

# ORION

**R** 冷熱と真空でイノベーション  
Innovating with Thermal Control and Vacuum

Aug. 2023

R78E

Ceiling-mounted Dehumidifier

## Ceiling-mounted **Dehumidifier**

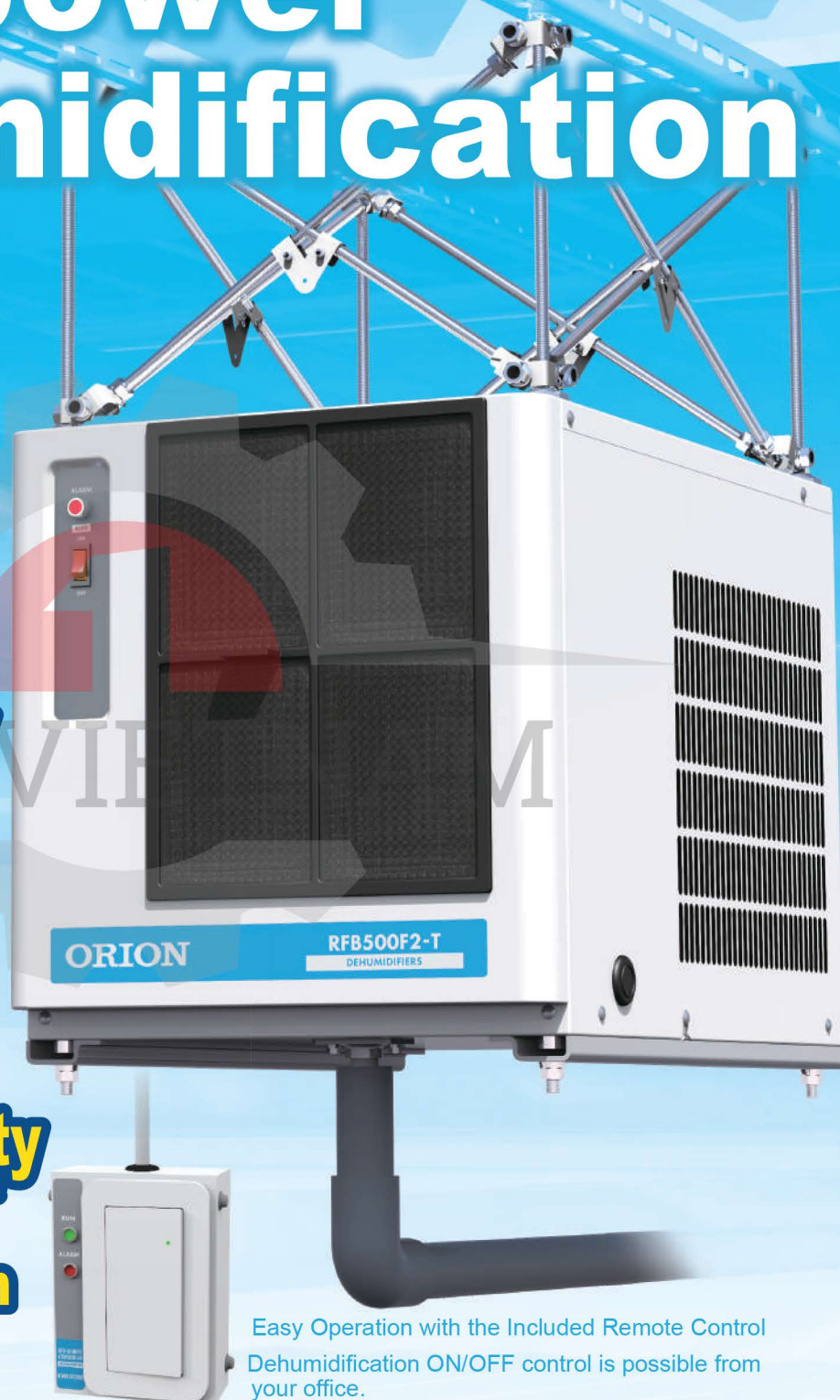
RFB500F2-T

# For Attic Moisture Problems... High-power Dehumidification

**Industry  
No. 1** ※  
**Dehumidification  
Volume**

**Lightest  
in Industry  
and  
Compact** ※

**Industry  
First Functionality** ※  
**Drain Release  
Incl. Trouble Alarm**



Easy Operation with the Included Remote Control  
Dehumidification ON/OFF control is possible from  
your office.

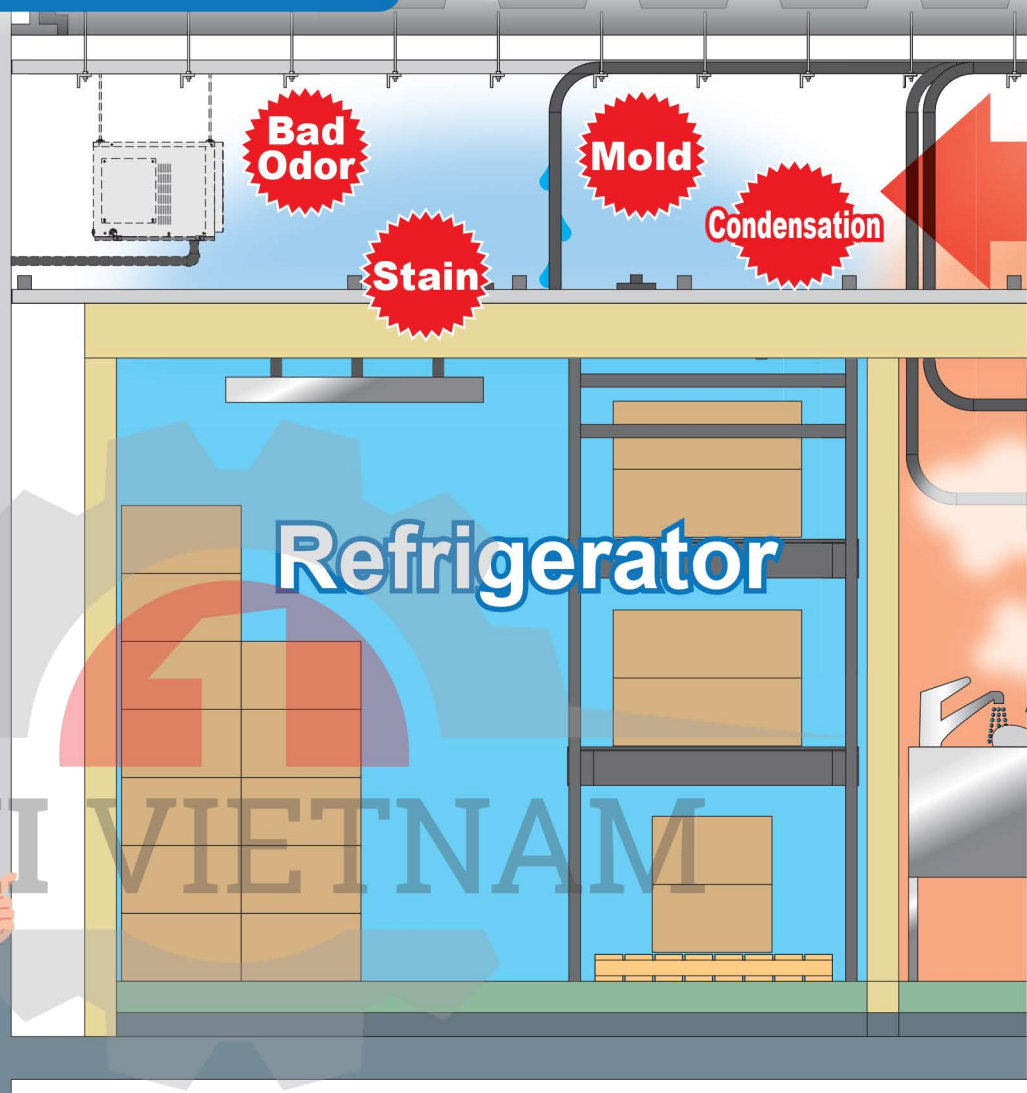
※ Based on our own research.

# Use Cases for Ceiling-mounted

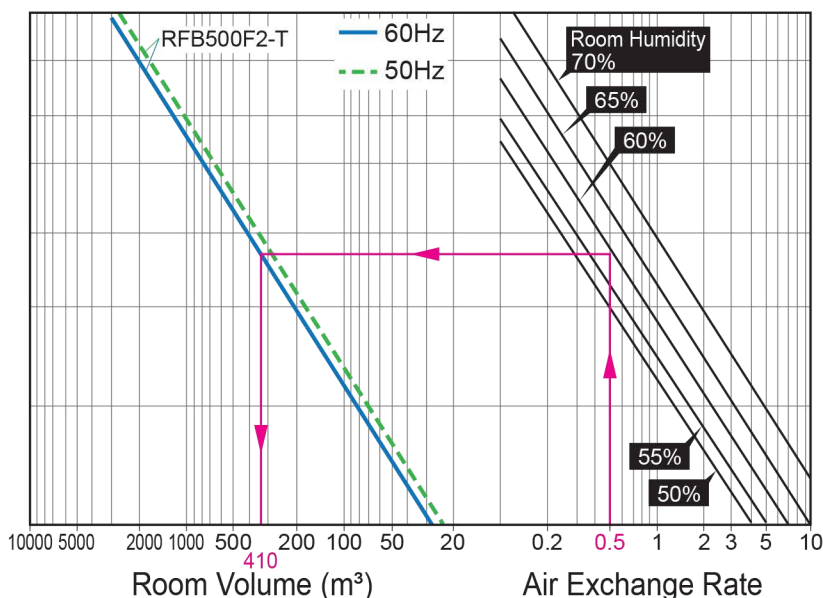
## Foodstuff Factory Ceiling Space Dehumidification

Condensation in ceiling space  
To prevent moisture and condensation

Because the kitchen and the refrigerator spaces are connected in the ceiling space, warm humid air comes into contact with suspension hardware and wiring, etc. that is cooled on the refrigerator-side, which makes it easy for condensation to form.



## Dehumidifier Choice Guideline



Conditions:

Intake air temperature: 30 °C, Relative humidity: 80%, and no moisture is generated indoors.

Example:

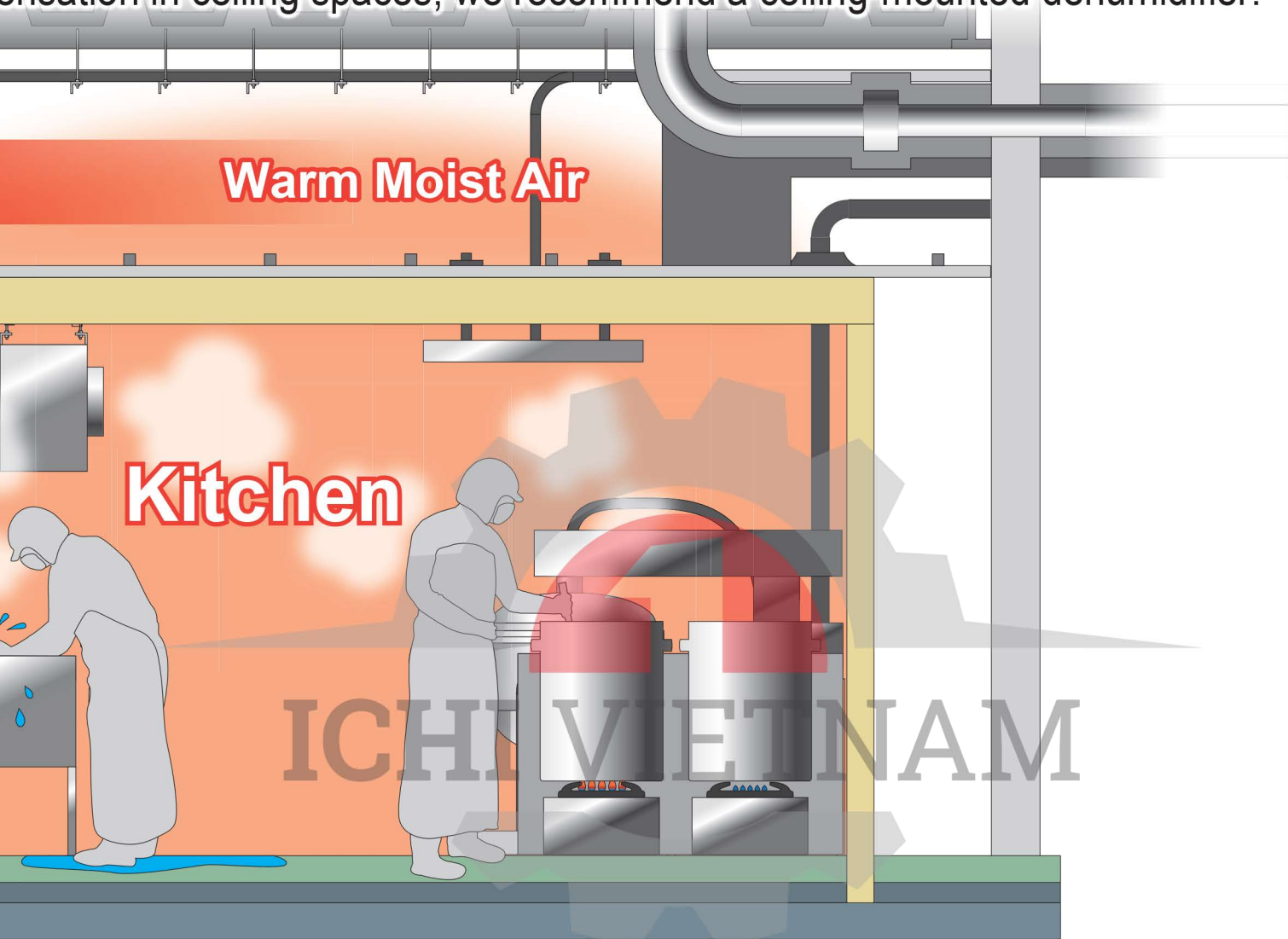
For an air exchange rate of 0.5 times/h and an indoor humidity of 60%, the room volume for a single RFB500F2-T unit is 410 m³.

- ※ Please contact your ORION sales representative for conditions beyond those listed above, or if room temperature control is required.
- ※ If air flow from the dehumidifier alone is insufficient to circulate indoor air, then installation of a fan or other device may be required.



# Dehumidifiers

aces can result in mold, stains, and other problems if not dealt with.ensation in ceiling spaces, we recommend a ceiling-mounted dehumidifier.



## Natural Air Exchange Rate Based on Room Type

Room Type	Natural Air Exchange Rate	Room Type	Natural Air Exchange Rate	Room Type	Natural Air Exchange Rate
Shop with a lot of foot traffic	2 ~ 3	Corridor	1	Café (Without ventilation fan)	1
Room without windows or entrances facing outside air	0.5 ~ 0.75	Classroom	0.5 ~ 3	Café (With ventilation fan)	4
Reception office	1 ~ 2	Church	0.75 ~ 2	Wooden House (Western-style room)	1
		Office	0.5 ~ 1	Wooden House (Japanese-style room)	1.5
		Warehouse	0.5 ~ 2		
		Factory	0.5 ~ 3		

The amount of water that can be dehumidified using a dehumidifier will depend on the room's size, structure, frequency of natural ventilation, and its temperature and humidity.

The natural air exchange rate is as follows:

**Natural Air Exchange Rate** =  $\frac{\text{Outside Air Intake (m}^3\text{/h)}}{\text{Room Volume (m}^3\text{)}}$

Also, there will be large differences depending on the building's structure, and how often doors are opened and closed, etc.

# Ceiling-mounted Dehumidifier RFB500F2-T



\* The warranty period of the refrigerant circuit is 2 years from the date of purchase (or 10,000 hours of operating time, whichever comes first).

\* Install in a location where simplified inspections can safely be carried out according to regulations under the Fluorocarbon Emissions Reduction Law.

## Specifications

Item	Model	RFB500F2-T
Water Removal Capacity (50/60 Hz) ※1,2	L/h	1.4 / 1.6
Legal Refrigeration Tonnage (50/60 Hz)		0.19 / 0.23
Operating Temperature Range	°C	1~40
External Dimensions (H × D × W)	mm	426×560×397
Product Mass	kg	34
Electrical Specifications	Power Supply	V · Hz Single-phase 100±10%, 50/60
	Power Consumption (50/60 Hz)	kW 0.62 / 0.73
	Current (50/60 Hz)	A 6.2 / 7.2
	Power Supply Capacity	kVA 1.0
Device Specifications	Refrigeration Compressor	W 500, Rotary type
	Condenser	Fin and tube, forced air cooling
	Blower Fan	W 10
	Air Flow (50/50 Hz)	m³/min 8 / 9
Protection Devices	Refrigerant Control	Capillary Tube
	Refrigerant	R407C
	Quantity of Refrigerant Contained	kg 0.4
	Frost Removal Method	Defrost thermostat
Included Parts	Temperature Control Device	Outside air temperature control thermostat
	Drain Port Size ※3	Rc1/2
	Compressor	Overload relay / Overcurrent relay
	Blower Fan	Overcurrent relay
Operating Noise Level (50/60 Hz) ※4	Refrigeration Circuit	High-pressure pressure switch
	Electric Circuit	Fuse, 5A
	Dehumidification Circuit	Drain leakage stop button
	Unit Mounting Hardware	4 mounting brackets, 4 mounting screws

\*1 Indicated water removal capacity is when the intake air temperature is 30 °C, at a relative humidity of 80%.

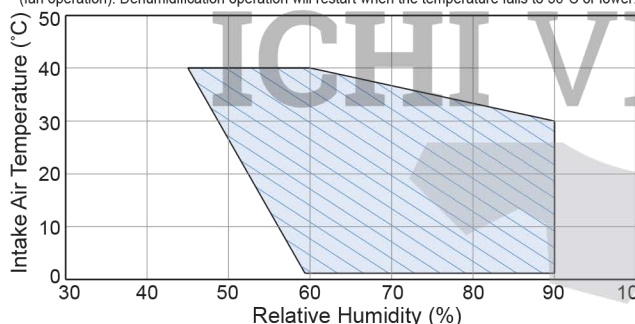
\*2 Water removal capacity will be at least 95% of the noted value.

\*3 Drain piping is supplied by the user.

\*4 Operating noise levels are from a position of 1 m in front of the product and at a height of 1 m.

## Operating Range

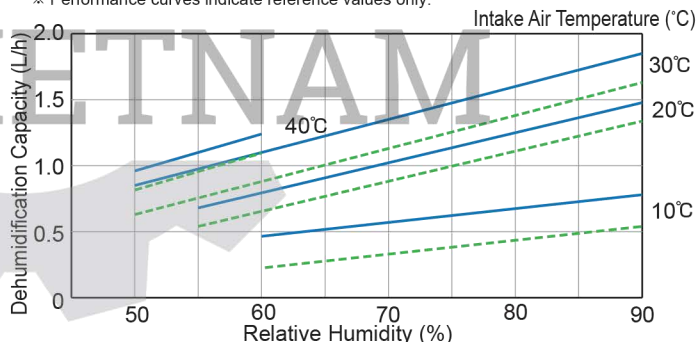
When the intake air temperature is 40 °C or higher, the product will enter protective operation (fan operation). Dehumidification operation will restart when the temperature falls to 36 °C or lower.



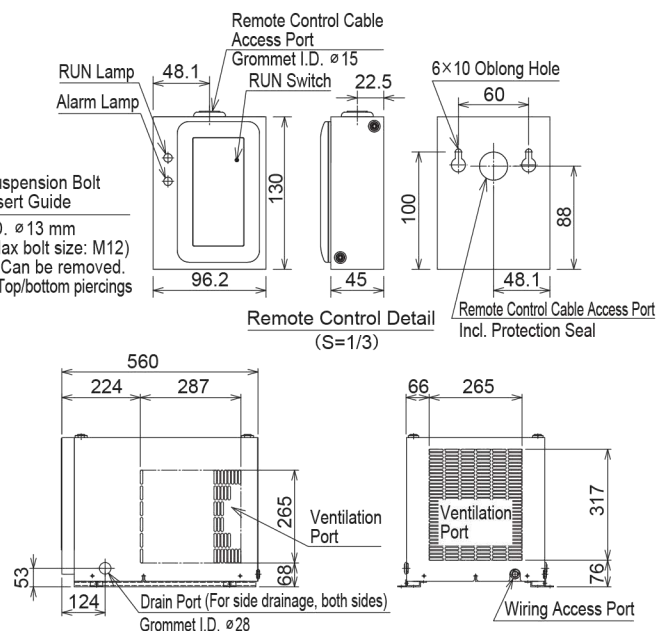
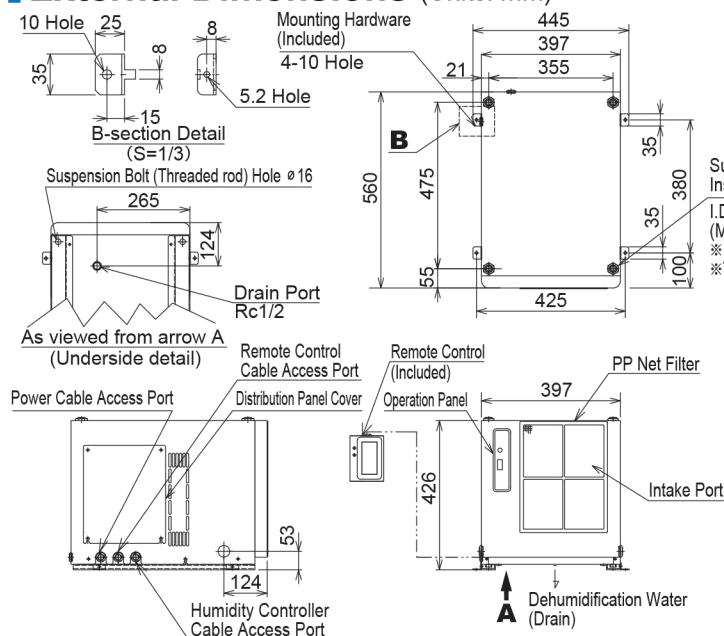
## Water Removal Capacity

--- 50Hz --- 60Hz

\* Performance curves indicate reference values only.



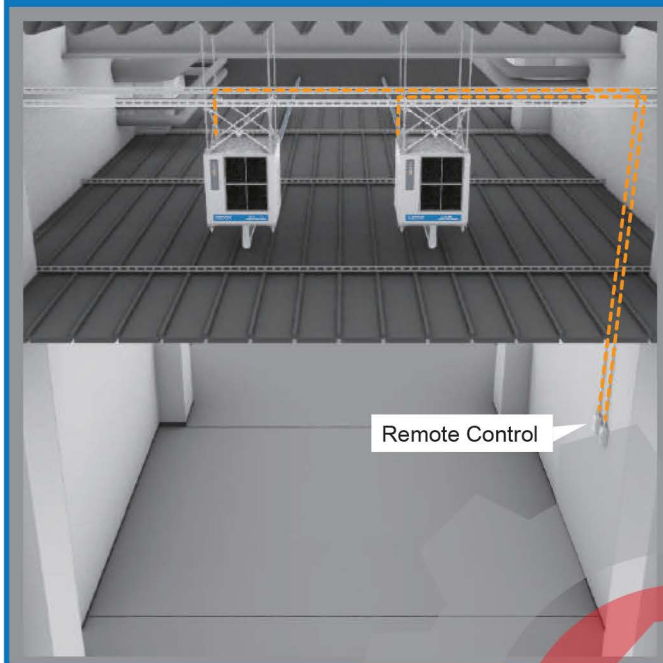
## External Dimensions (Units: mm)





## Installations of 1 to 3 Units

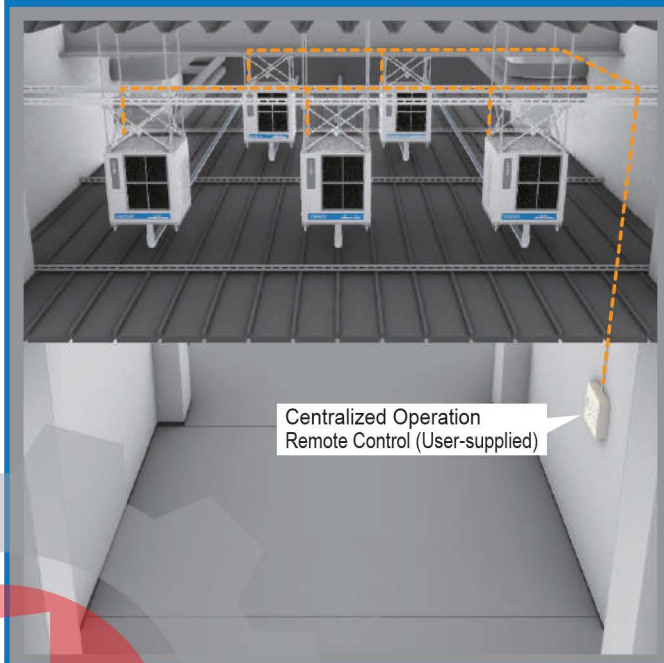
Run/stop operations, and confirmation of the operating state or the work area is possible using the remote control.



Remote Control

## Installation of Multiple Units

Centralized management is possible by using the operation and alarm signals of the RFB500F2-T-\*\*3\*\*\* models (without remote control).



Centralized Operation Remote Control (User-supplied)

## Ceiling-mounted Dehumidifier (RFB500F2-T) Optional Parts Configuration

The manufacturer's part number is 6 digits. Check the optional item part number of the desired items in the chart below and provide it to your dealer.

Product Model		Manufacturer Optional Item Number					
<b>RFB500F2-T</b>	+	<b>1st Digit</b>	<b>2nd Digit</b>	<b>3rd Digit</b>	<b>4th Digit</b>	<b>5th Digit</b>	<b>6th Digit</b>

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit	6th Digit
0 : Standard	0 : No power cable	0 : Incl. remote control No remote control cable	0 : Standard	0 : Standard	0 : Standard
1 : Corrosion-resistant spec.	1 : Incl. 5 m power cable	1 : Incl. remote control Incl. 15 m remote control cable	1 : Exhaust duct spec. $\phi 75$ (1 port)		1 : Inspection Results Chart
		2 : Incl. remote control Incl. 30 m remote control cable	2 : Exhaust duct spec. $\phi 150$ (1 port)		2 : Inspection Manual
		3 : No remote control No remote control cable	3 : Caster spec. (incl. casters)		3 : Test results chart + Inspection manual

※ The corrosion-resistant spec. does not guarantee long-term corrosion resistance under the warranty. The corrosion-resistant spec. includes, for the condenser, cationic electrodeposition coating, and corrosion resistance coating (painting) of exposed copper piping.  
 ※ The exhaust duct spec. includes 1 exhaust duct flange. A two-port duct chamber assembly is also available as an accessory (sold separately).

## Optional Accessories (These items sold separately)

### 1. Humidity Controller (Part No. 03107949020)

Setting range up to 90%RH.  
Terminal block connections.



### 2. Drain Pump (Part No. 0A005228000)

Use to pump out drain water. Use in installations that do not allow for sloping drain piping. ※ Carry out installation such that the drain water flows from the dehumidifier to the drain pump at a natural slope.



Single-phase 100 to 240 V (Separate power supply)  
Incl. malfunction/stop signal (terminal block connections)

### 3. Exhaust Duct Specification $\phi 150$ (2-port chamber assembly)

A 2-port intake duct that can be installed after construction is also available. (Special Order Spec.)

# Ceiling-mounted Dehumidifier RFB500F2-T

## Exhaust Duct Specification

## Ceiling-mounted Dehumidifier Exhaust Duct Spec. Configuration Possible

Solve humidity problems by delivering dry air where you need it.

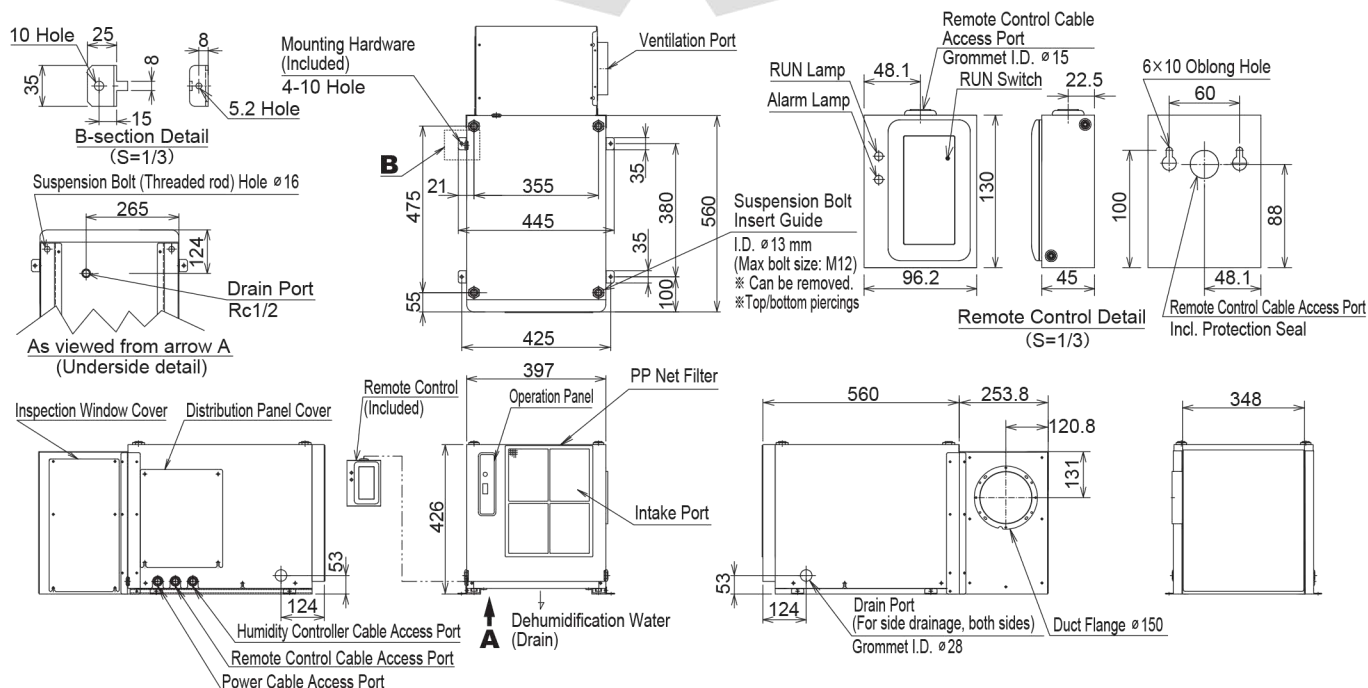
### Specifications (※Only items with specifications different from the standard model are listed.)

Item	Model	RFB500F2-T (Duct spec.)
外形寸法 (高さ×奥行×幅)	mm	426×814×397
製品質量	kg	47
電気特性		
消費電力 (50/60Hz)	kW	0.73 / 0.86
電流 (50/60Hz)	A	7.4 / 8.45
Blower Fan (Unit-side)	W	10
Blower Fan (Duct-side)	W	70
風量	※1 m <sup>3</sup> /min	8.5 / 8.7

※1 Indicated air flow is when the external static pressure is 50 Pa.

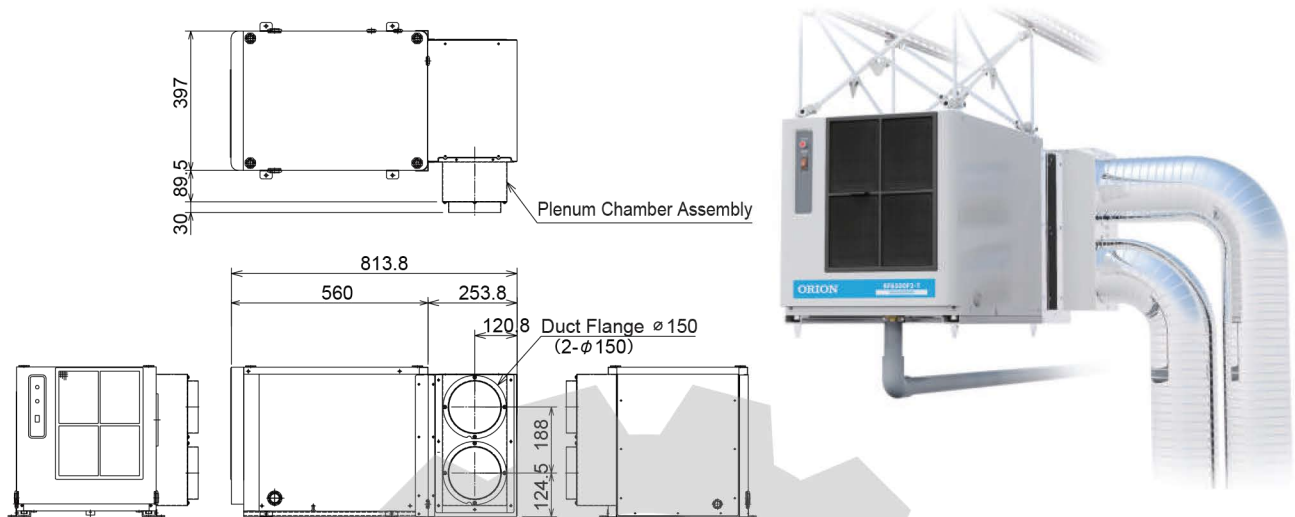
※ Ventilation ducting is not included and should be arranged on-site.  
 ※ See page 3 for details on water removal capacity and operating ranges.

### External Dimensions (Units: mm)



## Exhaust Duct Specification $\varnothing 150$ (2-port chamber assembly)

### External Dimension with Parts Installed (Units: mm)



## Caster Specification (incl. casters)

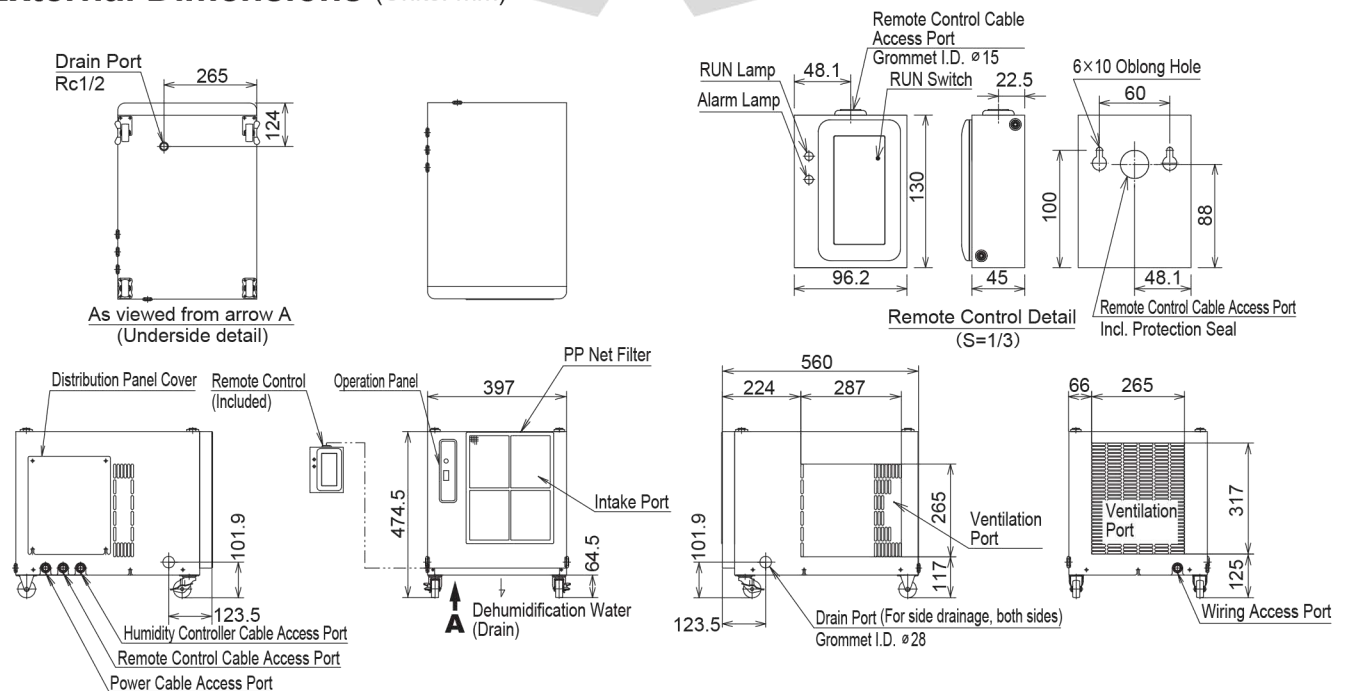
### Includes Casters for Easy Movement

Setting up dehumidification where you need it is easy thanks to our compact design with casters.

※ See page 3 for details on specifications, water removal capacity, and operating ranges.  
 ※ With Caster Specifications Front casters: Rotating (incl. stopper). Rear casters: Fixed.



### External Dimensions (Units: mm)





## Compact Dehumidifier Lineup

### Portable Type **Compact Dehumidifier**

#### **Compact and Portable Type** (4 Models)

Includes casters. Useful in a variety of industries from food-business to agriculture and service industries, etc.

#### **High-temperature Model** (1 model)

Considering drying efficiency, it can be used in high ambient temperatures of 45 °C.

Easy to move to where you need dehumidification thanks to the slim, compact, design and being equipped with casters.

Uses R407C HFC refrigerant with a zero ozone depletion potential.

1. Improved corrosion resistance from cathodic electrodeposition coating of the evaporator.
2. Uses readily available single-phase 100 V power. (RFB500F1, RFB500F1-L)
3. Easy to move to where you need dehumidification thanks to the slim, compact, design that includes casters. (The easily movable RFB500F1 model has many available options.)
4. Models suitable for drying in high-temperature environments (up to 45 °C) are available. (RFH1500F)



See our "D-RG06 Industrial-use Dehumidifier Catalog" for further details.



RFB500F1



RFH1500F

#### Refrigerant Management

Some of the products in this catalog contain HFC refrigerants. Refrigeration technologies that use HFC refrigerants are essential for achieving efficient temperature control, and while such technologies make great contributions toward saving energy, there is also concern of the impact that the accidental release of HFC refrigerants into the atmosphere has on global warming.

When dealing with HFCs, please ensure compliance with laws and regulations and be sure to manage them appropriately for your safety and for the protection of the environment.

#### ●GWP Values of Refrigerants Used in Our Products

Refrigerant	Global Warming Potential (100-year GWP)
R407C	1770

ORION is continuing to develop a complete and trustworthy nationwide network of expedient sales and service -- everywhere, anytime.



\*ORION has wide reaching regional service bases in various countries throughout the world.  
Please consult your ORION dealer for details.



ISO9001 / ISO14001 obtained  
at Main Plant, Koshoku Plant  
and Chitose Plant.



We at ORION Machinery support the Sustainable Development Goals (SDGs).



※ Warranty period of the refrigerant circuit is 2 years from the date of purchase (or 10,000 hours of operating time).

#### For Orders and Inquiries:

#### **ORION MACHINERY CO.,LTD.**

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This catalog contains product specifications as of August, 2023.

● Actual product colors may vary slightly from the pictures.

● Please note that the structure or specifications of products contained in this catalog are subject to change without prior notice.