Products Information



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ORION PRODUCTS

ICHI VIETNAM INDUSTRIAL EQUIPMENT CO.,LTD

Precision Air Processor

Under the slogan "From general air-conditioning to precision local air-conditioning," we offer the "PAP" (Precision Air Processor) Series of air-conditioners featuring our latest proprietary technology – "heat pump balance control." Patented

Series PAP_® mini Light Duty

PAP Temperature Control

PAP Temperature & Humidity



- Processing air flowTemperature accuracy
- Temperature range Humidity accuracy

Humidity range

0.7~4m/min ±0.1°C ±1% 45~75%



- Air-cooled Processing air flow 3~20m/min Temperature accuracy
- ±0.1℃ Temperature range 18~30℃



- Processing air flow 3~40m²/min Temperature accuracy
- +0 i°C Temperature range 18~30℃



- Processing air flow 3~20m²/min Temperature accuracy +0 1°C
- Temperature range 18~30℃





+0 1°C

Water-cooled

Processing air flow

3~40m²/min Temperature accuracy

PAP10A1-K



PAP10A1

PAP10A1-W

PAP Temperature & Humidity Control Type, R Series

PAP Type D

PAPO1B

PAP Type L

Air-cooled

High Accuracy Temperature & Humidity Control Unit "Air Processor"

The circulating type air circuit

easily enables low to high

For clean rooms and measurement rooms Thanks to heat pump balance control (by waste heat utilization) we offer, Ultra Energy Savings & High Accuracy Temperature

23~80m/min



- Humidity range20~40%
- Temperature accuracy ±0.1℃

PAP03A-D



PAP05A-L







AP1500MVK-E

Temperature accuracyTemperature range ±0.2℃ 18~30℃ Humidity accuracy ±2%
Humidity range 45~60% Humidity range ORION ANDRESS

PAP20A-KR (Temp & Humi,control type)

Constant Temperature (Constant Humidity) Rooms

ORION proposes construction of a high precision air processing system made of localized high quality spaces that can minimize the utilization of limited energy.



Energy Saving Dry Room System

Processing air flow

Stable supply for a dry air space at dew point temperature of -60°C

A strict low humidity environment is required in many fields. (lithium ion battery, capacitor production, medical supply production, manufacturing processes or etc.) In answer to the needs of such manufacturing processes, ORION brings to the table its original dehumidifying system that offers a waste-free, energy saving, ultra-low humidity environment.



Pre-cooling + dehumidifier modular design





- CO₂ emission -13,940kg-CO₂/year
- Operation cost -JPY510,000/year

Precision air with energy saving in Heat Pump Balance Control



Power source capacity and power consumption comparison

PID heater Completely no heater

Heater Compressor

Blower fan 10%

Blower fan 10%

Compressor

(DC brushless matter)

Max. 80% energy saving

Precision air conditioning is used in productior fields demanding precision temperature and humidity controls.

Most precision air conditioners are equipped with PID heater control which results in large power consumption.

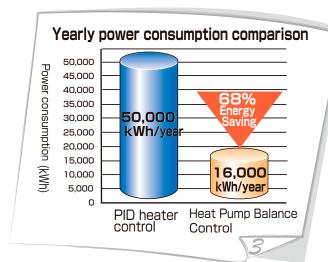
Power consumption comparison

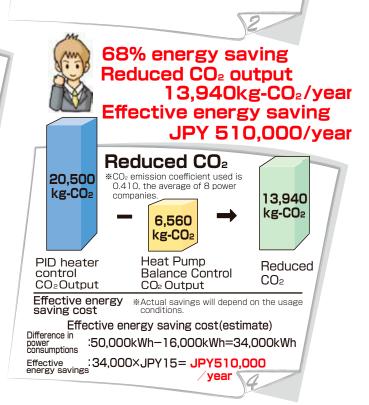
MODEL: PAP20B1-(F)W

Yearly running hours: 5.000hours

Electricity cost: JPY15/kWh

※Yearly electric power consumption for PID heater on trol is calculated as the rated power consumption x 0.85 considering maximum electric power is not continuously required.





Vacuum Pump

ORION Machinery was the first company in Japan to introduce oil-less rotary vacuum pumps. Low noise and durable, our dry pumps are considered indispensable for automation and laborsaving devices for a variety of industries, e.g. printing, semiconductors or etc.

Vaneless Pump

Inverter oil free vacuum pump **KCE Vacuum Series KCE Blower Series**

Oil free vacuum pump **KCP Vacuum Series KCP Blower Series**

Patented Double layer cover construction for low noise

Patented High efficiency exhaust construction

First in industry vacuum pump packaged with built-in inverter. Our high efficiency twin rotor gives a high flow rate using less power.

Vacuum application Continuous vacuum Max. 80kPa Capacity 192 616m3/h



Blower application Continuous vacuum Max 80kPa Capacity 192 308m3/h







Vacuum application

Continuous vacuum Max. 80kPa Capacity 79 ~ 308m3/h

Blower application Continuous vacuum Max. 100kPa Capacity $79 \sim 308 \text{m}^3/\text{h}$

Vane Pump

Standard Type

Free rotor drive - no side clearance adjustment necessary

Continuous vacuum Max. 55 kPa Capacity 29L/min(60Hz)



KM41A-101-G1

Oscillating Piston Pump KYP Series

KCF190A-01

- Oil free
- Low noise light weight

Ultimate vacuum $10.7 \sim 2.7 \text{kPa[abs]}$ Capacity 85L/min(60Hz)



KYP90-101-G1

Standard Type **KRF Series**

 CE Marking Certified Low noise operation. Long life

Continuous vacuum Max. $50 \sim 75 \text{ kPa}$ Capacity $75 \sim 155 \text{L/min}(60 \text{Hz})$



Standard Type **KRF** Series

CE Marking Certified

Quiet operation - Noise level reduced by 3dB (in-house comparisons)

Continuous vacuum Max. $60 \sim 80 \text{ kPa}$ Capacity 280 \sim 685L/min(60Hz)





Large Standard Type

KRF Series



High vacuum pump

KHA Series

Combination Type **CBF Series**

Combination Type CBX62, CBX62A

2-cylinder (vacuum and pressure) design allows Low noise design (in-house simultaneous operation of vacuum and pressure for requirement below 60kPa.

Continuous vacuum Max. 60kPa - 685L/min(60Hz)



CBF4040-VB

Continuous vacuum Max. 60kPa Capacity 1115L/min(60Hz)



CBX62-G1

Combination Type Package Direct coupling high vacuum Type **CBXP Series**

KRF08A-V-01

comparisons) Reduced $3 \sim 5 db$ Continuous vacuum Max. 60kPa



CBXP8080B-VB

KHF Series

Continuous operation at ultimate vacuum pressure Ultimate vacuum 8 kPa[abs] Capacity





Continuous operation at ultimate vacuum

Ultimate vacuum 8 kPa[abs] Capacity 65 ~ 400L/min(60Hz)



Accessories

High vacuum pump **KHH251**

Continuous operation at ultimate vacuum (max.1.3 kPa[abs])

Ultimate vacuum .. 1.3 kPa[abs] Capacity 179L/min(60Hz)



KHH251-101

Side Channel Blower **2BH Series**

Low pressure vacuum / compressor pump Blower pressure

5.5 ~ 32.0 kPa(60Hz) Vacuum pressure 5.5 ~ 30.5 kPa(60Hz) Capacity 1480 ~ 10170L /min(60Hz)



2BH1-490-7AH11

Silent Box **KCS Series**

Soundproofing box for vacuum pump 5 to 10 dB reduction in pump noise





Air Station AS135 Series (BTO) Vacuum pump and

blower system box

AS135A

AS135W

Water Separator RA41 · RA42







Maximum vacuum may decrease with elevation of the installation site.

- · CO2 emission -1 1,470kg-CO2/year
- Operation cost -JPY172,100/year

Inverter oil free vacuum pump for energy saving



KCE380A-01

KCE190A-01





57% saving energy of power receiving capacity and maximum power consumption

New system 4.4 kW

849

Converting energy saving to electricity and CO₂ reduction,

Operation for 8 hours/day, 243days/year. —111,

-11,470 kWh/year

Electricity cost reduced by

JPY**172,100**/year

CO2 emission reduced by

4.71 CO2/year

*2 The amount of CO2 emissions to produce electricity 1kWh = Electricity (kW) × coefficient 0.41 kgCO2

on JPY15/kWh

Effective

Increasing 25% of air volume even with one size smaller motor output

Economy

Automatic control of rotation speed related to the customer loading volume; 50% of electricity for 50% load.

Ecology

Noise level 65~68dB, reducing the discomfort to operators

Only KCE190, 380

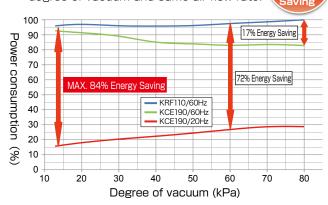


Energy Saving

(KCE KCP)

Automatic recognition of vacuum pump load conditions.

Great energy savings with the same degree of vacuum and same air flow rate.



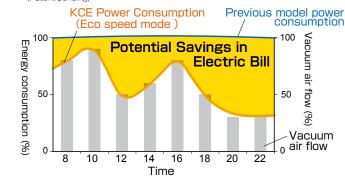
KCE KCP



for reduced electricity cost!

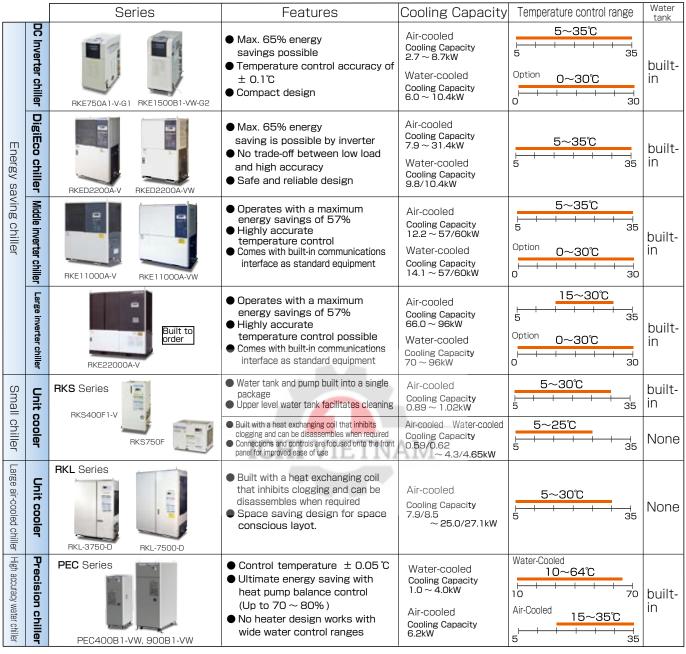
As seen in the graph below, the KCE brings its speed down to the capacity of vacuum air being used by the user for lower energy use.

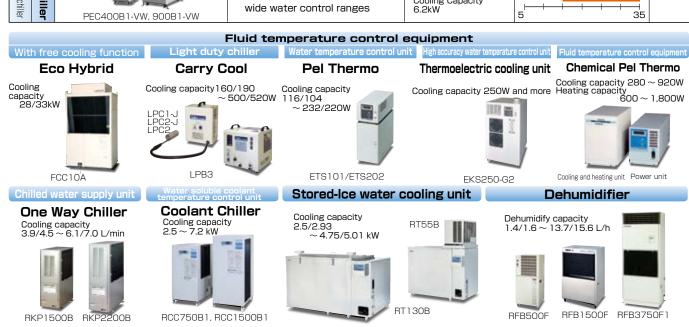
 $\ensuremath{\mbox{\%}}$ Saves energy by optimally adjusting the motor speed to match various load changes. (Patent pending)



Chiller & Dehumidifier

Orion water chillers cool down and/or control the temperature of a heat source by circulating water at a preset temperature. A refrigeration unit and a water supply system (water tank and pump) are packaged in one to easily serve a variety of applications. Dehumidifiers are widely used across a wide spectrum of industries, e.g. food processing, storage or molding, etc.



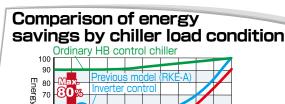


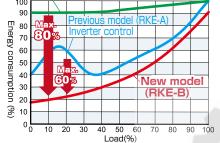


· CO2 emission -4,075kg-CO2/year

Operation cost -JPY149,100/year

Save energy with inverter chiller!





**HB control···Hot gas Bypass control, which controls the water temperature by passing hot refrigerant gas in the refrigeration circuit.



While power consumption of HB control chiller does not change much even when the cooling load is low because the compresser continuously runs at a constant speed, that of ORION inverter chiller follows the cooling load.

Compared condition

Models: RKL-3750V-C1(HB control)

 RKE3750B-V (Inverter chiller)

Setting water temp.: 20°C Max. load : 11.6kW Min. load : 1.2kW Avg. load : 6kW

Running hours: 10hours/day

(250days/year)

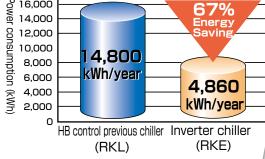
Electricity bill : JPY 15/kWh



There is a big differences between max. and min. loads.

Average load may be about half of max. load.

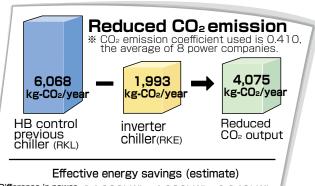
Yearly power consumption comparison P 16,000





67% energy saving Reduced CO2 4,075kg CO2/year JPY149,100 saving/year

Inverter chiller may be the best solution for energy saving if cooling load greatly fluctuates.



Difference in power: 14,800kWh-4,860kWh=9,940kWh

Effective energy savings :9.940×JPY15=

JPY 149,100/year

Compressed clean air system

Orion Clean Air System equipment includes clarification of compressed air and oil-water separation of drain. It maintains quality of compressed air supplied to pneumatic equipment and contributes to clean environment.

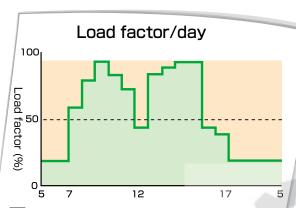
| | Series | Features | Air processing capacity | Inlet air temperature | Suitable air compressors |
|------------------------|---|---|--|-----------------------|---|
| Refrigerated Air Dryer | RAX light duty series RAX6J RAX37J | SUS shell heat exchanger Preventive measure safety design Air intake filter standard equipment | Air-cooled RAX3J ~ 55J 0.32/0.37 ~ 8.9/10.4 m³/min Water-cooled RAX55J-W 9.1/10.4 m³/min | 5~50°C / PDP 10°C | Air-cooled 3 ~ 55kW Water-cooled 55kW |
| | RAX heavy duty series RAX300F-E RAX240F-W | SUS shell heat exchanger Pressure loss less than 0.015MPa Easy maintenance and layout set up | Air-cooled RAX75F \sim 380F-E 11/13 \sim 59/69 m³/min Water-cooled RAX75F-W \sim 450F-WE 12/14 \sim 83/98 m³/min | 5~60°C / PDP 10°C | Air-cooled 75 ~ 380kW Water-cooled 75 ~ 450kW |
| | RAX-SE RAX high temp. inlet seriesinlet series RAX22J-SE RAX75F-SE | SUS shell heat exchanger Pressure loss less than 0.015MPa | Air-cooled RAX3J-SE ~ 75F-SE 0.32/0.37 ~ 11/13 m³/min | 5~80°C / PDP 10°C | Air-cooled 3∼75kW |
| | RAX-H RAX-H medium pressure series RAX3.7J-H, 15J-H | SUS shell heat exchanger Working air pressure up to 1.57MPa | Air-cooled RAX3.7J-H ~ 15J-H 0.36/0.42 ~ 1.3/1.5 m³/min | 5~80°C / PDP 10°C | Air-cooled 3.7 ~ 15kW |
| | RAXE-SE DC inverter control for high temp. Inlet applications RAXE740B-SE RAXE1100B-SE | Max. 65% energy savings Safe and dependable design plus additional functionality Environmental friendly, RoHS | Air-cooled RAXE740B-SE/ 1100B-SE 7.4/10.6 m³/min | 5~80°C / PDP 10°C | Air-cooled 37 ~ 55kW |
| | PAXD Digital control for high temp. inlet applications RAXD75A-SE RAXD100A-SE | Max. 68% Energy Savings High Temp. Air. Processing Model Safe and reliable design | Air-cooled RAXD75A-SE/100A-SE 13.9/15 • 19.7/22 m³/min | 5~80°C / PDP 10°C | Air-cooled 75 · 100kW |
| | Inverter control RAXE4900A RAXE2300A-W | Comes with energy saving dew point sensor Max. 60% energy savings Suitable for low pressure applications | Air-cooled RAXE2300A ~ 9800A 23 ~ 82 m³/min Water-cooled RAXE2300A-W ~ 29600A-W 23 ~ 296 m³/min | 5~60°C / PDP 10°C | Air-cooled 120 ~ 450kW Water-cooled 120 ~ 1300kW |





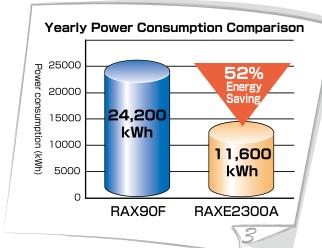
- CO₂ emission -5,186 kg-CO₂/year
- Operation cost -JPY189,000/year

Energy Savings by Inverter Air Dryer!



Graph data assuming a part of factory lines are operating 24 hours

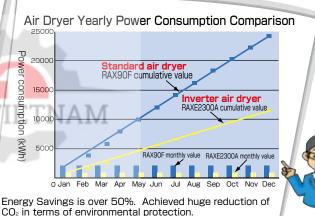
Below is a chart comparing the actual power consumption of the inverter air dryer and general air dryer. The inverter air dryer achieves great energy saving.





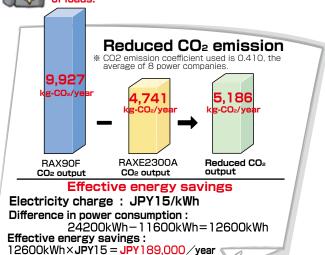
RAXE1100B-SE

Standard Air Dryers constantly operate at a 100% load, resulting in high energy consumption. The inverter air dryer adapts to fluctuations in the load for potentially lower power consumption.



52% energy saving
Reduced CO₂ 5,186 kg CO₂/year
JPY 189,000 saving/year

Key points in utility room are, understarding of air consumption and change of pressure, and tractability of loads.



Compressed clean air system

Orion Clean Air System equipment includes clarification of compressed air and oil-water separation of drain. It maintains quality of compressed air supplied to pneumatic equipment and contributes to clean environment.

Compressed clean air system

Super Filter

DSF/LSF/MSF/KSF

Air processing capacity $0.35 \sim 318.9 \mathrm{m}^3/\mathrm{min}$

Removing water droplet, solid particle, oil mist and oil vapor



Final Filter

OFF/OFH series

Air processing capacity $0.26 \sim 1.06 \mathrm{m}^3/\mathrm{min}$ Meets Air Purity Class 3 · 5



Membrane Type Final Filter Medium Pressure Spec. Filter

ISO 14644-1 Air Purity Class 3 (F.S.209D Class 1) fine particulate removal



DFH/LFH/MFH/KFH series Air processing capacity $5.7 \sim 29.0 \,\mathrm{m}^3/\mathrm{min}$

Working pressure 1.57 MPa



Automatic drain release equipment **Drain Trap**

Drain Trap "Solenoid Type" "Timer Type"

Automatic drain release of water and oil drainage

ADE4B





"Float Type" "Disc Type" "Motor Valve Type"

Automatic drain release of water and oil drainage



Aftercooler

Water-Cooled Aftercooler Air-Cooled Aftercooler

Dew Point Monitor

SE

Air processing capacity 1.0 ~ 6.9m³/min

Pre-cooling of compressed air



TH/THP

Air processing capacity 1.7 ~ 393m³/min

Suitable for pre-cooling of compressed air in hot ambient condition



Compressed air tank

SUS compressed air tank

OAT Volume $65 \sim 1090L$ Tank built with SUS304



Air Tank MST

Volume 39 ~ 3000L



MG

Simultaneous display of temperature and humidity or dew point





MGR

Measurement and digital display of dew point and temperature

Dew point display $-30 \sim +20$ °C resolution 1/10 Temperature display $-20 \sim +80^{\circ}$ C resolution 1/10



MGR20

Digital Differential Pressure Gauge

Differential pressure detection for optimum air filter management

Differential pressure display range $-1.050 \sim 1.050 MPa$



DG · DGX · **Element Life Indicator**

Differential pressure gauge

Measures difference in pressures between inlet and outlet of a filter in a single gauge.

Differential pressure display range



Filter Type Drain Processing Equipment

Pico-Drain

No electricity required. Lightweight, Space saving, Energy saving

Main-processing concentrations below 5mg/L

ODF5



Compressed air drain processing equipment

Drain Processing Equipment - Drain Master

Meets Water Pollution Control Law effluent standard. Greatly reduces condensate treatment cost.

OWD/OWC · OWM



Industrial Heater

Orion Jet Heaters are widely used for heating/drying applications including concrete cure at construction sites and factory/warehouse heating. They are eco-friendly with our technologies for quiet combustion and enhanced fuel efficiency.

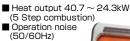
Jet Heater BRITE IR Heater

ECO-SILENCE HRR480A-S

ROBO-DAN HR120D

HR220A

Quiet combustion and high fuel efficiency







Quiet operation during ceremony





■ Heat output 14.1kW

Operation noise

(50/60Hz)

55/55dB

den struction 60 m Concrete construction 83 m²

■ Heat output 24.3kW ■ Operation noise (50/60Hz) 66/66dB





Jet Heater BRITE IR Heater

BRITE II HR330H

HR330E-L

Carry-Dan GH150H

■ Heat output 38.8 ~ 28.1kW

■ Operation noise (50/60Hz) 62/62dB

Super Swing HRS330



- Heat output $38.8 \sim 28.1 \text{kW}$ Operation noise
- (50/60Hz) 62/62dB
- Guideline of heat capacity Wooden construction 159 m² Concrete construction 218 m²
- Heat output 35 0kW (50/60Hz)
- Operation noise 65/65dB
- Wooden 149 m crete 205 m
- Heat output 167~81kW Operation noise
- (50/60Hz) 48/50dB











HPE80A

Jet Heater Portable/Blow Heater

HPE150A E Series

HPE250 E Series

High 29.2kW Low 20.0kW

- - HPE310-L E Series

■ Heat output 35.0kW

- Heat output
- High 8.8kW Low 6.3kW Operation noise (50/60Hz) 58/54dB



- High/Low 2 stage combustion
- Equipped with rotary gas burner





- Heat output 17.0kW ■ Operation noise
- (50/60Hz) 70/70dB



- Operation noise Operation noise (50/60Hz) 68/69dB (50/60Hz) 68/69dB
 - 2 stage combustion

■ Heat output







Jet Heater Portable/Blow Heater

HPE370 E Series

■ Heat output

- High 43.0kW Low 32.0kW
- Operation noise (50/60Hz) 70/71dB

2 stage combustion 2 step air flow



HPS830A ■ Heat output 97.2kW

Operation noise (50/60Hz) 74/78dB



Jet Heater HS Heat Exchange/Blow Heater HS290-L

- Heat output 33.3kW Operation noise (50/60Hz) 72/74dB
- Delivers clean hotair by duct





Temperature Test Chamber

Orion products for environmental testing have demonstrated their reliability in applications for leadingedge industries such as semiconductors, LCDs and quartz oscillator requiring highly accurate temperature/humidity controls and providing severe temperature conditions for electronic devices testing.

ESV Compact Type Vertical Test Chamber

Suitable for reliability test



Turn Table Type Thermostatic Chamber

Energy saving no heater low temp. test chamber

Cost effective, turn-table type thermostatic chamber



 New thermostatic test chamber with improved workability



Thermostatic environmental test chamber **Thermal Stream**

Temperature and humidity control test

 Test temperature range between -40 and 100°C while even with the slide door open half

 Temperature control range : -40°C~+ 100°C



In-line temperature test chamber

Single temp. range Provides temperature characteristic

test in line for automobile parts and

Thermal testing from -40 to $+125^{\circ}$ C

possible even when the loading/ unloading access is open.

crystal oscillator

Multi temp. range вто

- Multi chambers with different temperatures can be installed to meet
- various application requirements. Suitable for characteristic test of crystal oscillator and sensor at each temperature.

In-line micro device temperature test chamber

(Peltier Method)

- Suitable for micro device high/low temperature test
- In-line temperature test chamber for small
- Fully automated thermal inspection. for labor saving

In-line curing oven

- Rack conveyor or multi-carrier allows plenty of work processing.
- Suitable for adhesive curing, etc. Processes large amounts of work pieces compared with batch type.









Food Equipment

Orion Food Equipment contributes to cooking system innovation and development of the food culture. Rapid cooling equipment is indispensable for safe food production.

Dryman

- Food dryer without heater Precise and wide range
- temperature settings



RDF350A

Pico Blast

- Rapid cooling unit Compact to fit into
- an existing kitchen

- Rapid cooling and freezer
- Washable inner walls

Blast Chiller & Freezer Chilledman Carry

- Most fresh food stocker
 - without air flow
- Hard to dry out without plastic wrapping



RPB5



RB202A



RV350G-G1

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