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EKACCR1 202012-CATALOG -BA

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EK EUROKLIMAT[®]

Give life to building & bring us back to nature[™]

Apollo Smart Series Large Air-cooled Chiller
(Heat Pump)



**Apollo Smart Series Large Air-cooled Chiller
(Heat Pump)**

Model: EKAC1200CR1
Refrigerant: R410A



TAH-VIEHSAI
Cooling System Solutions



EK

Energy-saving Air-conditioning Expert From Europe

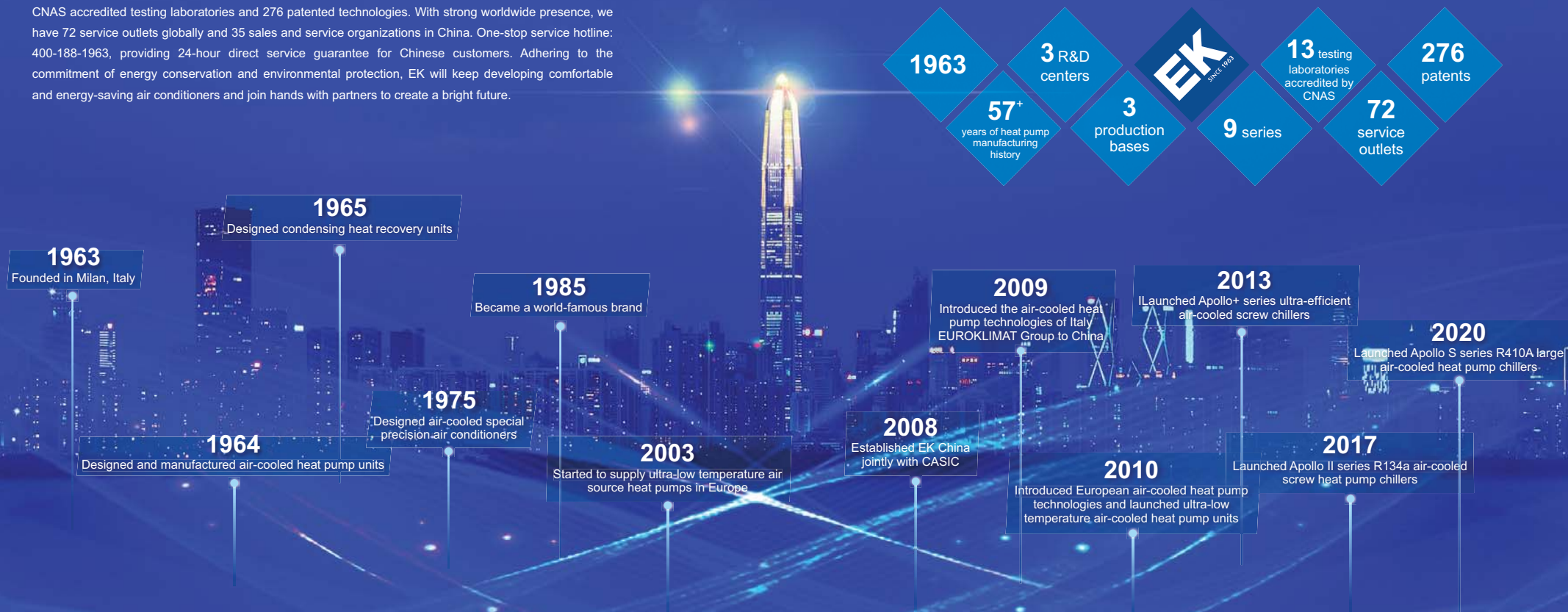
EUROKLIMAT Group was established in Italy in 1963. Over the past half century of development along with continuous innovation and exploration, it has grown into a leading energy-saving air conditioning brand in Italy, Spain and the entire European market.

As a joint venture between EUROKLIMAT Group and China Aerospace Science and Industry Corporation (CASIC) in China, EK China is a modern air-conditioning industry under CASIC and the manufacturing base and sales and service organization of EUROKLIMAT Group in Asia.

EK currently has three major R&D centers in Italy, Germany, and China, and multiple production bases of nearly 280,000 square meters, with thousands of models of products in nine series. We also have 13 CNAS accredited testing laboratories and 276 patented technologies. With strong worldwide presence, we have 72 service outlets globally and 35 sales and service organizations in China. One-stop service hotline: 400-188-1963, providing 24-hour direct service guarantee for Chinese customers. Adhering to the commitment of energy conservation and environmental protection, EK will keep developing comfortable and energy-saving air conditioners and join hands with partners to create a bright future.

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Product introduction

In Greek mythology, Apollo is the god of the sun and light. Adhering to the design quintessence of European leading air-cooled heat pump chillers, Apollo S series large air-cooled chiller (heat pump) brings together the scientific and technological achievements of EK for designing and manufacturing chiller systems for more than half a century. It uses energy-efficient scroll compressors, R410A environmentally friendly refrigerants, high-efficiency shell-and-tube heat exchangers, and AI defrosting technology, as well as cutting-edge microcomputer control technology, it brings users an excellent sense of experience, and achieves cooling in summer and heating in winter. Therefore, it is the first choice for the central air-conditioning systems for high-end hotels, office buildings, schools, hospitals, factories and enterprises, and many various large- and medium-sized public buildings and civil buildings.

Nomenclature

EKAC	1200	C	R	1	-	F	AA
1	2	3	4	5	6	7	

1. EKAC EK large air-cooled chiller (heat pump)
2. 1200 Cooling capacity code
3. C Design no.
4. R Functional type
R: cooling and heating type; cooling type (default)
5. 1 Refrigerant code: 1: R410A; R22 (default)
6. F Power supply features: F: 380V/3N~/50Hz
7. AA Specific description of product specification changes



ISO9001 : 2015
Certification of Quality
Management System for
Enterprises



Inspection
CNAS L5123
Testing Laboratory Accredited
by CNAS

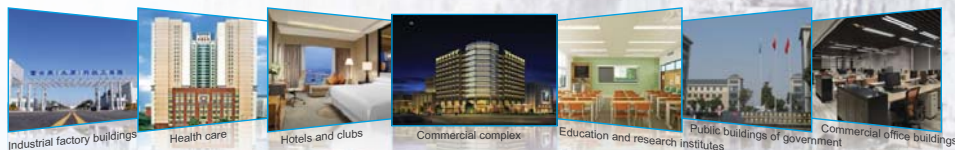


ISO14001 : 2015
Certification of Environmental
Management System



CRAA Certification

Application scenarios



Great Wisdom Cloud Sharing



Apollo Smart Series Large Air-cooled Chiller (Heat Pump)

Advanced Technologies/ Stable and Reliable

NO.1

Adhering to the design quintessence of European leading air-cooled heat pump chillers and combining with the climate characteristics in China, it has achieved energy-saving solutions for air-conditioning systems after 57 years of concentrated R&D and design.

Cooling and heating supply, and wide range operation

The unit has undergone long-term tests by national labs, including a series of tests under extreme conditions such as corrosion resistance, fatigue, and frequent start and stop, allowing the unit to be extremely reliable.

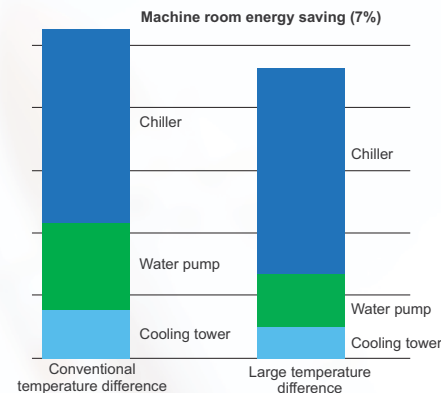


After rigorous long-term tests in accordance with European standards, it can operate normally whether it is cooled in an environment of 15°C to 48°C or heated in an environment of -15°C to 30°C. It can be used in schools, hotels, hospitals, industrial plants and other application scenarios.

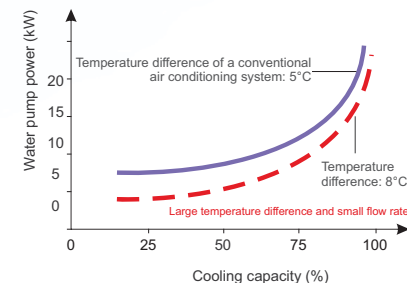


Large temperature difference design

The cold water temperature difference of a conventional air conditioning system is 5°C, the cold water supply and return temperature at the nominal working condition is 7°C/12°C, while the cold water temperature difference of the large temperature difference system is 8°C. As the cold water temperature difference increases, the cold water volume, water pipe diameter, and water pump capacity are reduced, which reduces the initial investment by 5%-10% and operating costs.



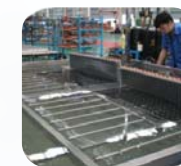
Comparison of annual consumption between conventional and large temperature differences in a chiller room (for reference only)



Energy saving effect of water pump under partial load

Professional manufacturing and performance-focused

- EK has national-level full-performance laboratories (registration no.: CNASL5123), which can measure up to 1800 kW. When completed, it was the largest air-cooled heat pump laboratory in Asia. It fully and accurately simulates the test conditions of all working conditions, and ensures the high reliability of the system while pursuing the excellent performance of the unit.
- Fully automatic inspection is a new leap between "Internet +" and "intelligence". It performs full inspection and judgment on product components and operating parameters, and automatically completes data collection, data processing, switching among operating conditions, and test result output to ensure the quality stability of each unit.
- Multiple preventive measures: the maximum water seal test pressure of the heat exchanger is 4.8 MPa; vibration tests are performed in accordance with the international transportation standards.



Water seal test



Vibration tests in accordance with the international transportation standards

Anti-freezing and defrosting

Four-step frost protection in winter

The unit supports water pump linkage control anti-freezing, temperature sensor linkage protection, pressure sensor linkage protection, and heating and anti-freezing.

Suspending fin heat exchanger

This can prevent the accumulation of rain and snow during the heating process, and avoid condensed water freezing at the bottom of the heat exchanger during the defrosting process.

Centralized drainage

The drain pan with high drainage capacity is conducive to smooth drainage of condensed water during defrosting.

Thermal radiation anti-frosting design

A unique heat radiation anti-frosting device is equipped in the last refrigerant circuit at the bottom of the heat exchanger. When defrosting, high-temperature refrigerant is introduced into the bottom to effectively prevent the bottom from freezing.

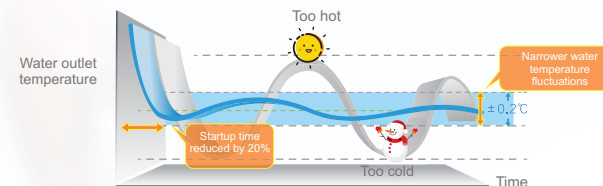
Weatherproof function

The unit will not be covered by heavy snow when it is idle in winter.



Constant water temperature for enhanced comfort

- The chilled water outlet temperature is controlled to an accuracy of $\pm 1^\circ\text{C}$, and various built-in sensors can accurately transmit the signal data to the controller for improved operation reliability.
- With the standard outlet water temperature control, the unit allows for constant water temperature and more accurate temperature adjustment at the air outlet side, contributing to optimum user experience. The optional return water temperature control can optimize the efficiency of the unit while ensuring the dynamic balance of the end user.
- Multi-level password protection prevents misoperation by non-professionals and ensures the safe operation of the unit.



More accurate outlet water control and narrower water temperature fluctuations

Noise reduction design for quiet operation

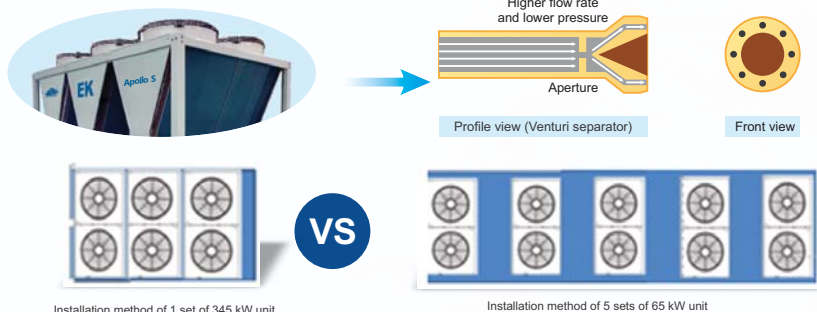
- Overall vibration isolation: Quality low-noise and fully enclosed scroll compressor and low-noise fan are adopted. Through noise spectrum analysis, it carries out strict comparison, selection and improvement of fans, motors and other components, and performs professional noise reduction on the structure and pipelines, to effectively reduce the vibration of the key nodes of the pipelines through elastic fixing parts, and systematically optimize the direction of the copper pipes.
- Enclosed sheet metal structure at the lower part (optional): For effective shielding of compressor noise.
- Innovative intelligent silent mode: Auto control of fan speed (high/low gear) based on unit operating status and outdoor air temperature, to implement low-noise operation (noise reduced by 6 dB(A)).



High Quality/ Low Noise

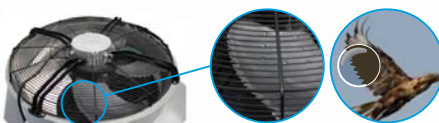
High-efficiency air-side heat exchanger with seamless splicing

- The V-shaped air-side heat exchanger of the unit conforms to the characteristics of airflow distribution, provides the largest windward area of the coil, and has the characteristics of good ventilation performance, large heat exchange area and strong corrosion resistance.
- The heat exchanger adopts window-type hydrophilic aluminum fins and high-efficiency internally threaded copper tubes to enhance the heat exchange effect and improve the heat exchange efficiency.
- The new Venturi separator is used in the fin condenser, and the refrigerant is evenly distributed to reduce pressure loss, reduce noise, and effectively improve heat exchange efficiency.
- The surroundings are fixed by a reinforced metal frame to ensure higher firmness and higher stability and allow the entire unit structure to have a larger maintenance and repair space and flexible layout by saving the floor space by 30%.



High-efficiency and low-noise airfoil fan

- Adopt high-efficiency and low-noise airfoil axial flow fan made of aluminum alloy. The dual fans are symmetrical, and the inclination angle and edge design are optimized to effectively control air turbulence and reduce air vortex generation.
- The high-efficiency and low-noise motor realizes silent operation at night, with greater air flow and lower noise.
- The protection grade of fan metal mesh enclosure and motor is IP55. It can be used in severe weathers such as strong winds and heavy rains, ensuring that the unit can still operate safely and reliably in extreme weather.



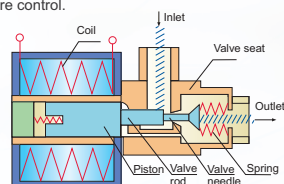
Electronic expansion valve with accurate temperature control

Quality grade-500 PMV electronic pulse is adopted for precise adjustment, to realize the precise PID control of electronic expansion valve, real-time dynamic matching, and higher precision of water temperature control.

EK throttle apparatus (electronic expansion valve)



- Electronic servo throttling
- Wide-range adjusting ability
- Dynamic superheat degree adjusting
- Strong adaptability to working conditions
- Adapting to any flow regulation



Environmentally friendly galvanized sheets in response to EU RoHS Directive

EKAC series unit adopts environmentally friendly galvanized sheets certified by EU RoHS. The EU RoHS Directive stipulates that the following six hazardous substances (lead, mercury, cadmium, hexavalent chromium, polybrominated diphenyl ether (PBDE) or polybrominated biphenyl (PBB)) are prohibited to be used in electrical and electronic equipment. EK strictly controls the use of hazardous substances in the manufacturing process, aiming to protect the health of the users and ensure that the recycling and disposal of scrap electronic and electrical equipment meet environmental requirements.



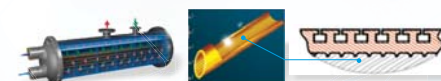
High-efficiency scroll compressor with stable operation

Adopt international well-known high-efficiency scroll compressor which adopts international leading technologies, and radial flexible and axial flexible scroll compression technology, and add compressor crankcase heater design to prevent high starting resistance of the compressor due to excessive viscosity of lubricating oil. Multiple safe overload protections ensure stable, efficient and reliable operation.



Energy-efficient water-side heat exchanger

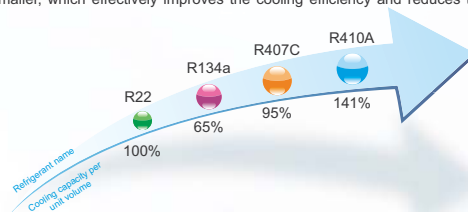
- The new shell-and-tube heat exchanger adopts a spiral heat exchange structure which has a spiral baffle with sealing edge inside, to reduce water resistance and enhance heat exchange capacity.
- The high-efficiency inner-threaded heat exchange tube effectively enhances the heat exchange effect. The refrigerant inlet area adopts inner-threaded heat exchange tube to realize better refrigerant distribution and heat exchange, with the efficiency 10% higher than that of conventional shell-and-tube heat exchangers.



Core Technologies/ Energy-efficient

R410A refrigerant (environmentally friendly)

- With the environmentally friendly refrigerant R410A which contains no chlorine and has an ozone depletion potential (ODP) of 0, Apollo S series large air-cooled chiller (heat pump) will not damage the ozone layer and has no prohibition period.
- Under the same cooling conditions, the injection volume is smaller, which effectively improves the cooling efficiency and reduces the unit weight.



Cooling capacity per unit volume: the cooling capacity generated when refrigerant per unit volume flows in the refrigeration system.
R22 is used as the relative value of 1 in the table.

Energy-efficient

Innovating the European leading air-cooled heat pump design concept, Apollo S series chiller is superior in performance and efficient in operation, and can meet the second-level energy efficiency standard (COP higher than 3.2), and the needs of energy conservation and environmental protection.



EER at full load up to 3.32

Advantages of large air-cooled chiller (heat pump) compared with 130 kW air-cooled module

The cooling capacity range of large air-cooled chillers (heat pump) overlaps with small air-cooled modular units in terms of cooling capacity and application scenarios, replacing part of the market for air-cooled modular units. Compared with small air-cooled module units, large air-cooled chillers (heat pump) have the following advantages:



Item	Large Air-cooled Chiller (Heat Pump)	130 kW Air-cooled Modular Units
Cooling capacity for single unit (kW)	345	130
Number of units	1	3
Engineering installation cost	Less pipelines and valves, only valves corresponding to one main unit are required, less labor forces and lower cost	The water inlet and outlet of each main unit need soft joints, butterfly valves, thermometers, etc., with multiple pipeline valves, thus resulting in higher labor cost.
Noise	Noise comparable to that of small air-cooled modular units	Low noise and small vibration
Floor area	Small floor area	Large floor area

Advantages of large air-cooled chiller (heat pump) compared with small air-cooled screw chiller

The cooling capacity range of large air-cooled chillers (heat pump) overlaps with small air-cooled screw chillers in terms of cooling capacity and application scenarios, replacing part of the market for air-cooled screw chillers.

Compared with small air-cooled screw chillers, large air-cooled chillers (heat pump) have the following advantages:



Item	Large Air-cooled Chiller (Heat Pump)	Air-cooled Screw Chiller (Heat Pump)
Noise	Scroll compressor, fully enclosed design, low noise, and small vibration	Screw compressor, semi-enclosed design, bigger noise and bigger vibration than that of scroll chillers
Installation	Light weight, easy to transport and install	Heavy weight, requiring special equipment
Maintenance cost	Low	High
System stability	Multi-system design and high stability	In case of any failure, the entire unit is unable to run, with low stability
Starting mode	Hierarchical start, with little impact on the power grid	Y-Δ start as the large power of a single compressor has a certain impact on the power grid

AI defrosting with innovative technologies

Based on the big data platform, the EK units adopt AI technology to develop AI defrosting technology for accurate and quick defrosting. AI defrosting technology has the advantages of multi-dimensional identification, correction, deep optimization, self-learning, and deregulation.

Development history of defrosting technology

Heating-based Defrosting	First Generation	Second Generation	Third Generation
Mode	Time defrosting technology	Constant temperature defrosting technology	More accurate AI defrosting technology
Principle	Simple commutation time defrosting	Set temperature according to weather conditions to control the defrosting value	Accurate judgment based on the change rate of heat exchange temperature difference
Intelligence	Fixed mode	Fixed mode	Intelligent and real-time system adjustment
Adjustment range	Narrow range; defrosting can only be performed at specified time	Narrow range; defrosting can only be performed according to the set temperature	Wide range; automatically adapt to changes in local climate and weather conditions, and can determine the defrosting entry point and exit point in time, and defrost completely.
Defrosting characteristics	Unable to measure whether there is frost and frosting amount on the fin heat exchanger. Easy to cause electrical energy waste. Reduce the heat exchange efficiency of the unit and affect the normal operation of the unit.	Unable to accurately determine the defrosting entry point, which will cause delays in defrosting, resulting in incomplete defrosting or redundant defrosting operations; result in insufficient heating and waste of energy.	AI defrosting technology can better deal with multi-dimensional, uncertain and variability issues, and correct control parameters in real time to obtain the optimized heating effect.
AI defrosting application	Most manufacturers adopt the first-generation of time defrosting technology	A few manufacturers adopt the second-generation constant temperature defrosting technology	EK pioneered AI defrosting technology, leading the industry.

DEVELOPMENT HISTORY OF DEFROSTING TECHNOLOGY>>

First Generation



Second Generation



Third Generation



Advantages of AI defrosting

For contractors and distributors:

China has a vast territory, diverse climate, obvious seasonal alternations, and large temperature differences between winter and summer. It is cold and dry in winter in the northern region, and wet all year round in the Yangtze River basin region. The frosting process of air-cooled heat pump chillers is mainly affected by the evaporating temperature and is related to changes in ambient temperature and humidity. The AI self-tuning defrosting technology of "variable temperature difference" can better consider changes in ambient temperature and humidity, thus defrosting completely and exiting in time. AI technology simplifies complex multi-variable problems, and is universally applicable to various models. It can obtain good heat pump performance in different regions and various climatic conditions, with good adaptability and broad application prospects.

For energy management:

Introducing adaptive technologies, AI defrosting can judge whether frosting occurs and the degree of frosting by collecting external temperature data, refrigerant evaporation pressure, discharge pressure change, defrosting time, cycle and other variables, and automatically enter the intelligent "cloud computing" dual-mode for defrosting. This allows the unit, which can only operate mechanically, to realize self-learning, self-adjustment, and self-optimization, thus improving the energy efficiency and reducing energy consumption.

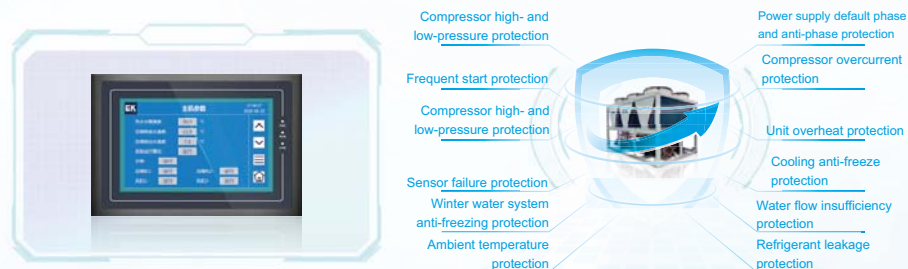
For users:

AI defrosting technology can identify, correct, deeply optimize, and effectively delay frosting, and achieve outdoor defrosting efficiently and quickly with small water temperature fluctuations, thus improving user experience.



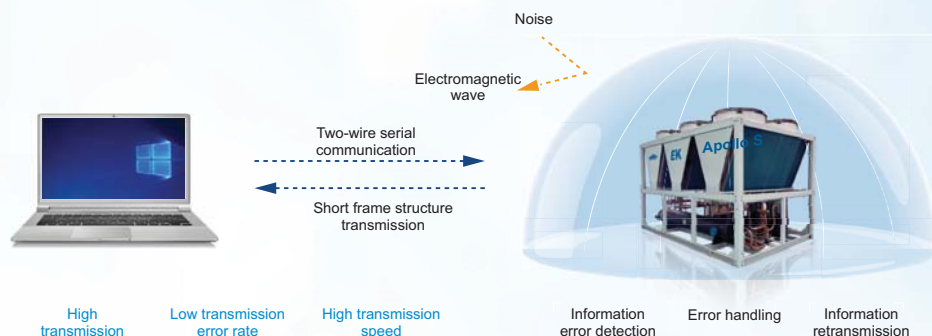
Convenient intelligent control with multiple protection

- Adopting a microcomputer control system and standard touch LCD controller, the unit is easy and fast to use. The optional RS485 standard communication interface and built-in Modbus communication protocol can achieve network group control. 7-inch touch screen is optional.
- The unit has 13 built-in powerful protection functions to achieve all-round protection, including compressor high- and low-pressure protection, power supply default phase and anti-phase protection, frequent start protection, compressor overcurrent protection, compressor discharge temperature protection, unit overheat protection, sensor failure protection, cooling anti-freeze protection, winter water system anti-freezing protection, water flow insufficiency protection, and ambient temperature protection.



CAN communication

- Have the advantages of strong real-time property, long transmission distance, and strong anti-interference ability.
- Adopt two-wire serial communication with strong error detection ability, allowing it to work in an environment with high-noise interference.
- Information of short frame structure and hardware check realize small probability of interference data error.
- Reliable error handling and error detection mechanism, and automatic retransmission of information.



Unit control function

Parameter setting function

- Time setting
- Timed ON/OFF for one week
- Cooling water inlet/outlet temp.
- Heating water inlet/outlet temp.
- "Anti-freezing temp, defrosting temp"

Defrosting function

- Auto defrosting
- Manual defrosting function

Memory function

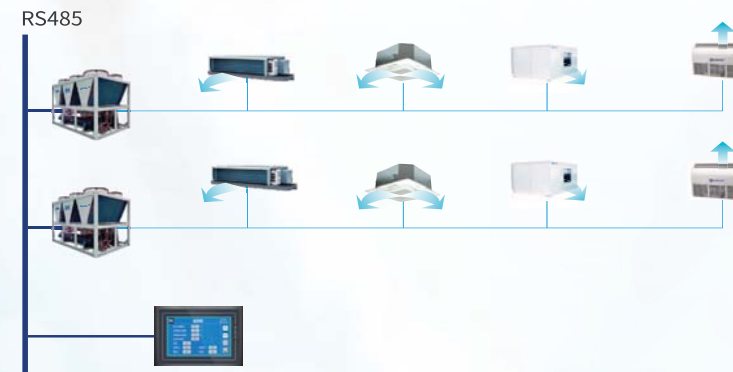
- Memorization function in power outage case
- Permanent storage for user parameters

Other functions

- Fault diagnosis function
- Historical fault query
- Compressor average wear function and module time-sharing startup function
- Water system two-way valve control function
- Auxiliary electric heating control function
- Remote ON/OFF control function within a maximum of 1000 meters
- Start/stop control for chilled water pump
- Pump protection feedback
- Terminal two-way valve interlock control

Master/slave integration

- Any slave module can be used interchangeably as a master module
- Each system can be combined with 16 modules



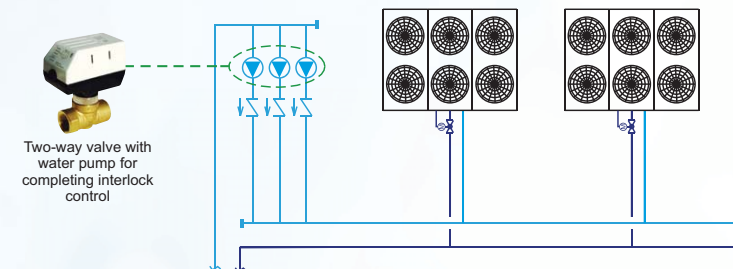
Energy-saving mode of water pump (optional):

Taking advantage of the thermal inertia of buildings, the water pump energy saving mode can be selected at this time to reduce the power consumption of the water pump while maintaining the basic heat required by the buildings. It is mostly used for floor heating and energy saving.

Primary pump variable flow rate system (optional):

Compared with a conventional variable secondary flow system, the variable primary flow system has its refrigerant and load varied. Besides, the system shares the same inverter pumping unit whose flow changes according to air conditioner load in inverse proportion, saving expense on running of chiller pumps significantly. The unit can output a signal to instruct the 2-way valve so as to close the corresponding chilled water valve. When working with the inverter, the unit will automatically adjust pump flow, realizing variable primary flow.

- The unit can be applicable to projects requiring changing chilling load and long load running time.
- Compared with a conventional variable secondary flow system, the variable primary flow system helps users save not only CAPEX on chiller pumps, pipelines, and power distribution systems but also equipment room space.



Convenient Installation and Maintenance

- The unit adopts an integrated structure thus is easy to install. Users only need to power on and supply water for operation, without rebuilding the unit room or purchasing cooling tower and other auxiliary equipment. This effectively shortens the construction period and reduces installation costs.
- Thanks to the integrated design of the electrical part and the main unit, users do not need to set a special power distribution cabinet, saving the complex power distribution work.
- An optional hydraulic module can integrate all necessary hydraulic components such as water pumps (one for use and one for backup), filters, expansion tanks, water pressure gauges, soft joints, and gate valves into one, which greatly saves the initial investment of the system and the design and installation workload, and helps customers be free from worry and save efforts and time.
- It can also provide a variety of combination options such as low lift/high lift/super-high lift, single and double pumps to meet the needs of different customers on site.
- The water pump is controlled by a fixed frequency, and the optional lifts of 10m/20m/30m are available for meeting the project requirements of low lift/high lift/super-high lift.



Note: This is the actual project application diagram of our company, and the specific hydraulic module design can be determined according to the project

Unit specifications

EKAC1200CR1

Model		EKAC1200CR1 2×EKAC1200CR1 3×EKAC1200CR1 4×EKAC1200CR1 5×EKAC1200CR1 6×EKAC1200CR1						
Nominal cooling capacity	kW	345	690	1035	1380	1725	2070	
Nominal heating capacity	kW	355	710	1065	1420	1775	2130	
Total power of nominal cooling capacity	kW	104	208	312	416	520	624	
Operating current under nominal cooling capacity	A	178.3	356.6	534.9	713.2	891.5	1069.8	
Total power of nominal heating capacity	kW	105	210	315	420	525	630	
Operating current under nominal heating capacity	A	179.8	359.6	539.4	719.2	899	1078.8	
Maximum unit operating power	kW	142.6	285.2	427.8	570.4	713	855.6	
Maximum unit operating current	A	246.4	492.8	739.2	985.6	1232	1478.4	
EER		3.32						
Power supply		380V/3N ~ /50Hz						
Refrigerant type		R410A						
Throttling parts		Electronic expansion valve						
Compressor	Type	Fully enclosed scroll compressor						
	Lubricant	Ester oil (POE)						
	Qty	3	6	9	12	15	18	
Water-side heat exchanger	Type	Shell-and-tube						
	Cooling water flow	m³/h	59.3	118.6	177.9	237.2	296.5	355.8
	Heating water flow	m³/h	61.1	122.2	183.3	244.4	305.5	366.6
	Water resistance	kPa	55	55	55	55	55	55
Actual length of inlet and outlet water pipes of single unit		DN125						
Recommended length of inlet and outlet water pipes		DN125	DN150	DN200	DN250	DN250	DN300	
Fan	Type	Axial propeller low-noise fan						
	Qty	kg	6	12	18	24	30	36
Net weight of the unit		kg	2520	5040	7560	10080	12600	15120
Operating weight of the unit		mm	2650	2265	2265	2265	2265	2265
Unit dimensions	Length	mm	3525	2425	2425	2425	2425	2425
	Width	mm	2265					
	Height	mm	2425					
Accessory box model		EKAC-CA031						

Notes:

- Testing conditions of nominal cooling capacity: water outlet temperature: 7°C; water flow: 0.172 m³/(h·kW); outdoor ambient temperature: 35°C.
- Testing conditions of nominal heating capacity: water outlet temperature: 45°C; water flow: 0.172 m³/(h·kW); outdoor ambient dry/wet bulb temperature: 7°C/6°C.
- The unit water resistance does not include filter water pressure drop.
- For combined units, the manufacturer does not offer general water pipes and they must be prepared and installed on site. Diameter of the pipes should comply with design standards.
- In actual applications, it can be combined based on the same or different units as required, and the number of combined units is 1 to 16.
- Power distribution and wiring on the unit installation site are subject to unit nameplates or Installation Manual.

Unit change table

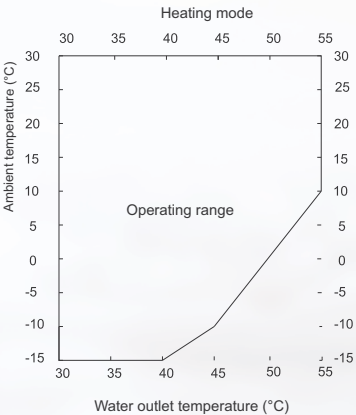
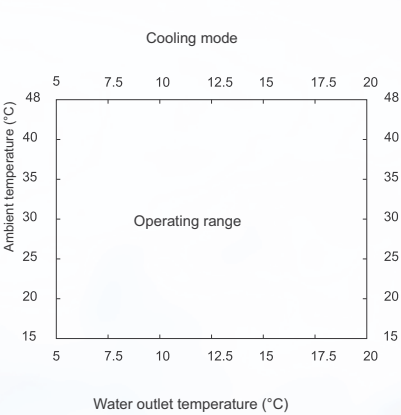
EKAC1200CR1 cooling capacity

Model	Water outlet temperature (°C)	Ambient temperature (°C)															
		48°C		45°C		40°C		35°C		30°C		25°C		20°C		15°C	
		Cooling capacity kW	Power kW	Cooling capacity kW	Power kW	Cooling capacity kW	Power kW	Cooling capacity kW	Power kW	Cooling capacity kW	Power kW	Cooling capacity kW	Power kW	Cooling capacity kW	Power kW	Cooling capacity kW	Power kW
EKAC1200CR1	5°C	270.7	124.2	281.1	116.9	302.5	108.4	320.8	100.4	340.8	93.5	353.0	86.6	365.5	83.8	375.9	81.1
	7°C	286.4	126.2	297.2	120.1	321.8	110.9	345.0	104.0	360.4	96.4	370.1	89.7	382.2	87.0	395.9	83.2
	9°C	301.4	129.9	315.9	123.3	337.3	116.3	359.8	107.6	375.7	99.2	388.0	93.3	402.1	89.5	414.6	86.3
	12°C	323.0	135.5	336.2	129.5	357.8	121.9	378.6	113.6	392.2	104.2	407.1	97.8	423.3	94.4	439.5	90.5
	15°C	358.9	140.1	367.0	134.6	384.5	126.5	405.6	119.5	420.9	109.8	436.3	102.9	450.9	99.0	464.0	94.8

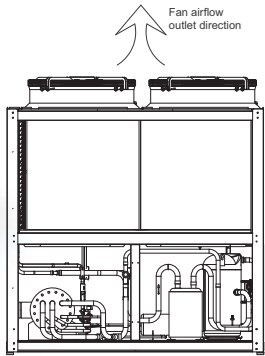
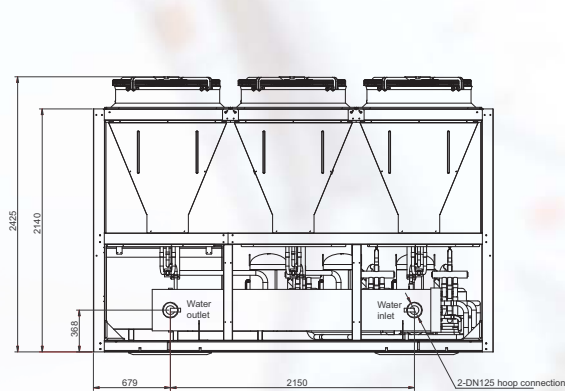
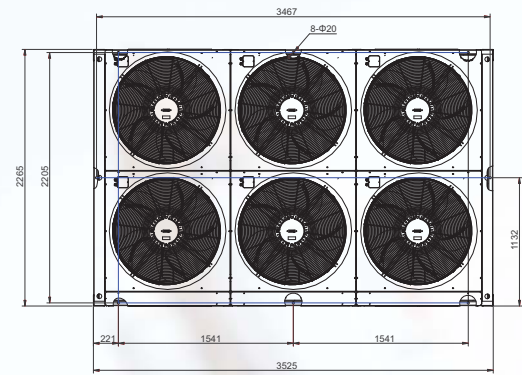
EKAC1200CR1 heating capacity

Model	Water outlet temperature (°C)	Ambient temperature (°C)															
		-15°C		-10°C		-5°C		0°C		7°C		10°C		15°C		21°C	
		Heating capacity kW	Power kW	Heating capacity kW	Power kW	Heating capacity kW	Power kW	Heating capacity kW	Power kW	Heating capacity kW	Power kW	Heating capacity kW	Power kW	Heating capacity kW	Power kW	Heating capacity kW	Power kW
EKAC1200CR1	35°C	218.1	81.2	240.2	83.1	271.9	85.3	321.5	86.4	369.6	87.5	393.0	88.6	416.0	89.5	426.7	90.2
	40°C	210.3	89.0	234.1	91.7	263.1	93.6	310.5	94.8	361.5	96.4	382.4	97.8	405.6	98.7	415.0	99.7
	45°C			229.8	99.2	257.9	101.4	301.6	103.5	355.0	105.0	376.4	106.8	396.0	108.1	405.6	109.7
	50°C					252.7	111.0	292.2	112.8	346.2	114.4	367.2	116.1	384.2	117.5	392.9	119.0
	55°C											357.3	125.8	372.5	126.9	382.0	128.2

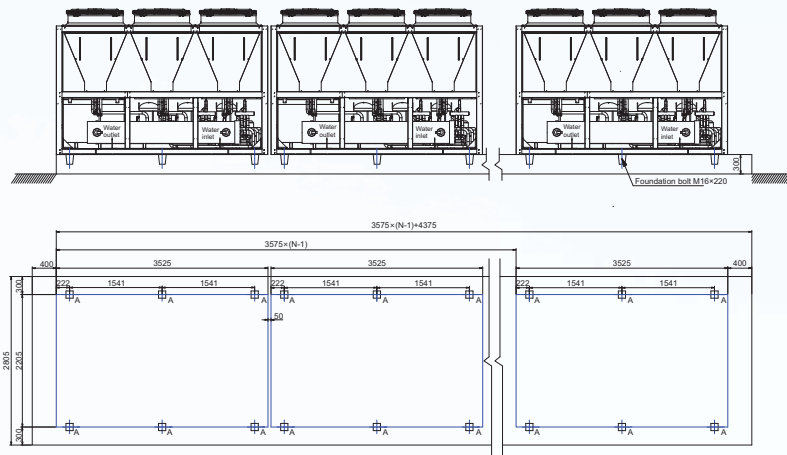
EKAC1200CR1



Unit dimensions



Unit installation foundation drawing



Note:

1. The installation foundation must be a concrete floor, channel steel frame structure or spring isolator that can withstand the operating pressure of the unit;
2. N indicates the total number of installed modules;
3. Each unit is fixed with six M16 bolts;
4. Six 20-mm thick rubber isolators should be installed between the unit and the installation foundation;
5. The installation foundation must be equipped with drainage facilities to facilitate the drainage of condensate and defrosting water.

Precautions for installation of air-conditioning water system of the unit

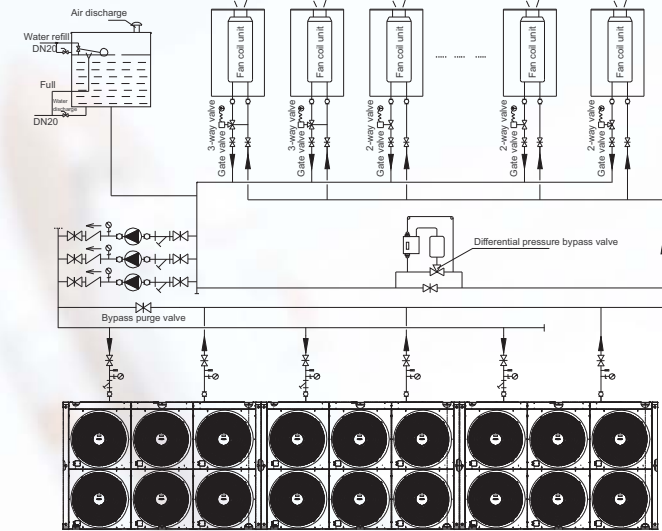
- Adopt softened water for circulating water;
- Water supply safety valves are mandatory;
- The water flow cannot be lower than the nominal value of the unit;
- Set a suitable drain valve at the lowest point of the water system;
- It is recommended to install an adiabatic water storage tank of appropriate capacity, so as to avoid frequent startup of the unit due to too small load;
- An expansion tank must be equipped to adapt to changes in water volume caused by changes in water temperature in the water system;
- The waterway of the unit must be equipped with a bypass valve, and it must be ensured that the water system has been cleaned before the system can be filled with water and put into operation;
- An additional water filter is included randomly. Clean the water filter regularly according to the usage;
- It is recommended to check the water system every half a month;
- When connecting pipes in a reversed return system, the water pressure gauge of each module's inlet and outlet pipes can be omitted;
- Since the wired controller can check the inlet and outlet water temperature of each module, the thermometer can also be omitted.

Note: The unit should be installed in a proper location because this also has a significant impact on the noise of the unit. In case of no proper noise reduction measures, the installation location of the unit in the following situations should be avoided:

- 1) The unit is installed in a long and narrow building passage and faces the building wall with doors and windows on the side;
- 2) The unit is installed too close to noise-sensitive occasions, such as residential buildings, offices, conference rooms, and star hotel rooms;
- 3) The obstacle is very close to the air outlet of the fan, affecting the air flow of the fan system;
- 4) When the unit is equipped with an isolator, the external power cord box, external water pipes, etc. are hard connected to the ground (or the unit foundation), greatly reducing the effect of the isolator;
- 5) The unit is directly installed on the floor or the ground without concrete foundation and isolator;
- 6) The unit is installed on the top of the building, but is too close to the edge of the building. This may cause the noise to travel around the edge of the building to the downstairs, thus resulting in noise complaints;
- 7) The unit is installed in a public area with large flow of people, without taking any noise reduction measures.

Reference diagram of unit water system

Reference diagram of water system with variable water flow for adjusting the room air conditioner temperature by adjusting chilled water flow



Reference diagram of water system with variable water flow for adjusting the room air conditioner temperature by adjusting air-conditioner air flow at the terminal

