

Electric Dehumidifier

ROSAHL

Instruction Manual

M-1J1R / M-2J1R / M-3M1R / M-3J1R
M-5J1R / M-7J1R / M-10J1R

NOTICE

1. Please read this manual before you use ROSAHL and use it correctly.
2. Please keep this manual to the person who operates, manages and maintains ROSAHL.



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For Proper Usage

- Supply 3V DC to ROSAHL. **DO NOT reverse the polarity.**

Dehumidification changes to Humidification when you get a wrong polarity, which may result in an adverse effect on several things in the container. Furthermore, it causes a chemical reaction in a porous electrode of cathode side and it causes the trouble of ROSAHL.



Prohibited

- Confirm the dehumidifying / humidifying surface of a membrane not to get a wrong direction before installation. Attaching ROSAHL by mistake will adversely several things in the container.



Prohibited

- DO NOT expose the membrane directly to the winds and rain.
Please cover the membrane with a cover or moisture-permeable sheet to prevent it from getting wet when using outdoors.



Prohibited

- Keep the moisture discharging side of membrane well ventilated.



Prohibited

- DO NOT put pin or wire etc into the membrane. It may cause an electric shock and the membrane may be damaged or deteriorate.



Prohibited

- **DO NOT use a silicon-based sealing materials** to improve airtightness of a container. Silicon-based sealing materials generate oxime gas and siloxane gas. As a result, the performance of ROSAHL reduce in a short term.



Prohibited

- **DO NOT use ROSAHL with vapor phase corrosion inhibitor** or insect repellent. Do not use ROSAHL in a place having high density of organic gas. The performance of ROSAHL reduce in a short term.



Prohibited

- DO NOT attempt to disassemble, repair or modify ROSAHL. It may cause an electric shock and the performance deterioration, as this may damage it.



Prohibited

Installation

Make a moisture discharging hole and installation hole for the following dimensions on the container, insert the included gasket and attach ROSAHL with screws.

Note 1) Processed dimensions for Moisture discharging hole and Installation hole, refer to Table 1.

Note 2) Processed dimensions for Rainproof cover, refer to Table 2.

Table 1. Installation dimensions (mm)

| Model name | M-1J1R | M-2J1R | M-3M1R | M-3J1R |
|--------------------------------------|-------------|--------|--------|--------|
| Moisture discharging hole dimensions | 20×25 | 35×25 | 35×35 | 55×30 |
| Dim. a | 37 | 52 | 48 | 65 |
| Dim. b | 42 | 42 | 50 | 50 |
| Dim. c | 18.5 | 26 | 24 | 32.5 |
| Dim. d | - | | | |
| Screws | 4-M3 screws | | | |

| Model name | M-5J1R | M-7J1R | M-10J1R |
|--------------------------------------|-------------|-------------|-------------|
| Moisture discharging hole dimensions | 55×55 | 75×75 | 105×105 |
| Dim. a | 76 | 108 | 152.5 |
| Dim. b | 76 | 95 | 145 |
| Dim. c | 38 | 50.5 | 72.5 |
| Dim. d | - | - | 80 |
| Screws | 4-M3 screws | 4-M4 screws | 8-M4 screws |

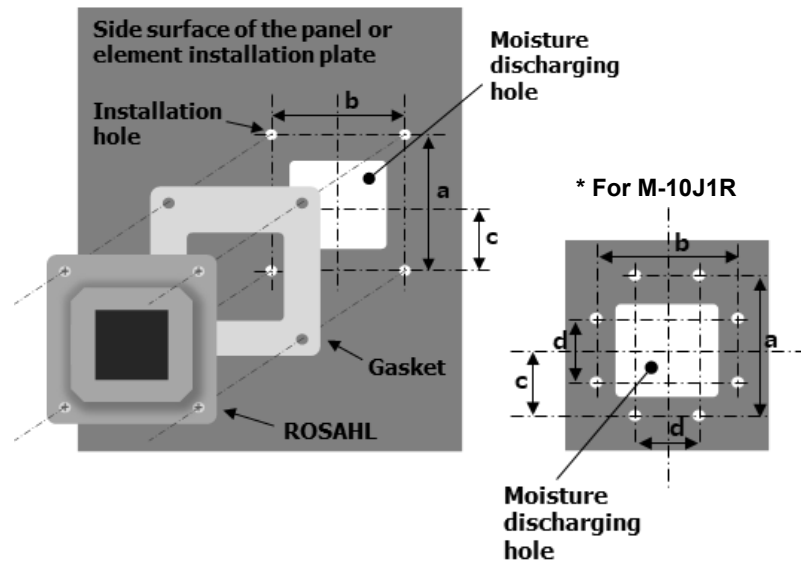
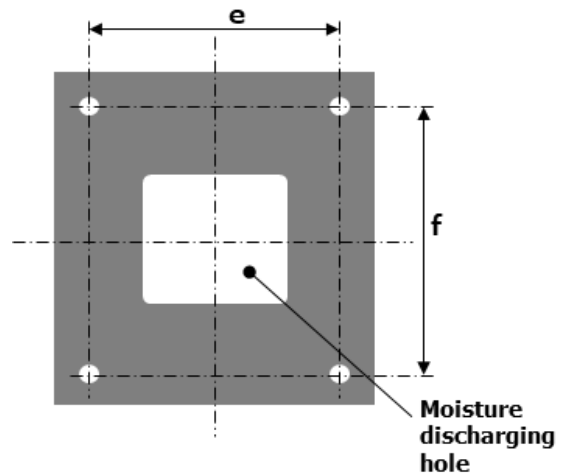


Table 2. Rainproof cover installation dimensions (mm)

| *Option parts | | | | |
|----------------------------|-------------|--------|--------|--------|
| Model name | M-1J1R | M-2J1R | M-3M1R | M-3J1R |
| Dim. e | 85 | | | |
| Dim. f | 115 | | | |
| Rainproof cover Model name | For RDH-3J1 | | | |
| Screws | 4-M4 screws | | | |

| Model name | M-5J1R | M-7J1R | M-10J1R |
|----------------------------|-------------|-------------|--------------|
| Dim. e | 135 | 175 | 225 |
| Dim. f | 125 | 150 | 180 |
| Rainproof cover Model name | For RDH-5J1 | For RDH-7J1 | For RDH-10J1 |
| Screws | 4-M4 screws | | |



Precautions for Use of ROSAHL

- 1) Attach a protective cover as needed not to touch the dehumidifying / humidifying surface of a membrane with a hand and an object.
- 2) Confirm the dehumidifying / humidifying surface of a membrane not to get a wrong direction before installation. Attaching ROSAHL by mistake will adversely affect several things in the container.
- 3) Keep strictly the following about power supply to ROSAHL
 - (1) Do not reverse the polarity. Confirm a polarity indication of ROSAHL.
Dehumidification changes to humidification when you get a wrong polarity, which may result in an adverse effect on several things in the container. Furthermore, it causes a chemical reaction in a porous electrode of cathode side and it causes the trouble of ROSAHL.
 - (2) ROSAHL usually has a big rush current when the power is turned on.
Therefore, we recommend the following power supply.
 - (3) Use a dedicated power supply for each membrane. When multiple membrane are connected in series or parallel, the trouble of one membrane may cause all other membranes to be disabled.
 - (4) The water vapor go through a membrane of ROSAHL. If you switch off a power supply, outside water vapor is returned into a container and the humidity is restored.

Table 1. Recommended Power Supply Specifications

| Item | Model | M-1J1R | M-2J1R | M-3M1R | M-3J1R | M-5J1R | M-7J1R | M-10J1R |
|--|-------|--|--------|--------|--------|--------|--------|---------|
| Rated output voltage | | 3V DC | | | | | | |
| Rated output current | | 1A | 1.5A | 2A | 2A | 3A | 5A | 10A |
| Overcurrent protection function * Note | | Required | | | | | | |
| Overvoltage protection function | | Required | | | | | | |
| Output voltage variation | | 0.1V or less | | | | | | |
| Ripple noise | | 0.2V or less | | | | | | |
| Others | | In accordance with the specifications of commercially available power supply | | | | | | |

Note : Use a constant or fold-back current limiting regarding overcurrent protection function. You cannot use the power supply with the Hiccup mode current limiting type, because the voltage more than 2V DC is necessary for ROSAHL when an overcurrent protection function worked. Also ROSAHL may not work correctly depending on a characteristic of fold-back current limiting.

- 4) A container must be an airtightness container. If a container has low airtightness and moisture-permeable material, the results may not be what you expected.
- 5) Attach ROSAHL in the center of the inner side surface of a container with a gasket.
(Do not attach it on a top or bottom surface.)
- 6) If you use ROSAHL with a gasket that contains an antioxidant, crystal materials may be generated on the surface of a membrane. When you choose a gasket, evaluate it enough.
- 7) Do not use silicon-based sealing materials to improve airtightness of a container.
(Silicon-based sealing materials generate oxime gas and siloxane gas.
As a result, the performance of ROSAHL reduce in a short term.)
Additionally, when using any other sealing materials, ROSAHL must be attached after sealing materials are completely cured. Volatile substances generated during curing affect the performance of ROSAHL.
[Recommended products] : modified silicon caulk (Konishi Co., Ltd.)
- 8) Do not expose a moisture discharging side of a membrane to water. When using outdoors, be sure to attach a cover or vent filter to protect a membrane from water or insects.
- 9) Attach a moisture-permeable sheet to a membrane to protect ROSAHL from much dust or oil mists.
[Recommended products] : Vent Filter TEMISH S-NTF2131A-S06 (Nitto Denko Corporation)
- 10) Keep the moisture discharging side of a membrane well ventilated.
- 11) Do not use ROSAHL with vapor phase corrosion inhibitor or insect repellent.
Do not use ROSAHL in a place having high density of organic gas.
- 12) Do not do remodeling. ROSAHL may break down.
- 13) When you prepare a gasket, we recommend a sponge packing having closed-cell structure (hardness : 10 or less) of the EPT rubber (ethylene propylene rubber). When you use a high hardness packing, there may be a gap between installation plate and gasket. If there is a gap, the performance of ROSAHL may not be shown enough. Please evaluate it carefully.
In addition, If you use a silicon rubber, you need to vulcanize a gasket (200 deg C / 6 hours) not to quickly degrade the performance of ROSAHL.
Note : The silicon gasket assembled in ROSAHL is vulcanized. (conditions : 200 deg C / 6 hours)

Confirmation Items before Using

Please confirm the following items surely before turning on the power.

1. Is the power supply 3V DC?
2. Is the polarity of ROSAHL correct?
3. Does not a membrane get wet?

Usage

1. Please supply 3V DC to ROSAHL.
2. Please adjust a supply voltage in the range of 2.9 ~ 3.3V DC between each terminals after 15-20 minutes turning on the power at the first time of installation.
(ROSAHL naturally causes a relatively big rush current when the power is turned on.
But this is not abnormal.)

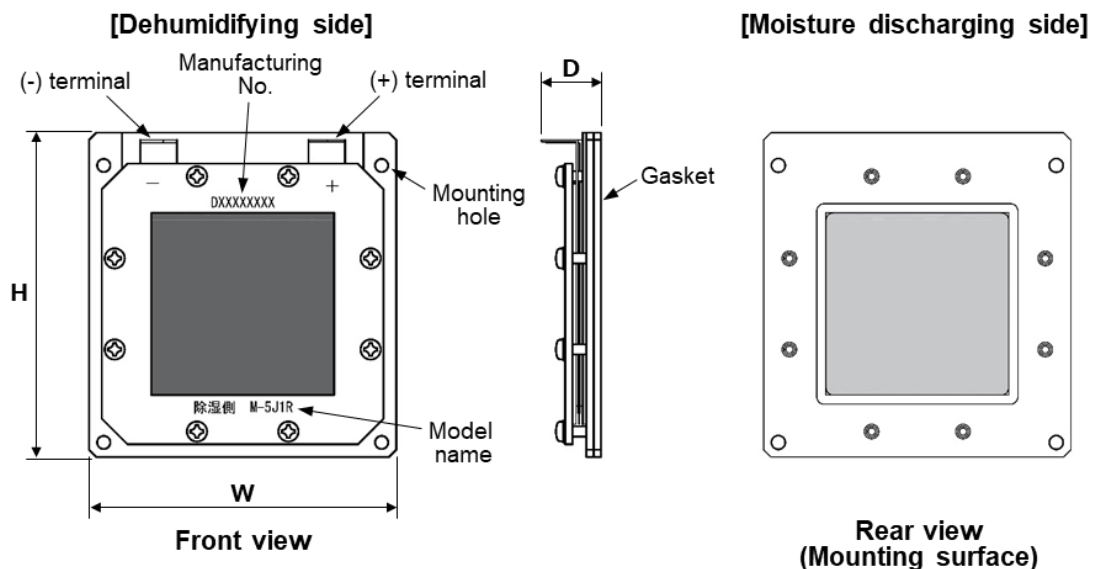
Specifications

| Model Name | | M-1J1R | M-2J1R | M-3M1R | M-3J1R | M-5J1R | M-7J1R | M-10J1R |
|---------------------------|---------------------------------|--|--------------|------------|------------|------------|--------------|----------------|
| Items | | | | | | | | |
| Dehumidifying Performance | (g/day) ^{*1} | 1 | 2 | 2.9 | 4 | 8 | 16 | 29 |
| Applicable Volume | (m ³) ^{*2} | ~ 0.125 | ~ 0.25 | ~ 0.35 | ~ 0.5 | ~ 1 | ~ 2 | ~ 4 |
| Terminal Voltage | (V) | 3 DC | | | | | | |
| Power Consumption | (W) ^{*3} | 1 | 1.5 | 2 | 2 | 3 | 6 | 12 |
| Dimensions | (mm) ^{*4} | 52.5×50×16.5 | 67.5×50×16.5 | 65×62×16.5 | 74×58×16.5 | 89×84×16.5 | 117×105×17.5 | 162.5×155×17.5 |
| Weight | (g) | 70 | 85 | 90 | 95 | 150 | 340 | 580 |
| Operating Temperature | (deg C) | -10 to 50 | | | | | | |
| Connecting Terminal Type | | (+) side : TMEDN-480509-FA (NICHIFU Co.,Ltd.) or equivalent (-) side : TMEDN-630809-FA (NICHIFU Co.,Ltd.) or equivalent | | | | | | |

Notes

- *1 The initial value at the temperature of 30 deg C and humidity 60%RH.
(The dehumidifying performance will reduce during use. How much it degrades depends on the operating environment and conditions. If any signs of abnormality are seen, early replacement is recommended.)
- *2 The applicable volume is for a sealed, moisture-impermeable container, and may vary depending on the material of the container, state of sealing and required humidity.
- *3 The annual average power consumption in average condition in Japan.
- *4 Dimensions show the values of H × W × D in the figure below.

Outline



Prohibited Substances and Recommended Materials for ROSAHL

1. Prohibited substances

The substances which adversely affect ROSAHL and harm in response to ROSAHL are as follows. The anode side is affected mainly. Even the additives of materials may be affected. Please evaluate enough when a new substance is adopted or a maker is changed.

| Classification | Substance Name | State | Notes |
|--|---|--|--|
| Inorganic Matter | hydrochloric acid gas | gas | |
| | nitric acid gas | gas | |
| | other corrosion gases | gas | |
| | SOx gas | gas | |
| | NOx gas | gas | |
| | chlorine gas | gas | |
| | sulfurous acid gas | gas | |
| | other pollution gases | gas | |
| | concentrated hydrochloric acid | liquid | |
| | concentrated nitric acid | liquid | |
| | substance which produces other corrosion gas | liquid | |
| | divalent metal ion | liquid | |
| Organic Matter | siloxane gas | gas | |
| | oxime gas | gas | |
| | lamp black | gas | |
| | diethylamine | gas | |
| | other amine-based gas | gas | |
| | amide-based low molecular weight compound | gas, liquid | |
| | methylene chloride | liquid | |
| | perchloroethylene | liquid | |
| | trichloroethylene | liquid | |
| | perchloroethylene | liquid | |
| | tetrachloroethylene | liquid | |
| | other chlorinated solvent | liquid | |
| | oil mist | liquid | |
| | dimethyl sulfoxide | liquid | |
| | other sulfur based organic solvent | liquid | |
| | silicone sealant | solid | These substances produce siloxane gas. Heat treatment (bake) is necessary to remove low molecule siloxane of non-reaction. |
| | silicone grease | solid | |
| | silicone rubber | solid | |
| | silicone-based sealing compound | solid | |
| | other siloxane chemical compound | solid | |
| | pran-ace | solid | |
| | camphor | solid | |
| | other insect repellent | solid | |
| | paradichlorobenzene | gas, liquid | |
| | other chlorine-based insect repellent | gas, liquid | |
| | vapor phase inhibitor | liquid, solid | |
| | corrosion inhibitor which is added in materials | liquid, solid | |
| cigaret tar constituent | gas, liquid | | |
| 2,6-Di-tert-butyl-4-methylphenol (BHT) | liquid | The antioxidant which was added in packing | |

2. Recommended Materials

The recommended materials in a range understanding in us are as follows.

| Classification | Material Name | Notes |
|------------------|---|---|
| Frame | Glass , Metal , Acrylic , Plastic | The acrylic and plastic resin has moisture permeability. Please thicken the board thickness when using them. |
| Sealing Compound | the material which does not include "Silicon group" [Recommended products] modified silicon caulk (Konishi Co., Ltd.) | Do not use silicon-based sealing compounds. In addition, about the recommendation product, please operate ROSAHL after completely cured. (Please avoid operating ROSAHL before curing.) |
| Adhesive | the material which does not include "Silicon group" [Recommended products] Silex, SL220W, SL220LB (Konishi Co., Ltd.) | Do not use silicon-based adhesives. |
| Gasket | Silicon rubber (secondary vulcanization finished) EPT rubber [Ethylene-propylene] (single bubble) PTFE rubber [Polytetrafluoroethylene] | About the silicon rubber, please perform secondary vulcanization by all means. (ex. 200 deg C / 6 hours) In addition, we don't evaluate all silicon rubber, EPT rubber, PTFE rubber. Please evaluate enough when using them. |

The above are just as of April 1, 2021 but not all of them. Please verify in advance and evaluate enough when using our electric dehumidifier "ROSAHL". We don't take any responsibility or liability for any damage or loss caused through the unknown phenomenon and the wrong usage.

Precautions in the Use for the Storage Cabinet

1. When you use ROSAHL to dehumidify into the storage cabinet, do not store volatile rust preventive or things that organic gas volatilizes. The volatile gas which is released from goods reacted at a membrane's anode and new harmful gas is produced.
As a result, not only it causes decrease in performance of ROSAHL, but also it might adversely affect on goods in the storage cabinet. We cannot guarantee even if harm occurs to the stored valuables under the influence of new produced gas. Please evaluate enough when you use ROSAHL for the storage cabinet.
2. The maker who produces and sells storage cabinet equipped with ROSAHL should explain that enough for end users using the storage cabinet.