

# Commercial Air Conditioners 2018/2019



## Commercial Air Conditioner Division Midea Group

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Note: Product specifications change from time to time as product improvements and developments are released and may vary from those in this document.



# Water Cooled Centrifugal Chiller

High efficiency: 600-2200RT  
Super high efficiency: 600-2200RT  
R134a, 50/60Hz



# Midea CAC

Midea CAC is a key division of the Midea Group, a leading producer of consumer appliances and provider of heating, ventilation and air conditioning solutions. Midea CAC has continued with the tradition of innovation upon which it was founded, and emerged as a global leader in the HVAC industry. A strong drive for advancement has created a groundbreaking R&D department that has placed Midea CAC at the forefront of a competitive field. Through these independent efforts and joint cooperation with other global enterprises, Midea has supplied thousands of innovative solutions to customers worldwide.

We have three production bases: Shunde, Chongqing and Hefei.

MCAC Shunde: 38 product lines focusing on VRF, Split Products, Heat Pump Water Heaters, and AHU/FCU.

MCAC Chongqing: 14 product lines focusing on Water Cooled Centrifugal/Screw/Scroll Chillers, Air Cooled Screw/Scroll Chillers.

MCAC Hefei: 11 product lines focusing on VRF, Chillers, and Heat Pump Water Heaters.

MIDEA GROUP  
FORTUNE GLOBAL  
**FORTUNE**  
**500**

2017 >> Developed the large capacity air cooled scroll chiller.

2016 >> Acquire an 80% stake in Clivet.

2015 >> Launched the inverter direct-drive centrifugal chiller and magnetic chiller.

An international strategic Platform has brought Midea Group, Carrier Corporation and Chongqing General Industry Group together in the chiller business.

2013 >> Launched the super high efficiency centrifugal chiller with dual-stage compressor and full falling film evaporator.

2008 >> Developed the Smart Star new-generation Semi-hermetic centrifugal chiller.

2007 >> Won the first Midea centrifugal chiller project overseas.

2006 >> Launched the first VFD (Variable Frequency Drive) centrifugal chiller.

2004 >> Acquired MGRE entered the chiller industry.

2001 >> The R134a (LC) series centrifugal chiller was named as a key national product.

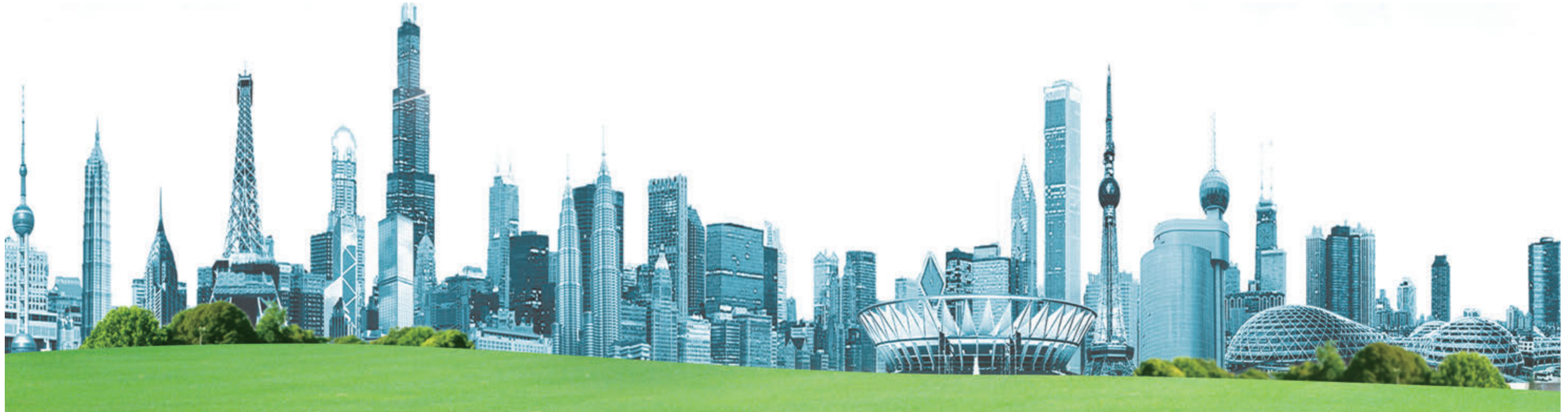
1999 >> Entered the CAC field.

Midea Company  
Introduction



Midea CAC  
Introduction

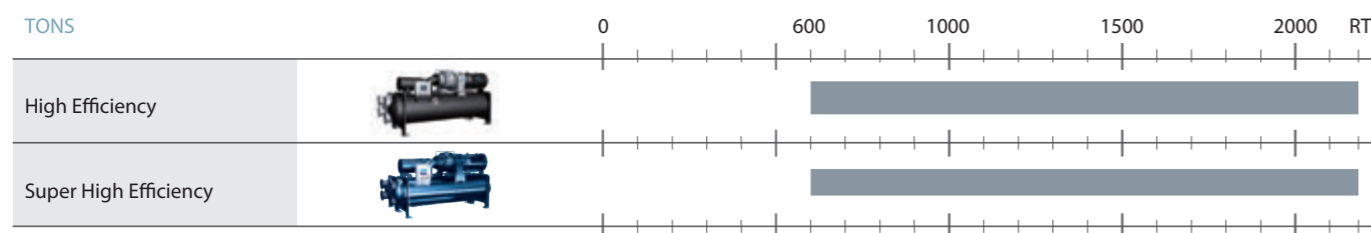




## Introducing Our Products

### Production introduction

Midea Chiller has a complete product lineup and a wide application range to meet varied customer requirements. In 2013, Midea launched its full falling-film, dual-stage compression centrifugal chillers, featuring up to 6.7 COP and certified by AHRI. Its capacity ranges from 600RT to 2,200RT, including the high efficiency series and super high efficiency series, greatly expanding the product's application range. The full falling-film heat exchange technology and new-generation design of the dual-stage compression have also increased efficiency. With patented heat exchange technology, the refrigerant charging volume is up to 40% less than the flooded type. This innovation protects our environment and decreases CO<sub>2</sub> emissions significantly.

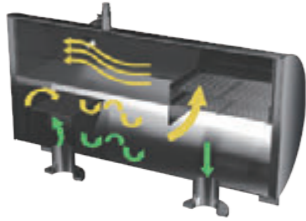


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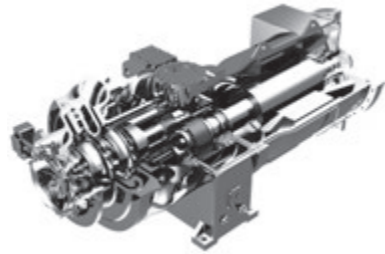
# Mechanical Specification

Mechanical Specification



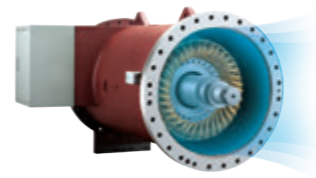
**Dual-stage type economizer**

The economizer is used in the dual-stage compressor. Midea uniquely designed the economizer to improve efficiency by 5% to 8% compared with the single stage compressor.



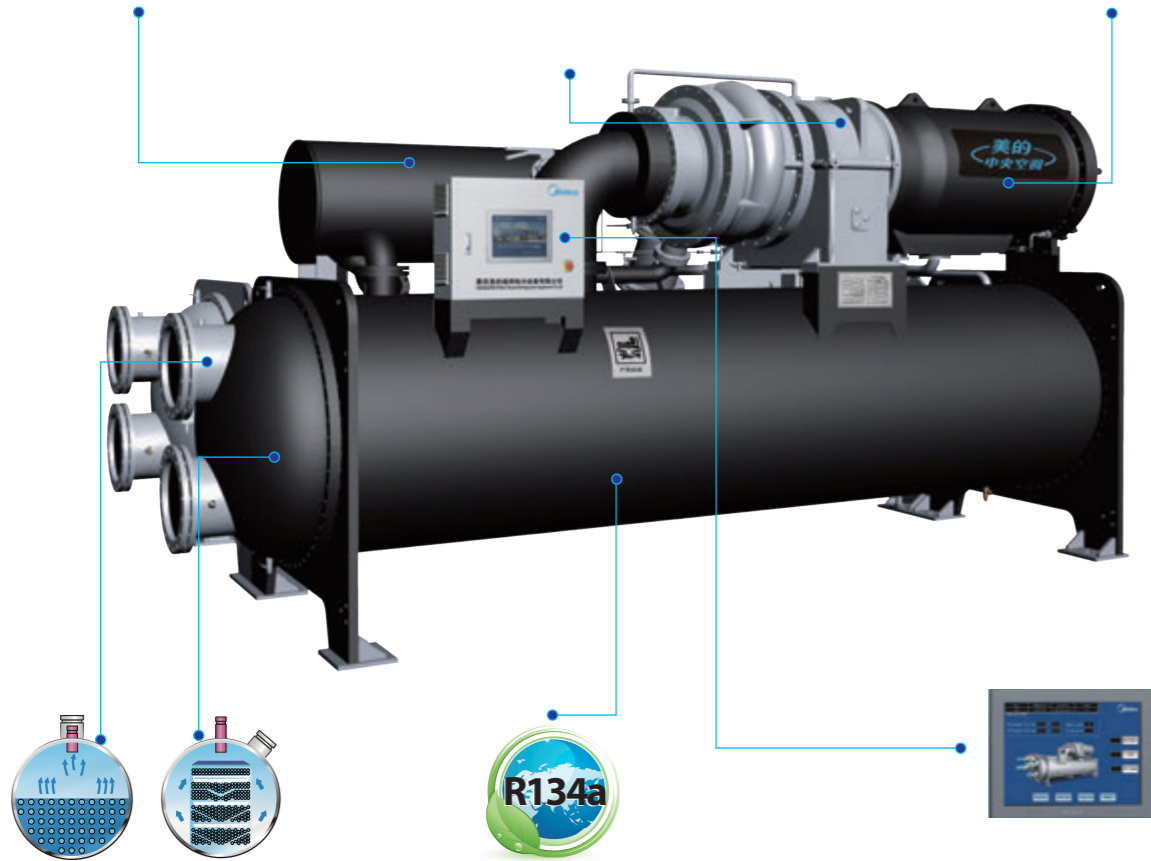
**Semi-Hermetic centrifugal compressor**

The compressor was designed on the Midea advanced design platform, which precisely aligns the impeller and chamber. The compressor is compact and has less moving parts. Double-layer design technology effectively manages noise and vibration.



**Gas cooled motor**

The motor is cooled by refrigerant, which ensures outstanding performance in various working conditions and a long service life. This high efficiency motor has a power factor of up to 97%.



**Shell and tube condenser and Full falling-film type evaporator**

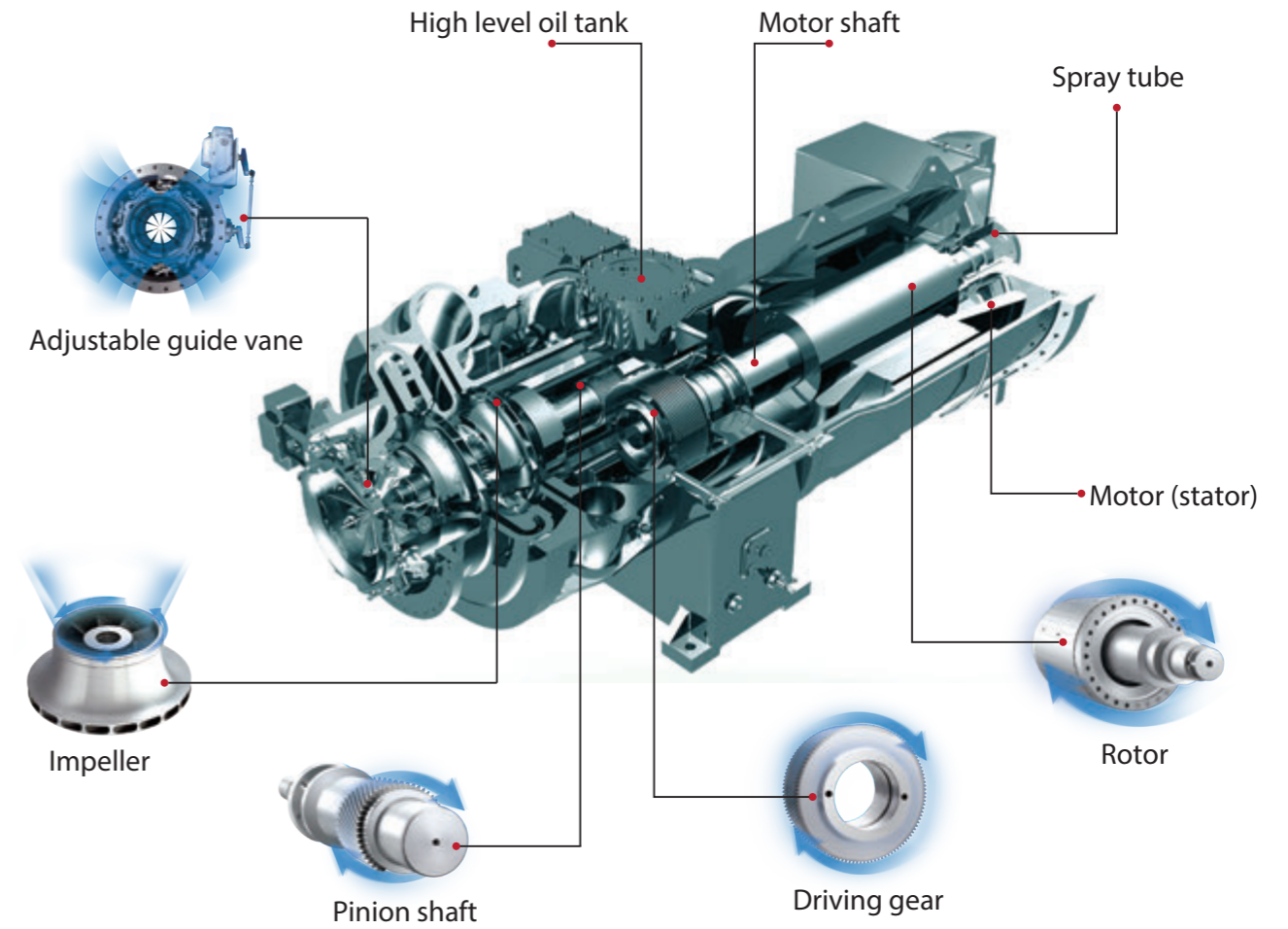
The condenser is the shell and tube type for easy service. The full falling-film evaporator is used in the dual-stage chiller.

**Environmentally friendly refrigeration**

R134a is environmentally friendly gas with zero ODP (Ozone Depletion Potential) and low GWP (Global Warming Potential). The R134a refrigeration enables no-phase-out gas and is a good choice for a large chiller.

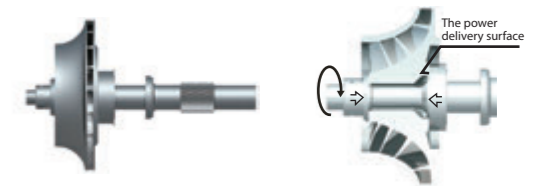
**Advanced system control and user friendly screen**

The system is controlled by industry type PLC with multiple functions and high stability. It is open protocol for RS 485 which is compatible for BMS. The control screen is user friendly with a 10-inch colour touch-screen.



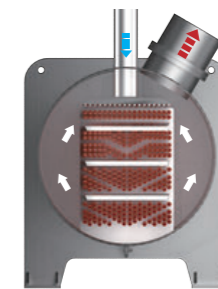
**Keyless impeller coupling a high-speed shaft**

The impeller is coupled to the shaft without a key to eliminate excess stress on the shaft. Ensures the high-speed shaft runs stably and extends its service life.



**Full falling-film heat exchange technology**

Unique spraying technology causes the liquid refrigerant to form a film on the tube surface and then evaporate. This technology increases the heat exchange rate by 3% to 8% and lowers refrigerant charges by 40%.

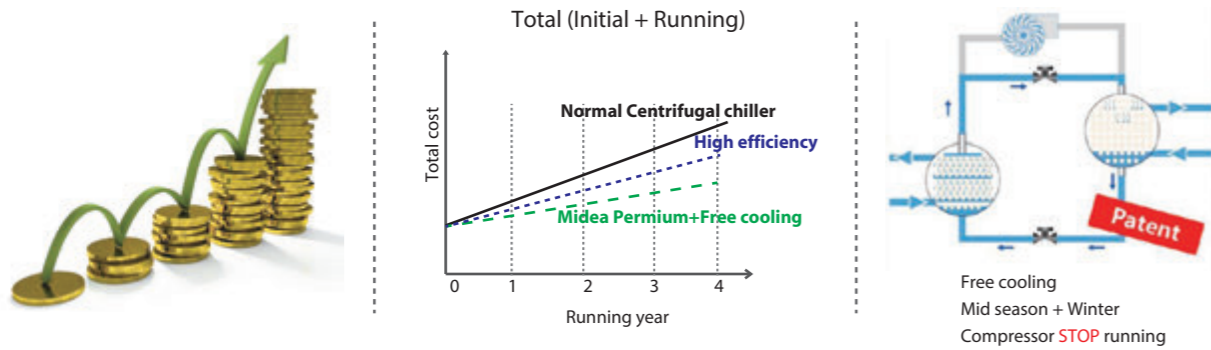


Mechanical Specification

# Features

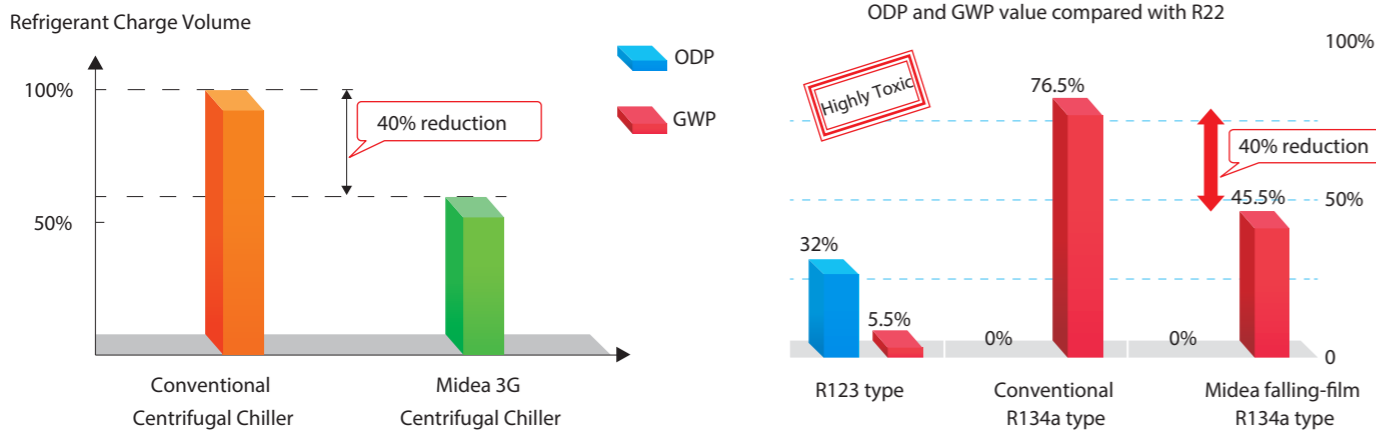
## High efficiency and low operating costs >>

The Midea centrifugal chiller has up to 6.3 COP under AHRI conditions. Helped by "free cooling" technology during transition seasons, no power is used. Both greatly reduce running costs.



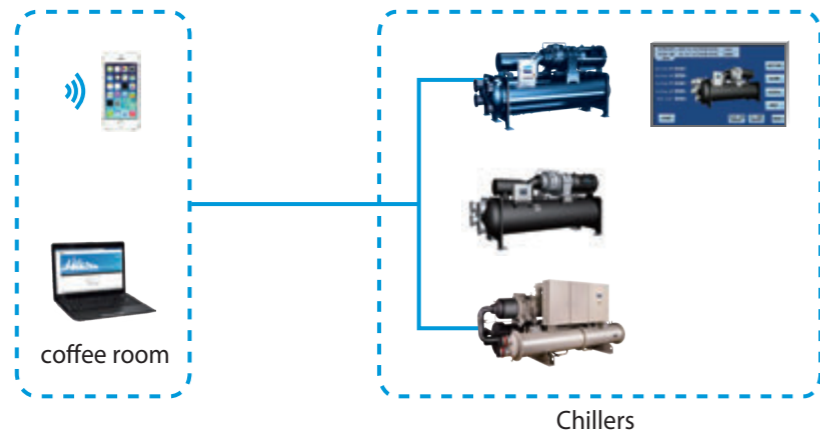
## Environmentally friendly >>

R134a is an environmentally friendly refrigerant that has zero ozone depletion potential and completely meets the Montreal Protocol without any phase-out plan. The full falling-film evaporator significantly improves heat exchange efficiency and reduces refrigerant charge volume by more than 40%.



## Simple and convenient operation >>

MCS (Midea Control System) doesn't have a BMS, but it can control and monitor chillers, provide pre-alarms and fast troubleshooting (via big data analytics), and give maintenance advice.



## Reliable quality >>

100% run-tested in the factory, High R&D investment and strict requirements on product quality ensure the high reliability of the product.

### ❖ 8000 kW chiller performance testing center

The 8000kW water cooled chiller testing stand is one of the most advanced testing facilities in the world. It can simulate all chiller running conditions such as the Chinese National standard testing range of (7°C/12°C, 30°C/35°C), the typical of the Chinese industry range of (7°C/12°C, 32°C/37°C), and the AHRI testing environment of (6.7°C/12.2°C, 29.4°C/34.6°C). It provides precise testing data for the IPLV and NPLV calculation. The witness testing service is optional for all the clients to ensure product performance. Every chiller is tested in the stand before shipping.



### ❖ 1500kW motor performance testing center

The 1500kW compressor motor testing lab simulates actual working conditions, providing an adjusted electrical factor for all the compressors. The cooling capacity ranges from 1200kW to 8000kW. The evaporating temperature ranges from -20°C to 40°C and condensing temperature ranges from 25°C to 80°C. It is one of the most advanced testing facilities in China



### ❖ The independent clean room for compressor assembly

The centrifugal chiller compressor assembly room is a clean and constant temperature control space. The core components for the compressor will be installed and tested here (the motor, gear, bearing, shaft, impeller, etc). Dynamic testing for high speed rotation part will be performed in the assemble room.



## Wide application >>

The Midea centrifugal chiller with a "wide range" compression ratio design works efficiently in a variety of conditions. These include large temperature difference with low water flow rate systems, variable primary flow systems, standard water source or groundwater systems and ice storage systems. In large projects, it is possible to minimize the initial investment and floor space by using large-capacity chillers.

## Long lifespan >>

Keyless impeller coupling and patent design reduces mechanical losses and uses well-known brand parts to ensure stable operations and improve reliability, stability and service life.

## Six Core Technologies

### Explore the Frontier of Aerodynamic Technology >>

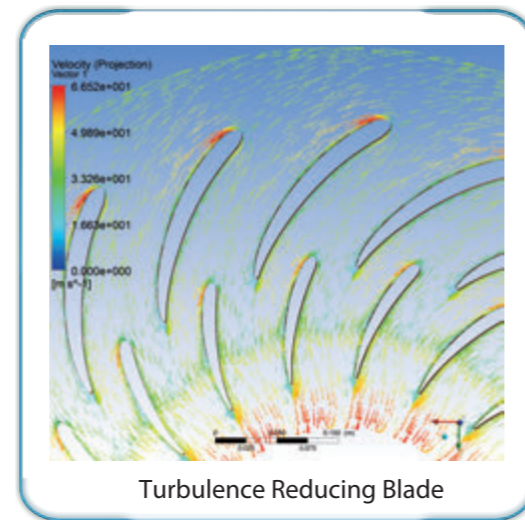
Full Flow Pass Optimization increases efficiency

The newly designed 3D flow impeller, coupled with the optimized volute, ensures flow velocity and maximizes efficiency

High Efficiency 3D Flow Impeller



The newly designed high efficiency 3D flow alloy impeller is produced at a German GMD 5-axis machine center. It benefits from high machine precision and 30% reduced impeller thickness, thus reducing the axial force loss and separation losses.

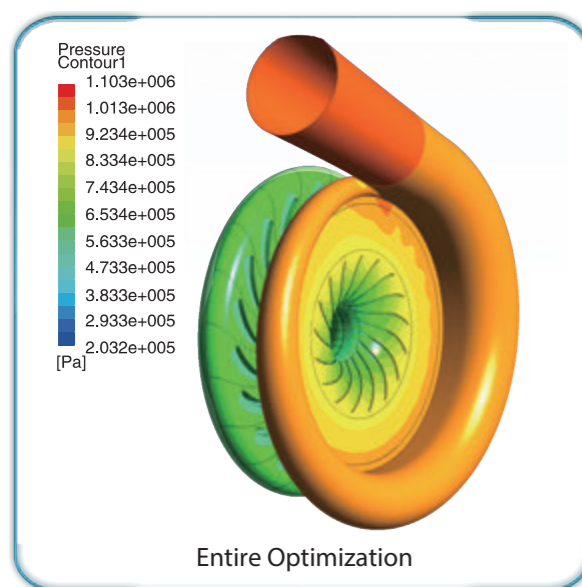


Aerodynamic loss balance design reduces the aerodynamic noise



Volute Model

Midea centrifugal compressor adopts the over-hung volute thus compacting the structure.

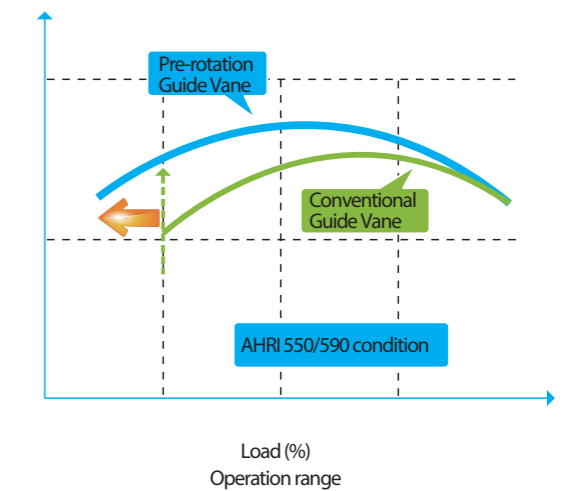
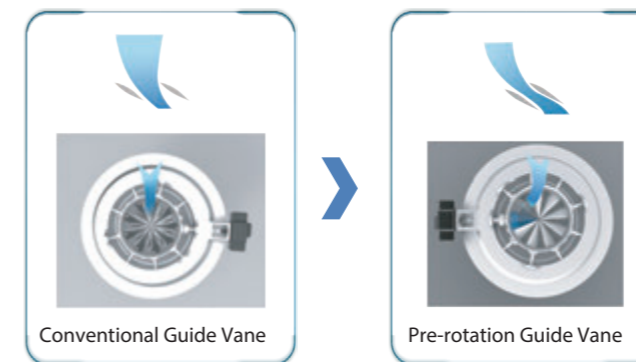


Entire Optimization

The gas flow perfectly matches the interior flow channel, reducing the loss of impact.

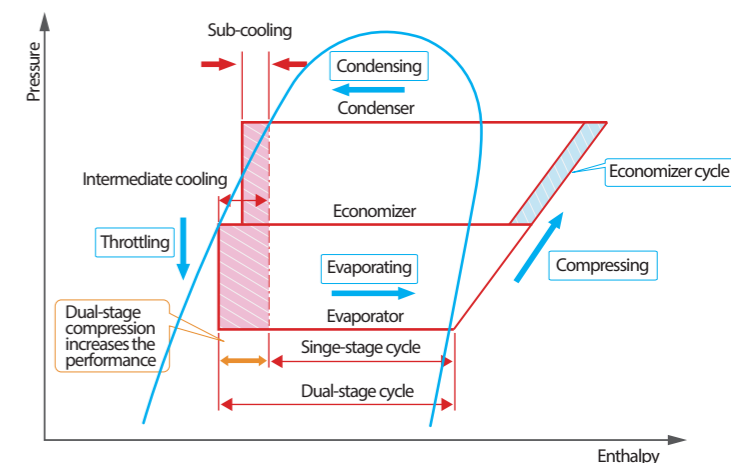
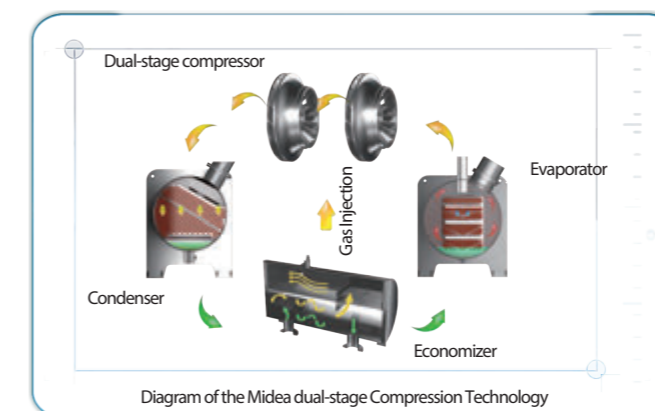
### Pre-rotation Guide Vane Technology >>

The compressor is equipped with an airfoil shaped pre-rotation guide vane, which produces rotation under different load conditions, thus extending the operation range and increasing part load efficiency.



### Dual-stage compression Technology >>

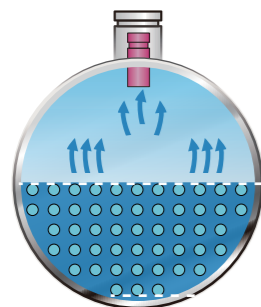
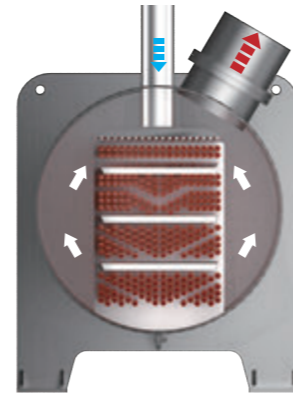
- ❖ Uniquely designed dual-stage compression technology enhances the heat absorption capacity of refrigerant, and lowers power consumption, which increases energy efficiency by 6% when compared to single stage compressor.
- ❖ The dual-stage impeller has an equal ratio compression design, which helps reduce rotation speed and enhance reliability.
- ❖ Unique three-stage separation economizer simplifies system design, making it reliable and effective.



## Unique Heat-exchanging Technology >>

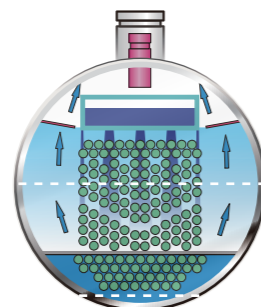
### ❖ Full Falling-film Evaporating Technology

Unique full falling-film evaporating technology: Spraying technology causes the liquid refrigerant form to evaporate on the surface of the evaporating tubes, which significantly boosts heat-exchange efficiency and reduces the refrigerant charge by 40%. Midea uses patented technologies to ensure the refrigerant is distributed evenly and liquid does not form in the evaporator, which expands the potential heat-exchanging capacity to its full potential and enhances the efficiency of the whole system.



Flooded type

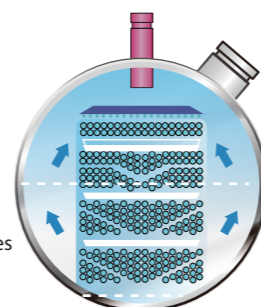
Full falling-film cuts refrigerant charges by 40% compared with the flooded type



Mixed falling film

Full falling-film achieves 25% less refrigerant charge than the mixed flooded type

40% reduction in refrigerant charges

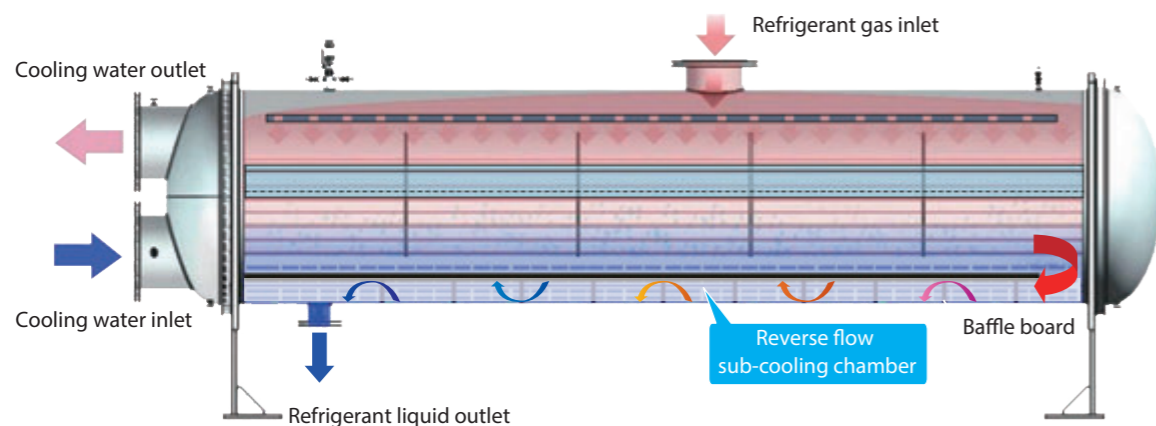


Full falling-film

Almost zero liquid level

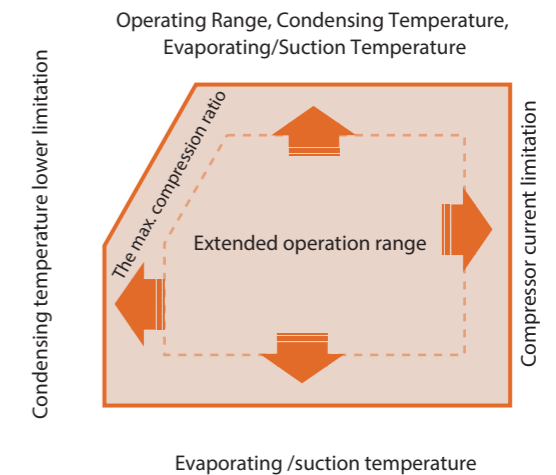
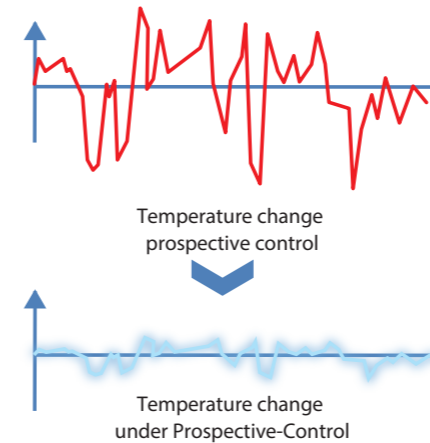
### ❖ Condenser

The highly efficient heat-exchanger and optimized structure enhance heat exchange performance. The design of a reverse flow sub-cooling chamber with multiple turbulence increases the sub-cooling level and improves performance.



## Prospective-Control Logic >>

The microcomputer control system's features include trend prediction, self-diagnosis, self-adjustment and safety protection. Capable of predicting real load changes according to target values and load level history, the system can modify the operating load and prevent energy waste.



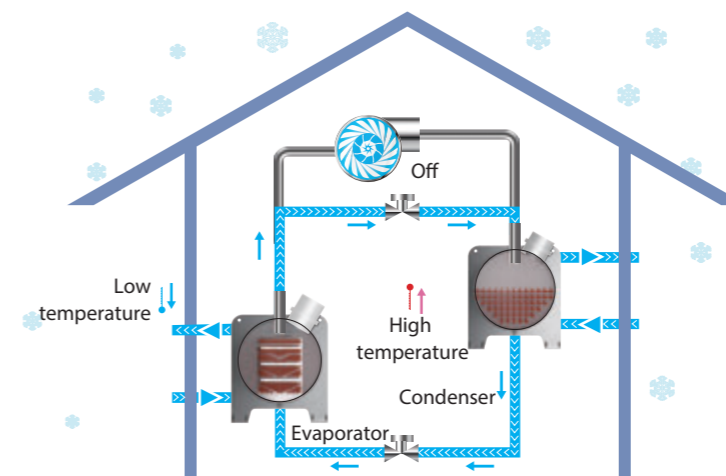
## Free Cooling Technology Refrigeration Migration >>

Midea Centrifugal Chillers feature 'Free Cooling Technology'. When outdoor temperatures are low and the interior spaces of large commercial buildings need cooling, the main unit will work in 'Free Cooling' mode. Free cooling is the production of chilled water without running a compressor.

The relative warm and energy are carried directly to the low-pressure condenser, where it is cooled and condensed by water from the cooling tower. Then the low-temperature liquid refrigerant flows to the evaporator driven by gravity, then it naturally circulates.

Costs are reduced due to the compressor's inactivity and zero power consumption of the main unit.

The principle is that the refrigerant tends to move towards the coldest point in a refrigeration circuit. It can generally be used in transition seasons such as late fall, winter and early spring.

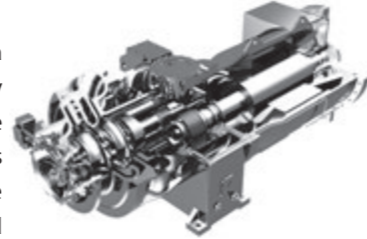


# Parts introduction

Advanced design platform improves the performance of impeller, volute and other key components of Midea centrifugal chillers, raising the isentropic efficiency of compressors up to 88.2%, increasing efficiency as well as the stability.

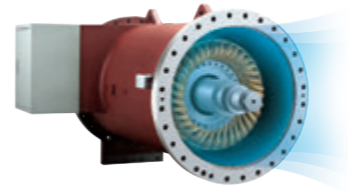
## Compressor >>

The centrifugal compressor adopts high-strength fully shrouded aluminum alloy impellers and a moveable inlet guide vane. The enclosed type impeller is designed for balanced thrust. It is dynamically balanced and overspeed-tested for smooth, vibration free operations. The airfoil-shaped inlet guide vane minimizes flow disruption for efficient part-load performance. The movement of the inlet guide vane is controlled by a mounted electric actuator that responds to the refrigeration load of the evaporator. The rotor assembly consists of a high-strength, heat-treated alloy steel drive shaft, guaranteeing strength and reliability.



## Motor >>

The Midea centrifugal chiller uses a semi-hermetic two-pole motor that is cooled by circulating refrigerant. Winding embedded sensors provide positive thermal protection for the motor. The asynchronous squirrel cage type motor achieves high operating performance and a long life span. The refrigerant cooled motor keeps motor heat out of the mechanical room and decreases vibrations and shaft seal maintenance compared with open motors. Refrigerant cooled motors have lower inrush currents and lower operating noise than the open motor, which is air cooled. Additional ventilation is not necessary. The motor is bolted to the compressor gear housing. The shaft labyrinth seal prevents refrigerant from leaking the motor to the gear box. The low-voltage motor provides six terminals for reducing the starting voltage (wye-delta or auto transformer start). The high-voltage motor provides three terminal posts for full voltage (across the line). Motor terminal pads are supplied. The terminal board is protected by a steel terminal box.



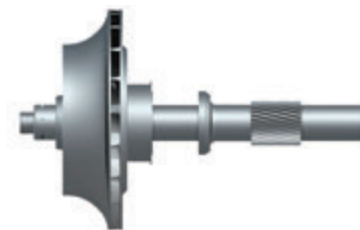
## Impeller And Inlet Guide Vane >>

The high-strength aluminum-alloy compressor impellers feature reversed -curved vanes for high efficiency. The airfoil-shaped inlet guide vanes minimize flow disruption for efficient part-load performance. Precisely positioned and tightly fitted, it allows the compressor to unload smoothly from 10% to 100% load output guaranteeing smooth operations under real conditions. Movement is controlled by a mounted electrical operator that responds to refrigeration load on the evaporator. Impellers are made from high-strength aluminum alloy, which is tested at 125% of the designed operating speed.



## Keyless Impeller Coupling >>

The impeller and main shaft are coupled by keyless connection. This eliminates stress concentration on the power transmission surface, greatly increasing the service life of the impeller. Since there is no friction, the efficiency is higher than the traditional key coupling. This unmatched mechanical design received an award from the State Intellectual Property Office of P.R.China. (Patent No.ZL 01 2 56825.2).



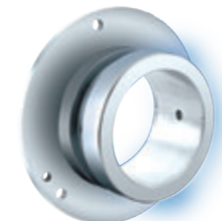
## Precise Gearing >>

The specially engineered, single helical gear with crowned teeth keep multiple teeth in contact at all times to provide even distribution of the compressor load and quiet operation. Gear tooth surfaces are case hardened and precision ground, which can reach class 5 Gears are integrally assembled in the compressor rotor support and are lubricated with oil. Each gear is individually mounted on its own journal and thrust bearings to isolate gears from the impeller and motor forces. The double layer soundproof compressor design prevents gear contact noise from escaping.



## Bearings >>

The motor is suitable for journal bearings to handle the radial load, axial load and drive speed. The slide bearing base has an embedded babbitt alloy covering that is softer than the main shaft, which protects the shaft if a fault occurs. The high-tech oil film lubrication design keeps the bearing and shaft minimizing contact, eliminating friction.



## Lower Sound Levels and Vibration >>

The specially engineered gearing, double soundproof gearbox structure, optimized impeller and tunnel design ensure our chillers achieve lower sound levels. A gear-driven compressor runs at higher impeller rotational speeds but tends to have less vibration than the larger, much heavier, direct drive units.

## Condenser Baffle >>

The baffle prevents direct impingement of high velocity compressor gas onto condenser tubes. This eliminates vibration and wears on the tubes, and distributes refrigerant flow evenly over the length of the condenser, thus increasing efficiency.

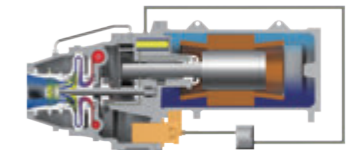
## Advanced Capacity Adjustment >>

The inlet guide vanes work with moveable diffusers, resulting in a stepless capacity range from 10% to 100% and is free of surges. The Inlet Guide Vane (IGV) is controlled by an actuator, which is directly run by the PLC. This technology was awarded a patent by the State Intellectual Property Office of P.R.China. (Patent No.ZL01 2 56824.4).



## Reliable Lubricant System >>

The lubrication system consists of an internal oil sump with oil heaters, positive displacement oil pump, brazed plate oil cooler, and oil return line. The high-position oil sump supplies oil to the gear surface for lubrication, preventing gear wear if a sudden power loss occurs.



## Oil Filter and Oil cooler >>

A plate-type oil cooler is mounted in the factory on the side of the compressor. An external oil filter and oil cooler simplifies maintenance and filter replacement. Replacing the oil filter or oil cooler can be completed after the isolation valve in the pipe line is closed.



## Unmatched Oil Reclaim System >>

When the chiller unit is running, a small amount of lube may interfuse with the refrigerant. The Midea patented oil reclaim system is designed to return the oil from the heat exchanger back to the oil tank. Improving the refrigerant purity, therefore increasing thermal exchange efficiency and supplying sufficient oil to compressor.

## Low Inrush Current >>

The standard starter for the Midea centrifugal chiller is popular for centrifugal chiller applications; i.e., the wye-delta starter. The motor windings first connect in a "wye" configuration to reduce inrush current to 33.3% of locked rotor amps, producing 33.3% of the normal starting torque. After a brief delay (transition time), the electrical load is momentarily transitioned to resistance, while the motor windings are changed to the "delta" configuration. The resistance minimize the second inrush current when the delta configuration becomes active. The soft start and VSD are also available for various applications.

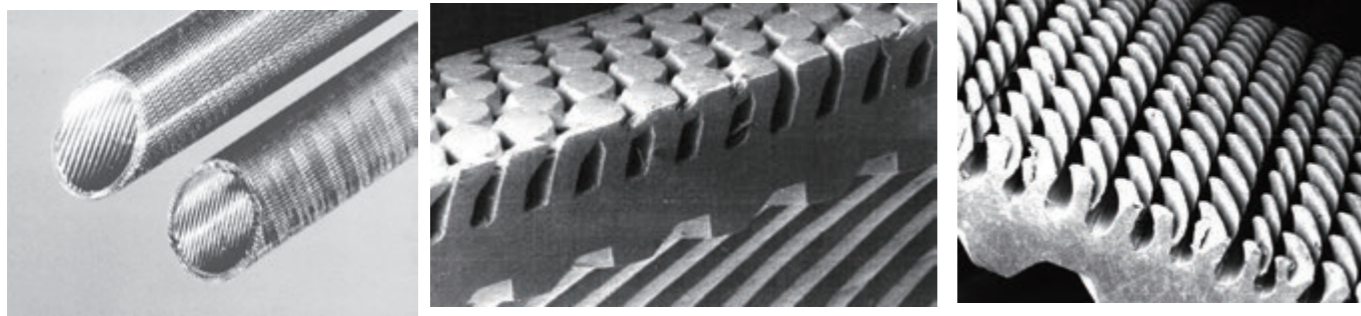
## 100% Factory Run-Tested >>

After assembly, the unit will go through a complete performance test in the test center. The benefits of performance testing include verifying performance, preventing operating problems and assurance of smooth start-up. A chiller that has been tested is operationally and performance-proven.



## Heat Exchanger Tube >>

High-efficiency, externally and internally enhanced heat exchanger tubes provide optimum performance. Tubes in both the evaporator and condenser are 3/4" O.D. with an internal and external surface made from copper alloy. This provides extra wall thickness (up to twice as thick) and non-work hardened copper at the support location, extending the life span of the heat exchanger. Each tube is expanded by roller into the tube sheets, providing a leakproof seal. The tubes are individually replaceable. Copper alloy comes as standard and is 90/10 copper-nickel. 304 stainless steel or titanium can be customized.

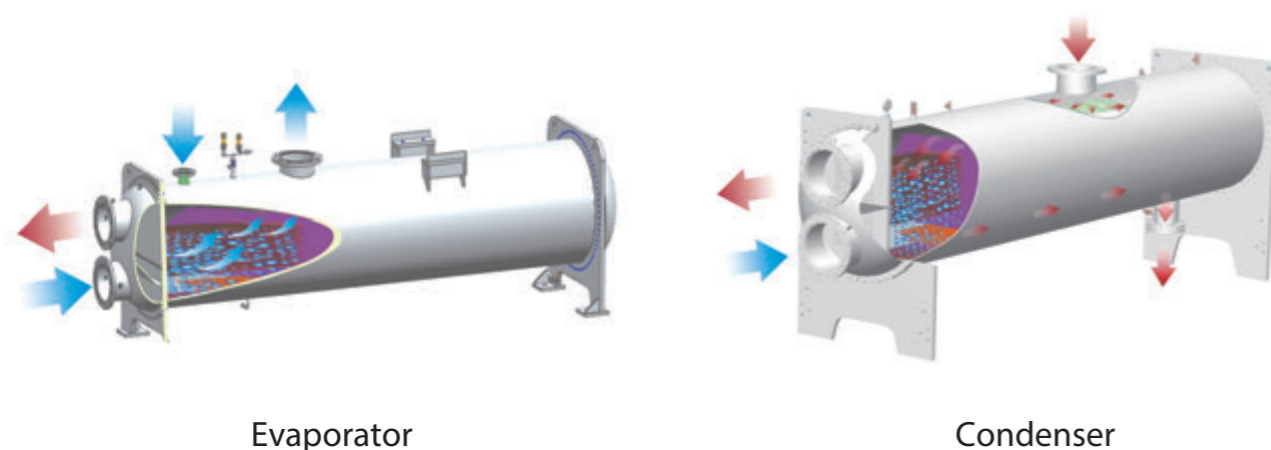


## Evaporator >>

The evaporator is a shell and tube-type heat exchanger. A flow equalizer uniformly distributes refrigerant over the entire tube length to optimize heat transfer. The evaporator shell contains a dual refrigerant relief valve arrangement set at 185 PSIG (1280 kPa) or a single-relief valve arrangement. The intermediate tube support sheets positioned along the shell axis prevent relative tube motion. The waterside is hydraulic tested at 1.5 x the maximum working pressure.

## Condenser >>

The condenser is the shell and tube type that includes a discharge gas baffle for preventing direct high velocity gas impingement on the tubes. The baffle is also used to distribute the refrigerant gas flow properly for the most efficient heat transfer. An integral sub-cooler is located on the bottom of the condenser shell, providing highly effective liquid refrigerant subcooling, giving the highest cycle efficiency. Dual-stage compressing using the economizer can improve efficiency by 5% to 8%. The condenser contains a refrigerant relief valve sets at 1.6MPa. Standard maximum waterside working pressure is 1.0MPa. The waterside is hydraulic tested at 1.5 x the maximum working pressure.



Evaporator

Condenser

## Water Box >>

The removable water boxes are fabricated from steel. The design working pressure is 150 PSIG (1034 kPa) and the boxes are tested at 225 PSIG (1551 kPa). Integral steel water baffles are located and welded within the water box to provide the integrity required to pass test conditions. The nozzle connections are suitable for flanges and are capped when shipped. Plugged 3/4" drain and vent connections are provided in each water box.



## Orifice >>

There are three refrigerant control devices used in the industry: electrical expansion valves, fixed orifices, and float systems. Midea standard efficiency uses the fixed orifice without any moving parts, increasing reliability. The high-efficiency, super high efficiency series centrifugal chiller is equipped with the orifice as well as electronic ball valve plus liquid level control technology to improve the efficiency of partial loads. These matches ensure that the chiller works stably in any working situation and improves IPLV and NPLV significantly.

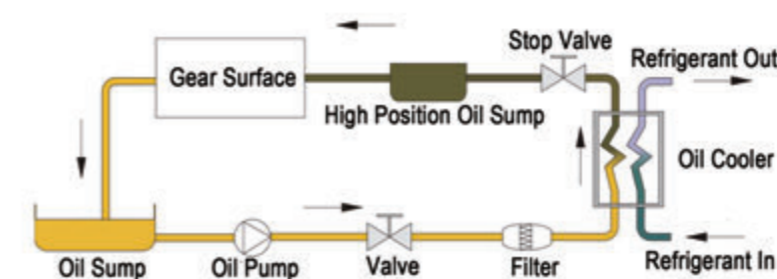
## Control Panel >>

Midea adopts the state-of-the-art microprocessor control system with a durable 10.4-inch LCD touchscreen. The LCD touchable screen features graphical display of chiller parameters, so fast and easy access make operation relatively simple. It also can communicate with the user's PC and enable the remote control of start/stop and the cooling system. More than 30 protection features are used to make the chiller's operations secure and reliable. The latest 10 failure reports can be recorded for querying.



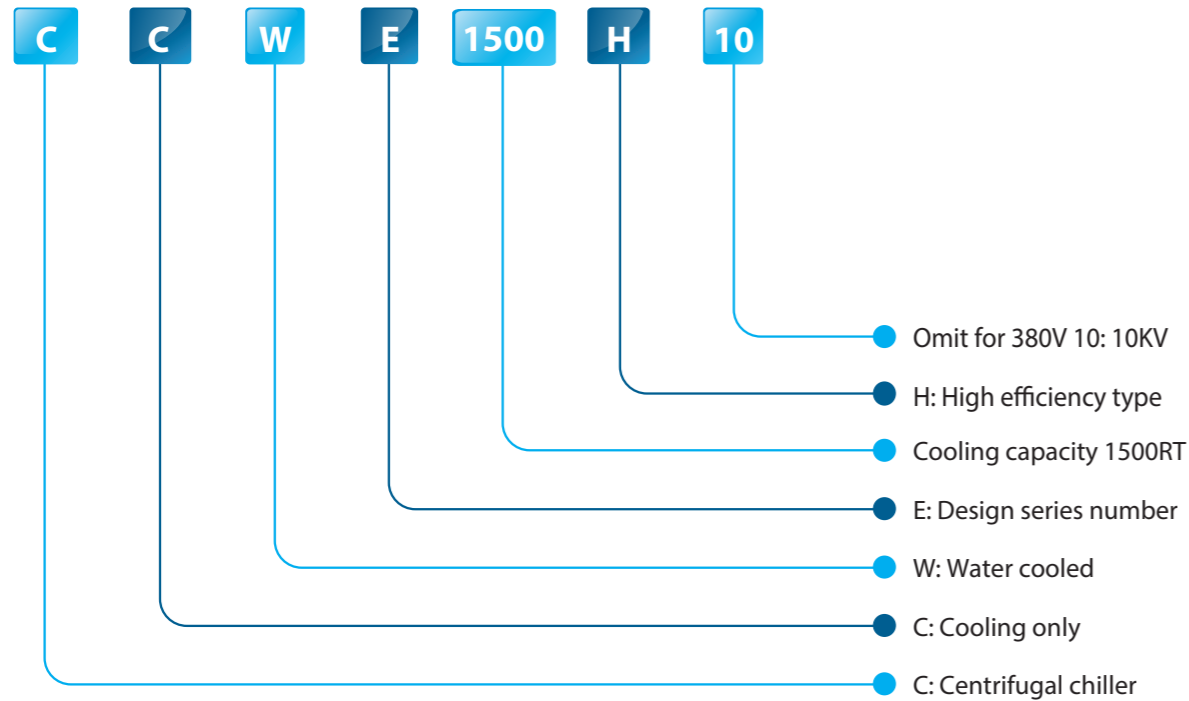
## Lubrication System >>

A separately driven electric oil pump assembly supplies lubricant to the compressor at the correct temperature and pressure. After filtration the oil is sent to the oil cooler after adjusting. After adjusting its pressure, it is transferred to the bearings. Specially designed seals are installed on the inner side of motor bearings at both ends to minimize lubricant from leaking into the main motor and prevent contamination of the R134a in the evaporator. An electric heater is used inside the oil tank to maintain suitable oil temperature all the time. Oil temperature is thus maintained in the event of a compressor shutdown. This prevents R134a gas from entering the oil and decreasing lubrication efficiency. While the compressor is shut down, it is necessary to keep the oil heater on to maintain the oil at a certain temperature. If the compressor falls out of service for an extended period of time, running the oil heater is still required.



# High Efficiency Series

## Nomenclature >>



## Specifications

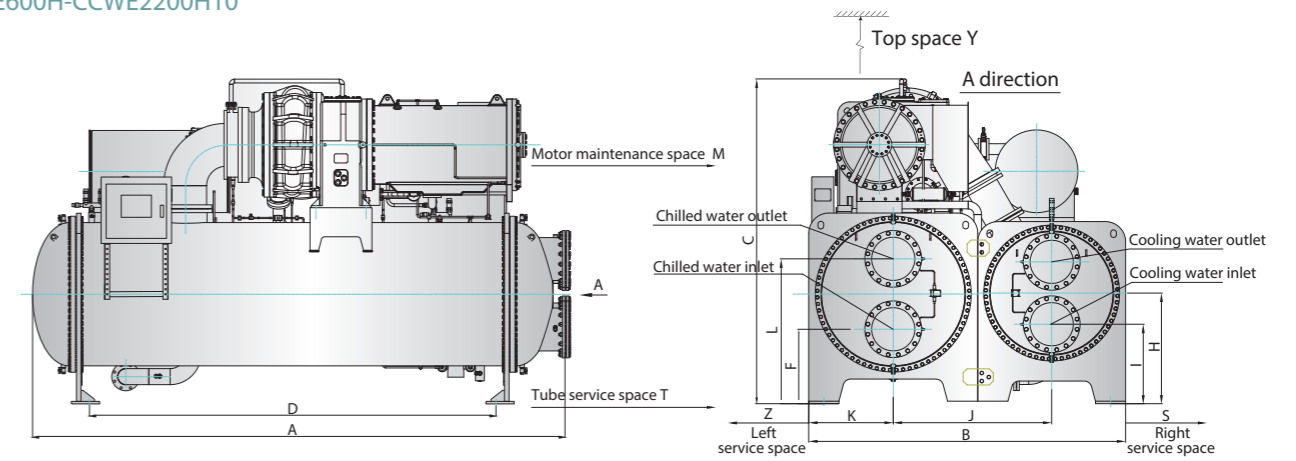
Model(CCWE****H)		600	650	700	750	800	850	900	950	1000	1100	1200	1300	
Cooling capacity	RT	600	650	700	750	800	850	900	950	1000	1100	1200	1300	
	kW	2110	2285	2461	2637	2813	2989	3164	3340	3516	3868	4219	4571	
	10 <sup>4</sup> kcal/h	181	197	212	227	242	257	272	287	302	333	363	393	
Efficiency	Running power	kW	346.9	375.3	404.3	433.4	465.7	493.6	520.9	546.4	576.5	630.5	685.9	744.1
		kW/Ton	0.5783	0.5774	0.5777	0.5779	0.5823	0.5808	0.5788	0.5753	0.5766	0.5732	0.5717	0.5724
	COP	Btu/W.h	20.75	20.78	20.77	20.76	20.61	20.66	20.73	20.86	20.81	20.93	20.99	20.96
		kW/kW	6.08	6.09	6.09	6.08	6.04	6.05	6.07	6.11	6.10	6.13	6.15	6.14
Compressor	Motor input power	kW	490	490	490	490	490	560	560	560	630	695	760	840
	Power supply	380V/10KV-3Ph-50Hz												
	Motor cooled by	Refrigerant												
Evaporator	Chilled water flow rate	gpm	1440	1560	1680	1800	1920	2040	2160	2280	2400	2639	2879	3119
		m <sup>3</sup> /h	327	354	382	409	436	463	491	518	545	599	654	708
	Chilled water pressure drop	ft/wg	15.3	17.7	18.1	18.7	18.6	19.2	19.9	19.5	20.0	19.8	19.5	22.6
		kPa	46.6	53.9	55.2	57.0	56.7	58.5	60.7	59.4	61.0	60.4	59.4	68.9
	Pass	2												
	Chilled water inlet/outlet temperature	°C	12.22/6.67											
°F		54/44												
Connection type	Flange													
Water pipe inlet/outlet diameter	mm	DN300												
Fouling factor	m <sup>2</sup> .°C/kW	0.018												
	h.ft <sup>2</sup> .°F/Btu	0.000100												
Cooling water flow rate	gpm	1785	1930	2078	2232	2378	2530	2675	2828	2976	3269	3564	3862	
	m <sup>3</sup> /h	405	438	472	507	540	575	607	642	676	742	809	877	
	ft/wg	19.4	22.4	22.6	22.4	22.2	24.2	23.6	21.7	23.3	21.7	21.1	24.4	
Cooling water pressure drop	Kpa	59.1	68.3	68.9	68.3	67.7	73.8	71.9	66.1	71.0	66.1	64.3	74.4	
	Pass	2												
Cooling water inlet/outlet temperature	°C	29.44/34.61												
	°F	85.0/94.3												
Connection type	Flange													
Water pipe inlet/outlet diameter	mm	DN300												
Fouling factor	m <sup>2</sup> .°C/kW	0.044												
	h.ft <sup>2</sup> .°F/Btu	0.000250												
Weight	Shipping weight	kg	11070	11120	11190	11270	11355	11425	11494	11920	12067	12235	12380	12480
	Running weight	kg	13020	13100	13209	13350	13564	13712	13839	14532	14773	15108	15376	15500
Dimension	Unit length	mm	4690	4690	4690	4690	4690	4690	4755	4755	4755	4755	4755	
	Unit width	mm	1950	1950	1950	1950	1950	1950	2260	2260	2260	2260	2260	
	Unit height	mm	2410	2410	2410	2410	2410	2410	2410	2610	2610	2610	2610	
	Packing length (Simple)	mm	4690	4690	4690	4690	4690	4690	4690	4745	4745	4745	4745	
	Packing width (Simple)	mm	1950	1950	1950	1950	1950	1950	1950	2260	2260	2260	2260	
	Packing height (Simple)	mm	2600	2600	2600	2600	2600	2600	2600	2800	2800	2800	2800	

Note:  
 1.Nominal cooling capacities are based on the AHRI STANDARD 550/590(I-P)-2015;  
 2.The working pressure of the water side for both the evaporator and condenser are 1.0MPa, 1.6Mpa,2.0Mpa can be customized.  
 3.As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate parameters and in-kind;

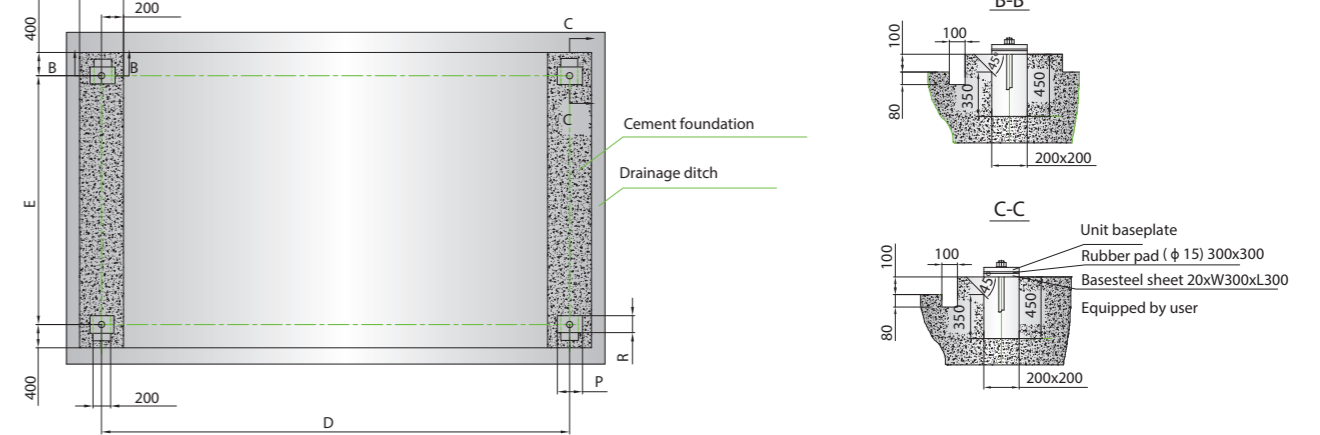
Model(CCWE****H10)		1400	1500	1600	1700	1800	1900	2000	2100	2200	
Cooling capacity	RT	1400	1500	1600	1700	1800	1900	2000	2100	2200	
	kW	4922	5274	5626	5977	6329	6680	7032	7384	7735	
	10 <sup>4</sup> kcal/h	423	454	484	514	544	575	605	635	665	
Efficiency	Running power	kW	800.6	855.7	916.7	975.8	1022.0	1082.0	1143.0	1187.0	1268.0
		kW/Ton	0.5720	0.5706	0.5732	0.5743	0.5678	0.5695	0.5717	0.5654	0.5766
	COP	Btu/W.h	20.98	21.03	20.94	20.90	21.13	21.07	20.99	21.22	20.81
		kW/kW	6.15	6.16	6.14	6.12	6.19	6.17	6.15	6.22	6.10
Compressor	Motor input power	kW	840	930	990	1100	1100	1200	1200	1320	1320
	Power supply	10KV-3Ph-50Hz									
	Motor cooled by	Refrigerant									
Evaporator	Chilled water flow rate	gpm	3359	3599	3839	4079	4319	4559	4799	5039	5279
		m <sup>3</sup> /h	771	817	872	926	981	1035	1090	1144	1199
	Chilled water pressure drop	ft/wg	21.2	20.3	19.8	22.3	23.6	22.1	22.4	22.4	22.4
		kPa	64.6	61.9	60.4	68.0	71.9	67.4	68.3	68.3	68.3
	Pass	2									
	Chilled water inlet/outlet temperature	°C	12.22/6.67								
		°F	54/44								
Connection type	Flange										
Water pipe inlet/outlet diameter	mm	DN400									
Fouling factor	m <sup>2</sup> .°C/kW	0.018									
	h.ft <sup>2</sup> .°F/Btu	0.000100									
Condenser	Cooling water flow rate	gpm	4162	4460	4755	5059	5348	5652	5946	6234	6547
		m <sup>3</sup> /h	945	1013	1080	1149	1215	1284	1350	1416	1487
	Cooling water pressure drop	ft/wg	23.1	24.2	23.8	26.8	26.0	25.2	21.1	21.1	21.2
		Kpa	70.4	73.8	72.5	81.7	79.2	76.8	64.3	64.3	64.6
Pass	2										
Cooling water inlet/outlet temperature	°C	29.44/34.61									
	°F	85.0/94.3									
Connection type	Flange										
Water pipe inlet/outlet diameter	mm	DN400									
Fouling factor	m <sup>2</sup> .°C/kW	0.044									
	h.ft <sup>2</sup> .°F/Btu	0.000250									
Weight	Shipping weight	kg	19370	20150	20850	21450	23360	23590	23870	24120	24350
	Running weight	kg	22790	23490	24260	25160	26840	27290	27740	27976	28210
Dimension	Unit length	mm	5190	5190	5190	5190	5290	5290	5290	5290	5290
	Unit width	mm	2700	2700	2700	2700	3150	3150	3150	3150	3150
	Unit height	mm	2900	2900	2900	2900	3180	3180	3180	3180	3180
	length (Simple)	mm	5190	5190	5190	5190	5290	5290	5290	5290	5290
	width (Simple)	mm	2700	2700	2700	2700	3150	3150	3150	3150	3150
	height (Simple)	mm	3200	3200	3200	3200	3400	3400	3400	3400	3400

Note:  
 1.Nominal cooling capacities are based on the AHRI STANDARD 550/590(I-P)-2015;  
 2.The working pressure of the water side for both the evaporator and condenser are 1.0MPa, 1.6Mpa,2.0Mpa can be customized.  
 3.As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate parameters and in-kind;

CCWE600H-CCWE2200H10



Foundation arrangement drawing 1:25



Unit:mm

Model	Dimension			Support				Pipe locate position						Evaporator	Condenser
	A	B	C	D	E	P	R	F	L	K	I	H	J		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
CCWE600H	4690	1950	2410	3780	1750	240	200	530	990	500	580	1040	975	DN300	DN300
CCWE650H															
CCWE700H															
CCWE750H															
CCWE800H															
CCWE850H															
CCWE900H	4755	2260	2610	3780	2060	240	200	585	1085	592.5	650	1120	1130	DN300	DN300
CCWE950H															
CCWE1000H															
CCWE1100H															
CCWE1200H															
CCWE1300H															
CCWE1400H10	5190	2700	2900	4040	2400	280	300	640	1240	725	650	1250	1350	DN400	DN400
CCWE1500H10															
CCWE1600H10															
CCWE1700H10															
CCWE1800H10															
CCWE1900H10															
CCWE2000H10	5290	3150	3180	4040	2850	280	300	740	1440	840	790	1410	1575	DN400	DN400
CCWE2100H10															
CCWE2200H10															
CCWE2200H10															

CCWE600H~2200H10	Maintenance space size(mm)				
	M	T	Y	Z	S
CCWE600H~1300H10	1500	4600	1300	1300	1000
CCWE1400H10~2200H10	1600	4600	1300	1800	1000

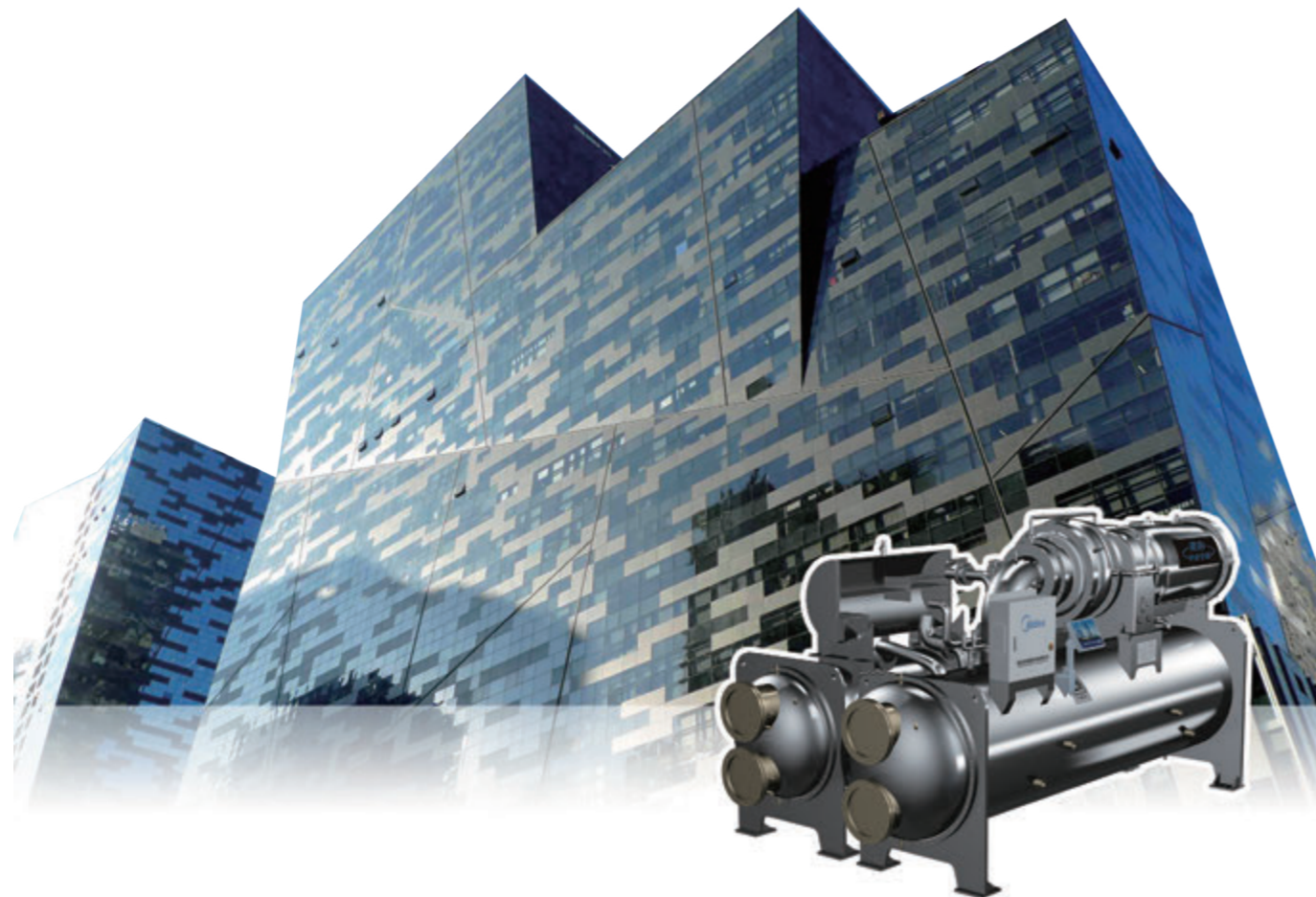
Note: T represents tube service space. Both sides are okay.

# Super High Efficiency Series

## Nomenclature >>



- Omit for 380V 10: 10KV
- E: Super high efficiency type
- Cooling capacity 1500RT
- E: Design series number
- W: Water cooled
- C: Cooling only
- C: Centrifugal chiller



## Specifications

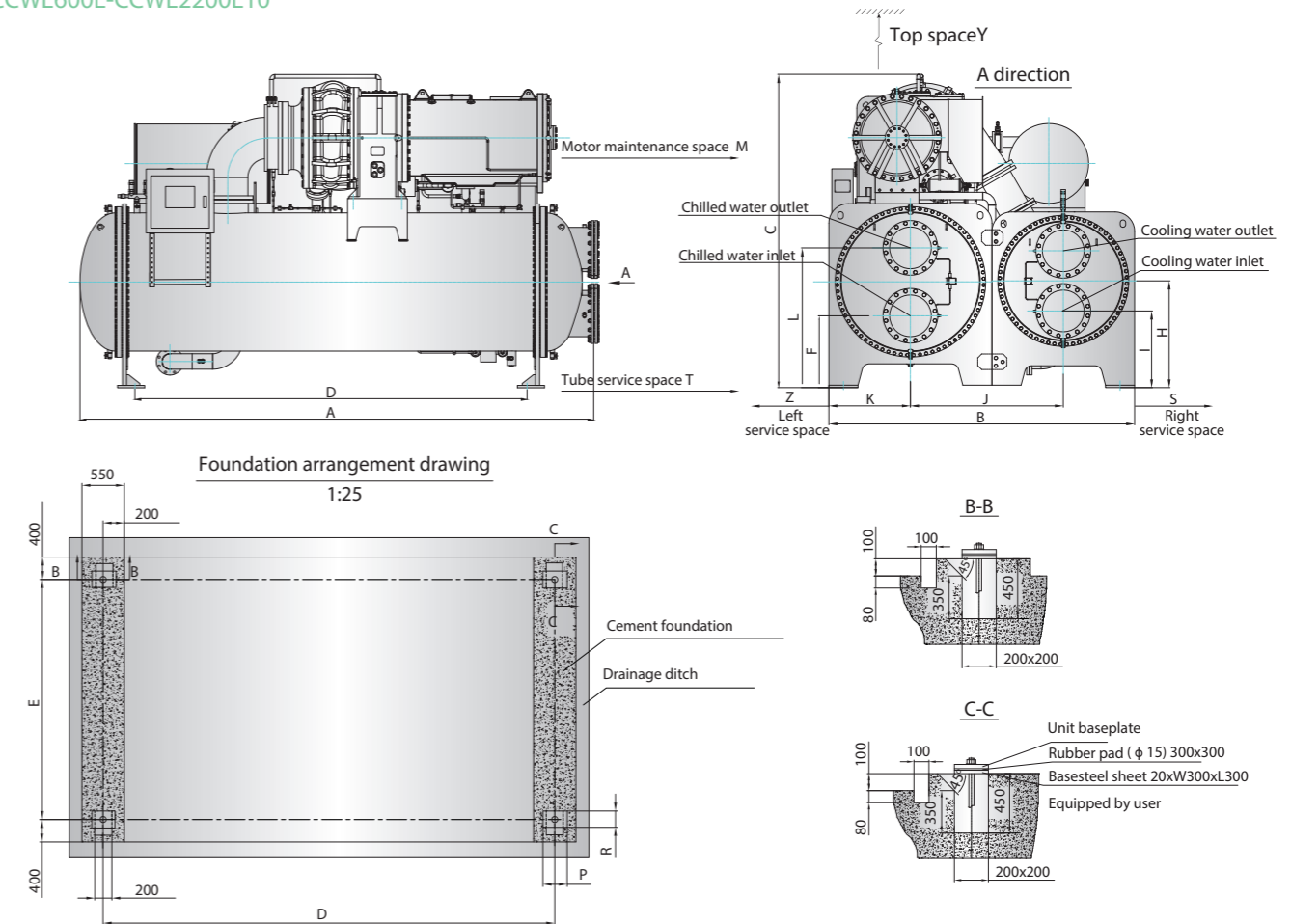
Model(CCWE****E)		600	650	700	750	800	850	900	950	1000	1100	1200	1300		
Cooling capacity	RT	600	650	700	750	800	850	900	950	1000	1100	1200	1300		
	kW	2110	2285	2461	2637	2813	2989	3164	3340	3516	3868	4219	4571		
	10*kcal/h	181	197	212	227	242	257	272	287	302	333	363	393		
Efficiency	Running power	kW		339.5	366.6	394.3	422.2	449.1	447.0	505.5	537.1	559.6	614.9	669.6	723.7
	COP	kW/Ton		0.5560	0.5642	0.5635	0.5630	0.5616	0.5614	0.5618	0.5655	0.5596	0.5590	0.5580	0.5568
		Btu/W.h		21.20	21.27	21.30	21.31	21.37	21.38	21.36	21.22	21.44	21.46	21.50	21.55
kW/kW		6.21	6.23	6.24	6.24	6.26	6.26	6.26	6.22	6.28	6.29	6.30	6.31		
Compressor	Motor input power	kW		490	490	490	490	490	560	560	560	630	695	695	760
	Power supply	380V/10KV-3Ph-50Hz													
	Motor cooled by	Refrigerant													
Evaporator	Chilled water flow rate	gpm	1440	1560	1680	1800	1920	2040	2160	2280	2400	2639	2879	3119	
		m <sup>3</sup> /h	327	354	382	409	436	463	491	518	545	599	654	708	
	Chilled water pressure drop	ft/wg	13.1	15.4	15.6	16.3	16.3	17.1	17.5	16.9	17.4	17.4	17.4	20.0	
kPa		39.9	46.9	47.5	49.7	49.7	52.1	53.3	51.5	53.0	53.0	53.0	61.0		
Evaporator	Pass	2													
	Chilled water inlet/outlet temperature	°C	12.22/6.67												
		°F	54/44												
	Connection type	Flange													
	Water pipe inlet/outlet diameter	mm	DN300												
	Fouling factor	m <sup>2</sup> .°C/kW	0.018												
h.ft <sup>2</sup> .°F/Btu		0.000100													
Condenser	Cooling water flow rate	gpm	1778	1925	2074	2222	2370	2519	2667	2821	2968	3260	3551	3854	
		m <sup>3</sup> /h	404	437	471	505	538	572	606	641	674	740	806	875	
	Cooling water pressure drop	ft/wg	16.9	19.7	20.1	20.1	20.0	19.0	21.0	19.5	20.8	19.5	19.2	22.2	
Kpa		51.5	60.0	61.3	61.3	61.0	57.9	64.0	59.4	63.4	59.4	58.5	67.7		
Condenser	Pass	2													
	Cooling water inlet/outlet temperature	°C	29.44/34.61												
		°F	85.0/94.3												
	Connection type	Flange													
	Water pipe inlet/outlet diameter	mm	DN300												
	Fouling factor	m <sup>2</sup> .°C/kW	0.044												
h.ft <sup>2</sup> .°F/Btu		0.000250													
Weight	Shipping weight	kg	12130	12130	12310	12460	12580	12720	12850	13560	13730	13950	14250	14250	
	Running weight	kg	14280	14310	14529	14740	14989	15207	15395	16372	16636	17023	17446	17470	
Dimension	Unit length	mm	5020	5020	5020	5020	5020	5020	5020	5045	5045	5045	5045	5045	
	Unit width	mm	2100	2100	2100	2100	2100	2100	2100	2260	2260	2260	2260	2260	
	Unit height	mm	2510	2510	2510	2510	2510	2510	2510	2610	2610	2610	2610	2610	
	length (Simple)	mm	5020	5020	5020	5020	5020	5020	5020	5045	5045	5045	5045	5045	
	width (Simple)	mm	2100	2100	2100	2100	2100	2100	2100	2260	2260	2260	2260	2260	
	height (Simple)	mm	2700	2700	2700	2700	2700	2700	2700	2800	2800	2800	2800	2800	

Note:  
 1.Nominal cooling capacities are based on the AHRI STANDARD 550/590(I-P)-2015;  
 2.The working pressure of the water side for both the evaporator and condenser are 1.0MPa, 1.6Mpa,2.0Mpa can be customized.  
 3.As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate parameters and in-kind;

Model(CCWE****E)		1400	1500	1600	1700	1800	1900	2000	2100	2200	
Cooling capacity	RT	1400	1500	1600	1700	1800	1900	2000	2100	2200	
	kW	4922	5274	5626	5977	6329	6680	7032	7384	7735	
	10 <sup>4</sup> kcal/h	423	454	484	514	544	575	605	635	665	
Efficiency	Running power	kW	777.6	833.1	884.2	912.5	964.1	1011.0	1074.0	1143.0	1216.0
	COP	kW/Ton	0.5556	0.5555	0.5528	0.5368	0.5357	0.5323	0.5369	0.5443	0.5527
		Btu/W.h	21.60	21.60	21.71	22.35	22.40	22.54	22.35	22.04	21.71
		kW/kW	6.33	6.33	6.36	6.55	6.56	6.60	6.55	6.46	6.36
Compressor	Motor input power	kW	840	930	930	990	1100	1100	1200	1200	1320
	Power supply	10KV-3Ph-50Hz									
	Motor cooled by	Refrigerant									
Evaporator	Chilled water flow rate	gpm	3359	3599	3839	4079	4319	4559	4799	5039	5279
		m <sup>3</sup> /h	763	817	872	926	981	1035	1090	1144	1199
	Chilled water pressure drop	ft/wg	20.0	19.0	18.4	20.0	21.0	19.8	20.2	20.1	20.5
		kPa	61.0	57.9	56.1	61.0	64.0	60.4	61.6	61.3	62.5
	Pass	2									
	Chilled water inlet/outlet temperature	°C	12.22/6.67								
°F		54/44									
Connection type	Flange										
Water pipe inlet/outlet diameter	mm	DN400									
Fouling factor	m <sup>2</sup> .°C/kW	0.018									
	h.ft <sup>2</sup> .°F/Btu	0.000100									
Condenser	Cooling water flow rate	gpm	4146	4444	4733	5019	5309	5604	5899	6214	6518
		m <sup>3</sup> /h	942	1009	1075	1140	1206	1273	1340	1411	1480
	Cooling water pressure drop	ft/wg	20.5	22.1	21.3	24.5	23.2	22.5	19.2	18.9	20.8
Kpa		62.5	67.4	64.9	74.7	70.7	68.6	58.5	57.6	63.4	
Pass	2										
Cooling water inlet/outlet temperature	°C	29.44/34.61									
	°F	85.0/94.3									
Connection type	Flange										
Water pipe inlet/outlet diameter	mm	DN400									
Fouling factor	m <sup>2</sup> .°C/kW	0.044									
	h.ft <sup>2</sup> .°F/Btu	0.000250									
Weight	Shipping weight	kg	22324	22515	24030	24817	25312	25543	25949	26250	26314
	Running weight	kg	25944	26055	27640	28727	28992	29443	30019	30306	30374
Dimension	Unit length	mm	5690	5690	5690	5690	5790	5790	5790	5790	5790
	Unit width	mm	2800	2800	2800	2800	3150	3150	3150	3150	3150
	Unit height	mm	2900	2900	2900	2900	3180	3180	3180	3180	3180
	length (Simple)	mm	5690	5690	5690	5690	5790	5790	5790	5790	5790
	width (Simple)	mm	2800	2800	2800	2800	3150	3150	3150	3150	3150
height (Simple)	mm	3200	3200	3200	3200	3400	3400	3400	3400	3400	

Note:  
 1.Nominal cooling capacities are based on the AHRI STANDARD 550/590(I-P)-2015;  
 2.The working pressure of the water side for both the evaporator and condenser are 1.0MPa, 1.6Mpa,2.0Mpa can be customized.  
 3.As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate parameters and in-kind;

CCWE600E-CCWE2200E10

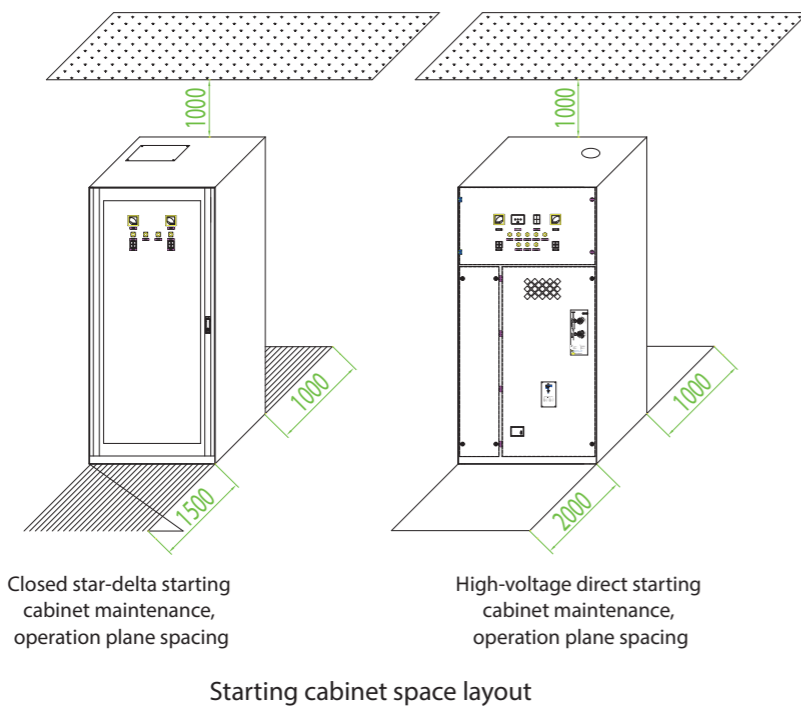
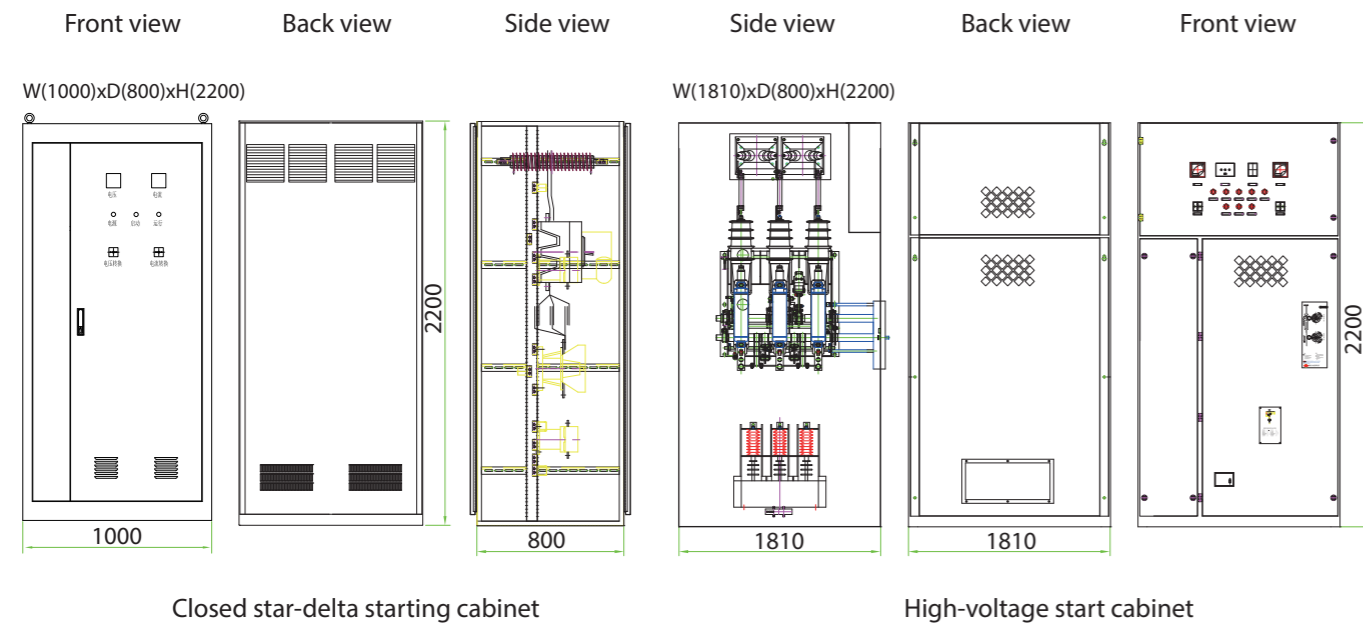


Model	Dimension			Support				Pipe locate position						Evaporator	Condenser
	A	B	C	D	E	P	R	F	L	K	I	H	J		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
CCWE600E	5020	2100	2510	3780	1750	240	200	530	990	500	580	1040	975	DN300	DN300
CCWE650E															
CCWE700E															
CCWE750E															
CCWE800E															
CCWE850E															
CCWE900E	5045	2260	2610	3780	2060	240	200	585	1085	592.5	650	1120	1130	DN300	DN300
CCWE950E															
CCWE1000E															
CCWE1100E															
CCWE1200E	5790	3150	3180	4040	2850	280	300	740	1440	840	790	1410	1575	DN400	DN400
CCWE1300E															
CCWE1400E10															
CCWE1500E10															
CCWE1600E10															
CCWE1700E10															
CCWE1800E10															
CCWE1900E10															
CCWE2000E10															
CCWE2100E10															
CCWE2200E10															

CCWE600E~2200E10	Maintenance space size(mm)				
	M	T	Y	Z	S
CCWE600E~1300E10	1500	4600	1300	1300	1000
CCWE1400E10~2200E10	1600	4600	1300	1800	1000

Note: T represents tube service space. Both sides are okay.

# Starter Cabinet Dimensions



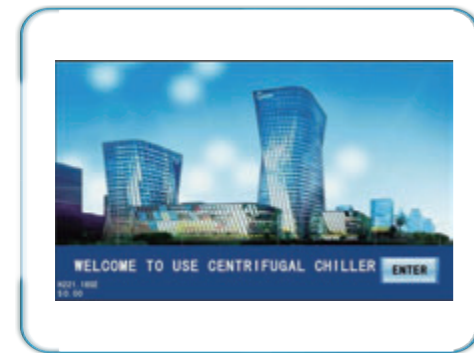
# Options

Items	Standard	Optional
Power supply (600RT-1300RT)	380V-3Ph-50Hz	50Hz: 400V, 415V, 440V, 460V, 3KV, 3.3KV, 6KV, 10KV, 11KV 60Hz: 380V, 400V, 415V, 440V, 460V, 3KV, 3.3KV, 6KV, 10KV, 11KV
Power supply (1400RT-2200RT)	10KV-3Ph-50Hz	50Hz: 3KV, 3.3KV, 6KV, 6.6KV, 11KV
Water inlet/outlet connection type	Flange	Victaulic
High pressure water boxes	1.0MPa	1.6MPa, 2.0MPa
Water boxes	Compact	Marine
Pressure vessel pass	2 passes	1 pass or 3 passes
Chiller supply (600RT-1300RT)	Star Delta	VFD (variable frequency drive), Solid soft starter Direct on line (DOL) for high voltage (3KV-11KV)
Chiller supply (1400RT-2200RT)	Direct on line (DOL)	VFD (variable frequency drive)
Chiller sequence management (Chiller Plant Manager)	×	√
Chiller vibration isolator	×	Rubber or spring
Dual compressor	×	√
Heat recovery	×	Full heat recovery (40°C-50°C)
Chilled water Delta T	5°C	6°C-10°C
Centrifugal heat pump	×	Hot water temperature up to 45°C
Water storage or Ice storage	×	√
Free cooling mode	×	√
Section transportation	×	√
Communication protocol	Modbus-RTU (RS485)	BACnet
Hot gas bypass	×	√
Flow switch	Differential pressure	Paddle
Witness performance testing	×	√

# Operating and Control System

## -Intelligent color touch screen

- ❖ The flawless operating and control system of the centrifugal chiller integrates a series of control and monitoring functions, including intelligent operations, safety protection and interlocking control, which achieves reliable start, high efficiency operations and control.
- ❖ Midea is responsible for the installation and commissioning of centrifugal chiller to ensure more convenient and more secure operation for users.



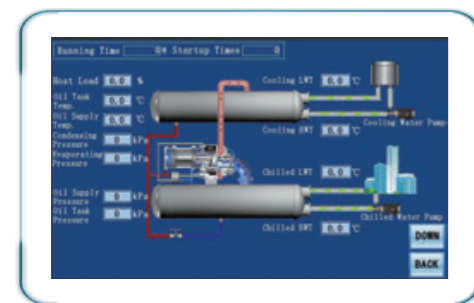
### ▲ Interface Display

- 📄 Graphical display
- 📄 Touch screen
- 📄 Operating status
- 📄 Operation Parameters
- 📄 Pre-alarm/alarm indication and records
- 📄 Query function for data history and trend curves



### ▲ Operation Control

- 📄 Set outlet temperature by user
- 📄 Automatically load or unload according to the chilled water temperature
- 📄 Pause function reduces OPEX
- 📄 Independent start/stop control



### ▲ Safety Protocols

- 📄 Oil pressure difference low/too low
- 📄 Oil temp. High & too high
- 📄 Compressor motor ampere high & too high
- 📄 Compressor motor ampere too low
- 📄 Evaporator pressure low/too low (Evaporator)
- 📄 Refrigerant pressure high/too high (Condenser)
- 📄 Oil pump overload
- 📄 Starter fault
- 📄 Takes too long to start
- 📄 Water cut off in evaporator or condenser
- 📄 Anti-freezing protection

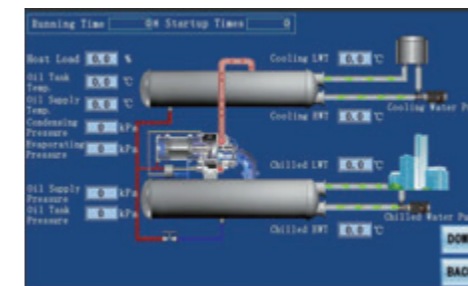


### ▲ Interlock Control

- 📄 Oil pump pre-lubrication/ post-lubrication
- 📄 Water pump pre-running/ post-running
- 📄 Starter interlock control
- 📄 Pause/Stop mode Inlet Guide Vane interlock
- 📄 Pause/stop mode inlet guide vane interlock
- 📄 Safety testing before starting
- 📄 Pre-alarm interlock control

## Basic Indication Items >>

- Chilled water inlet temperature
- Chilled water outlet temperature
- Cooling water inlet temperature
- Cooling water outlet temperature
- Condensing pressure
- Evaporating pressure
- Oil supply temperature
- Oil supply pressure
- Oil sump temperature
- Oil sump pressure
- Oil supply pressure difference
- Inlet guide vane opening
- Running current (percentage)
- Total power on time
- Total running time
- Total start-up time



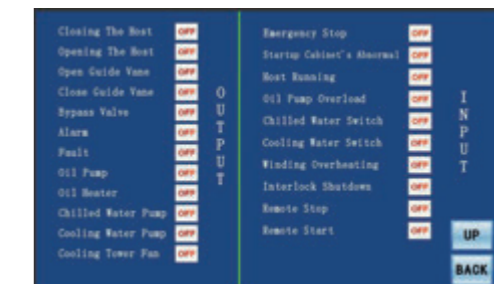
## Safety Protection >>

- The protection control, if necessary, shuts the chiller down or limits the inlet opening guide vane to protect the chiller from possible damage.
- Inadequate oil supply pressure difference.
- Excessive oil supply temperature
- Inadequate oil sump temperature
- Oil pump current overload
- Inadequate chilled water flow
- Low chilled water outlet temperature
- Compressor motor current overload
- Excessive main motor winding temperature
- Excessive Start time
- Inadequate evaporation pressure
- Excessive condensing pressure
- Temperature transmitter faults
- Pressure transmitter faults
- Starter faults
- Phase unbalance, phase loss, phase reversal
- Under voltage
- Over voltage

## User Settings >>

- Restart temperature
- Pause temperature
- Current limit
- Full load/rated load
- Chilled water outlet temperature
- Rated motor current
- System control mode
- Low oil supply pressure difference (before start)
- Low oil supply pressure difference (after start)
- Minimum oil supply pressure difference.
- Minimum oil sump temperature
- High oil supply temperature
- Maximum oil supply temperature
- Low evaporation pressure
- Minimum evaporation pressure
- High condensing temperature
- Maximum condensing temperature
- Low chilled water outlet temperature
- Critical inlet guide vane opening
- Critical water temperature

**Note:**For setting values, refer to the user manual



## Capacity Control >>

- Minimum IGV opening control
- Maximum main motor current control
- Leaving chilled water temperature control
- Inlet guide vane actuator
- Manual mode option

## Standard Protection

### Low Supply Oil-pressure Difference Protection >>

Oil pressure tracks oil flow and oil-pump operation. A significant drop in oil pressure difference indicates oil pump failure, oil leakage, or blockage in the oil-circuit. During compressor pre-lube mode pressure should not fall below the set point. Failure to meet this requirement leads to inhibits chiller start-up. When the compressor is running, an alarm will be displayed if the pressure is below the set point. And if this value decreases to the minimum set point the chiller will shut-down.

### Oil-Temperature Protection >>

High oil temperature when the oil pump and/or compressor is running may indicate oil-cooler failure, overheating of the oil and the bearings, or oil filter blockage. If the oil temperature continues to increase to the maximum set point, the chiller will shut-down. The start of the compressor will be affected if the oil sump temperature is below the set point. The diagnosis will display on the user interface.

### Oil Pump Current Overload Protection >>

The oil pump control panel will monitor the oil pump current and shut the chiller off when the oil pump current exceeds the maximum set point.

### High Condenser-Pressure Protection >>

The chiller controller algorithm keeps the condenser pressure under a specified maximum pressure. The chiller can run up to 100 percent of this setpoint safely and reliably. If the condenser pressure exceeds the set point, the system will prohibit the opening of the inlet guide vane to decrease the pressure or shut off the chiller immediately according to the indicated set point.

### Low Evaporator-Pressure Protection >>

The chiller controller algorithm keeps the evaporator pressure above a specified minimum pressure. The chiller can run up to 100 percent of this setpoint safely and reliably.

If the evaporator pressure decreases below the set point, the system will prohibit the opening of the inlet guide vane to increase the pressure or shut off the chiller immediately according to the indicated set point.

### Water Flow Protection >>

The water flow switch installation is in the water piping system. The chiller controller has a digital input that indicates the water flow. When this input does not show flow within a fixed time during start-up, the process will be terminated. If the flow is lost while the chiller is running, the system will shut the chiller off to protect it from damage.

### Low Chilled Water Outlet Temperature Protection >>

Low chilled water outlet temperature protection (anti-freeze protection) prevents water from freezing in the evaporator by immediately pausing the chiller if the chilled water outlet temperature reaches its minimum allowable value. After the chilled water inlet temperature reaches the restart set point, the chiller will start automatically. This may occur due to a sensor fault, incorrect set point of chilled water outlet temperature or lack of chilled water flow.

### Current Overload Protection >>

The control panel will monitor the current drawn by each line of the motor. If the highest of the three lines exceeds 110% of the rated current, the system will close the inlet guide vane automatically and monitor the current to ensure it returns to normal levels. The system will shut the chiller off if the highest of the three line currents exceeds 115% of the rated current. Current overload protection does not stop the chiller from reaching its full-load amperage.

### High Motor-Winding Temperature Protection >>

This function monitors the motor temperature and terminates chiller operation when the temperature is too high. The controller monitors the winding temperature sensors when the controller is energized. It immediately shuts the chiller down if the temperature exceeds the maximum set point.

### Start Time Limit Protection >>

During startup, if the changeover from "WYE" connection to Delta connection exceeds a set time. The system will shut the chiller off immediately to protect it from damage.

### Power Supply Protection >>

The transformer or power supply protection module comes factory installed in the starter. If any overvoltage or undervoltage, phase-unbalance, phase-loss or phase reversal occurs, the control system will detect it and shut the chiller down.

### Starter Failure Protection >>

Starter failure protection ensures the compressor motor disconnects from the power supply if the motor reaches its limits. The controller manages all start and stop operations. If the starter malfunctions and does not disconnect the compressor motor from the line in an emergency situation, the controller will recognize the fault and shut the chiller down immediately.





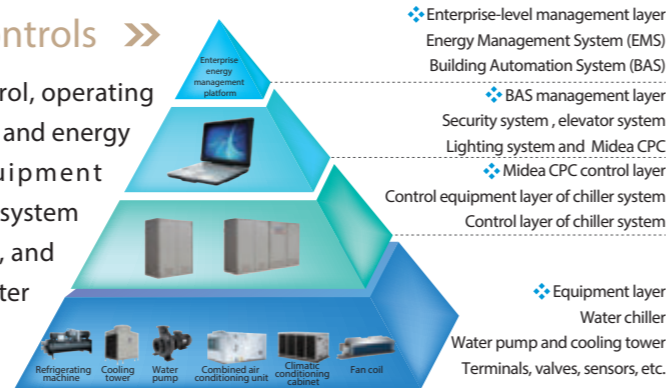
## Centralized Control

### Intelligent Control Logic Ensures System Reliability >>>

By monitoring all parameters such as chilled water outlet temp., setting temp., evaporating pressure, and condensing pressure inlet guide vane opening degree, the intelligent control logic decides the best load adjustment method and opening rate of the inlet guide vane to guarantee safe operations in various load conditions.

### Advanced Control Room & Centralized Controls >>>

The conventional BMS system only focuses on interlock control, operating status and parameter monitoring, which achieves automation and energy management, but fails to realize the benefits of equipment synchronization. The Midea centralized energy management system attaches importance to building load prediction and control, and coordinates the operation of the air-conditioners, fans and water pumps to realize optimum energy management.



## Centralized Control and Remote Management

### System Control Functions >>>

- ❖ Practical Control Modes: Varied auto control, remote and local control, etc.
- ❖ Equalized operation times: Automatically balances the operation time of each unit to extend service life and minimize maintenance requirements
- ❖ Optimum operating schedule: Optimizes the operation schedule and qty. of water pumps to minimize total system power consumption.
- ❖ System data report: Reports operating capacity, power consumption and energy saving results, as well the mass operations and error history.
- ❖ Strategies to address problem: System status indication and pre-alarm/alarm functions ensure safety. Complete data history allows for easy access to all operating history.
- ❖ Remote communication function: The public open protocol enables data exchange between the onsite energy management centre and upper remote monitoring system and remote operations, maintenance and management.



### Energy management >>>

- ❖ Climatic feedback control: Collects outdoor temperature readings and adjusts water volume accordingly, thus reducing energy consumption.
- ❖ Cycle duty operation: Supplies different capacities according to the specific application in each building
- ❖ Load prediction control: Due to perspective control logic, it decreases startup and shutdown frequency and minimizes the impact on the power grid, therefore extending service life of unit and reducing power consumption.

## Selection Software

Software optimizes the configuration and performance of Midea products, fully meeting HVAC system requirements. The independent software can select the best configuration according to the requirements of your HVAC system. After inputting general parameters such as cooling capacity, fouling factor, pass number, and power supply, nominal data and physical data for typical compressor-evaporator and condenser combinations are given by product list. The Midea R&D department and software engineers continually update all product information, which customers can receive online.

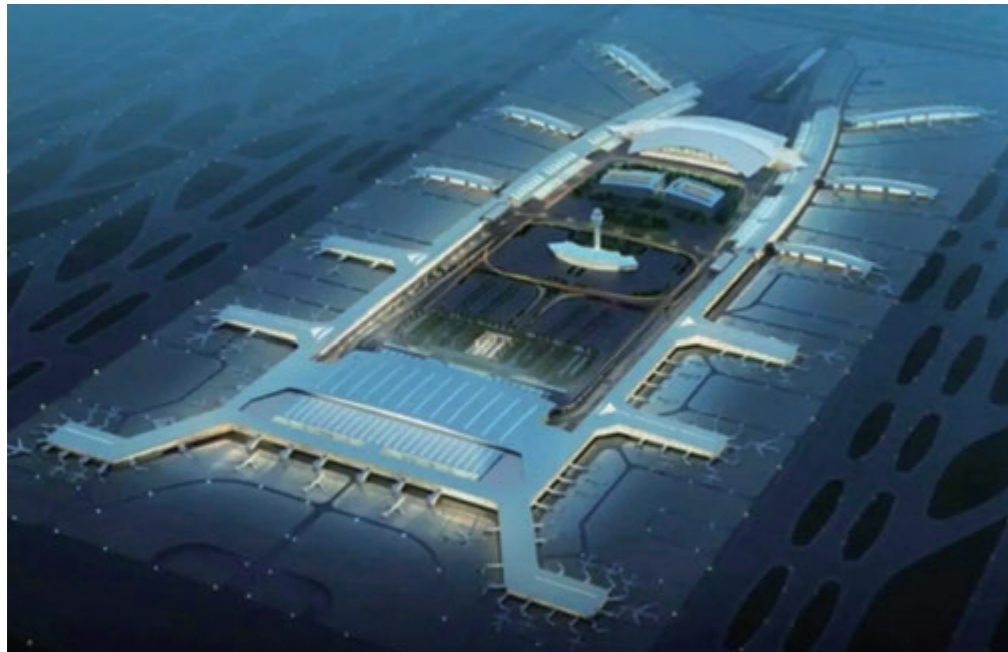


Selection interface

### Selection report >>>

Midea Centrifugal Chiller Specification		Midea Centrifugal Chiller Configuration	
Project Name: New Project		Project Name: New Project	
Tag Name: CCWE1000EV		Tag Name: CCWE1000EV	
<b>Unit Information</b>			
Chiller Model	CCWE1000EV	Acoustic Data	80 dB(A)
Oil Model	POE	Stage Number	2
Oil Charge	60 L	Compressor Code	H622
Refrigerant	R134a	Motor Code	EKDS-630K-2-d-1
Refrigerant Charge	850 kg	Frequency	50.0 Hz
Shipping Weight	13730 kg	Starting Power Voltage	380V-3PH, 3W+PE
Running Weight	16440 kg	Control Power Voltage	380V-3PH, 4W+PE
Length	5045 mm	Starter Type	VFD Starter / Freestanding
Width	2260 mm	Starter Code	FC-102P630T4
Height	2610 mm		
<b>Performance Information</b>			
Capacity	3516 kW	Full Load Power Input	565.3 kW
Full Load Efficiency	6.220 kW/kW	NPLV	9.604 kW/kW
	0.1608 kW/kW		0.1041 kW/kW
<b>Evaporator Information</b>			
Entering Fluid Temp	12.22 °C	Code	J44NS
Leaving Fluid Temp	6.67 °C	Tubing	Midea EI-1in, 0.635mm, Copper
Flow Rate	2400 gpm	Passes	2
Fluid Pressure Drop	51.9 kPa	Waterboxes	Nozzle-in-Head / 1 MPa
Fouling Factor	0.0176 m <sup>2</sup> -°C/kW	Nozzle	DN300
Fluid Type	Water		
Concentration	0.00%		
<b>Condenser Information</b>			
Entering Fluid Temp	29.44 °C	Code	N44NS
Leaving Fluid Temp	34.61 °C	Tubing	Midea CI-1in, 0.635mm, Copper
Flow Rate	2969 gpm	Passes	2
Fluid Pressure Drop	62.3 kPa	Waterboxes	Nozzle-in-Head / 1 MPa
Fouling Factor	0.0440 m <sup>2</sup> -°C/kW	Nozzle	DN300
Fluid Type	Water		
Concentration	0.00%		
<b>Electrical Information</b>			
Full Load Amps	952 A	Locked Rotor Amps	6100 A
Starting Current	≤ 952 A		
<b>General</b>			
Refrigerant Shipment	Shipped Separately	Stop Valve	Not Installed
Oil Shipment	Shipped Separately	Hot Gas Bypass	Not Installed
Insulation	Factory Insulation 20 mm	Ant-vibration Pad	Installed
Motor Protection	IP54	Spring Isolator	Not Installed
Packaging Options	Shrink Wrap		
<b>Waterboxes</b>			
Evaporator		Condenser	
Nozzle Arrangements	Drive End	Connection	Flanged
Nozzle Arrangements	Drive End	Connection	Flanged
<b>Sound</b>			
Compressor Silencer	Not Installed	Condenser Sound Reduction Kit	Not Installed
Discharge Line Sound Reduction Kit	Not Installed		
<b>Electrical</b>			
Communication	RS485	PLC	Schneider
Protocol	Modbus RTU	Switch Gear Brand	Default
Screen Size	10 in	Power Line Arrangement	Top in Bottom out

# Reference Projects



Reference Projects

## Guangzhou Baiyun International Airport

<b>Country:</b>	China
<b>City:</b>	Guangzhou
<b>Outdoor Units:</b>	Centrifugal chiller
<b>Total Capacity:</b>	35,680 RT
<b>Completion Year:</b>	2016



## Dalma Mall

<b>Country:</b>	U.A.E
<b>City:</b>	Abu Dhabi
<b>Outdoor Units:</b>	Centrifugal chiller
<b>Total Capacity:</b>	10,000 RT
<b>Completion Year:</b>	2014



### Indriyati Hospital

**Country:** Indonesia  
**City:** Solo  
**Outdoor Units:** Super high efficiency centrifugal chiller  
**Indoor Units:** FCU & AHU & MAHU  
**Total Capacity:** 2,800 RT



### Hilton Hotel in Foshan(Five Star)

**Country:** China  
**City:** Foshan  
**Outdoor Units:** Super high efficiency centrifugal chiller  
**Indoor Units:** FCU & AHU  
**Total Capacity:** 3,700 RT





### Beijing Capital Airport T3 Terminal

**Country:** China  
**City:** Beijing  
**Outdoor Units:** Centrifugal chiller & Water-cooled screw chiller  
**Indoor Units:** FCU  
**Total Capacity:** 10000RT



### Hartono lifestyle Mall

**Country:** Indonesia  
**City:** Yogyakarta  
**Outdoor Unit :** Centrifugal Chiller  
**Indoor Units :** AHU & FCU  
**Total Capacity:** 5,000 RT



### Major Platinum Cineplex Laos

**Country:** Laos  
**City:** Vientiane  
**Outdoor Unit :** Centrifugal chiller & Water-cooled screw chiller  
**Indoor Units :** AHU & FCU  
**Total Capacity:** 2,000 RT



### Pasar Turi Market

**Country:** Indonesia  
**City:** Surabaya  
**Outdoor Units:** Centrifugal chiller  
**Indoor Units:** AHU  
**Total Capacity:** 4,000 RT



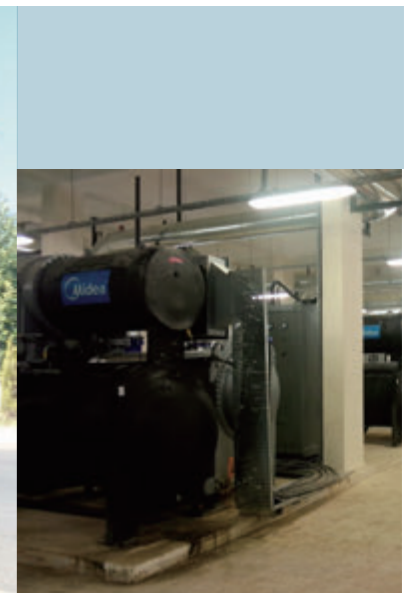
### Shanghai Expo Venue

**Country:** China  
**City:** Shanghai  
**Outdoor Units:** Centrifugal chiller  
**Indoor Units:** AHU  
**Total Capacity:** 3,000 RT



### Harran University

**Country:** Turkey  
**City:** Sanliurfa  
**Outdoor Units:** Centrifugal chiller  
**Indoor Units:** FCU & AHU  
**Total Capacity:** 3,300 RT



### Federal Security Service

**Country:** Russia  
**City:** Moscow  
**Outdoor Units:** Centrifugal chiller  
**Total Capacity:** 5,000 RT  
**Completion Year:** 2015



**Marriott Hotel(Five Star)**

**Country:** China  
**City:** Foshan  
**Outdoor Units:** Centrifugal chiller & Water-cooled screw chiller  
**Indoor Units:** FCU & AHU  
**Total Capacity:** 1,900 RT



**Hilton Hotel in Foshan(Five Star)**

**Country:** China  
**City:** Foshan  
**Outdoor Units:** Centrifugal chiller & Water-cooled screw chiller  
**Indoor Units:** FCU & AHU  
**Total Capacity:** 4,500 RT



**Worldon Factory in Vietnam**

**Country:** Vietnam  
**City:** Ho Chi Minh  
**Outdoor Units:** Centrifugal chiller & Water-cooled screw chiller  
**Indoor Units:** FCU & AHU  
**Total Capacity:** 4,500 RT



**Shenzhen Metro Station**

**Country:** China  
**City:** Shenzhen  
**Outdoor Units:** Centrifugal chiller & Water-cooled screw chiller  
**Total Capacity:** 18,525 RT  
**Completion Year:** 2015



### Midea Headquarter Building

<b>Country:</b>	China
<b>City:</b>	Foshan
<b>Outdoor Units:</b>	V4+ series VRF & Centrifugal chiller & Water-cooled screw chiller
<b>Total Capacity:</b>	3,700 RT
<b>Completion Year:</b>	2010

# Reference Projects List

Project	Country	City	HVAC	Cap./ Nos
Plaza Corona Project	Peru	Tumbes	Centrifugal chiller (Inverter direct-drive)+Screw chiller	Total Cooling cap 1200RT, 3nos
Ministry of Foreign Affairs	Chile	Santiago	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 600RT, 2nos
Grand Mercure	Indonesia	Jakarta	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 1200RT, 3nos
Qingyuan City Hospital	China	Qingyuan	Centrifugal chiller(Inverter direct-drive)+Screw chiller	Total Cooling cap 900RT, 2nos
Taoyuan Hospital	China	Taiwan	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 500RT, 1nos
Xuzhou Xindu Shopping Mall	China	Xuzhou	Centrifugal chiller(Inverter direct-drive), Water-cooled screw chiller	Total Cooling cap 607RT, 2nos
Shenyang Dispatch Building	China	Shenyang	Centrifugal chiller(Inverter direct-drive +high efficiency), Water-cooled screw chiller	Total Cooling cap 2348RT, 6nos
Lanzhou West Railway Station	China	Lanzhou	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 3000RT, 6nos
Guangzhou Baiyun International Airport	China	Guangzhou	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 35680RT, 24nos
Shanghai Metro	China	Shanghai	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 1850RT, 6nos
Longkou Xiangchi Company	China	Weifang	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 550RT, 1nos
Yihe Runfeng Company	China	Beijing	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 1400RT, 3nos
Midea Global Innovation Center	China	Foshan	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 250RT, 1nos
Midea Wuhan Refrigeration Equipment Co., Ltd	China	Wuhan	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 400RT, 1nos
Wuhu Meizhi Air Conditioning Equipment Co., Ltd	China	Wuhu	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 350RT, 1nos
Welling Factory	China	Foshan	Centrifugal chiller(Inverter direct-drive)	Total Cooling cap 400RT, 1nos
Indriati Solo Hospital	Indonesia	Thoreau	Centrifugal chiller(High efficiency)	Total Cooling cap 700RT, 1nos
Dalma Mall	UAE	Abu Dhabi	Centrifugal chiller(Super high efficiency)	Total Cooling cap 10000RT, 5nos
Sanliurfa Harran university	Turkey	Sanliurfa	Centrifugal chiller	Total Cooling cap 2900RT, 3nos
The Mixs Mall	Laos	Vientiane	Centrifugal chiller	Total Cooling cap 1300RT, 2nos
Federal Security Service	Russia	Moscow	Centrifugal chiller	Total Cooling cap 4400RT, 5nos
Butovo Mall	Russia	Moscow	Centrifugal chiller	Total Cooling cap 1100RT, 2nos
Hartono Mall	Indonesia	Jakarta	Centrifugal chiller	Total Cooling cap 9000RT, 9nos
Shenzhou Textile Mills	Vietnam	Ho Chi Minh City	Centrifugal chiller(High efficiency)	Total Cooling cap 8200RT, 10nos
Luoyang Railway Bureau	China	Luoyang	Centrifugal chiller(Inverter)	Total Cooling cap 600RT, 1nos
Kangle Liangheng Shopping Mall	China	Linxia	Centrifugal chiller(Inverter)	Total Cooling cap 2000RT, 2nos

Project	Country	City	HVAC	Cap./ Nos
Liujiaxia Hotel	China	Tianshui	Centrifugal chiller(Inverter)	Total Cooling cap 1000RT, 2nos
Zaoyang Mixs Mall Investment co., LTD	China	Xiangyang	Centrifugal chiller(Inverter)	Total Cooling cap 1350RT, 2nos
Tianhe Airport	China	Wuhan	Centrifugal chiller(Inverter)	Total Cooling cap 1650RT, 3nos
Pingdingshan Shenma Group Company	China	Pingdingshan	Screw chiller(Inverter)	Total Cooling cap 842RT, 2nos
Guilin Yiwu International Shopping Mall	China	Guilin	Centrifugal chiller(Inverter)	Total Cooling cap 1950RT, 3nos
The People's Hospital of Feng Country	China	Xuzhou	Centrifugal chiller(Inverter)	Total Cooling cap 2000RT, 3nos
The People's Hospital of Shouguang City	China	Shouguang	Centrifugal chiller(Inverter)	Total Cooling cap 1800RT, 3nos
Wuxiang Taihang Hotel	China	Changzhi	Centrifugal chiller(Inverter)	Total Cooling cap 1400RT, 2nos
Mengshan XindaCentral Plaza	China	Wuzhou	Centrifugal chiller(Inverter)	Total Cooling cap 800RT, 2nos
Institute of High Energy Physics	China	Beijing	Centrifugal chiller(High efficiency)	Total Cooling cap 2000RT, 2nos
Shunde Desheng Plaza	China	Foshan	Centrifugal chiller(High efficiency)	Total Cooling cap 1300RT, 1nos
The People's Hospital of Feidong Country	China	Hefei	Centrifugal chiller(High efficiency)	Total Cooling cap 3000RT, 3nos
Chuzhou Suning	China	Chuzhou	Centrifugal chiller(High efficiency)	Total Cooling cap 1600RT, 2nos
Tianhong World Trade Plaza	China	Zhoukou	Centrifugal chiller(High efficiency)	Total Cooling cap 3200RT, 4nos
Wenzhou Transportation International TaoBao Mall	China	Wenzhou	Centrifugal chiller(High efficiency)	Total Cooling cap 3000RT, 3nos
Chongqing Zhaojia Real Estate Development co., LTD	China	Chongqing	Centrifugal chiller(High efficiency)	Total Cooling cap 900RT, 1nos
The Second Hospital of Shanxi Medical College	China	Taiyuan	Centrifugal chiller(Super high efficiency)	Total Cooling cap 2000RT, 2nos
Mingyue Home Furnishing	China	Shijiazhuang	Air-cooled screw chiller(Super high efficiency)	Total Cooling cap 1104RT, 6nos
China Food Headquarters	China	Weifang	Air-cooled screw chiller(Super high efficiency)	Total Cooling cap 3250RT, 23nos
Jianghai Bigui Garden Phoenix Hotel	China	Jiangmen	Water-cooled screw chiller(High efficiency)	Total Cooling cap 600RT, 2nos
Zhongshan Nantou Station	China	Zhongshan	Water-cooled screw chiller(High efficiency)	Total Cooling cap 700RT, 2nos
Shuangyashan Broadcasting and Television Center	China	Shuangyashan	Water-cooled screw chiller(Inverter)	Total Cooling cap 824RT, 2nos
Shenzhen Railway Station	China	Shenzhen	Centrifugal chiller(Oil-free+ high efficiency), Water-cooled screw chiller	Total Cooling cap 18525RT, 58nos
Hangzhou South Railway Station	China	Hangzhou	Centrifugal chiller, Air-cooled screw chiller(Inverter+high efficiency)	Total Cooling cap 1578RT, 10nos
Carrefour In Chengdu	China	Chengdu	Centrifugal chiller(1 Inverter)	Total Cooling cap 679RT, 2nos
Yantai Longkou Xiangchi Company	China	Yantai	Centrifugal chiller(Inverter)	Total Cooling cap 550RT, 1nos