before starting use, check the compatibility between the materials of the product and working fluid.
Working fluids must not adhere to the product body.
(2) Foreign matter in the piping and the environment during piping work could damage the valve seat or diaphragm seal, and lead to leaks.
Always flush the piping before installing the valve.
(3) Do not use metal joints because they could damage the port. Use a PP or fluorine resin joint.
Tighten the joint with the recommended tightening torque shown in the table.

(4) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.
(5) Current leakage from the control circuit must be less than that specified for each voltage.
(6) Consult with CKD if the secondary piping is laid at a high level (2 m or higher) or extremely restricted.
(7) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.

Safety Precautions for MJB3

⚠ CAUTION

(1) Before starting use, check the compatibility between the materials of the product and working fluid.
Working fluids must not adhere to the product body.
(2) Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Always flush the piping before installing the valve.
(3) Do not use for hydrochloric acid, hydrofluoric acid or nitric acid. Before using a permeable fluid, contact CKD. The fluid could permeate the diaphragm.
(4) Consult with CKD if the secondary piping is laid at a high level (2 m or higher) or extremely restricted.
(5) Do not apply excessive force on the joint when connecting or disconnecting the tube.
(6) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.

Safety Precautions for MB21

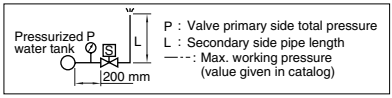
⚠ CAUTION

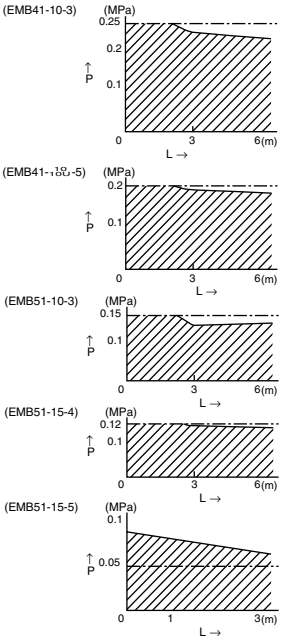
(1) Foreign matter in the piping and the environment during piping work could damage the valve seat or diaphragm seal, and lead to leaks.
Always flush the piping before installing the valve.
(2) Consult with CKD if the secondary piping is laid at a high level.
(3) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.
(4) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.

Safety Precautions for EMB41/EMB51

⚠ CAUTION

(1) Foreign matter in the piping and the environment during piping work could damage the valve seat or diaphragm seal, and lead to leaks. Always flush the piping before installing the valve.
(2) Use VCTF-0.75 (2-conductor: outer diameter 6.6) vinyl code for equipment (JISC3306) for the led out wires.
(3) Use the PFA-10-8 for the EMB41-10U tube.
(4) Consult with CKD if the secondary piping is laid at a high level.
(5) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.
(6) The working pressure changes particularly according to the OUT side piping conditions, so refer to the characteristics in the following graph before using (note that these characteristics are for water).





Safety precautions

Always read this section before starting use.

Medical analysis process components

<<Precautions for each model>>

Safety Precautions for M

⚠ CAUTION

(1) Oil is sealed inside, so do not disassemble the product.
(2) This product is not oil free.
(3) If the diaphragm is damaged during use, oil will flow into the fluid. Consider this when making a selection.
(4) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.

Safety Precautions for HMTB/HMTG

⚠ CAUTION

(1) Use a direct current power supply excluding rectified direct current.
(2) Do not apply excessive force on the joint when connecting or disconnecting the tube.
(3) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.
(4) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.

Safety Precautions for UMB/UMG

⚠ CAUTION

(1) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.
(2) Do not apply a torque exceeding 0.3 N·m on the mounting bolt (M3).
(3) Protect the product against contact with water. Water could cause insulation or operation faults.
(4) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.

Safety Precautions for HB

⚠ CAUTION

(1) Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Always flush the piping before installing the valve.
(2) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.
(3) When using strong acids, such as hydrochloric acid, hydrofluoric acid or nitric acid, or sodium hypochlorite (soda), use an AMD type air operated valve for chemical liquid.

Safety Precautions for HYN

⚠ CAUTION

(1) The power supply voltage must be 24 VDC (average) with a ripple of 4.8 VP-P or less.
(When using an average of 12 VDC, the ripple must be 2.4 VP-P or less.)
(2) When using a DC-specification product with a full wave rectified AC power supply, the power must be smoothed to attain the forementioned ripple voltage range. Consult with CKD for more information.
(3) Tighten the HYN-2/3 screw with a torque of 0.2 to 0.4 N·m, and the HYN-5/8 screw with a torque of 0.5 to 0.7 N·m.
(When the screw engagement length is 5 mm)
(4) Securely insert the tube to the designated position.
(5) The performance may not be satisfied if a tube other than the recommended ones is used.
(6) Depending on the working fluid, the silicon tube may not be resistant to chemical liquids, or chemical liquids may adhere. Check this before use.
(7) The DC specification product has polarity.
(Red = ⊕)
(8) Do not disassemble the product.
The required performance may not be satisfied even if a disassembled product is reassembled.
(9) Do not apply water on the coils.

Metal free 2, 3 port solenoid valve for chemical liquid

MAB1/MAG1 Series

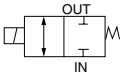
- NC (normally closed) type, universal type
- Working fluid: water, pure water, chemical liquids
- Port size: M6

CAD

JIS symbol

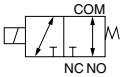
● MAB1 (2 port)

: NC (normally closed) type



● MAG1 (3 port)

: universal type



Specifications

Item	MAB1-M6-DC24V	MAG1-M6-DC24V
Working fluid	Water, pure water, chemical liquids (fluids that do not corrode materials at wetted parts)	
Working pressure range MPa	See table below	See table below
Fluid temperature ˚C	5 to 60	
Ambient temperature ˚C	0 to 50 (no freezing)	
Atmosphere	Not in explosive or corrosive environment	
Valve seat leakage cm³/min.	0 (water pressure)	
Port size	M6 (*4)	
Orifice mm	Equivalent to 1.6	
Cv flow factor	0.045	
Mounting attitude	Free	
Weight kg	0.13	
Electric specifications		
Rating	Continuous	
Voltage	24 VDC	
Voltage fluctuation range	-10 to +10% of rated voltage	
Power consumption W	2.3	
Leakage current mA	2.4 or less (*6)	
Heat proof class	B	

Working pressure range (MPa)

Conditions	Fluid flow direction	Working pressure range of each port IN	Working pressure range of each port OUT
IN positive	IN → OUT	0 to 0.3	0 to 0.1
OUT positive	OUT → IN	0 to 0.1	0 to 0.1
IN negative	OUT → IN	-0.05 to 0	-0.05 to 0

Conditions	Fluid flow direction	Working pressure range of each port COM	NC	NO
COM positive	COM → NO or NC	0 to 0.3	0 to 0.1	0 to 0.1
NC positive	NC → COM	0 to 0.1	0 to 0.1	0 to 0.1
NO positive	NO → COM	0 to 0.1	0 to 0.1	0 to 0.1
COM negative	NO or NC → COM	-0.05 to 0	-0.05 to 0	-0.05 to 0

*1: Read the safety precautions for MAB1/MAG1 (page 768).
*2: Before starting use, check the compatibility between the materials of the product and working fluid. Working fluids must not adhere to the product body.
*3: Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Always flush the piping before installing the valve.
*4: Do not use metal joints because they could damage the port. Use a PP or fluorine resin joint. Wrap PTFE sealing tape two to thee times around the joint. Tighten the joint with the recommended tightening torque below. Recommended tightening torque: 0.05 to 0.08 N·m
*5: Do not use for hydrochloric acid, hydrofluoric acid, nitric acid or sodium hypochlorite (soda).
*6: Keep leakage current from the control circuit within the levels below.
*7: When standing the secondary piping, do not make it higher than 2 m. Use tubing or piping with the same or larger bore size as the orifice to fix the pipe.
*8: Do not disassemble the product.

How to order

MA Ⓑ 1 - M6 - DC24V

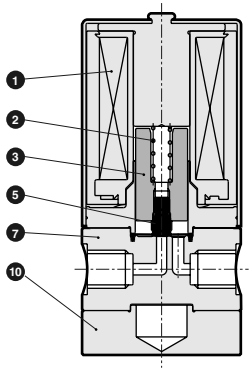
Ⓐ No. of port

Model no.

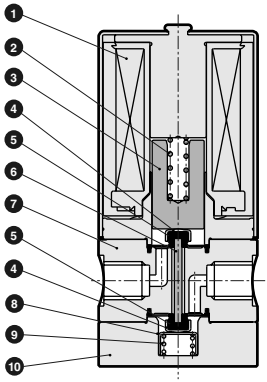
Symbol	Descriptions
Ⓐ No. of port	
B	2 port valve
G	3 port valve

Internal structure and parts list

● MAB1-M6-DC24V



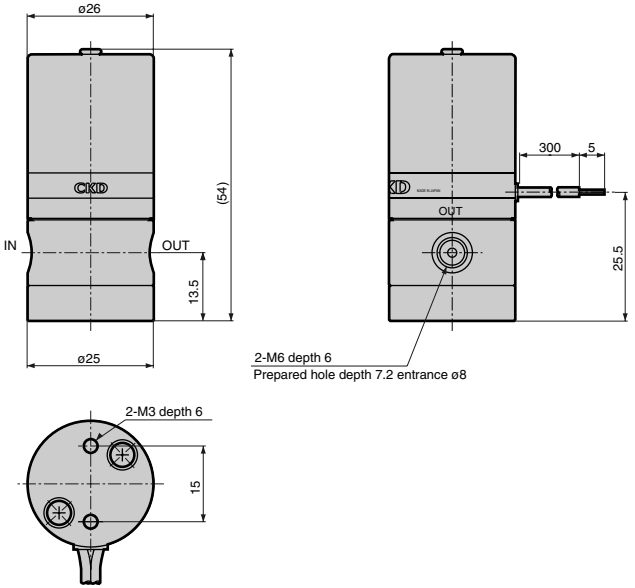
● MAG1-M6-DC24V



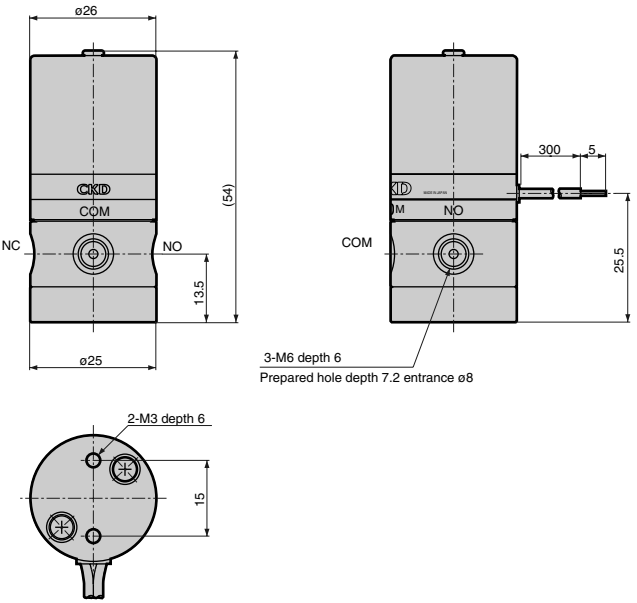
No.	Parts name	Material		No.	Parts name	Material	
1	Coil assembly	——	——	6	Rod	——	Ceramic
2	Spring	SUS304	Stainless steel	7	Body	PTFE	Tetrafluoroethylene resin
3	Plunger	SUY	Iron	8	Spring holder	SUS304	Stainless steel
4	Cap	SUS304	Stainless steel	9	Spring	SUS304	Stainless steel
5	Diaphragm	PTFE	Tetrafluoroethylene resin	10	Mounting plate	SUS303	Stainless steel

Dimensions CAD (Page 813)

● MAB1-M6-DC24V



● MAG1-M6-DC24V



Metal free 2, 3 port solenoid valve for chemical liquid

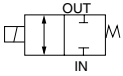
MYB1/MYG1 Series

- NC (normally closed) type, universal type
- Working fluid: water, pure water, chemical liquids
- Port size: M6

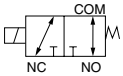
CAD

JIS symbol

- MYB1 (2 port)
  : NC (normally closed) type



- MYG1 (3 port)
  : universal type



Specifications

Item	MYB1-M6	MYG1-M6
Working fluid	Water, pure water, chemical liquids (fluids that do not corrode materials at wetted parts)	
Working pressure range MPa	See table below	See table below
Fluid temperature ˚C	5 to 60	
Ambient temperature ˚C	0 to 50 (no freezing)	
Atmosphere	Not in explosive or corrosive environment	
Valve seat leakage cm³/min.	0 (water pressure)	
Port size	M6 (*4)	
Orifice mm	Equivalent to 2.0	
Cv flow factor	0.1	
Mounting attitude	Free	
Weight kg	0.14	
Electric specifications		
Rating	Continuous	
Voltage	12 VDC, 24 VDC, 100 VAC (50/60 Hz)	
Voltage fluctuation range	-10 to +10% of rated voltage	
Power consumption W AC	3.8	
Power consumption W DC	3.0	
Leakage current mA	2 or less (12 VDC) / 1 or less (24 VDC) / 1.5 or less (100 VAC) (*6)	
Heat proof class	B	

Working pressure range MPa

Conditions	Fluid flow direction	Working pressure range of each port IN	Working pressure range of each port OUT
IN positive	IN → OUT	0 to 0.2	0 to 0.1
OUT positive	OUT → IN	0 to 0.1	0 to 0.1
IN negative	OUT → IN	-0.05 to 0	-0.05 to 0

Conditions	Fluid flow direction	Working pressure range of each port COM	NC	NO
COM positive	COM → NO or NC	0 to 0.2	0 to 0.1	0 to 0.1
NC positive	NC → COM	0 to 0.1	0 to 0.1	0 to 0.1
NO positive	NO → COM	0 to 0.1	0 to 0.1	0 to 0.1
COM negative	NO or NC → COM	-0.05 to 0	-0.05 to 0	-0.05 to 0

*1: Read the safety precautions for MYB1/MYG1 (page 768).
*2: Before starting use, check the compatibility between the materials of the product and working fluid.
Working fluids must not adhere to the product body.
*3: Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Always flush the piping before installing the valve.
*4: Do not use metal joints because they could damage the port. Use a PP or fluorine resin joint.
Wrap PTFE sealing tape two to thee times around the joint. Tighten the joint with the recommended tightening torque below. Recommended tightening torque: 0.10 to 0.15 N·m
*5: Do not use for hydrochloric acid, hydrofluoric acid, nitric acid or sodium hypochlorite (soda).
*6: Keep leakage current from the control circuit within the levels below.
*7: When standing the secondary piping, do not make it higher than 2 m. Use tubing or piping with the same or larger bore size as the orifice to fix the pipe.
*8: Do not disassemble the product.

How to order

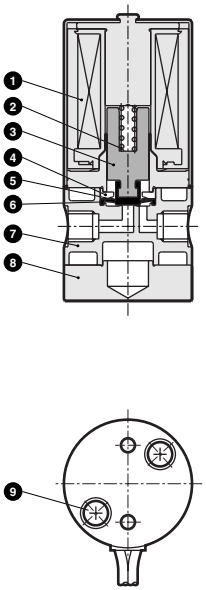
MY B 1 - M6 - DC12V

- A No. of port
- B Orifice
- C Port size
- D Rated voltage

Symbol	Descriptions
A No. of port	
B	2 port
G	3 port
B Orifice	
1	ø2
C Port size	
M6	M6
D Rated voltage	
DC12V	12 VDC
DC24V	24 VDC
AC100V	100 VAC (50/60 Hz)

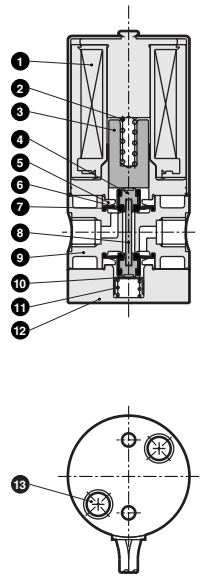
Internal structure and parts list

● MYB1-M6



No.	Parts name	Material	
1	Coil assembly	Class B molded coil	
2	Spring	SUS304	Stainless steel
3	Plunger	SUS405	Stainless steel
4	Diaphragm receiving	PPS	Polyphenylene sulfide
5	Protection seat	PTFE	Tetrafluoroethylene resin
6	Diaphragm	FKM	Fluoro rubber
7	Body	PPS	Polyphenylene sulfide
8	Mounting plate	SUS303	Stainless steel
9	Spring washer assembled cross headed pan head machine screw	SUSXM7	Stainless steel

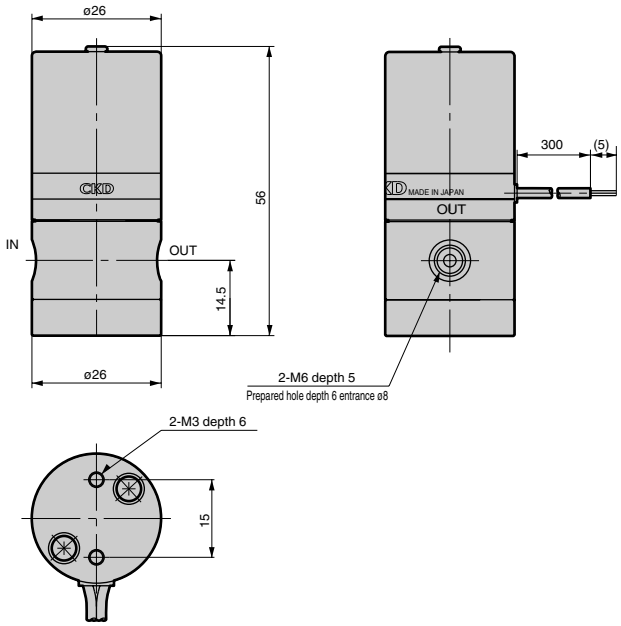
● MYG1-M6



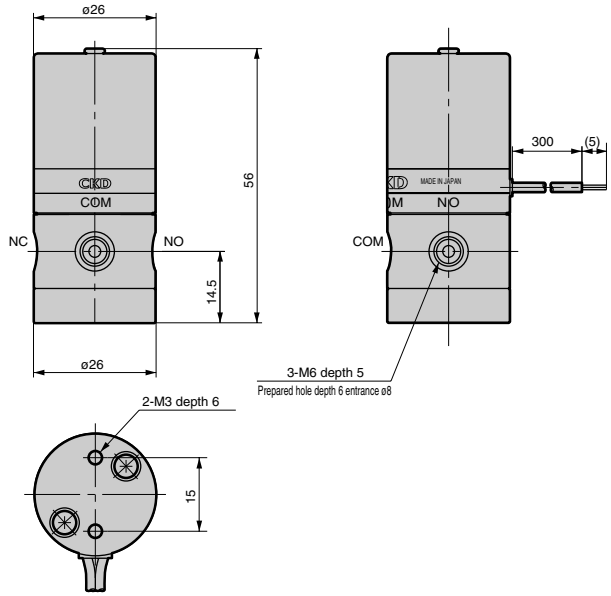
No.	Parts name	Material	
1	Coil assembly	Class B molded coil	
2	Spring	SUS304	Stainless steel
3	Plunger	SUY	Iron
4	Spacer	PPS	Polyphenylene sulfide
5	Diaphragm receiving	PPS	Polyphenylene sulfide
6	Protection seat	PTFE	Tetrafluoroethylene resin
7	Diaphragm	FKM	Fluoro rubber
8	Rod	Ceramic	
9	Body	PPS	Polyphenylene sulfide
10	Spring holder	SUS304	Stainless steel
11	Spring	SUS304	Stainless steel
12	Mounting plate	SUS303	Stainless steel
13	Spring washer assembled cross headed pan head machine screw	SUSXM7	Stainless steel

Dimensions (Page 813)

● MYB1-M6



● MYG1-M6



Metal free 2, 3 port solenoid valve for chemical liquid

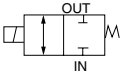
MYB2/MYG2 Series

- NC (normally closed) type, universal type
- Working fluid: water, pure water, chemical liquids
- Port size: Rc1/8

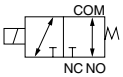
CAD

JIS symbol

- MYB2 (2 port)
  : NC (normally closed) type



- MYG2 (3 port)
  : universal type



Specifications

Item	MYB2-6	MYG2-6
Working fluid	Water, pure water, chemical liquids (fluids that do not corrode materials at wetted parts)	
Working pressure range MPa	See table below	See table below
Fluid temperature ˚C	5 to 60	
Ambient temperature ˚C	0 to 50 (no freezing)	
Atmosphere	Not in explosive or corrosive environment	
Valve seat leakage cm³/min.	0 (water pressure)	
Port size	Rc1/8 (*4)	
Orifice mm	Equivalent to 3.0	
Cv flow factor	0.18	
Mounting attitude	Free	
Weight kg	0.22	0.24

Conditions	Fluid flow direction	Working pressure range of each port (MPa) IN	OUT
IN positive	IN → OUT	0 to 0.2	0 to 0.1
OUT positive	OUT → IN	0 to 0.1	0 to 0.1
IN negative	OUT → IN	-0.05 to 0	-0.05 to 0

Conditions	Fluid flow direction	Working pressure range of each port (MPa) COM	NC	NO
COM positive	COM → NO or NC	0 to 0.2	0 to 0.1	0 to 0.1
NC positive	NC → COM	0 to 0.1	0 to 0.1	0 to 0.1
NO positive	NO → COM	0 to 0.1	0 to 0.1	0 to 0.1
COM negative	NO or NC → COM	-0.05 to 0	-0.05 to 0	-0.05 to 0

Electric specifications	
Rating	Continuous
Voltage V	24 VDC, 100 VAC (50/60 Hz)
Voltage fluctuation range	-10 to +10% of rated voltage
Power consumption W	5.5
Rush current A	1 or less
Leakage current mA	24 VDC: 1 or less, 100 VAC: 6 or less (*6)
Heat proof class	B

*1: Read the safety precautions for MYB2/MYG2 (page 768).
*2: Before starting use, check the compatibility between the materials of the product and working fluid.
Working fluids must not adhere to the product body.
*3: Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Always flush the piping before installing the valve.
*4: Do not use metal joints because they could damage the port. Use a PP or fluorine resin joint.
Wrap PTFE sealing tape two or three times around a joint which is compatible with the JIS B 0203 pipe taper screw.
Tighten the joint with the recommended tightening torque below.
Recommended tightening torque: 0.5 to 0.8 N·m
*5: Do not use for hydrochloric acid, hydrofluoric acid, nitric acid or sodium hypochlorite (soda).
*6: Keep leakage current from the control circuit within the levels below.
*7: When standing the secondary piping, do not make it higher than 2 m. Use tubing or piping with the same or larger bore size as the orifice to fix the pipe.
*8: Do not disassemble the product.
*9: As this product, incorporating electronic oscillator circuits, generates noise, noise prevention should be taken on the same power supply wire.

How to order

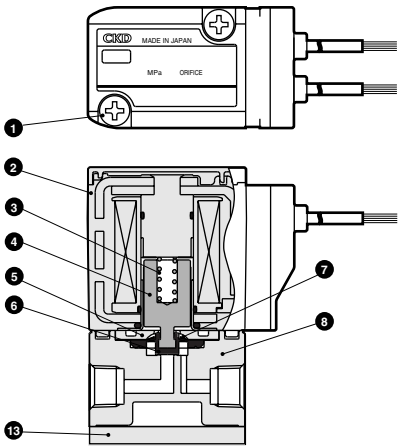
MY B 2 – 6 – DC24V

Ⓐ No. of port
Ⓑ Orifice
Ⓒ Port size
Ⓓ Rated voltage

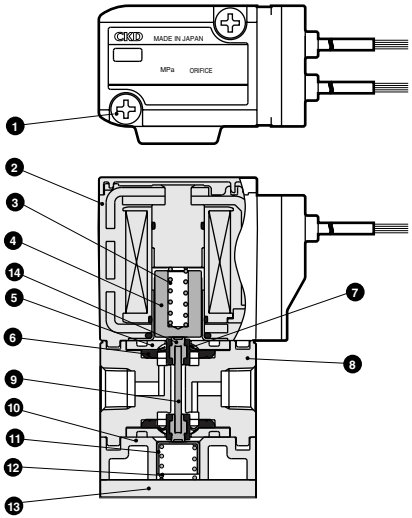
Symbol	Descriptions
Ⓐ No. of port	
B	2 port
G	3 port
Ⓑ Orifice	
2	ø3
Ⓒ Port size	
6	Rc1/8
Ⓓ Rated voltage	
DC24V	24 VDC
AC100V	100 VAC (50/60 Hz)

Internal structure and parts list

● MYB2 (2 port valve)



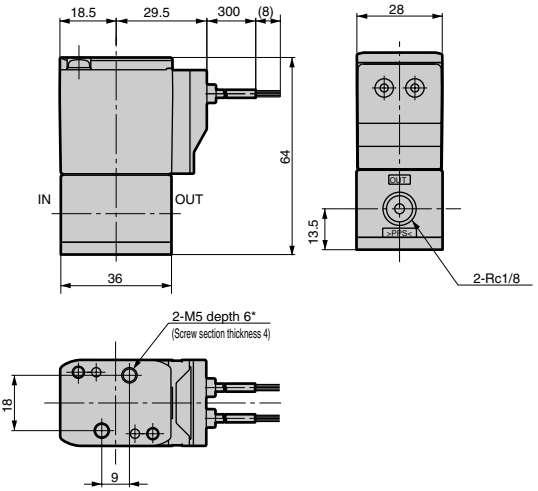
● MYG2 (3 port valve)



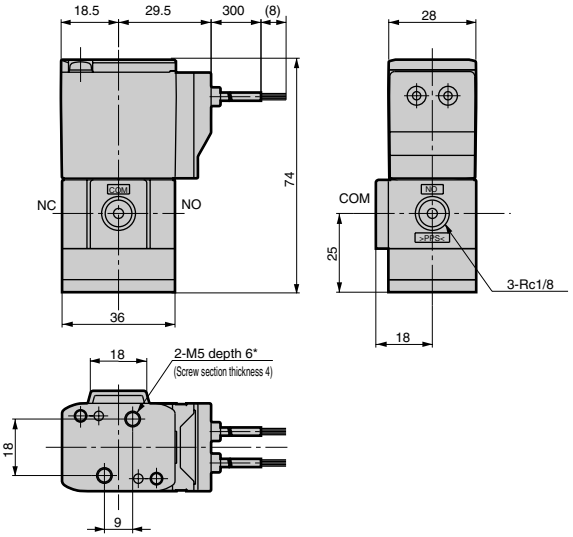
No.	Parts name	Material		No.	Parts name	Material	
1	Cross headed pan head machine screw	SUSXM7	Stainless steel	8	Body	PPS	Polyphenylene sulfide
2	Coil assembly	Class B mode coil		9	Rod	Ceramic	
3	Spring	SUS304	Stainless steel	10	Base	PPS	Polyphenylene sulfide
4	Plunger	SUS405	Stainless steel	11	Spring holder	SUS304	Stainless steel
5	Diaphragm receiving	PPS	Polyphenylene sulfide	12	Spring	SUS304	Stainless steel
6	Diaphragm	FKM	Fluoro rubber	13	Mounting plate	SUS304	Stainless steel
7	Protection seat	PTFE	Tetrafluoroethylene resin	14	Cap	PPS	Polyphenylene sulfide

Dimensions CAD (Page 813)

● MYB2 (2 port valve)



● MYG2 (3 port valve)



* When a set screw end in fixing holes 2-M5 is more than 6 mm from the bottom of the mounting plate, the screw cuts into the body or base, leading to cracking. The screw end must be 6 mm or less from the bottom of the mounting plate.

Metal free 2, 3 port solenoid valve for chemical liquid

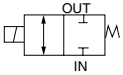
MYB3/MYG3 Series

- NC (normally closed) type, universal type
- Working fluid: water, pure water, chemical liquids
- Port size: R1/8, R1/4, R3/8

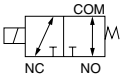
CAD

JIS symbol

● MYB3 (2 port)
: NC (normally closed) type



● MYG3 (3 port)
: universal type



Specifications

Item	MYB3	MYG3
Working fluid	Water, pure water, chemical liquids (fluids that do not corrode materials at wetted parts)	
Working pressure range MPa	See table below	See table below
Fluid temperature ˚C	5 to 60	
Ambient temperature ˚C	0 to 50 (no freezing)	
Atmosphere	Not in explosive or corrosive environment	
Valve seat leakage cm³/min.	0 (water pressure)	
Port size	Rc1/8, Rc1/4, Rc3/8 (*4)	
Orifice mm	Equivalent to 5.0	
Cv flow factor	0.5	
Mounting attitude	Free	
Weight kg	0.55	0.6

Working pressure range (MPa)

Conditions	Fluid flow direction	Working pressure range of each port IN	OUT
IN positive	IN → OUT	0 to 0.2	0 to 0.1
OUT positive	OUT → IN	0 to 0.1	0 to 0.1
IN negative	OUT → IN	-0.05 to 0	-0.05 to 0

Conditions	Fluid flow direction	Working pressure range of each port COM	NC	NO
COM positive	COM → NO or NC	0 to 0.2	0 to 0.1	0 to 0.1
NC positive	NC → COM	0 to 0.1	0 to 0.1	0 to 0.1
NO positive	NO → COM	0 to 0.1	0 to 0.1	0 to 0.1
COM negative	NO or NC → COM	-0.05 to 0	-0.05 to 0	-0.05 to 0

Electric specifications		
Rating	Continuous	
Voltage	12 VDC, 24 VDC, 100 VAC (50/60 Hz)	
Voltage fluctuation range	-10 to +10% of rated voltage	
Power consumption W	AC	11
	DC	11.5
Leakage current mA	2 or less (12 VDC) / 1 or less (24 VDC) / 2 or less (100 VAC) (*6)	
Heat proof class	B	

*1: Read the safety precautions for MYB3/MYG3 (page 768).
*2: Before starting use, check the compatibility between the materials of the product and working fluid.
Working fluids must not adhere to the product body.
*3: Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Always flush the piping before installing the valve.
*4: Do not use metal joints because they could damage the port. Use a PP or fluorine resin joint.
Wrap PTFE sealing tape two or three times around a joint which is compatible with the JIS B 0203 pipe taper screw.
Tighten the joint with the recommended tightening torque below.
Recommended tightening torque: Rc1/8: 0.5 to 0.8 N·m, Rc1/4 and Rc3/8: 1.0 to 1.5 N·m
*5: Do not use for hydrochloric acid, hydrofluoric acid, nitric acid or sodium hypochlorite (soda).
*6: Keep leakage current from the control circuit within the levels below.
*7: When standing the secondary piping, do not make it higher than 2 m. Use tubing or piping with the same or larger bore size as the orifice to fix the pipe.
*8: Do not disassemble the product.

How to order

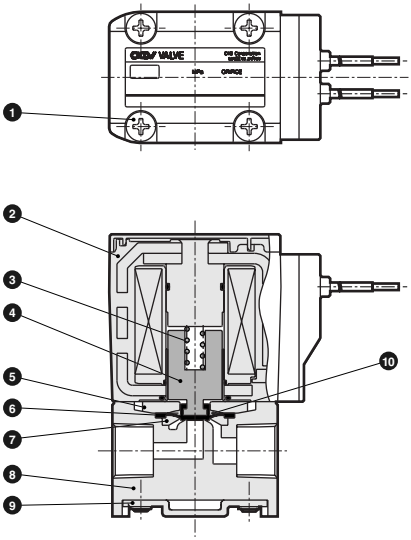
MY B 3 - 6 - DC12V

- A No. of port
- B Orifice
- C Port size
- D Rated voltage

Symbol		Descriptions
A	**B**	2 port
	G	3 port
B	**3**	ø5
C	**6**	Rc1/8
	8	Rc1/4
	10	Rc3/8
D	**DC12V**	12 VDC
	DC24V	24 VDC
	AC100V	100 VAC (50/60 Hz)

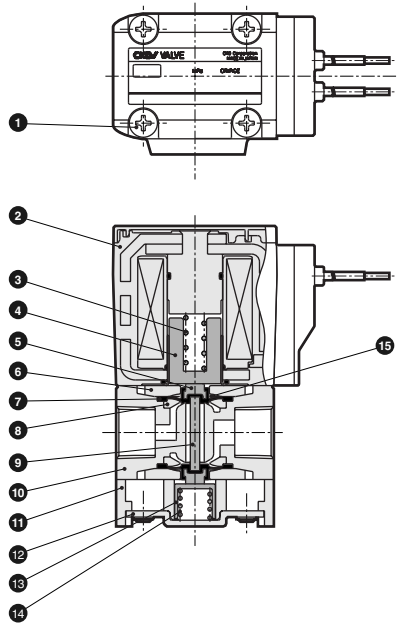
Internal structure and parts list

● MYB3



No.	Parts name	Material	
1	Cross headed pan head machine screw	SUSXM7	Stainless steel
2	Coil assembly	Class B molded coil	
3	Spring	SUS304	Stainless steel
4	Plunger	SUS405	Stainless steel
5	Diaphragm receiving	PPS	Polyphenylene sulfide
6	Diaphragm	FKM	Fluoro rubber
7	Diaphragm receiving	PPS	Polyphenylene sulfide
8	Body	PPS	Polyphenylene sulfide
9	Mounting plate	SUS304	Stainless steel
10	Protection seat	PTFE	Tetrafluoroethylene resin

● MYG3

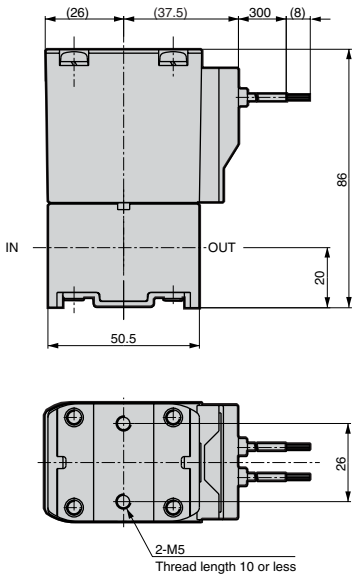


No.	Parts name	Material	
1	Cross headed pan head machine screw	SUSXM7	Stainless steel
2	Coil assembly	Class B molded coil	
3	Spring	SUS304	Stainless steel
4	Plunger	SUS405	Stainless steel
5	Spacer	PPS	Polyphenylene sulfide
6	Diaphragm receiving	PPS	Polyphenylene sulfide
7	Diaphragm	FKM	Fluoro rubber
8	Diaphragm receiving	PPS	Polyphenylene sulfide
9	Rod	Ceramic	
10	Body	PPS	Polyphenylene sulfide
11	Base	PPS	Polyphenylene sulfide
12	Mounting plate	SUS304	Stainless steel
13	Spring holder	SUS304	Stainless steel
14	Spring	SUS304	Stainless steel
15	Protection seat	PTFE	Tetrafluoroethylene resin

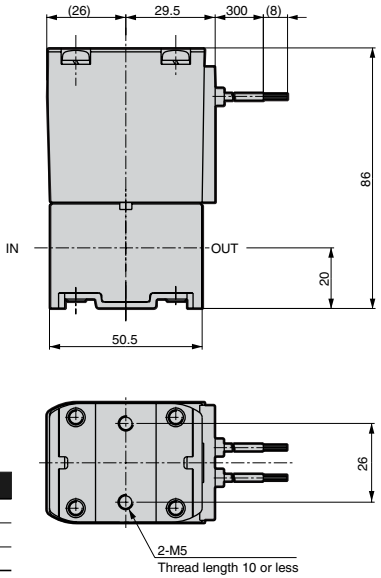
Dimensions CAD (Page 813)

● MYB3

<For AC>



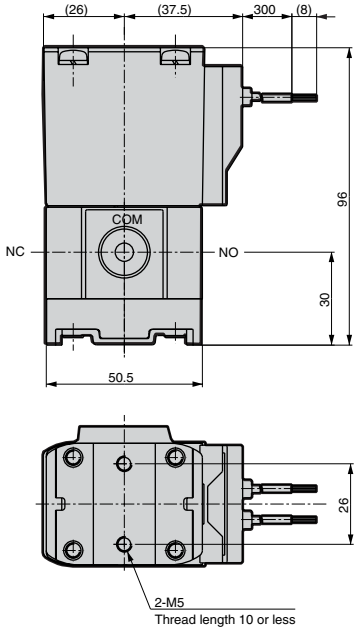
<For DC>



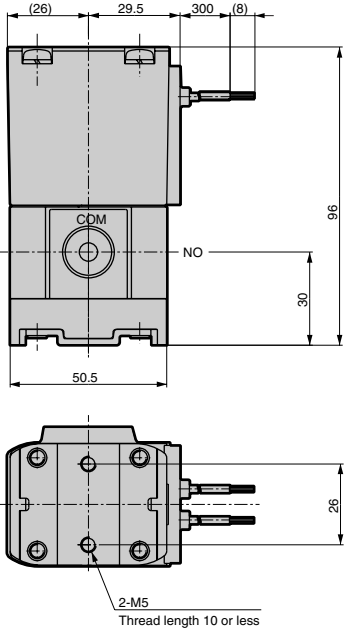
Model no.	A
MYB3-6	Rc1/8
MYB3-8	Rc1/4
MYB3-10	Rc3/8

● MYG3

<For AC>



<For DC>



Model no.	A
MYG3-6	Rc1/8
MYG3-8	Rc1/4
MYG3-10	Rc3/8

Metal free 2, 3 port solenoid valve for chemical liquid

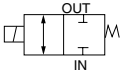
MEB2/MEG2 Series

- NC (normally closed) type, universal type
- Working fluid: water, pure water, chemical liquids
- Port size: Rc1/8

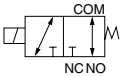
CAD

JIS symbol

● MEB2 (2 port)
: NC (normally closed) type



● MEG2 (3 port)
: universal type



Specifications

Item	MEB2-6	MEG2-6
Working fluid	Water, pure water, chemical liquids (fluids that do not corrode materials at wetted parts)	
Working pressure range MPa	See table below	See table below
Fluid temperature ˚C	0 to 60 (no freezing)	
Ambient temperature ˚C	0 to 50 (no freezing)	
Atmosphere	Not in explosive or corrosive environment	
Valve seat leakage cm³/min.	0 (water pressure)	
Port size	Rc1/8 (*4)	
Orifice mm	Equivalent to 3.0	
Cv flow factor	0.18	
Mounting attitude	Free	
Weight kg	0.22	0.24
Electric specifications		
Rating	Continuous	
Voltage V	24 VDC, 100 VAC (50/60 Hz)	
Voltage fluctuation range	-10 to +10% of rated voltage	
Power consumption W	5.5	
Leakage current mA	24 VDC: 1 or less, 100 VAC: 6 or less (*6)	
Heat proof class	B	

Working pressure range MPa

Conditions	Fluid flow direction	Working pressure range of each port IN	Working pressure range of each port OUT
IN positive	IN → OUT	0 to 0.2	0 to 0.1
OUT positive	OUT → IN	0 to 0.1	0 to 0.1
IN negative	OUT → IN	-0.05 to 0	-0.05 to 0

Conditions	Fluid flow direction	Working pressure range of each port COM	NC	NO
COM positive	COM → NO or NC	0 to 0.2	0 to 0.1	0 to 0.1
NC positive	NC → COM	0 to 0.1	0 to 0.1	0 to 0.1
NO positive	NO → COM	0 to 0.1	0 to 0.1	0 to 0.1
COM negative	NO or NC → COM	-0.05 to 0	-0.05 to 0	-0.05 to 0

*1: Read the safety precautions for MEB2/MEG2 (page 768).
*2: Before starting use, check the compatibility between the materials of the product and working fluid.
Working fluids must not adhere to the product body.
*3: Foreign matter etc. inside the piping may cause malfunction and valve seat leakage. Always flush the piping before installing the valve.
*4: Do not use metal joints because they could damage the port. Use a PP or fluorine resin joint.
Wrap PTFE sealing tape two or three times around a joint which is compatible with the JIS B 0203 pipe taper screw.
Tighten the joint with the recommended tightening torque below.
Recommended tightening torque: 0.5 to 0.8 N·m
*5: Do not use for hydrochloric acid, hydrofluoric acid, nitric acid or sodium hypochlorite (soda).
*6: Keep leakage current from the control circuit within the levels below.
*7: When standing the secondary piping, do not make it higher than 2 m. Use tubing or piping with the same or larger bore size as the orifice to fix the pipe.
*8: Do not disassemble the product.
*9: As this product, incorporating electronic oscillator circuits, generates noise, noise prevention should be taken on the same power supply wire.

How to order

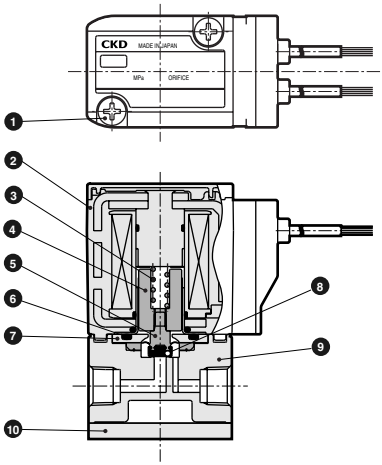
ME B 2 – 6 – DC24V

Ⓐ No. of port
Ⓑ Orifice
Ⓒ Port size
Ⓓ Rated voltage

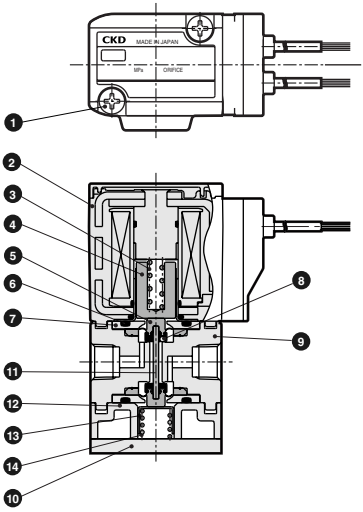
Symbol	Descriptions
Ⓐ No. of port	
B	2 port
G	3 port
Ⓑ Orifice	
2	ø3
Ⓒ Port size	
6	Rc1/8
Ⓓ Rated voltage	
DC24V	24 VDC
AC100V	100 VAC (50/60 Hz)

Internal structure and parts list

● MEB2 (2 port valve)



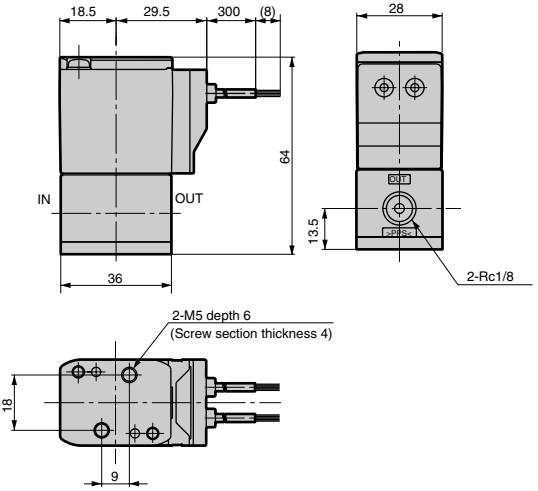
● MEG2 (3 port valve)



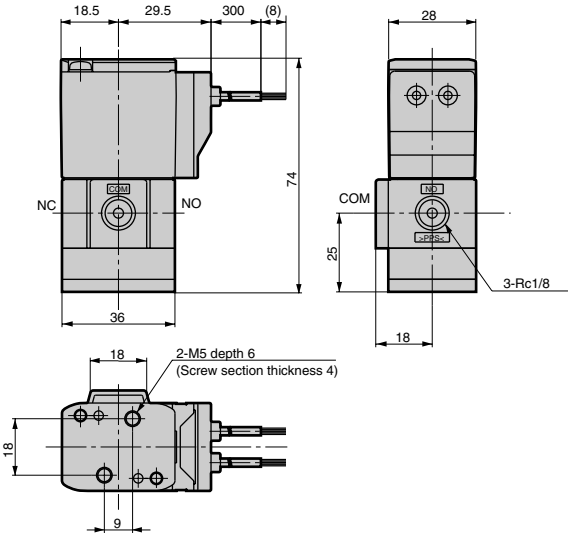
No.	Parts name	Material		No.	Parts name	Material	
1	Cross headed pan head machine screw	SUSXM7	Stainless steel	8	Valve seat	Perfluoroelastomer	
2	Coil assembly	Class B molded coil		9	Body	PPS	Polyphenylene sulfide
3	Spring	SUS304	Stainless steel	10	Mounting plate	SUS304	Stainless steel
4	Plunger	SUS405	Stainless steel	11	Rod	Ceramic	
5	Diaphragm	PTFE	Tetrafluoroethylene resin	12	Base	PPS	Polyphenylene sulfide
6	O ring	FKM	Fluoro rubber	13	Spring holder	SUS304	Stainless steel
7	Diaphragm receiving	PPS	Polyphenylene sulfide	14	Spring	SUS304	Stainless steel

Dimensions CAD (Page 813)

● MEB2 (2 port valve)



● MEG2 (3 port valve)



* When a set screw end in fixing holes 2-M5 is more than 6 mm from the bottom of the mounting plate, the screw cuts into the body or base, leading to cracking. The screw end must be 6 mm or less from the bottom of the mounting plate.

Medical analysis process components

Compact metal free 2, 3 port solenoid valve for chemical liquid

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

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
● MAB1/MAG1: Page 778			
MAB1-M6	MA_	mab1_m6	CKD-MAB1-M6
MAG1-M6		mag1_m6	CKD-MAG1-M6
● MYB1/MYG1: Page 781			
MYB1	MY_	myb1	CKD-MYB1
MYG1		myg1	CKD-MYG1
● MYB2/MYG2: Page 784			
MYB2-6	MY_2	myb2_6	CKD-MYB2-6
MYG2-6		myg2_6	CKD-MYG2-6
● MYB3/MYG3: Page 787			
MYB3-6-AC	MY_	myb3_6_ac	CKD-MYB3-6-AC
MYB3-8-AC		myb3_8_ac	CKD-MYB3-8-AC
MYB3-10-AC		myb3_10_ac	CKD-MYB3-10-AC
MYB3-6-DC		myb3_6_dc	CKD-MYB3-6-DC
MYB3-8-DC		myb3_8_dc	CKD-MYB3-8-DC
MYB3-10-DC		myb3_10_dc	CKD-MYB3-10-DC
MYG3-6-AC		myg3_6_ac	CKD-MYG3-6-AC
MYG3-8-AC		myg3_8_ac	CKD-MYG3-8-AC
MYG3-10-AC		myg3_10_ac	CKD-MYG3-10-AC
MYG3-6-DC		myg3_6_dc	CKD-MYG3-6-DC
MYG3-8-DC		myg3_8_dc	CKD-MYG3-8-DC
MYG3-10-DC		myg3_10_dc	CKD-MYG3-10-DC
● MEB2/MEG2: Page 790			
MEB2-6	ME_2	meb2_6	CKD-MEB2-6
MEG2-6		meg2_6	CKD-MEG2-6
● Lever type HMTB1/HMTG1: Page 804			
HMTB1	HMTB	hmtb1	CKD-HMTB1
HMTG1	HMTG	hmtg1	CKD-HMTG1
● MJB3: Page 792			
MJB3-4TN	MJB3	mjb3_4tn	CKD-MJB3-4TN

High corrosion resistant

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
● 2, 3 port valve UMB1/UMG1: Page 806			
UMB-T1	UMB_UMG	umb_t1	CKD-UMB-T1
UMG-T1		umg_t1	CKD-UMG-T1
● 2 port valve HB: Page 810			
HB11	HB	hb11	CKD-HB11
HB21		hb21	CKD-HB21
HB31-6(8)		hb31_6_8	CKD-HB31-6(8)
HB41-8-5		hb41_8_5	CKD-HB41-8-5
HB41-8(10)		hb41_8_10	CKD-HB41-8(10)

Pinch valve (page 812)

Model no.	DXF		MICRO CADAM
	Folder name	Filename	Filename (GROUP: CAD, USER: STDLIB)
HYN-2	HYN	hyn_2	CKD-HYN-2
HYN-3		hyn_3	CKD-HYN-3
HYN-5		hyn_5	CKD-HYN-5
HYN-8		hyn_8	CKD-HYN-8