

GREEN COLD CHAIN·PROTECTS FOOD SAFETY



Integrated Commercial Refrigeration Solution



RECIPROCATING COMPRESSOR RACKS

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Qingdao Haier Carrier Refrigeration Equipment Co., Ltd. was established by Haier Group and 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 models), compressor rack and condensing units(scroll, reciprocating and screw), and heat exchangers (condenser and air cooler). It can provide customers with integrated refrigeration turnkey solutions. With support of Carrier's R&D centers in Mainz, Germany and Shanghai, China, the company now has many gov. certified labs, and leading products and technologies in the world. The company is committed to providing advanced energy-saving solutions, e.g. CO₂ systems, for customers.

In the past ten years, with abundant resources of two parent companies, Haier Carrier has become a world-class facility that owns the ISO9001, ISO14001 certification and the ACE certification of United Technologies (Carrier's parent company). With strong R&D strength, we are able to provide world-class system solutions like D2D hot gas defrosting (Refrigerating defrosting system - China patent), Supermarket cold chain and HVAC system, SPI (Semi Plug-in Integrated system), Hybrid CO₂OL (carbon dioxide cascade refrigeration technology), and CO₂OLtec (carbon dioxide trans-critical refrigeration technology).

Green Energy Saving and Lower-carbon Environmental Friendly

Carrier/UTC

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

In 2015, UTC global revenue volume is \$56.1 billion.

Haier Group

Since its establishment in 1984, Haier Group has expanded its business from the single production of refrigerators to areas such as household appliance, communication, IT digital products, home furnishing, logistics, finance, real estate and bio-pharmaceutical, becoming a world leading life solution provider.

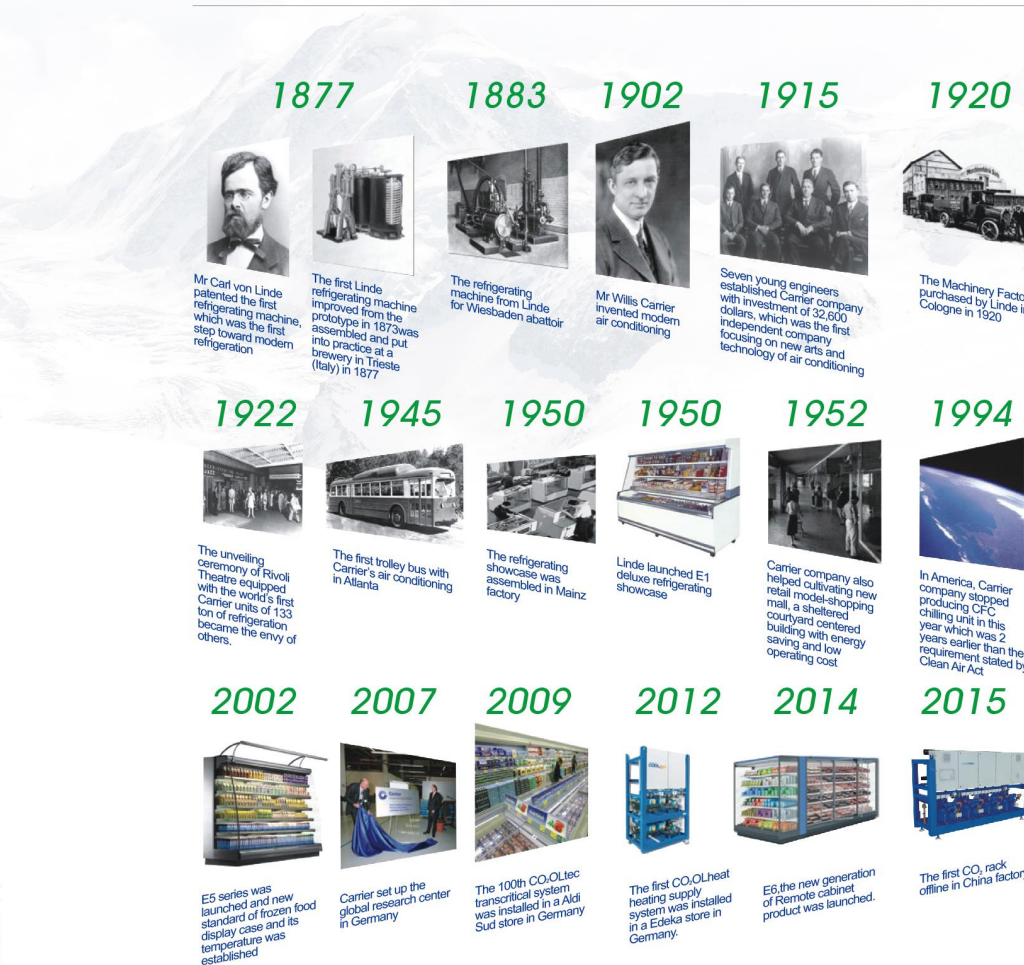
Committed to building a local brand popular among global consumers, Haier has long been practicing an overseas market strategy of localized research and development, production and marketing, and great results have been achieved. Up to now, Haier has 5 research and development centers, 21 industrial parks, 66 trading companies and users across 100 countries and regions.

In 2015, Haier achieved a global turnover of RMB188.7 billion.



Certification: GCCA (General Product Certification of Credit Alliance), EEL (Energy Efficiency Label), SAA (Standards Association of Australia) / MEPS (Minimum Energy Performance Standards), UL (Underwriter Laboratories) / NSF (National Sanitation Foundation)

Innovation Roadmap



Product Features

- Multi-compressors design, excellent standby function
- Multiple refrigerant available including R22/R404a
- Integrated skid-mounted design, reserved customer interface, easy installation

Customer Value

- High operation reliability
- Saving space by 10%
- More models/refrigerating capacity available

Wide Applications



Large Capacity Reciprocating Compressor Racks (30~350HP)



Small Capacity Reciprocating Compressor Racks (13~45HP)



High-Temperature cold storage
Storage room Temperature: 0℃~10℃
Storage capacity: 1000~5000(tons)
Type of goods: Vegetable, fruits, etc.



Middle-Temperature cold storage
Storage room temperature: -20℃~0℃
Storage capacity: 2000~8000 tons
Type of goods: meat, fish, etc.



Low-temperature cold storage
Storage room Temperature: -40℃~-20℃
Storage capacity: 2000~8000(tons)
Type of goods: sea food, meat, ice cream, etc.



Individual quick frozen machine
Freezing temperature: 28℃~-32℃
Machine capacity: 0.5t/h-2t/h
Type of goods: sea food, quick-frozen food

Scope Of Application

Operating Condition	Tow- stage					
	Middle-temperature		Low Temperature For Single Stage Compressor	Low Temperature For Double Stage Compressor		
Refrigerant	R22	R404A	R22	R404A	R22	R404A
Evaporating Temperature (℃)	-18 ~ +7	-18 ~ +4	-37 ~ -18	-40 ~ -18	-50 ~ -24	-50 ~ -24

Reciprocating Compressor Racks Nomenclature

1 2 3 4 5 6 7 8 9 10 11
V H P 3 2 0 3 O R 120 E

stands for frameless small Reciprocating compressor racks

Horse power

Reservoir

Return oil system

Type of compressor

- 3: Carlyle
- 4: Bitzer
- 5: Bitzer
- 7: Carlyle

Accessory

- 0: Without subcooler and heating recoverer
- 1: With heat recoverer only
- 5: With subcooler only
- 6: With subcooler and heating recoverer

Control system

- 0: Without control system
- 1: With temperature -regulated control cabinet
- 2: With control cabinet including power management system
- 3: With control cabinet only

quantity of compressors

applicable temperature

- P: Medium Temp.
- M: Low Temp.
- PM: Medium & Low Temp.

refrigerant oil

Reciprocating Compressor racks

>45HP Large Capacity Reciprocating Compressor Racks (R22)

Low temperature two stage rack

(Model No.)	Compressor Model*Number	Evaporating Temperature (to)							
		to: -50℃		to: -45℃		to: -40℃		to: -35℃	
		Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)
VHM2257OR-30	06CC550*2	—	—	—	—	15.58	10.30	21.56	12.02
VHM2257OR-40	06CC675*2	14.5	12.88	19.44	14.78	25.36	16.56	32.56	18.38
VHM3257OR-45	06CC550*3	—	—	—	—	23.37	15.45	32.34	18.03
VHM3257OR-60	06CC675*3	21.75	19.32	29.16	22.17	38.04	24.84	48.84	27.57
VHM3257OR-90	06CC899*3	27.99	27.09	37.54	30.90	48.93	34.62	62.73	38.55
VHM4057OR-120	06CC899*4	37.32	36.18	50.04	41.20	65.24	46.16	83.64	51.40
VHM5257OR-150	06CC899*5	46.65	45.15	62.55	51.50	81.55	57.70	104.55	64.25
VHM6257OR-180	06CC899*6	55.98	54.18	75.06	61.80	97.86	69.24	125.46	77.10

Low temperature single stage rack

(Model No.)	Compressor Model*Number	Evaporating Temperature (to)							
		to: -37℃		to: -35℃		to: -30℃		to: -25℃	
		Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)
VHM2203OR-30	06ER450*2	9.34	8.08	13.34	10.94	22.02	17.18	31.34	20.86
VHM2203OR-40	06ER475*2	19.24	21.60	23.60	23.60	34.74	28.64	46.80	33.22
VHM3203OR-45	06ER450*3	14.91	12.12	20.01	16.41	33.03	25.77	47.01	31.29
VHM3203OR-60	06ER475*3	28.86	32.40	35.40	35.40	52.11	42.96	70.20	49.83
VHM3203OR-90	06ER399*3	36.09	44.40	44.19	50.40	66.16	68.80	88.38	68.10
VHM4203OR-120	06ER399*4	48.12	59.20	58.92	67.20	86.88	78.00	117.84	90.80
VHM5203OR-130	06ER399*3+06ER475*2	55.33	66.00	67.79	74.00	99.90	87.14	135.18	101.32
VHM5203OR-150	06ER399*5	60.15	74.00	73.65	84.00	108.60	97.50	147.30	113.50
VHM6203OR-160	06ER399*4+06ER475*2	67.36	80.80	82.52	90.80	121.62	106.64	164.64	124.02
VHM6203OR-180	06ER399*6	72.18	88.80	88.38	100.80	130.32	117.00	176.76	136.20

Medium temperature single stage rack

(Model No.)	Compressor Model*Number	Evaporating Temperature (to)							
		to: -15℃		to: -12℃		to: -10℃		to: -5℃	
		Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)
VHP2203OR-30	06EM450*2	44.66	22.40	53.08	24.20	59.08	25.20	75.58	27.60
VHP2203OR-40	06EM475*2	67.12	33.60	78.94	36.20	87.50	38.00	111.36	42.00
VHP3203OR-45	06EM450*3	66.99	33.60	79.62	36.30	88.62	37.80	113.37	41.40
VHP3203OR-75	06EM475*3	100.68	50.40	118.41	54.30	131.25	57.00	167.04	63.00
VHP3203OR-105	06EM499*3	138.60	72.30	160.77	78.00	176.76	81.60	221.34	90.60
VHP4203OR-120	06EM499*2+06EM475*2	159.52	81.80	186.12	88.20	205.34	92.40	258.92	102.40
VHP4203OR-130	06EM499*3+06EM475	172.16	89.10	200.24	96.10	220.51	100.60	277.02	111.60
VHP4203OR-140	06EM499*4	184.80	96.40	214.36	104.00	235.68	108.80	295.12	120.80
VHP5203OR-155	06EM499*3+06EM475*2	205.72	105.90	239.71	114.20	264.26	119.60	332.70	132.60
VHP6203OR-175	06EM499*5	231.00	120.50	267.95	130.00	294.60	136.00	368.90	151.00
VHP6203OR-190	06EM499*4+06EM475*2	251.92	130.00	293.30	140.20	323.18	146.80	406.48	162.80
VHP6203OR-210	06EM499*6	277.20	144.60	321.54	156.00	353.52	163.20	442.68	181.20

- 1) Cooling capacity and input power listed above are based on ambient temperature, condensing temperature 32℃. No super-cooling in liquid, two-stage intercooling liquid temperature is 4.4℃, if SIT+2.8>4.4℃, then the temperature should be SIT+5.6℃
- 2) Three phase power unit with 380V/50Hz, control operation of circuitry power is 220V/50Hz
- 3) Please Feel free to contact us if the units need to be operated under different evaporating temperature and too high or low temperature.
- 4) Please contact our technical staff if the operating condition is -50℃.

>45HP Large Capacity Reciprocating Compressor Racks Non-standard Options

Reciprocating Compressor Racks Non-standard Options	
1	Liquid stubs with valve,specification:2"(12mm)~2-1/8"(54mm)
2	Suction stubs with valve,specification:7/8"(22mm)~4-1/4"(108mm)
3	Discharge header with check valve
4	Compressor discharge vibration absorber(standard:Muffler)
5	Electronic oil level regulator(standard: Mechanical oil level regulator)
6	Condensing pressure control valve(a8/a9)
7	Condensing pressure control switch
8	Liquid receiver installation (on rack or in jobsite)
9	liquid receiver type (vertical or horizontal)
10	Sub-cooler for single stage low temperature or Medium temperature
11	Hot gas defrosting
12	Medium and low temperature integrated unit
13	Multi-suction compressor
14	Main incoming circuit-breaker
15	Controller with Dixell(standard), Carel, Danfoss, PLC

Remarks:
 1) The non-standard configurations are listed above in the table.
 2) Medium and low temperature integrated unit.
 3) Multi-suction temperature unit.
 4) Main Circuit Breaker.



<45HP Small Capacity Reciprocating Compressor Racks (R22)

Low temperature compressor racks								
Model	HP	Compresso	Evaporating Temperature (to)					
			-37°C		-35°C		-30°C	
			Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)
VHM2203OR-13E	13	2*06DR725	6.68	6.38	7.92	6.88	11.18	8.12
VHM2203OR-15E	15	2*06DR228	8.02	8.02	9.46	8.54	13.36	9.84
VHM2203OR-20E	20	2*06DR337	9.52	9.07	11.96	10.82	18.2	13.32
VHM2203OR-30E	30	2*06DR541	11.18	10.2	13.86	11.92	20.48	15.4
VHM3203OR-30E	30	3*06DR337	14.28	14.55	17.94	16.23	27.3	19.98
VHM3203OR-45E	45	3*06DR541	16.77	15.3	20.79	17.88	30.72	23.1

Middle temperature compressor racks								
Model	HP	Compresso	Evaporating Temperature (to)					
			-12°C		-10°C		-5°C	
			Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)
VHP2203OR-15E	15	2*06DA825	24.72	11.02	27.44	11.44	35.12	12.44
VHP2203OR-20E	20	2*06DA328	31.04	13.62	34.16	14.1	43.02	15.18
VHP2203OR-30E	30	2*06DA537	43.32	19.34	47.52	20.12	59.36	21.8
VHP3203OR-35E	35	2*06DA328+2*06DA537	52.7	23.29	57.92	24.16	72.7	26.08
VHP3203OR-40E	40	06DA328+2*06DA537	58.84	26.15	64.6	27.17	80.87	29.39
VHP3203OR-45E	45	3*06DA537	64.98	29.01	71.28	30.18	89.04	32.7

<45HP Small Capacity Reciprocating Compressor Racks (R404A)

Low temperature compressor racks								
Model	HP	Compresso	Evaporating Temperature (to)					
			-37°C		-35°C		-30°C	
			Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)
VPM2203OR-13E	13	2*06DR725	7.48	6.4	8.72	7.02	12.28	8.58
VPM2203OR-15E	15	2*06DR228	10.18	8.28	11.78	9.08	16.18	11.4
VPM2203OR-20E	20	2*06DR337	14.94	11.96	16.64	12.78	21.54	14.96
VPM2203OR-30E	30	2*06DR541	23.7	17.2	18.08	14.98	23.7	17.2
VPM3203OR-30E	30	3*06DR337	22.41	17.94	24.96	19.17	32.31	22.44
VPM3203OR-45E	45	3*06DR541	35.55	25.8	27.12	22.47	35.55	25.8

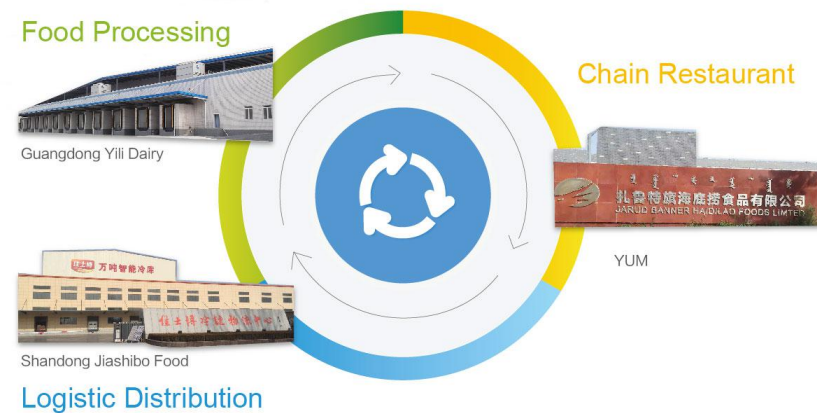
Middle temperature compressor racks								
Model	HP	Compresso	Evaporating Temperature (to)					
			-12°C		-10°C		-5°C	
			Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)	Qo(kW)	Pe(kW)
VPP2203OR-15E	15	2*06DA825	27.28	13.72	30.28	14.26	38.68	15.44
VPP2203OR-20E	20	2*06DA328	33.86	16.74	37.22	17.28	46.66	18.48
VPP2203OR-30E	30	2*06DA537	47.26	22.82	51.72	23.62	64.14	25.4
VPP3203OR-35E	35	2*06DA328+2*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

Remarks:
 1) Cooling capacity and input power listed above are based on ambient temperature, 45°C with no super-cooling in liquid
 2) Three phase power unit with 380V/50Hz 3) Refrigerant: R22/R404A 4) The weight of the low temperature unit includes the fans 5) Excluding freight

<45HP Small Capacity Reciprocating Compressor Racks Technical Data

(Model No.)	Discharge				Overall Dimension			Max. Oper. Current	Mass	Air Flow
	Exhaust	Suction	Suction Return	Liquid Supply	L (mm)	W (mm)	H (mm)			
VHM2203OR-13E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	21.2	500	1600
VHM2203OR-15E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	25.64	500	1600
VHM2203OR-20E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	33.5	500	2000
VHM2203OR-30E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	1009	45.8	500	3000
VHM3203OR-30E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	1009	50.25	650	3000
VHM3203OR-45E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	1009	68.7	650	4500
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
VHP2203OR-15E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	28.92	500	2000
VHP2203OR-20E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	35.2	500	2500
VHP2203OR-30E	1-1/8"	2-1/8"	1-1/8"	7/8"	1602	707	814	50	500	3500
VHP3203OR-35E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	814	60.2	650	4000
VHP3203OR-40E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	814	67.6	650	4500
VHP3203OR-45E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	814	75	650	5200
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
VPP3203OR-40E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	814	68.9	650	4500
VPP3203OR-45E	1-3/8"	2-1/8"	1-3/8"	1-1/8"	2112	699	814	72	650	5200

Freezer Pilot Project



We constantly enrich our freezer product series and dedicate to providing safe and reliable freezing and refrigeration solutions for chain catering trade, food processing and logistics distribution.

