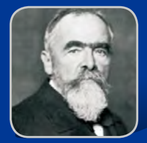
SUPERMARKET

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.



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.

About Carrier

Carrier Global Corporation is a leading global provider of innovative heating, ventilating and air conditioning (HVAC), refrigeration, fire, security and building automation technologies. Supported by the iconic Carrier name, the company is committed to making the world safer and more comfortable for generations to come through its industry-leading brands such as Carrier, Kidde, Edwards, LenelS2 and Automated Logic. For more information, visit www.Corporate.Carrier.com or follow us on social media at @Carrier.

Haier Carrier

Haier Carrier Refrigeration Equipment Co., Ltd. (Qingdao) was a joint venture established by Haier Group and US Carrier in 2001. After more than ten years of development, it has become a world-class facility. Its products include supermarket display cabinets (more than 1,000 specifications), compressor units (scroll, piston and screw), and heat exchangers (air-cooled condenser and air cooler). It can provide customers with whole sets of freezing and refrigerating solutions. Relying on the support of Carrier's R&D centers in Mainz, Germany and Shanghai, China, the company now has a nationally recognized laboratory, and the products and system technologies of Haier Carrier are leading in the world. The company is committed to providing advanced energy-saving systems, including carbon dioxide systems, for customers in the Asia Pacific region.

In the past ten years, relying on abundant resources of the parent company, Haier Carrier has become a world-class facility that owns the ISO9001 certification and the ACE certification of United Technologies (Carrier's parent). With strong R&D strength, we are able to provide world-class freezing and refrigerating integrated solutions such as D2D hot gas defrosting (national patent), Ground Water (GSHP technology dedicated for freezing and refrigerating purposes), HybridCO2OL (carbon dioxide cascade refrigeration technology), and CO2OLtec (carbon dioxide transcritical refrigeration technology).

Carrier new intelligent production base

Carrier is committed to innovative revolution and intelligent manufacturing. Since December 18, 2018, its new intelligent production base has been relocated to No. 3734, Tuanjie Road, Huangdao District, Qingdao.

The area of the new factory has been greatly expanded, and more newly upgraded production lines have been equipped, which has increased the production capacity by about 45%; the laboratories have been comprehensively upgraded and the number has doubled. The laboratory has a complete set of experimental verification system and experimental equipment. At present, there are 3 double-station commercial display cabinet laboratories, which adopt domestic or international advanced equipment; and product parameters meet or exceed national standards, so as to protect food safety; An 24-hour multi-functional testing laboratory for air-cooled, water-cooled condensing units, as well as air coolers and condensers, can be used for timely detection to ensure energy-saving and reliable products, responsible for the end user.

REDUCE YOUR CARBON FOOTPRINT
AND ENERGY COSTS. NATURALLY.

Let's Work Together!

Certificate of honor and qualification certificates

CHINASHOP Golden Wings

CHINASHOP Golden Wings-
Practical Fresh Food 3rd Prize

CHINASHOP Golden Wings-
Effective Stop-loss in Supply Chain 2nd Place

CHINASHOP Golden Wings-
2018 Most Market-potential Products Of the Year

CHINASHOP Golden Wings-
The Best Partner Award
Lawson East China 1000 Stores Achievement Award

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

Environmental Management System Certificate

Utility Model Patent Certificate

DNV Business Assurance
Management System Certificate

GCCA Credit Certification

National Industrial Product Production License

History of Innovation

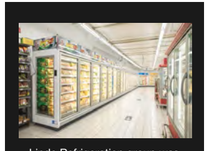
In Carrier, innovation is our philosophy all the time

The company was established

2001

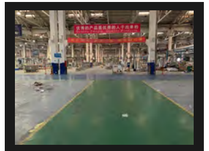
It started its export business

2003



Linde Refrigeration group was acquired by Carrier Corp
It started to cooperate with MNC chains

2004



Former Linde Plant merged with Carrier

2008

The first store with CO_2 pumping system opened

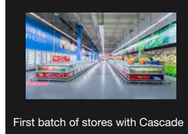
2012

EEL Energy Efficiency Certification

GCCA Credit Certification

New supermarket & C-store products were launched

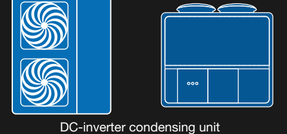
2014



First batch of stores with Cascade CO_2 opened

Localized CO_2 units product line went into operation

2016



DC-inverter condensing unit
1.5-46HP

2017

New factory in China went into operation

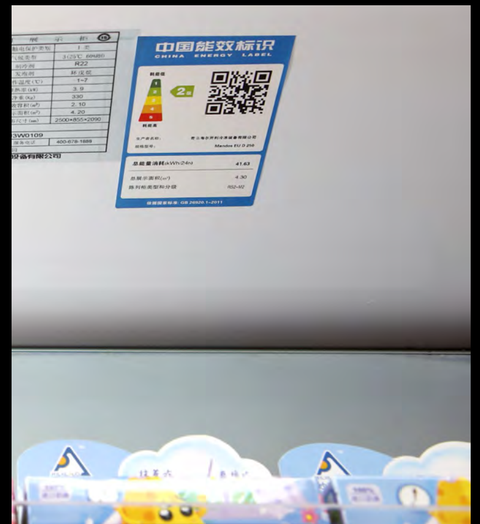
2018

Frost-free DC frequency technology

2019

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. 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 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 Carrier products can be found on the website above

* The data is as of 2017

Carrier is the

Only One Certified by

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
- Cabinet remote type and plug-in open type

GCCA Credit Certification

Proprietary Technology

Carrier Squeezed 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.

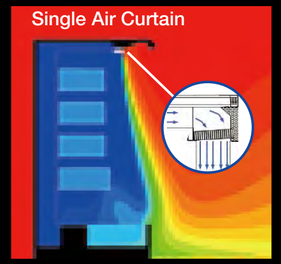
Single Speed ≤ Dual Speed ≤ Variable Speed

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

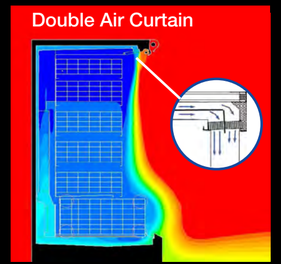
Temperature

High

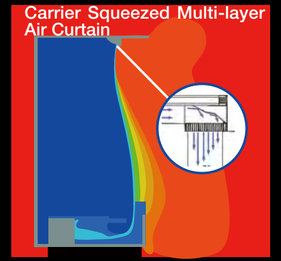
Low



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



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



Squeezed 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), 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 food, milk, fruits, etc
H1	1~10℃	Soft drinks, fruits & vegetable, etc.

* 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 performance for good display cabinet should be:

√ Actual temperature is in the range of rated temperature

√ Temperature range must cover the defrosting cycles

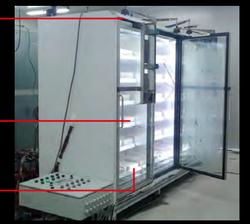
√ Little temperature fluctuation in the whole process

√ More even temperature distribution

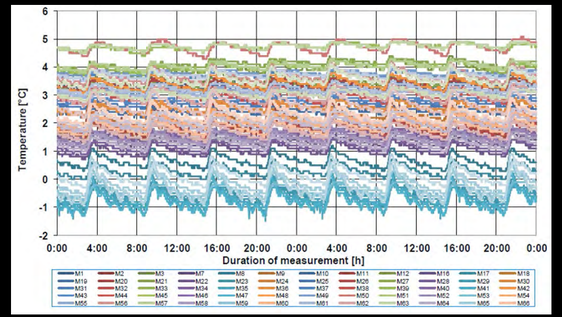
Mechanical arm to open and close the doors

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 probes



Temperature Profile of 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 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

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E6

Multidecks

-1~5℃ Temperature Performance

+25% Storage Capacity

+10% Display Area

≥- 6℃ Higher Evaporating Temperature

Product Features

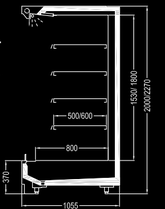
- Full sized product lines (Depth 750/850/1050mm), applicable to stores with various layouts
- Modern appearance design, better display effect
- Temperature optimization, suitable for storage of various daily products
- Prepositive air curtain, for wider/bigger shelves volume, and with a cabinet of 750mm deep, optimizing the footprint
- Low front design (370mm), for bigger display area
- Higher evaporating temperature (≥ -6℃), more energy-efficient and environmentally friendly
- Squeezed Multi-layer Air Curtain design, with better thermal insulation effect

E6

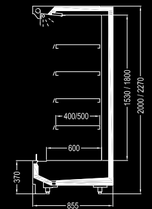
Multidecks

Technical Data

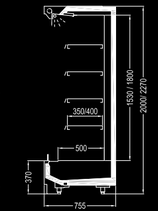
	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Width: 1055mm Height: 2m	Mendos LU D/M 125A	1250*1055*2000	-1~7/-1~5	1.01	2.29	280
	Mendos LU D/M 188A	1875*1055*2000	-1~7/-1~5	1.51	3.43	400
	Mendos LU D/M 210A	2100*1055*2000	-1~7/-1~5	1.89	3.84	440
	Mendos LU D/M 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.

E6

Glass Door Multidecks

-1~5℃ Temperature Performance

+25% Storage Capacity

+15% Display Area

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

≥- 4℃ Higher Evaporating Temperature

Product Features

- Full sized product lines (Depth 750/850/1050mm), applicable to stores with various layouts
- Modern appearance, frameless door design, highlighting goods display
- Temperature optimization, suitable for storage of various daily products and meat
- Prepositive air curtain, for wider/bigger shelves volume, and with a cabinet of 750mm deep, optimizing the footprint
- Low front design (370mm), for bigger display area
- Squeezed Multi-layer Air Curtain design, with better thermal insulation effect
- Higher evaporating temperature (≥ -4℃), more energy-efficient and environmental friendly

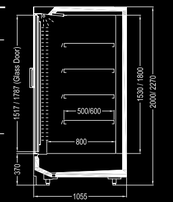
* All comparisons are based on the product performances of last generation.

E6

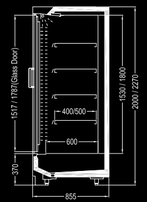
Glass Door Multidecks

Technical Data

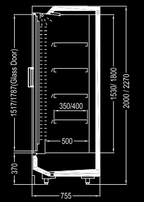
		Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Width: 1055mm Height: 2m	2 Doors	MenEco LU D/M 125A	1250*1055*2000	-1~7/-1~5	1.01	1.85	340
	3 Doors	MenEco LU D/M 188A	1875*1055*2000	-1~7/-1~5	1.51	2.55	490
	3 Doors	MenEco LU D/M 210A	2100*1055*2000	-1~7/-1~5	1.89	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.

E6C

Multidecks

-1~5°C Temperature Performance

+10% Storage Capacity

+10% Display Area

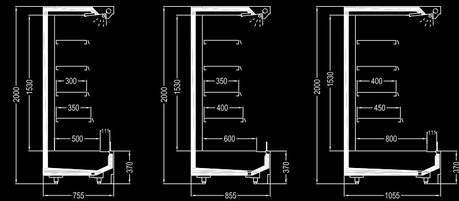
High Cost Performance

Technical Data

	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Width: 1055mm Height: 2m	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 middle and low-end customers, applicable to stores with various layouts
- ☐ Temperature optimization, suitable for storage of various daily products and meat
- ☐ Prepositive air curtain for wider/bigger shelves volume, and with a cabinet of 750mm deep, optimizing the footprint
- ☐ Low front design (370mm), for bigger display area
- ☐ Squeezed Multi-layer Air Curtain design, with better thermal insulation effect
- ☐ Higher evaporating temperature (≥ -6°C), more energy-efficient and environmental friendly



Mendos XU　Mendos EU　Mendos LU

* All comparisons are based on the product performances of last generation.

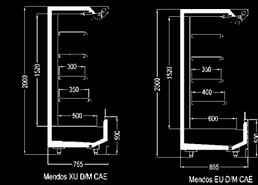
E6C

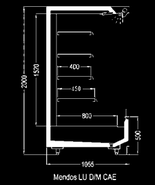
500 Front-height Multidecks

-1~5℃ Temperature Performance | +10% Storage Capacity | +10% Display Area | High Cost Performance

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/ m^3	Display Area/m^2	Net Weight /kg
E6C Self-service Multidecks, 1055 Width, 500 Front Height	Mendos LU D 125CAE	1250*1055*2000	-1~7	0.89	2.19	235
	Mendos LU D 188CAE	1875*1055*2000	-1~7	1.32	3.28	330
	Mendos LU D 210CAE	2100*1055*2000	-1~7	1.48	3.68	365
	Mendos LU D 250CAE	2500*1055*2000	-1~7	1.77	4.13	425
	Mendos LU D 375CAE	3750*1055*2000	-1~7	2.66	6.56	620
	Mendos LU M 125CAE	1250*1055*2000	-1~5	0.89	2.19	235
	Mendos LU M 188CAE	1875*1055*2000	-1~5	1.32	3.28	330
	Mendos LU M 210CAE	2100*1055*2000	-1~5	1.48	3.68	365
	Mendos LU M 250CAE	2500*1055*2000	-1~5	1.77	4.38	425
	Mendos LU M 375CAE	3750*1055*2000	-1~5	2.66	6.56	620
E6C Self-service Multidecks, W55 Width, 500 Front Height	Mendos EU D 125CAE	1250*855*2000	-1~7	0.73	2.00	220
	Mendos EU D 170CAE	1700*855*2000	-1~7	0.99	2.72	290
	Mendos EU D 188CAE	1875*855*2000	-1~7	1.09	3.00	310
	Mendos EU D 250CAE	2500*855*2000	-1~7	1.46	4.00	395
	Mendos EU D 375CAE	3750*855*2000	-1~7	2.19	6.00	580
	Mendos EU M 125CAE	1250*855*2000	-1~5	0.73	2.00	220
	Mendos EU M 170CAE	1700*855*2000	-1~5	0.99	2.72	290
	Mendos EU M 188CAE	1875*855*2000	-1~5	1.09	3.00	310
	Mendos EU M 250CAE	2500*855*2000	-1~5	1.46	4.00	395
	Mendos EU M 375CAE	3750*855*2000	-1~5	2.19	6.00	580
E6C Self-service Multidecks, 755 Width, 500 Front Height	Mendos XU D 125CAE	1250*755*2000	-1~7	0.62	1.94	210
	Mendos XU D 188CAE	1875*755*2000	-1~7	0.93	2.91	300
	Mendos XU D 250CAE	2500*755*2000	-1~7	1.24	3.88	380
	Mendos XU D 375CAE	3750*755*2000	-1~7	1.86	5.81	560
	Mendos XU M 125CAE	1250*755*2000	-1~5	0.62	1.94	210
	Mendos XU M 188CAE	1875*755*2000	-1~5	0.93	2.91	300
	Mendos XU M 250CAE	2500*755*2000	-1~5	1.24	3.88	380
	Mendos XU M 375CAE	3750*755*2000	-1~5	1.86	5.81	560





Product Features

- Designed specifically for the needs of middle and low-end community customers, suitable for various store layouts.
- Optimized temperature, suitable for various daily distribution and meat food storage.
- Curtain improves the shelf width / inventory, optimizing the floor area in combination with a cabinet depth as low as 750mm.
- All comparisons are based on the performance of the previous generation products and the data are rounded.
- 500mm low front-height design, less cooling capacity and energy consumption.
- Extruded multi-layer wind curtain design to optimize air curtain insulation.
- High evaporation temperature (≥ -6 ℃), more energy saving and environmental protection.

* All comparisons are based on the product performances of last generation.

E6C

Glass Door Multidecks

-1~5℃ Temperature Performance

+10% Storage Capacity

+10% Display Area

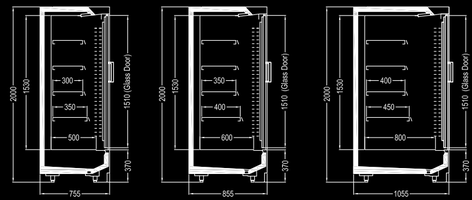
High Cost Performance

Technical Data

		Model	Dimensions /mm	Temperature Range/℃	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, frameless door design, highlighting goods display
- Temperature optimization, suitable for storage of various daily products and meat
- Prepositive Air curtain for wider/bigger shelves volume, and with a cabinet of 750mm deep, optimizing the footprint
- Squeezed Multi-layer Air Curtain design, with better thermal insulation effect
- Higher evaporating temperature (≥ -4℃), more energy-efficient and environmental friendly



MenEco XU MenEco EU MenEco LU

* All comparisons are based on the product performances of last generation.

E6

750 Width Rectangular End Cases

+30% Display Area

No Side Walls Crown Appearance

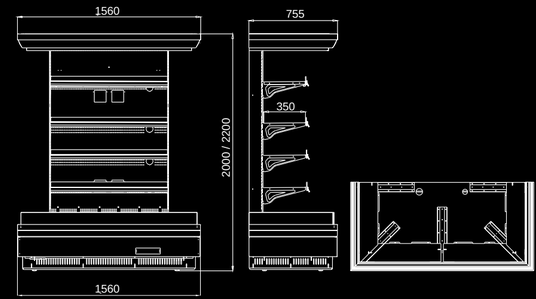
Perfect Combination

Technical Data

Model	Dimensions /mm	Temperature Range/°C	Net Volume/m³	Display Area/m²	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.

E6

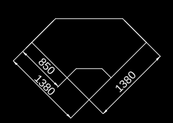
Internal/External Corner Cases

Technical Data

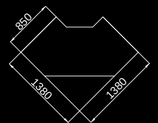
Tpye	Model	Dimensions /mm	Temperature Range/°C	Net Weight /kg	Display Area/m^2	Net Volume/m^3
E6 Internal/External Corner Case	Mendos EU D 9EA	1380*1380*2000	1-10	240	2.84	0.96
	Mendos EU D 9IA	1380*1380*2000	1-10	230	2.18	0.82
	Mendos EU D 9E-L	1380*1380*2270	1-10	290	3.12	1.16
	Mendos EU D 9I-L	1380*1380*2270	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

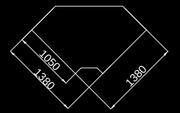
- ☐ 90° Internal/External Corner Case, meeting the demand of various customers for combination
- ☐ E6 based platform stable performance and good appearance



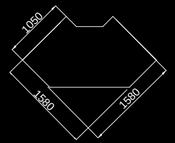
850mm wide,
E6 Internal Corner Case



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.

E6

Semi-vertical Multidecks

-1~5℃ Temperature Performance

+5% Storage Capacity

+20% Display Area

-5% Energy Consumption

Product Features

- Full sized product lines, 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
- Squeezed Multi-layer Air Curtain design, with high efficiency evaporator and reducing total energy consumption

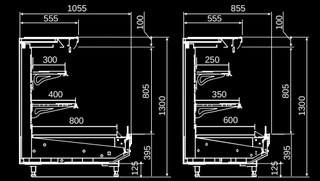
* All comparisons are based on the product performances of last generation.

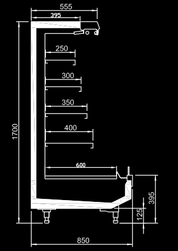
E6

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 125	1250*1055*1300	-1~7	0.5	1.74	180
	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 125N	1250*855*1700	-1~7	0.53	1.86	173
	SV EU D 170N	1700*855*1700	-1~7	0.83	2.53	236
	SV EU D 188N	1875*855*1700	-1~7	0.91	2.79	242
	SV EU D 250N	2500*855*1700	-1~7	1.21	3.72	322
	SV EU D 375N	3750*855*1700	-1~7	1.84	5.57	470
	SV EU D/M 125L	1250*855*1500	-1~7/-1~5	0.51	1.58	150
	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 125	1250*855*1300	-1~7/-1~5	0.49	1.52	148
	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.

E6

Semi-vertical Round Cases

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

Product Features

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

* All comparisons are based on the product performances of last generation.

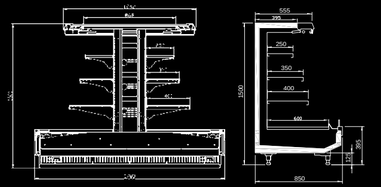
E6

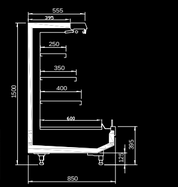
Semi-vertical Round Cases

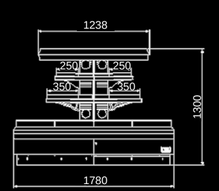
Carrier

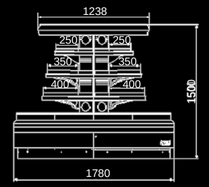
Technical Data:

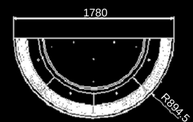
	Model	Dimensions/mm	Temperature Range/°C	Net Volume/m³	Display Area/m²	Net Weight /kg	Frequency/Hz
Semi-round High End Head	SR EU D 178L	1780*900*1500	4-12	0.32	1.17	210	50Hz
	SR EU D 178	1780*900*1300	4-12	0.41	1.53	210	50Hz
Square Half High End Head	SC EU D 178L	1780*855*1500	5-12	0.75	2.3	240	50Hz
	SC LU D 218L	2180*1055*1500	5-12	1.05	3.2	300	50Hz

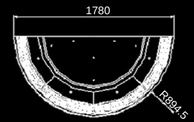












* All comparisons are based on the product performances of last generation.

E6

Semi-vertical Glass Door Multidecks

-1~5℃ Temperature Performance

+20% Storage Capacity

+10% Display Area

-5~10% Energy Consumption

Product Features

- Leading temperature performance (-1~5℃), suitable for storage of various daily products and meat
- Modern appearance, frameless door design, highlighting goods display
- With narrow top design, suitable for various consumers
- Squeezed Multi-layer Air Curtain design with high efficiency evaporator, more energy-efficient and 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
- High evaporation temperature (≥-4℃)

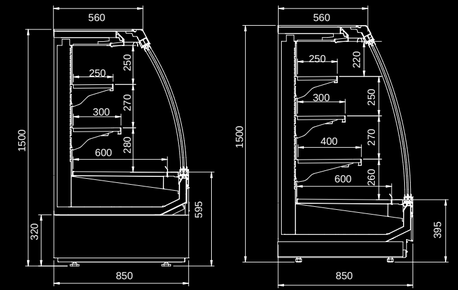
E6

Semi-vertical Glass Door Multidecks

* All comparisons are based on the product performances of last generation.

Technical Data

	Standard Model	Dimensions (LxWxH)	Description	Operation Temperature (℃)
Remote Glass Door	SV EU D 125 LR SD	1250*855*1500	SV remote vertical glass door multidecks, dairy case	-1~7
	SV EU D 170 LR SD	1700*855*1500	SV remote vertical glass door multidecks, dairy case	-1~7
	SV EU D 188 LR SD	1875*855*1500	SV remote vertical glass door multidecks, dairy case	-1~7
	SV EU D 250 LR SD	2500*855*1500	SV remote vertical glass door multidecks, dairy case	-1~7
	SV EU D 375 LR SD	3750*855*1500	SV remote vertical glass door multidecks, dairy case	-1~7
	SV EU M 125 LR SD	1250*855*1500	SV remote vertical glass door multidecks, beef case	-1~5
	SV EU M 170 LR SD	1700*855*1500	SV remote vertical glass door multidecks, beef case	-1~5
	SV EU M 188 LR SD	1875*855*1500	SV remote vertical glass door multidecks, beef case	-1~5
	SV EU M 250 LR SD	2500*855*1500	SV remote vertical glass door multidecks, beef case	-1~5
	SV EU M 375 LR SD	3750*855*1500	SV remote vertical glass door multidecks, beef case	-1~5
Plug-in Glass Door	SV EU M 125 P SD	1330*855*1500	SV plug-in vertical glass door multidecks, beef case	-1~5
	SV EU M 188 P SD	1950*855*1500	SV plug-in vertical glass door multidecks, beef case	-1~5



* All comparisons are based on the product performances of last generation.

Danaos

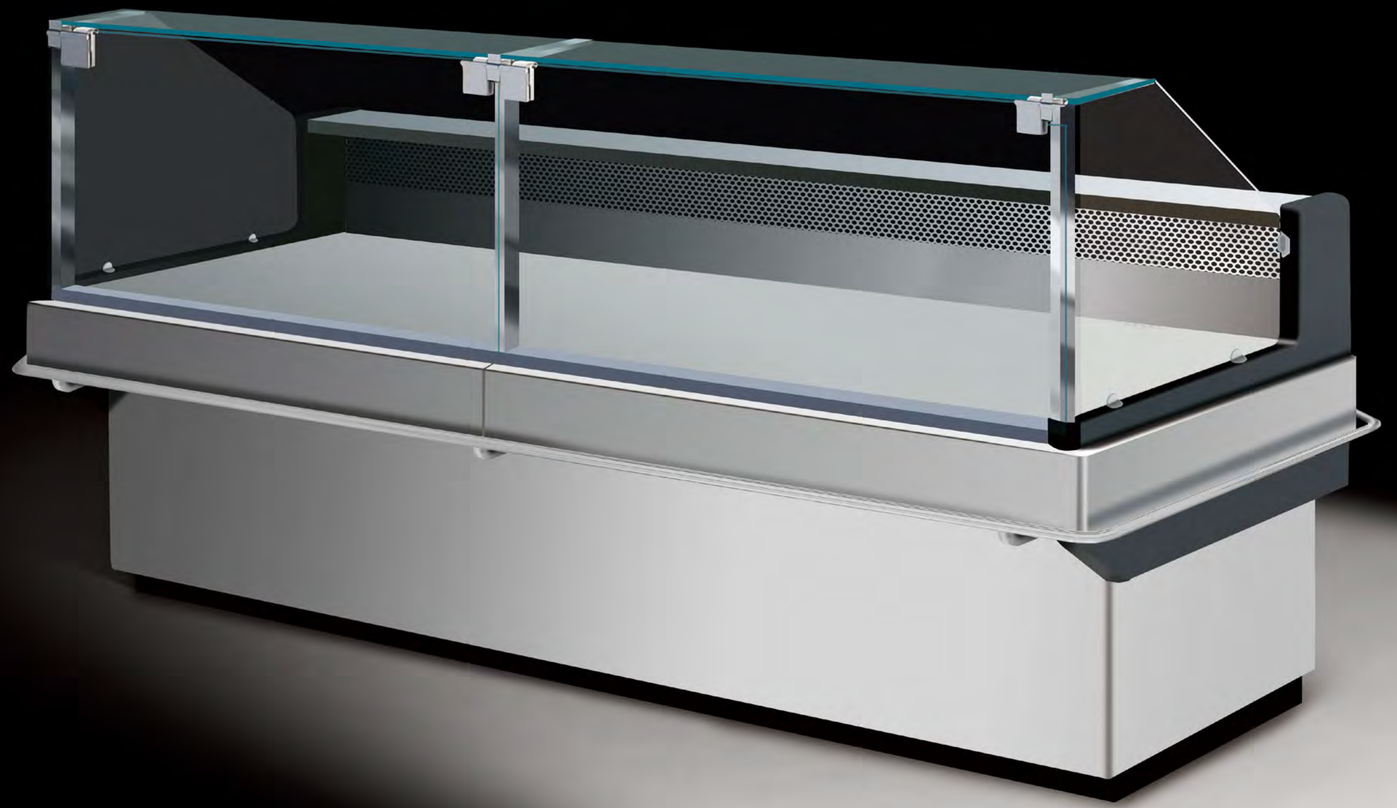
Rectangular Service Counter

-1~5℃ Temperature Performance

+15~35% Storage Capacity

+30% Display Area

-30% Energy Consumption



Product Features

- Full sized product lines, 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 products and meat
- Bigger capacity for bigger volume per unit of area
- Rectangular glass design, for bigger display area
- Top Squeezed Multi-layer Air Curtain, multiple decks for food storage and bigger capacity

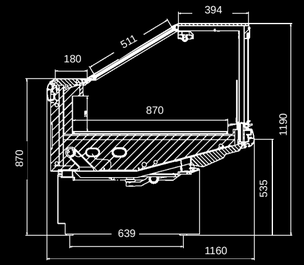
* All comparisons are based on the product performances of last generation.

Danaos

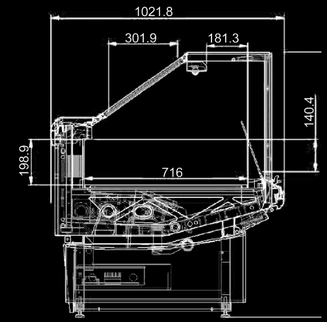
Rectangular Service Counter

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m³	Display Area/m²	Net Weight /kg	Frequency (Hz)
Plug-in Service-over 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 Counter	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-over 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 Counter	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

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m³	Display Area/m²	Net Weight /kg	Frequency (Hz)
Remote 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



Rectangular service counter



Sliding door service counter

* All comparisons are based on the product performances of last generation.

Danaos

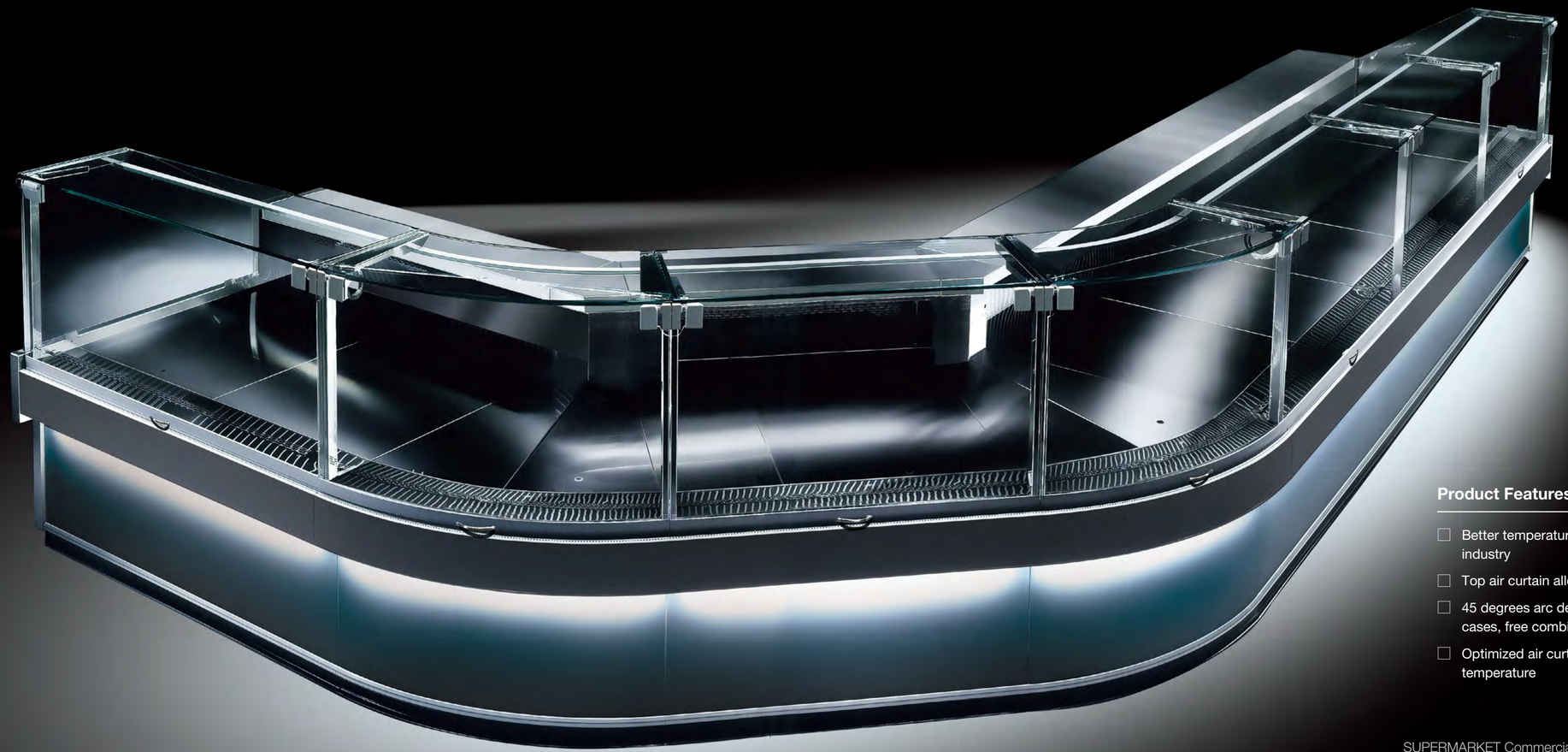
Round Corner Case

-1~7°C Temperature Performance

Arc Design

Flexible Combination

Optimized
Air Curtain Design



Product Features

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

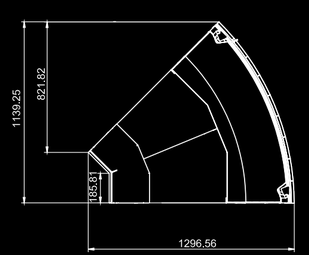
* All comparisons are based on the product performances of last generation.

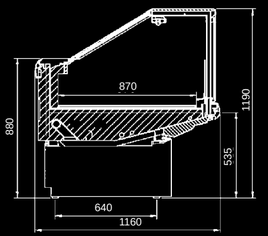
Danaos

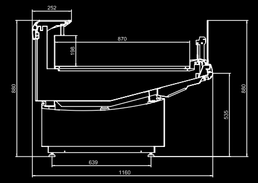
Round Corner Case

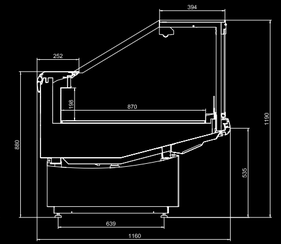
Technical Data:

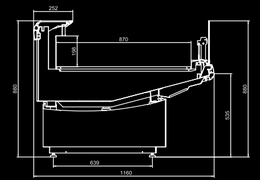
	Model	Dimensions/mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency/Hz
Danaos 45° Round External Corner Case	Danaos EC45 R G	1139*1296*1190	-1~7	0.12	0.66	105	50/60
Danaos 45° Round Internal Corner Case	Danaos IC45 R G	1390*1360*1190	-1~7	0.17	0.95	135	50/60
Danaos 90° External Corner Case	Danaos EC90 87 R G	1612*1612*1190	-1~7	0.24	1.32	185	50/60
	Danaos EC90 87 R S	1612*1612*880	-1~7	0.24	1.32	235	50/60

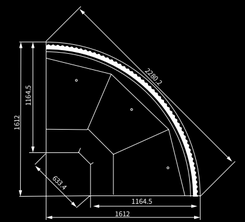












* All comparisons are based on the product performances of last generation.

Danaos

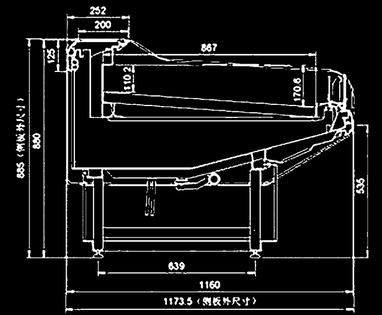
Static-cooling Ice Counter

Technical Data

	Model	Dimensions/mm	Temperature Range/°C	Net Volume/m³	Display Area/m²	Coding
DANAOS Split Ice Fresh Cabinet	Danaos 188 87 R I	1875*1160*880	≤-2	0.28	1.60	BG1PSZ00000
	Danaos 250 87 R I	2500*1160*880	≤-2	0.38	2.15	BG1PT000000

Product Features

- ☐ High efficiency static-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.

SN

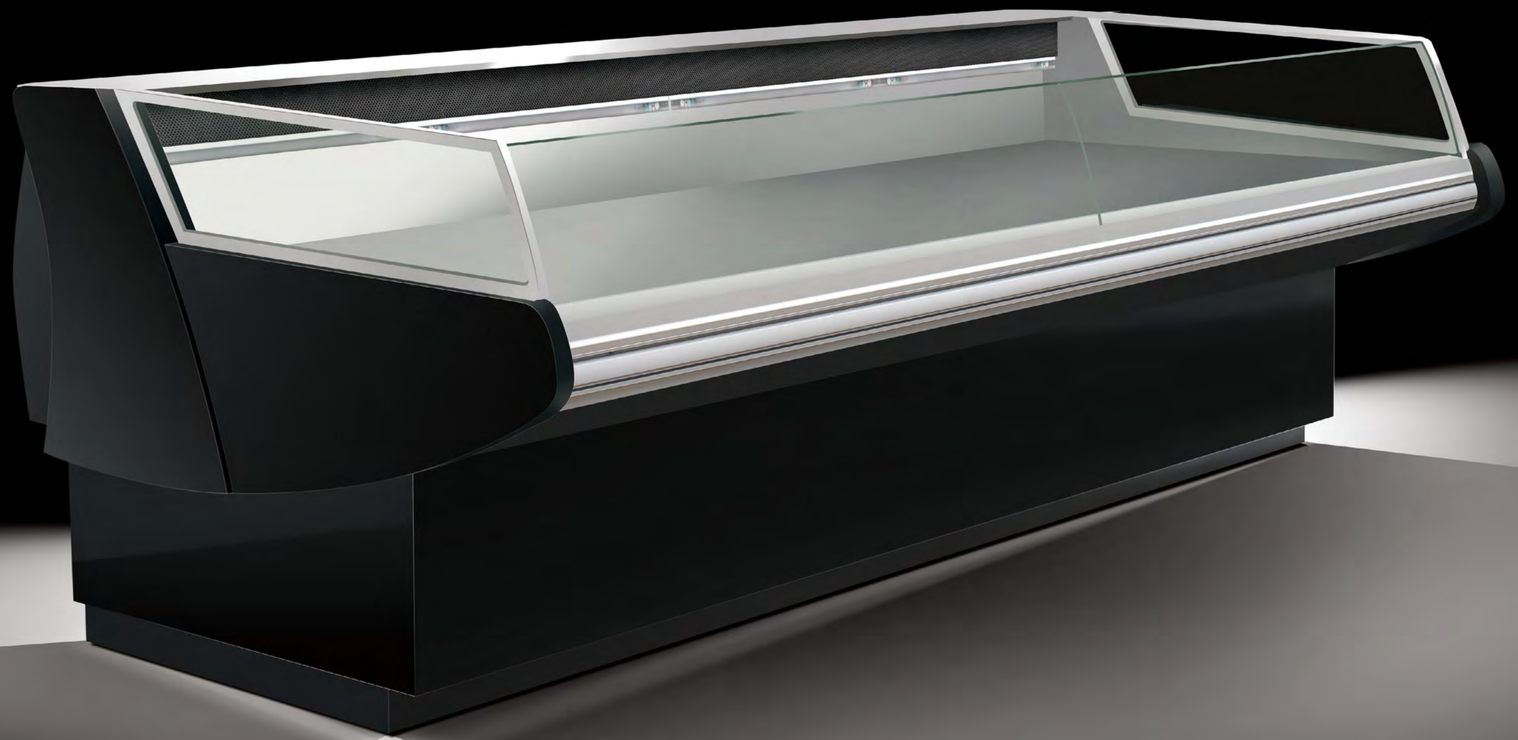
Narrow Service Counter

-1~5°C Temperature Performance

+25% Storage Capacity

+20% Display Area

-15% Energy Consumption



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

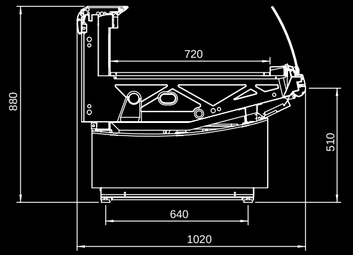
* All comparisons are based on the product performances of last generation.

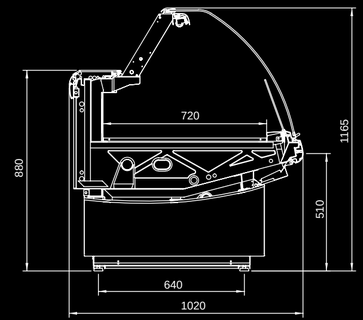
SN

Narrow Service Counter

Technical Data

	Model	Dimensions /mm	Temperature Range/℃
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 Round Glass Service-over	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 Round Glass Sliding Door	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 Round Glass Service-over	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-over 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-over 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 Round Glass Sliding Door	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-over 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.

SN

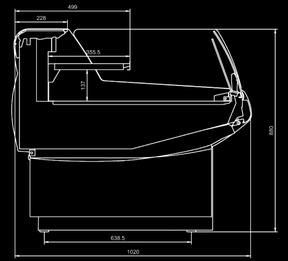
Double Shelves Counter

Technical Data

	Model	Dimensions/mm	Temperature Range /℃	Display Area / m^2	Effective volume /m^3
SN Series Double Layer Service Cabinet	SN 125 72 R S D	1250*1020*880	-1~5	0.94	0.17
	SN 188 72 R S D	1875*1020*880	-1~5	1.40	0.25
	SN 250 72 R S D	2500*1020*880	-1~5	1.80	0.32
	SN 375 72 R S D	3750*1020*880	-1~5	2.80	0.50
	SN EC90 72 R S D	1530*1530*880	3~8	1.22	0.21

Product Features

- ☐ Double shelves 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.

Adventer

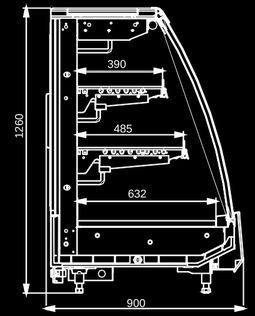
Static-cooling Beef Case

Technical Data

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

Product Features

- ☐ Energy-efficient, static-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.

Standard

Service Counter

Easy to Access

Beautiful Appearance

Durable

Product Features

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

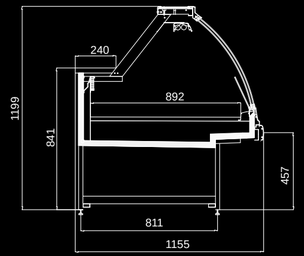
* All comparisons are based on the product performances of last generation.

Standard

Service Counter

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m³	Display Area/m²	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



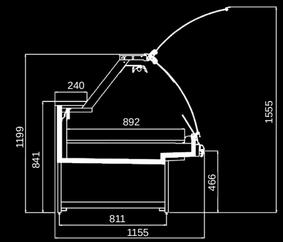
* All comparisons are based on the product performances of last generation.

Standard

Service-over Counter / Hot Counter

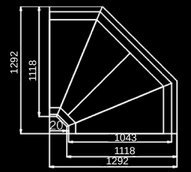
Standard Service-over Counter Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Remote Service-over 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-over 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



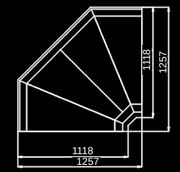
Technical Data of Standard Service Counter Hot Cabinet

	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 Higer price-performance
- Mature product with reliable performance
- Full range of products to meet the needs of various customers



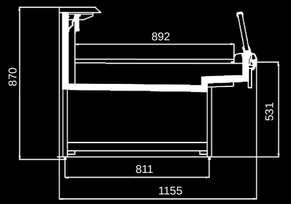
* All comparisons are based on the product performances of last generation.

Standard

Self-service Counter

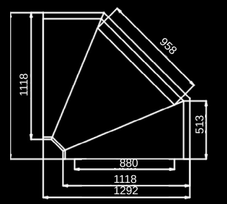
Technical Data

	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

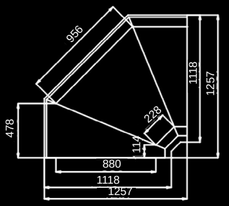


Product Features

- ☐ 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.

E6

Velando QL Freezer

-30% Overall Energy Consumption

Quick Load Design

Improved Efficiency

Optimized Goods Sales Opportunity

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 frame, 40% lower energy consumption comparing with traditional door frames
- Higher evaporating temperature (-28℃), 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

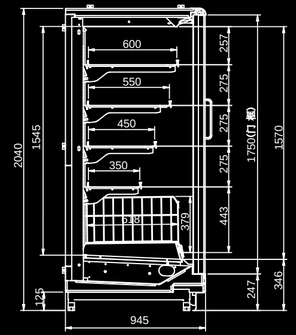
* All comparisons are based on the product performances of last generation.

E6

Velando QL Freezer

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
QL Freezer	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.

Advanza

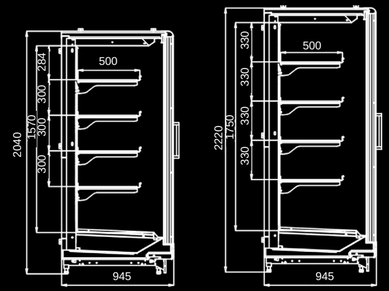
Freezer

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℃), more energy-efficient and more environmentally friendly,Slow-close glass doors, avoiding strong hit of glass doors against cabinets



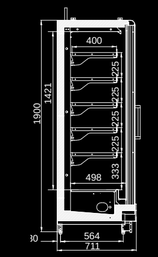
* All comparisons are based on the product performances of last generation.

Advanza

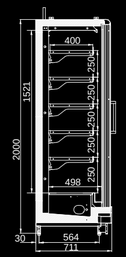
Narrow Glass Door Freezer/Chiller Multidecks

Technical Data

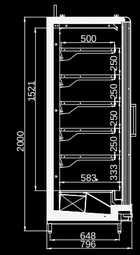
	Door	Model	Dimensions /mm	Temperature Range/°C	Net Volume/m^3	Display Area/m^2	Net Weight /kg
Standard Chiller	5 Doors	DB- T80- 1900 5DA4C	3905*800*1900	2~7	2.75	3.94	715
	4 Doors	DB- T80- 1900 4DA4C	3124*800*1900	2-7	2.20	3.15	600
	3 Doors	DB- T80-1900 3DA4C	2343*800*1 900	2~7	1.65	2.37	445
	2 Doors	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 Freezer	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



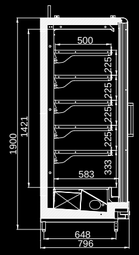
DB-T70-1900 A4C/A8F



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 freezer/chiller, 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.

Advanza

Combi-freezer

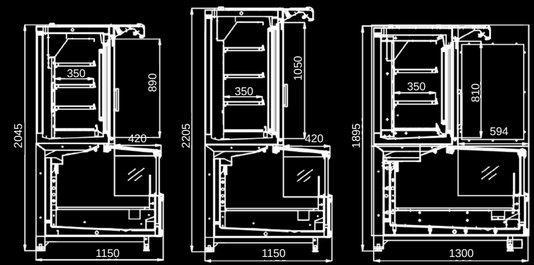
Carrier

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg
2.0m combi-freezer	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 combi-freezer	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 combi-freezer	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



2.0米子母柜　2.2米子母柜　2.0米加宽子母柜

* All comparisons are based on the product performances of last generation.

Advanza

Island

Horizontal Display

Big Surface Glass

Mature

Stable

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

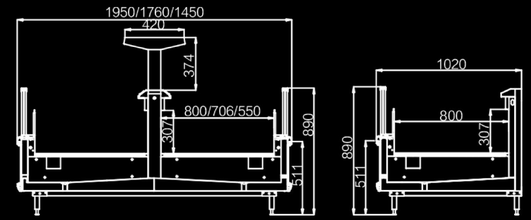
* All comparisons are based on the product performances of last generation.

Advanza

Island

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.

Advanza

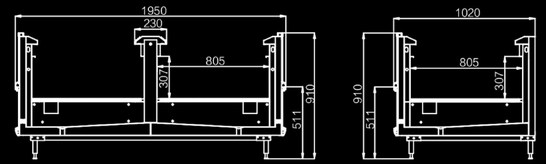
Insulated Island

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.

LD

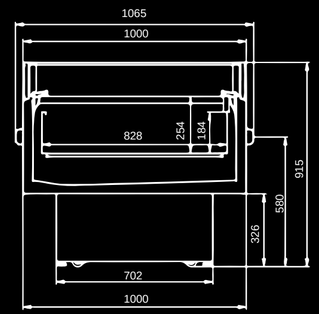
Plug-in Island

Technical Data

	Model	Dimensions /mm	Temperature Range/℃	Net Volume/m^3	Display Area/m^2	Net Weight /kg	Frequency (Hz)
LD Island Case	AIW0.3G	1570*1065*915	≤-15/0~5	0.27	1.20	160	50/60Hz
	AIW0.4G	2065* 1065*915	≤-15/0~5	0.29	1.58	200	50/60Hz
	AIW0.5G	2565~1065*915	≤ -15/0~5	0.36	2.00	260	50/60Hz

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.

Adventer

Integral Chest Freezer (Plug In)

+10% Storage Capacity

+10% Display Area

-15% Energy Consumption

Improved Shopping Environment

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

* All comparisons are based on the product performances of last generation.

Adventer

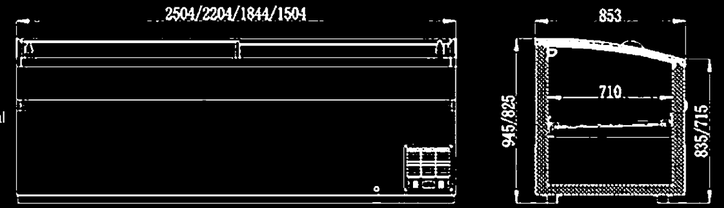
Integral Chest Freezer (Plug In)

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

Product Features

- ☐ Push-pull up and down glass door
- ☐ Excellent temperature performance, stable and uniform
- ☐ Hot gas defrosting, energy saving and environmental protection
- ☐ Automatic defrosting at night, without affecting the customer use
- ☐ High load line ≤ - 18 ℃ 550mm, ≤ -20℃ 450mm



* All comparisons are based on the product performances of last generation.

Pleasure

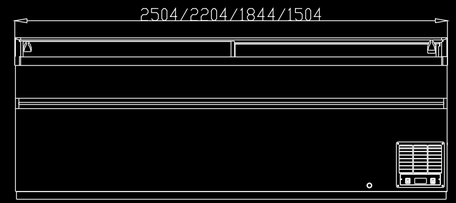
Integral Chest Freezer (Plug In)

Technical Data

	Model	Dimensions/mm	Temperature Range/°C	Net Volume/L	Display Area/m^2	Refrigerant	Frequency
2500 Straight Cabinet	LD-ICF250808C	2504*853*945	⩽ -18	796	1.72	R404A	50
	LD-ICF220808C	2204*853*945	⩽ -18	687	1.51	R404A	50
1840 End Cabinet	LD-ICF150808C	1844*853*825	⩽ -18	446	1.21	R404A	50
	LD-ICF180807C	1504*853*945	⩽ -18	431	0.99	R404A	50

Product Features

- ☐ Left and right sliding door, large display area
- ☐ Dual load line, with stable temperature performance and reliable quality
- ☐ Hot gas defrosting, energy saving and environmental protection
- ☐ Reducing the external heat dissipation temperature and improving the shopping experience.
- ☐ High load line ≤ - 18 °C 450mm, ≤ -20°C 550mm

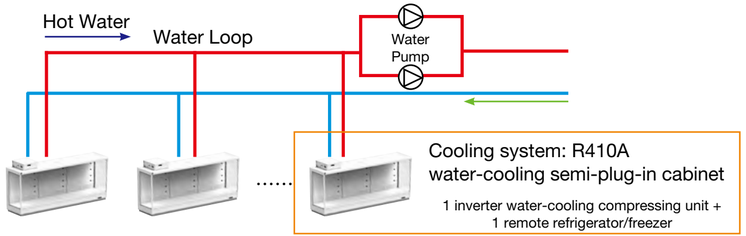


* All comparisons are based on the product performances of last generation.

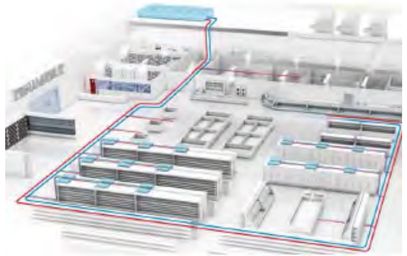
R410A SPI+ LT/MT Water-cooling Inverter

Semi-plug-in Case System

Schematic Diagram of new DC inverter water-cooling system



Short cooling tubes,
less consumables and without welding spot



No needs for on-site filling,
short hand over time

* All comparisons are based on the product performances of last generation.

System Advantages

- Compressing condense water-cooling inverter unit adopted for refrigerating machine, less floor area occupied.
- Independent cooling control for each equipment, single equipment failure does not affect system operation.
- Less refrigerant filled, and filling completed in factory, leakage only affects single equipment.
- Environmental friendly cooling medium R410A used
- Simple & convenient installation
- All condensing heating recovering realized, and used as home-use hot water, fulfilled energy saving.

Customer Values

- Water-cooling middle/low temperature integrated solution, flexible options for properties.
- No need for unit room, improved sale and rental ratio.
- No need for on-site filling, plug and play, reduced installation time and cost.
- DC inverter compress condensing unit adopted, stepless speed regulation, high efficiency and energy saving
- One plus one, flexible temperature adjustment in the cabinet
- Short cooling tubes, less refrigerant filled.
- Water-cooling, quiet and no indoor heat dissipation, improved end user experiences.
- Hot water recovered, supplied as home-use hot water, energy saving.

VS Classic Central Refrigerating System

80%
reduction of refrigerant filling volume

96%
reduction of copper tube leakage

25%
energy saving

*Data from the third-party materials

Water-cooling Inverter Semi-plug-in Case Products Line

Standard Model Case



Standard models of SPI+ Water-cooling Inverter Semi-plug-in Case include some models of E6 and AGDF.

Customized Model Case



* All other Carrier vertical semi-high refrigerator, freezer cases can be supplied as customized nonstandard models.

Standard Products Specifications of SPI+ Water-cooling Inverter Semi-plug-in Case

	NO.	Product Name	Product Description	Dimensions (LxWxH)	Working Temperature (℃)	Net Weight (Kg)	Display Area (m^2)	Effective Volume (m^3)
SPI+ Refrigerator	1	Mendos LU D 250A_SPI	E6 self-service multidecks+2.5HPCDU, dairy case	2500*1055*2300	-1~5	475	4.55	2.1
	2	Mendos LU D 375A_SPI	E6 self-service multidecks+3.5HPCDU, dairy case	3750*1055*2300	-1~5	665	6.82	3.16
	3	Mendos LU M 250A_SPI	E6 self-service multidecks+2.5HPCDU, beef case	2500*1055*2300	-1~5	475	4.55	2.1
	4	Mendos LU M 375A_SPI	E6 self-service multidecks+3.5HPCDU, beef case	3750*1055*2300	-1~5	665	6.82	3.16
	5	Mendos EU D 250A_SPI	E6 self-service multidecks+2.5HPCDU, dairy case	2500*855*2300	-1~5	445	4.3	1.65
	6	Mendos EU D 375A_SPI	E6 self-service multidecks+3.5HPCDU, dairy case	3750*855*2300	-1~5	625	6.45	2.47
	7	Mendos EU M 250A_SPI	E6 self-service multidecks+2.5HPCDU, beef case	2500*855*2300	-1~5	445	4.3	1.65
	8	Mendos EU M 375A_SPI	E6 self-service multidecks+3.5HPCDU, beef case	3750*855*2300	-1~5	625	6.45	2.47
	9	MenEco LU D 375A_SPI	E6 glass door multidecks+1.0HPCDU, dairy case	3750*1055*2300	-1~7	845	5.01	3.16
	10	MenEco LU M 375A_SPI	E6 glass door multidecks+1.0HPCDU, beef case	3750*1055*2300	-1~7	845	5.01	3.16
	11	MenEco EU D 375AS-SPI	E6 glass door multidecks+1.0HPCDU, dairy case	3750*855*2300	-1~7	805	4.73	2.47
	12	MenEco EU M 375A_SPI	E6 glass door multidecks+1.0HPCDU, beef case	3750*855*2300	-1~7	805	4.73	2.47
SPI+ Freezer	13	Advanza Freezing Multidecks DB-AGDF 3D 235_SPI	Glass door freezing multidecks, 3 doors	2350*945*2340	≤-18	520	2.16	2
	14	Advanza Freezing Multidecks DB-AGDF 4D 313_SPI	Glass door freezing multidecks, 4 doors	3130*945*2340	≤-18	700	2.88	2.62
	15	Advanza Freezing Multidecks DB-AGDF 5D 390_SPI	Glass door freezing multidecks, 5 doors	3900*945*2340	≤-18	840	3.6	3.32

Technical Specifications of SPI+ Water-cooling Inverter LT Freezer

Model		Advanza Freezing Multidecks DB-AGDF 3D 235_SPI	Advanza Freezing Multidecks DB-AGDF 4D 313_SPI	Advanza Freezing Multidecks DB-AGDF 5D 390_SPI
Cooling Medium		R410A		
Rated Operation Working Condition		25°C, 60%		
Evaporating Temperature (°C)		-28.5	-28.5	-28.5
Cooling Capacity (kW)		1.32	1.76	2.2
Plate Type Heat Exchanger Model / BPHE Model		B26x18	B26x18	B26x24
Water Side Connections Size of Plate Type Heat Exchanger		Stainless steel, internal thread 3/4"		
Water Flow (m^3/h)		1.14	1.14	1.9
Maximum Operation Current (A)		21	21	29.5
Power Supply Type		220V - 1ph - 50/60Hz		
Compressor	Type	Silent, efficient, fully enclosed rotary compressor		
	Model	DA220A1FJH-10B	DA220A1FJH-10B	DA330A3FJH-10C
	Quantity	1	1	1
	Tape Oil Volume (VG74/POE68)	0.62	0.62	0.9
Frequency Range		30~80	30~80	30~80
Liquid Tank	Type	Horizontal		
	Volume (L)	3.3	3.3	4
Dimensions (mm)		2350*945*2340	3130*945*2340	3900*945*2340
Packaging Dimensions (mm)		2580*1150*2500	3330*1150*2500	4000*1150*2500
Weight (kg)		585	765	905

Water-cooling working conditions: condensing temperature 48℃ , degree of superheat 10K, degree of supercooling 2K.

Technical Specifications of SPI+ Water-cooling Inverter MT Freezer

Model		Mendos LU D 250A_SPI	Mendos LU D 375A_SPI	Mendos LU M 250A_SPI	Mendos LU M 375A_SPI	Mendos EU D 250A_SPI
Cooling Medium		R410A				
Evaporating Temperature (°C)		-5.5	-5.5	-6	-6	-5.5
Cooling Capacity (kW)		3.99	5.98	4.94	7.4	3.95
Rated Operating Current		7.90	11.71	9.86	14.68	7.82
Plate Type Heat Exchanger Model		B26x18	B26x24	B26x18	B26x24	B26x18
Water Side Connections Size of Plate Type Heat Exchanger		Stainless steel, internal thread 3/4"				
Water Flow m^3/h		1.14	1.929	1.141	1.929	1.141
Noise dB(A) (@1 m)		<52	<52	<52	<52	<52
Maximum Operation Current (A)		17	22	17	22	17
Power Supply Type		220V - 1ph - 50/60Hz				
Compressor	Type	Silent, efficient, fully enclosed rotary compressor				
	Model	DA220A1FJH-10B	DA330A3FJH-10C	DA220A1FJH-10B	DA330A3FJH-10C	DA220A1FJH-10B
	Quantity	1	1	1	1	1
	Tape Oil Volume (VG74/POE68)	0.62	0.9	0.62	0.9	0.62
Speed range, rps		30~80	30~80	30~80	30~80	30~80
Liquid Tank	Type	Horizontal				
	Volume (L)	3.3	4	3.3	4	3.3
Dimensions (mm)		2500*1055*2300	3750*1055*2300	2500*1055*2300	3750*1055*2300	2500*855*2300
Packaging Dimensions (mm)		2710*1150*2450	3960*1150*2450	2710*1150*2450	3960*1150*2450	2710*950*2450
Weight (kg)		475	665	475	665	445

Water-cooling working conditions: Condensing temperature 48℃ , degree of superheat 10K, degree of supercooling 2K.

Model		Mendos EU D 375A_SPI	Mendos EU M 250A_SPI	Mendos EU M 375A_SPI	MenEco LU D 375A_SPI	MenEco LU M 375A_SPI	MenEco EU D 375AS-SPI	MenEco EU M 375A_SPI
Cooling Medium		R410A						
Evaporating Temperature (°C)		-5.5	-6	-6	-3	-4	-3	-4
Cooling Capacity (kW)		5.92	4.43	6.64	1.66	1.85	1.44	1.59
Rated Operating Current		11.59	8.91	13.18	3.05	3.45	2.64	3.00
Plate Type Heat Exchanger Model		B26x24	B26x18	B26x24	B26x8	B26x8	B26x8	B26x8
Water Side Connections Size of Plate Type Heat Exchanger		Silent, efficient, fully enclosed rotary compressor						
Water Flow m^3/h		1.929	1.141	1.929	0.476	0.476	0.476	0.476
Noise dB(A) (@1 m)		<52	<52	<52	<52	<52	<52	<52
Maximum Operation Current (A)		22	17	22	15	15	15	15
Power Supply Type		220V - 1ph - 50/60Hz						
Compressor	Type	Silent, efficient, fully enclosed rotary compressor						
	Model	DA330A3FJH-10C	DA220A1FJH-10B	DA330A3FJH-10C	DA91A1FJH-10A	DA91A1FJH-10A	DA91A1FJH-10A	DA91A1FJH-10A
	Quantity	1	1	1	1	1	1	1
	Tape Oil Volume (VG74/POE68)	0.9	0.62	0.9	0.4	0.4	0.4	0.4
Speed range, rps		30~80	30~80	30~80	30~90	30~90	30~90	30~90
Liquid Tank	Type	Horizontal			Vertical			
	Volume (L)	4	3.3	4	1.8	1.8	1.8	1.8
Dimensions (mm)		3750*855*2300	2500*855*2300	3750*855*2300	3750*1055*2300	3750*1055*2300	3750*855*2300	3750*855*2300
Packaging Dimensions (mm)		3960*950*2450	2710*950*2450	3960*950*2450	3960*1150*2450	3960*1150*2450	3960*950*2450	3960*950*2450
Weight (kg)		625	445	625	845	845	805	805

Cascade CO_2

Parallel Racks

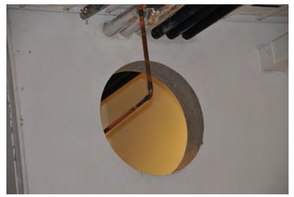
Product Features

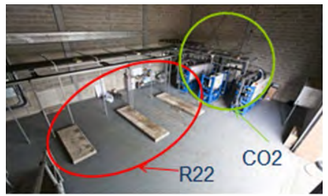
- GWP=1, ODP=0, non-toxic, non-flammable, a natural working fluid
- Promoted by EU F-Gas Regulation
- CO_2 is cheap and is widely applied across the world
- Volumetric efficiency CO_2 is 6 times volumetric efficiency higher than the value for R404A, causing small pipeline
- CO_2 has better heat transfer 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

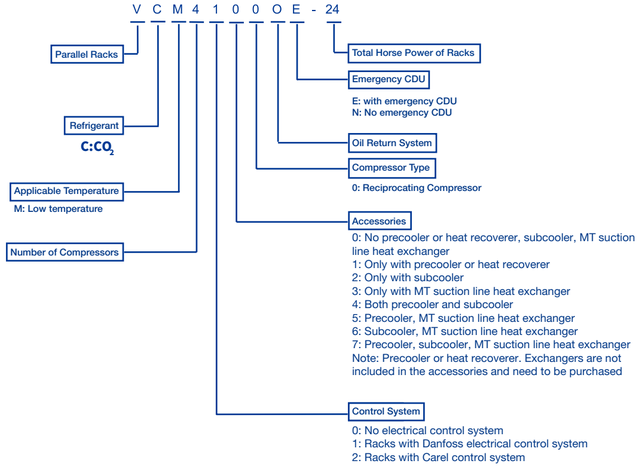
- Natural working fluids, environmentally friendly
- and non-toxic, sustainable
- Small main pipeline, saving installation costs
- Cheap refrigerant and small charge volume with low charge costs
- Small-sized main and auxiliary parts, compact and saving machine room space
- Stable operation, with independent 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

Naming Rule of HybridCO2OL Parallel Racks



HybridCO2OL Parallel Racks Configuration Table

HybridCO2OL parallel racks

	Refrigerant	Refrigerant Oi	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

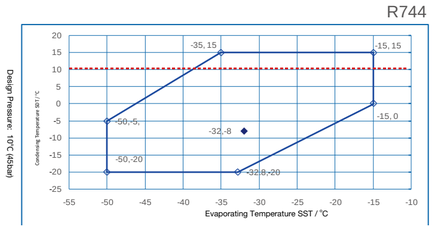
*HybridCO2OL Parallel racks are low temperature racks, and must use with medium temperature racks. Standard racks are designed as R134a medium temperature racks.

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

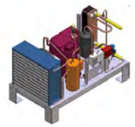
. Each compressor is equipped with Electronic oil level regulator
. Oil separator with safety relief valve
. Oil accumulator with safety relief valve, sight glass, stop valve and differential valve
. Oil return system includes ball valves, oil filter, solenoid valve, sight glass
. Refrigerant sight glass 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 oil return 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 Racks



Description of Optional Kit



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 gas return superheater
Higher degree of superheat for medium temperature gas return to prevent flood back

Desuperheat
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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

CO2 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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

	$HybridCO_2OL$ Racks	HP	Compressor Configuration	Evaporating Temperature:-40°C			Evaporating Temperature:-35°C			Evaporating Temperature:-32°C			Evaporating Temperature:-25°C		
				Q	P	COP	Q	P	COP	Q	P	COP	Q	P	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

E Series Scroll

Small Parallel Racks

Working Conditions	Copeland Scroll Parallel Racks	
	Medium Temperature	Low Temperature
Refrigerant	R404A	
Evaporating Temperature	- 20 ~ +7	- 40 ~ -18

Customer Value

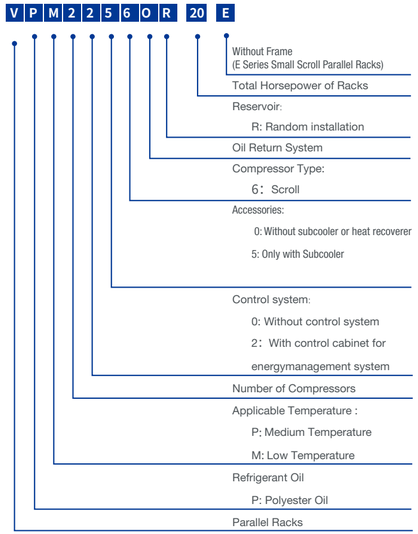
- Small cold storage and small and medium-sized supermarkets suitable for evaporating temperature range -20°C ~+7°C
- Small cold storage and small and medium-sized supermarkets suitable for evaporating temperature range -40 ° C ~ -18 °C
- Mute unit, reducing noise by ~ 10dba
- Low temperature unit energy saving by ~ 15%
- Complete standard accessories, with high reliability, constant temperature
- Small footprint
- Easy to operate and unattended control, reducing operator related costs
- Quality assurance of parts and components

Product Features

- Cooling capacity 34.5kW-74.7kW * (MT), refrigerant R404A
- Cooling capacity 12.0kW-41.0kW (LT), refrigerant R404A
- The high-efficiency silent Copeland Full-sealed Scroll compressor is designed in parallel, two compressors and three compressors in parallel. Small vibration, the noise of the two-head and three-head scroll units is 8dB-10dB lower than that of the same head scroll unit
- The low temperature unit adopts the design of Enhanced Vapor Injection + subcooler, with the cooling capacity increased by ~ 30%, energy saving and high efficiency.
- The unit capacity adjustment range is the lowest 27%-100%, energy saving and high efficient
- Frameless structure design with compact structure for solid and durable use
- Adopting Emerson Electronic Oil Level Equalizer for ensuring oil return reliable
- Check valve equipped at each exhaust by-pass to avoid blow-by; low vibration for ensuring the reliability of system
- Adjusting the on/off of controller equally and by turns for ensuring the service life
- Full-automatic controlling system for remote surveillance

*Comparison of compressor units with the same number and head in the range of 1m

Naming Rule of Scroll Parallel Racks



E Series MT Small Scroll Parallel Racks Parameters

Model			VPP2206OR-20E	VPP2206OR-26E	VPP2206OR-30E	VPP3206OR-39E	VPP3206OR-45E
Refrigerant			R404A				
Water Cooling Condition	Maximum Cooling Capacity	kW	37.7	46.4	55.0	69.6	82.5
	Maximum Power	kW	14.8	19.0	22.6	28.5	33.9
	COP	W/W	2.6	2.4	2.4	2.4	2.4
	Nominal Running Current	A	28.3	35.5	45.6	53.3	68.4
Air Cooling Condition	Maximum Cooling Capacity	kW	34.5	42.2	49.8	63.3	74.7
	Maximum Power	kW	16.4	21.2	25.3	31.8	38.0
	COP	W/W	2.1	2.0	2.0	2.0	2.0
	Nominal Running Current	A	30.4	38.7	49.0	58.1	73.5
Noise @1m		dB(A)	69.0	71.0	75.0	72.8	76.8
Maximum Running Current		A	40.8	62.0	67.0	93.0	100.5
Power Type			380V - 3~ - 50Hz				
Compressor	Type		Silent, efficient, fully enclosed scroll compressor				
	Model		2*ZB76	2*ZB95	2*ZB114	3*ZB95	3*ZB114
	Quantity		2	2	2	3	3
Minimum Load Percentage		%	50	50	50	33	33
Reservoir	Type		Horizontal			Horizontal	
	Volume	L	72			100	
Dimensions		mm	1480×750×1180			2050×850×1200	
Weight		kg	360			500	

Note:
Water cooling condition: condensation temperature 40°C , evaporation temperature - 10°C , subcooling 0°C , suction temperature 10°C .
Air cooling condition: condensing temperature 45°C , evaporation temperature - 10°C , subcooling 0°C , suction temperature 10°C .

E Series LT Small Scroll Parallel Racks Parameters

Model			VPM2256OR -12E	VPM2256OR -15E	VPM2256OR -20E	VPM2256O -30E	VPM3256OR -30E	VPM3256OR -35E	VPM3256OR -40E	VPM3256OR -45E
Refrigerant			R404A							
Water Cooling Condition	Maximum Cooling Capacity	kW	12.2	15.3	20.4	28.1	30.6	34.5	38.3	42.2
	Maximum Power	kW	8.0	9.4	12.8	18.1	19.1	21.8	24.5	27.2
	COP	W/W	1.52	1.63	1.60	1.55	1.60	1.58	1.56	1.55
	Nominal Running Current	A	14.7	16.9	27.2	33.6	40.9	44.0	47.2	50.3
Air Cooling Condition	Maximum Cooling Capacity	kW	12.0	15.0	19.8	27.3	29.7	33.5	37.2	41.0
	Maximum Power	kW	8.8	10.2	14.0	19.8	21.0	23.9	26.8	29.7
	COP	W/W	1.36	1.47	1.42	1.38	1.42	1.40	1.39	1.38
	Nominal Running Current	A	15.8	18.0	28.3	36.0	42.4	46.3	50.1	54.0
Noise @1m		dB(A)	70.0	73.0	71.0	74.0	72.8	74.0	75.0	75.8
Maximum Running Current		A	27.4	32.0	50.0	60.0	75.0	80.0	85.0	90.0
Power Type			380V - 3~ - 50Hz							
Compressor	Type		Silent, efficient, fully enclosed scroll compressor							
	Model		2* ZFI26KQE	2* ZFI36KQE	2* ZFI50KQE	2* ZFI68KQE	3* ZFI50KQE	2* ZFI50KQE +ZFI68KQE	ZFI50KQE +ZFI68KQE *2	3* ZFI68KQE
	Quantity		2	2	2	2	3	3	3	3
Subcooler			Plate heat exchanger + electronic expansion valve				Plate heat exchanger + electronic expansion valve			
Minimum Load Percentage		%	50	50	50	50	33	30	27	33
Reservoir	Type		Horizontal				Horizontal			
	Volume	L	72				100			
Dimensions		mm	1500*850*1180				2050×900×1200			
Weight		kg	350		400		550			

Note:
Water cooling condition: condensation temperature 40°C , evaporation temperature - 35°C , suction temperature 0°C .
Air cooling condition: condensation temperature 40°C , evaporation temperature - 35°C , suction temperature 0°C .

E Series MT Small Scroll Parallel Racks - Air Cooling

MT 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 Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
VPP2206OR-20E	2*ZB76	28.3	16.3	34.5	16.4	41.6	16.6	49.4	16.7
VPP2206OR-26E	2*ZB95	34.3	21.2	42.2	21.2	51.0	21.4	60.6	21.5
VPP2206OR-30E	2*ZB114	40.2	25.3	49.8	25.3	60.6	25.3	73.2	25.4
VPP3206OR-39E	3*ZB95	51.5	31.8	63.3	31.8	76.5	32.1	90.9	38.0
VPP3206OR-45E	3*ZB114	60.3	38.0	74.7	38.0	90.9	38.0	109.8	38.1

Notes:
1) Cooling capacity and input power listed are based on condensing temperature at 45°C , suction temperature at 10°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.

E Series MT Small Scroll Parallel Racks - Water Cooling

MT Water Cooling Racks Model No.	Compressor	Evaporating Temperature							
		to: -15°C		to: -10°C		to: -5°C		to: 0°C	
	Model x Quantity	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
VPP2206OR-20E	2*ZB76	31.0	14.6	37.7	14.8	45.2	15.0	54.0	15.1
VPP2206OR-26E	2*ZB95	38.1	18.9	46.4	19.0	55.6	19.2	66.2	19.4
VPP2206OR-30E	2*ZB114	44.8	22.5	55.0	22.6	66.6	22.8	79.4	22.9
VPP3206OR-39E	3*ZB95	57.2	28.3	69.6	28.5	83.4	28.8	99.3	29.1
VPP3206OR-45E	3*ZB114	67.2	33.8	82.5	33.9	99.9	34.2	119.1	34.4

Notes:
1) Cooling capacity and input power listed are based on condensing temperature at 45°C , suction temperature at 10°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.

E Series LT Small Scroll Parallel Racks - Air Cooling

LT Air Cooling Racks Model No.	Compressor	Evaporating Temperature							
		to: -37°C		to: -35°C		to: -32°C		to: -30°C	
	Model x Quantity	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
VPP2206OR-20E	2*ZFI26KQE	11.2	8.7	12.0	8.8	13.3	9.1	14.3	9.3
VPP2206OR-26E	2*ZFI36KQE	13.9	9.9	15.0	10.2	16.7	10.7	17.9	11.0
VPP2206OR-30E	2*ZFI50KQE	18.4	13.6	19.8	14.0	22.1	14.5	23.9	14.8
VPP3206OR-39E	2*ZFI68KQE	25.4	19.3	27.3	19.8	30.5	20.5	32.9	21.0
VPP3206OR-45E	3*ZFI50KQE	27.7	20.4	29.7	21.0	33.2	21.7	35.9	22.2
VPP3206OR-45E	2*ZFI50KQE+ZFI68KQE	31.1	23.3	33.5	23.9	37.4	24.7	40.4	25.3
VPP3206OR-45E	ZFI50KQE+ZFI68KQE*2	34.6	26.1	37.2	26.8	41.6	27.7	44.9	28.4
VPP3206OR-45E	3*ZFI68KQE	38.1	29.0	41.0	29.7	45.8	30.8	49.4	31.5

Notes:
1) Cooling capacity and input power listed are based on condensing temperature at 45°C , suction temperature at 0°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.

E Series LT Small Scroll Parallel Racks - Water Cooling

LT Water Cooling Racks Model No.	Compressor	Evaporating Temperature							
		to: -37°C		to: -35°C		to: -32°C		to: -30°C	
	Model x Quantity	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
VPM2256OR-12E	2*ZFI26KQE	11.3	7.8	12.2	8.0	13.6	8.3	14.6	8.4
VPM2256OR-15E	2*ZFI36KQE	14.1	9.1	15.3	9.4	17.1	9.8	18.4	10.1
VPM2256OR-20E	2*ZFI50KQE	19.0	12.4	20.4	12.8	22.2	13.2	24.6	13.6
VPM2256OR-30E	2*ZFI68KQE	26.2	17.6	28.1	18.1	31.4	18.8	33.8	19.2
VPM3256OR-30E	3*ZFI50KQE	28.6	18.6	30.6	19.1	33.3	19.9	36.9	20.3
VPM3256OR-35E	2*ZFI50KQE+ZFI68KQE	32.1	21.2	34.5	21.8	37.9	22.6	41.5	23.2
VPM3256OR-40E	ZFI50KQE+ZFI68KQE*2	35.7	23.8	38.3	24.5	42.5	25.4	46.1	26.0
VPM3256OR-45E	3*ZFI68KQE	39.3	26.4	42.2	27.2	47.1	28.2	50.7	28.8

Notes:
1) Cooling capacity and input power listed are based on condensing temperature at 40°C , suction temperature at 0°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.

E Series Parallel Scroll Compressor Racks Technical Parameters

Racks Model No.	Dimension of Racks' External Pipes				External Dimensions			Max. Working Current	Weight	Machine Room Ventilation Rate	Reference Drawing
	Discharge DL mm	Suction SL mm	Liquid Pipe Inlet mm	Liquid Pipe Outlet mm	L mm	W mm	H mm	A	kg	m^3/h	
VPP2206OR-20E	28	54	28	22	1480	750	1180	40.8	360	3400	
VPP2206OR-26E	28	54	28	22	1480	750	1180	62	360	3600	
VPP2206OR-30E	28	54	28	22	1480	750	1180	67	360	3800	
VPP3206OR-39E	35	54	35	28	2050	850	1180	93	500	4300	
VPP3206OR-45E	35	54	35	28	2050	850	1180	100.5	500	4500	
VPM2256OR-12E	28	54	28	22	1480	850	1180	27.4	350	3400	
VPM2256OR-15E	28	54	28	22	1480	850	1180	32	350	3600	
VPM2256OR-20E	28	54	28	22	1480	850	1180	50	400	4000	
VPM2256OR-30E	28	54	28	22	1480	850	1180	60	400	4400	
VPM3256OR-30E	35	54	35	28	2050	900	1180	75	550	4900	
VPM3256OR-35E	35	54	35	28	2050	900	1180	80	550	5100	
VPM3256OR-40E	35	54	35	28	2050	900	1180	85	550	5300	
VPM3256OR-45E	35	54	35	28	2050	900	1180	90	550	5500	

Notes:
1) The dimensions of the racks' external pipes are for standard racks.
2) If more than one Parallel racks are used in the machine room, it is necessary to calculate the total ventilation rate.

E Series MT Small Scroll Parallel Racks Configuration (R404A)

No.	Type	Standard Options	Non-standard Options	Optional Customer Value
1	Control system	Control Panel Box with Dixell Controller	×	Standard controller, easy to operate with higher reliability
2	Racks external pipes	One for each liquid feed, return air, liquid supply and exhaust Note: Inlet branch with angle valve	×	
3	Oil return system	High pressure oil return system+ Electronic oil equalizer	×	Stable return oil and high reliability
4	Reservoir	Horizontal reservoir	×	
5	Condensing pressure control	Non	Optional condensing pressure switches according to the number of heads, 2 heads with 2 condensing pressure switches, and 3 heads with 3 condensing pressure switches	Be able to control multiple condensing fans or cooling towers
6	Filter	Return air filter	×	Self-contained return air filter, with stable and reliable operation

E Series LT Small Scroll Parallel Racks Configuration (R404A)

No.	Type	Standard Options	Non-standard Options	Optional Customer Value
1	Subcooler	√	×	Improve the supercooling of liquid supply to meet the special demands of customers.
2	Control system	Control Panel Box with Dixell Controller	×	Standard controller, easy to operate with higher reliability
3	Racks external pipes	One for each liquid feed, return air, liquid supply and exhaust Note: Inlet branch with angle valve	×	
4	Oil return system	High pressure oil return system+ Electronic oil equalizer	×	Stable return oil and high reliability
5	Reservoir	Horizontal reservoir	×	
6	Condensing pressure control	Non	Optional condensing pressure switches according to the number of heads, 2 heads with 2 condensing pressure switches, and 3 heads with 3 condensing pressure switches	Be able to control multiple condensing fans or cooling towers
7	Filter	Return air filter	×	Self-contained return air filter, with stable and reliable operation

Medium Temperature Scroll

Parallel Racks

Customer Value

- Extensive application range, water cooled application and air cooled application
- 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
- Compressor timing rotation control and long service life
- Compact design and small footprint

Product Features

- Non-proportional parallel design, racks adjusting range: 15%~100%, compressor number up to 6 units
- 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 oil return
- Controllers allow compressor cyclical operation to ensure service life of the racks
- Integrated framework design with compact structure

Naming Rule of Parallel Racks

V P P 4 2 0 6 O R 50

- 50: Total Horsepower of Racks
- R: Reservoir (R: With reservoir F: Field installation)
- O: Oil Return System
- 6: Compressor Type (6: Scroll)
- 0: Accessories (0: Without subcooler or heat recoverer; 1: Only with heat recoverer; 5: Only with subcooler; 6: Both subcooler and heat recoverer)
- 0: Control System (0: Without control cabinet; 2: Control cabinets with energy management systems)
- 2: Number of Compressors
- 4: Applicable Temperature (P: Medium Temperature)
- P: Refrigerant Oil (H: Mineral oil P: Polyester oil)
- P: Parallel Racks
- V

Application

Working Conditions	Scroll Parallel Racks
	Medium Temperature
Refrigerant	R404A
Evaporating Temperature (°C)	-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, gas return, supply liquid and discharge	By-passes for supply liquid and gas return
4	Oil return system	Liquid drain, gas return, supply liquid and discharge	×
5	Reservoir	Vertical reservoir	Horizontal reservoir (Field installation only)
6	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 cooled Condenser)

Racks Model No.	Compressor	Evaporating Temperature							
		to: -15℃		to: -10℃		to: -5℃		to: 0℃	
	Model x Quantity	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
VPP3206OR-30	ZB76*3	43.8	24.45	53.25	24.66	64.2	24.87	76.2	25.08
VPP3206OR-35	ZB76*2+ZB114	49.9	28.95	61.2	29.09	74	29.23	88.2	29.42
VPP3206OR-40	ZB76+ZB114*2	56	33.45	69.15	33.52	83.8	33.59	100.2	33.76
VPP4206OR-45	ZB76*3+ZB114	64.5	37.1	78.95	37.31	95.4	37.52	113.6	37.78
VPP4206OR-50	ZB76*2+ZB114*2	70.6	41.6	86.9	41.74	105.2	41.88	125.6	42.12
VPP4206OR-55	ZB76+ZB114*3	76.7	46.1	94.85	46.17	115	46.24	137.6	46.46
VPP4206OR-60	ZB114*4	82.8	50.6	102.8	50.6	124.8	50.6	149.6	50.8
VPP5206OR-65	ZB76*2+ZB114*3	91.3	54.25	112.6	54.39	136.4	54.53	163	54.82
VPP5206OR-70	ZB76+ZB114*4	97.4	58.75	120.55	58.82	146.2	58.89	175	59.16
VPP5206OR-75	ZB114*5	103.5	63.25	128.5	63.25	156	63.25	187	63.5
VPP6206OR-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℃, 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 cooled rack, 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 Inle	Liquid Pipe Outlet	L	W	H	A	kg	m^3/h	
VPP3206OR-30	35	54	35	35	2950	900	1950	96.84	970	3500	
VPP3206OR-35	35	67	35	35	2950	900	1950	110.16	980	4000	
VPP3206OR-40	35	67	35	35	2950	900	1950	123.48	990	4500	
VPP4206OR-45	35	67	35	35	3400	900	1950	136.8	1000	5000	
VPP4206OR-50	35	67	35	35	3400	900	1950	155.76	1120	5500	
VPP4206OR-55	42	76	42	42	3400	900	1950	169.08	1130	6000	
VPP4206OR-60	42	76	42	42	3400	900	1950	182.4	1140	6500	
VPP5206OR-65	42	76	42	42	3900	900	1950	201.36	1270	7000	
VPP5206OR-70	42	89	42	42	3900	900	1950	214.68	1280	7500	
VPP5206OR-75	42	89	42	42	3900	900	1950	228	1290	8000	
VPP6206OR-90	42	89	42	42	4400	900	1950	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 cooled rack, please contact our technical staffs.

Reciprocating

Parallel 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

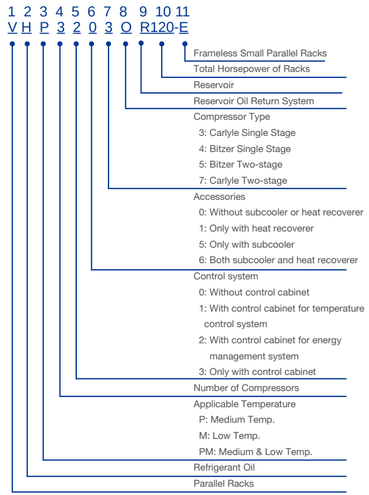
- Applicable for regular refrigerants and multiple scenarios, with a cooling capacity of 350HP
- Numerous non-standard customized for various sites
- High energy efficiency, low operation cost, low temperature two-stage reciprocating parallel racks saving at least 30% energy and medium temperature parallel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

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.

Naming Rule of Parallel Racks



Technical Parameters

<45HP Small Parallel Reciprocating Compressor Racks (R404A)

Low Temperature Racks

Model	HP	Compressor	Evaporating Temperature					
			-37°C		-35°C		-30°C	
			Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (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					
			-37°C		-35°C		-30°C	
			Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (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		-40°C		-35°C	
	Model x Quantity	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (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 -50°C		to -45°C		-40°C		-35°C	
	Model x Quantity	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (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 -50°C		to -45°C		-40°C		-35°C	
	Model x Quantity	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (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	Gas return by-pass with valves, specification 7/8" (22mm)~4-1/4"(108mm)
3	Main discharge 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	Vertical or horizontal reservoir 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 energy management system
14	Main incoming circuit-breaker
15	Optional controller brands, Dixell (standard), Carel, Danfoss, PLC

Note: 1) For this compressor rack, available non-standard rack configurations 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	W	H	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			Max. Working Current	Weight	Machine Room Ventilation Rate
	Discharge	Suction	Return Liquid	Supply Liquid	L	W	H	A	kg	m^3/h
VPM2203OR-13E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	22.26	500	1600
VPM2203OR-15E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	31.2	500	1600
VPM2203OR-20E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	36.42	500	2000
VPM2203OR-30E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	44.52	500	3000
VPM3203OR-30E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	1009	54.63	650	3000
VPM3203OR-45E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	1009	66.78	650	4500
VPP2203OR-15E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	35.44	500	2000
VPP2203OR-20E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	41.8	500	2500
VPP2203OR-30E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	48	500	3500
VPP3203OR-35E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	814	70.8	650	4000

R410A MT DC Inverter

Condensing Units

1.5~4HP
Rotary Compressor
Single Compressor
Single Fan

6~10HP
Rotary Compressor
Single Compressor
Dual Fans

18HP~21HP
Scroll Compressor
Dual Compressors
Single Fan

27HP~46HP
Scroll Compressor
Dual Compressors
Dual fans

Customer Value

- Various models options, applicable for C-stores, supermarkets and cold storage
- Wide adjustable range for cooling capacity and small fluctuation food storage temperature
- Low operation cost and over 30% of annual energy saving compared with Fixed Speed unit
- Quiet unit with 4BA lower sound level compared with Fix speed unit
- Small pipe size to save installation cost
- Application scope is wide with the highest adaptable temperature of 43℃
- Compact structure to save footprint

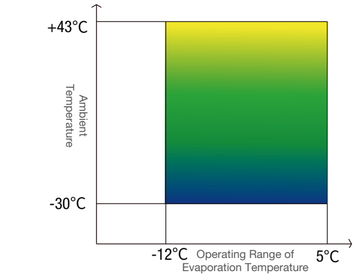
Product Features

- 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

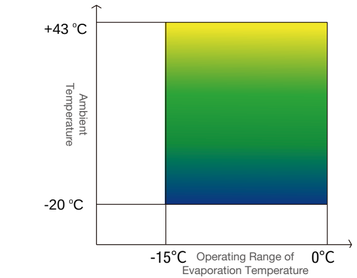
* All comparisons are based on the product performances of last generation.

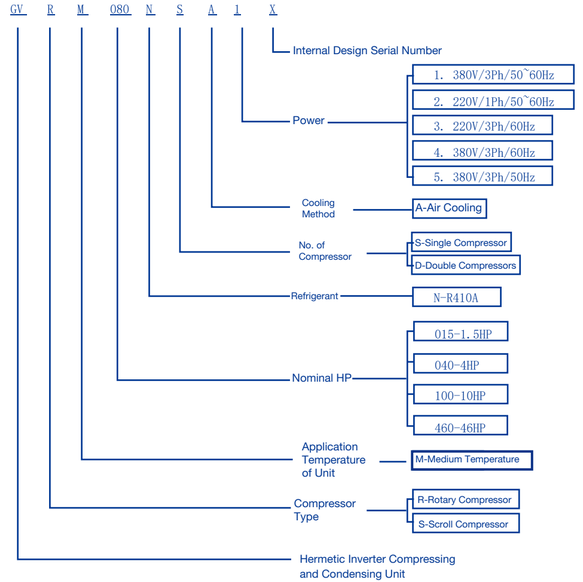
Operation Range and Naming Rule

1.5HP~10HP



18HP~46HP





Technical Parameters (1.5-10HP)

Model	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	SNB14 0FCAMC	TNB220 FFEMC-L	TNB306 FPPMC-L	MNB36 FABMC	MNB42 FFDMC-L	LNB53 FCAMC	LNB65F
Type of Refrigerant Oil	FV50S			FV50S			
Unit Oil Charge (L)	1.35	1.72	2.07	2.4	2.7	3	3.6
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
Nominal 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 (Inch)	1/2		5/8	3/4			
Diameter of Liquid Pipe (Inch)	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/T21363-2018

Performance Parameters (1.5-10HP)

Model	Ambient Temperature ℃	Cooling Capacity Q (kW) / Power Consumption 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)

Model	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
Nominal Running Current of Unit (A)	26	30	39	45	59
Maximum Running Current (A)	60	65	80	100	125
Diameter of Suction Pipe (Inch)	1-3/8		1-5/8	2-1/8	
Diameter of Liquid Pipe (Inch)	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/T21363-2018
Evaporating temperature: -7℃ , ambient temperature: 32℃ , return temperature 18℃ .

Performance Parameters(18-46HP)

Model	Ambient Temperature ℃	Cooling Capacity Q (kW) / Power Consumption P (kW)	Evaporating Temperature ℃							
			(kW)		-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 Fixed Speed +50rps

R410A LT DC Inverter

Condensing Units

2.5~5HP

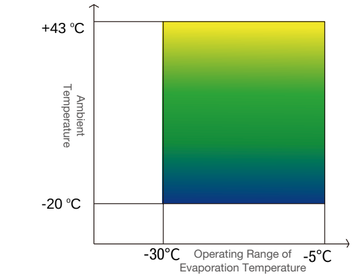
7-10HP

Product Features

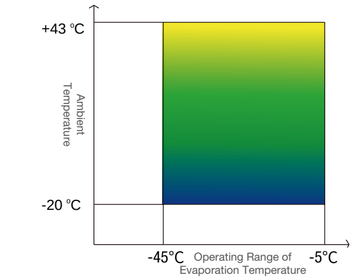
- Freezing and refrigerating integrated application for convenient store renovation and maintenance
- DC variable frequency compressor, with wide adjustable range, high energy efficiency and low operation cost.
- Adopt frequency conversion fan, with low operation cost.
- Compact structure design, small footprint
- Inner frame with sound insulation cotton, low noise
- R410A refrigerant, low installation cost
- Energy saving ~10%, noise reduction ~4dBA

Operation Range and Naming Rule

2.5HP~5HP



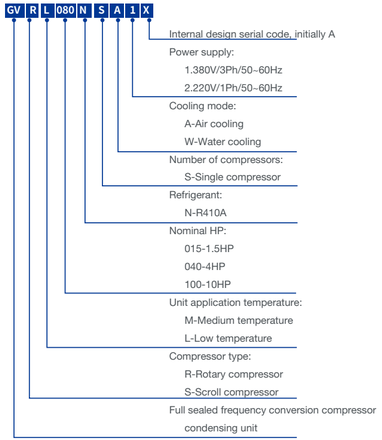
7HP~10HP



Operating Range and Naming Rule

Model	Refrigerant	Minimum Evaporating Temperature	Nominal Condition Cooling Capacity @60rps(kW)*	COP	Maximum Cooling Capacity
2.5HP	R410A	-30	2.6	1.3	5.1
3.5HP			3.1	1.3	6.6
5HP			4.2	1.3	7.6
7HP		-40	6.9	1.4	11.1
10HP			10.2	1.5	16.8

* The working condition is based on the ambient temperature of 32 ℃ and the evaporation temperature of - 30 ℃ .



Application Scenarios

Catering chain
Chain restaurants with small cold storage

Room temperature: -18°C ~ -5°C

Hotel cold storage
Hotels with small cold storage

Room temperature: -18°C ~ -5°C

Supermarket
Provide cooling capacity to remote freezer

Room temperature: -18°C ~ -5°C

Unit Performance Parameters - Low Temperature Unit

Unit Model	GVRL025NSA2A	GVRL035NSA2A	GVRL050NSA2A	GVSL070NSA1A	GVSL100NSA1A
Number of matches	2.5HP	3.5HP	5.0HP	7.0HP	10HP
Refrigerant	R410A				
Supply Voltage of Unit	220V/1PH/50~60Hz			380V/3PH/50~60Hz	
Compressor Model	WHP09500AEDPC9FD	WHP11500AEDPC9FD	WHP15600AEDPC9FD	ENK62FC-YE-C	HNK92FE-YE-C
Type of Refrigerant Oil	a68HES-H			MEL32R	
unit Oil Charge (L)	1.65			2.3	3
Operating Frequency Range (rps)	30~100		30~90	30~85	30~100
Minimum evaporation temperature	-30			-45	
Number of Fan	1			2	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 refrigerating capacity of unit (kw)	5.1	6.6	7.6	11.1	16.8
Unit rated cooling Capacity (kW)	3.4	4.1	5.4	8.9	13
Unit rated power (kW)	2.1	2.5	3.5	5	7.5
Noise of Unit dBA@1m	54	54	54	57	60
Unit starting current (A)	--				
Unit rated operating current (A)	10	12	16	10	13
Maximum Running Current (A)	25	30	33	25	30
Diameter of Suction Pipe (Inch)	1/2	5/8		3/4	1-1/8
Diameter of Liquid Pipe (Inch)	3/8			1/2	
Dimensions (L x W x H) (mm)	1164*470*864			1164*470*1358	
Weight (kg)	112	112	112	172	186

Cooling capacity power testing conditions: National standard medium temperature working conditions: GB/T21363-2018
Evaporating temperature: -23°C , ambient temperature: 32°C , return temperature 5°C .
* If there is any demand, please contact the technical personnel or the sales department for detailed parameters.

R410A Water Cooling MT/LT DC Inverter

Condensing Units

R410A DC Inverter Compressor

Electric system: 220V/1PH/50Hz (60Hz)

Customer Value

- Mute
- Low energy consumption (energy saving ~ 25% *)
- Stable food temperature
- Low downtime

Product Features

- Water-cooled, no indoor cooling, silent
- Compact design, height less than 300m, highly flexible
- No need to place in machine room, with high flexiblity to place on any where
- Speed regulation range 30~80rps
- Adopt DC inverter compressor, high efficiency and energy saving
- Carel mature controller, with high reliability, stable food temperature

* All comparisons are based on the product performances of last generation.
* Based on third-party data

Product Design Advantages

Horizontal rotary inverter compressor, energy saving up to 25%

Low temperature spray design to improve operation reliability

Water cooled brazed plate with high heat exchange efficiency

Mature controller for refrigeration

Water Cooling Inverter Compressor Unit Naming Rule

GV	R	M	10	N	S	W	2	X

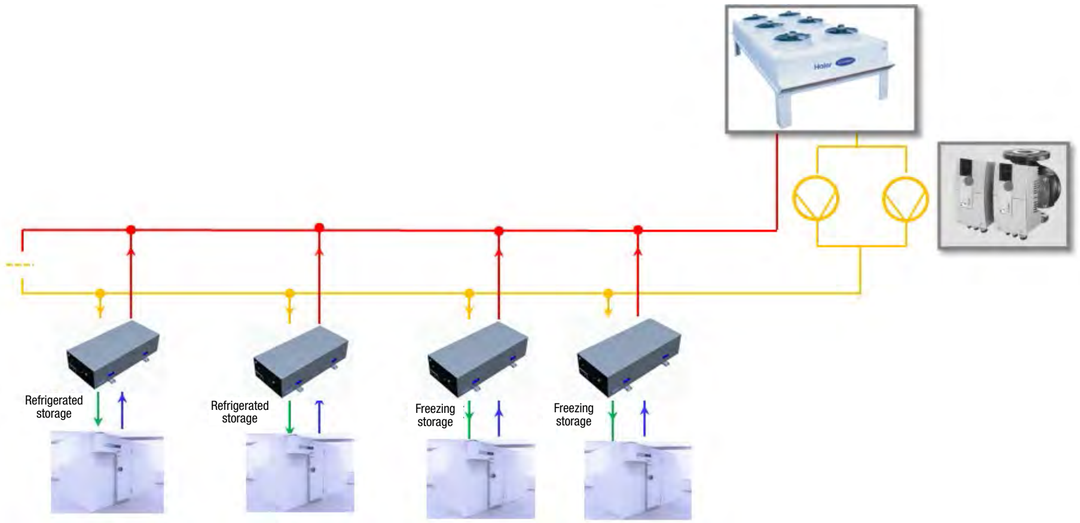
- X — Internal Design Serial Number
- 2 — Power supply: 220V/1ph/50-60Hz
- W — Cooling mode: W - Water cooling
- S — Number of compressors: S - Single compressor
- N — Refrigerant: N - R410A
- 10 — Nominal HP: 010 -1.0HP; 015 -1.5HP; 025 -2.5HP; 035 -3.5HP
- M — Unit application temperature: MT - Medium temperature; LT - Low temperature
- R — Compressor type: R - Rotary compressor
- GV — Condensing unit of full sealed inverter compressor

Application Scenarios

Catering chain
Chain restaurants with small medium / low temperature cold storage
Room temperature: -30°C ~ +13°C
Ambient temperature: -20°C - +43°C
Storage capacity: <5t

Hotel cold storage
Chain restaurants with small and medium temperatures cold storage
Room temperature: -30°C ~ +13°C
Ambient temperature: -20°C - +43°C
Storage capacity: <5t

Brief Introduction of Water Cooling Inverter Compressor Unit

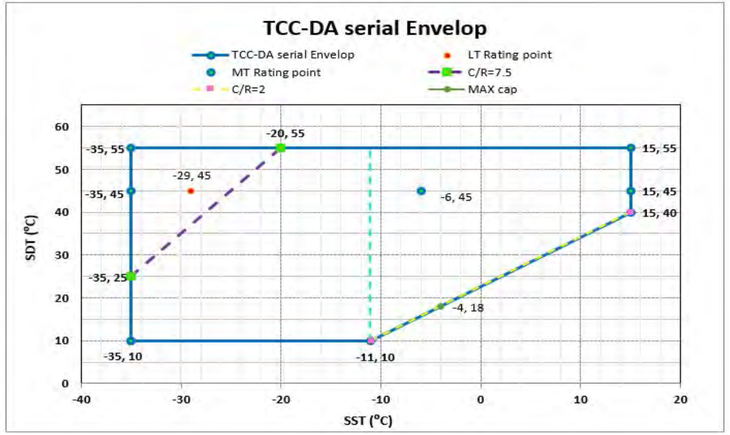


System advantages:
The refrigeration part of the main machine adopts compressed condensed water cooling inverter unit, which has a small footprint.
The frozen part does not need to choose a place with good ventilation, and the equipment can be placed flexibly.
The refrigeration of each equipment is independently controlled, and the failure of a single equipment does not affect the operation of the system using environmentally friendly refrigerant R410A.
Easy to install.

Application Scope of Water Cooling Inverter Compressor Unit

Working Condition	MT/LT
Refrigerant	R410A
Evaporation Temperature ℃	- 35 ~ +15

	CDU Name	CDU Model
MT	MT 1HP	GVRM10NSW2X
	MT 1.5HP	GVRM15NSW2X
	MT 2.5HP	GVRM25NSW2X
	MT 3.5HP	GVRM35NSW2X
LT	LT 1HP	GVRL10NSW2X
	LT 1.5HP	GVRL15NSW2X
	LT 2.5HP	GVRL25NSW2X
	LT 3.5HP	GVRL35NSW2X



Water Cooling - MT Technical Parameters

Model		GVRM10NSW2X	GVRM15NSW2X	GVRM25NSW2X	GVRM35NSW2X
Refrigerant		R410A			
Ambient Temperature Condition		25°C, 60%			
Rated Running Condition		Evaporation temperature: - 6°C, condensation temperature: 48 °C, subcooling degree: 2K, superheating degree: 10K, frequency: 60rps			
Cooling Capacity	kW	1.69	2.33	4.09	6.14
Plate Replacement Model		B26x 8	B26x12	B26x18	B26x24
Plate Water Exchange Side Interface Size [1]		Stainless steel, internal thread 3/4''			
water Flow	m^3/h	0.48	0.76	1.141	1.929
Noise	dB(A)	<52	<52	<52	<52
Maximum Running Current	A	8.5	9.2	11.1	15.6
Power Type		220V - 1ph - 50/60Hz			
Compressor	Type	Silent, efficient, fully enclosed rotary compressor			
	Model	DA91A1FJH-10A	DA130A1FJH-10A	DA220A1FJH-10B	DA330A3FJH-10C
	Quantity	1	1	1	1
	Self-contained Oil	0.4	0.4	0.62	0.9
Speed Range, rps		30~80	30~80	30~80	30~80
Reservoir	Type	Vertical		Horizontal	
	Volume L	1.8	1.8	3.3	4
Overall Dimensions	mm	1100*500*300			
Packing Dimensions	mm	1203*640*440			
Weight	kg	62	63	63.8	65

[1] It is recommended to select water connector (0080600407) on the plate water exchange side. CDU shall be connected at the external thread side of water connector, and PVR water pipe shall be connected at PP-R side after hot melting.

Water Cooling - LT Technical Parameters

Model		GVRL10NSW2X	GVRL15NSW2X	GVRL25NSW2X	GVRL35NSW2X
Refrigerant		R410A			
Ambient Temperature Condition		25°C, 60%			
Rated Running Condition		Evaporation temperature: - 29 °C, condensation temperature: 48 °C, subcooling degree: 2K, superheating degree: 10K, frequency: 60rps			
Cooling Capacity	kW	0.5	0.72	1.26	1.89
Plate Replacement Model		B26x 8	B26x12	B26x18	B26x24
Plate Water Exchange Side Interface Size [1]		Stainless steel, internal thread 3/4''			
water Flow	m^3/h	0.48	0.76	1.141	1.929
Noise	dB(A)	<52	<52	<52	<52
Maximum Running Current	A	8.1	8.7	10.8	15.1
Power Type		220V - 1ph - 50/60Hz			
Compressor	Type	Silent, efficient, fully enclosed rotary compressor			
	Model	DA91A1FJH-10A	DA130A1FJH-10A	DA220A1FJH-10B	DA330A3FJH-10C
	Quantity	1	1	1	1
	Self-contained Oil	0.4	0.4	0.62	0.9
Speed range, rps		30~80	30~80	30~80	30~80
Reservoir	Type	Vertical		Horizontal	
	Volume L	1.8	1.8	3.3	4
Overall Dimensions	mm	1100*500*300			
Packing Dimensions	mm	1203*640*440			
Weight	kg	62	63	63.8	65

[1] It is recommended to select water connector (0080600407) on the plate water exchange side. CDU shall be connected at the external thread side of water connector, and PVR water pipe shall be connected at PP-R side after hot melting.

Fixed Speed

Condensing Units

Customer Value

- R22/R404A refrigerant provided
- Numerous model for medium temperature and low temperature application, with capacity up to 15HP
- High efficiency, energy saving and low noise level
- Stable operation under high ambient temperature with up to 43°C
- Stable oil return and reliable running (oil separator is standard specification for LT units)

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

Naming Rule of Fixed Speed Condensing Unit

G Q	H	015	P	S	4	XXX

- XXX: Internal Design Serial Number
- 4: Form of Power Supply (Allowable Voltage Fluctuation Range±10%)
  - 1.208–203V/1ph/60Hz
  - 3.200–230V/3ph/60Hz
  - 4.380–400V/3ph/50Hz;460V/3ph/60Hz
  - 5.230V/1ph/50Hz
  - 9.380V/3ph/60Hz
- S: Number of Compressor
  - S-Single Compressor
  - D-Double Compressors
- P: Type of Lubricant
  - H-AB Alkylbenzene Oil
  - P-Ester (Ether) Oil
- 015: Nominal Capacity of Unit, kBtu/h@60Hz,ARI
- H: Application Temperature of Unit
  - H – Medium Temperature
  - L – Low Temperature
- GQ: Hermetic Air-cooled Compressor Condensing Unit-Quietor Series

* All comparisons are based on the product performances of last generation.

Technical Parameters

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

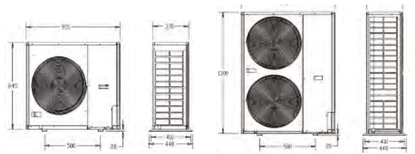
GQH			015PS	021 PS	026PS	030PS
Refrigerant			R404A			
Casing Type			M1	M1	M1	M1
Nominal Cooling Capacity	(1)	kW	4.15	5.57	6.28	8.06
Nominal Input Power	(1)	kW	1.58	2.24	2.64	3.37
Compressor	Quantity		1	1	1	1
	Model		MLZ015	MLZ021	MLZ026	MLZ030
	Nominal Power	HP	1x2	1x3	1x3.5	1x4
Crankcase Heating Belt	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	1x0500	1X0500	1x0500	1x0500
	Air Volume	m^3/h	4445	4445	4445	4445
Total Current	Fan Nominal 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
Lubricating Oil			PVE oil Ester oil 320HV			
Oil Charge		L	1.1	1.1	1.6	1.6
Connection	Gas Return	inch	5/8"	5/8"	5/8"	5/8"
	Liquid Line	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℃ , ambient temperature 32℃ , gas return temperature 18℃ .

(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	021 PS	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	1x5	1x6	1x7
Crankcase Heating Belt	Quantity x Power	W	1 x 65	1 x 65	1 x 65	1 X 75	1 X 75	1 X 75	1 X 75
Noise	dB (A) (2)		60	60	60	60	60	60	60
Fan Motor	Quantity x Diameter	mm	1x0500	1x0500	1x0500	1x0500	2x0500	2x0500	2x0500
	Air Volume	m^3/h	4445	4445	4445	4445	8890	8890	8890
Total Current	Fan Nominal Current	A	0.71	0.71	0.71	0.71	1.42	1.42	1.42
	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
Lubricating 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	Gas Return	inch	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"
	Liquid Line	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

Model Selection Table of Medium Temperature Fixed Speed CDU (<7HP)

230V/1PH/50Hz&380V/3PH/50Hz

	R404A	Ambient Temperature							
		27 ℃		32 ℃		37 ℃		42 ℃	
	GQH	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
SST -15℃	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℃	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℃	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℃	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 ℃	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 gas return 10K

Model Selection Table of Medium Temperature Fixed Speed CDU (<7HP)

380V/3PH/50Hz

	R404A	Ambient Temperature							
		27 ℃		32 ℃		37 ℃		42 ℃	
	GQH	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
SST -15℃	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 ℃	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 ℃	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 ℃	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 ℃	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 gas return 10K

LT Scroll Fixed Speed

Condensing Units

Model: 5hp;
Cooling Capacity: 2.84kw~6.57kw;
Evaporating Temperature: -30C~-15℃ , R404A

Model: 6/7hp;
Cooling Capacity: 3.79kw~9.95kw;
Evaporating Temperature: -30℃ ~-15℃ , R404A

Customer Value

- Compression condensing machine, convenient and flexible to install, no need for machine room, saving time and money;
- It adopts vortex machine spray application, light weight, low vibration, low noise, without noise troubles;
- PCB intelligent control, high energy efficiency ratio, and lower store operation cost.
- Large amount of supercooled coil and speed regulating fan make the unit have strong adaptability to extreme environment and perform well at - 20 ~ 43℃ ;

Product Features

- Using famous brand low temperature scroll compressor with high reliability, high energy efficiency ratio and low noise;
- Stepless linear regulation of fan speed (SCR), small system fluctuation, perfect match with load demand;
- PCB control, cooling output with the load demand automatic adjustment, fault code at a glance, easy maintenance and fault diagnosis;
- It has the functions of network connection and remote control;
- The design of supercooled coil can improve energy efficiency, and make the unit perform well in the extreme condition of high ambient temperature (43℃);
- The application of low temperature liquid injection ensures the operation reliability of the unit under extreme ambient temperature, and the parameters are in stable and moderate range.

Application Scenarios

Catering chain
Chain restaurants with small cold storage
Room temperature: -18℃ ~ -5℃

Hotel cold storage
Hotels with small cold storage
Room temperature: -18℃ ~ -5℃

Standard supermarket
Remote freezer with evaporation temperature higher than - 30℃
* applicable model: AGDF

* Line pressure drop also needs to be taken into account

Naming Rule

GQ H 015 P S 4 COX

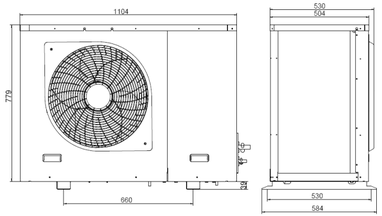
- COX — Internal Design Serial Number
- 4 — Form of Power Supply (Allowable Voltage Fluctuation Range±10%)
  - 1：208-203V/1PH/60Hz
  - 3：200-230V/3PH/60Hz
  - 4：380-400V/3PH/50Hz;460V/3PH/60Hz
  - 5：230V/1PH/50Hz
  - 9：380V/60Hz
- S — Number of Compressor
  - S-Single Compressor
  - D-Double Compressors
- P — Refrigerant
  - H-AB Alkylbenzene Oil / P-Ester (Ether) Oil
- 015 — Nominal Capacity of Unit, kBtu/h@60Hz, ARI
- H — Application Temperature of Unit
  - H – Medium Temperature
  - L – Low Temperature
- H — Hermetic Air-cooled Compressor Condensing Unit - Quietor Series

Technical Parameters

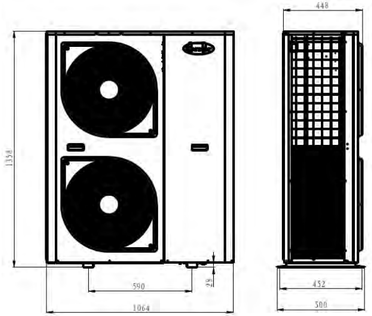
GQH		GQL015PS4 COX*	GQL018PS4 COX*	GQL021PS4 COX*
Refrigerant			R404A	
Casing Type		M3	M4	M4
R404A	Nominal Cooling Capacity [kW]	4.83	6.09	7.01
	Nominal Input Power [kW]	3.60	3.85	4.33
COP		1.34	1.58	1.62
Compressor	Quantity	1	1	1
	Model	ZSI015KQET	ZSI18KQET	ZSI21KQET
	Nominal Power [HP]	1×5	1×6	1×7
Crankcase Heating Belt	Quantity x Power [W]	1x65	1x75	1x75
Noise	dB(A)(2)	56	60	60
Fan motor	Quantity x Diameter [mm]	2xØ500	2xØ500	2xØ500
	Air Volume [m^3/h]	4043	7060	7060
Total Current	Fan Nominal Current [A]	0.6	1.2	1.2
	Compressor Starting Current [A]	47	67	90.5
	Compressor Max. Continuous Current [A]	11.9	13.2	14.6
Factory Setting for Over Current Protection [A]		13	13	16
Reservoir Volume [L]		6	8	8
Lubricating Oil			RL 32-3MAF/RL 32H	
Oil Charge [L]		1.36	1.89	1.89
Connection	Gas Return [inch]	3/4"	3/4"	3/4"
	Liquid Line [inch]	1/2"	1/2"	1/2"
Dimension	mm	1104X504X818	1064×448×1358	
Weight	kg	110.9	140	142.3

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

M3



M4



Variable Condition Parameters

SST: -30°C

	Ambient Temperature							
	27°C		32°C		37°C		42°C	
GQL	Q kW	P kW	Q kW	P kW	Q kW	P kW	Q kW	P kW
015PS4COX	4.03	2.98	3.70	3.96	3.21	3.90	2.84	4.39
018PS4COX	5.11	3.22	4.75	3.59	4.25	4.13	3.79	4.60
021PS4COX	5.64	3.66	5.27	3.96	4.66	4.35	4.26	4.89

SST: -25°C

	Ambient Temperature							
	27°C		32°C		37°C		42°C	
GQL	Q kW	P kW	Q kW	P kW	Q kW	P kW	Q kW	P kW
015PS4COX	4.86	3.18	4.41	4.23	3.82	4.03	3.38	4.66
018PS4COX	6.17	3.42	5.79	3.84	5.07	4.18	4.52	4.64
021PS4COX	6.67	3.86	6.51	4.23	5.62	4.56	5.25	5.03

SST: -20°C

	Ambient Temperature							
	27°C		32°C		37°C		42°C	
GQL	Q kW	P kW	Q kW	P kW	Q kW	P kW	Q kW	P kW
015PS4COX	5.61	3.38	5.30	4.47	4.50	4.08	3.95	4.82
018PS4COX	7.37	3.73	6.84	4.03	6.17	4.41	5.57	4.89
021PS4COX	8.10	4.12	7.76	4.47	6.82	4.85	6.37	5.30

SST: -15°C

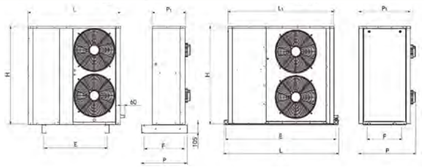
	Ambient Temperature							
	27°C		32°C		37°C		42°C	
GQL	Q kW	P kW	Q kW	P kW	Q kW	P kW	Q kW	P kW
015PS4COX	6.57	3.61	6.02	4.74	5.10	4.32	4.71	5.05
018PS4COX	8.85	3.99	8.11	4.30	7.31	4.71	6.72	5.12
021PS4COX	9.95	4.45	9.08	4.74	8.10	5.16	7.80	5.64

Notes: the variable condition data is based on the national standard GB/T 21363 requirements, return temperature 5°C .

Technical Parameters

Technical Parameters of Medium Temperature Fixed Speed CDU (>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	ZB114KQE
	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	2x0450	2x0500	2x0500	2x0500	2x0500
	Air Volume [m^3/h]		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 Nominal Current		A	17.3	26	27	30	27.1
Reservoir Volume			dm^3	14	14	18	24	24
Connection	Gas Return		inch	5/8"	5/8"	5/8"	5/8"	5/8"
	Liquid Line		inch	1/2"	1/2"	1/2"	1/2"	1/2"
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.

Model Selection Table of Medium Temperature Fixed Speed CDU (>7HP) 380V/3PH/50Hz380V/3PH/50Hz

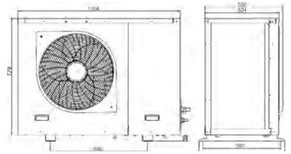
	R22	Ambient Temperature							
		27 °C		32 °C		37 °C		42 °C	
	GQH	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
SST-15°C	066PS	12.89	6.28	11.81	6.93	10.72	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
SST0°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 gas return 10K

Technical Parameters

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

GQH				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			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	1x0500	1x0500	1x0500	1x0500	1x0500
	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
Lubricating Oil				POE oil Ester oil 160Z				
Oil Charge			L	0.95	0.95	1.8	1.8	1.8
Connection	Gas Return		inch	5/8"	5/8"	3/4"	3/4"	3/4"
	Liquid Line		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°C , ambient temperature 32°C , gas return temperature 5°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.

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

Model Selection Table of Low Temperature Fixed Speed CDU 380V/3PH/50Hz

	R22	Ambient Temperature							
		27 °C		32 °C		37 °C		42 °C	
	GQH	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)	Cooling Capacity Q (kW)	Power Consumption P (kW)
SST-40°C	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°C	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°C	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°C	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°C	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

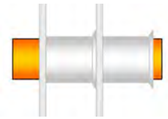
Testing conditions: refrigerant R404A，degree of superheat of gas return 10K

Air Cooler

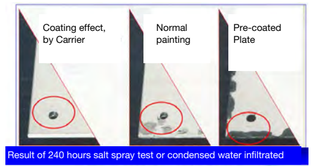
Adventer Series

SOLO
(Cooling capacity 1.44~15.69kW)

DUO
(Cooling capacity 1.6~20.67kW)



Coating treatment of external surface



Result of salt spray test

Customer Value

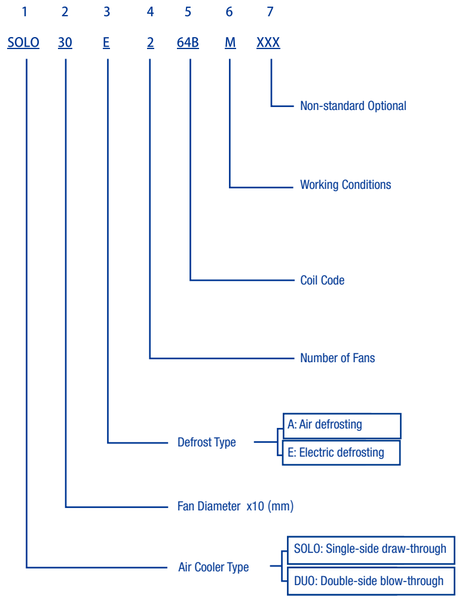
- Available for regular refrigerants and numerous models for more application
- High energy efficiency, low operation cost, safe & reliable
- Long range and equal food temperature in all zones
- High efficiency defrost, quick cooling effect, small fluctuation temperature for food preservation
- Anti-corrosion and long service life
- Energy saving 5%-10%*

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

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, longer intervals and short defrosting time
- 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

Naming Rule of Air Cooler



*Range value description: Range is effective at ambient temperature 20°C, 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

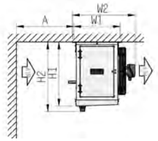
SOLO 30/35 1M

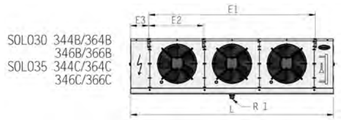
SOLO 30/35 2M

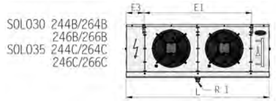
SOLO 30/35 3M

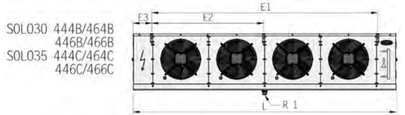
SOLO 30/35 4M

Dimensions of SOLO









Performance Parameters (SOLO 30)

Model SOLO	Type SOLO	Fan Dimension (Dm)	Number of Motors	Coil Rows	Fin Distance	Coil Code	Cooling Capacity SOLO R404A SC2 Heat transfer Temperature Difference 6K	SC2 Evaporating Temperature -25 °C	SC3 Heat transfer Temperature Difference 7K	SC3 Evaporating Temperature -25 °C	Pipeline Volume	Heat Exchange Area	Air Volume	Air Throw	Sound Pressure	Connection SC2 Inlet Dimension	SC2 Outlet Dimension	SC3 Inlet Dimension	SC3 Outlet Dimension	Fan 50 Hz 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	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
30/35		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
30/35	1M	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	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
30/35		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
30/35	2M	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	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
30/35		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
30/35	3M	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"	1/2"	7/8"	1361	198	0.87	230V-1
		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
30/35		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
30/35	4M	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 L	W1	W2	H1	H2	E1	E2	E3	A	Electric Defrosting 230V - 1 Coil	Water Pan	Total	Weight 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	Type SOLO	Fan Dimension (Dm)	Number of Motors	Coil Rows	Fin Distance	Coil Code	Cooling Capacity SOLO R404A SC2 Heat transfer Temperature Difference 6K	SC2 Evaporating Temperature -25 °C	SC3 Heat transfer Temperature Difference 7K	SC3 Evaporating Temperature -25 °C	Pipeline Volume	Heat Exchange Area	Air Volume	Air Throw	Sound Pressure	Connection SC2 Inlet Dimension	SC2 Outlet Dimension	SC3 Inlet Dimension	SC3 Outlet Dimension	Fan 50 Hz 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
		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
30/35		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	I230V-1
30/35	1M	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	I230V-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	I730V-1
		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	I230V-1
30/35		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	I230V-1
30/35	2M	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	I230V-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
		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	I230V-1
30/35		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	I230V-1
30/35	3M	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	I730V-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	I230V-1
		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	I230V-1
30/35		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	I230V-1
30/35	4M	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	I230V-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	I230V-1

Model	External Dimension L	W1	W2	H1	H2	E1	E2	E3	A	Electric Defrosting 230V - 1 Coil	Water Pan	Total	Weight 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

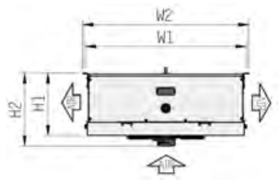
DUO 30/35 1M

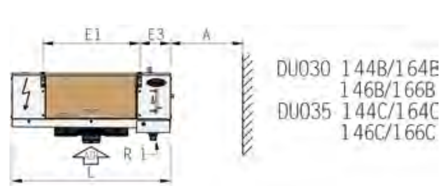
DUO 30/35 2M

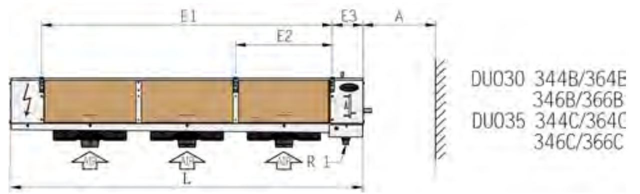
DUO 30/35 3M

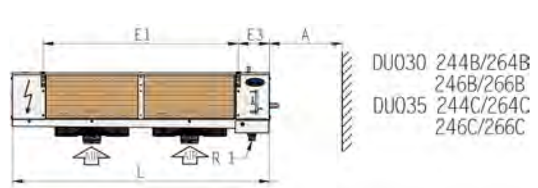
DUO 30/35 4M

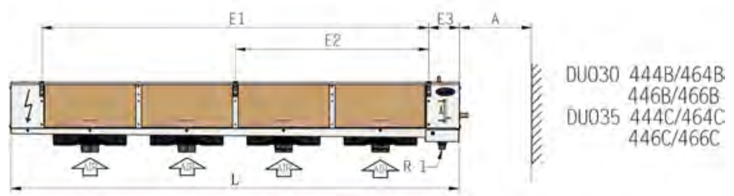
Dimensions of DUO











Performance Parameters (DUO 30)

Model DUO						Cooling Capacity DUO 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 10K Evaporating Temperature 0°C	Heat Transfer Temperature Difference 8K Evaporating Temperature -8°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	11/2"	5/8"	11/2"	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 230V - 1			Weight
	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 SOLO 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 10K Evaporating Temperature 0°C	Heat transfer Temperature Difference 8K Evaporating Temperature -8°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 230V - 1			Weight
	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 Cooler

Pleasure Series

Naming Rule of Air Cooler

SOLO 35 E 2 64C M - D

- SOLO: Pleasure Series
- 35: Working Conditions
- E: Coil type
- 2: Number of Fans
- 64C: Defrost Type
  - A: Air defrosting
  - E: Electric defrosting
- M: Fan Diameter
  - 30=300mm
  - 35=350mm
- D: Air Cooler Model

Customer Value

- Multiple choices, more applications
- Adapt to various humidity and temperature applications
- Suitable for cold storage and processing rooms with -18°C ~ +10°C storage temperature requirements.
- High-efficiency defrosting, saving operating costs, and small fluctuations in storage temperature, ensuring safe and fresh goods.
- High heat exchange efficiency, lower energy consumption and faster cooling speed, energy saving by ~ 5 - 10%
- Convenient for maintenance
- Longer service life, more convenient cleaning and maintenance, reduce maintenance costs

Product Features

- The cooling capacity is 1.4kw ~ 20.7kw, including two categories SOLO\DUO of 27 models .
- 4.5mm and 6.3mm fin spacing design, more flexible choice
- Suitable for the working condition of SC1 \ SC2 \ SC3, and apply to more scenarios
- Electric defrosting, air defrosting optional
- Short defrost time, high efficiency, and low energy consumption
- High efficiency corrugated fin + internal thread heat exchange tube, increased heat exchange area, higher heat exchange efficiency
- Side panel hinge design
- High pressure powder spraying double coating on outer surface

* Testing and comparing with the same series of single-outlet air cooler of competitors

Market Positioning and Application

Pleasure Series - Single-outlet - SOLO

- 30 different models
- Cooling capacity: 1.4 kW ~ 26.5 kW
- Suitable for SC1, SC2, SC3 conditions

▼

-18 °C to + 10 °C logistics cold storage, supermarket distribution warehouse, small and medium cold storage.

Pleasure Series - Double-outlet - DUO

- 16 different models
- Cooling capacity: 2.7 kW ~ 20.7 kW
- Suitable for SC1, SC2 conditions

▼

0 °C to + 10 °C operating room, processing room, medium and high temperature fruit and vegetable warehouse, laboratory.

Non-standard Option

Item	Non-standard Parts	Pleasure Series SOLO30/35	Pleasure Series DU035
1	Coil protective coating (Blygold, Hydrophilic aluminum foil, electrophoresis, etc)	Non-standard	Non-standard

Neutral Salt Spray Test of Coil Coating

Type of anticorrosive coating	Neutral salt spray test (H)
Hydrophilic aluminum foil	500
Vinyl coating	500
Blygold coating	>1000

Product Model

Column Number	Product Model	Type	Quantity of Fans	Rows	Fin Spacing	L x W x H	Applicable Conditions
SOLO30 /35	SOLO30(A/E)144BM-D	Single-outlet	1	4	4.5mm	790 x 460 x 470	SC1 / SC2
	SOLO30(A/E)244BM-D		2	4		1265*460*470	
	SOLO35(A/E)144CM-D		1	4		840 x 460 x 520	
	SOLO35(A/E)164CM-D		1	6		840 x 460 x 520	
	SOLO35(A/E)244CM-D		2	4		1365 x 460 x 520	
	SOLO35(A/E)264CM-D		2	6		1365 x 460 x 520	
	SOLO35(A/E)344CM-D		3	4		1880 x 460 x 520	
	SOLO35(A/E)364CM-D		3	6		1880 x 460 x 520	
	SOLO35(A/E)444CM-D		4	4		2395 x 460 x 520	
	SOLO35(A/E)464CM-D		4	6		2395 x 460 x 520	
	SOLO30E146BL-D		1	4	6.3mm	790 x 460 x 470	SC2/SC3
	SOLO30E246BL-D		2	4		1265*460*470	
	SOLO35E146CL-D		1	4		840 x 460 x 520	
	SOLO35E166CL-D		1	6		840 x 460 x 520	
	SOLO35E246CL-D		2	4		1365 x 460 x 520	
	SOLO35E266CL-D		2	6		1365 x 460 x 520	
	SOLO35E346CL-D		3	4		1880 x 460 x 520	
	SOLO35E366CL-D		3	6		1880 x 460 x 520	
	SOLO35E446CL-D		4	4		2395 x 460 x 520	
	SOLO35E466CL-D		4	6		2395 x 460 x 520	
DUO 35	DUO35A144C(H/M)-D	Double-outlet	1	4	4.5 mm	795 x 795 x 350	SC1 / SC2
	DUO35A244C(H/M)-D						
	DUO35A344C(H/M)-D		2			1260 x 795 x 350	
	DUO35A444C(H/M)-D						
	DUO35A144C(H/M)-D		3			1725 x 795 x 350	
	DUO35A244C(H/M)-D						
	DUO35A344C(H/M)-D		4			2190 x 795 x 350	
	DUO35A444C(H/M)-D						

Air Cooled Condenser

Condenser

Soprano: 500, 630, 910mm 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

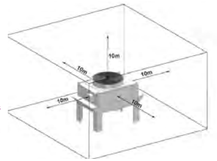
Model Naming Rule

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
	8PH	680	Delta	0.15	0.40	54

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

Fan	Motor	Rotation Speed (rpm)	Wiring	Rated Power (kW)	Current (A)	Sound Power dB(A)
91 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)	Wiring	Rated Power (kW)	Current (A)	Sound Power dB(A)
910 mm	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		R134a	R22	R404A	R507	R407A	R407C
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

Temperature Difference ⊿T 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

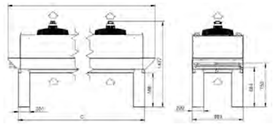
Fin spacing Correction Factor:

Fin Spacing 2.54mm	SOPRANO	ALTO
F5	0.95	0.96

SO 50 - Single Row

	Model		S050 1MSA	S050 1MSB	S050 2MSA	S050 2MSB	S050 3MSA	S050 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
4PL	Wiring		4PH 4PL	4PH 4PL	4PH 4PL	4PH 4PL	4PH 4PL	4PH 4PL
	Nominal Capacity R404A 40°C 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 40°C 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 40°C 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.

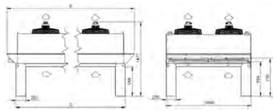


Technical Parameters

SO 50 - Double Row

	Model		S050 2MDA	S050 2MDB	S050 4MDA	S050 4MDB	S050 6MDA	S050 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 40°C Tcond40°C ~ΔT15K	kW	59 52	72 64	117 103	144 128	175 154	216 191
	Air Volume	m³/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 40°C Tcond40°C ~ΔT15K	kW	42 37	52 43	84 74	104 86	126 111	156 128
	Air Volume	m³/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 40°C Tcond40°C ~ΔT15K	kW	32 27	41 34	63 54	81 68	95 80	122 102
	Air Volume	m³/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	m²	98	146	194	292	292	440
	Refrigerant Circuit Volume	dm³	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

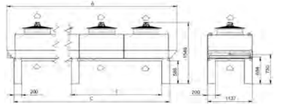
Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.



SO 60 - Single Row

	Model		S060 1MSB	S060 1MSC	S060 2MSB	S060 2MSC	S060 3MSB	S060 3MSC	S060 4MSB	S060 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 R404A40°C Tcond40°C ~ΔT15K	kW	45 39	54 49	89 77	108 99	134 116	161 147	179 154	215 197
	Air Volume	m³/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 40°C Tcond40°C ~ΔT15K	kW	34 29	43 36	69 58	87 73	103 86	130 108	137 115	173 145
	Air Volume	m³/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	m²	96	127	190	254	286	381	381	508
	Refrigerant Circuit Volume	dm³	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.

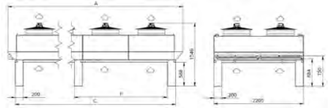


Technical Parameters

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 40°C Tcond40°C ~ΔT15K	kW	90 77	108 99	179 155	215 197	268 231	322 295
	Air Volume	m³/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 40°C Tcond40°C ~ΔT15K	kW	69 58	87 73	137 115	173 145	205 172	259 217
	Air Volume	m³/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	m²	190	254	381	508	572	761
	Refrigerant Circuit Volume	dm³	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	-	-	-	-	-	-

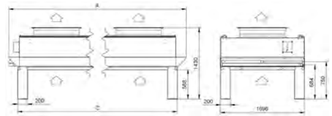
Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.



SO 90 - Single Row

	Model		S090 1MSC	S090 1MSD	S090 1MSE	S090 2MSC	S090 2MSD	S090 2MSE	S090 3MSC	S090 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 CapacityR404A 40°C Tcond40°C ~ΔT15K	kW	45 39	54 49	89 77	108 99	134 116	161 147	179 154	215 197
	Air Volume	m³/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 CapacityR404A 40°C Tcond40°C ~ΔT15K	kW	34 29	43 36	69 58	87 73	103 86	130 108	137 115	173 145
	Air Volume	m³/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
12PH/12PL	Wiring		12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL	12PH 12PL
	Nominal Capacity R404A 40°C Tcond40°C ~ΔT15K	kW	63 48	68 51	73 55	126 96	136 103	146 110	189 144	204 155
	Air Volume	m³/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	m²	195	244	293	390	488	586	586	732
	Refrigerant Circuit Volume	dm³	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.

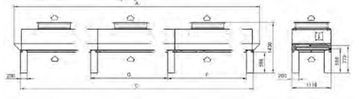


Technical Parameters

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 CapacityR404A40°C 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	m³/h	70455 54180	80850 62355	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 40°C Tcond40°C ~ΔT15K	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	m³/h	30400 38775	35440 42570	38410 44880	40320 51700	47600 73920	56760 77880	59840 84150	64825 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	B C	B B	B C	B C	B C	B C	B 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 R404A40°C Tcond40°C ~ΔT15K	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	m³/h	31020 22110	34650 24750	37290 26565	41360 29480	46200 33000	49720 35420	51700 36850	57750 41250	62150 44275	62640 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	A B	A A	A A	A B	A A	A A	A B	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	m²	498	623	748	665	831	997	831	1038	1246	997	1246
	Refrigerant Circuit Volume	dm³	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
		C mm	4567	5692	6817	6068	7568	9068	7570	9444	11320	9072	11322
		F mm	-	-	2285	3036	3786	4536	3036	3787	4536	3037	3787
		G mm	-	-	-	-	-	-	1502	1876	2252	3003	3753

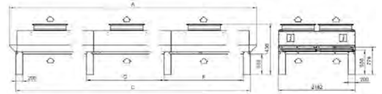
Dimension data tolerance is +/-10mm. Weight data tolerance is +/-15kg. The value is related to the part options selected.



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 R404A40°C 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	m³/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 40°C 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	m³/h	67320 51700	73920 56760	77880 59840	100980 77550	110880 85140	116820 89760	134640 103440	147840 113520	159760 119160	168300 129250	184800 141900	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"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	2×1"5/8	2×1"5/8	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
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 40°C 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	m³/h	41360 29480	46200 33000	49720 35420	62640 44220	69300 49500	74580 53130	82720 58960	92400 66000	99440 70840	103400 73700	115500 82500	124300 88500	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	A B	A A	A A	A B	A A	A A	A B	A A	A A	A B	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	m²	660	831	997	997	1246	1495	1330	1662	1994	1662	2077	2492	1994	2492
	Refrigerant Circuit Volume	dm³	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
		C mm	3066	3816	4566	4567	5692	6817	6068	7568	9068	7570	9445	11320	9072	11322
		F mm	-	-	-	-	-	-	2285	3036	3786	4536	3036	3787	4536	3037
		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,



V-type Condenser

Condenser

630mm V-type Condenser
Number of fans: 1 ~ 3
Nominal Capacity: 28.2~110.9 kW

9000mm V-type Condenser
Number of fans: 2 ~ 3
Nominal Capacity: 97~259.7kW

Customer Value

- Provide Carrier economical overall solution for customer
- Provide low noise models, reducing noise by ~ 10%
- High heat exchange efficiency, energy saving and high efficiency, and reducing operation cost
- Compact structure, small footprint, more flexible to use application scenarios
- Sheet metal parts have long service life after long-lasting corrosion resistance test
- Smart appearance, convenient for installation and maintenance

Product Features

- Fans with thermal prevention devices, long service life and high reliability, easy installation and replacement, low noise
- Efficient copper pipe-fin system - corrugated fins, fine flanged fins covering the entire copper pipes, for a larger heat exchange area and higher heat exchange efficiency
- Surface processed with powder spray to ensure rust protection, after high pressure powder spray double coatings, the fins are easy to clean

Performance Advantages

- EC axial flow fans optional, high energy efficiency;
- The coils are treated for corrosion resistance according to the installation environment, for a longer service life.

Technical Advantage

The fan is equipped with an integral stamping streamline air guide

- Streamline air guide can reduce the flow resistance of the fan and increase the air volume at the same time;
- The fan is equipped with thermal protection device, waterproof grade IP54, long service life, high reliability, easy to install and replace, low noise, etc.

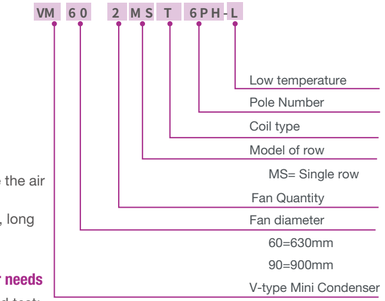
Coil optimized design, and high heat exchange efficiency, meeting customer needs

- The coil design is optimized by the combination of numerical simulation and test;
- The end plate and each welding point are improved by design to reduce the risk of leakage and enhance the reliability of the product;
- High efficiency copper tube fin system - corrugated fin, fin flanging use full flanging to cover copper tube, expand surface area, improve heat exchange efficiency;
- The fins can be anti-corrosion treated according to the customer's application scenarios to improve the product life.

Carrier's iconic outdoor white, external surface coating treatment

- Spray powder on the surface for more than 400h to prevent the surface from rusting;
- The surface powder spraying treatment before the overall assembly of the whole machine can ensure that every surface can achieve rust prevention. The anti-corrosion adopts high-pressure powder spraying double coating, which is easy to clean.

Naming Rule of V-type Condenser



Technical Parameters

Model		VM60 1MST 6PH	VM60 1MSF 4PH	VM60 1MST 8PH	VM60 2MST 6PH	VM60 2MSF 4PH	VM60 2MST 8PH	VM60 3MST 6PH	VM60 3MSF 4PH	VM60 3MST 8PH
Power Supply		380V/3PH/50Hz								
Fan		1 x Ø 630	1 x Ø 630	1 x Ø 630	2 x Ø 630	2 x Ø 630	2 x Ø 630	3 x Ø 630	3 x Ø 630	3 x Ø 630
Wiring		6PH	4PH	8PH	6PH	4PH	8PH	6PH	4PH	8PH
Running Current	A	1*1.25	1*2.5	1*0.67	2*1.25	2*2.5	2*0.67	3*1.25	3*2.5	3*0.67
Input Power	W	520	1325	291	2*520	2*1325	2*291	3*520	3*1325	3*291
Air Volume	m^3/h	8200	11500	6000	17500	25000	15000	30000	364500	22950
Nominal Capacity *	kW	28.2	42.2	22.1	59.4	84.3	53.1	90.8	110.9	76.4
Sound Pressure Level	dB(A) 10m	38.7	48.5	29.5	41	51.4	32.6	41.8	52.4	33.5
Inlet Pipe	(mm)	28	28	28	28	28	28	28	28	28
Drain Pipe	(mm)	28	28	28	28	28	28	28	28	28
Surface Area	m^2	90	120	90	180	240	180	260	345	260
Net Weight (without refrigerant)	kg	100	110	100	180	200	180	234	260	234
Dimension	Length [mm]	985	985	985	1788	1788	1788	2528	2528	2528
	Width [mm]	1017	1017	1017	1017	1017	1017	1017	1017	1017
	Height [mm]	1345	1345	1345	1345	1345	1345	1345	1345	1345

Notes:
1) The heat extraction rate work condition: Ambient Temperature 35°C , condensation temperature is 50°C ;
2) The noise was measured at 10m location.
* Heat extraction rate is based on the condition of condensation temperature of 50°C and heat transfer temperature difference of 15K, and the refrigerant is R404A.

Model		VM60 1MST 6PH-L	VM60 1MSF 4PH-L	VM60 1MST 8PH-L	VM60 2MST 6PH-L	VM60 2MSF 4PH-L	VM60 2MST 8PH-L	VM60 3MST 6PH-L	VM60 3MSF 4PH-L	VM60 3MST 8PH-L
Power Supply		380V/3PH/50Hz								
Fan		1 x Ø 630	1 x Ø 630	1 x Ø 630	2 x Ø 630	2 x Ø 630	2 x Ø 630	3 x Ø 630	3 x Ø 630	3 x Ø 630
Wiring		6PH	4PH	8PH	6PH	4PH	8PH	6PH	4PH	8PH
Running Current	A	1*1.25	1*2.5	1*0.67	2*1.25	2*2.5	2*0.67	3*1.25	3*2.5	3*0.67
Input Power	W	520	1325	291	2*520	2*1325	2*291	3*520	3*1325	3*291
Air Volume	m^3/h	8200	11500	6000	17500	25000	15000	30000	364500	22950
Nominal Capacity*	kW	28.2	42.2	22.1	59.4	84.3	53.1	90.8	110.9	76.4
Sound Pressure Level	dB(A) 10m	38.7	48.5	29.5	41	51.4	32.6	41.8	52.4	33.5
Inlet Pipe	(mm)	28	28	28	28	28	28	28	28	28
Drain Pipe	(mm)	28	28	28	28	28	28	28	28	28
Surface Area	m^2	90	120	90	180	240	180	260	345	260
Net Weight (without refrigerant)	kg	100	110	100	180	200	180	234	260	234
Dimension	Length [mm]	985	985	985	1788	1788	1788	2528	2528	2528
	Width [mm]	1017	1017	1017	1017	1017	1017	1017	1017	1017
	Height [mm]	1345	1345	1345	1345	1345	1345	1345	1345	1345

Notes:
1) The heat extraction rate work condition: Ambient Temperature 35°C , condensation temperature is 50°C ;
2)For the area such as Inner Mongolia, Liaoning, Jilin, Heilongjiang, northern Tibet, northern Gansu, northern Qinghai, Sinkiang and etc., where ambient temperature below -20℃ , it is better to commend the users to select Low-temperature V-condenser; while other users can determine by requirements.
3) The noise was measured at 10m.
* Heat extraction rate is based on the condition of condensation temperature of 50°C and heat transfer temperature difference of 15K, and the refrigerant is R404A.

Selection Guideline

Boutique 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 Multidecks..... 5
Advanza Glass Door Multidecks..... 1
Adventer Static-cooling Ice Counter..... 3
Standard Self-service Counter..... 1
Double Shelves Service Counter..... 3
Semi-vertical Cabinet 14
Advanza Island..... 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

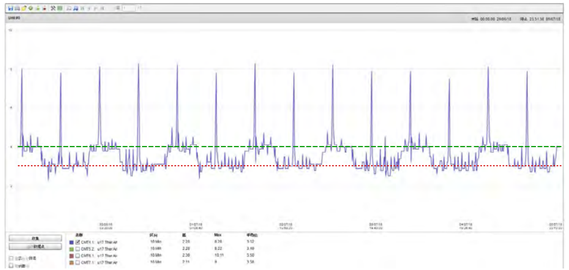
Matching criteria	Compressor number / Total Horse power (racks redundancy >15%)	Condenser Model	Pipe diameter / mm	Main pipeline pressure drop / K	Refrigeration material costs / 10K
Cooling Capacity Optimization	3/85HP	AL91 6MDE	ϕ67/ϕ35	1	28.2

Note: The average monthly temperatures in the hottest month in Shanghai is 31.8 °C 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°C , Condensing Temperature 45°C				Two-Stage Low Temperature (R404A) Evaporating Temperature -32°C , Condensing Temperature 45°C			
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.

Selection Guideline

Supermarket

Reference Case:
Some large Supermarket chain

Project Features:
E6 Air Curtain cabinets / Squeezed 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

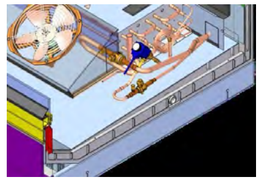
System Configuration:

System Type	Load kW
Low temperature	32.12
Medium temperature	96.91

E6 Features:
- E6 Squeezed 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

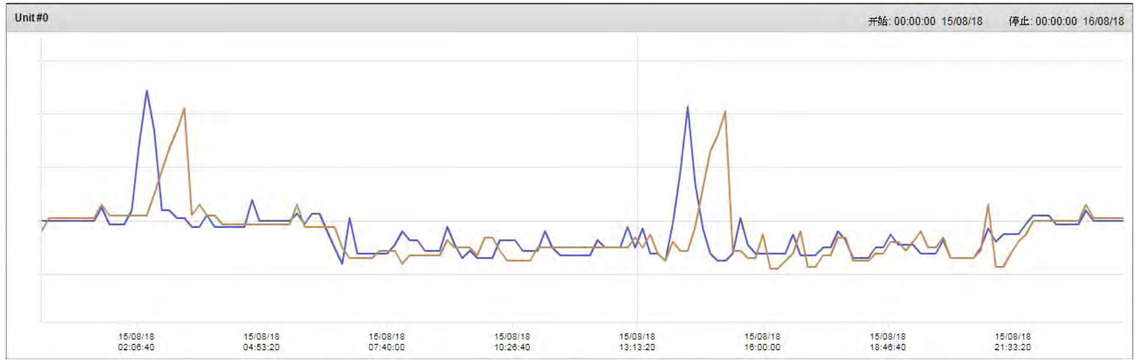
Low flow rate at external air curtain, leading to less turbulent flow and less penetration of hot air from outside



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

Squeezed 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 ≤ Squeezed 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 refrigerated 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

Cascade CO_2 Case Study

Reference Case:

Some large supermarket chain

Project Features:

Cascade CO_2 refrigeration system

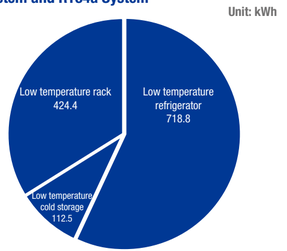
Medium and high temperature system R134a refrigerant

Store Area: 9,731m^2

System Configuration:

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

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



Total power consumption: 1255.7 kWh

Strength of CO_2 refrigerant:

Environmental Protection

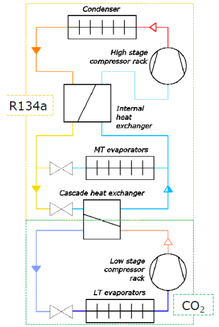
1. Directly and indirectly reduce greenhouse gas emissions
2. Low GWP – reduces greenhouse gas emissions
3. Zero ODP – doesn't destroy the ozone layer

Energy efficiency and economy

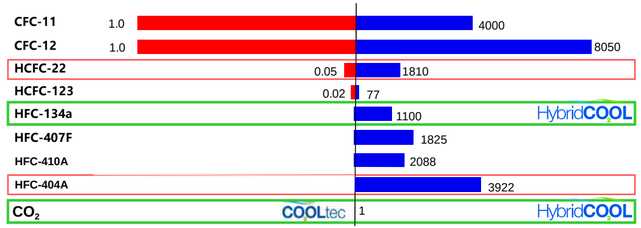
1. It has good heat transfer performance and improves COP of refrigeration system
2. High volumetric efficiency, reducing the size of the refrigerating parts
3. By-product of air separation, low cost

Safety

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

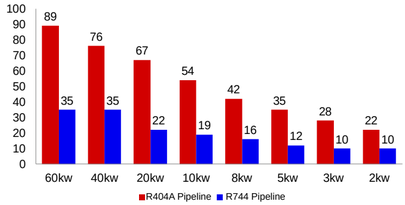


Ozone depletion potential (ODP) / Direct global warming potential (GWP)



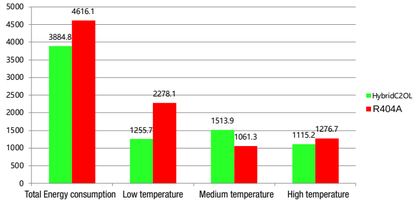
- Montréal Prot℃ ol: 1987 => HCFC and CFC is banned
- Kyoto Prot℃ ol: 1997 => phase down HFC

Comparison of Refrigeration Gas Return Pipe Specifications of R404A and R744

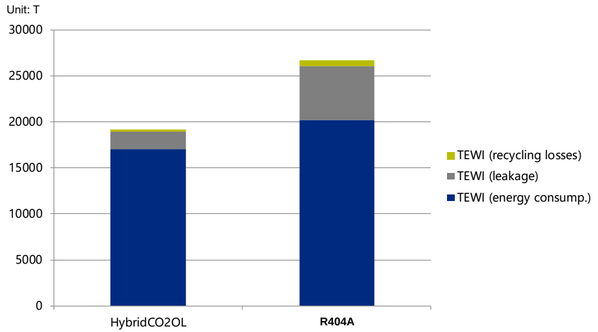


- Comparison of gas return pipes
- Based on evaporating temperature of -32°C , R404A supply liquid temperature of 15°C and R744 supply liquid temperature of -6°C

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

Integrated HVAC and Refrigeration Solution
Case Study

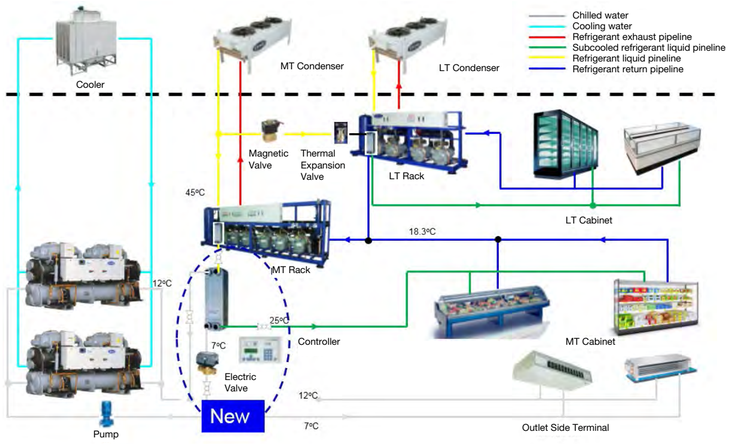
Reference Case:
Some large supermarket chain

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

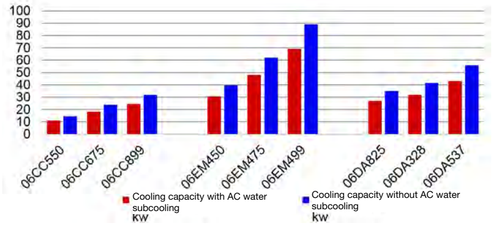
Store Area: 7,900m^2

System Configuration:

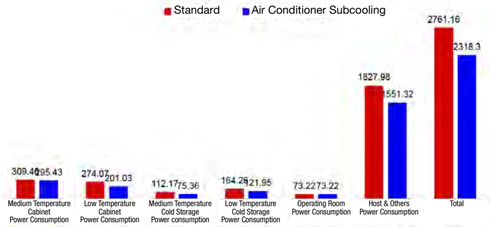
System Type	Load kW
Low temperature	94.32
Medium temperature	158.88
High temperature	86.87



Comparison of Refrigeration Efficiency Before and After AC Water Subcooling



Comparison of System Daily Energy Consumption (kWh) Before and After Air Conditioner Subcooling



Three-way valve control of water and power

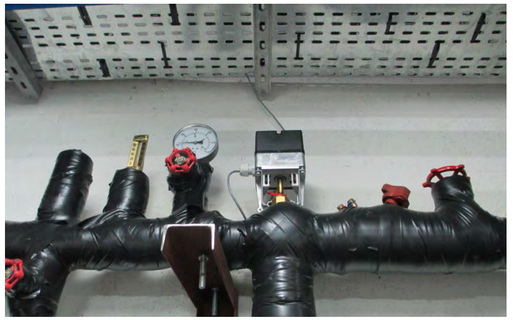


Plate heat exchanger

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

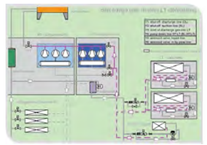
High efficiency evaporator

System Energy Saving Solutions

CO2OLtec transcritical racks

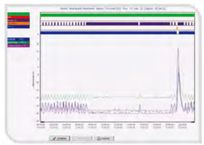
Cascade CO_2 racks

Green CO_2 Refrigeration - a new environmental protection trend



D2D defrost technology

Energy saving 5%-10%



Energy saving 10%-15%

Integrated HVAC and Refrigeration Solution

Energy saving 10%-15%

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