

**MAYEKAWA**

**CO<sub>2</sub> Heat Pump Desiccant Dehumidifier**

**C H R I S**  
c h r i s

*Smart Solution For  
Condensation Problem!*

Remarkably  
effective  
in low temperature  
circumstances

"chris" has the total C.O.P of over 6 decreasing drastically energy consumption.  
In addition it uses natural refrigerant carbon dioxide, which is friendly to environments.



PATENTED

# Solution To Condensation Problem

"chris" makes it possible to dehumidify in low temperature circumstances with more energy-saving operation applying a heat pump using carbon dioxide as regeneration heat source.

## "chris" surely realizes dehumidification in low temperature circumstances

Dry air dehumidified by honeycomb wheel is cooled by CO<sub>2</sub> heat pump, returning the cooled air to inside achieving dehumidification in low temperature circumstances.

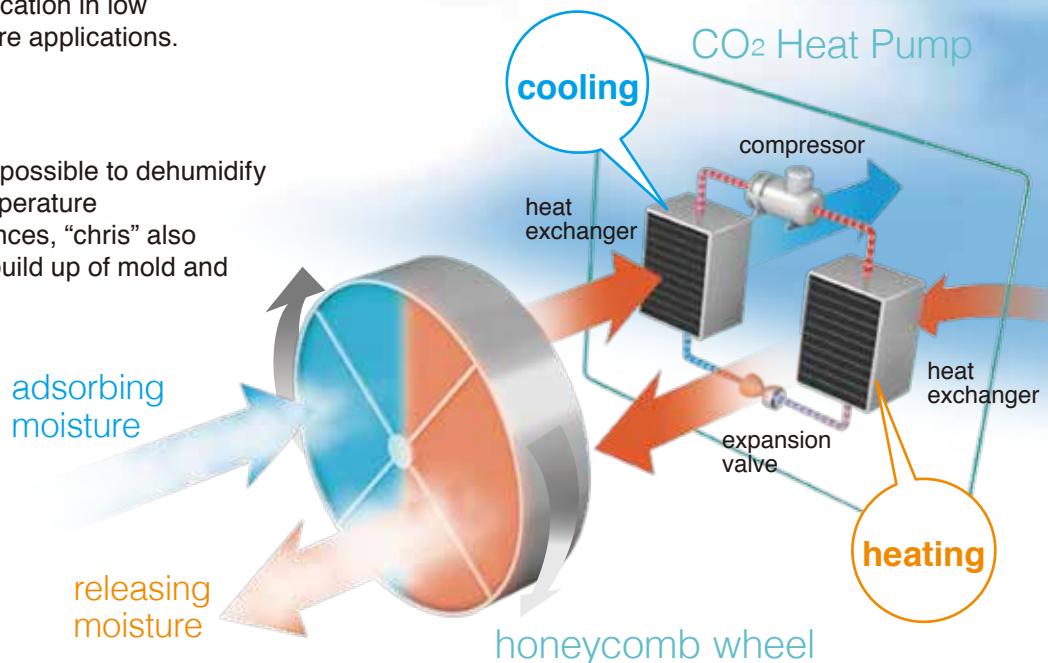
### Preventing Condensation

Adopting the honeycomb wheel method absorbs moisture in the air – "chris" performs dehumidification in low temperature applications.

### Sanitary Circumstance

Since it is possible to dehumidify in low temperature circumstances, "chris" also prevents build up of mold and rust.

### Heat pump desiccant method

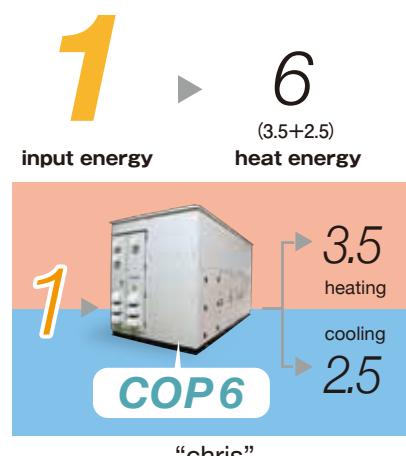
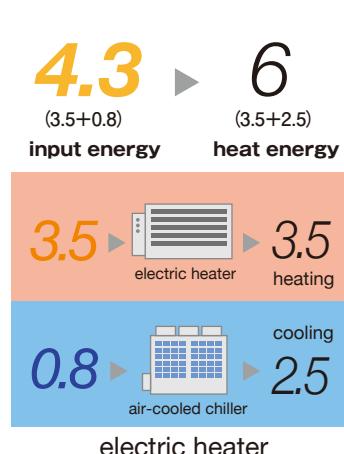


## The energy-saving effects of Heat pump

Conventional desiccant dehumidifier system uses an electric heater or a steam generator while dry air after adsorption requires chiller because its temperature increases. Therefore energy consumption is huge and users have to share the big cost.

"chris" uses a heat pump which performs cooling and heating by itself dramatically reducing power consumption of entire unit.

### Power consumption comparison with the conventional desiccant dehumidifier system



# Application examples

## Nippon Logistic Center, Inc.

**Adopted “chris” in the dispatch and receiving rooms.**

**Humid wind blew from the south west.**

**“chris” prevents condensation and is also effective for building maintenance.**

Engineering know how, “chris” helps to prevent condensation, caused by moist air from outside (temperature below zero degrees)

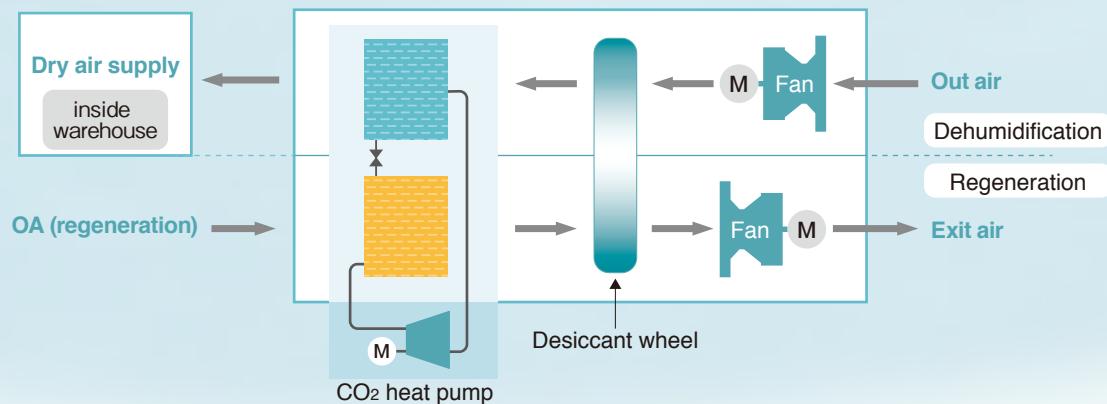
Before installation

Condensation was so bad that there were puddles on the floor.

After installation

**Not only preventing condensation but also effective for building maintenance**

### Schematic flow diagram



### Photo



## Customer's voice

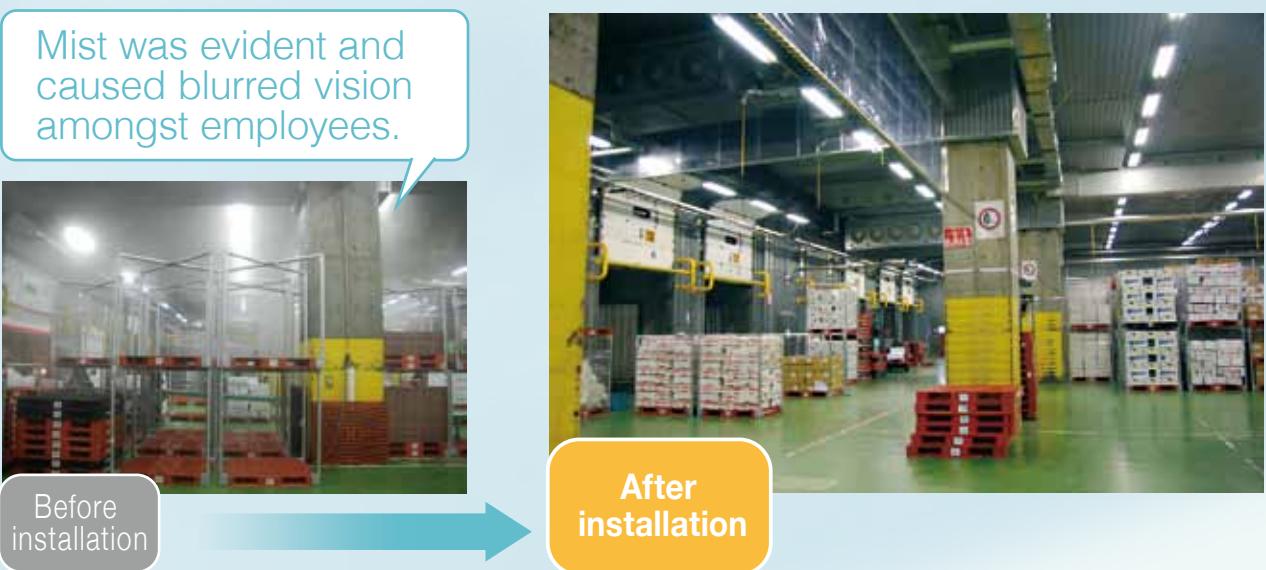
In the rainy season, ambient air blew in from the south west, causing dew and condensation. We would experience “wet floors”. We adopted “chris” as condensation prevention.

**During off operating hours “chris” dehumidifies stably.**

Since “chris” is operating 24 hours a day, while the warehouse is not operating, it is always dehumidifying. It brings a massive effect.

Even when a truck stops at the shipment berth there is no mist at the entrance and both ceiling and pillars do not get wet and no puddles accumulate. So, a safe environment is maintained.

## ■ The difference between before and after installation



**It is likely that the amount of building maintenance and washdowns will be decreased.**

We had to regularly repair concrete floors due to rust accumulating where there were small cracks in the floor. The door expansion springs constantly become wet and rusty. The cost of building maintenance will be greatly reduced with the "chris" unit.

# Application examples

## Saitama Ice Arena



▶ adopted “chris” in ice arena

Comfortable ice rink conditions have been achieved.



## Frozen Food Logistic Center



▶ adopted “chris” in anti-room

The number of defrosts have been drastically decreased.



## Livestock Logistic Center



▶ adopted “chris” in portioning room of abattoir

Room conditions became more comfortable.



Specifications	
Model	DH-2HT-Cs3
Installation dimensions (mm)	L 4,310 × W 2,180 × H 2,380
Maximum dimensions (mm)	L 4,500 × W 2,300 × H 2,480 (including ducts)
Weight	5,000kg
Power	3phase × 200V × 50/60Hz × 35kW <sup>※3</sup>
Major components	Fan(dehumidification/regeneration)
	Desiccant wheel
	CO <sub>2</sub> heat pump
Options	Pre-cooler
	After-heater

### Operating range

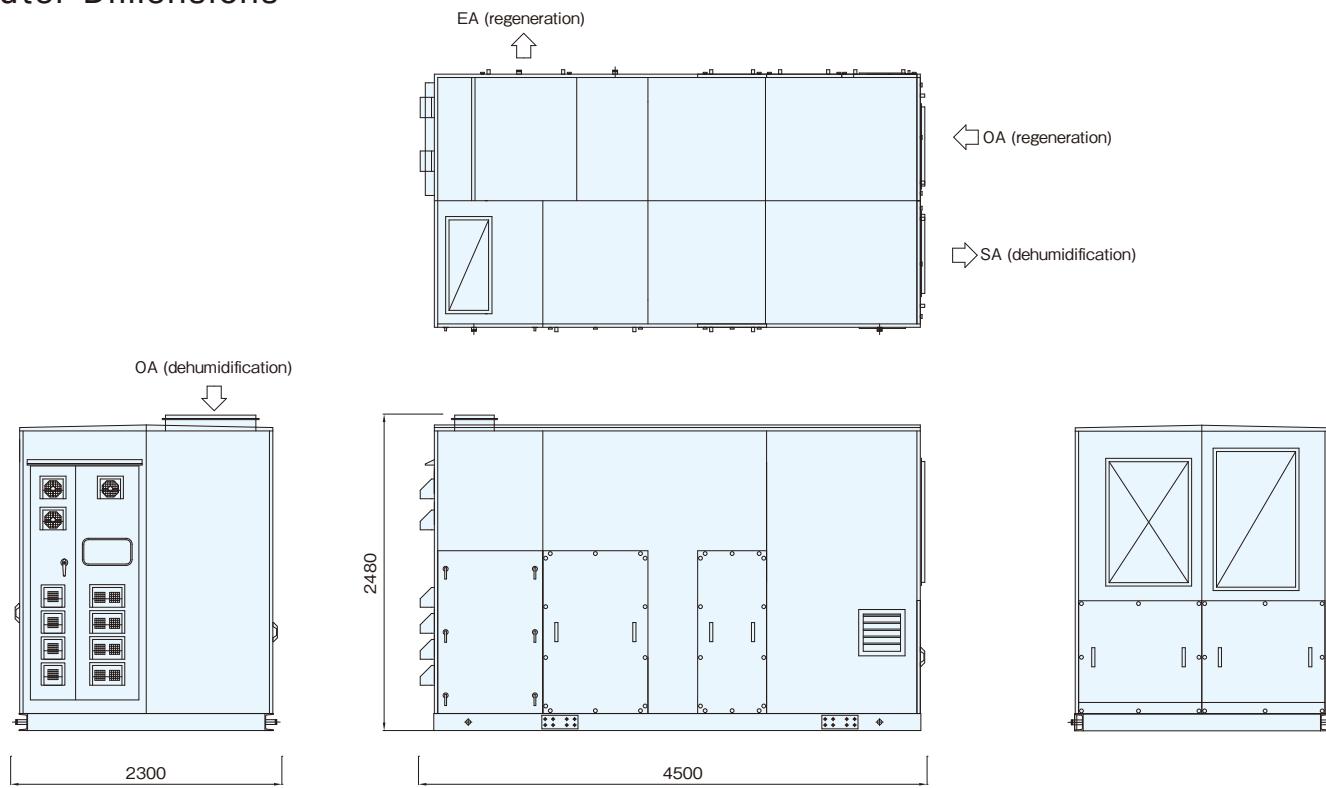
Dehumidification	Intake air flow rate	3,000 to 8,000m <sup>3</sup> /h
	Inlet temperature	0 to 40°C
	Inlet relative humidity	98%RH or less
Regeneration	Inlet temperature	-10 to 40°C
	Inlet relative humidity	98%RH or less

※1 Operating range shows the reference values only. Under out of the operating range it may be possible to operate this system so please consult Mayekawa.

※2 The conditions of static pressure outside of the machine may affect the operating range.

※3 It is also available in a different voltage. Please contact Mayekawa.

### Outer Dimensions



※Make sure to maintain 1m around the unit as maintenance space.

**MAYEKAWA  
MYCOM**

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