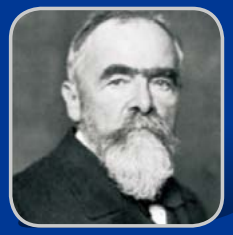
SUPERMARKET

Commercial Refrigeration Total Solution

In 1902, Dr. Willis Carrier invented the first modern air conditioning system in the world, which making him one of the 100 most influential people of the 20th century.



In 1877, the first refrigeration technology invented by Mr. Carl von Linde was patented, marking the application of modern refrigeration technology in scientific research, industry and commerce and families.

Haier Carrier

Haier Carrier Refrigeration Equipment Co., Ltd.(Haier Carrier) is a joint venture established by Haier Group and US Carrier in 2001. After more than ten years of development, it has become one of the plants using the same technologies as the Carrier HQ. Its products include supermarket display cabinets, compressor units and inverter condensing units(scroll, piston and screw), and heat exchangers(air-cooled condenser and air cooler). It can provide customers with whole sets of frozen and chilled solutions. Relying on the support of Carrier's R&D centers in Mainz, Germany and Shanghai, China, the company now has several nationally recognized laboratories, and by constantly updating its products and system technologies, Haier Carrier is committed to providing its customers with CO2OLtec transcritical system and other advanced energy conservation and environmental protection systems.

In the past ten years, relying on abundant resources of the parent company, Haier Carrier has become a world-class facility that owns the IS0 9001, IS0 14001 certifications, the ACE certification of United Technologies(Carrier's parent) and other certifications. With strong R&D strength, Haier Carrier is able to provide world-class freezing and refrigerating integrated solutions such as D2D hot gas defrosting(national patent), supermarket cold chain and air-conditioner association system, refrigeration and hot water association system, HybridCO2OL(carbon dioxide cascade refrigeration technology), and CO2OLtec(carbon dioxide transcritical refrigeration technology).

Carrier / United Technologies Corp.

Carrier is the world's leader in heating, air-conditioning and refrigeration solutions. Carrier is a part of UTC Climate, Controls & Security, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide. In 2017, the global sales of United Technologies Corp., reached 59.8 billion USD.

Haier Group

Since its establishment in 1984, Haier Group has become a global leading provider of better-life solutions. In the era of the Internet and the Internet of Things, Haier has transformed from a traditional manufacturing enterprise into a win-win IoT community ecology, leading global companies to establish an ecological brand of Internet of Things economy. Up to now, Haier Group boasts 10 R&D centers, 24 industrial parks, 108 manufacturing plants and 66 marketing centers across the world.

In 2017, the Haier Group achieved a global turnover of 241.9 billion Yuan.

REDUCE YOUR CARBON FOOTPRINT AND ENERGY COSTS. NATURALLY.

Let's Work Together!

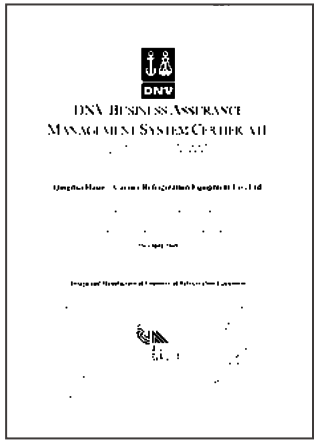
Qualification Certificates

2017-2018 Golden Cold Chain" Award - in China's Cold Chain Industry
Top Ten Refrigeration and Thermal Insulation Equipment Suppliers

National Industrial Product Production License

GCCA Credit Certification

The Best Partner Award
Lawson East China 1000 Stores Achievement Award



DNV Business Assurance
Management System Certificate

Environmental Management System
Certificate

Utility Model Patent Certificate

History of Innovation

With Haier Carrier, innovation is our philosophy all the time

2001

The company was established

2003

It started its export business

2004

It started to cooperate with internationally famous chains

2004

Linde Refrigeration group was acquired by Carrier Corp

2007

The first D2D unit was installed in China

2008

Former Linde Plant merged with Haier Carrier

2009

It obtained ACE Silver certificate

ACE
Achieving Competitive Excellence
The United Technologies Operating System

2012

The first store with CO_2 pumping system opened

2013

It obtained EEL energy efficiency certification

2014

New E6 Multidecks

2016

Localized CO_2 units product line went into operation

2018

New Factory in China went into operation

2013

New convenience store products were launched

2014

It got GCCA credit certification

GCCA
诚信认证

2016

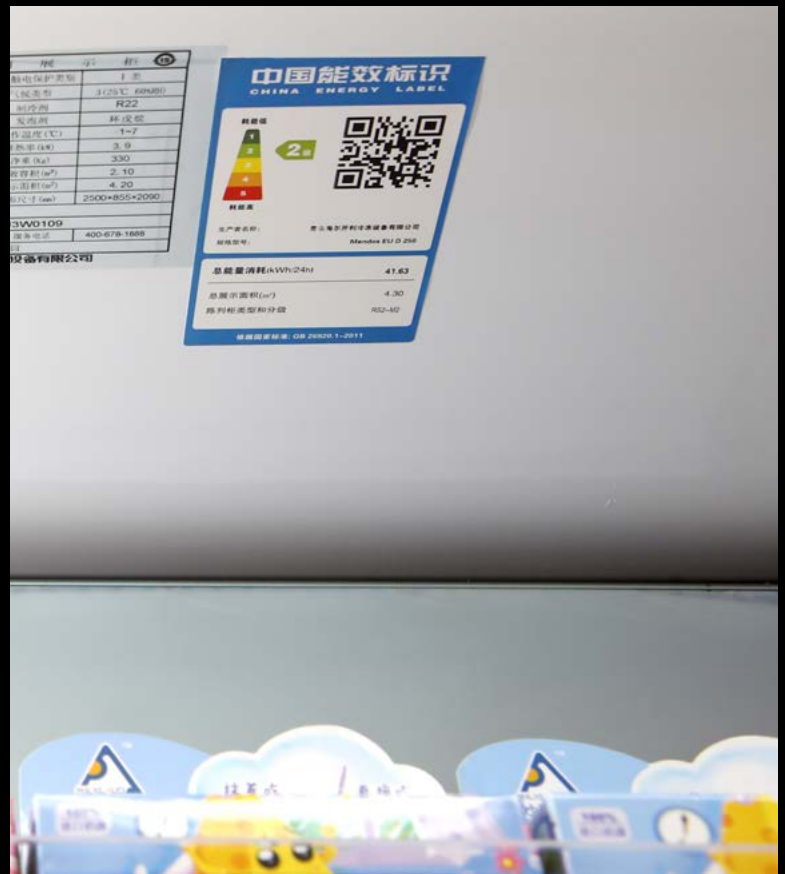
First batch of stores with HybridCO2OL opened

2017

DC-inverter condensing unit 1.5-46HP

Authoritative Certification

EEL Energy Efficiency Label Compulsory Certification



All new products are

Energy Saving Products

Over 90% registered models are of EEL 3 or above. Haier Carrier has the largest number of product certifications in the industry. *

- It became compulsory in September 2013 supervised by Quality and Technology Supervision Bureau. And the remote cases are covered. (Plug-in cases are also covered from 2018)
- All products for sales are of EEL 5 at least
- It must be labeled on all cabinets
- All products registered by Haier Carrier can be found on the website below and all new products are energy saving.

Website of China Energy Label: http://energylabel.gov.cn/

All Haier Carrier products can be found on the website above

* The data is as of 2017

GCCA credit certification

Haier Carrier is the

Only Certified

Commercial Refrigeration Enterprise

- The scope of certification covers cabinets and condensing units, ensuring the right temperature, food safety and advantage of energy efficiency
- Certificated by Hefei General Machinery Product Certification Co., Ltd., a certification authority in refrigeration industry
- Remote cases and portable self-service counter

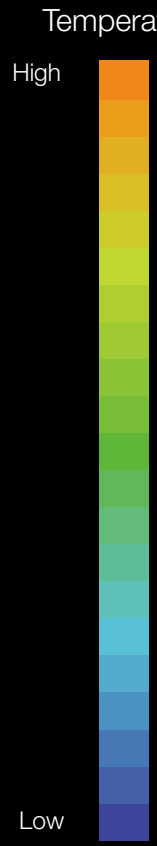
Proprietary Technology

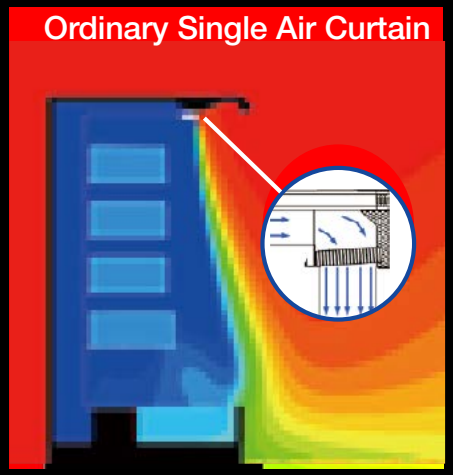
Carrier Squeezing Multi-layer Air Curtain

No matter what type of air curtain is adopted, the fundamental purpose is to save energy by isolating the air inside and outside the cabinets and reducing heat and mass transfer through the air curtains.

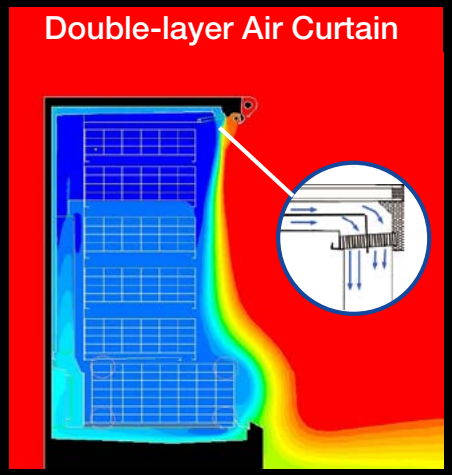
No variable speed ≤ Dual speed ≤ Carrier Squeezing Multi-layer Air Curtain

Carrier's Squeezing Multi-layer Air Curtain Design, more efficient and energy saving!

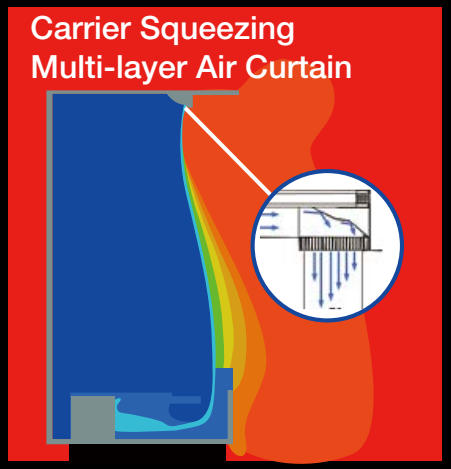




Simple and not optimized air curtain design, with much cool air overflow.



Double-layer air curtain relies on physical segmentation(equal to dual speed) and is more energy-efficient than single air curtain(ordinary). We can see on the image above that there is still obvious cool air overflow.



Squeezing Multi-layer Air Curtain is developed by the Carrier R&D team after countless CFD simulations and experiments. By optimizing the air speed and direction(similar to continuously variable) at the outlet of the honeycomb, maximally reduce the cold loss of the air curtain. As shown in the image above, with little cool air overflow, the air curtain is more efficient.

In strict accordance with GBT21001 (ISO23953,IDT), Haier Carrier conducts temperature tests and temperature labels, ensuring the temperature performance of the cabinets

Temperature Features

Temperature performance is the basic performance index of cabinets and is also the primary consideration of the users in cabinet selection. According to the temperature ratings in GBT21001, there are different temperature ranges for storage of different food:

Temperature Class	Temperature Range*	Food to Store
L1	-15~-18℃	Frozen food, ice creams
M1	-1~5℃	Fresh meat
M2	-1~7℃	Dairy products, cold drinks and fruits & vegetables (the temperature setting is adjusted slightly)
H1	1~10℃	Cold drink and fruits & vegetables
Others	5~10℃	Fruits & vegetables

*Temperature range refers to the center temperature of the various Test packages (equal to the center temperature of food) in the cabinets in accordance with GBT21001. Both the maximum and minimum temperature, including the normal refrigeration and defrost cycles, must be within the temperature range.

Temperature for good display case:

√ Actual temperature is in the range of rated temperature

√ Temperature range must cover the defrost cycles

√ Little temperature fluctuation in the whole process

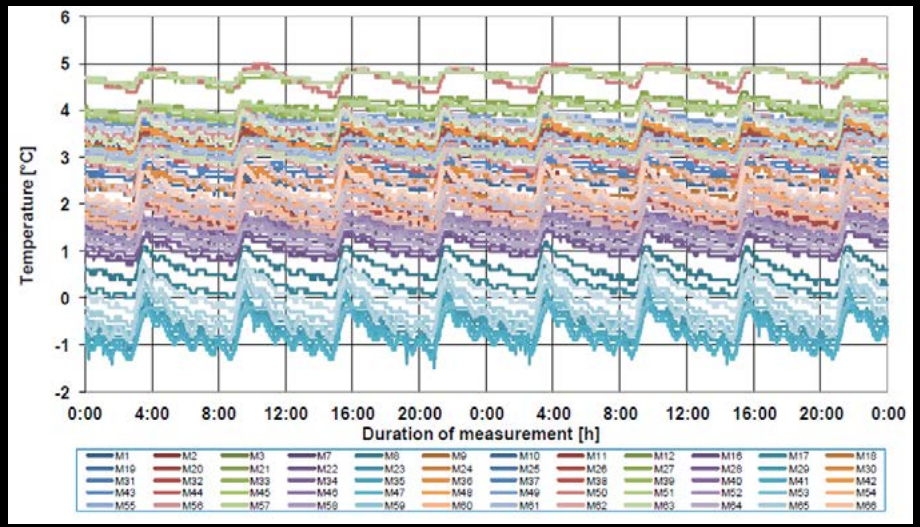
√ More even temperature distribution

Mechanical arm to open and close the door

Test packages (M-Package) are used to simulate real food and the temperature point is in the center of the package, closer to the center temperature of the real food.

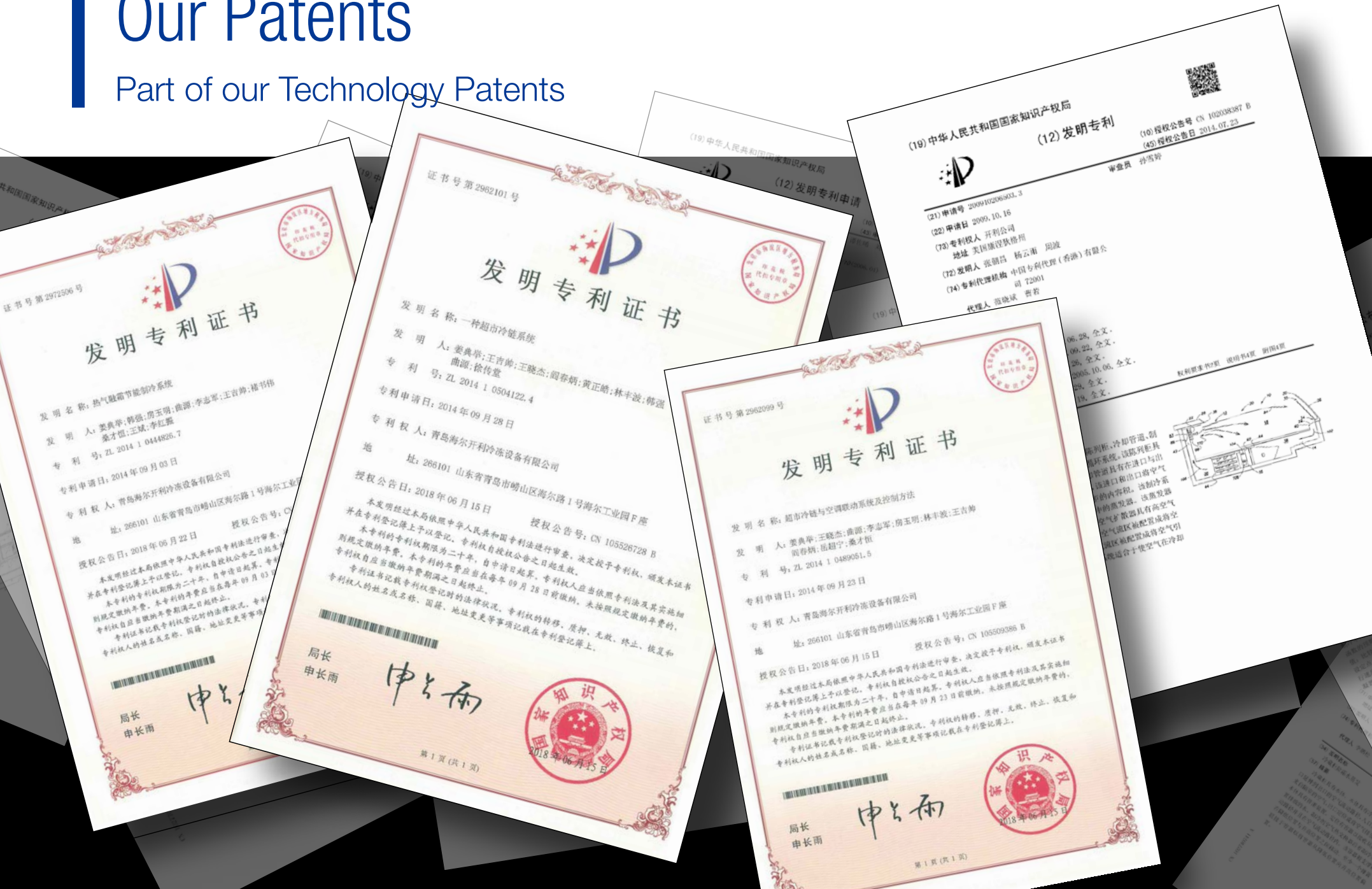
Temperature probe

Temperature Profile of Haier Carrier E6 Multidecks



Our Patents

Part of our Technology Patents



Carrier has obtained nearly 100 patents for its core technologies in the field of commercial refrigeration. These patents are applied in Europe, the US, China and other countries and regions in the world, making Haier Carrier ahead in the industry in terms of depth and width.

Integrated System Method

D2D

Refrigeration Display Case

Refrigeration Circuit, Gas-Liquid Separator and Heating And Cooling System

a Refrigerated Display Case with Auxiliary Air Duct,

ICF with Air Curtain

Shelf with Light Guiding Foil

Hot Gas Defrosting Method

Frame and Refrigerating Apparatus

Even Cleaning a Condenser

Design Application - a New Cabinet with Front Total Transparent and Sliding Glass /Filed

a New Glass Door Freezer with Bottom Sliding Baskets/Granted

Shelf with Illumination

Bactericidal Surface Protection

Pct/Ep2005/001785 Refrigeration Circuit

Shelf with Illumination

Oil Balancing Control for Compressors Working in Parallel

Siphon for Refrigerated Cabinet

Refrigerated Case

Pct/Ep2005/007259 Refrigerated Shelf Cabinet

Oil Compensation in a Refrigeration Circuit

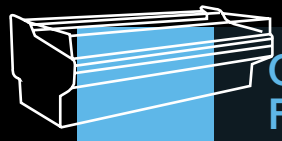
Oil Accumulation in CO_2 Refrigeration Ejector Cycles

Compressor Oil Distribution Device in Systems with Different Crankcase Pressure

CONTENTS

Refrigeration Multidecks

Service Counter



Cabinet Freezer

Compressor Rack

Heat Exchanger

Model Selection Guidance

Energy Saving Solutions

E6

Standard Refrigeration Multidecks

-1~5℃ Temperature Performance

+25% Storage Capacity

+10% Display Area

≥- 6℃ Higher Evaporating Temperature

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

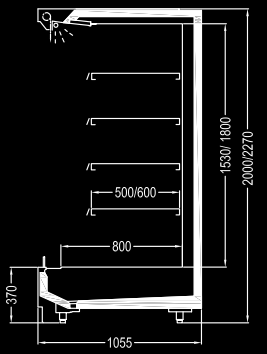
- ☐ Full array of products(Depth 750/850/1050mm), applicable to stores with various layouts
- ☐ Modern appearance design, for better display effect
- ☐ Temperature optimization, suitable for storage of various daily goods and meat
- ☐ Prepositive air curtain, for wider racks / bigger inventory, and with a cabinet of 750mm deep, optimizing the footprint
- ☐ Low front design(370mm), for bigger display area
- ☐ Higher evaporating temperature(≥ -6°C), more energy-efficient and more environmentally friendly,
- ☐ Squeezing Multi-layer Air Curtain design, with better thermal insulation effect

E6

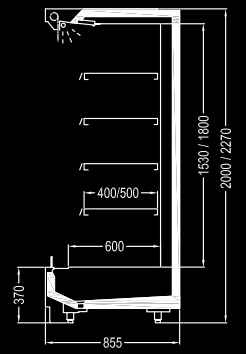
Standard Refrigeration Multidecks

Technical Data

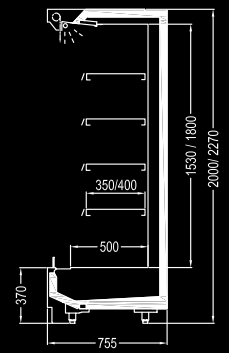
	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Width: 1055mm Height: 2m	Mendos LU D/M 125A	1250*1055*2000	-1~7/-1~5	1.01	2.29	280
	Mendos LU D/M 188A	1875*1055*2000	-1~7/-1~5	1.51	3.43	400
	Mendos LU D/M 210A	2100*1055*2000	-1~7/-1~5	1.89	3.84	440
	Mendos LU D/M 250A	2500*1055*2000	-1~7/-1~5	2.01	4.58	520
	Mendos LU D/M 375A	3750*1055*2000	-1~7/-1~5	3.02	6.86	720
Width: 855mm Height: 2m	Mendos EU D/M 125A	1250*855*2000	-1~7/-1~5	0.79	2.16	230
	Mendos EU D/M 170A	1700*855*2000	-1~7/-1~5	1.07	2.94	300
	Mendos EU D/M 188A	1875*855*2000	-1~7/-1~5	1.18	3.06	320
	Mendos EU D/M 250A	2500*855*2000	-1~7/-1~5	1.57	4.32	410
	Mendos EU D/M 375A	3750*855*2000	-1~7/-1~5	2.36	6.49	580
Width: 755mm Height: 2m	Mendos XU D/M 125A	1250*755*2000	-1~7/-1~5	0.67	2.09	220
	Mendos XU D/M 188A	1875*755*2000	-1~7/-1~5	0.99	3.14	305
	Mendos XU D/M 250A	2500*755*2000	-1~7/-1~5	1.33	4.19	390
	Mendos XU D/M 375A	3750*755*2000	-1~7/-1~5	1.99	6.28	550
Width: 1055mm Height: 2.2m	Mendos LU D/M 125-L	1250*1055*2270	-1~7/-1~5	1.32	2.50	285
	Mendos LU D/M 188-L	1875*1055*2270	-1~7/-1~5	1.98	3.75	410
	Mendos LU D/M 210-L	2100*1055*2270	-1~7/-1~5	2.21	4.20	450
	Mendos LU D/M 250-L	2500*1055*2270	-1~7/-1~5	2.63	5.01	535
	Mendos LU D/M 375-L	3750*1055*2270	-1~7/-1~5	3.95	7.50	740
Width: 855mm Height: 2.2m	Mendos EU D/M 125-L	1250*855*2270	-1~7/-1~5	1.08	2.37	235
	Mendos EU D/M 170-L	1700*855*2270	-1~7/-1~5	1.47	3.23	310
	Mendos EU D/M 188-L	1875*855*2270	-1~7/-1~5	1.63	3.56	330
	Mendos EU D/M 250-L	2500*855*2270	-1~7/-1~5	2.16	4.75	425
	Mendos EU D/M 375-L	3750*855*2270	-1~7/-1~5	3.25	7.12	600
Width: 755mm Height: 2.2m	Mendos XU D/M 125-L	1250*755*2270	-1~7/-1~5	0.84	2.37	230
	Mendos XU D/M 188-L	1875*755*2270	-1~7/-1~5	1.26	3.56	320
	Mendos XU D/M 250-L	2500*755*2270	-1~7/-1~5	1.68	4.75	410
	Mendos XU D/M 375-L	3750*755*2270	-1~7/-1~5	2.53	7.12	580



Mendos LU



Mendos EU



Mendos XU

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6

Glass Door Multidecks

-1~5°C Temperature Performance

+25% Storage Capacity

+15% Display Area

-60% Compared with the Energy Consumption of Self-service Counters

≥- 4°C Higher Evaporating Temperature

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

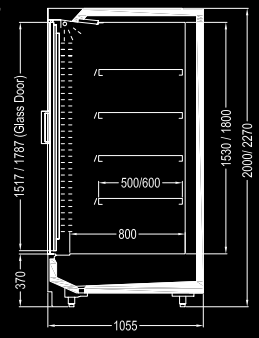
- ☐ Full array of products(Depth 750/850/1050mm), applicable to stores with various layouts
- ☐ Modern appearance, invisible door frame design, highlighting goods display
- ☐ Temperature optimization, suitable for storage of various daily goods and meat
- ☐ Prepositive air curtain, for wider racks / bigger inventory, and with a cabinet of 750mm deep, optimizing the footprint
- ☐ Low front design(370mm), for bigger display area
- ☐ Higher evaporating temperature, more energy-efficient and more environmentally friendly,
- ☐ Squeezing Multi-layer Air Curtain design, with better thermal insulation effect
- ☐ Higher evaporating temperature(≥ -4°C), more energy-efficient and more environmentally friendly,

E6

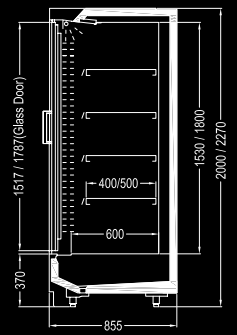
Glass Door Multidecks

Technical Data

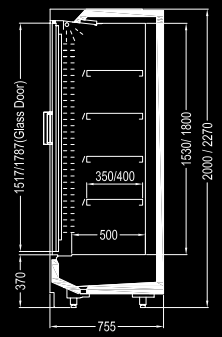
		Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Width: 1055mm Height: 2m	2 Doors	MenEco LU D/M 125A	1250*1055*2000	-1~7/-1~5	1.01	1.85	340
	3 Doors	MenEco LU D/M 188A	1875*1055*2000	-1~7/-1~5	1.51	2.55	490
	3 Doors	MenEco LU D/M 210A	2100*1055*2000	-1~7/-1~5	1.89	2.68	540
	4 Doors	MenEco LU D/M 250A	2500*1055*2000	-1~7/-1~5	2.01	3.24	640
	6 Doors	MenEco LU D/M 375A	3750*1055*2000	-1~7/-1~5	3.02	4.63	900
Width: 855mm Height: 2m	2 Doors	MenEco EU D/M 125A	1250*855*2000	-1~7/-1~5	0.79	1.70	290
	2 Doors	MenEco EU D/M 170A	1700*855*2000	-1~7/-1~5	1.07	2.05	385
	3 Doors	MenEco EU D/M 188A	1875*855*2000	-1~7/-1~5	1.18	2.39	410
	4 Doors	MenEco EU D/M 250A	2500*855*2000	-1~7/-1~5	1.57	3.09	530
	6 Doors	MenEco EU D/M 375A	3750*855*2000	-1~7/-1~5	2.36	4.47	760
Width: 755mm Height: 2m	2 Doors	MenEco XU D/M 125A	1250*755*2000	-1~7/-1~5	0.67	1.62	280
	3 Doors	MenEco XU D/M 188A	1875*755*2000	-1~7/-1~5	0.99	2.31	395
	4 Doors	MenEco XU D/M 250A	2500*755*2000	-1~7/-1~5	1.33	3.01	510
	6 Doors	MenEco XU D/M 375A	3750*755*2000	-1~7/-1~5	1.99	4.39	730
Width: 1055mm Height: 2.2m	2 Doors	MenEco LU D/M 125- L	1250*1055*2270	-1~7/-1~5	1.32	1.88	350
	3 Doors	MenEco LU D/M 188- L	1875*1055*2270	-1~7/-1~5	1.98	2.82	510
	3 Doors	MenEco LU D/M 210- L	2100*1055*2270	-1~7/-1~5	2.21	3.15	560
	4 Doors	MenEco LU D/M 250- L	2500*1055*2270	-1~7/-1~5	2.63	3.75	670
	6 Doors	MenEco LU D/M 375- L	3750*1055*2270	-1~7/-1~5	3.95	5.63	940
Width: 855mm Height: 2.2m	2 Doors	MenEco EU D/M 125- L	1250*855*2270	-1~7/-1~5	1.08	1.78	300
	2 Doors	MenEco EU D/M 170- L	1700*855*2270	-1~7/-1~5	1.47	2.43	400
	3 Doors	MenEco EU D/M 188- L	1875*855*2270	-1~7/-1~5	1.63	2.68	430
	4 Doors	MenEco EU D/M 250- L	2500*855*2270	-1~7/-1~5	2.16	3.56	560
	6 Doors	MenEco EU D/M 375- L	3750*855*2270	-1~7/-1~5	3.25	5.35	800
Width: 755mm Height: 2.2m	2 Doors	MenEco XU D/M 125-L	1250*755*2270	-1~7/-1~5	0.84	1.78	295
	3 Doors	MenEco XU D/M 188-L	1875*755*2270	-1~7/-1~5	1.26	2.68	420
	4 Doors	MenEco XU D/M 250-L	2500*755*2270	-1~7/-1~5	1.68	3.56	545
	6 Doors	MenEco XU D/M 375-L	3750*755*2270	-1~7/-1~5	2.53	5.35	780



MenEco LU



MenEco EU



MenEco XU

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6C

Glass Door Multidecks

-1~5℃ Temperature Performance

+10% Storage Capacity

+10% Display Area

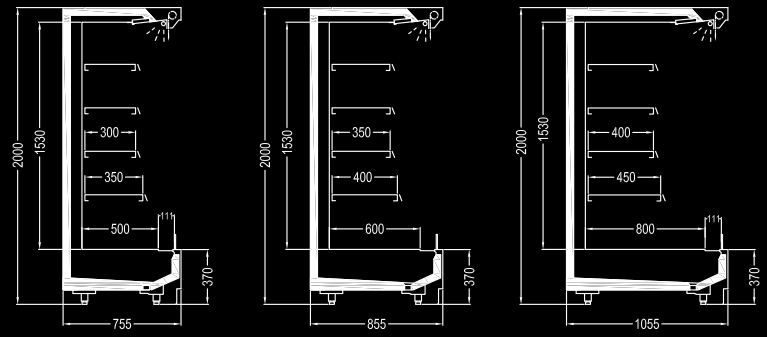
High Cost Performance

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Width: 1055mm Height: 2m	Mendos LU D/M 125CA	1250*1055*2000	-1~7/-1~5	0.89	2.29	225
	Mendos LU D/M 188CA	1875*1055*2000	-1~7/-1~5	1.32	3.43	315
	Mendos LU D/M 210CA	2100*1055*2000	-1~7/-1~5	1.48	3.84	345
	Mendos LU D/M 250CA	2500*1055*2000	-1~7/-1~5	1.77	4.58	405
	Mendos LU D/M 375CA	3750*1055*2000	-1~7/-1~5	2.66	6.86	590
Width: 855mm Height: 2m	Mendos EU D/M 125CA	1250*855*2000	-1~7/-1~5	0.73	2.10	210
	Mendos EU D/M 170CA	1700*855*2000	-1~7/-1~5	0.99	2.85	275
	Mendos EU D/M 188CA	1875*855*2000	-1~7/-1~5	1.09	3.14	295
	Mendos EU D/M 250CA	2500*855*2000	-1~7/-1~5	1.46	4.20	375
	Mendos EU D/M 375CA	3750*855*2000	-1~7/-1~5	2.19	6.30	550
Width: 755mm Height: 2m	Mendos XU D/M 125CA	1250*755*2000	-1~7/-1~5	0.62	2.06	200
	Mendos XU D/M 188CA	1875*755*2000	-1~7/-1~5	0.93	3.08	285
	Mendos XU D/M 250CA	2500*755*2000	-1~7/-1~5	1.24	4.12	360
	Mendos XU D/M 375CA	3750*755*2000	-1~7/-1~5	1.86	6.17	530

Product Features

- ☐ Specially designed to meet the demand of mid- and low-end customers, applicable to stores with various layouts
- ☐ Temperature optimization, suitable for storage of various daily goods and meat
- ☐ Prepositive air curtain for wider racks / bigger inventory, and with a cabinet of 750mm deep, optimizing the footprint
- ☐ Low front design(370mm), for bigger display area
- ☐ Higher evaporating temperature, more energy-efficient and more environmentally friendly
- ☐ Squeezing Multi-layer Air Curtain design, with better thermal insulation effect
- ☐ Higher evaporating temperature(≥ -6°C), more energy-efficient and more environmentally friendly



Mendos XU　　Mendos EU　　Mendos LU

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6C

Glass Door Multidecks

-1~5°C Temperature Performance

+10% Storage Capacity

+10% Display Area

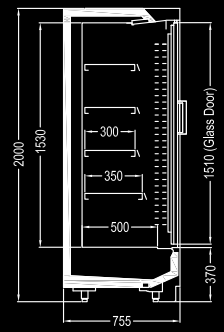
High Cost Performance

Technical Data

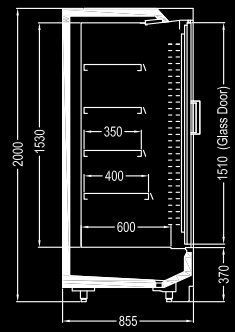
		Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Width: 1055mm Height: 2m	2 Doors	MenEco LU D/M 125CA	1250*1055*2000	-1~7/-1~5	0.89	1.67	285
	3 Doors	MenEco LU D/M 188CA	1875*1055*2000	-1~7/-1~5	1.32	2.51	410
	3 Doors	MenEco LU D/M 210CA	2100*1055*2000	-1~7/-1~5	1.48	2.81	450
	4 Doors	MenEco LU D/M 250CA	2500*1055*2000	-1~7/-1~5	1.77	3.34	530
	6 Doors	MenEco LU D/M 375CA	3750*1055*2000	-1~7/-1~5	2.66	5.01	765
Width: 855mm Height: 2m	2 Doors	MenEco EU D/M 125CA	1250*855*2000	-1~7/-1~5	0.73	1.53	270
	2 Doors	MenEco EU D/M 170CA	1700*855*2000	-1~7/-1~5	0.99	2.08	370
	3 Doors	MenEco EU D/M 188CA	1875*855*2000	-1~7/-1~5	1.09	2.29	405
	4 Doors	MenEco EU D/M 250CA	2500*855*2000	-1~7/-1~5	1.46	3.06	500
	6 Doors	MenEco EU D/M 375CA	3750*855*2000	-1~7/-1~5	2.19	4.59	725
Width: 755mm Height: 2m	2 Doors	MenEco XU D/M 125CA	1250*755*2000	-1~7/-1~5	0.62	1.50	260
	3 Doors	MenEco XU D/M 188CA	1875*755*2000	-1~7/-1~5	0.93	2.25	375
	4 Doors	MenEco XU D/M 250CA	2500*755*2000	-1~7/-1~5	1.24	3.00	490
	6 Doors	MenEco XU D/M 375CA	3750*755*2000	-1~7/-1~5	1.86	4.51	710

Product Features

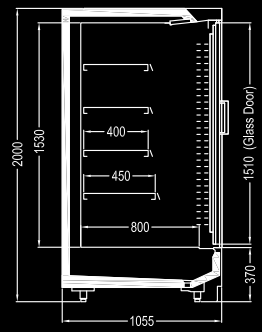
- ☐ Specially designed to meet the demand of mid- and low-end customers, applicable to stores with various layouts
- ☐ Modern appearance, low front height, invisible door frame design, highlighting goods display
- ☐ Temperature optimization, suitable for storage of various daily goods and meat
- ☐ Prepositive Air curtain for wider racks / bigger inventory, and with a cabinet of 750mm deep, optimizing the footprint
- ☐ Higher evaporating temperature, more energy-efficient and more environmentally friendly
- ☐ Squeezing Multi-layer Air Curtain design, with better thermal insulation effect
- ☐ Higher evaporating temperature(≥ -4°C), more energy-efficient and more environmentally friendly



MenEco XU



MenEco EU



MenEco LU

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6

750 Wide Rectangular End Multidecks

+30% Display Area

No Side Walls Crown Appearance

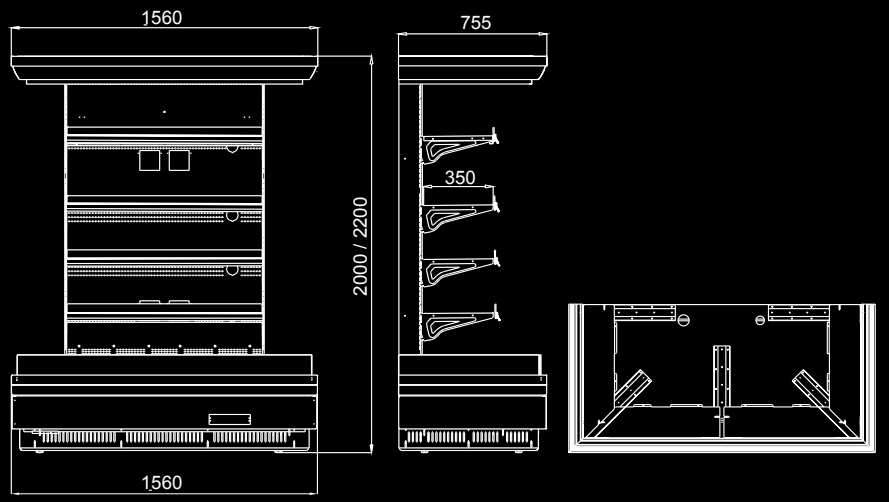
Perfect Stitching

Technical Data

Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Mendos XU D 156	1560*750*2000	4~12	0.56	2.80	180
Mendos XU D 156-L	1560*750*2200	4~12	0.62	3.14	220

Product Features

- ☐ Without side walls, crown appearance, more fashionable, beautiful and excellent display effect
- ☐ Adjustable shelf angle, to display more goods
- ☐ Allowing combination with 750mm wide E6 series of Multidecks, achieving perfect integration



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6

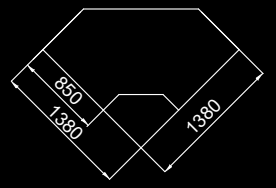
Internal/External Corner Case

Technical Data

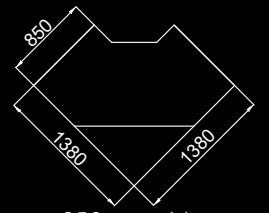
Tpye	Model	Dimensions /mm	Temperature Range/°C	Net Weight /kg	Display Area/m^2	Net Volume/m^3
E6 Internal/ External Corner Case	Mendos EU D 9EA	1380*1380*2000	1-10	240	2.84	0.96
	Mendos EU D 9IA	1380*1380*2000	1-10	230	2.18	0.82
	Mendos EU D 9E-L	1380*1380*2270	1-10	290	3.12	1.16
	Mendos EU D 9I-L	1380*1380*2270	1-10	255	2.44	0.96
	Mendos LU D 9EA	1580*1580*2000	1-10	250	3.08	0.92
	Mendos LU D 9IA	1380*1380*2000	1-10	380	1.96	0.88
	Mendos LU D 9E-L	1580*1580*2270	1-10	310	3.46	1.14
	Mendos LU D 9I-L	1380*1380*2270	1-10	430	2.22	1.13

Product Features

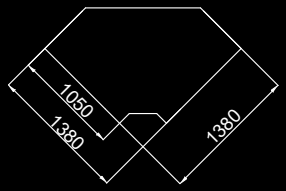
- ☐ 90° Internal/External Corner Case, meeting the demand of various customers for combination
- ☐ Platform design based on E6, beautiful appearance



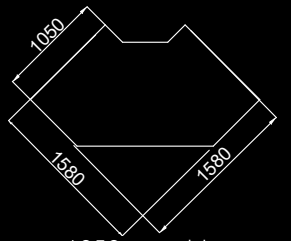
850mm wide,
E6 Internal Corner Case



850mm wide,
E6 External Corner Case



1050mm wide,
E6 Internal Corner Case



1050mm wide,
E6 External Corner Case

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6

Semi-vertical Multidecks

-1~5℃ Temperature Performance

+5% Storage Capacity

+20% Display Area

-5% Energy Consumption

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

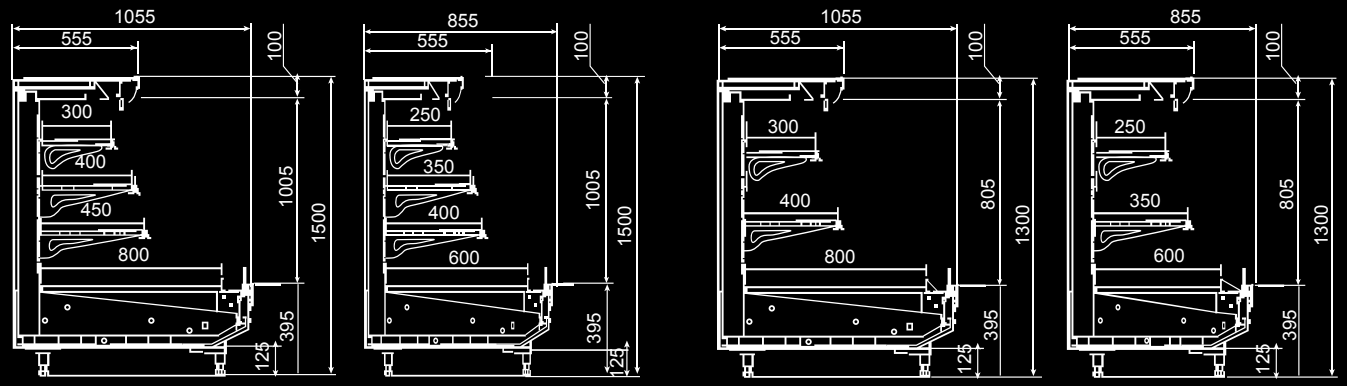
- ☐ Full array of products, applicable to stores with various layouts
- ☐ Full glass side wall, fashionable and beautiful
- ☐ Accurate and stable temperature control in the cabinet
- ☐ Temperature optimization, for storage of various food
- ☐ Low front design, for a bigger display area and better shopping view
- ☐ Two height options, with narrow top plaque design, suitable for various consumers in Asia
- ☐ Squeezing Multi-layer Air Curtain design, with high efficiency evaporator and reducing total energy consumption

E6

Semi-vertical Multidecks

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
SV Semi-verticals	SV LU D/M 188L	1875*1055*1500	-1~7/-1~5	0.93	2.74	260
	SV LU D/M 210L	2100*1055*1500	-1~7/-1~5	1.04	3.16	290
	SV LU D/M 250L	2500*1055*1500	-1~7/-1~5	1.24	3.65	346
	SV LU D/M 375L	3750*1055*1500	-1~7/-1~5	1.85	5.48	519
	SV LU D/M 188	1875*1055*1300	-1~7/-1~5	0.74	2.36	230
	SV LU D/M 210	2100*1055*1300	-1~7/-1~5	0.83	2.65	251
	SV LU D/M 250	2500*1055*1300	-1~7/-1~5	0.99	3.15	299
	SV LU D/M 375	3750*1055*1300	-1~7/-1~5	1.49	4.73	449
SV Narrow Semi-verticals	SV EU D/M 170L	1700*855*1500	-1~7/-1~5	0.69	2.15	205
	SV EU D/M 188L	1875*855*1500	-1~7/-1~5	0.76	2.36	210
	SV EU D/M 250L	2500*855*1500	-1~7/-1~5	1.01	3.15	280
	SV EU D/M 375L	3750*855*1500	-1~7/-1~5	1.52	4.73	420
	SV EU D/M 170	1700*855*1300	-1~7/-1~5	0.54	1.80	176
	SV EU D/M 188	1875*855*1300	-1~7/-1~5	0.60	1.99	186
	SV EU D/M 250	2500*855*1300	-1~7/-1~5	0.80	2.65	276
	SV EU D/M 375	3750*855*1300	-1~7/-1~5	1.19	3.98	364



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6

Arc Semi-vertical End Multidecks

- Arc Line
- Excellent Shopping View
- Free Combination
- Fashionable & Beautiful

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

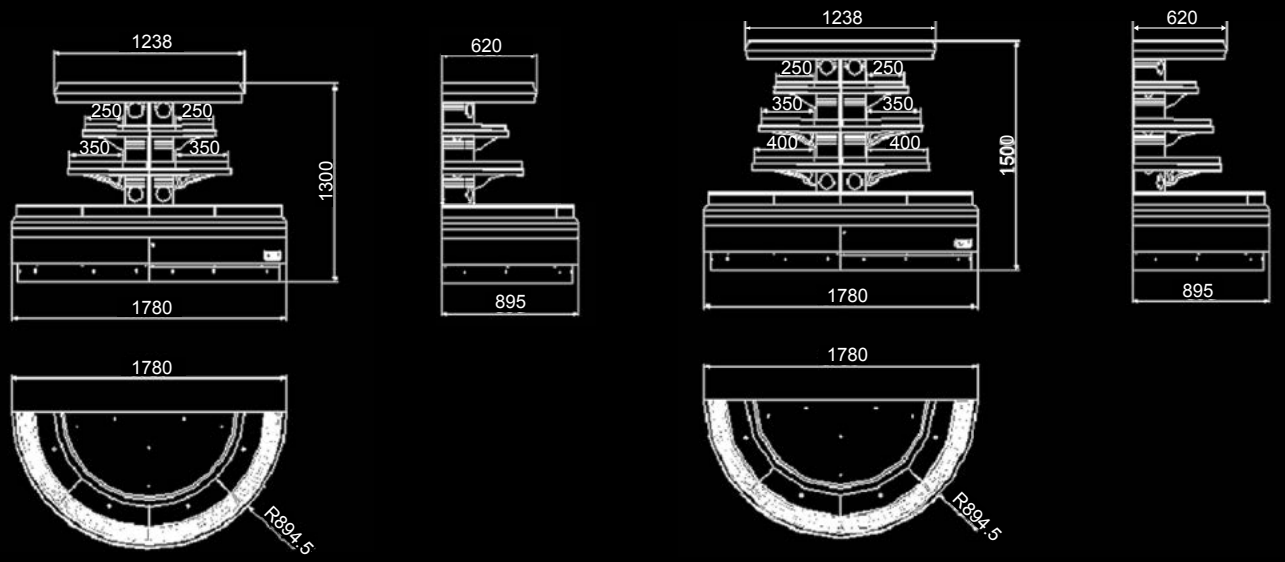
- ☐ Semicircle appearance, fashionable, elegant, good-looking and attractive to customers
- ☐ Unique arc design of air Curtain design, more even and stable wind
- ☐ Combination and integration with 850-wide E6 Semi-vertical multidecks

E6

Arc Semi-vertical End Multidecks

Technical Data

Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
SR EU D 178L	1780*900*1500	4-12	0.32	1.17	210	50Hz
SV EU D 178	1780*900*1300	4-12	0.41	1.53	210	50Hz



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6

Semi-vertical Glass Door Multidecks

-1~5℃ Temperature Performance

-5~10% Energy Consumption

+20% Storage Capacity

+10% Display Area

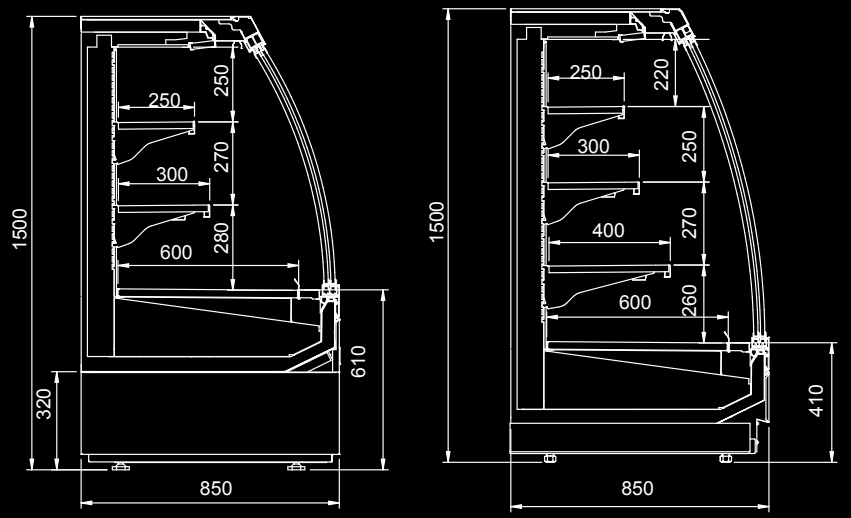
* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
Remote Glass Door	SV EU M 170 LR-SD	1700*850*1500	-1~5	0.54	1.81	255	50
	SV EU M 188 LR-SD	1875*850*1500	-1~5	0.60	2.00	270	50
	SV EU M 250 LR-SD	2500*850*1500	-1~5	0.80	2.67	360	50
	SV EU M 375 LR-SD	3750*850*1500	-1~5	1.19	4.00	540	50
Plug-in Glass Door	SV EU M 125 LP-SD	1330*850*1500	-1~5	0.33	1.96	325	50
	SV EU M 188 LP-SD	1955*850*1500	-1~5	0.49	2.52	406	50

Product Features

- First-class temperature performance(-1~5°C), suitable for storage of various daily goods and meat
- Modern appearance, invisible door frame design, highlighting goods display
- With narrow top plaque design, suitable for various consumers in Asia
- Squeezing Multi-layer Air Curtain design with high efficiency evaporator, more energy-efficient and more environmentally friendly
- Low front design, for display area(remote)
- Plug and play, flexible deployment, suitable for in-store promotion(Plug-in)
- With internationally well-known brands of controllers, accurate and stable temperature control in the cabinet



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Danaos

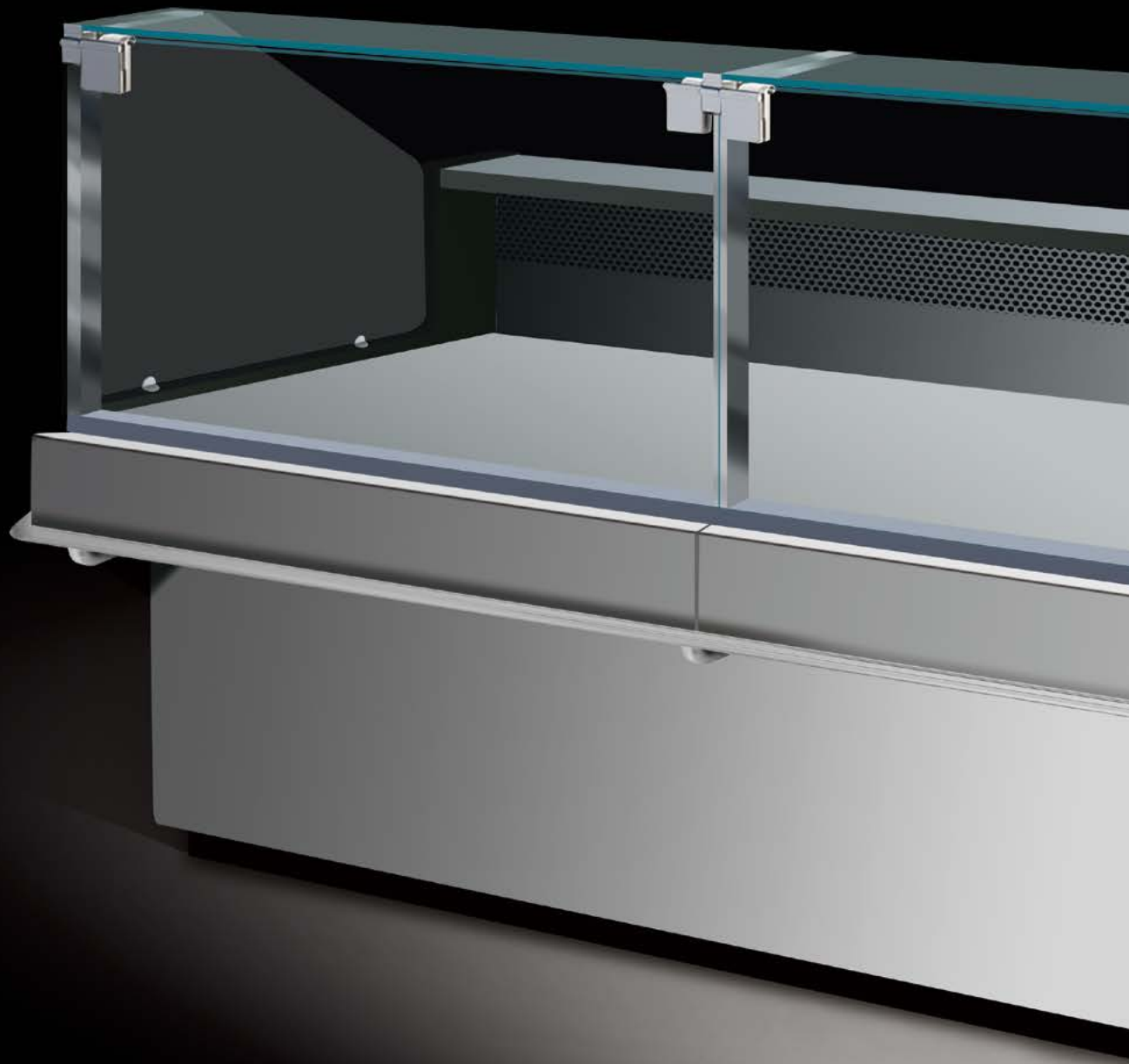
Rectangular Service Counter

-1~5℃ Temperature Performance

+15~35% Storage Capacity

+30% Display Area

-30% Energy Consumption



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

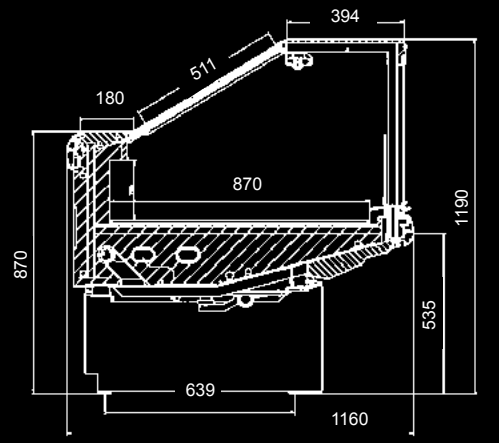
- ☐ Full array of products, applicable to stores with various layouts
- ☐ Modern Appearance, for better product display effect
- ☐ Unibody cabinet, high compressive strength and better thermal insulation properties
- ☐ Temperature optimization, suitable for storage of various daily goods and meat
- ☐ Bigger capacity for bigger inventory per unit of area
- ☐ Rectangular glass design, for bigger display area
- ☐ Top Squeezing Multi-layer Air Curtain, multiple decks for food storage and bigger capacity

Danaos

Rectangular Service Counter

Technical Data of Rectangular Service Counters

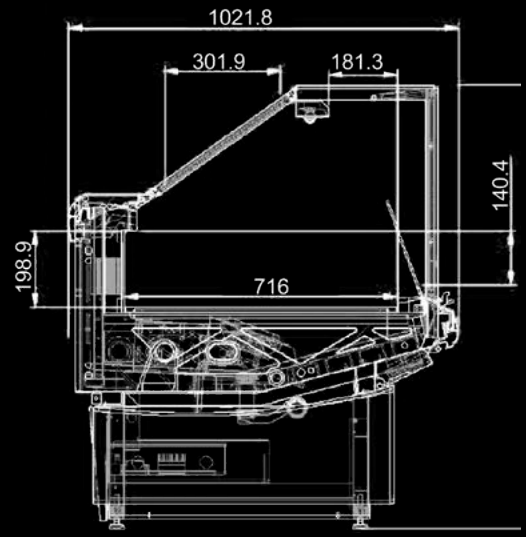
	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
Plug-in Service Counter	Danaos 125 87 PG	1350*1160*1190	-1~5	0.19	1.04	210	50
	Danaos 188 87 PG	1975*1160*1190	-1~5	0.28	1.50	280	50
	Danaos 250 87 PG	2600*1160*1190	-1~5	0.38	1.98	360	50
	Danaos 375 87 PG	3850*1160*1190	-1~5	0.57	2.93	430	50
Plug-in Self-service	Danaos 125 87 PS	1350*1160*880	-1~5	0.19	1.17	170	50
	Danaos 188 87 PS	1975*1160*880	-1~5	0.28	1.70	235	50
	Danaos 250 87 PS	2600*1160*880	-1~5	0.38	2.25	310	50
	Danaos 375 87 PS	3850*1160*880	-1~5	0.57	3.32	370	50
Remote Service Counter	Danaos 125 87 RG	1250*1160*1190	-1~5	0.19	0.94	185	50/60
	Danaos 188 87 RG	1875*1160*1190	-1~5	0.28	1.40	250	50/60
	Danaos 250 87 RG	2500*1160*1190	-1~5	0.38	1.88	325	50/60
	Danaos 375 87 RG	3750*1160*1190	-1~5	0.57	2.80	385	50/60
Remote Self-service	Danaos 125 87 RS	1250*1160*880	-1~5	0.19	1.05	145	50/60
	Danaos 188 87 RS	1875*1160*880	-1~5	0.28	1.60	205	50/60
	Danaos 250 87 RS	2500*1160*880	-1~5	0.38	2.15	275	50/60
	Danaos 375 87 RS	3750*1160*880	-1~5	0.57	3.20	325	50/60



Rectangular service counter

Technical Data of Sliding Door Service Counters

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
Rectangular Sliding Door	Danaos 125 72 R T	1250*1020*1165	-1~5	0.16	0.65	165	50
	Danaos 188 72 R T	1875*1020*1165	-1~5	0.24	0.97	230	50
	Danaos 250 72 R T	2500*1020*1165	-1~5	0.32	1.32	295	50



Sliding door service counter

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Danaos

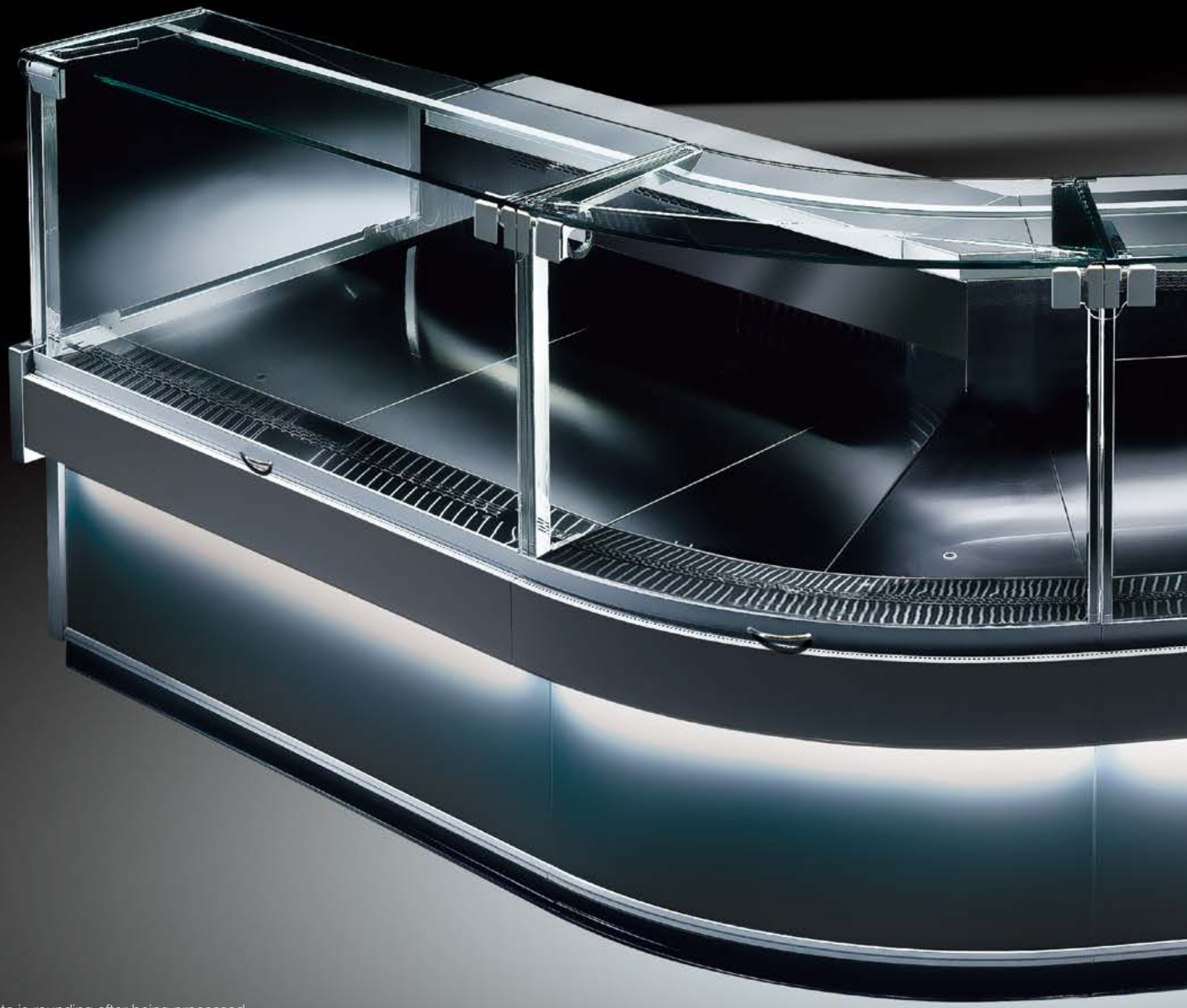
Arc Corner Case

-1~7℃ Temperature Performance

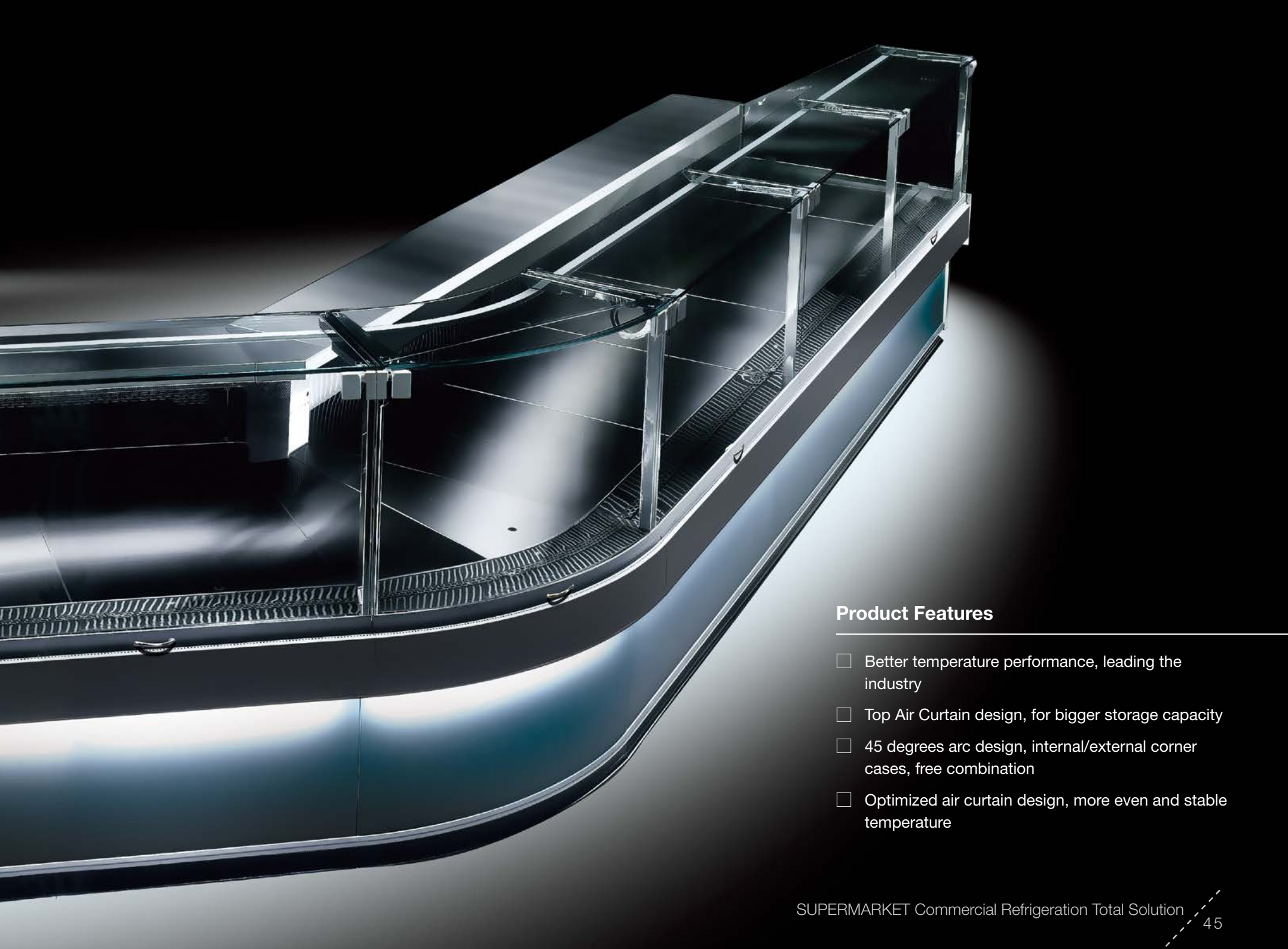
Arc Design

Flexible Combination

Optimized Air Curtain Design



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.



Product Features

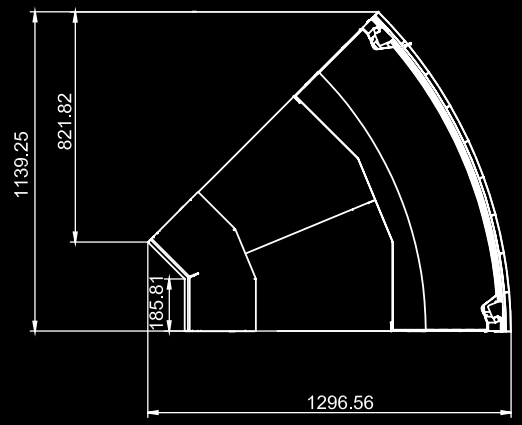
- ☐ Better temperature performance, leading the industry
- ☐ Top Air Curtain design, for bigger storage capacity
- ☐ 45 degrees arc design, internal/external corner cases, free combination
- ☐ Optimized air curtain design, more even and stable temperature

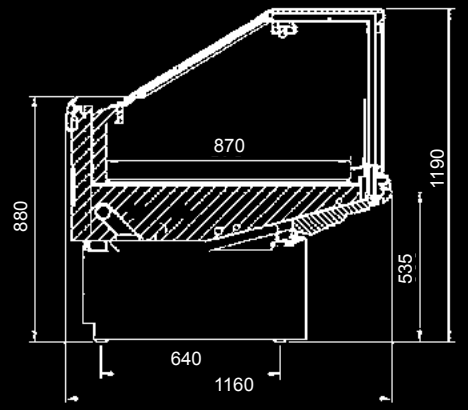
Danaos

Arc Corner Case

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
Danaos 45° Arc External Corner Case	Danaos EC45 R G	1139*1296*1190	-1~7	0.12	0.66	105	50/60
Danaos 45° Arc Internal Corner Case	Danaos IC45 R G	1390*1360*1190	-1~7	0.17	0.95	135	50/60





* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

SN

Narrow Curved Surface Service Counter

-1~5℃ Temperature Performance

+25% Storage Capacity

+20% Display Area

-15% Energy Consumption

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

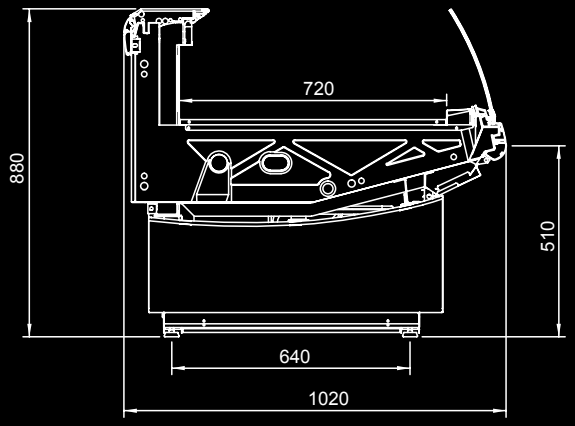
- ☐ 1m wide narrow cabinet design, smaller footprint and higher store area efficiency
- ☐ Modern and fashionable appearance, for better product display effect
- ☐ Easy and convenient for customers to access goods with better shopping vision
- ☐ Top air curtain design, for bigger storage capacity
- ☐ Higher goods storage per unit area
- ☐ Stable storage temperature for food preservation
- ☐ Unibody cabinet, high compressive strength and better thermal insulation properties

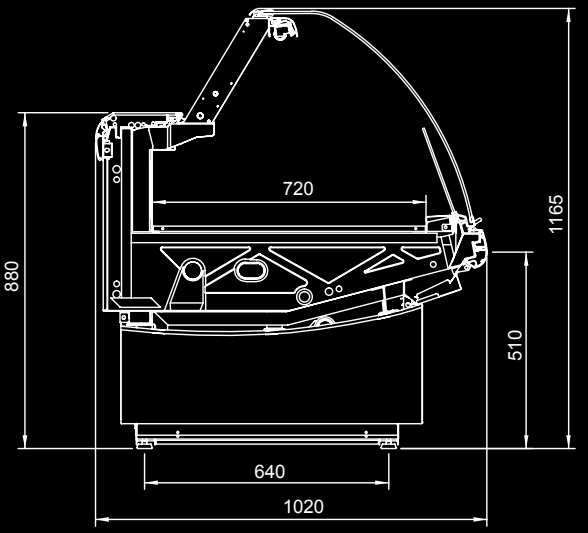
SN

Narrow Curved Surface Service Counter

Technical Data

	Model	Dimensions /mm	Temperature Range/°C
Plug-in Self-service	SN 125 72 P S	1350*1020*880	-1~5
	SN 188 72 P S	1975*1020*880	-1~5
	SN 250 72 P S	2600*1020*880	-1~5
	SN 375 72 P S	3850*1020*880	-1~5
Plug-in Arc Glass	SN 125 72 P G	1350*1020*1165	-1~5
	SN 188 72 P G	1975*1020*1165	-1~5
	SN 250 72 P G	2600*1020*1165	-1~5
	SN 375 72 P G	3850*1020*1165	-1~5
Plug-in Arc Glass Sliding	SN 125 72 P T	1350*1020*880	-1~5
	SN 188 72 P T	1975*1020*880	-1~5
Remote Self-service	SN 125 72 R S	1250*1020*880	-1~5
	SN 188 72 R S	1875*1020*880	-1~5
	SN 250 72 R S	2500*1020*880	-1~5
	SN 375 72 R S	3750*1020*880	-1~5
Remote Arc Glass Service Counter	SN 125 72 R G	1250*1020*1165	-1~5
	SN 188 72 R G	1875*1020*1165	-1~5
	SN 250 72 R G	2500*1020*1165	-1~5
	SN 375 72 R G	3750*1020*1165	-1~5
Remote Service Counter Water Heating	SN 125 72 R W	1250*1020*1165	≥60
	SN 188 72 R W	1875*1020*1165	≥60
	SN 250 72 R W	2500*1020*1165	≥60
Remote Service Counter Dry Heating	SN 125 72 R D	1250*1020*1165	≥60
	SN 188 72 R D	1875*1020*1165	≥60
	SN 250 72 R D	2500*1020*1165	≥60
Remote Arc Glass Sliding	SN 125 72 R T	1250*1020*880	-1~5
	SN 188 72 R T	1875*1020*880	-1~5
	SN 250 72 R T	2500*1020*880	-1~5
	SN 375 72 R T	3750*1020*880	-1~5
Remote Service Counter Corner Case	SN EC45 72 R G	1300*1249*1165	3~8
	SN EC90 72 R G	1530*1530*1165	3~8
	SN IC45 72 R G	1520*1342*1165	3~8
Remote Self-service Corner Case	SN EC45 72 R S	1300*1249*880	3~8
	SN EC90 72 R S	1530*1530*880	3~8
	SN IC45 72 R S	1520*1342*880	3~8

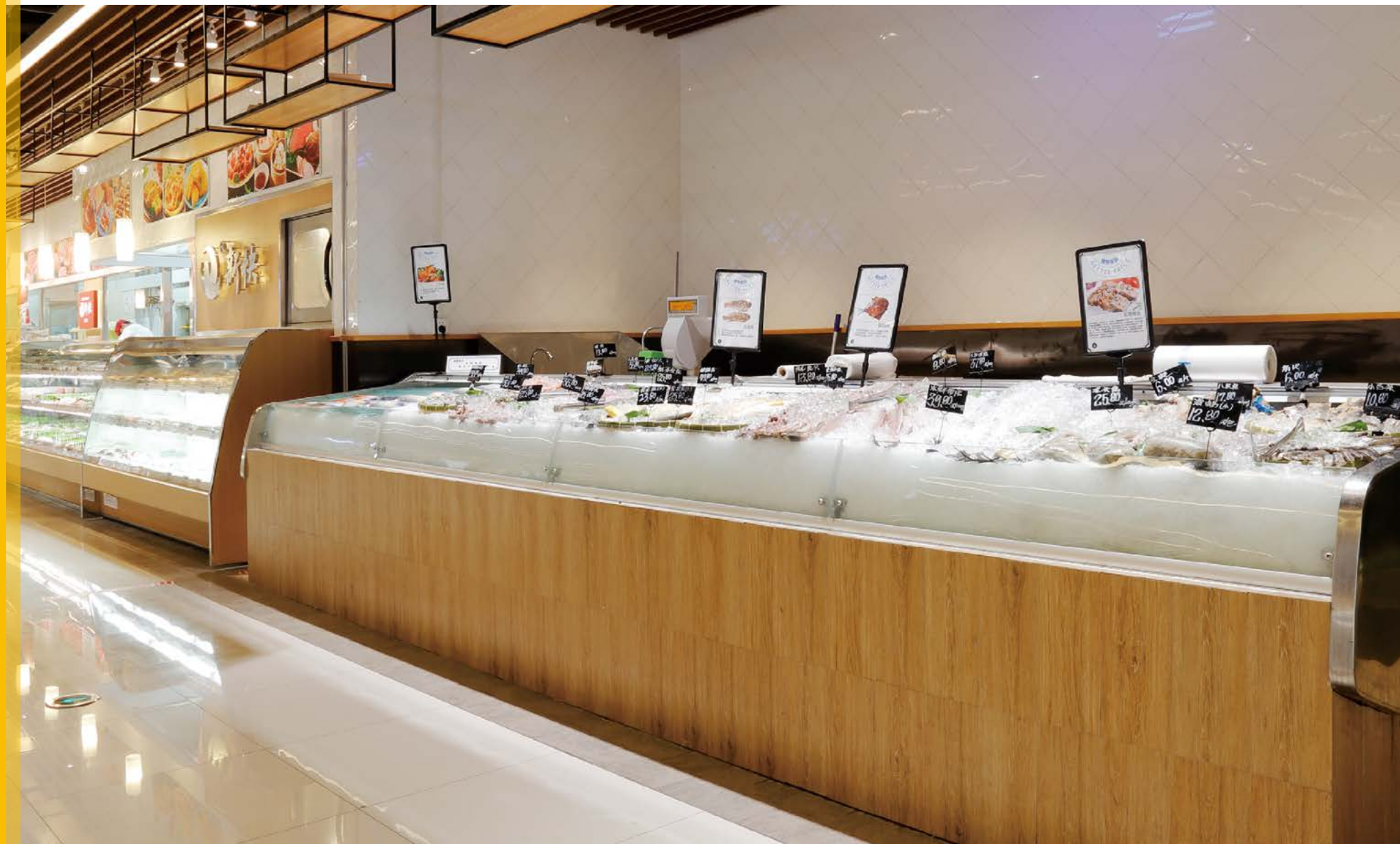




* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

Direct-cooling Fresh Food Ice Counter

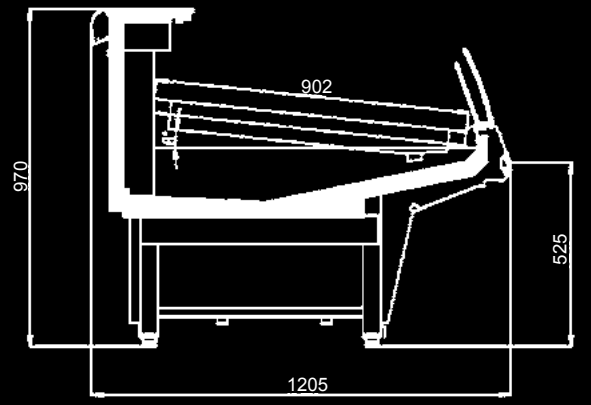


Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
Direct-cooling Self-service Ice Counter, Remote	ZK-ASAR18SC	1875*1205*970	≤-5	0.25	1.52	200	50/60
	ZK-ASAR25SC	2500*1205*970	≤-5	0.33	2.03	260	50/60
Direct-cooling Self-service Ice Counter, Plug-in	ZK-ASAP18SC	1955*1205*970	≤-5	0.25	1.52	225	50
	ZK-ASAP25SC	2580*1205*970	≤-5	0.33	2.03	285	50

Product Features

- ☐ High efficiency direct-cooling ice counter, better for food ice preservation
- ☐ Stainless steel leaning ice box and side panel, beautiful, practical and durable
- ☐ Reduced ice making, more energy-efficient and more environmentally friendly
- ☐ Reduced ground water and manual cleaning, cleaner



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

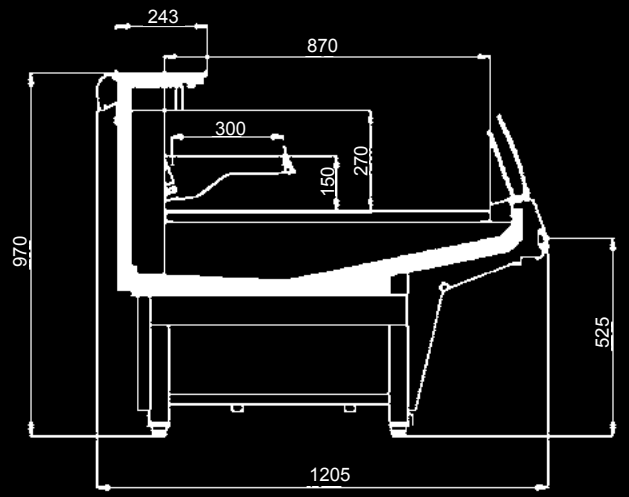
Double Deck Service Counter

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
Remote Double-deck Service Counter	ZK-ASAR18DL	1875*1205*970	-1~7	0.29	2.05	220	50/60
	ZK-ASAR25DL	2500*1205*970	-1~7	0.39	2.75	280	50/60

Product Features

- ☐ Double-deck design highlighting product display
- ☐ Optimized honeycomb design, homogeneous air distribution, for consistent food preservation temperature



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

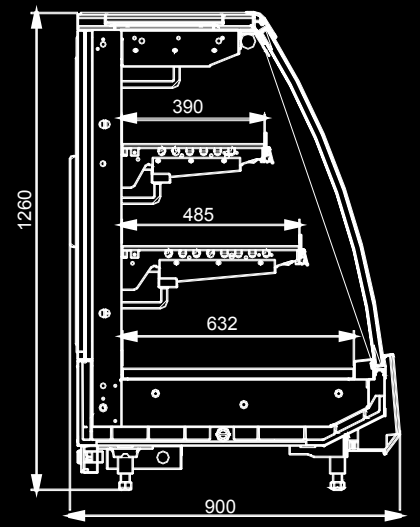
Direct-cooling Quality Cabinet

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (HZ)
Direct-cooling Quality Cabinet	EM1813	1875*900*1260	-2~2	0.58	1.39	300	50/60

Product Features

- ☐ Energy-efficient, direct-cooling design, reducing meat drying loss
- ☐ Fine appearance, full stainless steel design
- ☐ Bigger display area highlighting product display



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Standard

Service Counter

- Easy to Access
- Beauty
- Durable

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

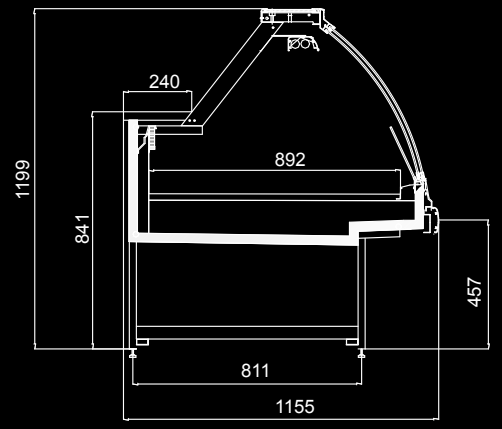
- Several types(service counter, self-service, sliding door), free combination for various customer applications
- Made of aluminum alloy, strong and durable
- Big curved glass for better display effect

Standard

Service Counter

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Remote Sliding Service Counter	ZK0.3TF	1250*1 155*1199	-1~5	0.14	0.63	180
	ZK0.4TF	1875*1155*1199	-1~5	0.21	0.94	230
	ZK0.5TF	2500*1 155*1199	- 1~5	0.28	1.26	340
	ZK0.7TF	3750*1 155*1199	-1~5	0.49	1.89	420
Plug-in Sliding Service Counter	ZK0.3T	1340*1155*1199	-2~5	0.14	0.63	200
	ZK0.4T	1965*1155*1199	-2~5	0.21	0.94	260
	ZK0.5T	2590*1155*1199	-2~5	0.28	1.26	370
	ZK0.7T	3840*1155*1199	-2~5	0.49	1.89	450



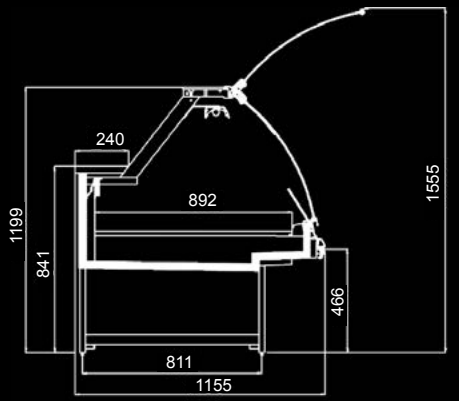
* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Standard

Service Counter / Hot Counter

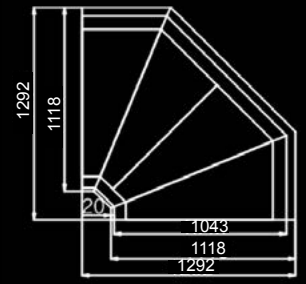
Standard Service Counter Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Remote Service Counter	ZK0.3LF	1250*1155*1199	-1~5	0. 14	0.63	180
	ZK0.4LF	1875*11 55*1199	-1~5	0.21	0.94	230
	ZK0.5LF	2500*1155*1199	-1~5	0.28	1.26	340
	ZK0.7LF	3750*1155*1199	-1~5	0.42	1.89	420
Service Counter Corner Case	ZK- EA90°	1292*1292*1199	4~12	0.13	1.00	160
	ZK-EC90°	1257*1257*1199	4~12	0.13	1.00	180



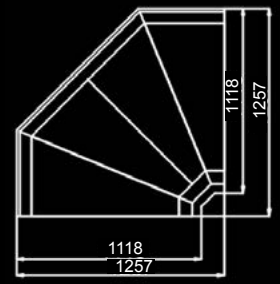
Technical Data of Standard Service Counter Hot Cabinet

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Dry Heating Cabinet	ZK-RK0.4L/B	1875*1155*1199	40~60	0.21	1.34	230
	ZK-RK0.5l/B	2500*1155*1199	40~60	0.28	1.79	292
	ZK-RK0.7L/B	3750*1155*1199	40~60	0.42	2.70	438
Water Heating Cabinet Model	ZK-RK0.5L/A	2500*1155*1199	40~60	0.28	1.79	340



Features of Standard Service Counters

- ☐ service counter small arc curved glass
- ☐ Lightweight design and high cost performance
- ☐ Mature product with reliable performance
- ☐ Full range of products to meet the needs of various customers



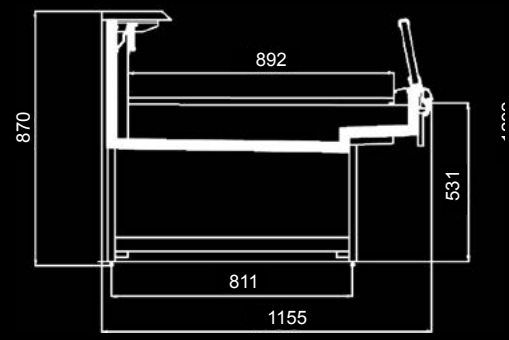
* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Standard

Self-service Counter

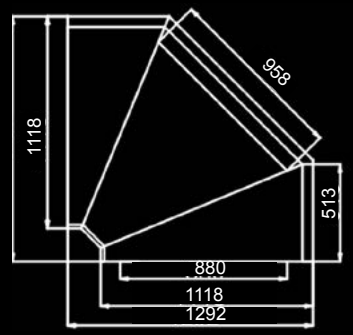
Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Remote self-service Counter	ZK0.3WF	1250*1155*870	-1~5	0.15	1.00	150
	ZK0.4WF	1875*1155*870	-1~5	0.22	1.53	225
	ZK0.5WF	2500*1155*870	-1~5	0.29	2.02	340
	ZK0.7WF	3750*1155*870	-1~5	0.43	3.03	400
Self-service Counter Corner Case	ZK-EN90°	1257*1257*870	4~12	0.16	1.04	130
	ZK-EW90°	1292*1292*870	4~12	0.16	1.04	120
Plug-in Service Counter	ZK0.3L	1340*1155*1199	-2~5	0.14	0.63	200
	ZK0.4L	1965*1155*1199	-2~5	0.21	0.94	260
	ZK0.5L	2590*1155*1199	-2~5	0.28	1.26	370
	ZK0.7L	3840*1155*1199	-2~5	0.49	1.89	450
Plug-in Self-service Counter	ZK0.3W	1340*1155*870	-1~5	0.15	1.00	170
	ZK0.4W	1965*1155*870	-1~5	0.22	1.53	240
	ZK0.5W	2590*1155*870	-1~5	0.29	2.02	360
	ZK0.7W	3840*1155*870	-1~5	0.43	3.03	420

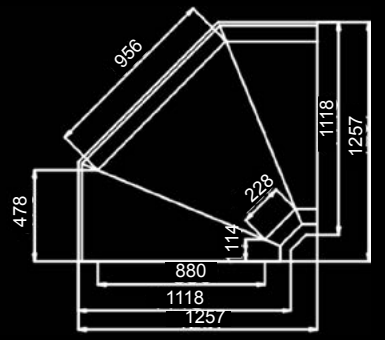


Product Features

- ☐ Self-service design, easy and convenient for customers to access
- ☐ Optimal display effect for high visibility
- ☐ Big capacity for better space utilization in the market
- ☐ With internal/external corner cases, free combination



EW90



EN90

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

E6

Velando QL Refrigerated Multidecks

-30% Overall Energy Consumption

Multi-deck Design

Improved Efficiency

Optimized Goods Sales Opportunity

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

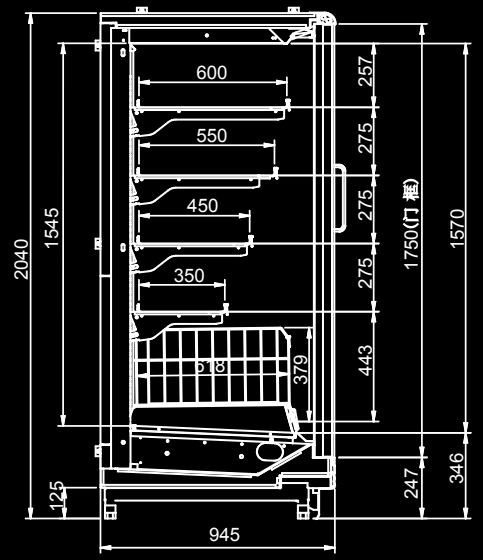
- ☐ 2-5 door options, free combination for various stores
- ☐ Unique design of 3-layer hollow anti fog glass door, for better visibility of merchandise for thermal insulation and energy saving
- ☐ High-efficiency and energy-saving door frames, more energy-efficient than traditional door frames
- ☐ Higher evaporating temperature(-28°C), in comparison with traditional refrigerated multidecks, saving 5~10% energy
- ☐ Unique solution for bottom pull-out baskets(patented design), for easy and efficient replenishment
- ☐ Reducing frequency of replenishment and minimizing the impact on shopping

E6

Velando QL Refrigerated Multidecks

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
QL Refrigerated Multidecks	Velando QL 2D HEF	1562*945*2040	≤-18	1.08	1.44	368
	Velando QL 3 D HEF	2343*945*2040	≤-18	1.62	2.16	555
	Velando QL 4D HEF	3124*945*2040	≤-18	2.17	2.88	739
	Velando QL 5 D HEF	3900*945*2040	≤-18	2.71	3.60	922



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

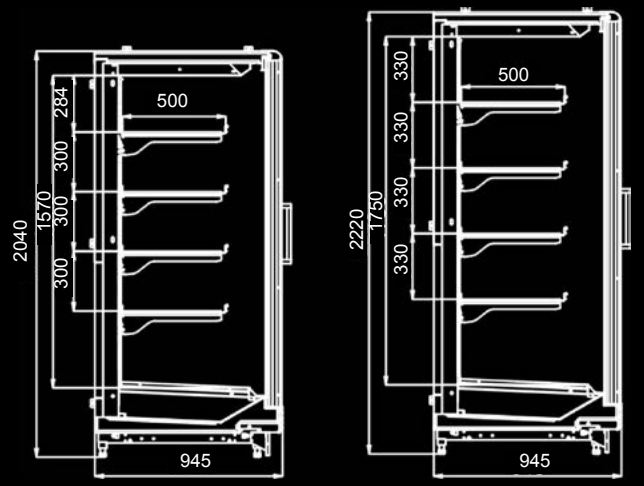
Refrigerated Multidecks

Technical Data

		Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
2.0m Multidecks	2 Doors	DB-AGDF2D156	1562*945*2040	≤-18	1.32	1.44	380
	3 Doors	DB-AGDF3D235	2343*945*2040	≤-18	2.00	2.16	520
	4 Doors	DB-AGDF4D313	3124*945*2040	≤-18	2.62	2.88	700
	5 Doors	DB-AGDF5D390	3900*945*2040	≤-18	3.32	3.60	840
2.2m Multidecks	2 Doors	DB-AGDF2D156L	1562*945*2220	≤-18	1.47	1.60	400
	3 Doors	DB-AGDF3D235L	2343*945*2220	≤-18	2.21	2.40	550
	4 Doors	DB-AGDF4D313L	3124*945*2220	≤-18	2.94	3.20	750
	5 Doors	DB-AGDF5D390L	3900*945*2220	≤-18	3.68	4.00	890

Product Features

- ☐ 2-5 door options, free combination for various stores
- ☐ Unique design of 3-layer hollow anti fog glass door, for better visibility of merchandise for thermal insulation and energy saving
- ☐ Higher evaporating temperature(-28°C), more energy-efficient and more environmentally friendly,Slow-close glass doors, avoiding strong hit of glass doors against cabinets



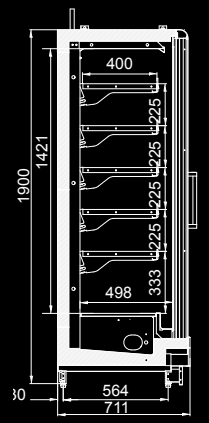
* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

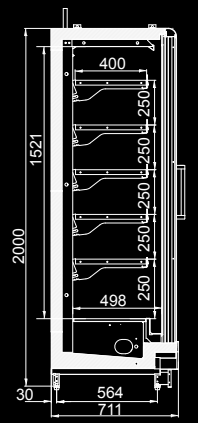
Narrow Glass Door Freezing / Refrigeration Multidecks

Technical Data

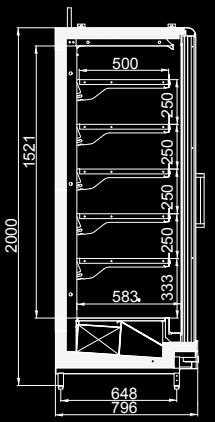
		Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Standard Refrigeration	5 Doors	DB- T80- 1900 5DA4C	3905*800*1900	2~7	2.75	3.94	715
	4 Doors	DB- T80- 1900 4DA4C	3124*800*1900	2-7	2.20	3.15	600
	3 Doors	DB- T80-1900 3DA4C	2343*800*1 900	2~7	1.65	2.37	445
	2 Doors	DB- T80-1900 2DA4C	1562*800*1900	2-7	1.10	1.58	330
	5 Doors	DB- T80- 2000 5DA4C	3905*800*2000	2~7	2.95	4.22	765
	4 Doors	DB- T80- 2000 4DA4C	3124*800*2000	2~7	2.36	3.38	640
	3 Doors	DB- T80- 2000 3DA4C	2343*800*2000	2~7	1.77	2.53	475
	2 Doors	DB- T80- 2000 2DA4C	1562*800*2000	2-7	1.18	1.69	350
	5 Doors	DB- T70-1900 5DA4C	3905*710*1900	2~7	1.93	3.94	690
	4 Doors	DB- T70-1900 4DA4C	3124*710*1 900	2~7	1.54	3. 15	600
	3 Doors	DB- T70- 1900 3DA4C	2343*710*1900	2-7	1.16	2.37	445
	2 Doors	DB- T70- 1900 2DA4C	1562*710* 1900	2~7	0.77	1.58	320
Standard Freezing	5 Doors	DB- T80- 1900 5DA8F	3905*800*1900	≤ -18	2.75	3.26	765
	4 Doors	DB- T80- 1900 4DA8F	3124*800*1900	≤ -18	2.20	2.61	640
	3 Doors	DB- T80- 1900 3DA8F	2343*800*1900	≤ -18	1.65	1.96	475
	2 Doors	DB- T80- 1900 2DA8F	1562*800* 1900	≤ -18	1.10	1.30	350
	5 Doors	DB- T80- 2000 5DA8F	3905*800*2000	≤ -18	2.95	3.99	815
	4 Doors	DB- T80- 2000 4DA8F	3124 *800*2000	≤ -18	2.36	2.79	680
	3 Doors	DB- T80- 2000 3DA8F	2343*800*2000	≤ -18	1.77	2.09	505
	2 Doors	DB- T80- 2000 2DA8F	1562*800*2000	≤ -18	1.18	1.40	370
	5 Doors	DB- T70- 1900 5DA8F	3905*710*1900	≤ -18	1.93	3.26	740
	4 Doors	DB- T70- 1900 4DA8F	3124*710*1900	≤ -18	1.54	2.61	640
	3 Doors	DB- T70-1900 3DA8F	2343*710*1900	≤ -18	1.16	1.96	460
	2 Doors	DB- T70-1900 2DA8F	1562*710* 1900	≤-18	0.77	1.30	340



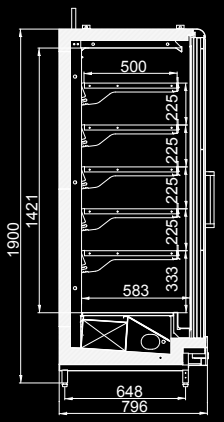
DB-T70-1900 A4C/A8F



DB-T70-2000 A4C/A8F



DB-T80-2000 A4C/A8F



DB-T80-1900 A4C/A8F

Product Features

- ☐ Narrow cabinet design to save space for markets
- ☐ Same appearance for refrigeration / freezing cabinets, for improved overall display effect
- ☐ 2-5 door options, free combination for various stores
- ☐ Unique design of 3-layer hollow anti fog glass door, for better visibility of merchandise for thermal insulation and energy saving
- ☐ 1.9/2m height options and 710mm/800 width options, for optimized space utilization in the stores

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

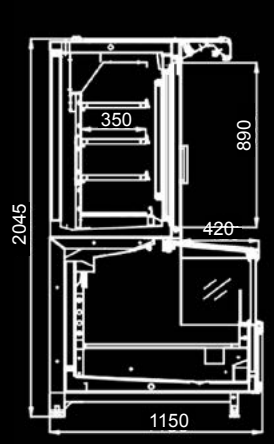
Combinations

Technical Data

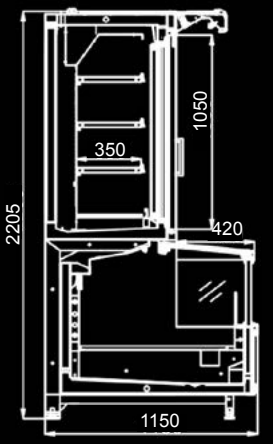
	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
2.0m Combinations	AIS1811-L3	1875*1150*2045	≤-18	1.02	1.83	500
	AIS2511-L4	2500*1150*2045	≤-18	1.35	2.44	650
	AIS2411-L4END	2380*1150*2045	≤-18	0.86	2.58	560
2.2m Combinations	AIS1811-L3H	1875*1150*2205	≤-18	1.10	2.02	570
	AIS2511-L4H	2500*1150*2205	≤-18	1.47	2.70	750
	AIS2411-L4ENDH	2380*1150*2205	≤-18	0.93	2.80	660
2.0m Wider Combinations	AIS1813-L3	1875*1300*1900	≤-18	1.04	2.02	600
	AIS2513-L4	2500*1300*1900	≤-18	1.40	2.70	700

Product Features

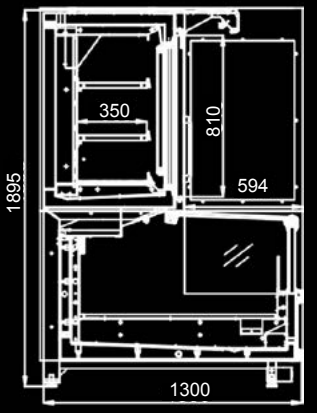
- ☐ Horizontally / vertically expanded display area, optimizing the footprint, with options for freezing and refrigeration
- ☐ Efficient air curtain design for improved air flow and temperature performance
- ☐ Parent cabinet(including end case) with options of glass sliding doors with energy saving design
- ☐ Anti fog glass sliding doors, LED lighting, T8 lighting, ESM fans, electronic expansion valves and hot gas defrost, etc., optional high-efficiency energy saving solutions



2.0m Combinations



2.2m Combinations



2.0m wider Combinations

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

Island Case

- Horizontal Display
- Big Surface Glass
- Mature
- Stable

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

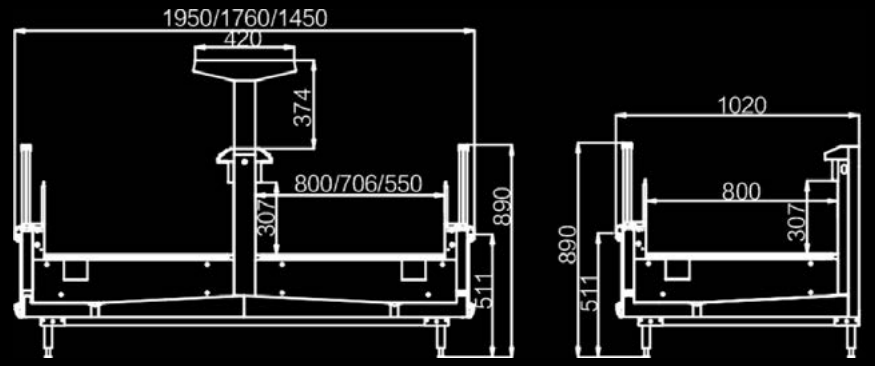
- Horizontal display, with big display area and big storage capacity, for optimized spatial arrangement in market
- Options of up-down / right-left sliding glass doors, to meet the needs of various customers
- Single-side/ Double-side island case combinations, improved store design
- High efficiency air curtain design, more energy-saving and stable
- Mature products with stable performance

Advanza

Island Case

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Double-side Island Case	AIW3720	3750*1950*890	≤-18	1.90	6.13	585
	AIW2520	2500*1950*890	≤-18	1.30	4.09	392
	AIW1820	1875*1950*890	≤-18	0.95	3.07	302
	AIW20END	1950*1020*890	≤-18	0.44	1.48	225
	AIW3718	3750*1760*890	≤-18	1.80	4.63	513
	AIW2518	2500*1760*890	≤-18	1.20	3.09	351
	AIW1818	1875*1760*890	≤-18	0.90	2.31	257
	AIW18END	1760*1020*890	≤-18	0.40	1.32	185
	AIW3715	3750*1450*890	≤-18	1.50	4.14	486
	AIW2515	2500*1450*890	≤-18	1.00	2.76	324
	AIW1815	1875*1450*890	≤-18	0.75	2.70	243
	AIW15END	1450*1020*890	≤-18	0.32	1.07	171
Single-side Island Case	AIS3710	3750*1020*890	≤-18	0.95	3.07	342
	AIS2510	2500*1020*890	≤-18	0.65	2.04	270
	AIS1810	1875*1020*890	≤-18	0.48	1.53	171
	AIS2110END	2210*1020*890	≤-18	0.52	1.69	202



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Advanza

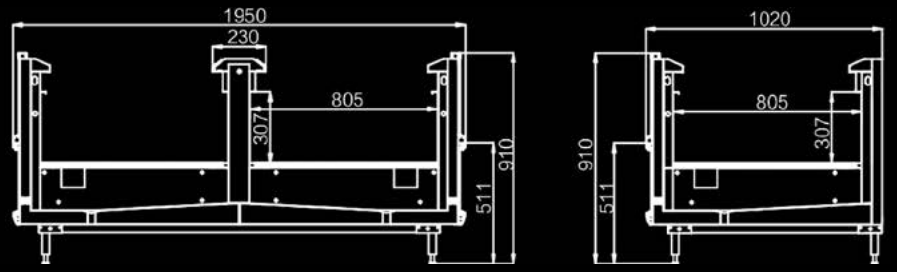
Insulated Island Case

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Double-side Island Case	AIW3720-WM	3750*1950*9 10	≤-18	1.90	5.30	585
	AIW2520-WM	2500*1950*9 10	≤-18	1.30	3.54	392
	AIW1820-WM	1875*1950*910	≤-18	0.95	2.65	302
	AIW20END-WM	1950* 1020*910	≤-18	0.44	1.28	225
Single-side Island Case	AIS3710-WM	3750*1020*9 10	≤-18	0.95	2.65	342
	AIS2510-WM	2500*1020*9 10	≤-18	0 .65	1.77	270
	AIS1810-WM	1875*1020*910	≤-18	0.48	1.33	171
	AIS211 0END-WM	2210*1020*9 10	≤-18	0 .52	1.46	202

Product Features

- ☐ Horizontally / vertically expanded display area, optimizing the footprint, with options for freezing and refrigeration
- ☐ Efficient air curtain design for improved air flow and temperature performance
- ☐ Parent cabinet(including end case) with options of glass sliding doors with energy saving design
- ☐ Anti fog glass sliding doors, LED lighting, T8 lighting, ESM fans, electronic expansion valves and hot gas defrost, etc., optional high-efficiency energy saving solutions



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

LD

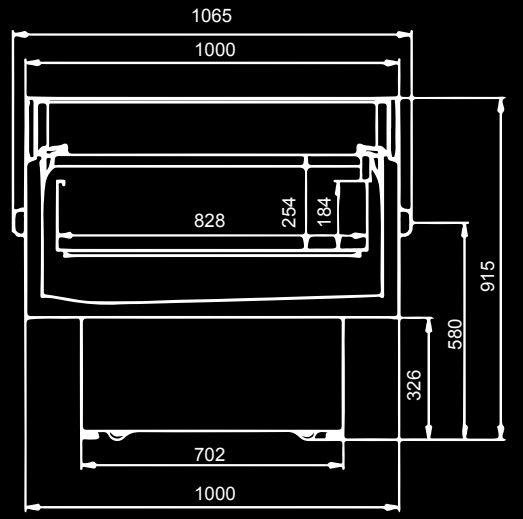
Plug-in Island Case

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
LD Island Case	AIW0.3G	1570*1065*915	≤-15/0~5	0.27	1.20	160
	AIW0.4G	2065* 1065*915	≤-15/0~5	0.29	1.58	200
	AIW0.5G	2565~1065*915	≤ -15/0~5	0.36	2.00	260

Product Features

- ☐ Dual temperature design, switch between MT and LT at will and flexible application
- ☐ Plug-in island case, plug and play, flexible deployment
- ☐ Narrow cabinets to save space for markets
- ☐ Automatic defrost, saving time and efforts
- ☐ With universal wheels at the bottom, easy to move



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Plug-in

Combined Cabinets ICFII

+10% Storage Capacity

+10% Display Area

-15% Energy Consumption

Improved Shopping Environment

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Product Features

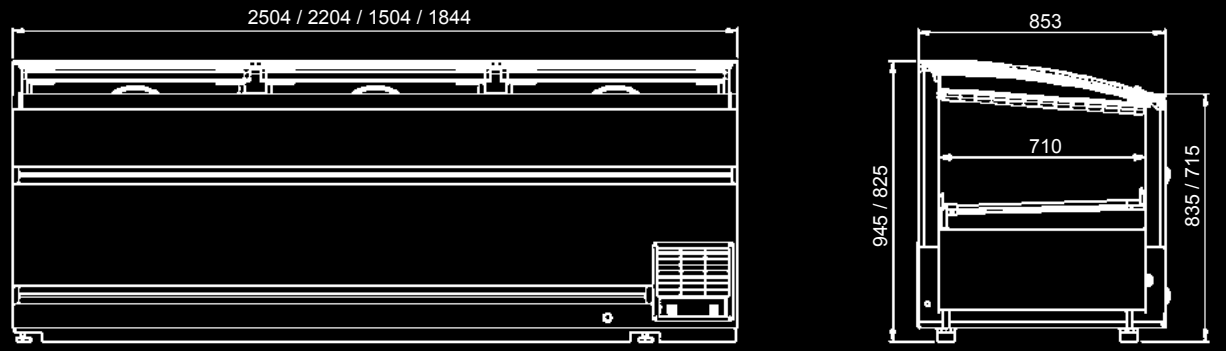
- ☐ Up-down sliding glass door making it easy for customer to access
- ☐ Arc glass to display more goods
- ☐ Excellent temperature performance
- ☐ Hot gas defrosting
- ☐ Optional non-refrigeration shelves, to make better use of the space
- ☐ Automatic defrosting at night, no affecting the shopping process

Plug-in

Combined Cabinets ICFII

Technical Data

Cabinet	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m3	Display Area/m2	Net Weight /kg	Frequency (HZ)
2500 Run Case	LD-ICF250808A	2504*853*945	≤-18	0.80	1.42	193	50
2200 Run Case	LD-ICF220808A	2204*853*945	≤-18	0.69	1.26	160	50
1500 Run Case	LD-ICF150808A	1504*853*945	≤-18	0.43	0.82	138	50
1840 End Case	LD-ICF180807A	1844*853*825	≤-18	0.45	1.03	141	50
2500 Run Case	LD-ICF250808AX	2504*853*945	≤-18	0.80	1.42	193	60
2200 Run Case	LD-ICF220808AX	2204*853*945	≤-18	0.69	1.26	160	60
1500 Run Case	LD-ICF150808AX	1504*853*945	≤-18	0.43	0.82	138	60
1840 End Case	LD-ICF180807AX	1844*853*825	≤-18	0.45	1.03	141	60



* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

HybridCO2OL

Parallel Compressor Racks

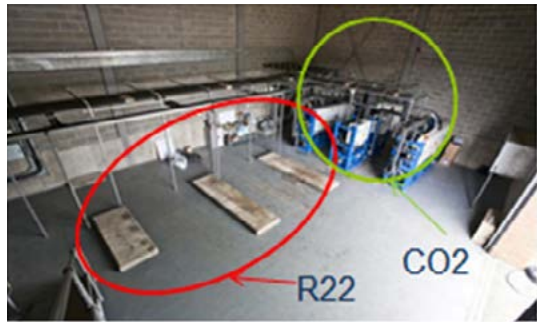
Product Features

- GWP=1, ODP=0, non-toxic, non-flammable, a natural working fluids
- Promoted by EU F-Gas Regulation
- CO_2 is cheap and is widely applied across the world
- Volumetric efficiency CO_2 is 6 times higher than that of R404A, with less pipeline
- CO_2 has better heat transfer performance and improves evaporating temperature by 2K, with high energy efficiency
- 2~4 optional compressors, standardized electrical control panels
- Independent framework, indoor installation, and easy maintenance
- High discharge temperature, easy to recover waste heat

*GWP: Global Warming Potential. ODP: Ozone Depletion Potential

Customer Value

- Natural working fluids, environmentally friendly
- and non-toxic, sustainable
- Small main pipeline, saving installation costs
- Cheap refrigerant and small charge volume with low charge costs
- Small-sized main and auxiliary parts, compact and saving machine room space
- Stable operation, with independent racks, safe & reliable
- High energy efficiency, in comparison with traditional HFC racks, saving 5%-10% energy annually
- Waste heat can be recovered to provide domestic hot water or room heating
- 2~4 optional compressors and optional cooling capacity



The images above show the differences in pipeline and machine room area after R22 system is changed into CO_2 system

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Naming Method of HybridCO2OL Parallel Compressor Racks

V C M 4 1 0 0 O E - 24

- Parallel Racks
- Refrigerant
  C:CO_2
- Applicable Temperature
  M: Low temperature
- Number of Compressors
- Control System
  0: No electrical control system
  1: Racks with Danfoss electrical control system
  2: Racks with Carel control system
- Accessories
  0: No precooler or heating recoverer, subcooler, MT suction line heat exchanger
  1: Only with precooler or heating recoverer
  2: Only with subcooler
  3: Only with MT suction line heat exchanger
  4: Both precooler and subcooler
  5: Precooler, MT suction line heat exchanger
  6: Subcooler, MT suction line heat exchanger
  7: Precooler, subcooler, MT suction line heat exchanger
  Note: Precooler or heating recoverer. Exchangers are not included in the accessories and need to be purchased
- Compressor Type
  0: Reciprocating Compressor
- Return Oil System
- Emergency CDU
  E: with emergency CDU
  N: No emergency CDU
- Total Horse Power of Racks

HybridCO2OL Parallel Compressor Racks Configuration Table

- HybridCO2OL parallel compressor racks

	Refrigerant	Refrigerant Oil	Standard Racks Model	Horse power(HP)	Compressor Configuration
1	R744(R134a*)	BSE60K	VCM4100ON-24	24	4x2CSL-6K
2			VCM3100ON-36	36	3x4CSL-12K
3			VCM4100ON-48	48	4x4CSL-12K

*HybridCO2OL Parallel compressor racks are low temperature racks, and must use with medium temperature racks. Standard racks are designed as R134a medium temperature racks.

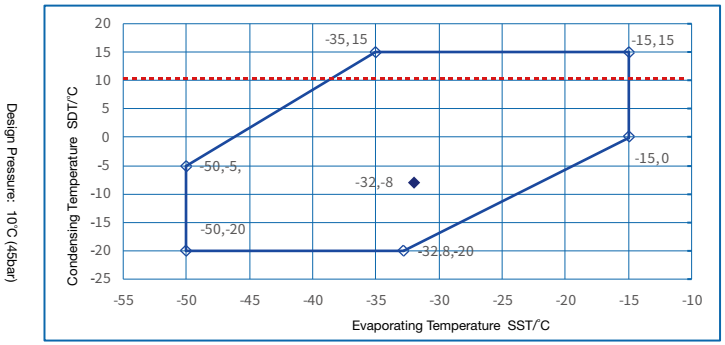
- Rated conditions: SST -32°C, SDT -8°C.
- Standard racks configuration instruction

. Each compressor is equipped with Electronic oil level regulator
. Oil separator with safety relief valve
. Oil accumulator with safety relief valve, sight glass, stop valve and differential valve
. Return oil system includes ball valves, oil filter, solenoid valve, sight glass
. Refrigerant sight glass include liquid accumulators, low liquid level switches, filters, sight glass and stop valves. System safety valves are provided and installed at site.
. Cascade brazing plate heat exchanger
. Cascade plate heat exchangers' electronic expansion valves
. Cascade plate exchangers' controllers and pressure/temperature sensors
. Angle valves are equipped with safe valves (enabled during maintenance)
. Accumulator is equipped with safety relief valve
. Suction headers and discharge headers and return oil headers
. Suction/Discharge pressure gage and pressure switch
. Welded frame
. Control system consists of electric cabinets, controllers, pressure/temperature sensors and other electric components

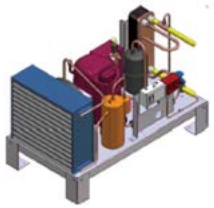
Attention: Products leave factory without refrigerant or refrigerant oil

Operation Range of HybridCO2OL Parallel Compressor Racks

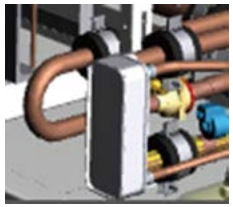
R744



Description of Optional Components



Emergency compressor unit
Independent UPS to prevent emergency stop



Liquid supply subcooler
Higher energy efficiency, higher degree of subcooling to prevent flash gas before the expansion valves

Medium Temperature return gas superheater
Higher degree of superheat for medium temperature return gas to prevent floodback

Discharge precooler
Higher heat exchange efficiency for condensers

Technical Parameters

CO_2 Racks Performance Table (Degree of Superheat 10K)

Refrigerant: R744. Condensing temperature: -10°C. Degree of superheat: 10K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	68.56	17.08	4.01	86.26	16.88	5.11	98.22	16.40	5.99	130.38	14.12	9.23
2	VCM3100ON-36	36	3x4CSL-12K	101.71	25.08	4.06	128.18	24.78	5.17	146.28	24.09	6.07	195.41	20.94	9.33
3	VCM4100ON-48	48	4x4CSL-12K	135.62	33.44	4.06	170.91	33.04	5.17	195.04	32.12	6.07	260.54	27.92	9.33

Refrigerant: R744. Condensing temperature: -8°C. Degree of superheat: 10K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	66.28	17.92	3.70	83.60	17.88	4.68	95.20	17.56	5.42	126.80	15.60	8.13
2	VCM3100ON-36	36	3x4CSL-12K	98.40	26.31	3.74	124.20	26.28	4.73	141.90	25.80	5.50	189.90	23.07	8.23
3	VCM4100ON-48	48	4x4CSL-12K	131.20	35.08	3.74	165.60	35.04	4.73	189.20	34.40	5.50	253.20	30.76	8.23

Refrigerant: R744. Condensing temperature: -5°C. Degree of superheat: 10K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	62.84	19.12	3.29	79.50	19.40	4.10	90.78	19.24	4.72	121.18	17.76	6.82
2	VCM3100ON-36	36	3x4CSL-12K	93.18	28.20	3.30	117.99	28.53	4.14	135.00	28.29	4.77	181.31	26.22	6.91
3	VCM4100ON-48	48	4x4CSL-12K	124.24	37.60	3.30	157.32	38.04	4.14	180.00	37.72	4.77	241.74	34.96	6.91

Refrigerant: R744. Condensing temperature: -0°C. Degree of superheat: 10K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	57.16	21.12	2.71	72.73	21.84	3.33	83.31	22.00	3.79	111.86	21.28	5.26
2	VCM3100ON-36	36	3x4CSL-12K	84.61	31.26	2.71	107.66	32.28	3.34	123.53	32.46	3.81	166.84	31.44	5.31
3	VCM4100ON-48	48	4x4CSL-12K	112.82	41.68	2.71	143.55	43.04	3.34	164.70	43.28	3.81	222.46	41.92	5.31

CO_2 Racks Performance Table (Degree of Superheat 20K)

Refrigerant: R744. Condensing temperature: -10°C. Degree of superheat: 20K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	67.10	17.08	3.93	84.36	16.88	5.00	96.01	16.40	5.85	127.27	14.12	9.01
2	VCM3100ON-36	36	3x4CSL-12K	99.54	25.08	3.97	125.36	24.78	5.06	142.99	24.09	5.94	190.75	20.94	9.11
3	VCM4100ON-48	48	4x4CSL-12K	132.72	33.44	3.97	167.15	33.04	5.06	190.66	32.12	5.94	254.33	27.92	9.11

Refrigerant: R744. Condensing temperature: -8°C. Degree of superheat: 20K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	64.88	17.92	3.62	81.60	17.88	4.56	93.20	17.56	5.31	123.60	15.60	7.92
2	VCM3100ON-36	36	3x4CSL-12K	96.30	26.31	3.66	121.50	26.28	4.62	138.60	25.80	5.37	185.40	23.07	8.04
3	VCM4100ON-48	48	4x4CSL-12K	128.40	35.08	3.66	162.00	35.04	4.62	184.80	34.40	5.37	247.20	30.76	8.04

Refrigerant: R744. Condensing temperature: -5°C. Degree of superheat: 20K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	61.59	19.12	3.22	77.88	19.40	4.01	88.89	19.24	4.62	118.50	17.76	6.67
2	VCM3100ON-36	36	3x4CSL-12K	91.33	28.20	3.24	115.58	28.53	4.05	132.18	28.29	4.67	177.29	26.22	6.76
3	VCM4100ON-48	48	4x4CSL-12K	121.77	37.60	3.24	154.10	38.04	4.05	176.24	37.72	4.67	236.38	34.96	6.76

Refrigerant: R744. Condensing temperature: 0°C. Degree of superheat: 20K, Degree of subcooling: 0K, 50Hz, Cooling capacity unit: kW

	HybridCO2OL Racks	HP	Compressor Configuration	Evaporating Temperature: -40°C			Evaporating Temperature: -35°C			Evaporating Temperature: -32°C			Evaporating Temperature: -25°C		
				Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP	Q0	Pe	COP
1	VCM4100ON-24	24	4x2CSL-6K	56.13	21.12	2.66	71.38	21.84	3.27	81.72	22.00	3.71	109.59	21.28	5.15
2	VCM3100ON-36	36	3x4CSL-12K	83.08	31.26	2.66	105.65	32.28	3.27	121.17	32.46	3.73	163.46	31.44	5.20
3	VCM4100ON-48	48	4x4CSL-12K	110.78	41.68	2.66	140.87	43.04	3.27	161.56	43.28	3.73	217.94	41.92	5.20

Medium Temperature Scroll

Parallel Compressor Racks

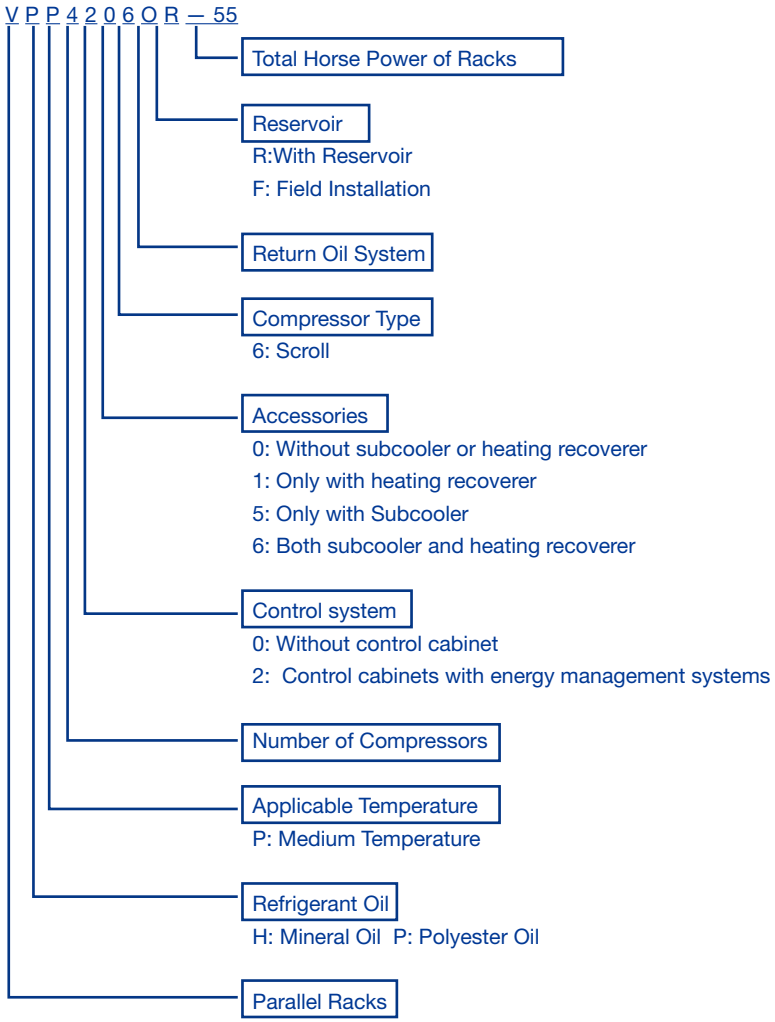
Customer Value

- Extensive application range, both water cooling and air cooling
- Wide range of adjustable cooling capacity, reliable operation even under low frequency load;
- Silent racks, 8~10dBA lower than traditional Reciprocating racks;
- Full automatic control and remote control
- Rotary control and long service life
- Compact design and small footprint

Product Features

- Non-proportional Parallel design, as many as 6 compressors, racks adjusting range 15%~100%
- Each branch is equipped with a Check Valve, Vibration eliminators, to prevent gas from flowing backward and reduce noise.
- Electronic oil level regulator is adopted to ensure reliability of return oil
- Controllers allow compressor cyclical operation to ensure service life of the racks
- Integrated framework design with compact structure

Naming Methods of Parallel Racks



Scope of Application

Working Conditions	Scroll Parallel Racks
	Medium Temperature
Refrigerant	R404A
Evaporating Temperature(℃)	-20 ~ +10

Scroll Parallel Racks Configuration (R404A)

No.	Type	Standard Options	Non-standard Options
1	Subcooler	×	√
2	Control system	With dixell*controller electric box	With controller electric box (Danfoss, Carel, etc.)
3	Racks external pipes	Liquid drain, return gas, supply liquid and discharge	By-passes for supply liquid and return gas
4	Return oil system	Liquid drain, return gas, supply liquid and discharge	×
5	Reservoir	Vertical reservoir	Horizontal Reservoir (Field installation only)
7	Condensing pressure control	×	1, Condensing pressure control switch 2, A9 System pressure control valve (cold region) optional, A8 valve needs field installation

Scroll Parallel Racks cooling Capacity Options (Air Cooling)

Racks Model No.	Compressor	Evaporating Temperature							
		to: -15°C		to: -10°C		to: -5°C		to: 0°C	
	Model x Quantity	Cooling Capacity Qo(KW)	Input Power Pe(KW)	Cooling Capacity Qo(KW)	Input Power Pe(KW)	Cooling Capacity Qo(KW)	Input Power Pe(KW)	Cooling Capacity Qo(KW)	Input Power Pe(KW)
VPP32060R-30	ZB76*3	43.8	24.45	53.25	24.66	64.2	24.87	76.2	25.08
VPP32060R-35	ZB76*2+ZB114	49.9	28.95	61.2	29.09	74	29.23	88.2	29.42
VPP32060R-40	ZB76+ZB114*2	56	33.45	69.15	33.52	83.8	33.59	100.2	33.76
VPP42060R-45	ZB76*3+ZB114	64.5	37.1	78.95	37.31	95.4	37.52	113.6	37.78
VPP42060R-50	ZB76*2+ZB114*2	70.6	41.6	86.9	41.74	105.2	41.88	125.6	42.12
VPP42060R-55	ZB76+ZB114*3	76.7	46.1	94.85	46.17	115	46.24	137.6	46.46
VPP42060R-60	ZB114*4	82.8	50.6	102.8	50.6	124.8	50.6	149.6	50.8
VPP52060R-65	ZB76*2+ZB114*3	91.3	54.25	112.6	54.39	136.4	54.53	163	54.82
VPP52060R-70	ZB76+ZB114*4	97.4	58.75	120.55	58.82	146.2	58.89	175	59.16
VPP52060R-75	ZB114*5	103.5	63.25	128.5	63.25	156	63.25	187	63.5
VPP62060R-90	ZB114*6	124.2	75.9	154.2	75.9	187.2	75.9	224.4	76.2

1) Cooling capacity and input power listed are based on condensing temperature at 45°C, without liquid subcooling.
2) The power wire for the compressor racks is three-phase 380V/50Hz, the power for the control operation is one-phase 220V/50Hz.
3) If the compressor racks are to operate with different evaporating temperature or with too high/too low ambient temperature, please contact us.
4) If you need water-cooling racks, please contact our technical staffs.

Technical Parameters

Racks Model No.	Dimension of Racks' External Pipes				External Dimensions			Max. Working Current	Weight	Machine Room Ventilation Rate	Reference Drawing
	Discharge DL	Suction SL	Liquid Pipe Inlet	Liquid Pipe Outlet	L	W	H	A	kg	m^3/h	
VPP3206OR-30	35	54	35	35	2910	900	2160	96.84	970	3500	
VPP3206OR-35	35	67	35	35	2910	900	2160	110.16	980	4000	
VPP3206OR-40	35	67	35	35	2910	900	2160	123.48	990	4500	
VPP4206OR-45	35	67	35	35	3390	900	2160	136.8	1000	5000	
VPP4206OR-50	35	67	35	35	3390	900	2160	155.76	1120	5500	
VPP4206OR-55	42	76	42	42	3390	900	2160	169.08	1130	6000	
VPP4206OR-60	42	76	42	42	3390	900	2160	182.4	1140	6500	
VPP5206OR-65	42	76	42	42	3870	900	2160	201.36	1270	7000	
VPP5206OR-70	42	89	42	42	3870	900	2160	214.68	1280	7500	
VPP5206OR-75	42	89	42	42	3870	900	2160	228	1290	8000	
VPP6206OR-90	42	89	42	42	4350	900	2160	273.6	1350	9500	

1) The dimensions of the racks' external pipes are for standard racks and can be customized.
2) Ball valves and headers on the pipeline can be customized.
3) If more than one Parallel racks are used in the machine room, it is necessary to calculate the total ventilation rate.
4) If you need water-cooling racks, please contact our technical staffs.

Reciprocating

Parallel Compressor Racks

Large Parallel Racks
(30~350HP)

Small Parallel Racks
(13~45HP)

Product Features

- Multi-compressor parallel design, range of optional cooling capacity: 13HP~350HP
- R22/R404A and other refrigerant options
- Multiple non-standard options
- Self-developed special refrigeration compressors, reliable and efficient
- Compressors and system with individual pressure switches and electric protection for reliable operation
- Three-stage oil separator, with an efficiency of >98%
- Integrated structure design, compact and easy to install

Customer Value

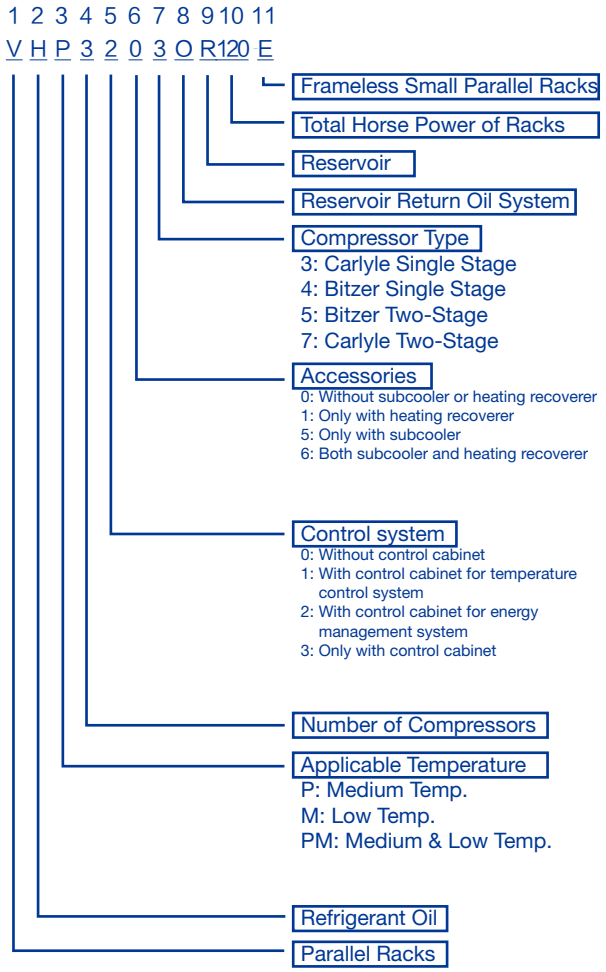
- Applicable for many refrigerants and multiple scenarios, with a cooling capacity of 350HP;
- Many non-standard custom for various sites;
- High energy efficiency, low operation cost, low temperature two-stage reciprocating parallel racks saving at least 30% energy and medium temperature parallel racks saving about 5% energy
- Reliable operation, safe and stable
- System with good return oil and long service life
- Compact structure and small footprint

Scope of Application

Working Conditions	Reciprocating Compressor					
	Medium Temperature		Single Stage Low Temperature		Two-Stage Low Temperature	
Refrigerant	R22	R404A	R22	R404A	R22	R404A
Evaporating Temperature (℃)	-18 ~ +7	-18 ~ +4	-37 ~ -18	-40 ~ -18	-50 ~ -24	-50 ~ -24

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Naming Methods of Parallel Compressor Racks



Technical Parameters

<45HP Small Parallel Reciprocating Compressor Racks (R404A)

Low Temperature Racks

Model	HP	Compressor	Evaporating Temperature					
			-37℃		-35℃		-30℃	
			Cooling Capacity Qo(KW)	Input Power Pe(KW)	Cooling Capacity Qo(KW)	Input Power Pe(KW)	Cooling Capacity Qo(KW)	Input Power Pe(KW)
VPM2203OR-13E	13	2*06DR725	7.48	6.4	8.72	7.02	12.28	8.58
VPM2203OR-15E	15	2*06DR228	10.18	8.28	11.78	9.08	16.18	11.4
VPM2203OR-20E	20	2*06DR337	14.94	11.96	16.64	12.78	21.54	14.96
VPM2203OR-30E	30	2*06DR541	23.7	17.2	18.08	14.98	23.7	17.2
VPM3203OR-30E	30	3*06DR337	22.41	17.94	24.96	19.17	32.31	22.44
VPM3203OR-45E	45	3*06DR541	35.55	25.8	27.12	22.47	35.55	25.8

Medium Temperature Racks

Model	HP	Compressor	Evaporating Temperature					
			-12℃		-10℃		-5℃	
			Cooling Capacity Qo(KW)	Input Power Pe(KW)	Cooling Capacity Qo(KW)	Input Power Pe(KW)	Cooling Capacity Qo(KW)	Input Power Pe(KW)
VPP2203OR-15E	15	2*06DA825	27.28	13.72	30.28	14.26	38.68	15.44
VPP2203OR-20E	20	2*06DA328	33.86	16.74	37.22	17.28	46.66	18.48
VPP2203OR-30E	30	2*06DA537	47.26	22.82	51.72	23.62	64.14	25.4
VPP3203OR-35E	35	2*06DA328+06DA537	57.49	28.15	63.08	29.09	78.73	31.18
VPP3203OR-40E	40	06DA328+2*06DA537	64.19	55.63	41.43	60.36	46.95	73.38
VPP3203OR-45E	45	3*06DA537	70.89	34.23	77.58	35.43	96.21	38.1

Note: 1) The cooling capacity and input power of the all racks are based on condensing temperature at +45°C, liquid with subcooler. 2) The power wire for the compressor racks is three-phase 380V/50HZ . 3) Optional refrigerants, R22 and R404A. 4) Height and weight of low temperature racks includes head fans. 5) Excluding freight. 6) If you need R22 refrigerant, please contact our technical staffs.

Technical Parameters

>45HP Large Parallel Reciprocating Compressor Racks (R404A)

Low Temperature Two-Stage Parallel Racks

Racks Model No.	Compressor	Evaporating Temperature							
		※ to: -50°C		to: -45°C		to: -40°C		to: -35°C	
	Model x Quantity	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)
VPM2257OR-30	06CC550*2	—	—	—	—	17.40	11.48	23.94	13.40
VPM2257OR-40	06CC675*2	19.96	13.78	25.06	16.5	32.16	19.38	41.06	22.20
VPM3257OR-45	06CC550*3	—	—	—	—	26.10	17.22	35.91	20.10
VPM3257OR-60	06CC675*3	29.94	20.67	37.59	24.75	48.24	29.07	61.59	33.30
VPM3257OR-90	06CC899*3	42.99	30.66	52.23	36.12	65.64	41.70	82.62	47.25
VPM4257OR-120	06CC899*4	57.32	40.88	69.64	48.16	87.52	55.60	110.16	63.00
VPM5257OR-150	06CC899*5	71.65	51.11	87.05	60.20	109.40	69.50	137.70	78.75
VPM6257OR-180	06CC899*6	85.98	61.32	104.46	72.24	131.28	83.40	165.24	94.50

Low Temperature Parallel Racks

Racks Model No.	Compressor	Evaporating Temperature							
		※ to: -40°C		to: -35°C		to: -30°C		to: -25°C	
	Model x Quantity	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)
VPM2203OR-30	06ER450*2	12.88	12.94	20.42	17.14	28.94	21.26	38.58	25.24
VPM2203OR-40	06ER475*2	18.84	18.64	29.04	23.84	40.96	29.26	54.90	34.80
VPM3203OR-45	06ER450*3	19.32	19.41	30.63	25.71	43.41	31.89	57.87	37.86
VPM3203OR-60	06ER475*3	28.26	27.96	43.56	35.76	61.44	43.89	82.35	52.20
VPM3203OR-90	06ER399*3	41.22	40.35	58.56	49.71	78.78	59.67	102.42	70.08
VPM4203OR-120	06ER399*4	54.96	53.80	78.08	66.28	105.04	79.56	136.56	93.44
VPM5203OR-130	06ER399*3+06ER475*2	60.06	58.99	87.60	73.55	119.74	88.93	157.32	104.88
VPM5203OR-150	06ER399*5	68.70	67.25	97.60	82.85	131.30	99.45	170.70	116.80
VPM6203OR-160	06ER399*4+06ER475*2	73.80	72.44	107.12	90.12	146.00	108.82	191.46	128.24
VPM6203OR-180	06ER399*6	82.44	80.70	117.12	99.42	157.56	119.34	204.84	140.16

Medium Temperature Parallel Racks

Racks Model No.	Compressor	Evaporating Temperature							
		※ to: -15°C		to: -12°C		to: -10°C		to: -5°C	
	Model x Quantity	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)	Cooling Capacity (KW)	Input Power (KW)
VPP2203OR-30	06EM450*2	49.02	24.78	57.26	26.94	63.20	28.34	79.72	31.66
VPP2203OR-40	06EM475*2	77.50	37.62	89.92	40.72	98.88	42.78	123.98	47.84
VPP3203OR-45	06EM450*3	73.53	37.17	85.89	40.41	94.80	42.51	119.58	47.49
VPP3203OR-75	06EM475*3	116.25	56.43	134.88	61.08	148.32	64.17	185.97	71.76
VPP3203OR-105	06EM499*3	180.78	87.06	199.89	92.40	213.48	95.52	250.92	102.60
VPP4203OR-120	06EM499*2+06EM475*2	198.02	95.66	223.18	102.32	241.20	106.46	291.26	116.24
VPP4203OR-130	06EM499*3+06EM475	219.53	105.87	244.85	112.76	262.92	116.91	312.91	126.52
VPP4203OR-140	06EM499*4	241.04	116.08	266.52	123.20	284.64	127.36	334.56	136.80
VPP5203OR-155	06EM499*3+06EM475*2	258.28	124.68	289.81	133.12	312.36	138.30	374.90	150.44
VPP5203OR-175	06EM499*5	301.30	145.10	333.15	154.00	355.80	159.20	418.20	171.00
VPP6203OR-190	06EM499*4+06EM475*2	318.54	153.70	356.44	163.92	383.52	170.14	458.54	184.64
VPP6203OR-210	06EM499*6	361.56	174.12	399.78	184.80	426.96	191.04	501.84	205.20

Non-standard Options for >45HP Large Parallel Reciprocating Compressor Racks

	Non-standard Options for Reciprocating Parallel Racks
1	Liquid feeding by-pass with valves, specifications 1/2" (12mm)~2-1/8"(54mm)
2	Return gas by-pass with valves, specification 7/8" (22mm)~4-1/4"(108mm)
3	Discharge main check valve
4	Shock-proof discharge pipe for compressor (Standard muffler)
5	Electronic oil level regulator (standard mechanical oil level equalizer)
6	Condensing pressure control valve(A8/A9)
7	Condensing pressure control switch
8	Reservoir plug-in or remote installation
9	Reservoir vertical or horizontal structure
10	Single stage low temperature or medium temperature subcooler configuration
11	Hot gas defrosting
12	Medium and low temperature integrated racks
13	Multi suction pressure in one rack
14	Main incoming circuit-breaker
15	Optional controller brands, Dixell (Standard), Carel , Danfoss, PLC

Note: 1) For this compressor rack, available non-standard rack confiigurations are listed in the customer Non-standard options. 2) When ordering compressor racks, the customers may choose one or several non-standard configuration options according to the actual conditions of the project and system design. 3) To meet the changing demand of the customers, the non-standard options for compressor racks will be updated constantly.

1) The cooling capacity and input power listed above are based on an ambient temperature of 32°C, the condensing temperature is 45°C, no subcooler for the liquid, the temperature of the interstage cooling liquid for two-stage is 4.4°C. For example, SIT+2.8>4.4°C, the temperature is SIT+5.6°C
2) The power wire for the compressor racks is three-phase 380V/50Hz and the power for the control operation is one-phase 220V/50Hz.
3) If the compressor racks are to operate with different evaporating temperature or with too high/too low ambient temperature, please contact us.
4) For application under working conditions of ※ temperature (i.e. -50°C), you'd better contact our technical staffs.
5) If you need R22 refrigerant, please contact our technical staffs.

Technical Parameters of >45HP Large Parallel Reciprocating Compressor Racks

Racks Model No.	Dimension of Racks' External Pipes (mm)				External Dimension			Max. Working Current	Weight	Machine Room Ventilation Rate
	Discharge DL	Suction SL	Liquid Pipe Inlet	Liquid Pipe Outlet	L (mm)	W (mm)	H (mm)	A	kg	m^3/h
VPM2257OR-30	35	67	35	28	2700	1200	1900	52	1400	2700
VPM2257OR-40	35	67	35	28	2700	1200	1900	80	1600	3200
VPM3257OR-45	35	76	35	35	3400	1200	1900	78	1800	4100
VPM3257OR-60	35	76	35	35	3400	1200	1900	120	2000	4800
VPM3257OR-90	42	76	42	35	3400	1200	1900	174	2100	6600
VPM4257OR-120	54	89	42	35	4100	1200	1900	232	2500	8800
VPM5257OR-150	54	108	54	42	4900	1200	1900	290	3000	11000
VPM6257OR-180	54	108	54	42	5500	1200	1900	348	3500	13500
VPM2203OR-30	35	67	35	28	2700	1200	1900	72	700	3200
VPM2203OR-40	35	67	35	28	2700	1200	1900	88	800	3800
VPM3203OR-45	35	76	35	35	3400	1200	1900	108	1000	4750
VPM3203OR-60	35	76	35	35	3400	1200	1900	132	1100	5650
VPM3203OR-90	42	76	42	35	3400	1200	1900	204	1200	8600
VPM4203OR-120	42	89	42	35	4100	1200	1900	272	1700	11500
VPM5203OR-130	54	108	54	42	4900	1200	1900	292	2000	13000
VPM5203OR-150	54	108	54	42	4900	1200	1900	340	2000	15500
VPM6203OR-160	54	108	54	42	5500	1200	1900	360	2300	16000
VPM6203OR-180	54	108	54	42	5500	1200	1900	408	2300	19000
VPP2203OR-30	35	67	35	28	2700	1200	1900	72	700	3200
VPP2203OR-40	35	67	35	28	2700	1200	1900	88	800	4750
VPP3203OR-45	42	76	42	35	3400	1200	1900	108	1000	4750
VPP3203OR-75	42	76	42	35	3400	1200	1900	168	1100	7300
VPP3203OR-105	54	89	42	42	3400	1200	1900	231	1300	10000
VPP4203OR-120	54	89	54	54	3900	1200	1900	266	1400	11500
VPP4203OR-130	54	89	54	54	3900	1200	1900	287	1500	12600
VPP4203OR-140	54	108	54	54	3900	1200	1900	308	1700	13500
VPP5203OR-155	54	108	54	54	4600	1200	1900	343	2000	15000
VPP5203OR-175	67	108	54	54	4600	1200	1900	385	2000	16000
VPP6203OR-190	67	108	54	54	4600	1200	1900	420	2300	18500
VPP6203OR-210	67	108	54	54	5300	1200	1900	462	2300	19500

1) If you need R22 refrigerant, please contact our technical staffs.

Technical Parameters of <45HP Small Parallel Reciprocating Compressor Racks

Racks Model No.	Dimension of Racks' External Pipes (mm)				External Dimension (mm)			Max. Working Current	Weight	Machine Room Ventilation Rate
	Discharge	Suction	Return Liquid	Supply Liquid	L	W	H	A	kg	m^3/h
VPM2203 OR-13E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	22.26	500	1600
VPM2203 OR-15E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	31.2	500	1600
VPM2203 OR-20E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	36.42	500	2000
VPM2203 OR-30E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	44.52	500	3000
VPM3203 OR-30E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	1009	54.63	650	3000
VPM3203 OR-45E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	1009	66.78	650	4500
VPP2203 OR-15E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	35.44	500	2000
VPP2203 OR-20E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	41.8	500	2500
VPP2203 OR-30E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	48	500	3500
VPP3203 OR-35E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	814	70.8	650	4000

Medium Temperature DC Inverter

Condensing Units

1.5~4HP
Rotor Compressor
Single Compressor
Single Fan

6~10HP
Rotor Compressor
Single Compressor
Dual Fans

18HP~21HP
Scroll Compressor
Dual Compressors
Single Fan

27HP~46HP
Scroll Compressor
Dual Compressors
Dual fans

Customer Value

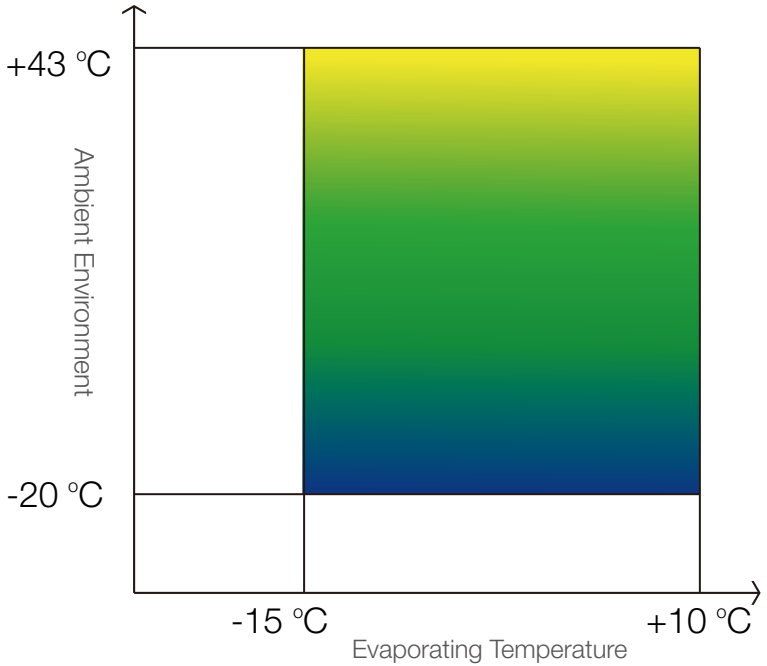
- Various model options, applicable for convenience stores, supermarkets, cold storage and multiple scenarios
- The adjustable range of cooling capacity is wide with small fluctuation and food storage temperature is low
- Low running cost and over 30% of annual energy saving compared with fixed frequency unit
- A quiet unit with noise reduced 4dBA compared with fixed frequency unit
- The size of pipeline is small to save installation cost
- Application scope is wide with the highest adaptable temperature of 43°C
- Compact structure to save occupied land areas

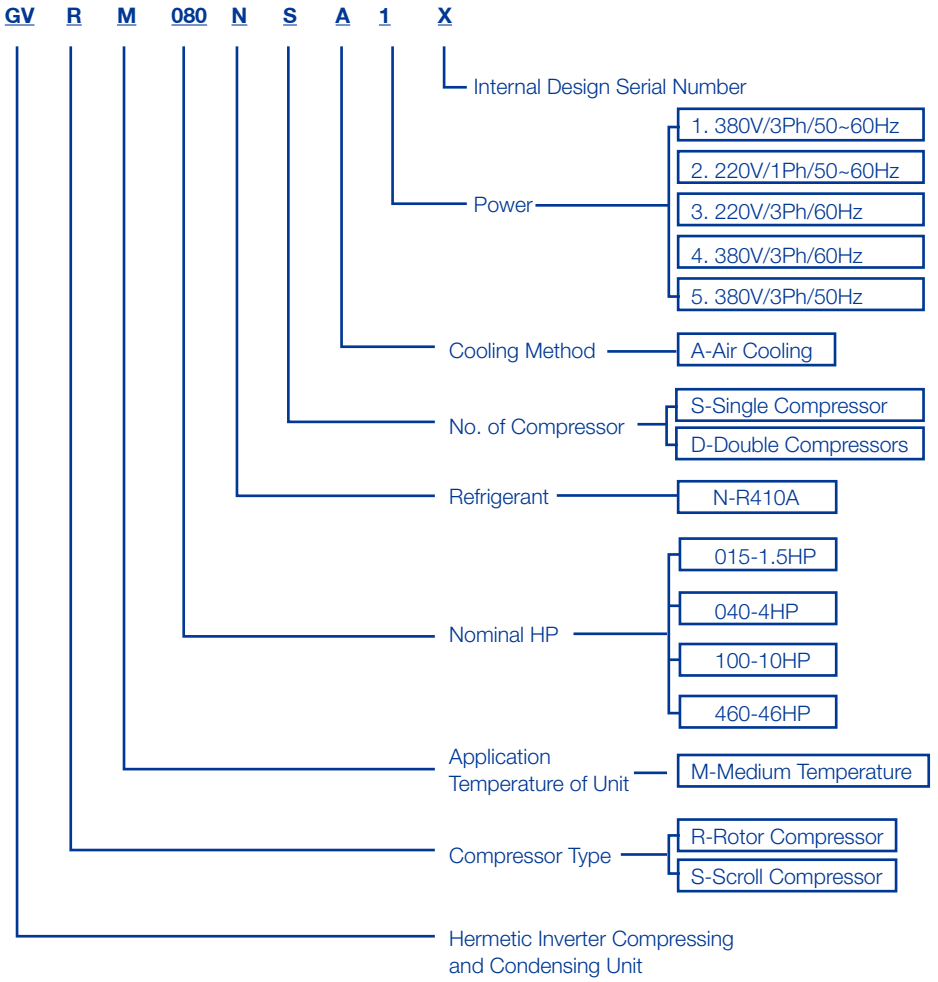
Product Features

- DC inverter compressor design with step-less regulation of load and rotary speed for maintaining high efficiency and saving energy
- DC inverter fan with automatic adjustment of fan speed for reducing noise and saving energy
- Thickened sound insulation cotton with effective noise insulation
- R410A refrigerant adopted with high volumetric efficiency
- Large areas of condensing coils adopted for ensuring operation under high temperature
- Integrated shell without separate machine room for saving space and convenient installation

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Operation Range and Naming Methods





Technical Parameters (1.5-10HP)

Type of Unit	GVRM 015NSA2A	GVRM 025NSA2A	GVRM 035NSA2A	GVRM 040NSA1A	GVRM 060NSA1A	GVRM 080NSA1A	GVRM 100NSA1A
Refrigerant	R410A						
Supply Voltage of Unit	220V/1Ph/50~60Hz			380V/3Ph/50~60Hz			
Compressor Model	SNB140 FCAMC	TNB220 FFEMC-L	TNB306 FPPMC-L	MNB36 FABMC	LNB42 FSAMC	LNB53 FCAMC	LNB65F
Type of Refrigerant Oil	FV50S			FV50S			
Compressor Oil Charge (L)	0.35	0.72	1.07	1.1	1.4	1.7	2.3
Number of Fan	1				2		
Diameter of Fan (mm)	500						
Fan Speed Range (rpm)	300~850						
Maximum Air Volume (m^3/h)	4030				7060		
Reservoir Volume (L)	4.5				8.8		
Maximum Cooling Capacity of Unit (kW)	4.6	7.6	9.3	10.9	14.3	17.5	18.7
Maximum Power of Unit (kW)	1.9	3.2	4.2	5.1	5.5	7.6	8.1
Noise of Unit dBA@1m	52	53	53	56	59	60	60
Rated Running Current of Unit (A)	6	9	11	5.0	6.3	8.9	9.6
Maximum Running Current (A)	12	16	23	12	16	23	25
Diameter of Suction Pipe [in.]	1/2		5/8		3/4		
Diameter of Liquid Pipe [In.]	3/8				1/2		
Dimensions (L x W x H) (mm)	1064X424X802				1064X448X1358		
Weight (kg)	93	95	97	97	142	146	150

Cooling capacity power testing conditions: National standard medium temperature working conditions: GB/T21363-2008
Evaporating temperature: -7℃, ambient temperature: 32℃, return temperature 18℃.

Performance Parameters (1.5-10HP)

Model	Ambient Temperature ℃	Cooling Capacity Q Input Power P (kW)	Evaporating Temperature ℃							
			−10		−7		−5		0	
			Min	Max	Min	Max	Min	Max	Min	Max
1.5HP	27	Q	2.7	4.2	3.1	4.8	3.4	5.1	4.1	6.3
		P	0.9	1.8	0.9	1.8	1.0	1.8	1.0	2.0
	32	Q	2.7	4.1	3.0	4.6	3.2	5.0	4.0	6.0
		P	1.0	1.9	1.0	1.9	1.1	2.0	1.1	2.1
	38	Q	2.4	3.7	2.7	4.2	2.9	4.6	3.7	5.5
		P	1.1	1.9	1.1	2.0	1.2	2.0	1.2	2.2
	43	Q	2.2	3.1	2.5	3.6	2.7	3.9	3.3	4.8
		P	1.1	2.0	1.2	2.2	1.2	2.1	1.2	2.2
2.5HP	27	Q	4.6	7.1	5.2	8.0	5.6	8.5	6.7	10.5
		P	1.5	2.7	1.5	2.7	1.5	2.9	1.6	3.0
	32	Q	4.4	6.8	4.9	7.6	5.3	8.2	6.3	9.7
		P	1.6	2.9	1.7	3.2	1.7	3.1	1.8	3.3
	38	Q	4.1	6.4	4.6	7.0	4.9	7.6	5.9	9.1
		P	1.8	3.1	1.9	3.4	1.9	3.5	2.0	3.7
	43	Q	3.8	5.5	4.3	6.3	4.6	6.7	5.6	8.4
		P	2.0	3.5	2.0	3.6	2.1	3.8	2.2	4.1
3.5HP	27	Q	6.2	8.8	6.9	9.8	7.5	10.6	8.9	12.5
		P	2.1	3.5	2.1	3.7	2.2	3.8	2.3	4.1
	32	Q	5.9	8.3	6.6	9.3	7.1	10.1	8.5	11.9
		P	2.3	3.9	2.4	4.2	2.4	4.3	2.6	4.5
	38	Q	5.5	7.7	6.1	8.6	6.6	9.3	7.9	11.1
		P	2.6	4.2	2.7	4.5	2.7	4.6	2.9	5.0
	43	Q	5.1	6.7	5.7	7.5	6.2	8.2	7.4	10.1
		P	2.8	4.6	2.9	4.8	2.9	5.0	3.1	5.5
4HP	27	Q	7.2	10.8	8.0	11.9	8.6	12.7	10.1	14.8
		P	2.4	4.6	2.5	4.8	2.6	4.9	2.7	5.3
	32	Q	6.5	9.8	7.3	10.9	7.8	11.6	9.2	13.5
		P	2.7	4.9	2.7	5.1	2.8	5.3	2.9	5.7
	38	Q	5.8	8.7	6.4	9.6	6.9	10.3	8.1	12.0
		P	2.9	5.5	3.0	5.6	3.1	5.7	3.2	6.1
	43	Q	4.9	6.5	5.5	7.5	5.9	8.0	7.0	9.4
		P	3.2	5.8	3.3	6.3	3.4	6.3	3.6	6.6
6HP	27	Q	9.1	13.6	10.2	15.2	11.0	16.4	13.3	19.5
		P	2.9	5.0	3.0	5.1	3.0	5.3	3.2	5.7
	32	Q	8.5	12.7	9.8	14.3	10.4	15.4	12.5	18.4
		P	3.2	5.3	3.3	5.5	3.3	5.7	3.5	6.1
	38	Q	7.8	11.9	8.9	13.2	9.6	14.2	11.5	17.0
		P	3.5	5.6	3.6	5.9	3.7	6.1	3.8	6.5
	43	Q	7.1	9.4	8.0	10.7	8.6	11.8	10.4	14.9
		P	3.8	6.1	4.0	6.4	4.0	6.7	4.1	7.3
8HP	27	Q	10.9	16.6	12.2	18.7	13.2	20.1	15.9	24.1
		P	3.6	6.7	3.8	6.9	3.9	7.2	4.1	8.0
	32	Q	10.2	15.5	11.5	17.5	12.4	18.9	15.0	22.7
		P	3.9	7.2	4.1	7.6	4.2	7.8	4.5	8.5
	38	Q	9.3	14.6	10.6	16.1	11.5	17.4	13.9	20.9
		P	4.3	7.5	4.5	8.2	4.6	8.5	5.0	9.3
	43	Q	8.4	11.8	9.5	13.3	10.3	14.5	12.6	18.4
		P	4.8	8.0	5.0	8.9	5.1	9.3	5.4	10.4
10HP	27	Q	12.9	17.9	14.3	20.2	15.3	21.7	18.2	26.0
		P	4.3	7.5	4.5	7.6	4.6	8.0	4.8	8.7
	32	Q	12.0	16.6	13.5	18.7	14.5	20.2	17.2	24.3
		P	4.7	8.0	4.9	8.1	4.9	8.8	5.4	9.2
	38	Q	11.2	15.6	12.5	17.2	13.4	18.6	15.9	22.4
		P	5.3	8.5	5.3	8.9	5.4	9.4	5.9	9.8
	43	Q	10.1	12.5	11.2	14.1	12.2	15.4	14.5	19.5
		P	5.8	9.0	5.9	9.7	6.0	10.3	6.4	10.8

*Max. load 90rps, Min. load 60rps

Technical Parameters (18-46HP)

Type of Unit	GVSM 180NDA50	GVSM 210NDA50	GVSM 270NDA50	GVSM 350NDA50	GVSM 460NDA50
Refrigerant	R410A				
Supply Voltage of Unit	380V/3Ph/50Hz				
Compressor Model	SH090 +VZH088	SH120 +VZH088	SH161 +VZH117	SH180 +VZH170	SH295 +VZH170
Type of Refrigerant Oil	160SZ				
Self-contained Oil in the Compressor	6.3	6.6	6.9	13.4	13.4
Complimentary Oil (Refill according to site requirements) (L)	2.5				
Number of Fan	1		2		
Diameter of Fan (mm)	800				
Fan Speed Range (rpm)	710				930
Nominal Air Volume (m^3/h)	14000				19000
Reservoir Volume (L)	20		40		
Oil Accumulator Capacity (L)	4		8		
Maximum Cooling Capacity of Unit (kW)	39.5	43.6	56.5	75.6	92.6
Maximum Power of Unit (kW)	16.4	18.5	23.7	31.2	39.2
Noise of Unit dBA@1m	65		67	70	72
Rated Running Current of Unit (A)	26	30	39	45	59
Maximum Running Current (A)	60	65	80	100	125
Diameter of Suction Pipe [In.]	1 3/8		1 5/8	2 1/8	
Diameter of Liquid Pipe [In.]	5/8		7/8		1 1/8
Dimensions (L x W x H) (mm)	1240x1050x1870		2240x1200x2250		
Weight (kg)	565	575	700	870	880

Cooling capacity power testing conditions: National standard medium temperature working conditions: GB/T21363-2008 Evaporating temperature: -7℃, ambient temperature: 32℃, return temperature 18℃.

Performance Parameters (18-46HP)

Model	Ambient Temperature ℃	Cooling Capacity Q Input Power P (kW)	Evaporating Temperature ℃							
			−10		−7		−5		0	
			Min	Max	Min	Max	Min	Max	Min	Max
18HP	27	Q	29.9	37.7	33.3	41.8	35.7	44.8	42.2	52.7
		P	10.8	14.7	11.0	15.1	11.1	15.4	11.6	16.2
	32	Q	28.2	35.6	31.4	39.5	33.7	42.3	40.0	49.9
		P	11.8	16.0	12.1	16.4	12.2	16.7	12.7	17.6
	38	Q	26.2	33.1	29.2	36.8	31.4	39.4	37.2	46.5
		P	13.3	17.8	13.5	18.2	13.7	18.5	14.2	19.3
	43	Q	24.5	30.9	27.3	34.4	29.4	36.9	34.9	43.6
		P	14.6	19.4	14.8	19.8	15.0	20.1	15.5	20.9
21HP	27	Q	34.1	41.6	38.0	46.1	40.7	49.3	48.0	57.9
		P	12.4	16.4	12.8	17.0	13.0	17.4	13.8	18.6
	32	Q	32.2	39.2	35.9	43.6	38.5	46.6	45.5	54.9
		P	13.7	18.0	14.0	18.5	14.3	18.9	15.0	20.1
	38	Q	29.9	36.4	33.3	40.5	35.8	43.4	42.3	51.1
		P	15.3	19.9	15.7	20.5	16.0	20.9	16.7	22.1
	43	Q	27.9	34.0	31.1	37.9	33.4	40.6	39.7	47.9
		P	16.8	21.7	17.2	22.3	17.5	22.7	18.2	23.8
27HP	27	Q	43.9	54.0	48.7	59.8	52.2	64.0	61.5	75.1
		P	15.8	21.1	16.1	21.6	16.4	22.0	17.0	23.1
	32	Q	41.4	51.0	46.0	56.5	49.3	60.5	58.2	71.0
		P	17.5	23.1	17.8	23.7	18.1	24.1	18.7	25.2
	38	Q	38.3	47.3	42.7	52.5	45.8	56.1	54.1	66.0
		P	19.8	25.8	20.1	26.3	20.3	26.7	20.9	27.8
	43	Q	35.7	44.1	39.9	49.0	42.8	52.5	50.7	61.7
		P	21.8	28.2	22.1	28.7	22.3	29.1	23.0	30.2
35HP	27	Q	56.9	72.1	63.2	79.9	67.7	85.4	79.9	100.2
		P	20.7	27.9	21.0	28.6	21.2	29.1	21.9	30.5
	32	Q	53.8	68.2	59.8	75.6	64.1	80.8	75.7	94.9
		P	22.7	30.4	23.1	31.2	23.3	31.7	24.0	33.1
	38	Q	49.9	63.4	55.6	70.4	59.7	75.3	70.6	88.5
		P	25.5	33.8	25.8	34.5	26.0	35.1	26.7	36.5
	43	Q	46.7	59.3	52.1	65.9	55.9	70.5	66.2	83.0
		P	27.9	36.8	28.3	37.6	28.5	38.1	29.2	39.5
46HP	27	Q	73.8	88.3	81.9	97.8	87.7	104.5	103.3	122.5
		P	27.9	35.2	28.5	36.2	29.0	36.9	30.2	38.9
	32	Q	69.8	83.5	77.5	92.6	83.0	99.0	97.8	116.1
		P	30.4	38.2	31.0	39.2	31.4	39.9	32.7	41.9
	38	Q	64.8	77.7	72.1	86.2	77.3	92.2	91.2	108.2
		P	33.7	42.1	34.3	43.1	34.7	43.8	35.9	45.7
	43	Q	60.6	72.7	67.5	80.7	72.4	86.3	85.5	101.5
		P	36.6	45.7	37.2	46.6	37.7	47.3	38.9	49.2

*Max. load Fixed Speed +80rps and min.load is Fixed Speed +50rps

Fixed Speed

Condensing Units

Customer Value

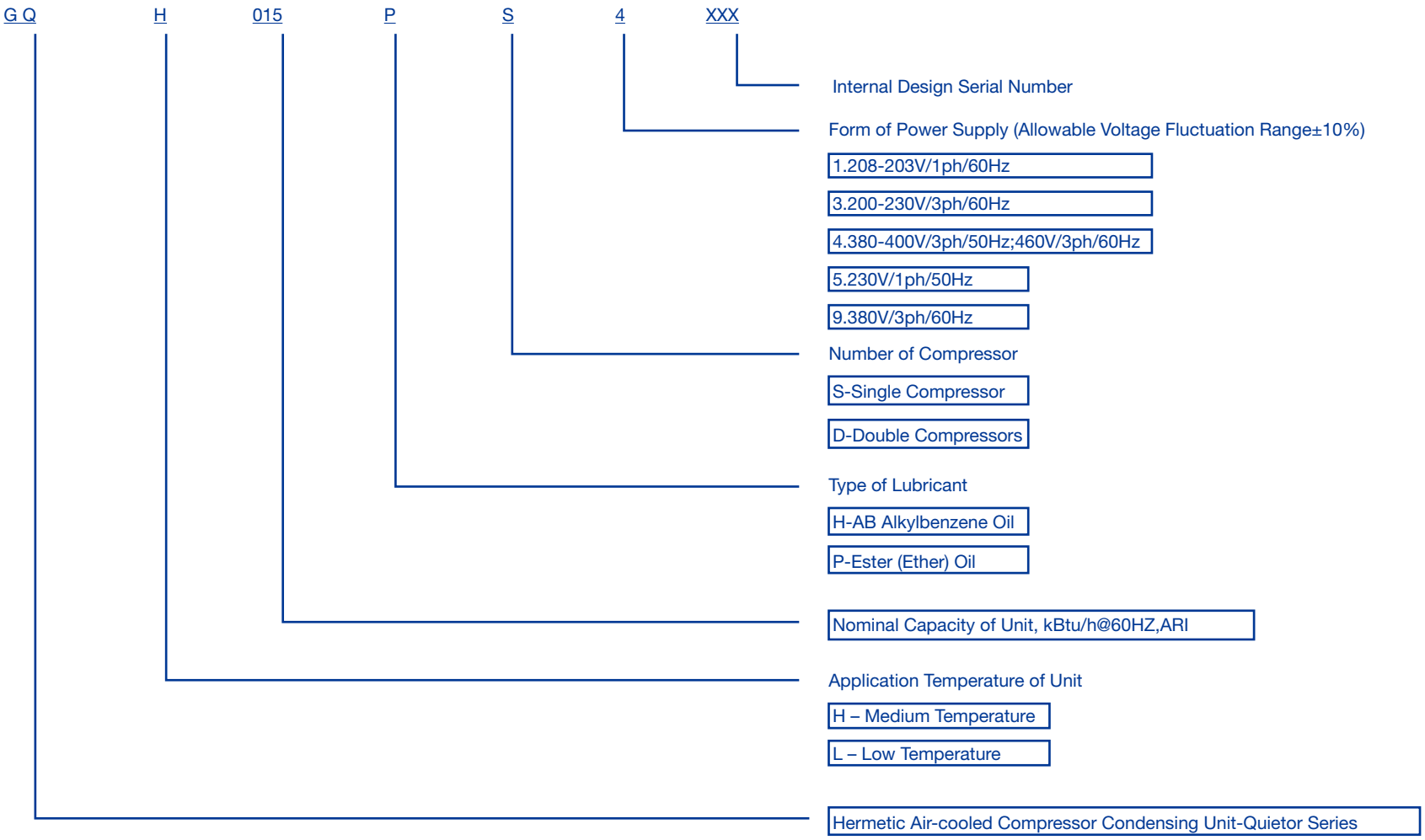
- R22/R404A refrigerant provided
- Various types options from medium temperature to low temperature and with 1.5~15HP
- High efficiency and energy saving with low noise
- Stable running under high ambient temperature with up to 43℃
- Stable oil return and reliable running (oil separator is standard for LT unit)

Product Features

- Advanced microprocessor-based control system and automatic adjustment according to load change
- Two-speed fan motor with automatic switch according to ambient temperature and terminal unit cooling load
- Large coil design with strong heat exchange capacity suitable for extreme working condition
- Hermetic and sound insulated cabinet adopted for a quiet running

* All comparisons are based on the product performances of last generation. Data is rounding after being processed.

Naming Methods of Fixed Speed Condensing Unit



Technical Parameters

Medium Temperature Working Conditions (<7HP) 230V/1PH/50Hz

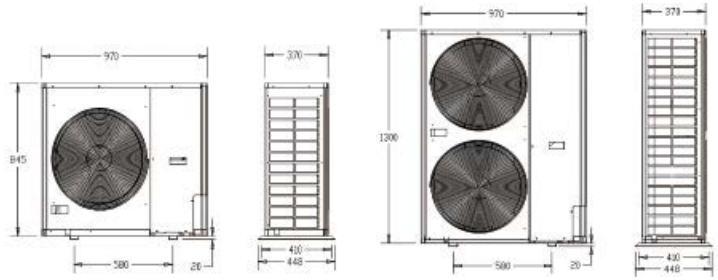
GQH			015PS	021PS	026PS	030PS
Refrigerant			R404A			
Casing Type			M1	M1	M1	M1
Nominal Cooling Capacity	(1)	kW	4.15	5.57	6.28	8.06
Nominal Input Power	(1)	kW	1.58	2.24	2.64	3.37
Compressor	Quantity		1	1	1	1
	Model		MLZ015	MLZ021	MLZ026	MLZ030
	Nominal Power	HP	1x2	1x3	1x3.5	1x4
Crankcase Heating Belt	Quantity x Power	W	1 x 65	1 x 65	1 x 65	1 x 75
Noise	dB（A） (2)		60	60	60	60
Fan motor	Quantity x Diameter	mm	1xØ500	1xØ 500	1xØ500	1xØ500
	Air Volume	m^3/h	4445	4445	4445	4445
Total Current	Fan Rated Current	A	0.71	0.71	0.71	0.71
	Compressor Starting Current	A	30	45	45	60
	Compressor Max. Continuous Current	A	7	9.5	11	13
Reservoir Volume		L	6	6	6	6
Refrigeration Oil			PVE oil Ester oil 320HV			
Oil Charge		L	1.1	1.1	1.6	1.6
Connection	Return Gas	inch	5/8"	5/8"	5/8"	5/8"
	Supply Liquid	inch	1/2"	1/2"	1/2"	1/2"
Dimension		mm	Please see the pictures attached			
Weight		kg	68	68	68	74

(1) Testing conditions of nominal cooling capacity and nominal power: National standard medium temperature working conditions SST -7°C, ambient temperature 32°C, return gas temperature 18°C.

(2) Noise measurement standard: dB(A)@1m,different operating environment may lead to different noise values. Affected by wall sound reflection and other factors may lead to differences between measured values and nominal values at the installation field. Acoustic attenuation due to distance only exists in theory. Sound reflection and resonance may lead to different results of measurement, including total noise and frequency.

Medium Temperature Working Conditions (<7HP) 380V/3ph/50Hz

GQH			015PS	021PS	026PS	030PS	038PS	045PS	048PS
Refrigerant			R404A/R22						
Casing Type			M1	M1	M1	M1	M2	M2	M2
R404A	Nominal Cooling Capacity (1)	kW	4.15	5.57	6.28	8.06	10.16	12.08	13.03
	Nominal Input Power (1)	kW	1.58	2.24	2.64	3.37	3.86	4.71	5.09
R22	Nominal Cooling Capacity (1)	kW	3.74	5.01	5.65	7.25	9.64	11.42	12.52
	Nominal Input Power (1)	kW	1.42	2.02	2.38	3.03	3.40	4.08	4.48
Compressor	Quantity		1	1	1	1	1	1	1
	Model		MLZ015T4/ MLM015T4	MLZ021T4/ MLM021T4	MLZ026T4/ MLM026T4	MLZ030T4/ MLM030T4	MLZ038T4/ MLM038T4	MLZ045T4/ MLM045T4	MLZ048T4/ MLM048T4
	Nominal Power	HP	1x2	1x3	1x3.5	1x4	1×5	1×6	1×7
Crankcase Heating Belt	Quantity x Power	W	1x65	1x65	1x65	1x75	1x75	1x75	1x75
Noise	dB (A) (2)		60	60	60	60	60	60	60
Fan Motor	Quantity x Diameter	mm	1xØ500	1xØ500	1xØ500	1xØ500	2xØ500	2xØ500	2xØ500
	Air Volume	m^3/h	4445	4445	4445	4445	8890	8890	8890
	Fan Rated Current	A	0.71	0.71	0.71	0.71	1.42	1.42	1.42
Total Current	Compressor Starting current	A	30	45	45	60	70	82	87
	Compressor Max. Continuous Current	A	7	9.5	11	13	15	15	16
Reservoir Volume		L	6	6	6	6	7.6	7.6	7.6
Refrigeration Oil			Ester oil 320HV(R404A)/ Alkyl benzene oil (R22)						
Oil Charge		L	1.1	1.1	1.6	1.6	1.6	1.6	1.6
Connection	Return Gas	inch	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"
	Supply Liquid	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Dimension		mm	Please see the pictures attached						
Weight		kg	68	68	68	74	125	125	125



M1 M2

Quick Selection of Medium Temperature Fixed Speed Racks (<7HP) 230V/1PH/50Hz & 380V/3ph/50Hz

	R404A	Ambient Temperature							
		27 °C		32 °C		37 °C		42 °C	
	GQH	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW
SST -15°C	015PS	3.07	1.48	2.82	1.67	2.56	1.86	2.26	2.07
	021PS	4.23	1.91	3.89	2.14	3.59	2.35	3.23	2.60
	026PS	5.13	2.48	4.70	2.74	4.36	2.98	3.91	3.28
	030PS	6.00	2.99	5.62	3.23	5.10	3.56	5.06	3.92
	038PS	7.70	3.39	7.08	3.76	6.54	4.12	5.89	4.55
	045PS	9.01	4.16	8.26	4.61	7.64	5.04	6.86	5.57
	048PS	9.73	4.52	8.93	5.00	8.26	5.45	7.42	6.01
SST -10°C	015PS	3.83	1.43	3.51	1.63	3.22	1.83	2.88	2.05
	021PS	5.13	1.98	4.73	2.22	4.41	2.43	3.99	2.69
	026PS	6.21	2.54	5.84	2.75	5.33	3.04	4.81	3.34
	030PS	7.23	3.10	6.82	3.34	6.21	3.67	5.59	4.03
	038PS	9.36	3.48	8.64	3.84	8.04	4.20	7.28	4.63
	045PS	10.94	4.28	10.07	4.74	9.37	5.16	8.46	5.69
	048PS	11.77	4.66	11.07	5.06	10.11	5.58	9.13	6.14
SST -7°C	015PS	4.33	1.39	4.15	1.58	3.68	1.79	3.31	2.02
	021PS	5.75	2.03	5.57	2.24	4.96	2.48	4.50	2.75
	026PS	6.94	2.59	6.28	2.64	6.00	3.08	5.42	3.38
	030PS	8.21	3.13	8.06	3.37	6.96	3.74	6.28	4.10
	038PS	10.48	3.53	10.16	3.86	9.06	4.26	8.23	4.69
	045PS	12.24	4.38	12.08	4.71	10.55	5.24	9.55	5.77
	048PS	13.16	4.75	13.03	5.09	11.37	5.66	10.29	6.23
SST -5°C	015PS	4.66	1.37	4.29	1.57	3.98	1.77	3.59	2.00
	021PS	6.16	2.06	5.81	2.26	5.33	2.51	4.84	2.78
	026PS	7.42	2.62	7.02	2.82	6.44	3.10	5.83	3.41
	030PS	8.86	3.15	8.17	3.46	7.46	3.79	6.74	4.15
	038PS	11.23	3.57	10.41	3.94	9.74	4.29	8.86	4.72
	045PS	13.11	4.44	12.37	4.80	11.34	5.29	10.28	5.83
	048PS	14.08	4.81	13.31	5.20	12.20	5.72	11.06	6.29
SST 0°C	015PS	5.60	1.30	5.18	1.50	4.83	1.70	4.39	1.94
	021PS	7.30	2.15	6.92	2.34	6.37	2.60	5.81	2.87
	026PS	8.77	2.71	8.34	2.90	7.67	3.18	6.97	3.49
	030PS	10.47	3.27	9.67	3.60	8.86	3.93	8.01	4.30
	038PS	13.34	3.69	12.64	4.00	11.66	4.39	10.65	4.83
	045PS	15.56	4.61	14.75	4.96	13.55	5.45	12.32	5.98
	048PS	16.65	5.00	15.82	5.36	14.55	5.89	13.22	6.46

Testing conditions: refrigerant R404A, degree of superheat of return gas 10K

Quick Selection of Medium Temperature Fixed Speed Racks (<7HP) 380V/3PH/50Hz

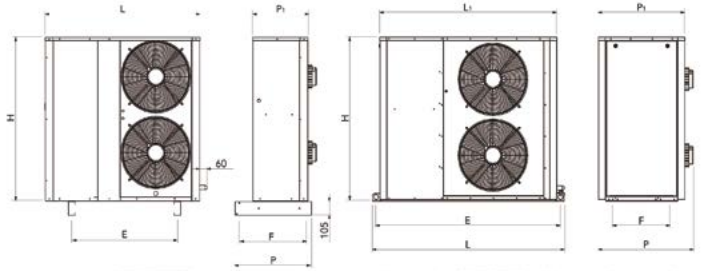
	R22	Ambient Temperature							
		27 °C		32 °C		37 °C		42 °C	
	GQH	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW
SST -15°C	015PS	3.10	1.28	2.95	1.40	2.81	1.54	2.65	1.69
	021PS	4.34	1.71	4.13	1.90	3.93	2.08	3.68	2.26
	026PS	5.19	2.10	4.98	2.28	4.71	2.51	4.44	2.75
	030PS	6.18	2.58	5.91	2.78	5.55	3.03	5.18	3.30
	038PS	7.41	2.91	7.02	3.17	6.68	3.47	6.28	3.84
	045PS	8.73	3.58	8.19	3.93	7.72	4.26	7.16	4.63
	048PS	9.66	3.94	9.24	4.29	8.74	4.69	8.23	5.13
SST -10°C	015PS	3.75	1.32	3.58	1.45	3.42	1.59	3.23	1.74
	021PS	5.18	1.78	4.97	1.95	4.71	2.15	4.43	2.34
	026PS	6.27	2.17	6.03	2.36	5.71	2.59	5.39	2.84
	030PS	7.45	2.72	7.17	2.92	6.77	3.19	6.36	3.47
	038PS	9.05	3.05	8.59	3.33	8.21	3.62	7.77	3.95
	045PS	10.66	3.71	10.16	4.04	9.55	4.42	8.91	4.82
	048PS	11.68	4.08	11.21	4.43	10.62	4.86	10.02	5.31
SST -7°C	015PS	4.20	1.34	3.74	1.42	3.84	1.61	3.63	1.77
	021PS	5.75	1.82	5.01	2.02	5.24	2.20	4.94	2.40
	026PS	7.01	2.22	5.65	2.38	6.39	2.65	6.04	2.90
	030PS	8.39	2.78	7.25	3.03	7.58	3.29	7.14	3.58
	038PS	10.17	3.14	9.64	3.40	9.26	3.71	8.76	4.05
	045PS	11.97	3.79	11.42	4.08	10.78	4.51	10.10	4.92
	048PS	13.15	4.14	12.52	4.48	11.90	4.96	11.24	5.42
SST -5°C	015PS	4.50	1.36	4.29	1.49	4.12	1.63	3.90	1.79
	021PS	6.13	1.85	5.90	2.02	5.60	2.23	5.28	2.43
	026PS	7.50	2.25	7.22	2.44	6.85	2.68	6.48	2.94
	030PS	9.02	2.81	8.58	3.08	8.13	3.36	7.66	3.65
	038PS	10.91	3.21	10.49	3.47	9.96	3.78	9.43	4.12
	045PS	12.84	3.84	12.30	4.17	11.60	4.57	10.89	5.00
	048PS	14.13	4.18	13.44	4.59	12.75	5.03	12.06	5.50
SST 0°C	015PS	5.35	1.41	5.15	1.53	4.91	1.68	4.66	1.84
	021PS	7.20	1.94	6.95	2.11	6.60	2.32	6.23	2.53
	026PS	9.01	2.29	8.57	2.52	8.14	2.78	7.70	3.05
	030PS	10.65	2.98	10.14	3.25	9.63	3.54	9.11	3.85
	038PS	12.99	3.37	12.53	3.64	11.93	3.96	11.32	4.31
	045PS	15.28	3.99	14.71	4.31	13.91	4.73	13.10	5.17
	048PS	16.76	4.33	15.96	4.76	15.16	5.21	14.35	5.70

Testing conditions: refrigerant R404A, degree of superheat of return gas 10K

Technical Parameters

Technical Parameters of Medium Temperature Fixed Speed Racks (>7HP) 380V/3PH/50Hz

GQH				066PS	076PD	090PD	096PD	114PS
Refrigerant						R404A		
Casing Type				T2	T3	T4	T4	T4
Nominal Cooling Capacity	(1)		kW	14.30	15.89	19.70	22.29	23.44
Nominal Input Power	(1)		kW	7.45	8.46	9.50	11.95	13.51
Compressor	Quantity			1	2	2	2	1
	Model			ZB66 KQE	ZB38 KQE	ZB45 KQE	ZB48 KQE	ZB114 KQE
	Nominal Power		HP	1x9	2x5	2x6	2x7	1x15
Crankcase Heating Belt	Quantity x Power		W	1x90	2x75	2x75	2x75	1x90
Noise	Min. rotation speed	(2)	dB(A)	57	56	58	60	60
	Max. rotation speed	(2)	dB(A)	62	63	64	65	65
Fan Motor	Quantity x Diameter		mm	2xØ450	2xØ500	2xØ500	2xØ500	2xØ500
	Air Volume		m^3/h	6000	7000	8000	8000	8000
Total Current	Fan	(3)	A	2.4	2.8	2.8	2.8	2.8
	Compressor Starting current		A	111	78	87	115	174
	Compressor Rated Current		A	17.3	26	27	30	27.1
Reservoir Volume			dm^3	14	14	18	24	24
Connection	Return Gas		inch	1"3/8	1"3/8	1"3/8	1"3/8	1"5/8
	Supply Liquid		inch	5/8"	5/8"	7/8"	7/8"	7/8"
Dimension	Length	L	mm	1290	1570	1870	1870	1870
		L1	mm	-	1450	1750	1750	1750
	Width	P	mm	580	720	840	840	840
		P1	mm	510	700	820	820	820
	Height	H	mm	1300	1290	1290	1290	1290
	Fixed end	E	mm	844	1525	1825	1825	1825
		F	mm	550	450	570	570	570
Weight			kg	216	249	290	345	280



T1-T2

T3-T4

(1) Testing conditions of nominal cooling capacity and nominal power: Medium temperature working conditions SST -10°C, ambient temperature 32°C, degree of superheat 10K.

(2) Noise measurement standard: dB(A)@1M, 1m,different operating environment may lead to different noise values. Affected by wall sound reflection and other factors may lead to differences between measured values and nominal values at the installation field. Acoustic attenuation due to distance only exists in theory. Sound reflection and resonance may lead to different results of measurement, including total noise and frequency.

(3) Fan motor locked-rotor current, power supply mode 230V/~1/50Hz.

Quick Selection of Medium Temperature Fixed Speed Racks (>7HP) 380V/3PH/50Hz

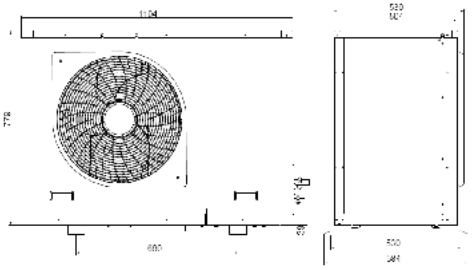
		Ambient Temperature							
		27 °C		32 °C		37 °C		42 °C	
	GQH	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW
SST -15°C	066PS	12.89	6.28	11.81	6.93	10.72	7.57	9.64	8.22
	076PD	14.53	7.37	13.33	7.99	12.13	8.61	10.93	9.24
	090PD	17.93	8.26	16.41	9.20	14.89	10.14	13.38	11.08
	096PD	20.12	10.47	18.13	11.61	16.15	12.75	14.17	13.89
	114PS	21.38	11.83	19.27	13.00	17.17	14.17	15.06	15.34
SST -10°C	066PS	16.05	6.47	14.3	7.45	12.8	8.05	11.85	9.01
	076PD	17.25	7.85	15.89	8.46	14.54	9.07	13.19	9.68
	090PD	21.46	8.58	19.70	9.50	17.94	10.42	16.19	11.33
	096PD	24.38	10.90	22.29	11.95	20.20	13.00	18.11	14.06
	114PS	25.73	12.39	23.44	13.51	21.16	14.64	18.87	15.75
SST -5°C	066PS	18.23	6.90	16.79	7.48	15.35	8.06	13.91	8.64
	076PD	20.22	8.36	18.69	8.95	17.15	9.54	15.62	10.13
	090PD	25.40	8.93	23.41	9.81	21.43	10.69	19.44	11.58
	096PD	28.96	11.36	26.73	12.33	24.51	13.31	22.28	14.29
	114PS	30.44	12.97	27.92	14.01	25.40	15.05	22.88	16.08
SST 0°C	066PS	21.30	7.24	19.68	7.78	18.05	8.33	16.42	8.87
	076PD	23.43	8.87	21.67	9.42	19.91	9.97	18.14	10.51
	090PD	29.73	9.28	27.46	10.12	25.19	10.97	22.92	11.82
	096PD	33.81	11.85	31.35	12.78	28.88	13.72	-	-
	114PS	35.58	13.59	32.84	14.56	30.10	15.53	-	-

Testing conditions: refrigerant R404A, degree of superheat of return gas 10K

Technical Parameters

Technical Parameters of Low Temperature Fixed Speed Racks 380V/3PH/50Hz

GQL			005PS	009PS	010PS	012PS	016PS
Refrigerant			R404A				
Casing Type			L1				
Nominal Cooling Capacity	(1)	kW	2.30	3.43	4.12	4.93	6.17
Nominal Input Power	(1)	kW	1.49	2.13	2.68	3.07	4.14
Compressor	Quantity		1	1	1	1	1
	Model		NTZ048	NTZ068	NTZ096	NTZ108	NTZ136
	Nominal Power	HP	1x1.5	1x2.5	1x3	1x4	1x5
Crankcase Heating Belt	Quantity x Power	W	1x27	1x27	1x27	1x27	1x27
Noise	dB (A)	(2)	65	66	66	66	66
Fan Motor	Quantity x Diameter	mm	1xØ500	1xØ500	1xØ500	1xØ500	1xØ500
	Air Volume	m^3/h	5287	5287	5287	5287	5287
Total Current	Fan Nominal Current	A	0.7	0.7	0.7	0.7	0.7
	Compressor Starting current	A	16	25	32	45	51
	Compressor Max. Continuous Current	A	4.8	8.4	10.1	12.1	14.3
Reservoir Volume		dm^3	6	6	6	6	6
Refrigeration Oil			PVE oil Ester oil 160Z				
Oil Charge		L	0.95	0.95	1.8	1.8	1.8
Connection	Return Gas	inch	5/8"	5/8"	3/4"	3/4"	3/4"
	Supply Liquid	inch	1/2"	1/2"	1/2"	1/2"	1/2"
Dimension		mm	1104X504X818				
Weight		kg	98	100	112	112	112



L1

(1) Testing conditions of nominal cooling capacity and nominal power: National standard Low temperature working conditions SST -23℃, ambient temperature 32℃, return gas temperature 5℃

(2) Noise measurement standard: dB(A)@1M, different operating environment may lead to different noise values. Affected by wall sound reflection and other factors may lead to differences between measured values and nominal values at the installation field. Acoustic attenuation due to distance only exists in theory. Sound reflection and resonance may lead to different results of measurement, including total noise and frequency.

Note: All data and images are just for reference. Carrier reserves the right to make changes without previous notification.

Quick Selection of Low Temperature Fixed Speed Racks 380V/3PH/50Hz

		Ambient Temperature							
		27 ℃		32 ℃		37 ℃		42 ℃	
	GQL	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW	Cooling Capacity Q kW	Input Power P kW
SST -40℃	005PS	0.78	0.80	0.64	0.77	0.54	0.75	0.46	0.80
	009PS	1.34	1.33	1.16	1.35	0.98	1.36	0.82	1.41
	010PS	1.49	1.56	1.25	1.51	1.02	1.45	0.80	1.36
	012PS	1.84	1.83	1.56	1.80	1.33	1.78	1.16	1.83
	016PS	2.27	2.49	1.95	2.47	1.72	2.49	1.39	2.40
SST -35℃	005PS	1.14	0.99	0.98	0.99	0.82	0.96	0.67	0.97
	009PS	1.82	1.56	1.61	1.59	1.41	1.63	1.24	1.70
	010PS	2.11	1.89	1.83	1.86	1.55	1.82	1.35	1.83
	012PS	2.54	2.20	2.20	2.19	1.97	2.22	1.64	2.17
	016PS	3.08	2.99	2.71	2.99	2.50	3.04	2.11	3.01
SST -30℃	005PS	1.56	1.17	1.37	1.18	1.19	1.19	1.01	1.24
	009PS	2.37	1.80	2.13	1.85	2.06	1.86	1.72	1.98
	010PS	2.81	2.25	2.49	2.24	2.29	2.28	1.96	2.25
	012PS	3.36	2.57	2.96	2.60	2.74	2.66	2.32	2.64
	016PS	4.01	3.53	3.57	3.56	3.39	3.63	2.94	3.63
SST -25℃	005PS	2.11	1.38	1.84	1.39	1.61	1.41	1.42	1.48
	009PS	3.01	2.07	2.73	2.13	2.57	2.22	2.28	2.28
	010PS	3.62	2.66	3.25	2.66	3.06	2.71	2.67	2.69
	012PS	4.32	2.98	3.82	3.03	3.64	3.10	3.15	3.12
	016PS	5.05	4.14	4.96	4.20	4.42	4.25	3.89	4.29
SST -20℃	005PS	2.85	1.63	2.47	1.64	2.24	1.70	1.93	1.72
	009PS	3.74	2.37	3.42	2.44	3.26	2.53	2.92	2.60
	010PS	4.53	3.13	4.39	3.18	3.94	3.19	3.49	3.18
	012PS	5.47	3.46	5.37	3.52	4.72	3.57	4.11	3.61
	016PS	6.85	4.79	6.23	4.87	5.60	4.94	4.97	5.01

Testing conditions: refrigerant R404A, degree of superheat of return gas 10K

Adventer Series

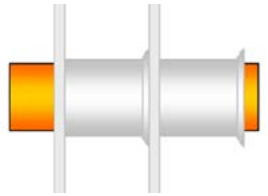
Air Cooler

SOLO Series
(Cooling capacity 1.44~15.69kW)

DUO Series
(Cooling capacity 1.6~20.67kW)

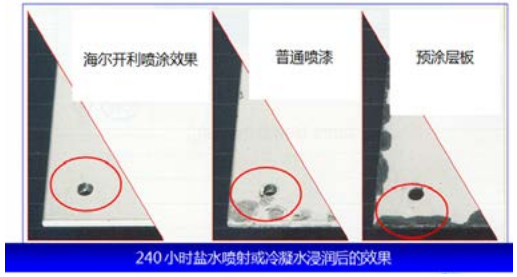
Inner grooved tube

Corrugated fin



Flanging fins

Coating treatment of external surface



Result of salt spray test

Customer Value

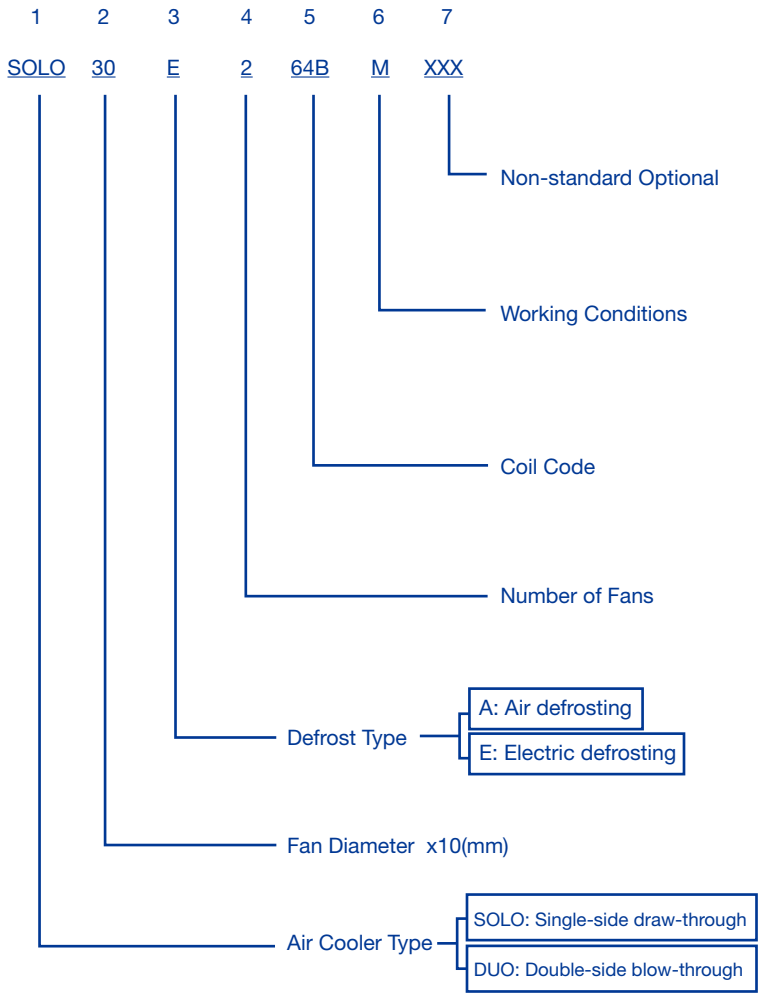
- Many refrigerants and model options for more application scenarios
- High energy efficiency, low operation cost, safe & reliable
- Long range and even temperature food in all zones
- High efficiency defrost, short time, small temperature fluctuation for food preservation
- Anti-corrosion and long service life
- Energy saving 5%-10%*

Product Features

- Inner grooved tube and corrugated fins for larger heat exchange area and higher heat exchange efficiency
- Fine flanged fins, fixed and stable
- High efficiency defrosting, short defrosting time and longer intervals
- After high pressure powder spray double coatings, the fins are corrosion proof and easy to clean
- Less vapor generation during defrosting and easy to maintain and replace defrosting heating tubes
- Metal plate parts are all coated for corrosion resistance and the coating materials meet food hygiene requirements

* In comparison with the single-outlet air coolers of the same series provided by competitors

Naming Methods of Air Cooler



*Range value description: Range is effective at ambient temperature 20ºC, mounted on the ceiling.

Note: After air cooler is installed in the field, the actual range value may be different from that stated in the table for the following reasons: shape of the warehouse, load of the warehouse, installation of the air coolers, frosting inside the air cooler in operation and temperature difference at the inlet and outlet of the air coolers.

Noise data in the table are measured 1m from the fan axis in accordance with the EN13487 Test Standard. In actual application, the values may be lower due to measurement distance.

Table of Non-standard and Optional Parts

Item	Non-standard Parts, Optional Parts and Special Standard Parts	SOLO 30/35	DUO 30/35
1	Natural defrosting	Standard	Standard
2	Electric defrosting	Standard	Standard
3	Double-layer drain pan	Standard	Standard
4	Side door hinge (easy to maintain)	Standard	Standard
5	Coil protective coating	Non-standard	Non-standard
6	Axicool fan	Non-standard	\
7	Axicool fan + Streamer	Non-standard	\

Models of SOLO Series

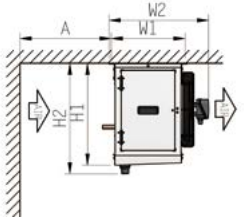
SOLO 30/35 1M

SOLO 30/35 2M

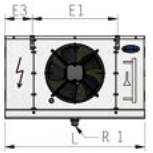
SOLO 30/35 3M

SOLO 30/35 4M

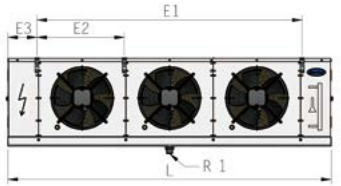
Dimensions of SOLO Series



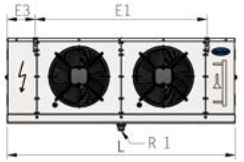
SOL030 144B/164B
146B/166B
SOL035 144C/164C
146C/166C



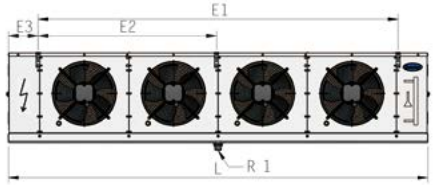
SOL030 344B/364B
346B/366B
SOL035 344C/364C
346C/366C



SOL030 244B/264B
246B/266B
SOL035 244C/264C
246C/266C



SOL030 444B/464B
446B/466B
SOL035 444C/464C
446C/466C



Performance Parameters (SOLO 30)

Model SOLO						Cooling Capacity R404A										Connection				Fan 50 Hz			
						SC2		SC3								SC2		SC3					
Type SOLO	Fan Dimension (Cm)	Number of Motors	Coil Rows	Fin Distance	Coil Code	Heat transfer Temperature Difference 8K Evaporating Temperature -8°C		Heat transfer Temperature Difference 7K Evaporating Temperature -25°C		Pipeline Volume	Heat Exchange Area	Air Volume	Air Throw	Sound Pressure		Inlet Dimension	Outlet Dimension	Inlet Dimension	Outlet Dimension	Rotation Speed	Input Power	Input Current	Power Supply
						kW		kW		dm^3	m^2	m^3/h	m	dB(A)		inch	inch	inch	inch	min^{-1}	W	A	V
30/35 1M	30	1	4	4	B	2.15		1.6		2	7.1	1421	6	57		1/2''	5/8''	1/2''	5/8''	1363	65	0.29	230V -1
	30	1	6	4	B	2.67		1.99		3	10.6	1324	5	57		1/2''	5/8''	1/2''	5/8''	1359	69	0.29	230V -1
	30	1	4	6	B	1.88		1.44		2	5.1	1490	7	57		1/2''	5/8''	1/2''	5/8''	1367	64	0.28	230V -1
	30	1	6	6	B	2.4		1.88		3	7.9	1366	6	57		1/2''	5/8''	1/2''	5/8''	1361	66	0.29	230V -1
30/35 2M	30	2	4	4	B	4.56		3.46		3.9	14.7	2842	8	60		1/2''	5/8''	1/2''	7/8''	1363	130	0.57	230V -1
	30	2	6	4	B	5.21		4.12		5.8	22.1	2647	7	60		1/2''	7/8''	1/2''	7/8''	1359	137	0.59	230V -1
	30	2	4	6	B	3.85		3.04		3.9	11	2979	9	60		1/2''	5/8''	1/2''	5/8''	1367	129	0.57	230V -1
	30	2	6	6	B	4.93		3.87		5.8	16.5	3731	8	60		1/2''	5/8''	1/2''	5/8''	1361	132	0.58	230V -1
30/35 3M	30	3	4	4	B	6.87		5.13		5.8	22.3	4263	9	62		1/2''	7/8''	1/2''	7/8''	1363	196	0.86	230V -1
	30	3	6	4	B	7.84		6.01		8.6	33.5	3971	8	62		1''1/8	7/8''	1''1/8	1''1/8	1359	206	0.88	230V -1
	30	3	4	6	B	5.92		4.63		5.8	16.7	4469	10	62		1/2''	7/8''	1/2''	7/8''	1367	193	0.85	230V -1
	30	3	6	6	B	7.22		5.68		8.6	25.1	4097	9	62		1/2''	7/8''	1''1/8	1''1/8	1361	198	0.87	230V -1
30/35 4M	30	4	4	4	B	8.92		6.59		7.6	30	5684	9	63		1/2''	7/8''	1''1/8	1''1/8	1363	261	1.15	230V -1
	30	4	6	4	B	10.78		8.12		11.4	44.9	5295	8	63		1''1/8	1''1/8	1''1/8	1''1/8	1359	274	1.17	230V -1
	30	4	4	6	B	7.76		5.94		7.6	22.4	5959	10	63		1/2''	7/8''	1''1/8	1''1/8	1367	257	1.14	230V -1
	30	4	6	6	B	9.72		7.7		11.4	33.6	5462	9	63		1''1/8	7/8''	1''1/8	1''1/8	1361	264	1.16	230V -1

Model	External Dimension									Electric Defrosting			Weight
										230V -1			Net
	L	W1	W2	H1	H2	E1	E2	E3	A	Coil	Water Pan	Total	P
	mm	mm	mm	mm	mm	mm	mm	mm	mm	W	W	kW	kg
SOLO 30 144B	790	340	460	470	510	485	-	155	420	750	300	1.05	27
SOLO 30 164B	790	340	460	470	510	485	-	155	420	750	300	1.05	30
SOLO 30 146B	790	340	460	470	510	485	-	155	420	750	300	1.05	27
SOLO 30 166B	790	340	460	470	510	485	-	155	420	750	300	1.05	29
SOLO 30 244B	1265	340	460	470	510	950	-	155	420	2100	500	2.6	44
SOLO 30 264B	1265	340	460	470	510	950	-	155	420	2100	500	2.6	50
SOLO 30 246B	1265	340	460	470	510	950	-	155	420	2100	500	2.6	43
SOLO 30 266B	1265	340	460	470	510	950	-	155	420	2100	500	2.6	48
SOLO 30 344B	1730	340	460	470	510	1420	470	155	420	2850	700	3.55	65
SOLO 30 364B	1730	340	460	470	510	1420	470	155	420	2850	700	3.55	73
SOLO 30 346B	1730	340	460	470	510	1420	470	155	420	2850	700	3.55	63
SOLO 30 366B	1730	340	460	470	510	1420	470	155	420	2850	700	3.55	69
SOLO 30 444B	2195	340	460	470	510	1885	935	155	420	3600	900	4.5	92
SOLO 30 464B	2195	340	460	470	510	1885	935	155	420	3600	900	4.5	103
SOLO 30 446B	2195	340	460	470	510	1885	935	155	420	3600	900	4.5	89
SOLO 30 466B	2195	340	460	470	510	1885	935	155	420	3600	900	4.5	98

Performance Parameters (SOLO 35)

Model SOLO						Cooling Capacity R404A										Connection				Fan 50 Hz			
						SC2		SC3								SC2		SC3					
Type SOLO	Fan Dimension (Cm)	Number of Motors	Coil Rows	Fin Distance	Coil Code	Heat transfer Temperature Difference 8K Evaporating Temperature -8°C		Heat transfer Temperature Difference 7K Evaporating Temperature -25°C		Pipeline Volume	Heat Exchange Area	Air Volume	Air Throw	Sound Pressure		Inlet Dimension	Outlet Dimension	Inlet Dimension	Outlet Dimension	Rotation Speed	Input Power	Input Current	Power Supply
						kW		kW		dm^3	m^2	m^3/h	m	dB(A)		inch	inch	inch	inch	min^{-1}	W	A	V
30/35 1M	35	1	4	4	C	3.22		2.38		2.5	8.9	2325	6	63		1/2''	5/8''	1/2''	5/8''	1336	157	0.69	230V-1
	35	1	6	4	C	4		3.01		3.8	13.4	2223	6	63		1/2''	5/8''	1/2''	7/8''	1321	166	0.73	230V-1
	35	1	4	6	C	2.85		2.12		2.5	6.7	2555	6.5	63		1/2''	5/8''	1/2''	5/8''	1337	158	0.7	230V-1
	35	1	6	6	C	3.66		2.72		3.8	10	2440	6.5	63		1/2''	5/8''	1/2''	5/8''	1320	167	0.74	230V-1
30/35 2M	35	2	4	4	C	6.36		4.76		4.8	18.4	4651	8	66		1/2''	7/8''	1/2''	7/8''	1336	315	1.38	230V-1
	35	2	6	4	C	7.94		5.9		7.2	27.6	4447	8	66		1/2''	7/8''	1/2''	1''1/8	1321	331	1.46	230V-1
	35	2	4	6	C	5.55		4.14		4.8	13.7	5110	8.5	66		1/2''	7/8''	1/2''	7/8''	1337	316	1.4	230V-1
	35	2	6	6	C	7.39		5.5		7.2	20.6	4880	8.5	66		1/2''	7/8''	1/2''	7/8''	1320	333	1.48	230V-1
30/35 3M	35	3	4	4	C	9.72		7.28		7.2	27.9	6976	9	68		1''1/8	7/8''	1''1/8	1''1/8	1336	472	2.07	230V-1
	35	3	6	4	C	11.75		8.73		10.8	41.9	6670	9	68		1''1/8	1''1/8	1''1/8	1''1/8	1321	497	2.19	230V-1
	35	3	4	6	C	8.62		6.4		7.2	20.9	7665	9.5	68		1''1/8	7/8''	1''1/8	1''1/8	1337	475	2.1	230V-1
	35	3	6	6	C	10.85		8.08		10.8	31.3	7321	9.5	68		1''1/8	1''1/8	1''1/8	1''1/8	1320	500	2.22	230V-1
30/35 4M	35	4	4	4	C	12.85		9.4		9.5	37.4	9301	9	69		1''1/8	1''1/8	1''1/8	1''1/8	1336	630	2.76	230V-1
	35	4	6	4	C	15.69		11.69		14.2	56.1	8894	9	69		1''1/8	1''1/8	1''1/8	1''3/8	1321	662	2.92	230V-1
	35	4	4	6	C	11.46		8.47		9.5	28	10220	9.5	69		1''1/8	1''1/8	1''1/8	1''1/8	1337	633	2.8	230V-1
	35	4	6	6	C	14.43		10.77		14.2	42	9761	9.5	69		1''1/8	1''1/8	1''1/8	1''3/8	1320	667	2.96	230V-1

Model	External Dimension									Electric Defrosting			Weight
										230V -1			Net
	L	W1	W2	H1	H2	E1	E2	E3	A	Coil	Water Pan	Total	P
	mm	mm	mm	mm	mm	mm	mm	mm	mm	W	W	kW	kg
SOLO 35 144C	840	340	460	520	560	535	-	155	420	1500	350	1.85	31
SOLO 35 164C	840	340	460	520	560	535	-	155	420	1500	350	1.85	34
SOLO 35 146C	840	340	460	520	560	535	-	155	420	1500	350	1.85	30
SOLO 35 166C	840	340	460	520	560	535	-	155	420	1500	350	1.85	32
SOLO 35 244C	1365	340	460	520	560	1050	-	155	420	2250	550	2.8	52
SOLO 35 264C	1365	340	460	520	560	1050	-	155	420	2250	550	2.8	59
SOLO 35 246C	1365	340	460	520	560	1050	-	155	420	2250	550	2.8	50
SOLO 35 266C	1365	340	460	520	560	1050	-	155	420	2250	550	2.8	55
SOLO 35 344C	1880	340	460	520	560	1570	520	155	420	3150	750	3.9	71
SOLO 35 364C	1880	340	460	520	560	1570	520	155	420	3150	750	3.9	83
SOLO 35 346C	1880	340	460	520	560	1570	520	155	420	3150	750	3.9	67
SOLO 35 366C	1880	340	460	520	560	1570	520	155	420	3150	750	3.9	78
SOLO 35 444C	2395	340	460	520	560	2085	1035	155	420	4200	950	5.15	92
SOLO 35 464C	2395	340	460	520	560	2085	1035	155	420	4200	950	5.15	106
SOLO 35 446C	2395	340	460	520	560	2085	1035	155	420	4200	950	5.15	88
SOLO 35 466C	2395	340	460	520	560	2085	1035	155	420	4200	950	5.15	100

Models of DUO Series

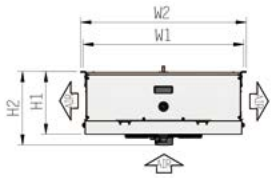
DUO 30/35 1M

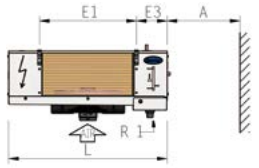
DUO 30/35 2M

DUO 30/35 3M

DUO 30/35 4M

Dimensions of DUO Series





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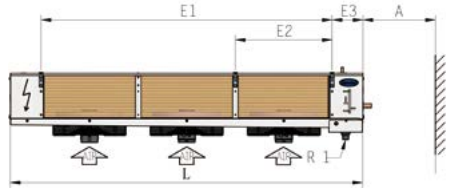
146B/166B
DU035 144C/164C
146C/166C



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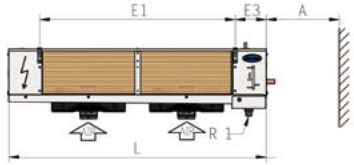
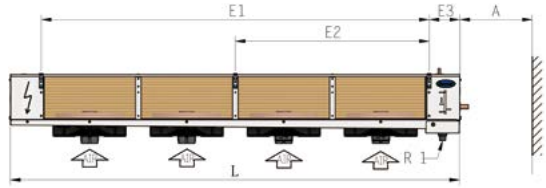
346B/366B
DU035 344C/364C
346C/366C



DU030 244B/264B
246B/266B
DU035 244C/264C
246C/266C



DU030 444B/464B
446B/466B
DU035 444C/464C
446C/466C

Performance Parameters (DUO 30)

Model DUO						Cooling Capacity R404A						Connection				Fan 50 Hz			
						SC1		SC2				SC1		SC2					
Type DUO	Fan Dimension (Cm)	Number of Motors	Coil Rows	Fin Distance	Coil Code	Heat transfer Temperature Difference 8K Evaporating Temperature -8°C		Heat transfer Temperature Difference 7K Evaporating Temperature -25°C		Pipeline Volume	Heat Exchange Area	Air Volume	Air Throw	Sound Pressure	Inlet Dimension	Outlet Dimension	Inlet Dimension	Outlet Dimension	Rotation Speed	Input Power	Input Current	Power Supply
						kW		kW		dm^3	m^2	m^3/h	m	dB(A)	inch	inch	inch	inch	min^{-1}	W	A	V
30/35 1M	30	1	4	4	B	2.87		1.91		2	7.1	1458	2X6	56	1/2"	5/8"	1/2"	5/8"	1363	65	0.29	230V~1
	30	1	6	4	B	3.46		2.29		3	10.6	1316	2X5	56	1/2"	5/8"	1/2"	5/8"	1359	69	0.29	230V~1
	30	1	4	6	B	2.39		1.6		2	5.3	1478	2X7	56	1/2"	5/8"	1/2"	5/8"	1367	64	0.28	230V~1
	30	1	6	6	B	3.02		2		3	7.9	1355	2X6	56	1/2"	5/8"	1/2"	5/8"	1361	66	0.29	230V~1
30/35 2M	30	2	4	4	B	5.6		3.75		3.9	14.7	2915	2X8	59	1/2"	5/8"	1/2"	5/8"	1363	130	0.57	230V~1
	30	2	6	4	B	6.56		4.59		5.8	22.1	2632	2X7	59	1/2"	7/8"	1/2"	5/8"	1359	137	0.59	230V~1
	30	2	4	6	B	4.65		3.12		3.9	11	2956	2X9	59	1/2"	5/8"	1/2"	5/8"	1367	129	0.57	230V~1
	30	2	6	6	B	6.04		4.01		5.8	16.5	2711	2X8	59	1/2"	5/8"	1/2"	5/8"	1361	132	0.58	230V~1
30/35 3M	30	3	4	4	B	8.73		5.81		5.8	22.3	4373	2X9	61	1/2"	7/8"	1/2"	7/8"	1363	196	0.86	230V~1
	30	3	6	4	B	10.04		6.64		8.6	33.5	3948	2X8	61	1/2"	7/8"	1/2"	7/8"	1359	206	0.88	230V~1
	30	3	4	6	B	7.23		4.86		5.8	16.7	4435	2X10	61	1/2"	7/8"	1/2"	5/8"	1367	193	0.85	230V~1
	30	3	6	6	B	8.85		5.89		8.6	25.1	4066	2X9	61	1/2"	7/8"	1/2"	7/8"	1361	198	0.87	230V~1
30/35 4M	30	4	4	4	B	11.46		7.69		7.6	30	5831	2X9	62	1"1/8	7/8"	1"1/8	7/8"	1363	261	1.15	230V~1
	30	4	6	4	B	13.41		8.94		11.4	44.9	5264	2X8	62	1"1/8	1"1/8	1"1/8	7/8"	1359	274	1.17	230V~1
	30	4	4	6	B	9.54		6.33		7.6	22.4	5913	2X10	62	1/2"	7/8"	1/2"	7/8"	1367	257	1.14	230V~1
	30	4	6	6	B	11.51		7.68		11.4	33.6	5422	2X9	62	1"1/8	7/8"	1"1/8	7/8"	1361	264	1.16	230V~1

Model	External Dimension									Electric Defrosting			Weight
										230V -1			Net
	L	W1	W2	H1	H2	E1	E2	E3	A Min	Coil	Water Pan	Total	P
	mm	mm	mm	mm	mm	mm	mm	mm	mm	W	W	kW	kg
DUO 30 144B	795	770	795	295	350	465	–	165	795	500	300	0.8	31
DUO 30 164B	795	770	795	295	350	465	–	165	795	500	300	0.8	35
DUO 30 146B	795	770	795	295	350	465	–	165	795	500	300	0.8	31
DUO 30 166B	795	770	795	295	350	465	–	165	795	500	300	0.8	34
DUO 30 244B	1260	770	795	295	350	930	–	165	1260	1400	500	1.9	51
DUO 30 264B	1260	770	795	295	350	930	–	165	1260	1400	500	1.9	57
DUO 30 246B	1260	770	795	295	350	930	–	165	1260	1400	500	1.9	50
DUO 30 266B	1260	770	795	295	350	930	–	165	1260	1400	500	1.9	55
DUO 30 344B	1725	770	795	295	350	1395	470	165	1725	1900	700	2.6	75
DUO 30 364B	1725	770	795	295	350	1395	470	165	1725	1900	700	2.6	85
DUO 30 346B	1725	770	795	295	350	1395	470	165	1725	1900	700	2.6	73
DUO 30 366B	1725	770	795	295	350	1395	470	165	1725	1900	700	2.6	80
DUO 30 444B	2190	770	795	295	350	1860	935	165	2190	2400	900	3.3	107
DUO 30 464B	2190	770	795	295	350	1860	935	165	2190	2400	900	3.3	119
DUO 30 446B	2190	770	795	295	350	1860	935	165	2190	2400	900	3.3	103
DUO 30 466B	2190	770	795	295	350	1860	935	165	2190	2400	900	3.3	114

Performance Parameters (DUO 35)

Model DUO						Cooling Capacity R404A						Connection				Fan 50 Hz			
						SC1		SC2				SC1		SC2					
Type DUO	Fan Dimension (Cm)	Number of Motors	Coil Rows	Fin Distance	Coil Code	Heat transfer Temperature Difference 8K Evaporating Temperature -8°C		Heat transfer Temperature Difference 7K Evaporating Temperature -25°C		Pipeline Volume	Heat Exchange Area	Air Volume	Air Throw	Sound Pressure	Inlet Dimension	Outlet Dimension	Inlet Dimension	Outlet Dimension	Rotation Speed	Input Power	Input Current	Power Supply
						kW		kW		dm^3	m^2	m^3/h	m	dB(A)	inch	inch	inch	inch	min^{-1}	W	A	V
30/35 1M	35	1	4	4	C	4.13		2.74		2.5	8.9	2418	2X7,5	62	1/2"	5/8"	1/2"	5/8"	1360	157	0.69	230V~1
	35	1	6	4	C	5.28		3.54		3.8	13.4	2153	2X6,5	62	1/2"	5/8"	1/2"	5/8"	1272	166	0.73	230V~1
	35	1	4	6	C	3.39		2.23		2.5	6.7	2471	2X8,5	62	1/2"	5/8"	1/2"	5/8"	1362	158	0.7	230V~1
	35	1	6	6	C	4.67		3.11		3.8	10	2310	2X7,5	62	1/2"	5/8"	1/2"	5/8"	1316	167	0.74	230V~1
30/35 2M	35	2	4	4	C	8.35		5.58		4.8	18.4	4836	2X9,5	65	1/2"	7/8"	1/2"	7/8"	1360	315	1.38	230V~1
	35	2	6	4	C	10.45		6.92		7.2	27.6	4307	2X8,5	65	1/2"	7/8"	1/2"	7/8"	1272	331	1.46	230V~1
	35	2	4	6	C	6.99		4.63		4.8	13.7	4943	2X10,5	65	1/2"	7/8"	1/2"	5/8"	1362	316	1.4	230V~1
	35	2	6	6	C	9.3		6.19		7.2	20.6	4620	2X9,5	65	1/2"	7/8"	1/2"	7/8"	1316	333	1.48	230V~1
30/35 3M	35	3	4	4	C	12.54		8.35		7.2	27.9	7254	2X10,5	67	1/2"	7/8"	1/2"	7/8"	1360	472	2.07	230V~1
	35	3	6	4	C	15.76		10.49		10.8	41.9	6460	2X9,5	67	1"1/8	1"1/8	1"1/8	1"1/8	1272	497	2.19	230V~1
	35	3	4	6	C	10.48		7.05		7.2	20.9	7414	2X11,5	67	1/2"	7/8"	1/2"	7/8"	1362	475	2.1	230V~1
	35	3	6	6	C	14.11		9.43		10.8	31.3	6929	2X10,5	67	1"1/8	1"1/8	1"1/8	7/8"	1316	500	2.22	230V~1
30/35 4M	35	4	4	4	C	16.59		11.02		9.5	37.4	9672	2X10,5	68	1"1/8	1"1/8	1"1/8	1"1/8	1360	630	2.76	230V~1
	35	4	6	4	C	20.67		13.93		14.2	56.1	8613	2X9,5	68	1"1/8	1"1/8	1"1/8	1"1/8	1272	662	2.92	230V~1
	35	4	4	6	C	13.85		9.2		9.5	28	9886	2X11,5	68	1/2"	7/8"	1/2"	7/8"	1362	633	2.8	230V~1
	35	4	6	6	C	18.33		12.33		14.2	42	9239	2X10,5	68	1"1/8	1"1/8	1"1/8	1"1/8	1316	667	2.96	230V~1

Model	External Dimension									Electric Defrosting			Weight
										230V -1			Net
	L	W1	W2	H1	H2	E1	E2	E3	A Min	Coil	Water Pan	Total	P
	mm	mm	mm	mm	mm	mm	mm	mm	mm	W	W	kW	kg
DUO 35 144C	845	820	845	320	370	515	–	165	845	1000	400	1.4	37
DUO 35 164C	845	820	845	320	370	515	–	165	845	1000	400	1.4	41
DUO 35 146C	845	820	845	320	370	515	–	165	845	1000	400	1.4	36
DUO 35 166C	845	820	845	320	370	515	–	165	845	1000	400	1.4	38
DUO 35 244C	1360	820	845	320	370	1030	–	165	1360	1500	600	2.1	62
DUO 35 264C	1360	820	845	320	370	1030	–	165	1360	1500	600	2.1	69
DUO 35 246C	1360	820	845	320	370	1030	–	165	1360	1500	600	2.1	60
DUO 35 266C	1360	820	845	320	370	1030	–	165	1360	1500	600	2.1	65
DUO 35 344C	1875	820	845	320	370	1550	520	165	1875	2100	800	2.9	85
DUO 35 364C	1875	820	845	320	370	1550	520	165	1875	2100	800	2.9	99
DUO 35 346C	1875	820	845	320	370	1550	520	165	1875	2100	800	2.9	80
DUO 35 366C	1875	820	845	320	370	1550	520	165	1875	2100	800	2.9	93
DUO 35 444C	2390	820	845	320	370	2065	1035	165	2390	2800	1000	3.8	110
DUO 35 464C	2390	820	845	320	370	2065	1035	165	2390	2800	1000	3.8	126
DUO 35 446C	2390	820	845	350	370	2065	1035	165	2390	2800	1000	3.8	105
DUO 35 466C	2390	820	845	320	370	2065	1035	165	2390	2800	1000	3.8	119

Air Cooling

Condenser

Soprano: 500, 630, 910 fan
Heat exchange capacity (13~353kW)

Alto: 910mm fan
Heat exchange capacity (102~1092kW)

Customer Value

- Many materials and air flow directions are available for various application scenarios
- High heat exchange efficiency, and low operation cost
- Silent running
- Anti-corrosion treatment ensures long service life

Product Features

- Coil cover made of pre-coated galvanized steel sheet
- All models either have vertical or horizontal air flow directions
- Copper pipes designed for condensing process, with aluminum fins
- Fans are of Grade F, for double-speed optional, and with high efficiency shielding cases, extremely silent
- Alternative fins can be customized, to resist corrosion from salts or polluted atmosphere
- Unique materials and process assembly technologies, making the products efficient and simple

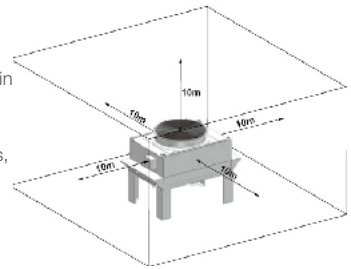
Model Naming

SO	60	2	MD	B	6PH	SH
SOPRANO Condenser	Fan diameter 50=500mm 60=630mm 90=910mm	Fan Quantity	Coil Code MS= Single row MD= Double row	Coil model	Pole number	Airflow form SV= Vertical outlet SH= Horizontal outlet

AL	91	4	MS	C	6PH	SH
ALTO Condenser	Fan diameter 91=910mm	Fan Quantity	Coil Code MS= Single row MD= Double row	Coil model	Pole number	Airflow form SV= Vertical outlet SH= Horizontal outlet

Acoustic Performance

- In accordance with IS03741 and IS03744 Standards, sound power classes of vertical outlets of the condensers are tested in standard labs.
- Sound pressure intensity is calculated in accordance with EN 13487 Standard. Sound pressure intensity is based on that in the reference zones in the parallelepiped10m away from the sound source and parallel to the envelope line.
- Due to sound reflection (against walls or frames, etc.) or environment factors, results obtained at installation site may be different from that in the manuals.
- In addition, sound level decrease function with distance as the independent variable is calculated with theoretical calculus.



Sound Power Correction by Fan Quantity

Fan Quantity	1	2	3	4	5	6	7	8	10	12	14
Correction Factor dB(A)	+0	+3	+5	+6	+7	+8	+9	+9	+10	+11	+12

For example, sound power for S060 4MSB Condenser with four 6PH fans is: 75+6=81dB(A)

Sound Pressure Level and Distance

Fan Distance (m)	5	10	20	30	40	50
Corrected dB(A)	+6	0	-6	-9.5	-12	-14

Fan and Motor

Fan Specifications 400V~3/50Hz

SOPRANO S050 (Performance data for each fan)

Fan	Motor	Rotation Speed (rpm)	Wiring	Rated Power (kW)	Current (A)	Sound Power dB(A)
500 mm	4PH	1390	Delta	0.72	1.41	71
	4PL	1180	Star	0.55	0.95	68
	6PH	930	Delta	0.27	0.69	63
	6PL	800	Star	0.19	0.40	59
	8PH	680	Delta	0.15	0.40	54
	8PL	560	Star	0.09	0.18	50

SOPRANO S060 (Performance data for each fan)

Fan	Motor	Rotation Speed (rpm)	Wiring	Rated Power (kW)	Current (A)	Sound Power dB(A)
630 mm	6PH	1330	Delta	1.25	2.48	75
	6PL	1070	Star	0.84	1.42	70
	8PH	890	Delta	0.60	1.20	67
	8PL	690	Star	0.40	0.68	61

SOPRANO S090/ALTO AL91 (Performance data of EC fans)

Fan	Motor	Rotation Speed (rpm)	Wiring	Rated Power (kW)	Current (A)	Sound Power dB(A)
910 mm	6PH	885	Delta	2.48	5.15	77
	6PL	685	Star	1.57	2.90	71
	8PH	650	Delta	1.15	2.78	70
	8PL	475	Star	0.64	1.36	63
	12PH	420	Delta	0.41	1.13	59
	12PL	305	Star	0.21	0.48	50

SOPRANO S090/ALTO AL91 (Performance data of EC fans)

Fan	Motor	Rotation Speed (rpm)	Brand	Max. Power (kW)	Max. Current (A)	Max. Sound Power dB(A))
910mm	6PH/6PL	450~885	EBM	2.10	3.20	79

*Motor parameters in this table are from EBM

Technical Parameters

Energy Efficiency Grade

Grade	Energy Consumption	R
A	Extremely low	R>110
B	Very low	70<R<110
C	Low	45<R<70
D	Medium	30<R<45
E	High	R<30

R=Heat Extraction Rate (ENV327Working Conditions) / Motor energy consumption

Heat Extraction Rate

Nominal Capacity in the manual is rated and calculated based on the temperature / pressure working conditions when refrigeration condensing gas starts to condensate (reaches dew point). As some refrigerant (R407Aor R407C) has obvious temperature glide, the saturation vapor temperature and saturation liquid temperature are different. The heat of such refrigerant is rated and calculated at the same saturation vapor temperature rather the mean of the saturation vapor and liquid temperature.

Quick Select

If you multiply the Nominal Capacity with the factor below, you will get the Nominal Capacity in other working conditions (Correction factor only allows interpolation not extrapolation):

Working Medium Correction Factor:

Working Medium	R134A	R22	R404A	R507	R407A	R407C
F1	0.93	0.96	1.00	1.00	0.82	0.85

Temperature difference ⊿T correction factor:

	⊿T	8K	10K	12K	15K	17K	20K
F2	R22,R507,R134A,R404A	0.53	0.67	0.80	1.00	1.13	1.33
	R407A,R407C	0.46	0.62	0.77	1.00	1.15	1.38

Ambient temperature correction factor:

Ambient Temperature°C	15	20	25	30	35	40	45	50
F3	1.034	1.018	1	0.98	0.96	0.94	0.923	0.906

Altitude correction factor:

Altitude m	0	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600
F4	1	0.986	0.974	0.959	0.945	0.93	0.918	0.904	0.891	0.877	0.863	0.85	0.836	0.823

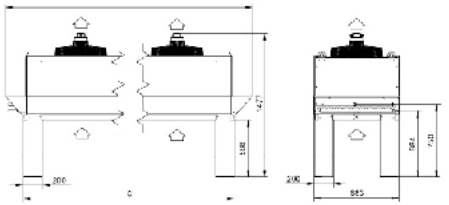
Fin spacing Correction factor:

Fin Spacing 2.54mm	SOPRANO	ALTO
F5	0.95	0.96

SO 50 - Single Row

	Model		SO50 1MSA		SO50 1MSB		SO50 2MSA		SO50 2MSB		SO50 3MSA		SO50 3MSB	
	Fan		1 x Ø 500		1 x Ø 500		2 x Ø 500		2 x Ø 500		3 x Ø 500		3 x Ø 500	
4PH/4PL	Wiring		4PH	4PL	4PH	4PL	4PH	4PL	4PH	4PL	4PH	4PL	4PH	4PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	29	26	36	32	59	52	72	64	88	77	108	96
	Air Volume	m³/h	6665	5645	7665	6495	13330	11290	15330	12990	19995	16935	22995	19485
	Sound Pressure Level	dB(A) 10m	52	48	52	48	55	51	55	51	57	52	57	52
	Energy Efficiency Grade		D	C	C	C	D	C	C	C	D	C	C	C
	Inlet Pipe		7/8"		7/8"		1"1/8		1"1/8		1"1/8		1"3/8	
	Drain Pipe		7/8"		7/8"		1"1/8		1"1/8		1"1/8		1"3/8	
6PH/6PL	Wiring		6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	21	18	26	21	42	37	52	43	63	56	78	64
	Air Volume	m³/h	4300	3630	4990	4215	8600	7260	9980	8430	12900	10890	14970	12645
	Sound Pressure Level	dB(A) 10m	38	35	38	35	41	38	40	38	42	39	42	39
	Energy Efficiency Grade		B	B	B	A	B	B	B	A	B	B	B	A
	Inlet Pipe		5/8"		7/8"		7/8"		1"1/8		1"1/8		1"1/8	
	Drain Pipe		5/8"		7/8"		7/8"		1"1/8		1"1/8		1"1/8	
8PH/8PL	Wiring		8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	16	13	20	17	32	27	41	34	48	40	61	51
	Air Volume	m³/h	2935	2360	3635	2920	5870	4720	7270	5840	8805	7080	10905	8760
	Sound Pressure Level	dB(A) 10m	32	29	32	29	35	32	35	32	37	34	36	34
	Energy Efficiency Grade		B	A	A	A	B	A	A	A	B	A	A	A
	Inlet Pipe		5/8"		5/8"		7/8"		7/8"		7/8"		1"1/8	
	Drain Pipe		5/8"		5/8"		7/8"		7/8"		7/8"		1"1/8	
	Surface Area	m²	49		73		97		146		146		220	
	Refrigerant Circuit Volume	dm³	8		11		14		20		20		30	
	Net Weight (without refrigerant)	kg	98		117		163		201		227		285	
	Dimension	A mm	1168		1543		1920		2670		2671		3796	
		C mm	814		1189		1566		2316		2317		3442	

Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.

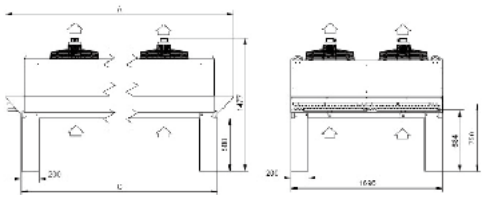


Technical Parameters

SO 50 - Double Row

	Model		SO50 2MDA		SO50 2MDB		SO50 4MDA		SO50 4MDB		SO50 6MDA		SO50 6MDB	
	Fan		2 x Ø 500		2 x Ø 500		4 x Ø 500		4 x Ø 500		6 x Ø 500		6 x Ø 500	
4PH/4PL	Wiring		4PH	4PL	4PH	4PL	4PH	4PL	4PH	4PL	4PH	4PL	4PH	4PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	59	52	72	64	117	103	144	128	175	154	216	191
	Air Volume	m^3/h	13330	11290	15330	12990	26660	22580	30660	25980	39990	33870	45990	38970
	Sound Pressure Level	dB(A) 10m	55	51	55	51	58	54	58	54	60	55	60	55
	Energy Efficiency Grade		D	C	C	C	D	C	C	C	D	C	C	C
	Inlet Pipe		2×7/8"		2×7/8"		2×1"1/8		2×1"1/8		2×1"1/8		2×1"3/8	
	Drain Pipe		2×7/8"		2×7/8"		2×1"1/8		2×1"1/8		2×1"1/8		2×1"3/8	
6PH/6PL	Wiring		6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	42	37	52	43	84	74	104	86	126	111	156	128
	Air Volume	m^3/h	8600	7260	9980	8430	17200	14520	19960	16860	25800	21780	29940	25290
	Sound Pressure Level	dB(A) 10m	41	38	40	38	43	41	43	40	45	42	45	42
	Energy Efficiency Grade		B	B	B	A	B	B	B	A	B	B	B	A
	Inlet Pipe		2×5/8"		2×7/8"		2×7/8"		2×1"1/8		2×1"1/8		2×1"1/8	
	Drain Pipe		2×5/8"		2×7/8"		2×7/8"		2×1"1/8		2×1"1/8		2×1"1/8	
8PH/8PL	Wiring		8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	32	27	41	34	63	54	81	68	95	80	122	102
	Air Volume	m^3/h	5870	4720	7270	5840	11740	9440	14540	11680	17610	14160	21810	17520
	Sound Pressure Level	dB(A) 10m	35	32	35	32	38	35	38	35	39	37	39	37
	Energy Efficiency Grade		B	A	A	A	B	A	A	A	B	A	A	A
	Inlet Pipe		2×5/8"		2×5/8"		2×7/8"		2×7/8"		2×7/8"		2×1"1/8	
	Drain Pipe		2×5/8"		2×5/8"		2×7/8"		2×7/8"		2×7/8"		2×1"1/8	
	Surface Area	m^2	98		146		194		292		292		440	
	Refrigerant Circuit Volume	dm^3	15		21		28		41		41		60	
	Net Weight (without refrigerant)	kg	162		195		282		346		399		498	
	Dimension	A mm	1168		1543		1920		2670		2671		3796	
		C mm	814		1189		1566		2316		2317		3442	

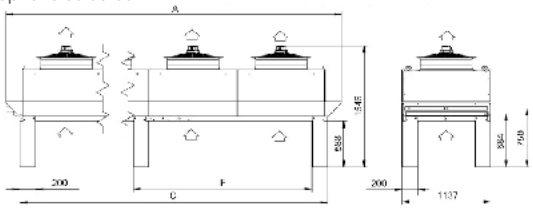
Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.



SO 60 - Single Row

	Model		SO60 1MSB		SO60 1MSC		SO60 2MSB		SO60 2MSC		SO60 3MSB		SO60 3MSC		SO60 4MSB		SO60 4MSC	
	Fan		1 x Ø 630		1 x Ø 630		2 x Ø 630		2 x Ø 630		3 x Ø 630		3 x Ø 630		4 x Ø 630		4 x Ø 630	
6PH/6PL	Wiring		6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	45	39	54	49	89	77	108	99	134	116	161	147	179	154	215	197
	Air Volume	m^3/h	10290	8410	11790	9745	20580	16820	23580	19490	30870	25230	35370	29235	41160	33640	47160	38980
	Sound Pressure Level	dB(A) 10m	52	47	52	47	55	50	55	49	57	51	57	51	58	52	58	52
	Energy Efficiency Grade		D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C
	Inlet Pipe		7/8"		7/8"		1"3/8		1"3/8		1"5/8		1"5/8		1"5/8		2"1/8	
	Drain Pipe		7/8"		7/8"		1"3/8		1"3/8		1"5/8		1"5/8		1"5/8		2"1/8	
8PH/8PL	Wiring		8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL
	Nominal Capacity R404A Tcond40°C~Δ T15K	kW	34	29	43	36	69	58	87	73	103	86	130	108	137	115	173	145
	Air Volume	m^3/h	7160	5650	8760	6890	14320	11300	17520	13780	21480	16950	26280	20670	28640	22600	35040	27560
	Sound Pressure Level	dB(A) 10m	40	34	40	34	43	37	43	37	45	39	45	38	46	40	46	40
	Energy Efficiency Grade		C	B	B	B	C	B	B	B	C	B	B	B	C	B	B	B
	Inlet Pipe		7/8"		7/8"		1"1/8		1"3/8		1"3/8		1"5/8		1"5/8		1"5/8	
	Drain Pipe		7/8"		7/8"		1"1/8		1"3/8		1"3/8		1"5/8		1"5/8		1"5/8	
	Surface Area	m^2	96		127		190		254		286		381		381		508	
	Refrigerant Circuit Volume	dm^3	14		18		27		35		41		53		53		72	
	Net Weight (without refrigerant)	kg	141		163		247		297		351		428		468		526	
	Dimension	A mm	1543		1918		2670		3420		3796		4921		4922		6422	
		C mm	1189		1564		2316		3066		3442		4567		4568		6068	
		F mm	-		-		-		-		-		-		2286		3036	

Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.

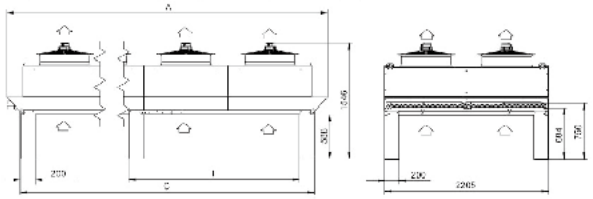


Technical Parameters

SO 60 - Double Row

	Model		SO60 2MDB		SO60 2MDC		SO60 4MDB		SO60 4MDC		SO60 6MDB		SO60 6MDC	
	Fan		2 x Ø 630		2 x Ø 630		4 x Ø 630		4 x Ø 630		6 x Ø 630		6 x Ø 630	
6PH/6PL	Wiring		6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	90	77	108	99	179	155	215	197	268	231	322	295
	Air Volume	m^3/h	20580	16820	23850	19490	41160	33640	47160	38980	61740	50460	70740	58470
	Sound Pressure Level	dB(A) 10m	55	50	55	50	58	52	58	52	60	54	60	54
	Energy Efficiency Grade		D	C	D	C	D	C	D	C	D	C	D	C
	Inlet Pipe		2×7/8"		2×7/8"		2×1"3/8		2×1"3/8		2×1"5/8		2×1"5/8	
	Drain Pipe		2×7/8"		2×7/8"		2×1"3/8		2×1"3/8		2×1"5/8		2×1"5/8	
8PH/8PL	Wiring		8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	69	58	87	73	137	115	173	145	205	172	259	217
	Air Volume	m^3/h	14320	11300	17520	13780	28640	22600	35040	27560	42960	33900	52560	41340
	Sound Pressure Level	dB(A) 10m	43	37	43	37	46	40	46	40	48	41	47	41
	Energy Efficiency Grade		C	B	B	B	C	B	B	B	C	B	B	B
	Inlet Pipe		2×7/8"		2×7/8"		2×1"1/8		2×1"3/8		2×1"3/8		2×1"5/8	
	Drain Pipe		2×7/8"		2×7/8"		2×1"1/8		2×1"3/8		2×1"3/8		2×1"5/8	
	Surface Area	m^2	190		254		381		508		572		761	
	Refrigerant Circuit Volume	dm^3	27		35		54		70		82		106	
	Net Weight (without refrigerant)	kg	243		283		438		523		630		760	
	Dimension	A mm	1543		1918		2670		3420		3796		4921	
		C mm	1189		1564		2316		3066		3442		4546	
		F mm	-		-		-		-		-		-	

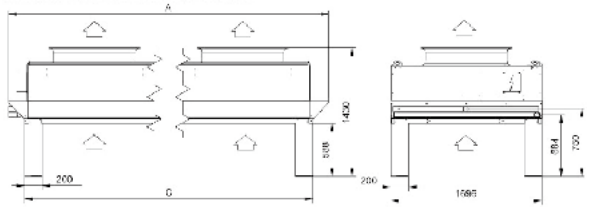
Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.



SO 90 - Single Row

	Model		SO90 1MSC		SO90 1MSD		SO90 1MSE		SO90 2MSC		SO90 2MSD		SO90 2MSE		SO90 3MSC		SO90 3MSD	
	Fan		1 x Ø 910		1 x Ø 910		1 x Ø 910		2 x Ø 910		2 x Ø 910		2 x Ø 910		3 x Ø 910		3 x Ø 910	
6PH/6PL	Wiring		6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL	6PH	6PL
	Nominal Capacity R404A Tcond40°C~Δ T15K	kW	106	89	118	98	128	106	212	177	235	196	255	212	317	266	353	294
	Air Volume	m^3/h	26125	20405	27490	21395	28235	22110	52250	40810	54980	42790	56470	44220	78375	61215	82470	64185
	Sound Pressure Level	dB(A) 10m	55	47	55	47	55	47	58	50	57	50	57	50	59	52	59	51
	Energy Efficiency Grade		D	C	C	C	C	C	D	C	C	C	C	C	D	C	C	C
	Inlet Pipe		1"3/8		1"5/8		1"5/8		2"1/8		2"1/8		2"1/8		2"1/8		2"1/8	
	Drain Pipe		1"3/8		1"5/8		1"5/8		2"1/8		2"1/8		2"1/8		2"1/8		2"1/8	
8PH/8PL	Wiring		8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL	8PH	8PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	88	73	96	79	104	85	176	145	192	157	208	170	264	217	288	236
	Air Volume	m^3/h	20240	15455	20900	15950	21560	16445	40480	30910	41800	31900	43120	32890	60720	46365	62700	47850
	Sound Pressure Level	dB(A) 10m	46	36	45	36	45	36	48	39	48	39	48	39	50	41	50	40
	Energy Efficiency Grade		B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
	Inlet Pipe		1"3/8		1"3/8		1"3/8		2"1/8		2"1/8		2"1/8		2"1/8		2"1/8	
	Drain Pipe		1"3/8		1"3/8		1"3/8		2"1/8		2"1/8		2"1/8		2"1/8		2"1/8	
12PH/12PL	Wiring		12PH	12PL	12PH	12PL	12PH	12PL	12PH	12PL	12PH	12PL	12PH	12PL	12PH	12PL	12PH	12PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	63	48	68	51	73	55	126	96	136	103	146	110	189	144	204	155
	Air Volume	m^3/h	12650	8800	13035	9135	13530	9515	25300	17600	26070	18270	27060	19030	37950	26400	39105	27405
	Sound Pressure Level	dB(A) 10m	34	26	34	26	34	26	37	29	37	29	37	28	39	30	39	30
	Energy Efficiency Grade		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Inlet Pipe		1"1/8		1"1/8		1"3/8		1"5/8		1"5/8		1"5/8		2"1/8		2"1/8	
	Drain Pipe		1"1/8		1"1/8		1"3/8		1"5/8		1"5/8		1"5/8		2"1/8		2"1/8	
	Surface Area	m^2	195		244		293		390		488		586		586		732	
	Refrigerant Circuit Volume	dm^3	29		38		44		60		72		85		87		105	
	Net Weight (without refrigerant)	kg	251		289		319		469		542		610		681		794	
	Dimension	A mm	1918		2293		2668		3420		4170		4920		4921		6046	
		C mm	1564		1939		2314		3066		3816		4566		4567		5692	

Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.

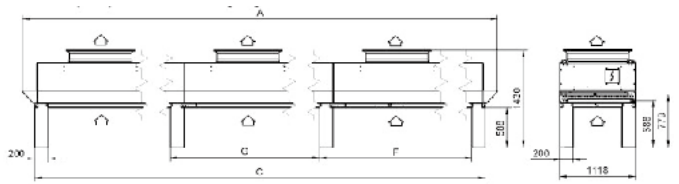


Technical Parameters

AL91 - Single Row

	Model		AL91 3MSC	AL91 3MSD	AL91 3MSE	AL91 4MSC	AL91 4MSD	AL91 4MSE	AL91 5MSC	AL91 5MSD	AL91 5MSE	AL91 6MSC	AL91 6MSD
	Fan		3 x Ø 910	3 x Ø 910	3 x Ø 910	4 x Ø 910	4 x Ø 910	4 x Ø 910	5 x Ø 910	5 x Ø 910	5 x Ø 910	6 x Ø 910	6 x Ø 910
6PH/6PL	Wiring		6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	224 190	273 231	326 275	299 253	364 308	434 366	373 316	455 385	543 458	448 379	546 482
	Air Volume	m^3/h	70455 54180	80850 62205	85800 66000	93940 72240	107800 82940	114400 88000	117425 90300	134750 103675	143000 110000	140910 108360	161700 124410
	Sound Pressure Level	dB(A) 10m	64 57	64 57	64 57	66 58	66 58	66 58	67 59	67 59	67 59	67 60	67 60
	Energy Efficiency Grade		D D	D C	D C	D D	D C	D C	D D	D C	D C	D D	D C
	Inlet Pipe		2"1/8	2"1/8	2"1/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8
	Drain Pipe		2"1/8	2"1/8	2"1/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8
8PH/8PL	Wiring		8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	182 153	214 178	253 207	242 204	285 237	337 276	303 255	356 296	421 344	363 306	427 355
	Air Volume	m^3/h	50490 38775	55440 42570	58410 44880	67320 51700	73920 56760	77880 59840	84150 64625	92400 70950	97350 74800	100980 77550	110880 85140
	Sound Pressure Level	dB(A) 10m	50 41	50 40	50 40	51 42	51 41	51 41	52 42	52 42	51 42	52 43	52 43
	Energy Efficiency Grade		C B	C B	B B	C B	C B	B B	C B	C B	C B	C B	C B
	Inlet Pipe		2"1/8	2"1/8	2"1/8	2"1/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8
	Drain Pipe		2"1/8	2"1/8	2"1/8	2"1/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8	2"5/8
12PH/12PL	Wiring		12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL
	Nominal Capacity R404A Tcond40°C~ Δ T15K	kW	131 102	152 119	180 138	175 136	202 158	240 184	218 170	253 198	300 230	262 203	303 237
	Air Volume	m^3/h	31020 22110	34650 24750	37290 26565	41360 29480	46200 33000	49720 35420	51700 36850	57750 41250	62150 44275	62040 44220	69300 49500
	Sound Pressure Level	dB(A) 10m	39 30	39 30	39 30	40 31	40 31	40 31	41 32	40 32	40 32	41 33	41 33
	Energy Efficiency Grade		B A	A A	A A	B A	A A	A A	B A	A A	A A	B A	A A
	Inlet Pipe		1"5/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	2"5/8	2"5/8	2"5/8
	Drain Pipe		1"5/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	2"5/8	2"5/8	2"5/8
	Surface Area	m^2	498	623	748	665	831	997	831	1038	1246	997	1246
	Refrigerant Circuit Volume	dm^3	69	84	101	91	111	132	111	137	162	132	162
	Net Weight (without refrigerant)	kg	557	654	740	742	872	986	860	1090	1233	1098	1295
	Dimension A	mm	4921	6046	7171	6422	7922	9422	7924	9799	11674	9426	11676
	Dimension C	mm	4567	5692	6817	6068	7568	9068	7570	9444	11320	9072	11322
	Dimension F	mm	-	-	2285	3036	3786	4536	3036	3787	4536	3037	3787
	Dimension G	mm	-	-	-	-	-	-	1502	1876	2252	3003	3753

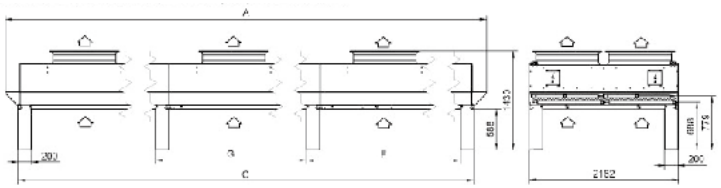
Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.



AL91 - Double Row

	Model		AL91 4MDC	AL91 4MDD	AL91 4MDE	AL91 6MDC	AL91 6MDD	AL91 6MDE	AL91 8MDC	AL91 8MDD	AL91 8MDE	AL91 10MDC	AL91 10MDD	AL91 10MDE	AL91 12MDC	AL91 12MDD
	Fan		4 x Ø 910	4 x Ø 910	4 x Ø 910	6 x Ø 910	6 x Ø 910	6 x Ø 910	8 x Ø 910	8 x Ø 910	8 x Ø 910	10 x Ø 910	10 x Ø 910	10 x Ø 910	12 x Ø 910	12 x Ø 910
6PH/6PL	Wiring		6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL	6PH 6PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	300 254	364 308	434 366	448 380	546 462	652 550	598 506	728 616	868 732	746 632	910 770	1086 916	896 758	1092 924
	Air Volume	m^3/h	93940 72240	107800 82940	114400 88000	140910 108360	161700 124410	171600 132000	187880 144480	215600 165880	228800 176000	234850 180600	269500 207350	286000 220000	281820 216720	323400 248820
	Sound Pressure Level	dB(A) 10m	60 53	60 53	60 53	62 54	62 54	62 54	63 56	63 55	63 55	64 56	64 56	64 56	65 57	64 57
	Energy Efficiency Grade		D D	D C	D C	D D	D C	D C	D D	D C	D C	D D	D C	D C	D D	D C
	Inlet Pipe		2×1"5/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8
	Drain Pipe		2×1"5/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8
8PH/8PL	Wiring		8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL	8PH 8PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	252 204	286 238	338 276	364 306	428 356	506 414	484 408	570 474	674 552	606 510	712 592	842 688	726 612	854 710
	Air Volume	m^3/h	67320 51700	73920 56760	77880 59840	100980 77550	110880 85140	116820 89760	134640 103400	147840 113520	155760 119680	168300 129250	184800	194700 149600	201960 155100	221760 170280
	Sound Pressure Level	dB(A) 10m	51 42	51 42	51 42	53 43	53 43	53 43	54 45	54 44	54 44	55 45	55 45	54 45	55 46	55 46
	Energy Efficiency Grade		C B	C B	B B	C B	C B	B B	C B	C B	B B	C B	C B	B B	C B	C B
	Inlet Pipe		2×1"5/8	2×1"5/8	2×1"5/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8
	Drain Pipe		2×1"5/8	2×1"5/8	2×1"5/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8	2×2"5/8
12PH/12PL	Wiring		12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL
	Nominal Capacity R404A Tcond40°C~ΔT15K	kW	176 136	202 158	240 184	262 204	304 238	360 276	350 272	404 295	480 368	436 340	506 396	600 460	524 406	606 474
	Air Volume	m^3/h	41360 29480	46200 33000	49720 35420	62040 44220	69300 49500	74580 53130	82720 58960	92400 66000	99440 70840	103400 73700	115500 82500	124300 88550	124080 88440	138600 99000
	Sound Pressure Level	dB(A) 10m	40 32	40 31	40 31	42 33	42 33	41 33	43 34	43 34	42 34	44 35	43 35	43 35	44 36	44 35
	Energy Efficiency Grade		B A	A A	A A	B A	A A	A A	B A	A A	A A	B A	A A	A A	B A	A A
	Inlet Pipe		2×1"3/8	2×1"5/8	2×1"5/8	2×1"5/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"5/8	2×2"5/8	2×2"5/8
	Drain Pipe		2×1"3/8	2×1"5/8	2×1"5/8	2×1"5/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"1/8	2×2"5/8	2×2"5/8	2×2"5/8
	Surface Area	m^2	660	831	997	997	1246	1495	1330	1662	1994	1662	2077	2492	1994	2492
	Refrigerant Circuit Volume	dm^3	92	117	137	137	168	202	181	222	263	222	273	324	263	324
	Net Weight (without refrigerant)	kg	685	796	894	1000	1168	1320	1338	1548	1740	1657	1930	2169	1973	2297
	Dimension A	mm	3420	4170	4920	4921	6046	7171	6422	7922	9422	7924	9799	11674	9426	11676
	Dimension C	mm	3066	3816	4566	4567	5692	6817	6068	7568	9068	7570	9445	11320	9072	11322
	Dimension F	mm	-	-	-	-	-	2285	3036	3786	4536	3036	3787	4536	3037	3787
	Dimension G	mm	-	-	-	-	-	-	-	-	-	1502	1876	2252	3003	3753

Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.



Model Selection Guidance

Quality Store

Reference Case: Some large high-quality fresh food supermarket chains

Project Features: New cabinet type, cooling capacity optimization, Two-stage Compressor

Store Area: 6300m^2

Number of Cabinets:

E6 Glass Door Multidecks 1
E6 Standard Refrigeration Multidecks..... 5
Advanza Glass Door Multidecks 1
Adventer Direct-cooling Fresh Food Ice Counter..... 3
Standard Self-service Counter 1
Double-deck service counter 3
Semi-vertical Air Curtain Cabinet 14
Advanza Island Case 27
Integral Chest Freezer ICFII 4

Number of Racks:

Medium Temperature Parallel Reciprocating Compressor Racks Single stage Medium Temperature(R404A)… .. 5
Medium Temperature Parallel Reciprocating Compressor Racks Two-stage Low temperature(R404A)..... 3

Differential Configuration - Medium Temperature

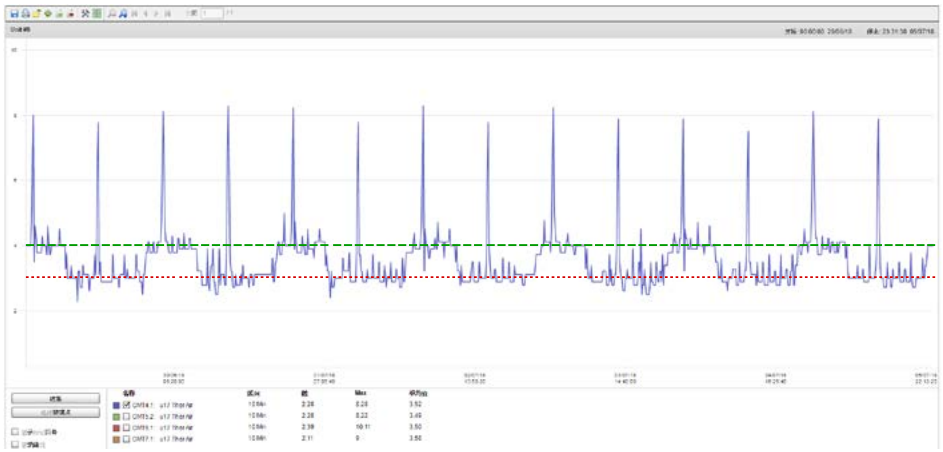
Matching criteria	Compressor number / Total Horse power (racks redundancy >15%)	Condenser Model	Pipe diameter / mm	Main pipeline pressure drop / K	Refrigeration material costs / 10K
Cooling Capacity Optimization	3/85HP	AL91 6MDE	ϕ67/ϕ35	1	28.2

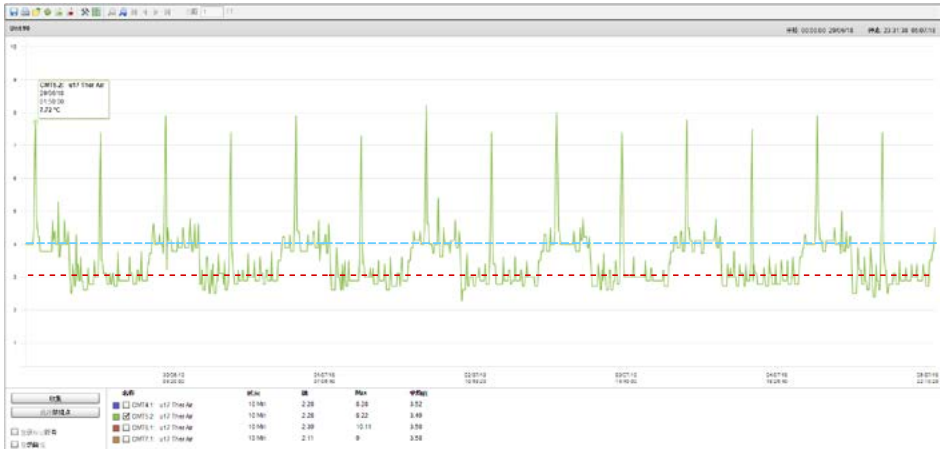
Note: The mean monthly temperatures in the hottest month in Shanghai is 31.8℃ and the mean relative humidity is 82%

After cooling capacity optimization, the compressor Horse power is 20HP lower. After cooling capacity optimization, the condenser models are fewer. While ensuring pressure drop, after the cooling capacity optimization, the refrigeration material costs are lower.

Common Compressor

Single Stage Medium Temperature(R404A) Evaporating Temperature -10℃ , Condensing Temperature 45℃				Two-Stage Low Temperature(R404A) Evaporating Temperature -32℃ , Condensing Temperature 45℃			
Model	Horse Power	Cooling Capacity	COP	Model	Horse Power	Cooling Capacity	COP
06DA328	10	18.09	2.1				
06DA537	15	25.14	2.1				
06EM450	15	30.73	2.2	06CC550	15	13.16	1.9
06EM475	25	48.07	2.2	06CC675	20	21.9	2
06EM499	35	69.19	2.2	06CC899	30	29.21	1.9





Operation temperature at night 4°C , temperature fluctuation ±0.7°C

Operation temperature in the day 3°C , temperature fluctuation ±0.9°C

Operation temperature at night 4°C ,temperature fluctuation ±0.7°C

Operation temperature in the day 3°C ,temperature fluctuation ±0.8°C

System Energy Consumption Analysis

Compressor operation data are based on standard selection software and the design working conditions are as follows: 1. Low temperature system: Evaporating temperature is -32°C , condensing temperature 45°C and supply liquid temperature after subcooling 15°C

2, Medium Temperature System: Evaporating temperature is -10°C , condensing temperature 45°C and supply liquid temperature after subcooling 25°C .

Solution Description	Low temperature racks		Medium Temperature racks		Rack Total Power
	Horse power	Input Power	Horse power	Input Power	
Solution 1, Carlyle low temperature two-stage, medium temperature supply liquid subcooler	90HP	43.92	85HP	75.07	118.99
Solution 2, Carlyle low temperature single stage, medium temperature supply liquid subcooler	90HP	49.71	105HP	92.4	142.11

On average, the system reduces energy consumption by about **10%**

* Market area is about 6500m^2, the cabinet line runs about 150m. The refrigeration system saves 130 kWh each day.

Model Selection Guidance

Supermarket

Reference Case:

Some large Supermarket chain

Project Features:

E6 Air Curtain cabinets / squeezing air Curtain

Natural defrosting for energy efficiency

Optimized design to reduce energy consumption for anti-condensation

Store Area: 4800m^2

Number of Cabinets:

Cabinets with air coolers..... 49

Number of Racks:

Low temperature racks…..... 1

Medium temperature racks 1

System Configuration:

System Type	Load kW
Low temperature	32.12
Medium temperature	96.91

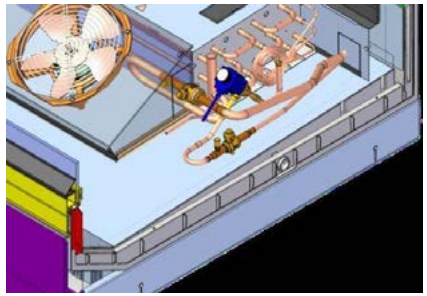
E6 Features:

- E6 squeezing air curtain is an optimization based on the last generation dual air curtain
- Optimized fin spacing, to meet the requirements of 3M2/1/0 on temperature performance and defrosting
- Optimized tube pitch and row pitch for TC coil high efficiency evaporators, improves the frosting status and rises evaporating temperature to about -6°C, which is much higher than -10°C of other brands.

By optimizing the shape of the air baffle, the outlet velocity of the continuous trapezoid distribution inside and outside the honeycomb net outlet is formed to minimize the cold loss caused by the air curtain

Low flow rate at external air curtain, leading to less turbulent flow and less penetration of hot air from outside

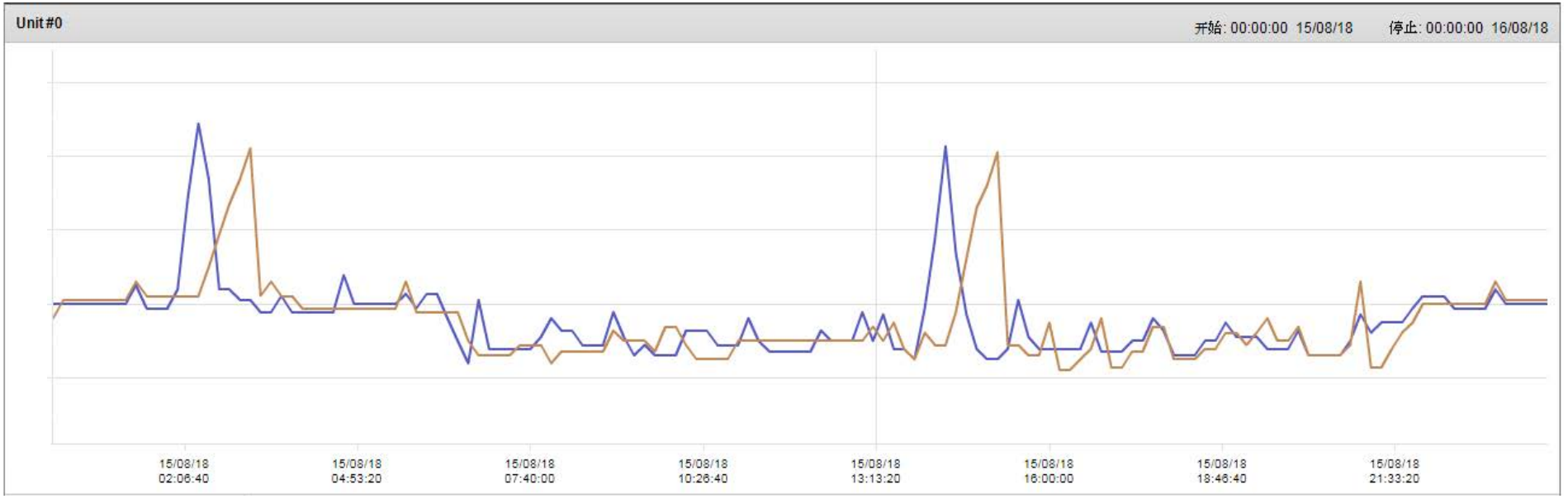
Optimized fin spacing, evaporating temperature and defrosting time to ensure cabinet natural defrosting, without additional power consumption and smaller food temperature fluctuations



Squeezing Multi-layer Air Curtain Technology:

The primary purpose of air curtain is to insulate the air in and out of the cabinets, reduce heat and mass transfer through the air curtain. (For more information, please see P8 of this manual)

Invariable Speed ≤ Two-Stage Variable Speed ≤ Squeezing Multi-layer Air Curtain



On average each day, each cabinet saves about 2 KWh of power, annually saving about 730 KWh

All cabinets in the store save about 98 KWh, annually about 35,770 KWh

Energy Saving Solutions

Hot Gas Defrosting Case Study

Reference Case:
Some large supermarket chain

Project Features:
Daily food multidecks and semi-vertical multidecks adopting air defrosting;
Service counter and refrigerted storage adopting hot gas by-pass; freezing storage and island cases adopting 3-line defrosting

Store Area: 7,000-20,000m^2

Project cycle: 1.5 months

Low Temperature System:

1. Equipment total load 39.44kW
2. Rack 06CC550*2+06CC675*1, total refrigerating capacity 43.75kW
3. Condenser: SO60 4MSB 6PL SV*1

Medium Temperature System:

1. Equipment total load 76.65kW
2. Racks 06EM450*2+06DA537, total refrigerating capacity 83.0kW
3. Condenser: SO60 6MDC 6PL SV*1

Electric defrosting: Defrosting relies on electric heating tube to heat from outside, consuming much energy and heating the food at the same time.
Hot gas defrost: By making good use of the sensible and latent heat of the compressor discharge, the defrosting efficiency is greatly improved. During defrosting, racks discharge heat enters the evaporator through the return gas pipe and the vapor condensates in the evaporators. The condensate liquid enters the supply liquid pipe through by-pass pipes to be used by other evaporator for refrigeration.

No.	Electric defrosting solutions	Hot gas defrosting solutions
1	High power consumption for defrosting	Using waste heat from compressor discharge line to defrost, saving energy > 10%
2	2~6 times of defrosting / day, 30 minutes per time	Defrosting only once a day, with a short defrosting duration and good defrosting effect
3	Heating from outside, low efficiency	Defrost hot gas entering the evaporator from the outlet, melting the frost from within
4	Uneven defrosting, residual frost may lead to evaporator frost blockage	Effective defrosting to prevent ice blockage
5	Frequent defrosting in the day is not good for food preservation and leads to food damage	During defrosting, small temperature increase in the cabinet, maximally ensuring food temperature

Electric Defrosting

Higher operation costs

- High energy consumption
- With more circuit breakers
- With more contactors
- Larger electric box

Defrosting times: twice / day
Total defrosting duration: 60 minutes
Big temperature increase in the equipment

Hot Gas Defrosting

Low electrical load, high food preservation quality and low electrical investment

- Using waste heat of condensing racks
- Inside-out heating
- Defrosting time: 1x30 minutes (by-pass)/ day

Defrosting times: once / day
Total defrosting duration: 15 minutes
Small temperature increase in the equipment

Before defrost

15 minutes after defrost

20 minutes after defrost

It takes about 20 minutes for air cooler defrost to melt all the frost and ice, without any ice left in the water pan

The supermarket may save 94 KWh in defrosting on daily basis and saves 34,310 KWh annually

Energy Saving Solutions

HybridCO2OL Case Study

Reference Case:

Some large supermarket chain

Project Features:

HybridCO2OL refrigeration system

Medium and high temperature system R134a refrigerant

Store Area: 9,731m^2

System Configuration:

System Type	Load kW
Low temperature	120
Medium temperature	129
High temperature	177

Strength of CO2 refrigerant:

Environmental Protection

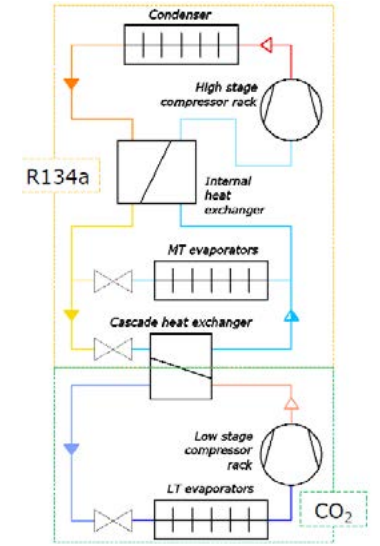
1. Directly and indirectly reduce greenhouse gas emissions
2. Low GWP – reduces greenhouse gas emissions
3. Zero ODP – doesn't destroy the ozone layer

Energy efficiency and economy

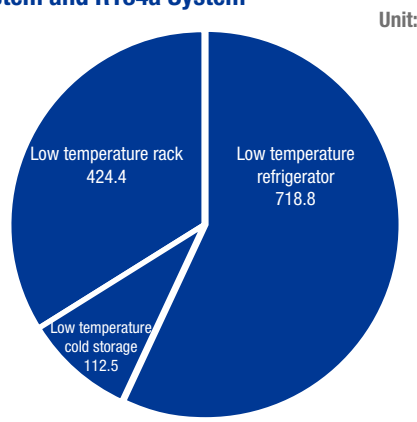
1. It has good heat transfer performance and improves COP of refrigeration system
2. High volumetric efficiency, reducing the size of the refrigerating parts
3. By-product of air separation, low cost

Safety

1. Non-inflammable, stable chemical properties, not broken down into hazardous substances
2. Natural working fluids without further treatment

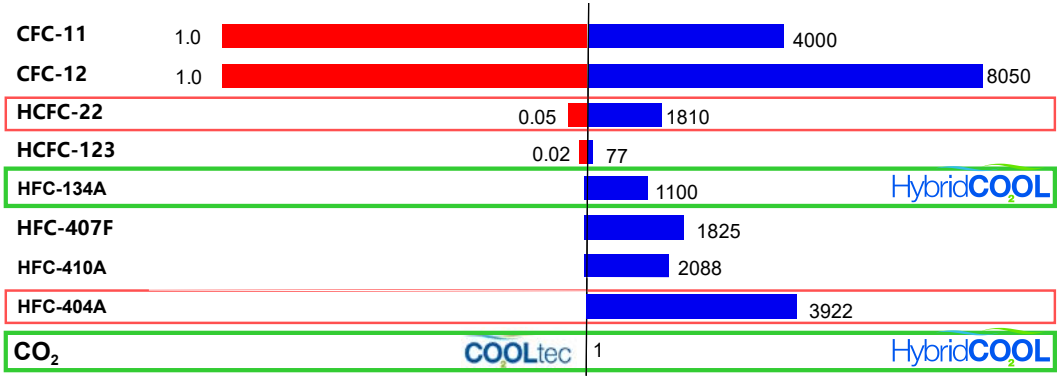


Comparison of Daily Energy Consumption of R744 Cascade System and R134a System



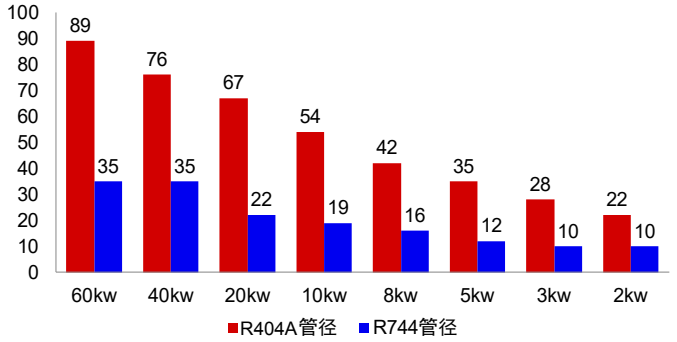
Total power consumption: 1255.7 kW.h

Ozone depletion potential (ODP) / Direct global warming potential (GWP)



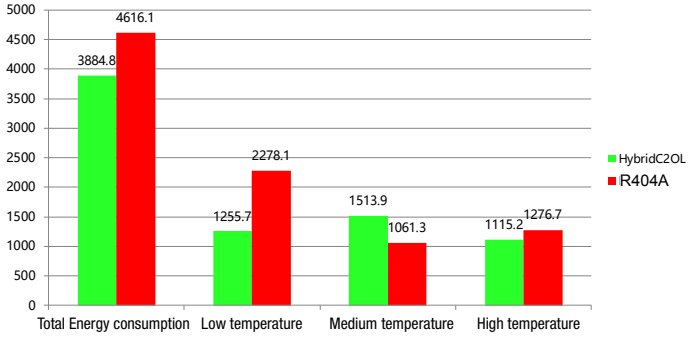
- Montréal Prot°C ol: 1987 => HCFC and CFC is banned
- Kyoto Prot°C ol: 1997 => phase down HFC

Comparison of Refrigeration Return Gas Pipe Specifications of R404A and R744

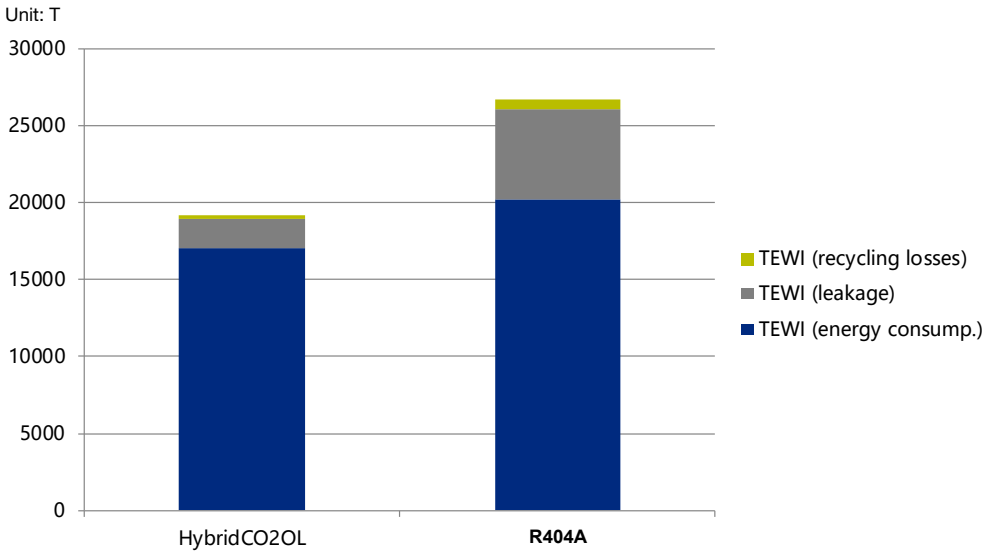


- Comparison of return gas pipes
- Based on evaporating temperature of -32°C , R404A supply liquid temperature of 15°C and R744 supply liquid temperature of -6°C

Comparison of Daily Energy Consumption of R744 Cascade System and R404A System



Comparison of Carbon Emission in the Entire Life Cycle of R744 Cascade System and R404A System



Calculated based on the following conditions:

1. The whole life cycle is 20 years
2. Leakage rate of the system is 5%

Total energy consumption is about 15% lower
and carbon emission is about 20% lower

Energy Saving Solutions

Air-conditioner Association Case Study

Reference Case:

Some large supermarket chain

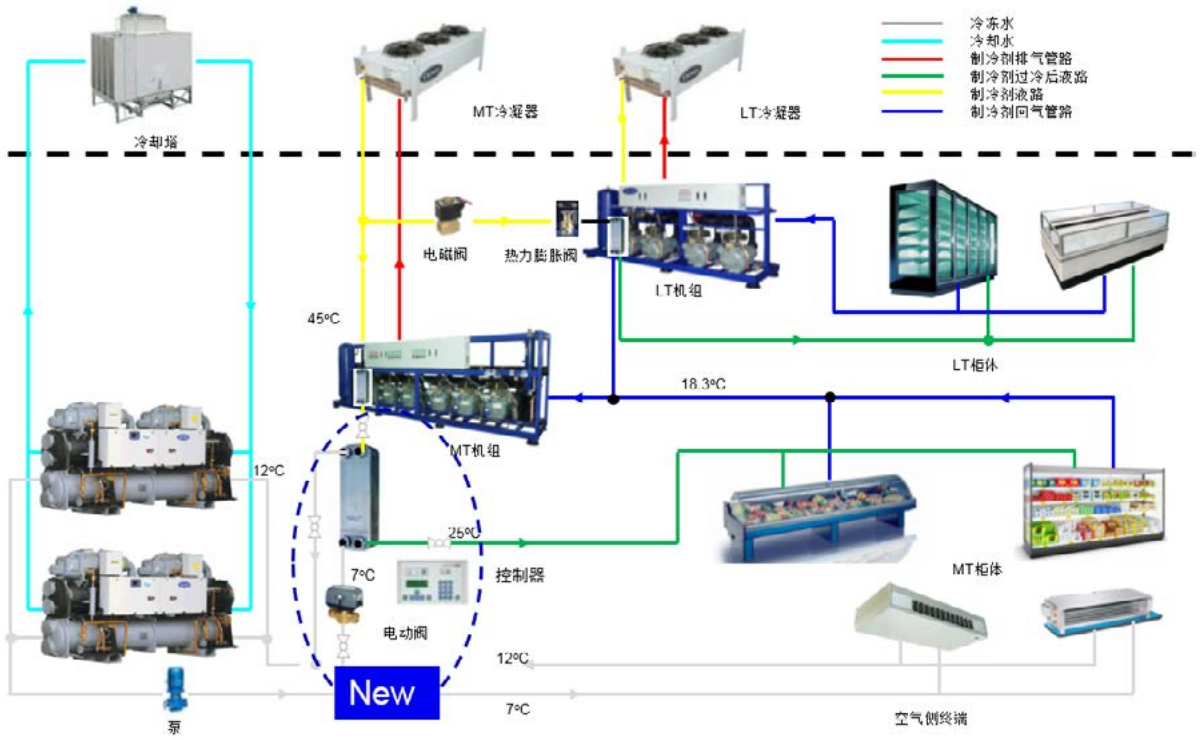
Project Features:

In summer, AC cool water is used for subcooling the return liquid for the refrigeration system, improving the efficiency of compressors. And in winter, waste heat of system discharge is recycled by the plate type heat exchanger

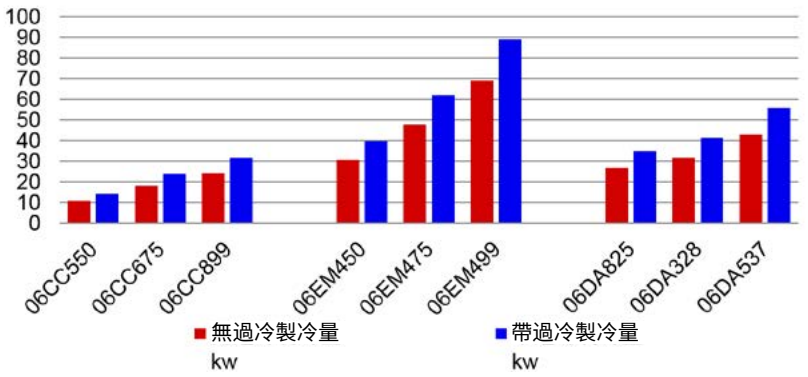
Store Area: 7,900m^2

System Configuration:

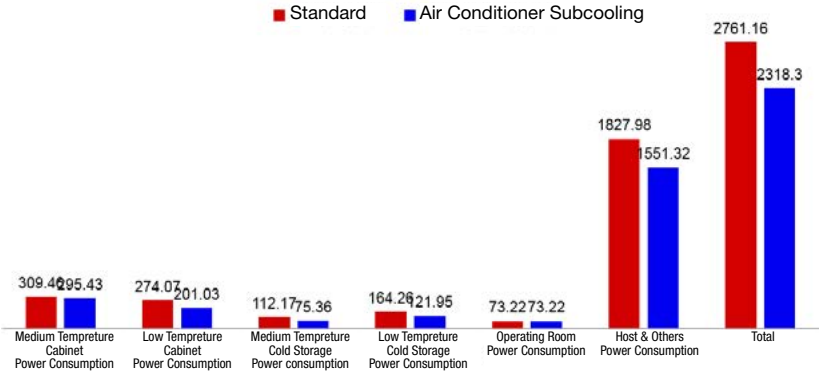
System Type	Load kW
Low temperature	94.32
Medium temperature	158.88
High temperature	86.87



Comparison of Refrigeration Efficiency Before and After AC Water Subcooling



Comparison of System Daily Energy Consumption (kW.h) Before and After Air Conditioner Subcooling



Three-way valve control of water and power

Plate heat exchanger

According to the climate features in the local areas, the air conditioners operate following the pattern below in summer:

25th May – 15th Jun.: Refrigerating 14 hour per day, only providing fresh air in other time

15th Jun. - 1st Sep. Refrigerating for 14 hours

1st Sep - 15th Sep.: Refrigerating 14 hour per day, only providing fresh air in other time

Suppose the air conditioners run 14 hours a day in summer working conditions, the refrigeration system saves 442.86kWh daily on average. Based on the temperature data in the region, it is calculated that the air conditioners need to provide subcooling of 55.58kW. As the air conditioners have a COP of 5.6 on average, the air conditioners consume 9.925kW additionally. The system saves 303.91KW daily. Based on the system design, the payback period is about 1.6 years.

Energy Saving Solutions

Cabinet Energy Saving Solutions

Island Case up-down Sliding glass door

Multidecks swing glass door

Heat reflective film

LED lighting

ESM high efficiency fan motor

High efficiency evaporator

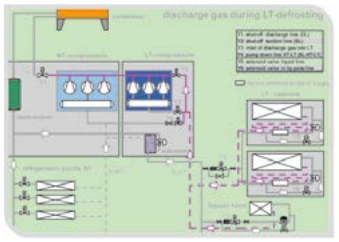
System Energy Saving Solutions

CO2OLtec transcritical racks

HybridCO2OL racks

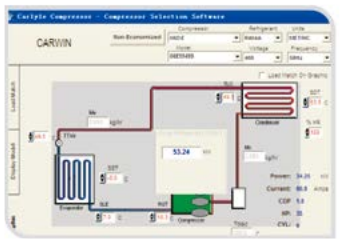
Green CO_2 Refrigeration - a new environmental protection trend

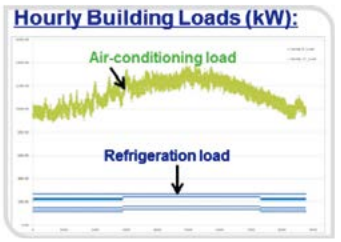
Energy saving 5%-10%



D2D defrost technology

Energy saving 10%-15%





Air-conditioner association system

Energy saving 10%-15%

Index

Public Wechat Account

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