

Discontinued some variations

CKD

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1999.5.31

CSM-0049-A

Instruction Manual

Manual Air Dryer

4001-2C

~~4002-2C~~

Only 4002 Series is discontinued.
4001 Series is still on sale.

Discontinued some variations

Thank you for purchasing our manual air dryer.

This manual describes the necessary basics to fully utilize the performance of the manual air dryer. Before use, please read this instruction manual carefully and use the product correctly.

Please keep this instruction manual in a safe place so that it does not get lost.

The 4001 model should be used when it is possible to shut off the compressed air flow for at least 15 minutes during desiccant replacement.

The 4002 model is used when it is not possible to stop the flow of compressed air during desiccant replacement.

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Caution

- **Regarding the handling of silica gel**

The desiccants for 4001-2C and 4002-2C use silica gel.

Please read the warnings below and handle silica gel with care.

Product Name	4001-SILICA-GEL
Component	Silicon dioxide
 Warning ● If it comes into contact with skin, it may cause skin irritation. Rinse thoroughly with clean water. ● Do not heat, as this may produce harmful gases.	
Handling Precautions ● This product is not for consumption. ● When working, please wear protective equipment such as safety glasses, a mask, and gloves, etc. ● If it gets in your eyes, do not rub them. Rinse thoroughly with clean water and consult a specialist. ● If spilled and stepped on, it will be slippery, so please clean it up promptly.	

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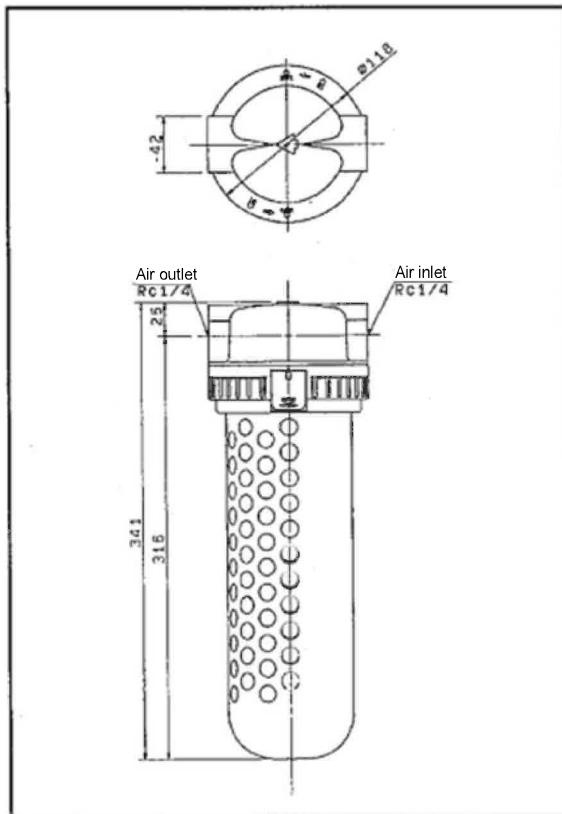
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4001

1. Specifications

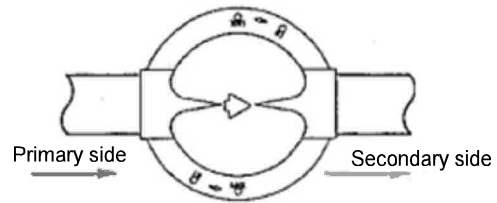
Item	Model No.
	4001 — 2C
Maximum operating pressure (MPa)	1.0
Proof pressure (MPa)	1.5
Inlet air temperature range (°C)	5 to 32
Ambient temperature (°C)	5 to 65
Atmospheric dew point (°C)	-43
Maximum flow rate (ℓ/min) (ANR)	280 (at 0.7 MPa)
Desiccant	Silica gel
Connection diameter (Rc)	1/4
Weight (kg)	4.6

2. Outline Drawing

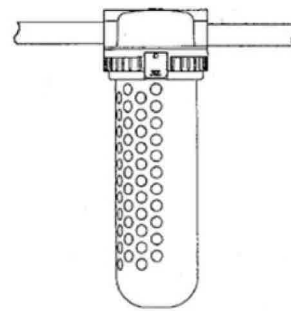


3. Installation Precautions

1. Install the product so that the air flows in the direction of the arrow on the top of the cover.

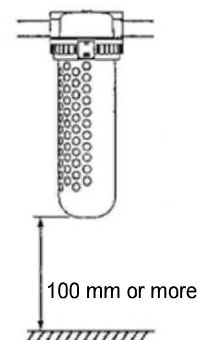


2. Install the air dryer so that the bowl is vertical and facing downwards.



3. Install it near the pneumatic equipment being used.
4. Install the air dryer and then add the desiccant.

5. When replacing the desiccant, please ensure that the bowl is at least 100 mm away from the floor so that it can be easily removed.



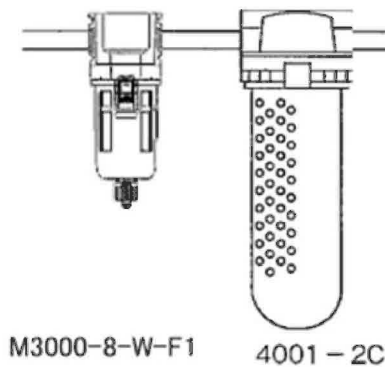
6. Make sure the primary pressure does not exceed 1.0 MPa.
7. Avoid using polycarbonate bowls in locations where the ambient temperature exceeds 65°C.

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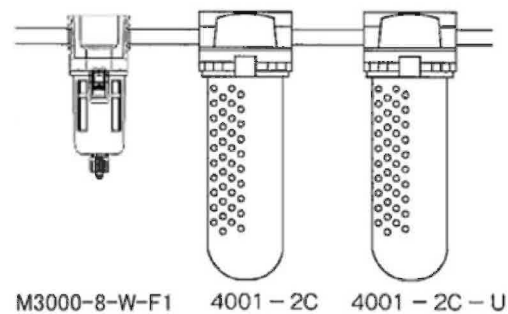
4001

8. To extend the life of the desiccant (silica gel), install a micro alescser filter (M3000-8-W-F1) in front of the air dryer.

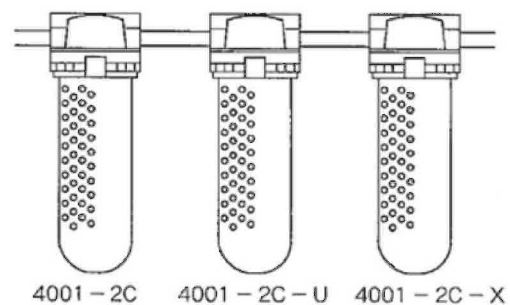
The micro alescser filter is an air filter designed to remove oil that has a negative effect on silica gel.



9. For the 4001-2C-U model, which uses 4AM.S as the desiccant, install a micro alescser filter (M3000-8-W-F1) and air dryer (4001-2C) in front of the 4001-2C-U model air dryer to extend the life of the desiccant.

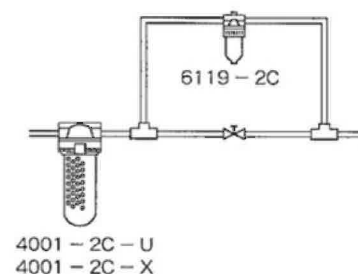


10. For the 4001-2C-X model, which uses 13XM.S as a desiccant, install two air dryers (4001-2C and 4001-2C-U) in front of the 4001-2C-X model air dryer to extend the life of the desiccant.



11. To determine the dryness of the compressed air in 4001-2C-U and 4001-2C-X models, use the moisture indicator (6119-2C).

(Install a throttle valve to allow a slight air flow to the moisture indicator.)



12. If the air flow rate to the dryer is more than 280 Nℓ/min, the flow rate will be too fast and air drying will be insufficient. In this case, install two or more dryers in parallel and ensure that the air flow rate per dryer does not exceed 280 Nℓ/min.
13. When installed on the outlet side of a refrigerated dryer, it can pass 450 Nm³ of air volume before desiccant regeneration, achieving an atmospheric dew point of -43°C.
14. If any of the following chemicals are near the plastic bowls, please consider the installation location.

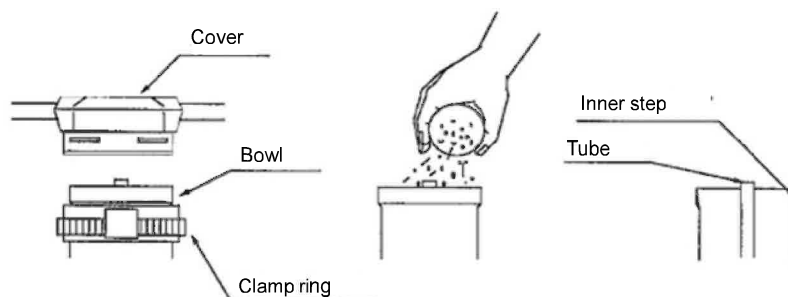
● Acrylonitrile	● Phosphorus trichloride	● Nitrobenzene
● Acetaldehyde	● Acetic acid	● Carbon disulfide
● Acetone	● Carbon tetrachloride	● Perchlorethylene
● Benzoic acid	● Cyclohexanone	● Pyridine
● Ethylamine	● Cyclohexane	● Phenol
● Ethyl ether	● Cyclohexanol	● Butyric acid
● Ethylene chlorohydrin	● Dioxane	● Ammonium fluoride
● Sulfur chloride	● Dimethylformamide	● Freon
● Methylene chloride	● Nitrocellulose	● Bromobenzene
● Hydrochloric acid	● Nitric acid	● Probionic acid
● Phosphorus oxychloride	● Potassium hydroxide solution	● Benzene
● Gasoline	● Calcium hydroxide	● Benzene alcohol
● Formic acid	● Sodium hydroxide solution	● Methyl alcohol
● Xylene	● Thiophene	● Lacquer thinner
● Cresol	● Tetrahydrofuran	● Ammonia sulfide
● Chlorobenzene	● Trichloroethylene	● Sodium sulfide
● Chloroform	● Toluene	● Sulfuric acid
	● Ethylene dichloride	● Phosphate ester

4. Maintenance Precautions

Desiccant replacement timing and procedure

1. When the desiccant (silica gel) changes color from green to orange, replace it with new desiccant (silica gel).
Do not regenerate the desiccant.
2. Replace 4AM.S. when its dehydration capacity decreases. Since the replacement timing for this desiccant cannot be visually determined, please install the moisture indicator (6119-2C) after this dryer. Replace the 4AM.S. when the desiccant (silica gel) in the moisture indicator turns orange.
3. Replace the 13XM.S. when it turns from light tan to dark brown.

Procedure



- ① Shut off the compressed air supply and release the pressure from the air dryer.
- ② Remove the clamp ring holding the bowl from the cover, then pull the bowl straight down to remove it.
- ③ Remove the old desiccant.
- ④ Open a new can of desiccant and fill the bowl to the top. At this time, be careful not to get any desiccant inside the tube.
- ⑤ Lightly tap the bowl to fill it with desiccant up to 3 mm below the inner step at the top of the bowl.
- ⑥ Place the bowl into the clamp ring, then fit the clamp ring onto the cover.

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Types of desiccants

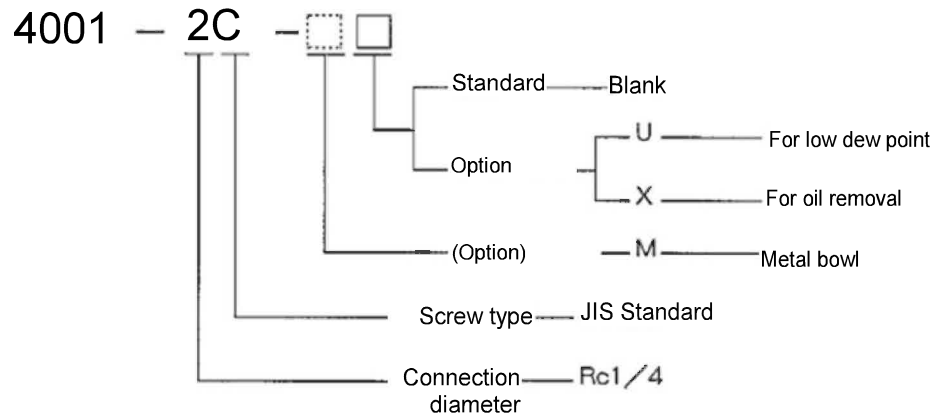
Model	Desiccant	Performance	Desiccant Part No.	Maximum Intake Air Temperature	Reproduction
4001-2C	Silica gel	Atmospheric dew point -43°C	4001-SILICA-GEL	32°C	No
4001-2C-U	4AM.S.	Atmospheric dew point -72°C	4001-85-060	93°C	No
4001-2C-X	13XM.S.	Oil removal	4001-85-061	93°C	No

1. When ordering desiccant only, please specify the desiccant number.
2. The plastic bowl contains silica gel, which turns orange when moist air passes through it, and green when dry air passes through it. Therefore, if installed as shown in "Installation Precautions (11)," it functions as a humidity indicator.

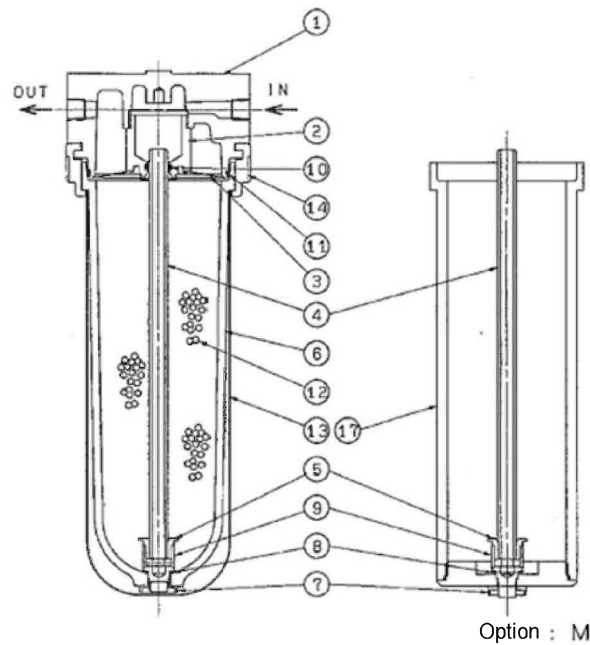
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5. About Model No. Display



6. About the Components

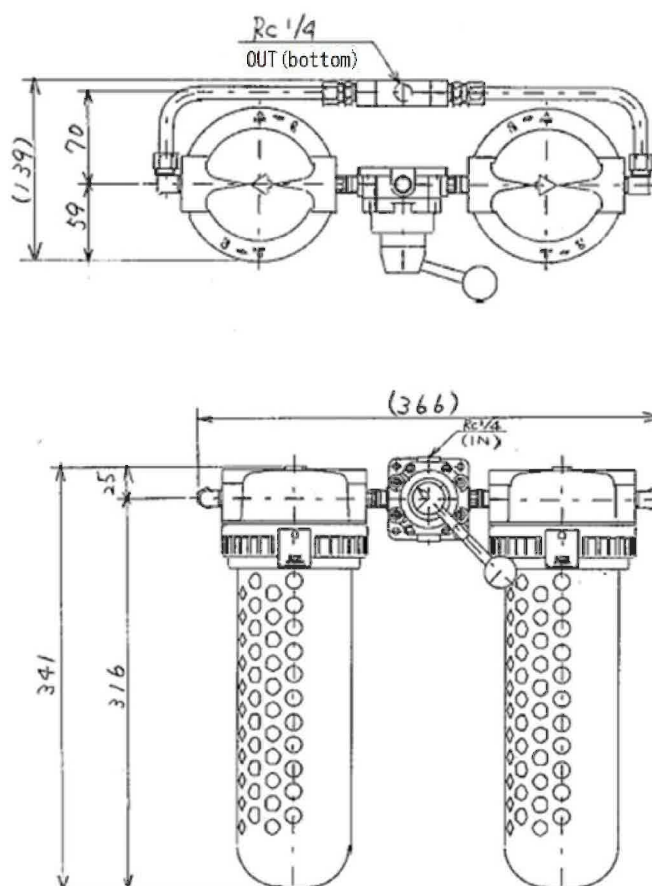


No.	Part Name	Model No.	Quantity	No.	Part Name	Model No.	Quantity
①②③⑩	Cover assembly	4001-COVER	1	⑫	Desiccant (for 4001-2C)	4001-SILICA-GEL	1
④⑤⑥⑦⑧⑨	Bowl assembly	4001-BOWL	1	⑫	Desiccant (for 4001-2C-U)	4001-85-060	1
④⑤⑦⑧⑨⑪	Bowl assembly	4001-BOWL-M	1	⑫	Desiccant (for 4001-2C-X)	4001-85-061	1
⑩⑪	O-ring set	4001-ORING-SET	1	⑬	Bowl guard	1238-BOWL-GUARD	1
				⑭	Clamp ring assembly	1138-CLAMP-RING	1

1. Specifications

Item \ Model No.	4002-2C
Maximum operating pressure (MPa)	1.0
Proof pressure (MPa)	1.5
Inlet air temperature range (°C)	5 to 32
Ambient temperature (°C)	5 to 65
Atmospheric dew point (°C)	-43
Maximum flow rate (l/min) (ANR)	280 (at 0.7 MPa)
Desiccant	Silica gel
Connection diameter (Rc)	1/4
Weight (kg)	10

2. Outline Drawing

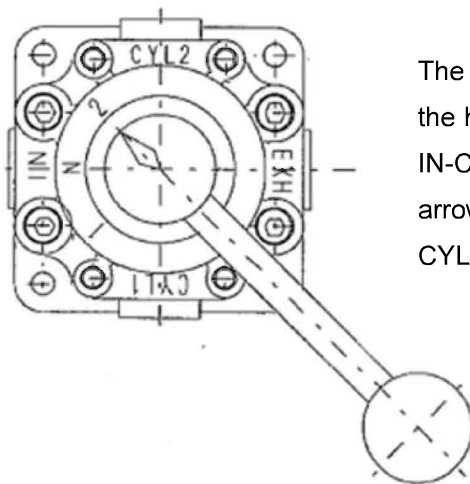


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3. Precautions

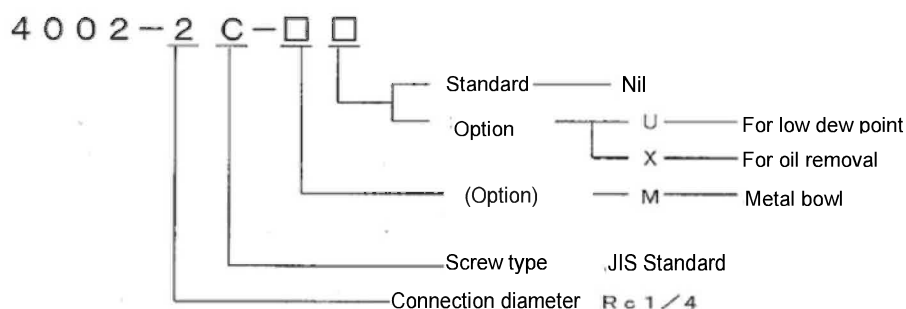
1. The 4002 model uses two 4001 model units. A manual switching valve is installed between the two units. When one desiccant (silica gel) becomes damp, the color of the desiccant (silica gel) changes from green to orange. At this time, operate the manual switching valve to allow compressed air to flow to the other air dryer. Replace any desiccant that has absorbed moisture and turned orange.
2. If the flow rate exceeds 280 Nℓ/min, the desiccant particles will collide with each other and turn into powder, so please limit the flow rate to 280 Nℓ/min or less. (At 0.7 MPa)
3. When the handle arrow on the 4-way manual valve points to 1, air flows through the left manual dryer. To replace the desiccant or switch the flow direction, turn it 90 degrees.



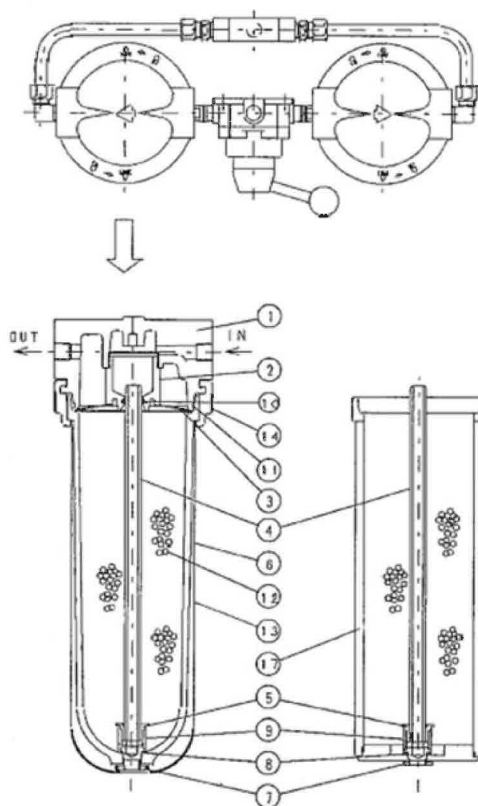
The manual valve is designed so that when the arrow on the handle points to 1 as shown in the illustration, ports IN-CYL1 and EXH-CYL2 are connected, and when the arrow on the handle points to 2, ports IN-CYL2 and EXH-CYL1 are connected.

Note: For other installation and maintenance precautions, please refer to pages 3 to 7.

4. About Model No. Display



5. About the Components



No.	Part Name	Model No.	Quantity
①②③⑩	Cover assembly	4001-COVER	1
④⑤⑥⑦⑧⑨	Bowl assembly	4001-BOWL	1
④⑤⑦⑧⑨⑰	Bowl assembly	4001-BOWL-M	1
⑩⑪	O-ring set	4001-ORING-SET	1
⑫	Desiccant (for 4001-2C)	4001-SILICA-GEL	1
⑫	Desiccant (for 4001-2C-U)	4001-85-060	1
⑫	Desiccant (for 4001-2C-X)	4001-85-061	1
⑬	Bowl guard	1238-BOWL-GUARD	1
⑭	Clamp ring assembly	1138-CLAMP-RING	1
⑮	Shuttle valve	4001-SHUTTLE-VALVE	1