XINLEI COMPRESSOR CO.,LTD.

STOCK CODE 301317

XINLEI COMPRESSOR CO.,LTD.

XINLEI REFRIGERATION (HEATING) COMPRESSOR

- High efficiency and energy saving
- Stable and Reliable
- intelligent control
- low carbon and environmental protection

XINLEI COMPRESSOR CO.,LTD.

Add: No.8, Chaoping Street, East Industry Center,Wenling, Taizhou City, Zhejiang Province, China
Zip Code: 317511
WhatsApp: +86 19579673005
Email: xinleiglobal@xinlei.com
Web: www.xinleiglobal.com

Xinlei official website | Xinlei Wechat subscription | Xinlei Tik Tok enterprise

202503

Xinlei Group is a professional manufacturer of intelligent HVAC equipment

The company was established in Taizhou, Zhejiang, and was listed on the main board of the Shenzhen Stock Exchange on January 19, 2023. As a leading enterprise in the industry, Xinlei's independent research and development and production products span the piston, screw magnetic levitation centrifugal all-fluid sector.

All kinds of magnetic levitation central air conditioning, air energy central heat pump and other air energy products in continuous innovation to achieve high energy efficiency breakthroughs, access to more than 300 authorized patents, was named the national "specialized, special and new" small giant enterprises, up to now, Xinlei has more than 800 distribution outlets in more than 100 countries and regions around the world, our energy-saving equipment and intelligent solutions have been widely recognized by the market and customer partners.

Over the years, the company has been providing customers with a comfortable, energy-saving, environmentally friendly and convenient indoor environment, with the service tenet of "innovation reflects value", and serves every customer attentively. The company has many experienced pre-sales, in-sales, after-sales service personnel, and strong team technical capabilities, creating a new world of "energy saving, environmental protection and intelligence" in the aerodynamic city.

1876

The world's first air conditioner was born in the United States
In the 20 years since the invention of air conditioning, it has always been machines, not people, that have enjoyed air conditioning

1996

Xinlei brand was founded in the era of the national "Ninth Five-Year Plan" economic take-off

2000

Xinlei's self-developed and self-produced aerodynamic products entered the European and American markets

2006

Faced the "EU anti-dumping" lawsuit and won the preliminary ruling
The daily output is 12,000 units, accounting for more than 56% of the customs export data

2017

Comprehensively layout the air/magnetic levitation centrifuge market and has made the first breakthrough

2020

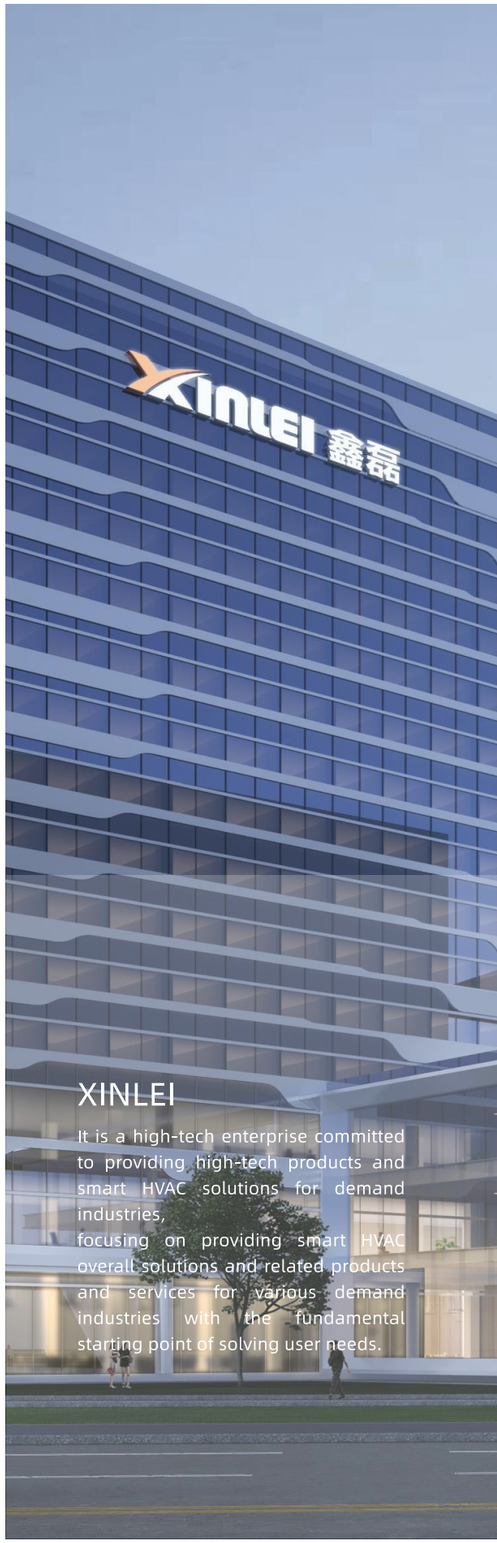
It has increased production by 30% and saved energy by 50% for Sinopec, which has taken a major step on the road of "domestic substitution" of high-end air energy manufacturing

2022

Xinlei's first maglev inverter centrifugal chiller (heat pump) unit was launched, with an energy-saving rate of up to 50%, triggering a new revolutionary journey in the industry

2023

Xinlei was successfully listed
Stock code 301317
Xinlei heat pump has achieved a breakthrough in high energy efficiency in continuous innovation
The 300RT and 1000RT water-cooled chilled water (heat pump) unit test benches have passed the certification of the National Testing Center



XINLEI

It is a high-tech enterprise committed to providing high-tech products and smart HVAC solutions for demand industries,
focusing on providing smart HVAC overall solutions and related products and services for various demand industries with the fundamental starting point of solving user needs.

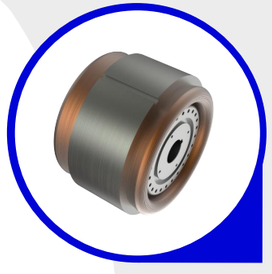
MRC Series Magnetic Levitation Centrifugal Compressors

One-stop solution

MRC series magnetic levitation centrifugal compressor is independently developed and manufactured by Xinlei based on the mature "magnetic levitation +" development platform, which applies high-efficiency multi-operating conditions pneumatic technology, high-precision magnetic levitation bearing control technology, high-efficiency permanent magnet synchronous motor technology, and two-stage compression and enthalpy boosting technology. In terms of structure, the machine adopts the inverter direct drive mode and impeller horizontal opposed mode, realizing the high efficiency and reliability of the compressor.

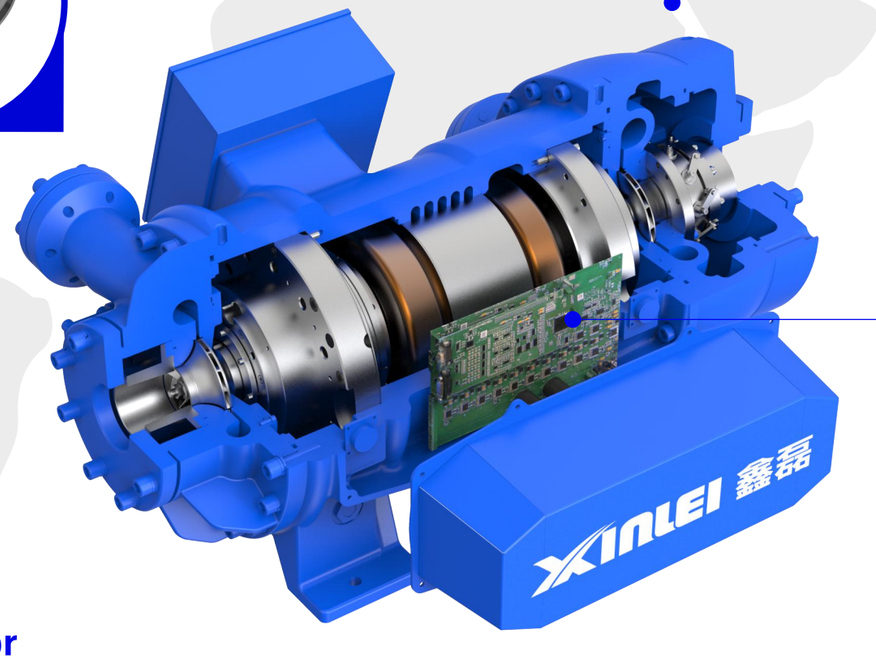
Three-dimensional flow closed impeller

-Adoption of advanced aerodynamic design technology, integrated CFD full flow field performance analysis, so that the compressor performance to reach a higher level;
-Adopting new type of three-dimensional flow closed impeller, **with higher impeller efficiency and lower noise**;
-Adoption of high-strength precision cast aluminum alloy, all impellers have been tested at **1.2 times** the design speed for over-speed test, so it has high reliability.



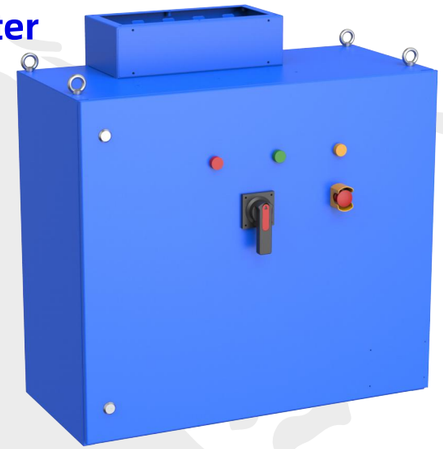
Permanent magnet synchronous motor

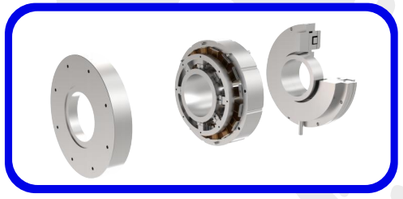
-Permanent magnet synchronous motors are smaller and **10%** more efficient than traditional asynchronous motors.
-High-efficiency permanent magnet synchronous motor with **97.5%** efficiency at full load and >95% efficiency at partial load.
-**High reliability** due to **H-class** insulation design with a maximum temperature resistance of 180℃.



On-board refrigerant cooling inverter

-The cooling effect of refrigerant cooling is significantly better than water-cooled, compared with water-cooled inverters, **the cleanliness is higher, the life of electrical components is longer**, and there is no problem of water inverters being dirty and clogged, so the probability of accidental downtime can be greatly reduced.
-Fully closed-loop temperature and humidity intelligent thermal management system with **active refined** refrigerant control.
-Adopting multi-objective PI to control the flow rate and temperature difference, realizing high load heat dissipation and anti-condensation function, further **improving** the **reliability and applicability** of the product.





Industrial Magnetic Bearing Technology

-The radial and axial modular design allows the bearing to achieve a compact structure and stable performance;
-Oil free, zero friction, low power consumption, only **3-10%** of conventional oil bearings, and the higher the speed, the more obvious energy-saving effect;
-Stable and reliable, the magnetic bearing can withstand the compressor's **continuous violent vibration** for a long time **without falling**.

Bearing Controller

-Adopting high-precision components, rationalized arrangement, with **high control precision** and **strong anti-interference ability**, and passed the third-party EMC test;
-Integrated on the compressor with temperature field simulation design for **precise cooling**, no risk of condensation, long-lasting reliability.

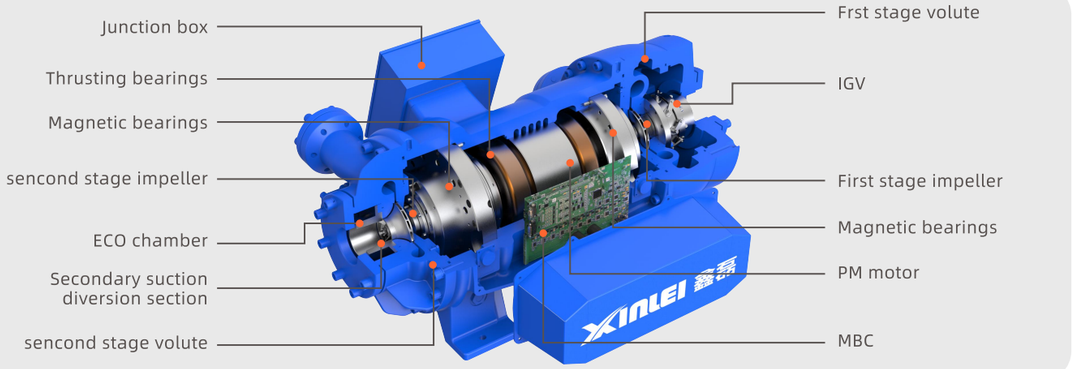
MRC Series MAGNETIC LEVITATION CENTRIFUGAL REFRIGERATION COMPRESSOR

Compressor Naming

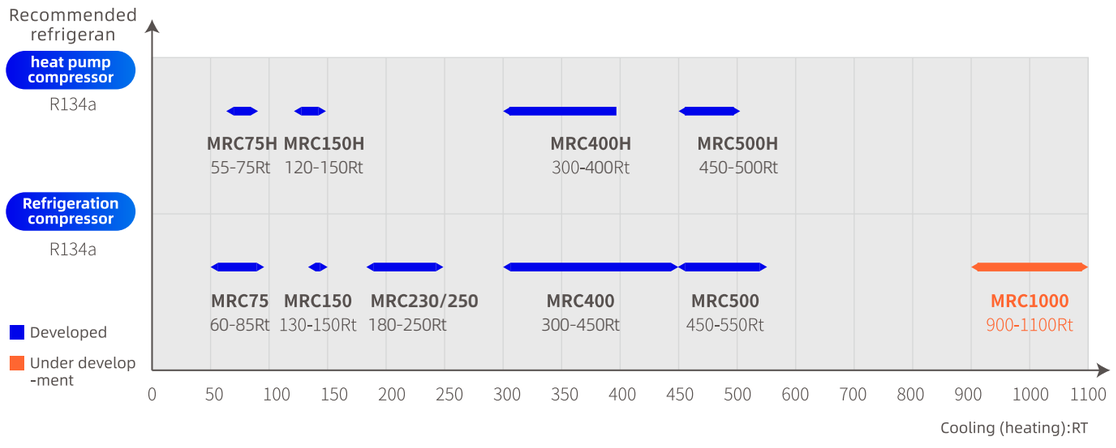
MRC 150 H

- H: None or H: (Application range, default is cooling, H is heating)
- 150: 150: Nominal cooling capacity, unit RT
- MRC: MAGNETIC LEVITATION CENTRIFUGAL REFRIGERATION COMPRESSOR

COMPRESSOR CROSS-SECTION

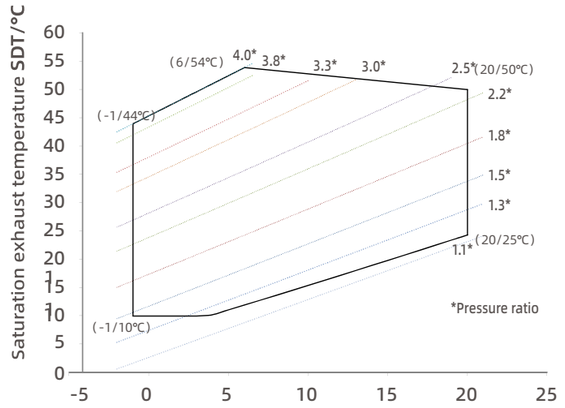


Product Profile



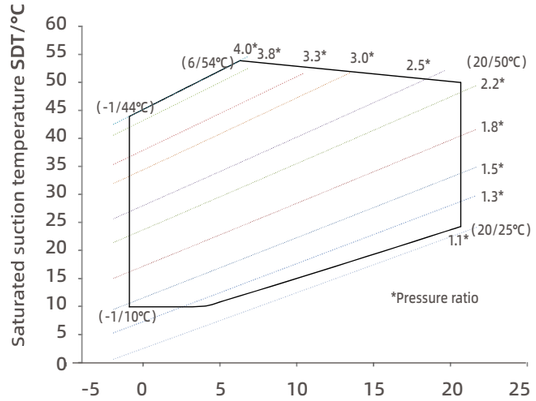
* ① The above compressor cooling capacity range is based on evaporation temperature 2℃, condensation temperature 50℃, with flash tank economizer.
* ② The above compressor cooling capacity range is based on evaporation temperature 6℃, condensation temperature 36℃, with flash tank economizer.

Operating range



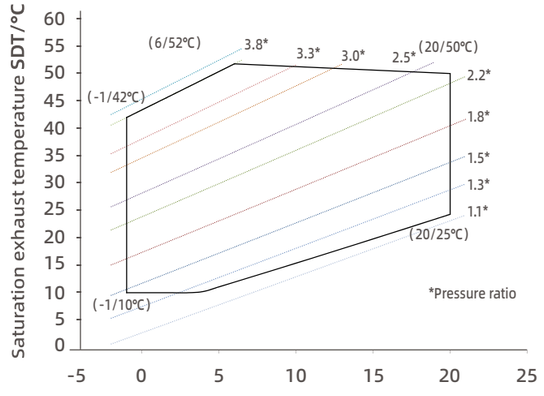
MRC75/150 compressor Saturation exhaust temperature SDT/°C

- The maximum pressure ratio is 4.0, which can be used in conventional air conditioners, heat pumps, heat recovery and other scenarios;
- The evaporation temperature is as high as 21℃, suitable for high water temperature scenarios such as data centers and process types.



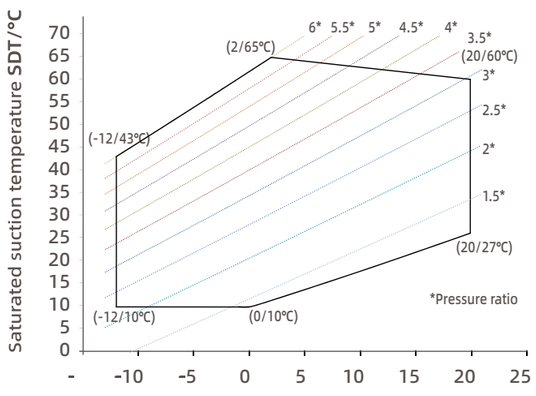
MRC400/500 compressor Saturated suction temperature SDT/°C

- The maximum pressure ratio is 4.0, which can be used in conventional air conditioners, heat pumps, heat recovery and other scenarios;
- The evaporation temperature is as high as 21℃, suitable for high water temperature scenarios such as data centers and process types.



MRC230/250 compressor Saturation exhaust temperature SDT/°C

- The maximum pressure ratio is 3.8, which can be used in conventional air conditioners, heat pumps, heat recovery and other scenarios;
- The evaporation temperature is as high as 21℃, which is suitable for high water temperature scenarios such as data centers and process types.



MRC75/150/400/500H compressor Saturated suction temperature SDT/°C

- The maximum pressure ratio is 6.0, which can be used for water and ground source high-temperature heat pumps and energy tower water source heat.

Technical Parameters

Unit Type		-	MRC75			MRC150			MRC230			MRC250
Cooling capacity		RT	60	75	85	130	140	150	180	200	230	250
		kW	211	264	299	457	492	527	633	703	809	879
Compressor	Type	-	Horizontal Opposition									
	Refrigerant	-	R134a									
	Stage	-	2									
	Compression ratio	KPa/KPa	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58
	Surge margin	-	>1.05									
	Suction flow	kg/s	1.22	1.53	1.73	2.65	2.86	3.06	3.67	4.08	4.69	5.10
	Supplementary flow	kg/s	0.13	0.16	0.18	0.29	0.31	0.33	0.39	0.44	0.51	0.55
	Maximum compressor speed	m^3/h	254	317	359	549	591	633	760	844	971	1055
	Maximum compressor speed	rpm	30000	30000	30000	21000	21000	21000	21000	21000	21000	21000
	Adjustable range	%	10～100									
Transmission	Type	-	Direct drive									
	Bearing	-	Magnetic bearing									
Motor	Type	-	Permanent magnet synchronous									
	Power supply	-	380V-3PH-50Hz/60Hz									
	Configuration power	kW	65			132			135			150
	Staring Method	-	Variable frequency starting									
	Cooling method	-	Refrigerant cooling									
	Protection level	-	IP54									
Frequency Converter	Model		AC320-T3-075H			tPower-IC27/4G160R2			tPower-IC27/4G200R2			
	Configuration power	kW	75			160			200			
	Power supply	-	Three-phase AC380V，50/60Hz									
	Output voltage	-	0-380V									
	Output frequency	-	0-500Hz			0-350Hz						
	Rated output Current	A	150			276			345			
	Cooling method		风冷			Refrigerant cooling						
Compressor Dimensions	Length	mm	910			1128			1093			
	Width	mm	627			830			780			
	Heigth	mm	432			540			496			
Compressor Weight	Net Weight	kg	200			320			300			
Frequency Converter Dimensions	Width	mm	240			900						
	Heigth	mm	560			922						
	Depth	mm	310			420						
Frequency Converter Weight	Net weight	kg	27			150						

Notes:
1. MRC series compressors can be used in data centers, air conditioning, conventional heat recovery and heat pump operating conditions scenarios.
2. The above table compressor parameters based on the evaporation temperature of 6 ℃, condensing temperature of 36 ℃, suction superheat 0.5 ℃, refrigerant subcooling degree of 2 ℃, with flash tank economizer.

Technical Parameters

Unit Type		-	MRC400				MRC500		
Cooling capacity		RT	300	350	400	450	450	500	550
		kW	1055	1231	1406	1582	1582	1758	1934
Compressor	Type	-	Horizontal Opposition						
	Refrigerant	-	R134a						
	Stage	-	2						
	Compression ratio	KPa/KPa	2.58	2.58	2.58	2.58	2.58	2.58	2.58
	Surge margin	-	>1.05						
	Suction flow	kg/s	6.13	7.15	8.17	9.13	9.13	10.20	11.22
	Supplementary flow	kg/s	0.66	0.77	0.88	0.98	0.98	1.10	1.21
	Maximum compressor speed	m^3/h	1267	1478	1689	1888	1888	2111	2322
	Maximum compressor speed	rpm	12900	12900	12900	12900	11400	11400	11400
	Adjustable range	%	10～100						
Transmission	Type	-	Direct drive						
	Bearing	-	Magnetic bearing						
Motor	Type	-	Permanent magnet synchronous						
	Power supply	-	380V-3PH-50Hz/60Hz						
	Configuration power	kW	280				320		
	Staring Method	-	Variable frequency starting						
	Cooling method	-	Refrigerant cooling						
	Protection level	-	IP54						
Frequency Converter	Model		tPower-IC27/4G240R2		tPower-IC27/4G280R2		tPower-IC27/4G320R2		tPower-IC27/4G355R2
	Configuration power	kW	240		280		320		355
	Power supply	-	Three-phase AC380V，50/60Hz						
	Output voltage	-	0-380V						
	Output frequency	-	0-215Hz				0-190Hz		
	Rated output Current	A	414		483		552		612
	Cooling method		Refrigerant cooling						
Compressor Dimensions	Length	mm	1500				1500		
	Width	mm	1030				1030		
	Heigth	mm	794				794		
Compressor Weight	Net Weight	kg	850				890		
Frequency Converter Dimensions	Width	mm	900		1006				1200
	Heigth	mm	922		1040				900
	Depth	mm	420		553				551
Frequency Converter Weight	Net weight	kg	150		240				280

Notes:
1. MRC series compressors can be used in data centers, air conditioning, conventional heat recovery and heat pump operating conditions scenarios.
2. The above table compressor parameters based on the evaporation temperature of 6 ℃, condensing temperature of 36 ℃, suction superheat 0.5 ℃, refrigerant subcooling degree of 2 ℃, with flash tank economizer.

Technical Parameters

Unit Type		-	MRC75H			MRC150H			
Cooling capacity		RT	55	65	75	120	130	140	150
		kW	193	229	264	422	457	492	527
Compressor	Type	-	Horizontal Opposition						
	Refrigerant	-	R134a						
	Stage	-	2						
	Compression ratio	kPa/kPa	4.2	4.2	4.2	4.2	4.2	4.2	4.2
	Surge margin	-	>1.05						
	Suction flow	kg/s	1.06	1.27	1.47	2.54	2.76	2.97	3.18
	Supplementary flow	kg/s	0.25	0.30	0.35	0.60	0.65	0.70	0.75
	Suction volume flow	m^3/h	253	303	350	605	655	706	756
	Maximum compressor speed	rpm	34000	34000	34000	24000	24000	24000	24000
	Adjustable range	%	10～100						
Transmission	Type	-	Direct drive						
	Bearing	-	Magnetic bearing						
Motor	Type		Permanent magnet synchronous						
	Power supply		380V-3PH-50Hz/60Hz						
	Configuration power	kW	80			160			
	Staring Method	-	Variable frequency starting						
	Cooling method	-	Refrigerant cooling						
	IP Level	-	IP54						
Frequency Converter	Model		AC320-T3-090H			tPower-IC27/4G200R2			
	Configuration power	kW	90			200			
	Power supply	-	Three-phaseAC380V，50/60Hz						
	Output voltage	-	0-380V						
	Output frequency	-	0-566.7Hz			0-400Hz			
	Rated output Current	A	180			345			
	Cooling method		Air cooling			Refrigerant cooling			
Compressor Dimensions	Length	mm	910			1100			
	Width	mm	627			780			
	Heigth	mm	432			500			
Compressor Weight	Net Weight	kg	200			340			
Frequency Converter Dimensions	Width	mm	270			900			
	Heigth	mm	638			922			
	Depth	mm	350			420			
Frequency Converter Weight	Net weight	kg	37			150			

Notes:
1.MRC-H series compressor, rated pressure ratio of 4.2, the maximum pressure ratio of up to 6.0, can be used for air conditioning, ice storage, air-cooled heat pumps, energy towers heat pumps, high-temperature water geothermal heat pumps working conditions scenarios.
2.The above table compressor parameters based on the evaporation temperature 2C, condensing temperature 50 ℃, suction super-heat 0.5 ℃, refrigerant sub-cooling degree of 2 ℃, with flash tank economizer.

Technical Parameters

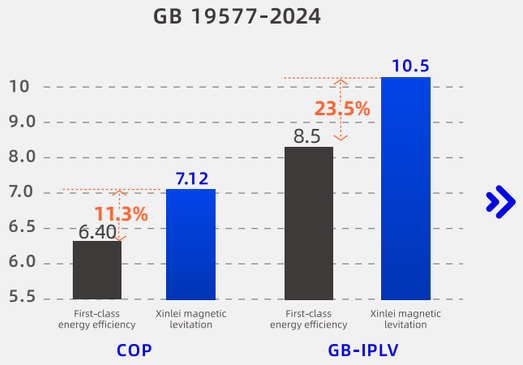
Unit Type		-	MRC400H			MRC500H		
Cooling capacity		RT	300	350	400	400	450	500
		kW	1055	1231	1406	1406	1582	1758
Compressor	Type	-	Horizontal Opposition					
	Refrigerant	-	R134a					
	Stage	-	2					
	Compression ratio	kPa/kPa	4.2	4.2	4.2	4.2	4.2	4.2
	Surge margin	-	>1.05					
	Suction flow	kg/s	6.38	7.44	8.50	8.50	9.56	10.62
	Supplementary flow	kg/s	1.51	1.76	2.01	2.00	2.25	2.5
	Suction volume flow	m^3/h	1514	1767	2019	2018	2270	2522
	Maximum compressor speed	rpm	14500	14500	14500	13000	13000	13000
	Adjustable range	%	10～100					
Transmission	Type	-	Direct drive					
	Bearing	-	Magnetic bearing					
Motor	Type		Permanent magnet synchronous					
	Power supply		380V-3PH-50Hz/60Hz					
	Configuration power	kW	360			460		
	Staring Method	-	Variable frequency starting					
	Cooling method	-	Refrigerant cooling					
	IP Level	-	IP54					
Frequency Converter	Model		tPower-IC27/4G400R2			tPower-IC27/4G560R2		
	Configuration power	kW	400			560		
	Power supply	-	Three-phaseAC380V，50/60Hz					
	Output voltage	-	0-380V					
	Output frequency	-	0-241.7Hz			0-216.7Hz		
	Rated output Current	A	690			966		
	Cooling method		Refrigerant cooling					
Compressor Dimensions	Length	mm	1500			1500		
	Width	mm	1030			1030		
	Heigth	mm	794			794		
Compressor Weight	Net Weight	kg	850			890		
Frequency Converter Dimensions	Width	mm	1200			1764		
	Heigth	mm	900			1100		
	Depth	mm	551			682		
Frequency Converter Weight	Net weight	kg	280			570		

Notes:
1.MRC-H series compressor, rated pressure ratio of 4.2, the maximum pressure ratio of up to 6.0, can be used for air conditioning, ice storage, air-cooled heat pumps, energy towers heat pumps, high-temperature water geothermal heat pumps working conditions scenarios.
2.The above table compressor parameters based on the evaporation temperature 2C, condensing temperature 50 ℃, suction super-heat 0.5 ℃, refrigerant sub-cooling degree of 2 ℃, with flash tank economizer.

Energy-efficiente

Dual Grade 1 energy efficiency for all series

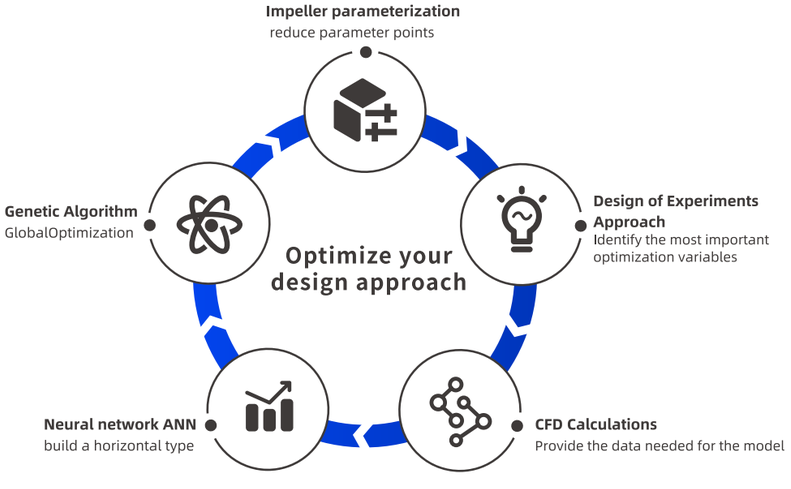
All series of compressors have a wide range of applications, high energy efficiency.They are designed with optimized pneumatic parameters for a wide range of operating conditions to satisfy the efficient operation of data center, air conditioning, air-cooled chilled water, ice storage, water and ground source heat pumps, etc. The highest pressure ratio reaches 6.0, and the efficiency of the compressor is much higher than the first class of the national standard, of which the optimal performance for air-conditioning reaches COP7.12, IPLV10.50

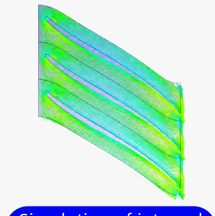


*The above data comes from high-efficiency machines

Efficient, multi-condition pneumatic design

The impeller adopts the optimization technology of CFD calculation + neural network + genetic algorithm to optimize the parameters under a wide range of working conditions to achieve high efficiency of both rated and partial load.

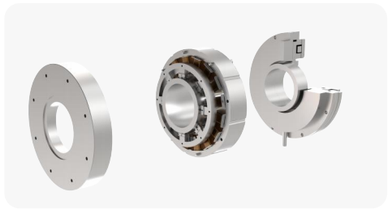




Simulation of internal flow in an impeller

Impeller geometry

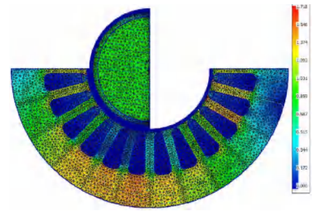
Industrial-grade magnetic bearing technology



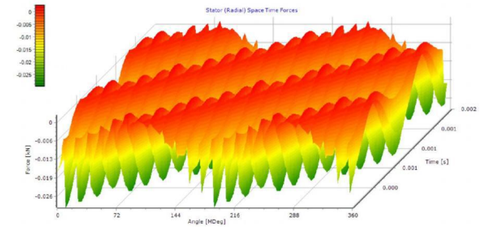
Xinlei magnetic bearings

- Radial and axial integrated modular design, compact structure and stable performance;
- Oil free oil, zero friction, low power consumption, only 3~10% of conventional oil bearings, and the higher the speed, the more obvious the energy-saving effect;
- Stable and reliable, the magnetic bearings can withstand continuous severe surge of the compressor for a long time without falling.

Permanent magnet synchronous motor technology



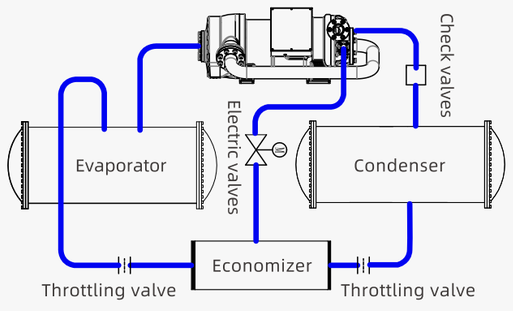
Electromagnetic finite element analysis of high-speed permanent magnet motors

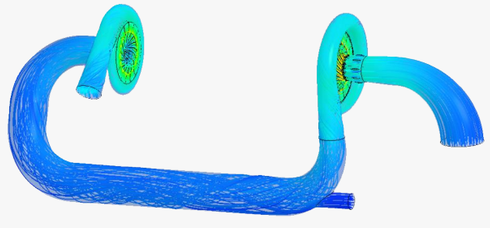


2D time-domain torque distribution of high-speed permanent magnet motors

- The permanent magnet synchronous motor has a compact structure, and the motor efficiency is > 95% in all working conditions, and the maximum is 97.5%.
- The space vector pulse width modulation technology is used to achieve energy saving in the full load operating range.
- **H-class** insulation design, real-time monitoring of stator temperature, to achieve precise cooling of the motor, high reliability.

Two-stage compression + gas enthalpy enhancement technology, the unit has higher energy efficiency





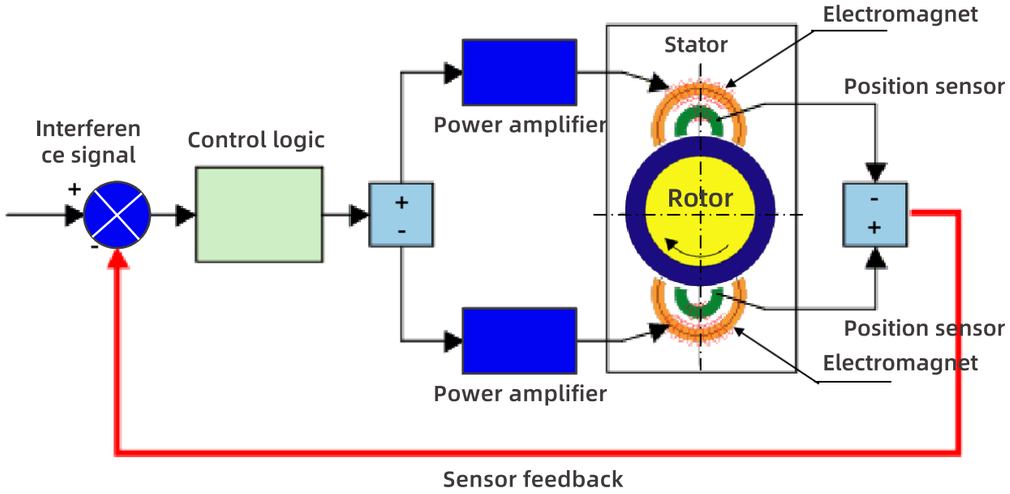
- CFD simulation and optimization of the whole flow field, high aerodynamic efficiency, innovative pipeline return design, uniform air supply, and small pressure loss.
- The two-stage compression and replenishment gas increase enthalpy, which is 6% higher than that of single-stage circulation.

stable and reliable

Direct Drive + Horizontal Opposite Technology

- Adopt direct drive, no transmission loss, **100% transmission efficiency**;
- Impeller horizontally opposed, axial thrust offset each other **more than 90%**, has a good self-balancing, and the thrust bearing safety margin is greatly improved;
- Compared with tandem arrangement compressor, the vibration is smaller, the critical speed is higher, it is more suitable for large pressure ratio and high speed operation, and has higher reliability.

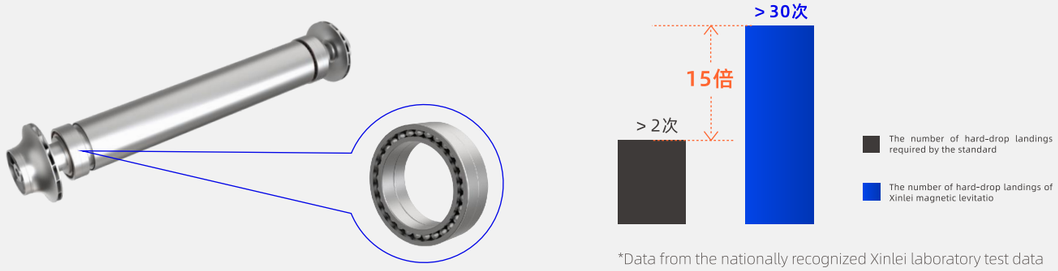
Active bearing control technology



The digital controller for magnetic bearings is equipped with 8 high-resolution position sensors to achieve superior vibration reduction control.

Five-degree-of-freedom active bearing control, **10kHZ** position dynamic scanning and adjustment, **μm-level** control accuracy, and accurate shaft suspension.

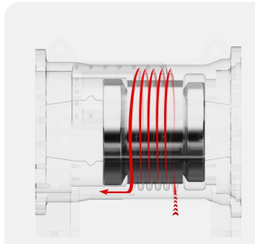
High Precision Ceramic Ball Bearings



- High-precision ceramic ball bearings with high precision, high temperature resistance, wear resistance, long service life, and complete protection of the compressor rotor and magnetic bearings in case of abnormal power failure;
- Under the stable working condition of heavy load and large pressure ratio heat pump, cut off the power supply of bearing and motor directly without activating the auxiliary power supply system, and the number of full-speed hard drop is **more than 30 times**.
- **15 times** higher than the industry standard to be released, which stipulates that “the number of hard drops passed 2 times”.

Multiple baffles 360° annular cooling

- CFD full flow field analysis and optimization design of motor cooling channel, **360° annular cooling**, to achieve fast uniformity Cooling.
- The refrigerant is circulated for cooling, the cooling effect is better, and the motor can keep the temperature low under harsh working conditions, Longer service life.



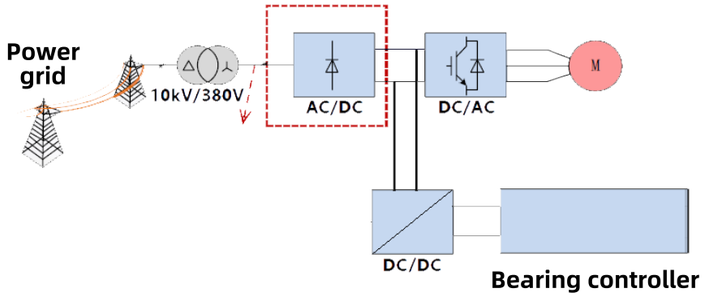
Built-in IGV Technology

- Intelligent self-calibration to ensure accurate opening control;
- Built-in IGV structure with worm gear transmission, high transmission torque, **self-locking** advantage, high control accuracy;
- Adoption of stepper motor control, which is installed inside the compressor, the motor is small and compact, good for the environment and no risk of leakage.

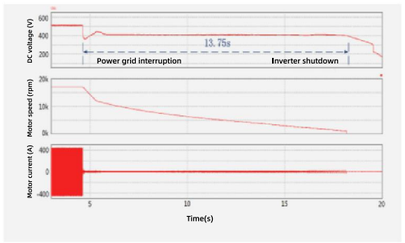
Bearing power supply

Reverse generation (optional)

- When the power is suddenly cut off, the "permanent magnet motor + inverter" will automatically switch to the generator mode, and the inertial parking kinetic energy of the permanent magnet motor will be converted into electrical energy, and the bearing will be supplied with power.It is taken from the inverter bus, and the wide
- working voltage of 200-800V is designed to ensure the continuous and stable operation of the bearing. Ensure that the rotor of the motor continues to suspend during rotation until it is lower than the "safe alternate speed" of 900rpm, and smoothly descends to the alternate bearing to protect the bearing from damage.

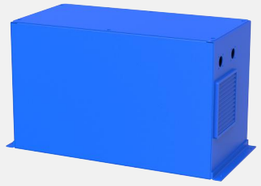


Power off and steady stop

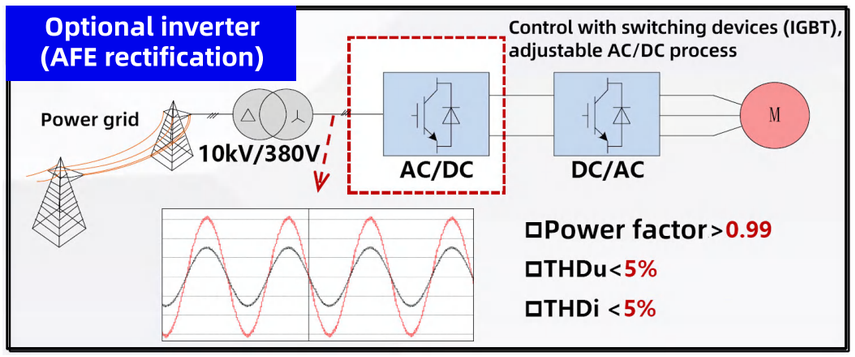


UPS (optional)

- All-in-one integrated power module design, including UPS, AD/DC DC power supply, base CFD analysis of heat dissipation air duct design, protection level ≥ IP54;
- Ensure that the rotor of the motor continues to suspend during rotation until the "safe alternate speed.", 0rpm, a smooth descent to the alternate bearing, fully protects the bearing from damage;
- UPS adopts lead-acid battery, which has mature technology, low cost and high safety factor,Easy to maintain.

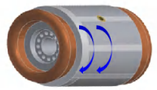


Professional harmonic control (optional)



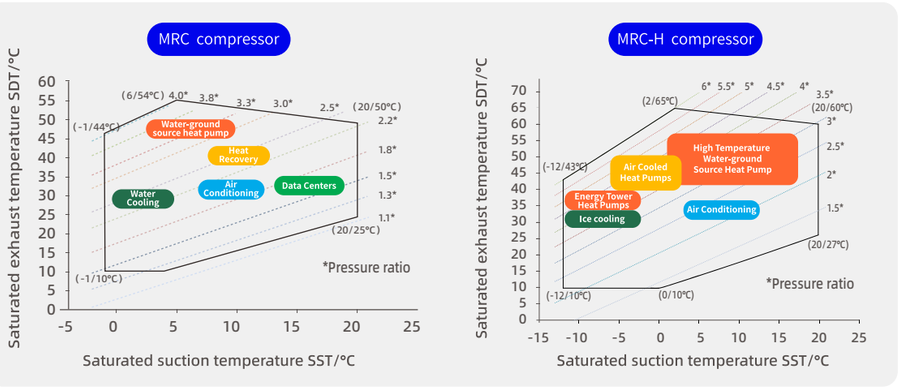
- Automatic power factor correction: 0.99;
- Professional harmonic control scheme (APF or four-quadrant);
- The total harmonic distortion rate is <5%, and the harmonic interference is very low.

Wide range operation



Rotation speed adjustment

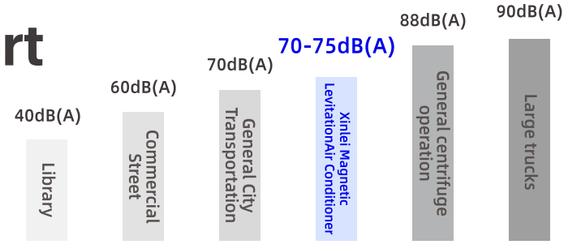
Guide vane adjustment



- The unit adopts frequency conversion speed control + imported guide vane (IGV) to jointly regulate the cooling capacity, which can realize 10%~100% cooling capacity regulation for regular working conditions without hot gas bypass
- MRC compressor adopts multi-condition design, mainly for air-conditioning conditions, taking into account the data center and water and ground source heat pump, heat recovery conditions.
- The MRC-H series compressor has a rated pressure ratio of 4.2 and a maximum pressure ratio of 6.0, and can be used in water and ground source high-temperature heat pumps, energy tower heat pumps, air-cooled heat pumps, ice storage and other scenarios.

Low noise comfort

- Operating noise as low as 70dB(A);
- Oil-free and frictionless, reducing the transmission noise of mechanical parts;
- Compressor horizontally opposed impeller + external pipeline type refluxer structure reduces the aerodynamic noise of refrigerant in the flow process.



Scope of supply

Number	Name of parts and materials	Quantity	Configuration
1	Compressor main unit	1	●
2	Compressor interstage connecting pipe	1	●
3	Compressor controller assembly	1	●
4	Magnetic bearing power module box (switching power supply, UPS, etc.)	1	●
5	Magnetic bearing control unit	1	●
6	Compressor controller connection line	1	●
7	Frequency inverters	1	●
8	Motor-cooled electronic expansion valve with electronic expansion valve drive	1	●
9	Suction pressure sensor	1	●
10	Discharge pressure sensor	1	●
11	Suction and discharge gas temperature sensor (PT1000)	2	○
12	Compressor damping pads	4	○
13	Discharge check valve	1	○

Note: ●Standard ○Optional The above is the standard scope of supply of compressor, if you have special requirements, please contact Xinlei technical personnel.

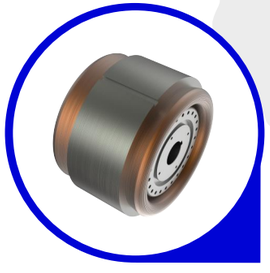
SCD single-engine two-stage screw compressor

One-stop solution

SCD single-engine two-stage screw refrigeration compressor series is developed by Xinlei and Xi 'an Jiaotong University cooperation, relying on Xi 'an Jiaotong University's strong academic research platform, the development of a new generation of 5∶7 asymmetric new efficient patented tooth shape, innovative use of double motor direct connection design, with double VI content product ratio adjustment technology, efficient permanent magnet synchronous motor design, etc. Thus, the energy saving, high efficiency and stability of the compressor are realized.

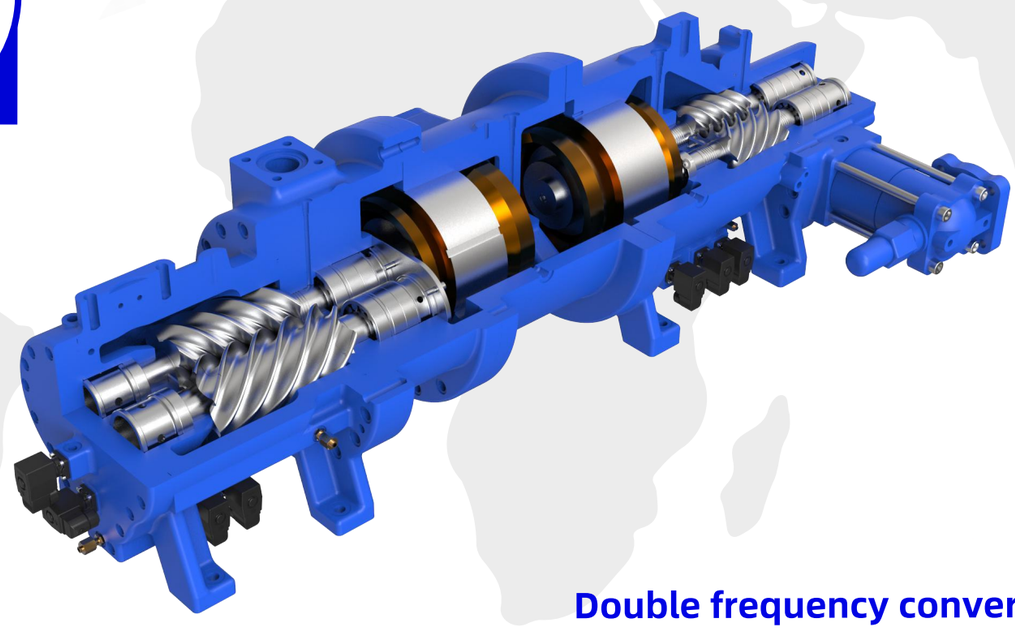
5:7 rotor profil

-The 5∶7 bilateral asymmetric tooth shape design greatly reduces the area of the leakage triangle, **reduces** the **leakage** between the rotor teeth, and achieves higher energy efficiency;
-It can fully realize the sealing of "surface to surface", which helps to **form an oil film** to reduce the transverse leakage of the contact line, and further improve the volumetric efficiency and reliability.



Permanent magnet synchronous motor

-Permanent magnet synchronous motors are smaller and **10% more** efficient than traditional asynchronous motors;
-High-efficiency permanent magnet synchronous motor with **97.5%** efficiency at full load and >95%;
-**High reliability** due to **H-class** insulation design with a maximum temperature resistance of 180℃ efficiency at partial load;



Industry mainstream inverter

-**High reliability**, the whole machine temperature rise test, **long life** design, the selection of a new generation of IGBT technology, high junction temperature, high power density;
-The combination has rich and powerful functions and stable performance, such as integrated motor protection and alarm, communication bus, user programmable, etc.

Carrier frequency **0.8-8k** automatic adjustment

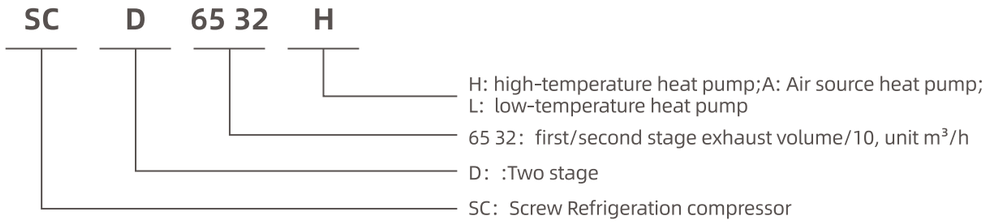
Effectively reduce **motor noise and heat**

Double frequency converters drive high and low pressure -stage motors independently

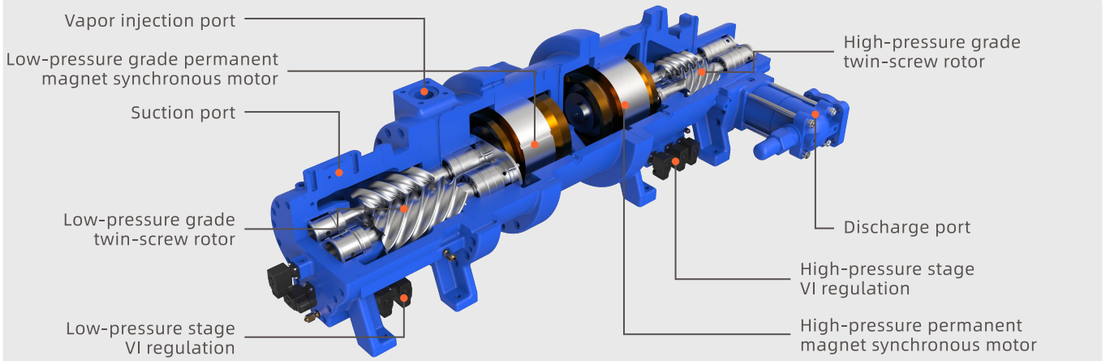
-Adopting double frequency conversion technology, actively and accurately control the pressure between high and low pressure stages to achieve **higher energy efficiency**;
-Frequency conversion is adopted to **avoid** the **energy loss** during partial load operation and further improve the performance of the unit under partial load;
-The space vector pulse width modulation technology enables the motor to run accurately and efficiently in real time, and realize the energy saving of the full load operation range.

SCD SINGLE MACHINE DOUBLE STAGE SCREW REFRIGERATION

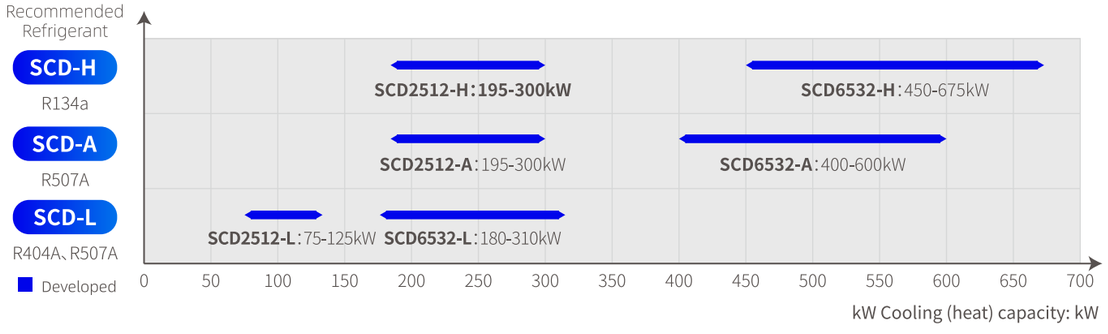
Naming conventions



COMPRESSOR CROSS-SECTION



Product spectrum

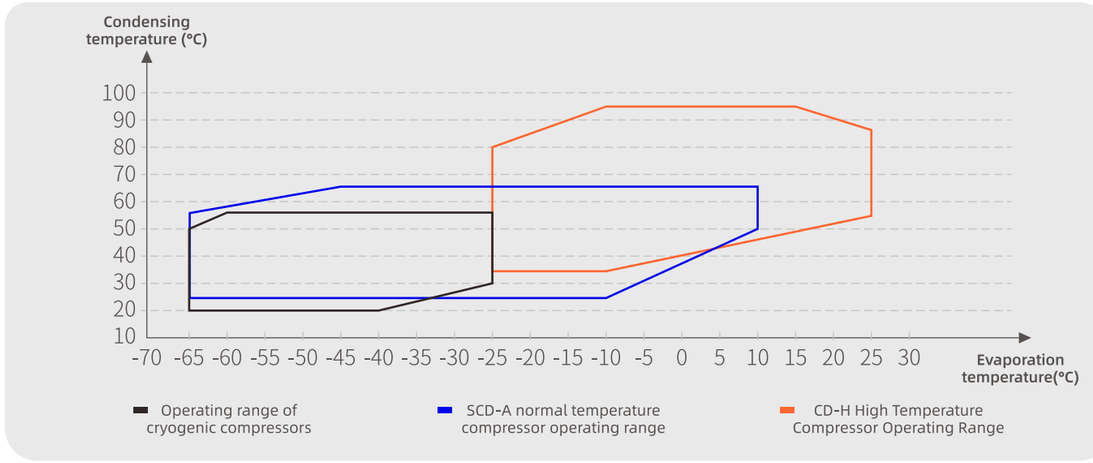


Description of working conditions:

①SCD-H compressor working condition: evaporation temperature 5 °C, condensation temperature 85 °C.②SCD-A compressor working condition: evaporation temperature -20 °C, condensation temperature 43 °C. ③ SCD-L compressor working condition: evaporation temperature -35 °C, condensation temperature 35 °C.

Note: Different types of compressors have changes in refrigeration/heating when using different refrigerants, please refer to the compressor user manual or compressor selection software for details.

Operating range

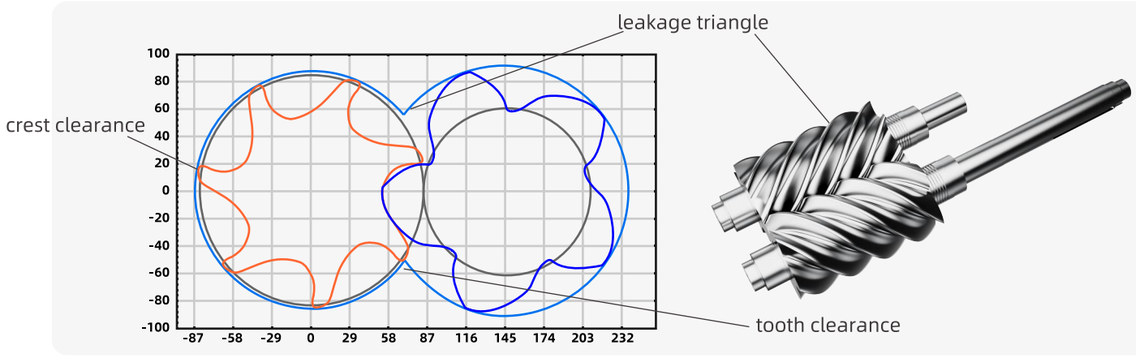


Technical parameters

Models			SCD2512H	SCD2512A	SCD2512L	SCD6532H	SCD6532A	SCD6532L
compressor	Rated speed (Low Voltage Stage/High	r/min	3450/3900			2500/3000		
	Exhaust volume (Low Voltage Stage/High Pressure Stage)	m^3/h	279/132			655/315		
	VI regulation	Low voltage	1.5/2.5/3.3/4.1					
		High pressure level	1.5/2.5/3.0					
Motor	category	/	Permanent magnet synchronous motor					
	power supply	/	380V 6P 172.5/195Hz			380V 6P 125/150Hz		
	Startup mode	/	Variable frequency start					
	protector	/	PTC+NTC					
Lubrication method		/	Differential pressure oil supply					
Strength test		bar	48					
weight		kg	850			1946		
long		mm	1684			2052		
wide		mm	797			988		
high		mm	682			856		
Frequency converters	Model		MD500ET55G			MD500ET132G		
	LxWxH	mm	542×300×275			915×400×320		
	weight	Kg	35Kg			85Kg		
	quantity		2					

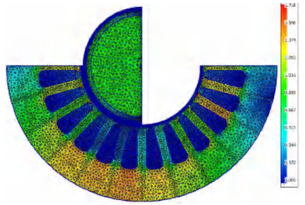
ENERGY EFFICIENT

New patented bilateral asymmetric 5:7 profile design

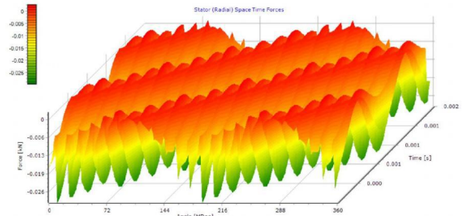


- The new asymmetric profile design significantly reduces the area of the leakage triangle, **reduces** the **leakage**

Permanent magnet synchronous motor + frequency conversion regulation technology



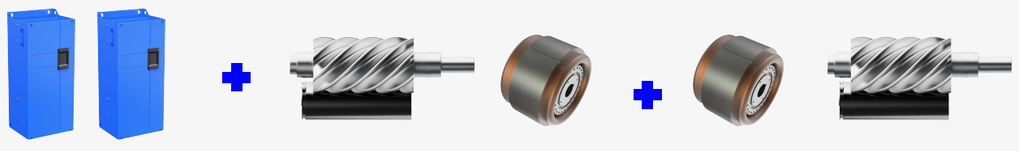
permanent magnet synchronous motor + frequency conversion regulation technology



2D time-domain torque distribution of high-speed permanent magnet motor

- The permanent magnet synchronous motor of compact structure, and the motor efficiency is ≥95% in the full operating range, up to **97.5%**.
- Adopting space vector pulse width modulation technology to achieve energy saving in full load operation range.

Dual VFD + Independent H/L Pressure Control



Dual inverter

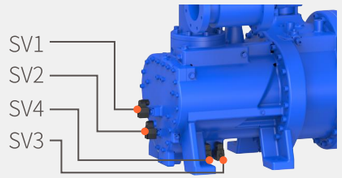
Two-stage

- Dual inverter technology, active and precise control of pressure between high and low pressure stages to achieve **higher energy efficiency**;
- Adjustable VI, combined with dual inverter technology, **the operating range widens**;
- Frequency conversion regulation, **avoiding energy loss** during part-load operation, further improving the operating performance of the unit under part-load conditions.

Dual motor setup - a combination of high efficiency and control

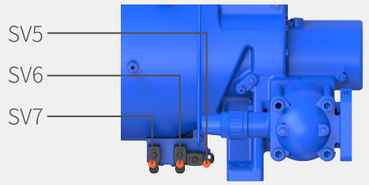
- Direct drive of motors at all levels, the power transfer efficiency can reach **100%**
- Dual-stage motors can be independently controlled and well-matched
- Gear-less + coupling-less, **2% more** efficient transmission

Dual VI Adjustable Tech



Low-pressure stage

Adjustable internal volume ratio for the low-voltage stage: 1.5, 2.5, 3.0, 4.1

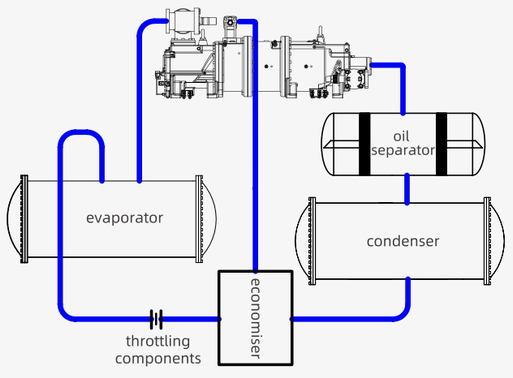


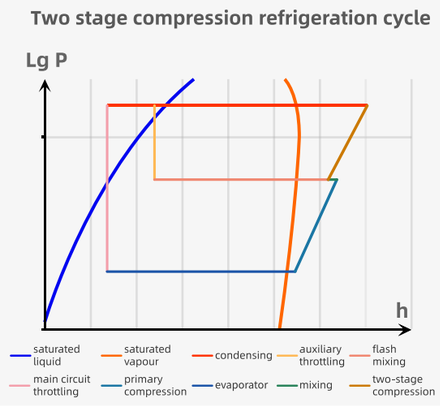
High-pressure stage

Adjustable internal volume ratio for the high-voltage stage: 1.5, 2.5, 3.0

- The high/low pressure level is independently adjustable Vi, which can be **automatically matched with Vi** under the different working conditions according to the fuzzy PID regulation function to achieve the high efficiency operation state.

Vapor injection technology

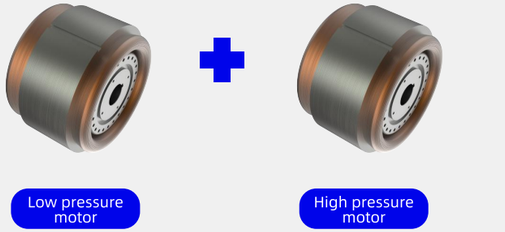




- Double-stage compression of complementary air and increase heat energy,with dual Vi adjustable, dual frequency conversion technology to control the best intermediate pressure in real time, improving the energy efficiency of the whole machine.

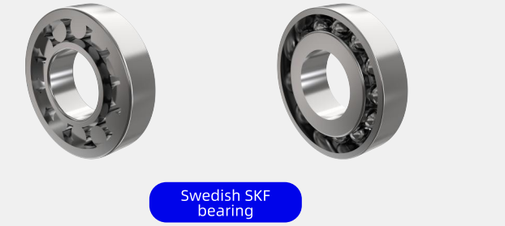
Stable and reliable

High insulation motor design



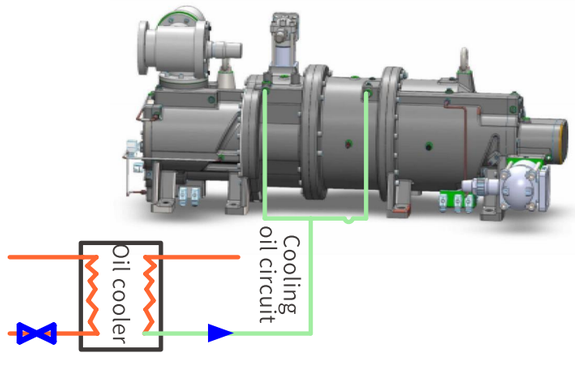
- Low pressure motor and high voltage motor insulation grade are **H class**, temperature resistance **180℃**, compared with F class one grade higher;
- It can ensure that the compressor in the bad condition, the motor can still run reliably.

Adopting imported large brand compressor bearings



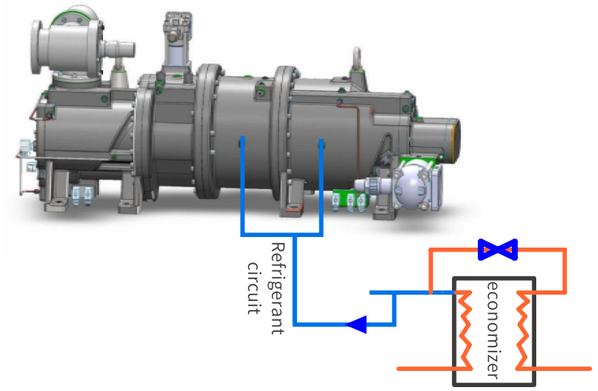
- Swedish SKF bearing, long service life, continuous operation of **more than 50,000 hours.**
- SKF bearing machining accuracy is high, always ensure the stable operation of the compressor.

High pressure stage and low pressure stage independent injection lubrication design



- The high pressure stage and the low pressure stage are equipped with independent oil injection ports, and **the cooled oil can lubricate the high pressure and low pressure stage bearings and the motor through the two oil injection ports** at the same time to ensure the stable operation of the compressor.
- The limit condition can be matched with the appropriate size of the oil cooler to ensure the return oil temperature and lubricate the compressor system.

High pressure stage and low pressure stage independent injection lubrication design



- The high pressure stage and low pressure stage are equipped with independent spray cooling ports, real-time detection of motor temperature through high-precision temperature sensors, and cooling through **their respective spray liquid** under high temperature conditions, **so that the compressor can be quickly and evenly cooled**;
- With the low temperature frozen oil cooled down by the oil cooler, it can play a double cooling effect, the cooling effect is better, and the compressor **can maintain a low temperature work under worse working conditions**, so that its service life is longer.

Scope of supply

Number	Name	Quantity	Configuration
1	Compressor host	1	●
2	Suction shutoff valve	1	●
3	Exhaust shutoff valve	1	●
4	Exhaust non-return valves	1	●
5	Economizer shut off valve	1	●
6	Economizer non-return valve	1	●
7	Shock-absorbing pad	8	●
8	Foundation bolt	8	●
9	Pressure sustaining valve	1	○
10	Differential pressure switch	on demand	○
11	Oil line magnetic valve	1	○
12	Oil flow switch	1	○
13	External oil filter	1	○
14	Oil line sight glasses	1	○
15	Oil heater	on demand	○
16	Refrigerant oil	on demand	○
16	Inverter	2	●

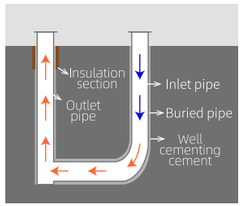
Note: ●Standard ○Optional The above is the standard scope of supply of compressor, if you have special requirements, please contact Xinlei technical personnel.

Compressors with heat pump unit applications

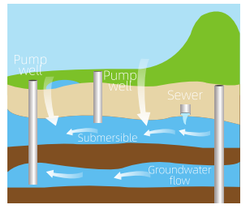
Ground water source heat pump unit

Heat source

Surface water source



land management water



underground water source

polluted water

5℃-20℃

Host equipment

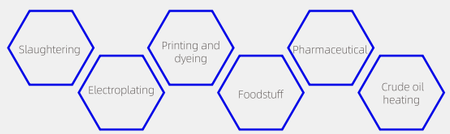
High temperature water （ground）source screw heat pump unit

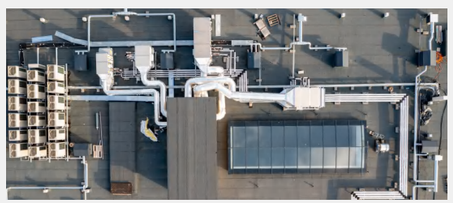
Magnetic levitation frequency centrifugal chiller(heat pump)unit

60℃-90℃

40℃-65℃

Pipe network





Users

public buildings

commercial services

civil buildings

agricultural insulation

Energy tower heat pump unit

Heat source

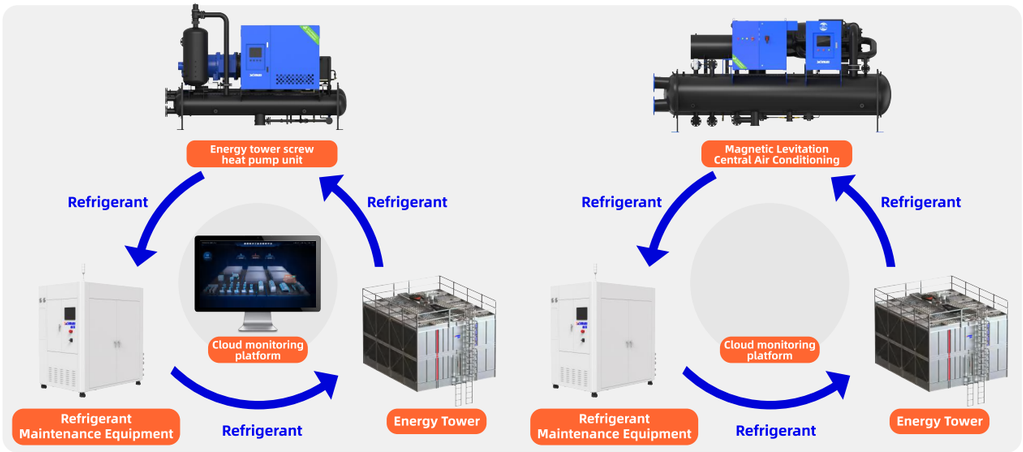
Low temperature environment

-25℃-43℃

Normal temperature environment

-2℃-43℃

Host equipment



40℃-65℃

Pipe network

secondary pipe network

Users

Industrial heating

residential buildings

commercial buildings

Air source heat pump unit

Heat source

Normal temperature environment

-2℃-43℃

Low temperature environment

-35℃-43℃

Host equipment

Air-cooled magnetic levitation centrifugal heat pump unit

Ultra-low annular temperature air screw heat pump

35℃-45℃

40℃-65℃

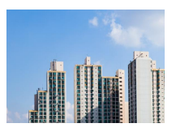
Pipe network

Direct Supply

Users

commercial services

public buildings



residential buildings

agricultural insulation

commercial buildings

residential heating

Case

Minghua Gear

Project Introduction

Minghua Gear Co., Ltd. specializes in manufacturing precision gear systems and mechanical parts.While consolidating traditional products, the company has developed gears and transmissions for light trucks, trucks and cars, so that production, reserve, research and development can be carried out simultaneously.The company is located in the coastal area of Taizhou, Wenling, warm and humid. So precision instruments have high requirements for air temperature and humidity.

Project Highlights

Xinlei Magnetic Suspension Cooler adopts Xinlei's self-developed magnetic compressor, which has the characteristics of low noise, high energy efficiency and longer life with efficient design, ingenuity and precision manufacturing, which fully meets the needs of air conditioning in the complex industrial environment and provides a more efficient and stable air conditioning solution.At present, the operation process is very stable, not only to meet the needs of precision CNC lathes, but also to provide a cool working environment for workshops, offices, canteens and other places.Their old factory adopt 10 air-cooled module machines, but after effective comparison, Xinlei Magnetic Suspension Cooler is 50% more energy-saving than the original air-conditioning unit, so as to save costs and create value for the company..

Energy saving rate

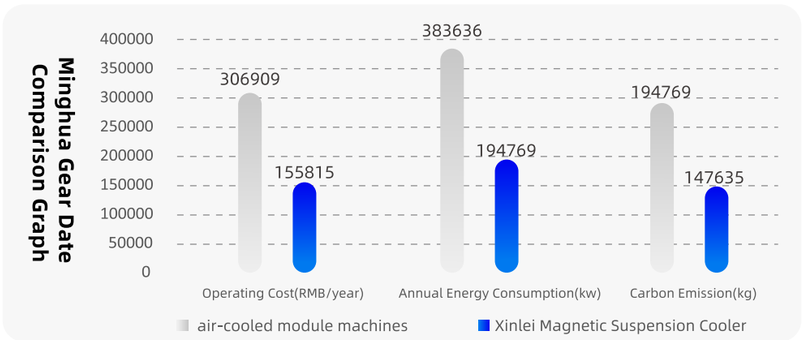
50 %

Annual Operating Cost Saving

150,000 RMB/year

Reduce Carbon Emissions

14.3 tons/year



Case

Energy Bearing

Project Introduction

Zhejiang Energy Bearing Technology Co., Ltd. (formerly Taizhou Ruili Bearing Co., Ltd.) is a modern enterprise specializing in the production of various medium and small metric and inch tapered roller bearings, and gradually extends the development and production of short cylindrical bearings, construction machinery, agricultural machinery, and bushings for automobile transmissions.The company is located in Taizhou, the beautiful mountain and sea city of "Holy Land and Manufacturing Capital". It is warm and humid all the year round, so the temperature and dehumidification capacity of the air conditioning system are more demanding.After a lot of investigations and comparisons, they chose two 150RT Xinlei Magnetic Suspension Central Air Conditioning, just to meet its three layers (each layer 50*70*6m) machining workshop.

Project Highlights

The project has been in operation for more than 8,000 hours without any anomalies. Xinlei's machines have show excellent reliability and stability, to adapt the harsh production environment of energy bearings, with overall energy efficiency of 6.4.Xinlei Magnetic Suspension Central Air Conditioning, introduced magnetic suspension technology, the application of industrial magnetic bearings, no lubricating oil, zero friction, low power consumption, reducing the company's energy consumption and maintenance costs.The overall energy efficient design reduces the impact on the environment, in line with the company's environmental philosophy.At the same time, the system is equipped with an intelligent control system, which enables flexible temperature and humidity regulation, increasing comfort and energy efficiency.

Comprehensive Energy Efficiency

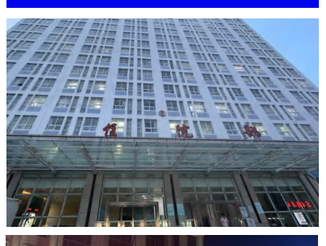
6.4

Total running time (no faults)

8000 h

Case

Zhengzhou Orthopedic Hospital



Project Introduction

Zhengzhou Orthopedic Hospital is a specialized orthopedic medical institution, committed to providing high-quality medical care and comfortable environment for patients.With the expansion of the scale of the hospital and the increase of the number of patients, the demand for environmental control in the hospital is getting higher and higher. In order to improve the comfort of patients and medical staff, the hospital decided to upgrade the indoor cooling system in the inpatient department.
The design area of the project is 449,972.13 square meters, and a Xinlei XLMC350 was installed to provide an efficient indoor cooling solution for the hospital, ensuring that the indoor temperature can be maintained in the hot summer, and providing a cool and comfortable hospital environment for patients.

Project Highlights

Efficient Cooling: The Xinlei Magnetic Levitation Chiller provides exceptional cooling performance, effectively and quickly reducing indoor temperatures. This improves the patient experience during hospitalization and the work efficiency of healthcare staff.
Energy Saving and Eco-friendly: Utilizing advanced energy-saving technology, the chiller delivers powerful cooling with low energy consumption. This reduces the hospital's energy consumption and operational costs, aligning with green environmental principles and realizing the sustainable development of hospital.
High Reliability: With oil-free, frictionless operation, ultra-low noise, and stable performance, the chiller is ideal for environments like hospitals that require continuous operation. It provides long-term, stable cooling services, reducing the frequency of equipment malfunctions and maintenance, ensuring the operation of hospital.