

Full Series Modular Air-cooled Water Chiller (Heat Pump) Units

Total heat recovery model	EKAC230BRSR
Low-temp high-efficiency model	EKAC230BRLH/ EKAC250BRLH
Low-temperature high-efficiency total heat recovery model	EKAC210BRLHR
Environment-friendly model R410A	EKAC220BR1/EKAC230BR1
Common model R22	EKAC210B(R)/ EKAC230B(R)



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ISO9001 2008 corporate
certification

Manufactured in an ISO Certified Facility

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EUROKLIMAT Air Conditioner, Environmental & Energy-saving Technology from Europe.



EK Italy Headquarters

EUROKLIMAT (EK), established in 1963 in Italy, which has been growing for the past half a century, and has become one of the most famous, energy-saving air conditioning manufacturers in Italy, Spain and the whole of Europe. Continuous innovation on new product development and top manufacturing quality are the driving force behind this growth.

EUROKLIMAT (EK) pursues the ideals of environmental friendly-providing physical comfort and energy-saving into the whole process of product R&D, manufacturing and service. All our 50 product series which covers residential, commercial and close control air-conditioners are manufactured according to European production standards. EK product incorporates the most advanced energy saving air-conditioning technology in Europe.

Guangdong EUROKLIMAT Air-Conditioning & Refrigeration Co., Ltd. (EK China), is the R&D, manufacturing, sales, marketing and service center for EK Group in Asia. EK Industrial Park with over 70,000 square meters of factory land is strategically located in Dongguan City, Guangdong, China. There are over 20 sales branches providing full scale service and support for the whole of China market. EK China exports its products to European, Australian, South American, South-East Asian and Middle Eastern markets.



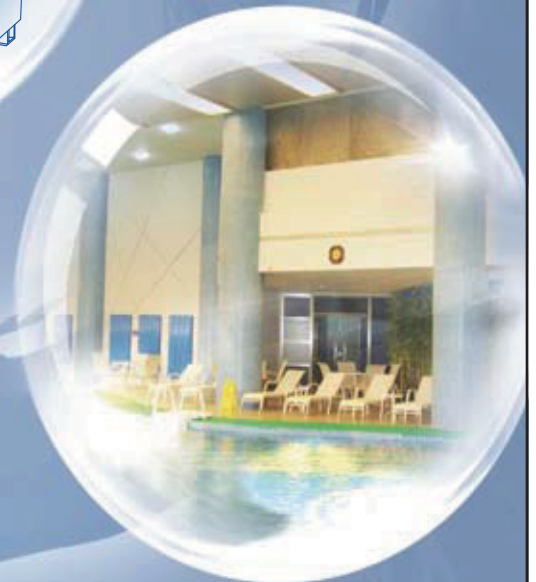
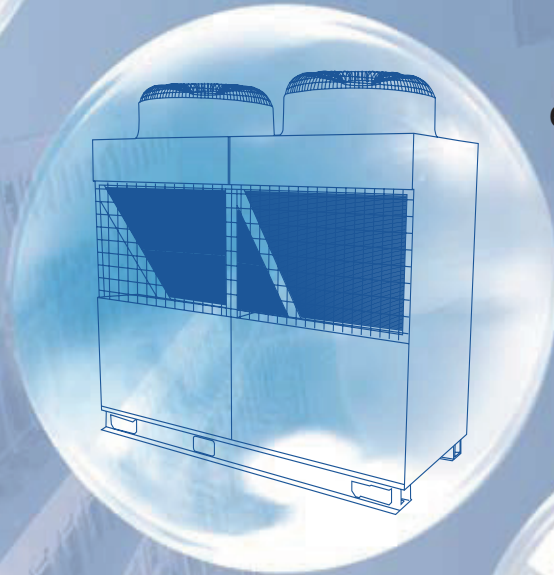
Full Series Modular Air-cooled Water Chiller (Heat Pump) Units



Common model (R22)



Low-temp high-efficiency model



Total heat recovery model



4

Environment-friendly model (R410A)

EKAC full series modular air-cooled water chiller (heat pump) units combines more than 40 years of Italian air-cooled heat pump design experience and the application practices of modular units in China, so as to meet customers' requirements on product efficiency, safety, smartness and comfort. This full series of units have diversified models and are applicable to various environments. Unit models include total heat recovery model, environment-friendly refrigerant (R410A) model, low-temp high-efficiency model, common model, etc.

High efficiency, energy saving and one unit for three purposes: namely providing low-cost air conditioning and free hot water for villas, hotels, recreation centers, hospitals, dining halls, office buildings, supermarkets, etc., and providing cooling for various industrial processes.

Nomenclature

EKAC **230** **B** **R** **1** **LH** **M - F** **AA**
 1 2 3 4 5 6 7 8 9

1. EKAC EK Modular Air-cooled Water Chiller (Heat Pump) Unit
2. 230 Cooling capacity code:
3. B Design S/N
4. R Functional type R: cooling & heating; omitted in cooling-only units
5. 1 Refrigerant code: 1; R410A; R22 by default.
6. LH Special features—omitted in standard model;
 LH: low-temperature heating standard model;
 SR: total heat recovery standard model
 LC: standard model for cooling in low temperature.
7. M M: master unit; S: slave unit
8. F Power supply features: F: 380V/3N ~ /50Hz
9. AA Detailed description on product specification changes

Total Heat Recovery Modular Air-cooled Heat Pump Unit

EKAC Series
Heat recovery model
 Air-cooled Heat Pump Unit



Air-cooled heat pump units of the full heat recovery model feature a brand new European design and R&D technology. They are a perfect combination of air-cooled chilled/hot water unit and air source heat pump hot water unit. Besides providing cooling in summer and heating in winter for buildings, units of this series can also provide around-the-clock hot water of 40°C - 55°C no matter in what climate. Therefore, they can completely replace boilers and save customers a sum of investment. This is not only cost effective but also environment friendly. In addition, absorbing heat discharged by air conditioners can also avoid "urban heat island effect".



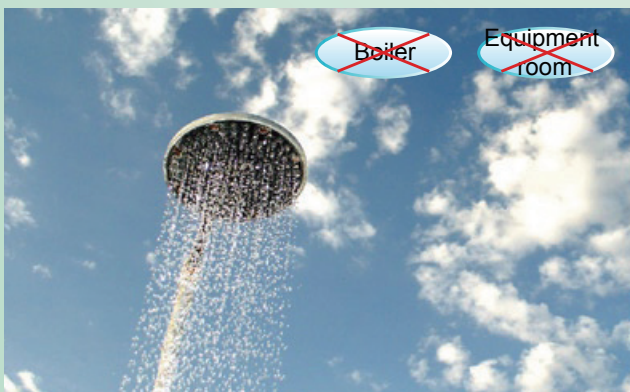
COP up to 8.32

Providing Free Hot Water and Saving Investment

In addition to air conditioning, the modular total heat recovery air-cooled heat pump unit also works as a boiler to recycle waste heat and provide hot water at 40°C - 55°C free of charge. This saves investment and installation space for a boiler.

Industry-Leading Hybrid Connection Technology

As an industry pioneer, EK launched units that support hybrid modular connection with common air-cooled heat pump units. Full heat recovery units can be networked with standard modular units to form a partial heat recovery modular system, and can also be networked with total heat recovery units to form a full heat recovery system to meet different heat recovery requirements.



Patent-protected hybrid connection technology

Efficient and Environment Friendly, Saving More Than 60% of Energy

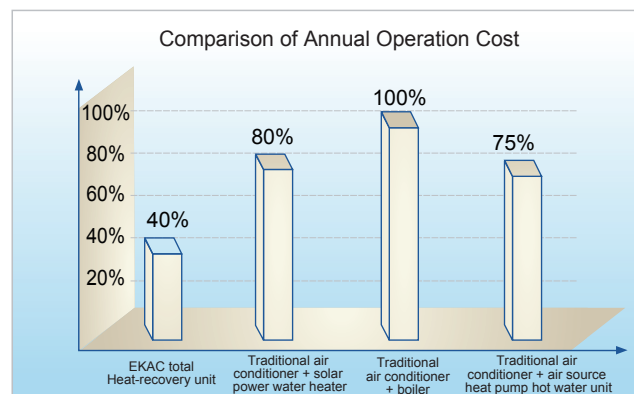
The unit recycles waste heat generated during condensation to improve the COP up to 8.32, saving more than 60% of energy compared with common modular units.

Recycling heat is also environment friendly, and helps to avoid the "Heat Island Effect".

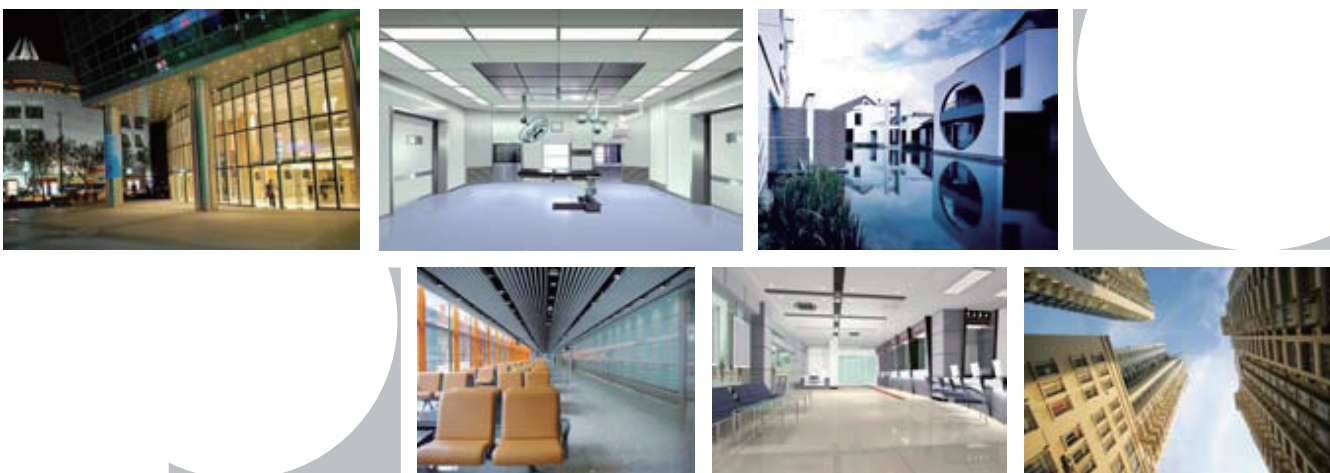


Comfortable and Cost Effective

By running a total heat recovery modular unit in the cooling + hot water mode, a customer can enjoy comfortable air conditioning as well as free hot water, especially during transitional seasons. This makes the unit energy saving and environment friendly.



Application Scenarios



Units of this series are widely used in places where hot water is required, such as hotels, hospitals, schools, villas and bathing centers.

Operation Modes and Function

Operation Modes of Total Heat Recovery Models

Cooling Mode

When cooling is required but hot water is not required, a customer can choose the cooling mode. In this case, the unit works in cooling only mode, the same as a common air-cooled heat pump unit.

Cooling + Hot Water

When both cooling and hot water are required, a customer can choose the cooling + hot water mode. In this case, the unit automatically starts the air conditioning module to provide chilled water for the air conditioner, and starts the hot water module to generate hot water.

Hot Water Mode

When hot water is required and air conditioning is not required, a customer can choose the hot water mode. In this case, the unit only provides hot water, and works as a common air source heat pump hot water unit.

Heating mode

When heating is required but hot water is not required, a customer can choose the heating mode. In this case, the unit works in heating only mode, the same as a common air-cooled heat pump unit.

Heating + Hot Water

When both cooling and hot water are required, a customer can choose the heating + hot water mode. In this case, the unit takes air conditioning as the first priority, and generates hot water in idle periods to meet hot water requirement. A customer can also specify a time period when the unit works in hot water mode.

Function

Parameter Setting Functions

- Time Setting
- Timed ON/OFF for one week
- Inlet/outlet water temp in cooling mode
- Inlet/outlet water temp in heating mode
- Anti-freezing temp, defrosting temp
- Dew cleaning temp for point A and B

Memory Functions

- Operation data remains in case of power failure
- Permanent storage for user parameters

Parameter Display Functions

- Unit working status display
- Configured and actual inlet water temp
- Configured and actual outlet water temp
- Timed adjustment, anti-freezing temp
- Anti-freezing temp in winter, defrosting temp

Alarm and Protection Functions

- Thirteen protections and failure alarm function
- Indoor controller lockup function

Defrosting Function

- Auto defrosting
- Manual defrosting

Other Functions

- Failure history query function
- Average wear and tear of compressors
- Remote startup and shutdown
- 2-way valve control for water system
- Control for auxiliary heater

Specification Table (Total Heat Recovery Model)

Specifications (Partial) for Combined Units Taking EKAC230 as Basic Module

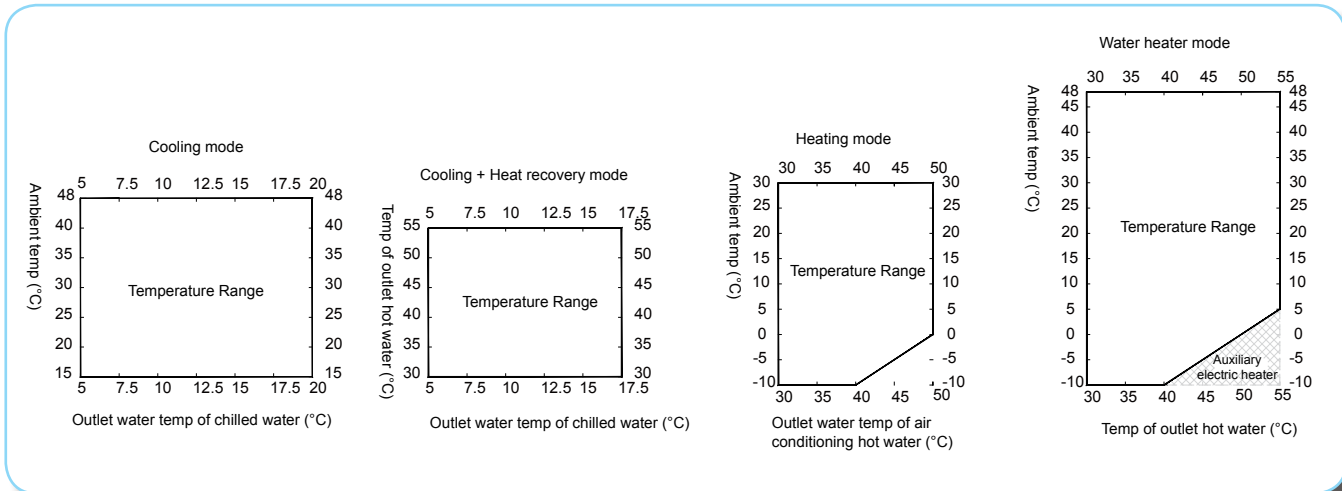
Model			EKAC 230BRSR	EKAC 460BRSR	EKAC 690BRSR	EKAC 920BRSR	EKAC 1150BRSR	EKAC 1380BRSR
Unit combination		Master unit	EKAC230BRSRM	EKAC230BRSRM	EKAC230BRSRM	EKAC230BRSRM	EKAC230BRSRM	EKAC230BRSRM
		slave unit	--	EKAC230BRSRS	2EKAC230BRSRS	3EKAC230BRSRS	4EKAC230BRSRS	5EKAC230BRSRS
Air conditioning mode	Nominal cooling capacity	kW	65.5	131.0	196.5	262.0	327.5	393.0
	Nominal heating capacity	kW	69	138	207	276	345	414
	Nominal cooling input power	kW	19.4	38.8	58.2	77.6	97.0	116.4
	Nominal heating input power	kW	19.2	38.5	57.7	76.9	96.2	115.4
	Water flow rate for nominal cooling capacity	m ³ /h	11.3	22.5	33.8	45.1	56.3	67.6
	Water flow rate for nominal heating capacity	m ³ /h	11.9	23.7	35.6	47.5	59.3	71.2
Hot water mode	Nominal water supply capacity	m ³ /h	16.3	32.7	49.0	65.4	81.7	98.0
	Nominal heating capacity	kW	76	152	228	304	380	456
	Total power of nominal heating capacity	kW	18.4	36.7	55.1	73.5	91.8	110.2
Cooling + Heat recovery mode	Nominal cooling capacity	kW	59.7	119.4	179.1	238.8	298.5	358.2
	Nominal heat recovery capacity	kW	76	152	228	304	380	456
	Nominal input power	kW	16.3	32.6	48.9	65.2	81.5	97.8
	Nominal water supply capacity at heat recovery side	m ³ /h	16.3	32.6	48.9	65.2	81.5	97.8
	Nominal water flow at evaporator side	m ³ /h	10.3	20.5	30.8	41.1	51.3	61.6
Power supply			380V/3N~/50Hz					
Flow control			Electronic expansion valve					
Refrigerant			R22					
Heat exchanger type	Air conditioning side		braze-welded panel-type heat exchanger					
	Hot water side		High-efficiency bucket heat exchanger					
Compressor	Type		Fully hermetic volute compressor					
	Lubricant		Mineral oil (SUNISO 3GS)					
Fan	Qty.	Set	2	4	6	8	10	12
	Type		High-efficiency low-noise axial fan					
Water resistance	Air conditioning side	kPa	45	45	45	45	45	45
	Hot water side	kPa	75	75	75	75	75	75
Minimum diameter for water pipes	Air conditioning side	inch	≥2	≥3	≥3	≥4	≥4	≥5
	Hot water side	inch	≥2	≥3	≥4	≥4	≥5	≥5
Dimensions	L x H	mm	2012×1840					
	Width		880	2125	3370	4615	5860	7105
Power cable specification	Section area of live line	mm ²	≥10	≥35	≥70	≥95	≥120	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥16	≥35	≥50	≥60	≥75
Unit weight	Net weight	kg	600	1200	1800	2400	3000	3600
	Operating weight	kg	620	1240	1860	2480	3100	3720

Note:

- Air conditioning mode: Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172 m³/(h·kW); outdoor ambient temperature 35°C. Test conditions for nominal heating capacity: outlet water temperature: 45°C; water flow: 0.172 m³/(h·kW); temperature of outdoor dry/wet bulb: 7°C/6°C.
- Cooling + Heat recovery mode Test conditions for nominal cooling capacity: Hot water side: temperature of outlet water 45°C, water flow 0.215 m³/(h·kW); Air conditioning side: temperature of outlet water 7°C, water flow 0.172 m³/(h·kW);
- Hot water mode: Test conditions for nominal water flow: Ambient temp: 20/15°C; outlet water temp: 45°C; water flow of cooling + heat recovery mode.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Water resistance at the hot water side includes water pressure drop of the unit and does not include the pressure drop at the Y-shaped filter and other components.
- Pipes outside the unit need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Full heat recovery units and other units can be combined to form partial heat recovery modular system. Full heat recovery units can also be combined to form a total heat recovery system. Modular units can be formed using the 1~16 basic modules. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (Total Heat Recovery Model)

Operating Temperature Range



Capacity Variation Table for Cooling Mode

Outlet water temp. (°C)	Ambient temp. (°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)
5°C	50.5	23.6	53.0	22.2	57.6	20.2	62.0	18.5	64.7	16.9	67.3	15.3	66.9	15.8	68.7	14.4
7°C	56.2	24.3	57.2	22.8	62.2	20.7	65.5	19.4	68.4	17.9	70.9	15.9	71.1	16.7	73.7	14.8
9°C	57.9	24.9	62.0	23.1	66.0	21.3	68.8	19.7	72.4	18.0	75.7	15.7	76.5	16.7	78.1	15.1
12°C	64.5	25.2	67.5	23.7	72.5	21.9	77.2	20.0	81.0	18.2	81.2	16.2	83.5	17.6	85.2	15.9
15°C	70.5	25.6	73.0	24.4	78.3	22.8	82.0	20.5	83.0	18.7	83.3	16.4	85.7	16.5	89.2	16.4

Capacity Variation Table for Heating Mode

Outlet water temp. (°C)	Ambient temp. (°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)
35°C	42.0	15.0	50.5	15.1	57.5	15.4	71.6	15.9	73.0	16.0	75.0	16.2	75.4	16.5
40°C	40.6	16.4	48.4	16.7	57.0	17.0	70.2	17.2	72.3	17.3	73.3	17.7	75.5	17.9
45°C	—	—	47.6	18.4	55.8	18.8	69.0	19.2	70.5	19.3	71.0	19.5	74.6	20.0
50°C	—	—	—	—	53.3	20.7	68.3	21.2	69.0	21.5	69.3	21.6	74.0	22.2

Note: parameters in the above table are measured when the unit operates at the rated water flow.

Specification Table (Total Heat Recovery Model)

Capacity Variation Table for Cooling + Heat Recovery Mode

Water temp. at heat recovery side	Outlet water temp of chilled water (°C)														
	5°C			7°C			10°C			12°C			15°C		
	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)
35°C	66.2	77.3	13.2	68.3	78.6	13.6	73.6	84.7	13.8	76.0	87.4	14.0	78.6	91.4	15.4
40°C	64.1	75.8	15.0	66.1	78.1	15.5	71.9	84.1	15.5	74.9	86.9	15.8	76.8	90.8	16.2
45°C	59.1	74.1	16.7	59.7	76.0	16.3	69.6	83.5	17.2	73.0	86.3	17.0	75.3	89.9	17.6
50°C	57.4	72.4	18.5	59.1	75.6	18.8	66.6	83.0	19.1	70.4	85.8	19.2	72.6	88.4	19.4
55°C	53.3	71.1	20.0	58.0	75.0	20.3	64.2	81.4	20.7	67.2	85.4	21.3	70.0	87.9	21.6

Capacity Variation Table for Air Source Hot Water

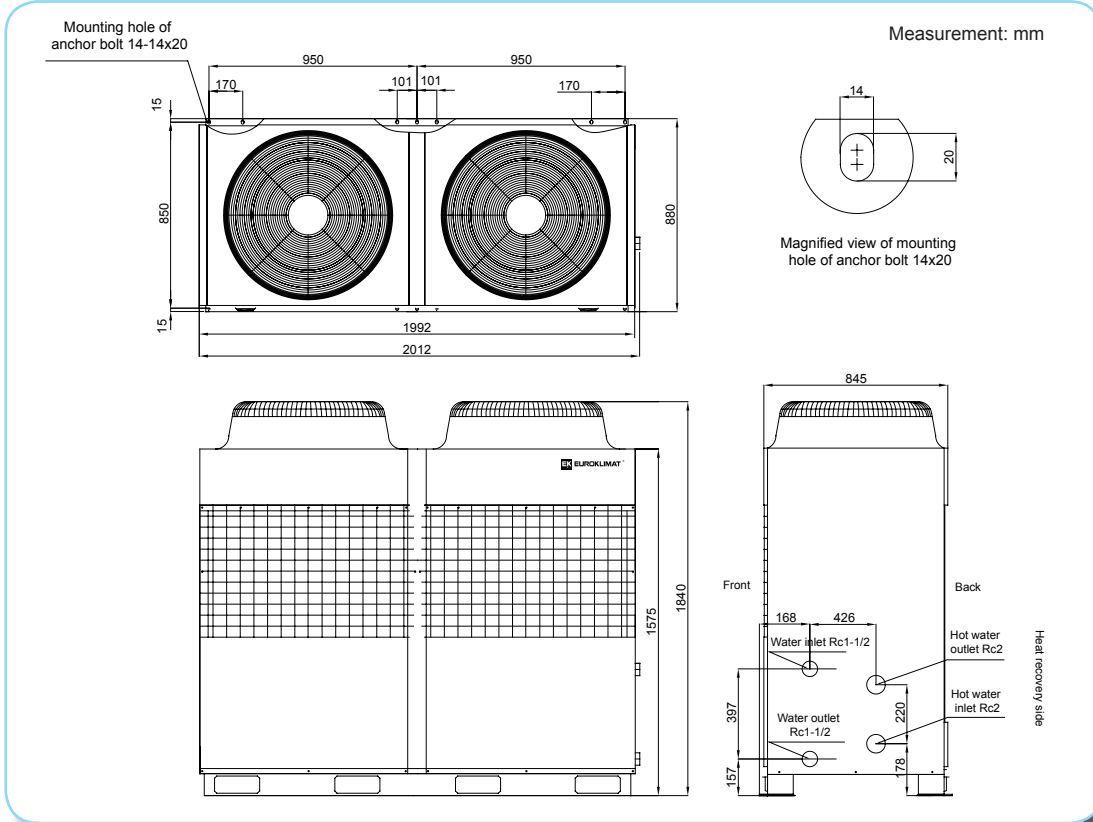
Outlet water temp. (°C)	Ambient temp. (°C)											
	-10°C		-5°C		0°C		5°C		10°C		15°C	
	Heating capacity (kW)	Power (kW)	Heating capacity (kW)	Power (kW)	Heating capacity (kW)	Power (kW)	Heating capacity (kW)	Power (kW)	Heating capacity (kW)	Power (kW)	Heating capacity (kW)	Power (kW)
35°C	37.6	14.9	43.5	15.0	46.2	15.2	59.6	15.5	73.0	15.9	72.8	16.1
40°C	36.3	16.2	42.5	16.4	45.3	16.7	56.0	16.8	66.7	16.8	74.5	17.0
45°C	—	—	40.7	17.9	45.6	18.0	55.1	18.1	64.7	18.2	72.9	18.3
50°C	—	—	—	—	46.6	20.2	55.4	20.3	64.2	20.5	72.6	20.7
55°C	—	—	—	—	—	—	54.5	22.2	63.6	22.3	72.8	22.5

Outlet water temp. (°C)	Ambient temp. (°C)											
	20°C		25°C		30°C		35°C		40°C		48°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)
35°C	74.6	16.3	78.1	15.0	82.9	15.1	82.5	15.2	87.7	15.3	95.7	15.8
40°C	75.7	17.3	79.0	17.1	82.2	16.6	85.8	16.6	89.9	16.9	98.0	17.4
45°C	76.0	18.4	79.0	18.0	84.9	18.2	85.6	18.3	91.3	18.6	99.6	19.1
50°C	76.3	20.8	79.3	19.8	85.7	20.1	87.1	20.1	92.4	20.4	99.2	20.9
55°C	76.5	22.6	79.6	22.0	86.0	22.2	91.7	22.0	93.0	22.6	83.7	21.9

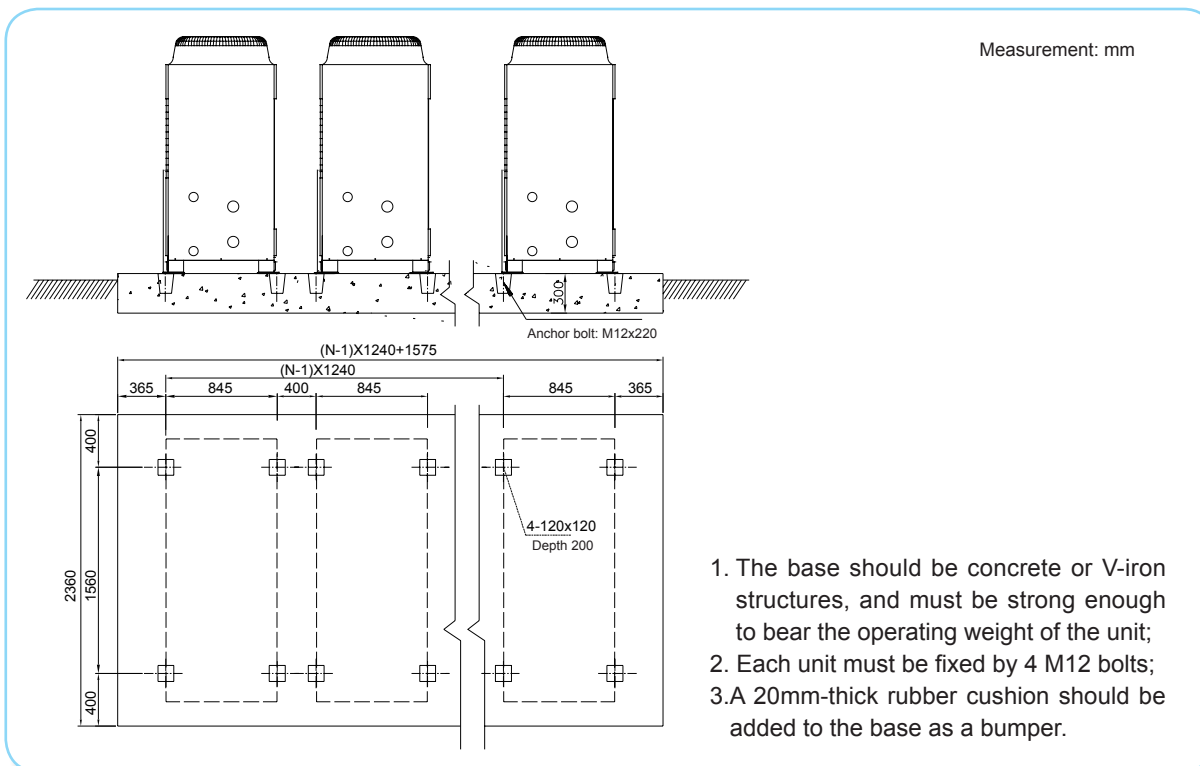
Note: parameters in the above table are measured when the unit operates at the rated water flow.

Dimensions (Total Heat Recovery Model)

Dimension Diagram for EKAC230BRSR



Installation Base Diagram for EKAC230BRSR



Low-temperature High-efficiency Modular Air-cooled Heat Pump Unit

EKAC Series Low-temp high-efficiency model Air-cooled Heat Pump Unit



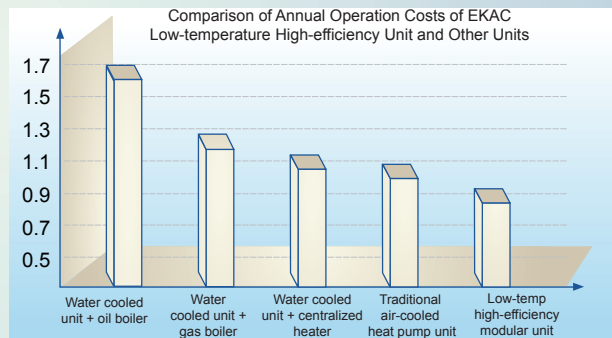
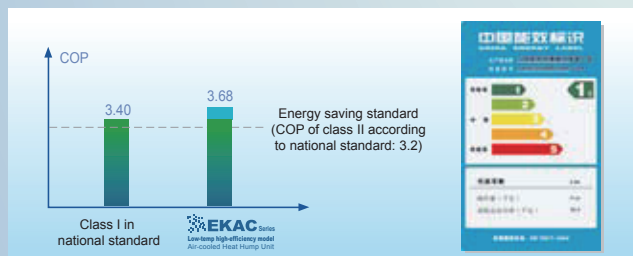
The low-temperature high-efficiency modular air-cooled heat pump unit features supreme COP in the industry. The COP at full workload is as high as 3.68. The unit combines energy efficiency, comfort, flexibility, reliability, and intelligence, and can be used to replace traditional centralized heating equipment. The unit helps saving energy and reduce green house gas emission, and brings substantial benefit to customers while protecting the environment.



COP at Full Load up to 3.68

Excellent Energy Efficiency, COP up to 3.68

The low-temperature high-efficiency modular air-cooled heat pump unit features a full-load COP up to 3.68, meeting the national standard for tier-1 energy saving products (3.4). Both the cooling and heating energy efficiency of the low-temperature high-efficiency modular air-cooled heat pump unit is greatly improved to save operation cost for customers (value-added). The energy efficiency is especially excellent with partial workload, bringing comfort to customers at much lower cost.

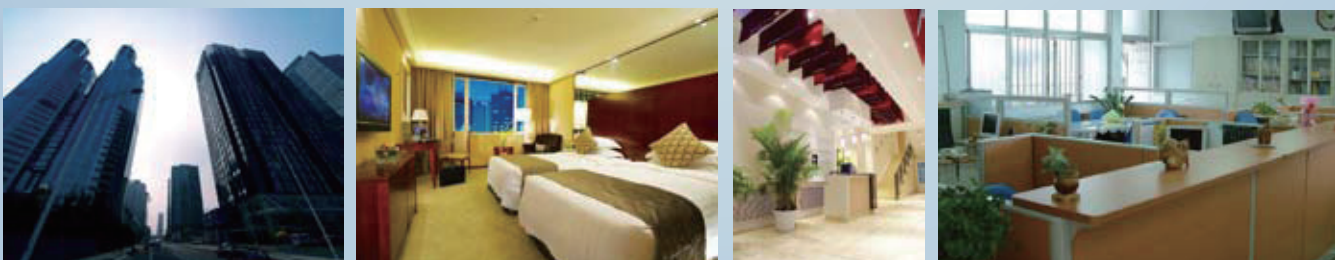


	Water cooled unit + oil boiler	Water cooled unit + gas boiler	Water cooled unit + traditional heater	Traditional air-cooled heat pump unit	Low-temp high-efficiency modular unit
Percentage of annual operation cost	1.72	1.29	1.18	1.17	1

Note:

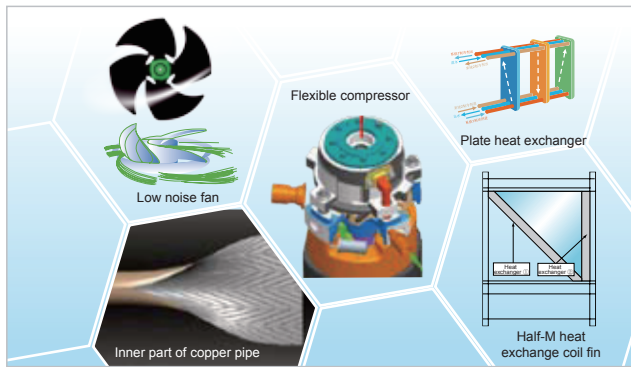
- This diagram shows the annual operation costs of different air conditioning solutions for a five-storey office building of 6000 square meters in the northern region.
- This diagram is based on the total annual cost of EKAC low-temperature high-efficiency unit. This diagram is for reference only.

Application Scenarios



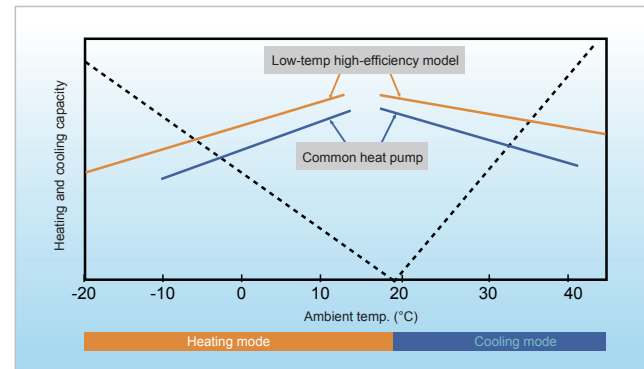
Efficient Components and Optimized System Design

The EKAC low-temperature high-efficiency unit features leading-edge EVI (Enhanced Vapor Injection) compressors, increasing refrigerant recycling by as much as 20%. The evaporation capacity is improved by mid-pressure refrigerant intake. One compressor compresses refrigerant 2 times in each cycle. Half-M fins are used to improve the heat-exchange efficiency of the heat exchanger. The unit features state-of-the-art cross diagonal convection angles for stainless steel braze-welded panel-type heat exchanger and stainless steel braze-welded panel-type economizer (used to increase the enthalpy-differentiation between the inlet and outlet of the evaporator). An EXV is used to precisely control the operation of the unit.



Leading-edge Technology and Stronger Cooling and Heating Capacities

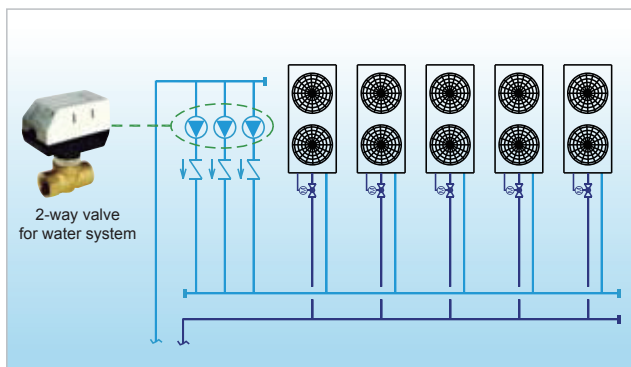
The EKAC low-temperature high-efficiency modular air-cooled heat pump unit features excellent heating COP when the ambient temperature is low (20% higher than common air-cooled heat pump unit when the ambient temperature is -10°C). The lower ambient temperature limit is expanded from -10°C of common units to -20°C . This greatly improves cooling performance in areas where the winter is cold, reducing or eliminating the need for auxiliary heaters.



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Efficient and Energy Saving

Each modular unit has two power gears. When multiple modular units are combined, there could be many power gears. When working at a partial workload (99% of the operation time), the unit intelligently regulates the output based on the actual workload, making the operation efficiency even higher. With an optional 2-way valve water control feature, the unit can send out signals to cut off chilled water. This enables automatic flow control for pumps in line with the transducer, which helps save more energy.



Low Temperature Heating, Revolutionizing Traditional Heat Provision

Currently, centralized heating by using heat pipes are very common. This type of heat provision wastes a lot of heat in the heating pipes, and is low in efficiency. Other defects include fixed heating period, environment pollution, difficult to maintain and collection fees, and not meeting national requirements on energy saving. The EKAC low-temperature high-efficiency modular air-cooled heat pump unit can provide enough heat in an ambient temperature as low as -20°C . The heating period, output capacity, and indoor temperature can be flexibly conditioned as required by the customer. The unit provides both heating and cooling functions, saving installation and maintenance costs. Unit of this series meets the trend for energy saving technologies, and is revolutionary compared with traditional heat provision solutions.

Items	Centralized Heating	Traditional Air-cooled Heat Pump Unit	EKAC Low-temp High-efficiency Model
Heating efficiency (-7°C)	0.8	About 2.5	> 3.0
Heating/cooling	No	Yes	Yes
Independent indoor temperature control	No	Flexible control: $\pm 0.5^{\circ}\text{C}$	Flexible control: $\pm 0.5^{\circ}\text{C}$
Flexible heating period	No	Yes	Yes
Professional maintenance	Required	Not required	Not required
Local environment pollution	Yes	No	No
Reliable heating performance at -20°C	Yes	No	Yes
Water leakage accident	Yes	Rare	Rare

Specification Table (Low-temperature High Efficiency Model R22)

Specifications (Partial) for Combined Units Taking EKAC230 as Basic Module

Model		EKAC 230BRLH	EKAC 460BRLH	EKAC 690BRLH	EKAC 920BRLH	EKAC 1150BRLH	EKAC 1380BRLH	
Unit combination	Master unit	EKAC230BRLHM	EKAC230BRLHM	EKAC230BRLHM	EKAC230BRLHM	EKAC230BRLHM	EKAC230BRLHM	
	slave unit	--	EKAC230BRLHS	2EKAC230BRLHS	3EKAC230BRLHS	4EKAC230BRLHS	5EKAC230BRLHS	
Nominal cooling capacity	kW	66	132	198	264	330	396	
	USRT	18.77	37.54	56.31	75.08	93.85	112.62	
	×10 ⁴ kcal/h	5.67	11.34	17.01	22.68	28.35	34.02	
Nominal heating capacity	kW	70	140	210	280	350	420	
	USRT	19.91	39.82	59.73	79.64	99.55	119.46	
	×10 ⁴ kcal/h	6.02	12.04	18.06	24.08	30.1	36.12	
Total power of nominal cooling capacity	kW	18.1	36.2	54.3	72.4	90.5	108.6	
Total power of nominal heating capacity	kW	19.0	38	57	76	95	114	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R22						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Mineral oil (SUNISO 3GS)						
	Qty.	Set	2	4	6	8	10	12
Fan	Type	High-efficiency vacuum braze-welded panel type						
	Qty.	Set	2	4	6	8	10	12
Water side heat exchanger	Type	High-efficiency vacuum braze-welded panel type						
	Water flow for cooling	m ³ /h	11.4	22.8	34.2	45.6	57	68.4
	Water flow rate in heating mode	m ³ /h	12.0	24	36	48	60	72
Water resistance	kPa	34	34	34	34	34	34	
Recommended diameter for general inlet/outlet water pipe	inch	≥2	≥3	≥3	≥4	≥4	≥5	
Power cable specification	Section area of live line	mm ²	≥10	≥35	≥70	≥95	≥120	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥16	≥35	≥50	≥60	≥75
	Qty. of grounding lines		1					
Dimensions	L x H	mm	2012×1840					
	Width	mm	880	2125	3370	4615	5860	7105
Unit weight	Net weight	kg	590	1180	1770	2360	2950	3540
	Operating weight	kg	600	1200	1800	2400	3000	3600

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (Low-temperature High Efficiency Model R22)

Specifications (Partial) for Combined Units Taking EKAC250 as Basic Module

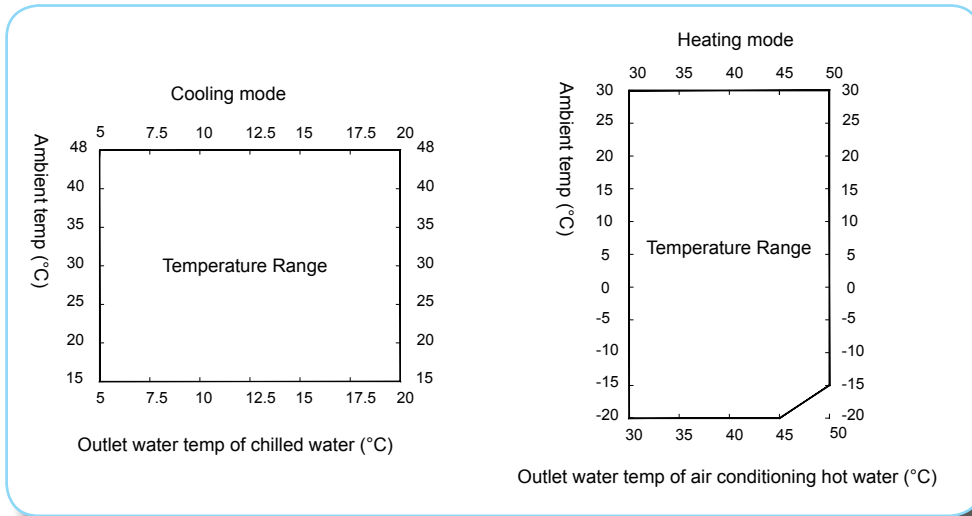
Model		EKAC 250BRLH	EKAC 500BRLH	EKAC 750BRLH	EKAC 1000BRLH	EKAC 1250BRLH	EKAC 1500BRLH	
Unit combination	Master unit	EKAC250BRLHM	EKAC250BRLHM	EKAC250BRLHM	EKAC250BRLHM	EKAC250BRLHM	EKAC250BRLHM	
	slave unit	--	EKAC250BRLHS	2EKAC250BRLHS	3EKAC250BRLHS	4EKAC250BRLHS	5EKAC250BRLHS	
Nominal cooling capacity	kW	71	142	213	284	355	426	
	USRT	20.19	40.38	60.57	80.76	100.95	121.14	
	×10 ⁴ kcal/h	6.10	12.2	18.3	24.4	30.5	36.6	
Nominal heating capacity	kW	75	150	225	300	375	450	
	USRT	21.33	42.66	63.99	85.32	106.65	127.98	
	×10 ⁴ kcal/h	6.45	12.9	19.35	25.8	32.25	38.7	
Total power of nominal cooling capacity	kW	19.3	38.6	57.9	77.2	96.5	115.8	
Total power of nominal heating capacity	kW	20.0	40	60	80	100	120	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R22						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Mineral oil (SUNISO 3GS)						
	Qty. Set	2	4	6	8	10	12	
Fan	Type	High-efficiency vacuum braze-welded panel type						
	Qty. Set	2	4	6	8	10	12	
Water side heat exchanger	Type	High-efficiency vacuum braze-welded panel type						
	Water flow for cooling	m ³ /h	12.2	24.4	36.6	48.8	61	73.2
	Water flow rate in heating mode	m ³ /h	12.9	25.8	38.7	51.6	64.5	77.4
Water resistance	kPa	36	36	36	36	36	36	
Recommended diameter for general inlet/outlet water pipe	inch	≥2	≥3	≥3	≥4	≥4	≥5	
Power cable specification	Section area of live line	mm ²	≥10	≥35	≥70	≥95	≥120	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥16	≥35	≥50	≥60	≥75
	Qty. of grounding lines		1					
Dimensions	L x H	mm	2012×1840					
	Width	mm	880	2125	3370	4615	5860	7105
Unit weight	Net weight	kg	590	1180	1770	2360	2950	3540
	Operating weight	kg	600	1200	1800	2400	3000	3600

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (Low-temperature High Efficiency Model R22)

Operating Temperature Range



Cooling Capacity Variation Table

Model	Outlet water temp. (°C)	Ambient temp. (°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)
EKAC230BRLH	5°C	54.2	21.62	55.2	20.96	58.6	18.29	61.6	17.43	63.0	16.48	64.5	15.15	66.5	13.81	68.0	12.57
	7°C	55.7	22.01	58.1	21.24	61.6	18.86	66.0	18.10	67.0	16.67	69.4	15.43	70.9	14.19	71.4	13.05
	9°C	60.6	22.29	63.5	21.43	66.0	19.34	70.4	18.29	71.4	17.05	72.9	15.72	74.9	14.77	76.3	13.62
	12°C	66.0	22.48	68.0	21.72	71.9	19.72	74.4	18.58	76.3	17.34	77.8	16.19	80.3	15.05	81.3	13.91
	15°C	69.4	22.86	74.4	22.01	78.3	20.29	80.8	18.86	81.8	17.72	82.7	16.67	84.7	15.43	85.7	14.29
EKAC250BRLH	5°C	58.3	23.06	59.3	22.35	63.1	19.50	66.2	18.59	67.8	17.57	69.4	16.15	71.5	14.73	73.1	13.41
	7°C	59.9	23.46	62.5	22.65	66.2	20.11	71.0	19.30	72.1	17.78	74.7	16.46	76.3	15.14	76.8	13.92
	9°C	65.2	23.77	68.4	22.86	71.0	20.62	75.8	19.50	76.8	18.18	78.4	16.76	80.5	15.74	82.1	14.53
	12°C	71.0	23.97	73.1	23.16	77.4	21.03	80.0	19.81	82.1	18.49	83.7	17.27	86.4	16.05	87.4	14.83
	15°C	74.7	24.38	80.0	23.46	84.2	21.64	86.9	20.11	88.0	18.89	89.0	17.78	91.1	16.46	92.2	15.24

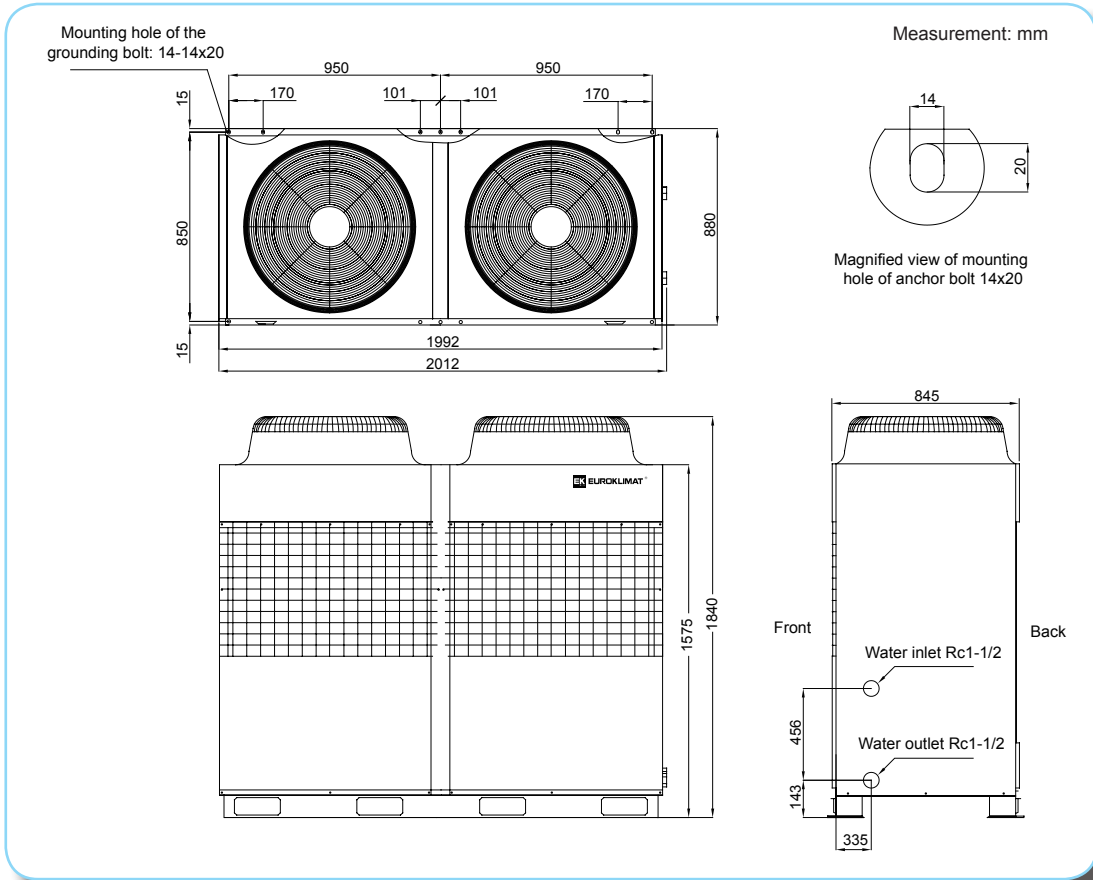
Heating Capacity Variation Table

Model	Outlet water temp. (°C)	Ambient temp. (°C)																			
		-20°C		-15°C		-10°C		-5°C		0°C		7°C		10°C		15°C		20°C		25°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)	Heating capacity (kW)	Power (kW)	Heating capacity (kW)	Power (kW)
EKAC230BRLH	35°C	42.0	15.30	49.0	15.39	54.0	15.39	60.1	15.41	67.5	15.61	73.0	15.70	78.4	15.80	80.8	16.09	86.3	16.29	88.7	16.48
	40°C	41.0	16.66	47.5	16.76	53.5	16.76	59.2	16.87	66.1	17.06	70.5	17.26	77.9	17.45	80.4	17.74	85.3	17.93	88.2	18.03
	45°C	40.5	17.93	46.5	18.22	53.0	18.22	58.7	18.42	65.6	18.81	70.0	19.00	77.4	19.10	79.9	19.48	84.3	19.78	87.7	19.97
	50°C	--	--	45.5	19.78	52.5	19.88	57.7	20.07	65.1	20.45	68.0	20.84	75.9	20.84	79.4	21.04	83.8	21.13	87.3	21.33
EKAC250BRLH	35°C	45.0	16.10	52.4	16.21	57.9	16.21	64.4	16.22	72.4	16.43	78.2	16.53	83.9	16.63	86.6	16.94	92.4	17.14	95.1	17.35
	40°C	43.9	17.54	50.9	17.64	57.3	17.64	63.4	17.76	70.8	17.96	75.5	18.16	83.5	18.37	86.1	18.67	91.4	18.88	94.5	18.98
	45°C	43.4	18.87	49.8	19.18	56.8	19.18	62.9	19.39	70.2	19.80	75.0	20.00	82.9	20.10	85.6	20.51	90.3	20.82	94.0	21.02
	50°C	--	--	48.8	20.82	56.3	20.92	61.8	21.12	69.7	21.53	72.9	21.94	81.3	21.94	85.0	22.14	89.8	22.24	93.5	22.45

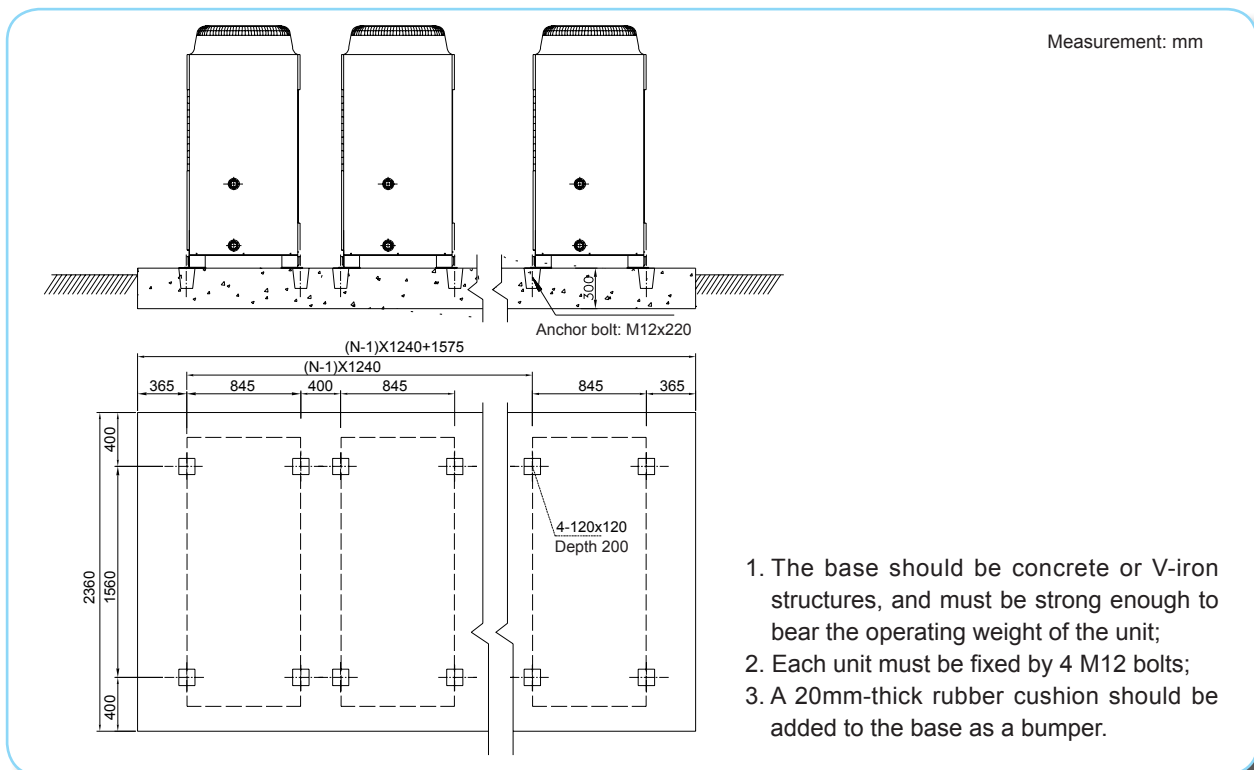
Note: parameters in the above table are measured when the unit operates at the rated water flow.

Dimensions (Low-temperature High Efficiency Model R22)

Dimension Diagrams for EKAC230 and EKAC250



Installation Base Diagrams for EKAC230 and EKAC250



Low-Temperature High Efficiency Total Heat Recovery Modular Air-Cooled Heat Pump Unit

EKAC series Low-Temperature High-Efficiency Total Heat-Recovery Units



The EKAC series low-temperature high-efficiency total heat-recovery unit features leading-edge total heat recovery technologies, 40 years of air-cooled heat pump design experiences from Italy, and state-of-the-art EVI enthalpy increase technologies. It can provide effective heating in temperatures as low as -20°C to provide "free" hot water of $45\text{-}60^{\circ}\text{C}$ around the clock. Compared with traditional air-cooled heat-pump unit + hot water equipment, units of this series can reduce operation cost by more than 60%. The unit combines energy efficiency, comfort, flexibility, reliability, and intelligence, and can be used to replace traditional centralized heating equipment to provide hot water without extra cost. The unit helps saving energy and reducing green house gas emission, and brings substantial benefit to customers while protecting the environment.

Providing Free Hot Water and Saving Investment

In the traditional solutions for buildings, air conditioning + hot water take up 80% of the total energy consumption. The EKAC series low-temperature high-efficiency total heat-recovery unit provides cooling, heating, and "free" hot water. It can work around the clock to provide air conditioning and hot water with a temperature as high as 65°C . Tests conducted by authoritative labs indicate that the COP of the unit is as high as 9.44, exceeding the national standard by a long way and saving energy by as much as 60%.



Total Heat Recovery (Patented Design)

The unit makes full use of waste heat generated during condensation to improve the COP up to 9.44 in cooling + heat recovery mode. The COP is 3.5 times higher than traditional air conditioners and 2.5 times higher than certain heat recovery air conditioners.

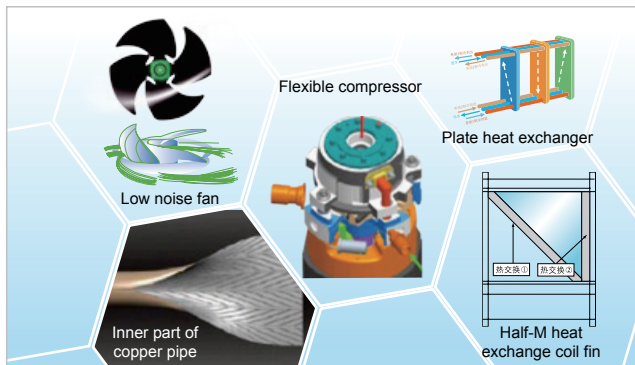
High-efficiency bucket heat exchanger

The unit features an innovative design, making it efficient and compact. High-efficiency heat exchanging tubes are used, improving the heat exchange ratio by 3.7 times compared with common tubes. Fins outside the tube and ridges inside the tube can generate strong turbulent flow to greatly improve the heat exchange ratio.

Low-Temperature High Efficiency Total Heat Recovery Modular Air-Cooled Heat Pump Unit

Efficient Components and Optimized System Design

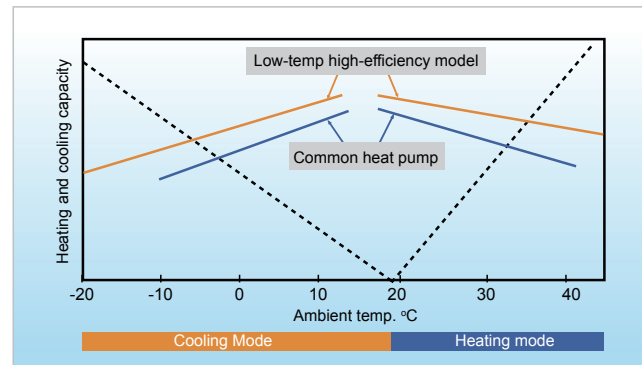
The EKAC series low-temperature high efficiency total heat recovery modular air-cooled heat pump unit features state-of-the-art enhanced vapor injection (EVI) technologies, increasing refrigerant recycle by 20%. The evaporation capacity is improved by mid-pressure refrigerant intake. One compressor compresses refrigerant 2 times in each cycle. Half-M fins are used to improve the heat-exchange efficiency of the heat exchanger. The unit features state-of-the-art cross diagonal convection angles for stainless steel braze-welded panel-type heat exchanger and stainless steel braze-welded panel-type economizer (used to increase the enthalpy-differentiation between the inlet and outlet of the evaporator). An EXV is used to precisely control the operation of the unit.



Leading-edge Technology and Stronger Cooling and Heating Capacities

The EKAC low-temperature high-efficiency modular air-cooled heat pump unit features excellent heating COP when the ambient temperature is low (20% higher than common air-cooled heat pump unit when the ambient temperature is -10°C).

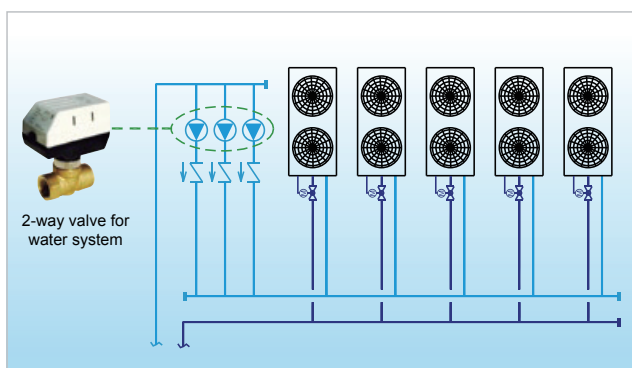
The lower ambient temperature limit is expanded from -10°C of common units to -20°C . This greatly improves cooling performance in areas where the winter is cold, reducing or eliminating the need for auxiliary heaters.



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Efficient and Energy Saving

Each modular unit has two power gears. When multiple modular units are combined, there could be many power gears. When working at a partial workload (99% of the operation time), the unit intelligently regulates the output based on the actual workload, making the operation efficiency even higher. With an optional 2-way valve water control feature, the unit can send out signals to cut off chilled water. This enables automatic flow control for pumps in line with the transducer, which helps save more energy.



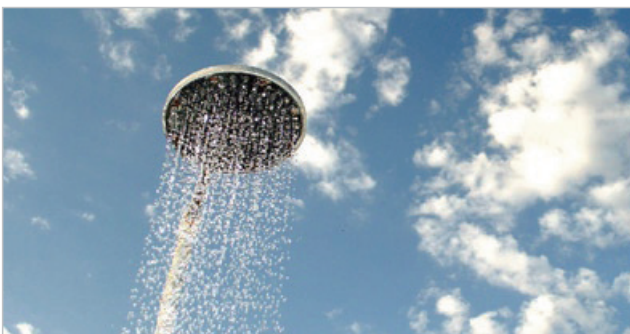
Operation in Low Temperature Areas

The EKAC series low-temperature high-efficiency total heat-recovery unit features state-of-the-art EVI enthalpy increase technologies, and can provide effective heating and sufficient hot water when the ambient temperature is as low as -20°C . The unit can provide effective heating for areas that are extremely cold in winter.



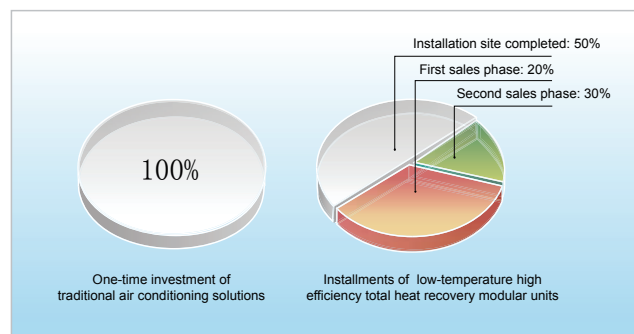
Safe and Comfortable

fast heating; hot water available as soon as you turn on the tap; absolutely safe as there is no emission of harmful gas and the risk of electric shock is eliminated by separating water and electricity. The central hot water system can provide hot water with a stable temperature for multiple outlets, making bathing comfortable.



Lower Investment

Investments can be made in installments as the project rolls out. This reduces initial investment for new projects and making renovation project easy to complete.



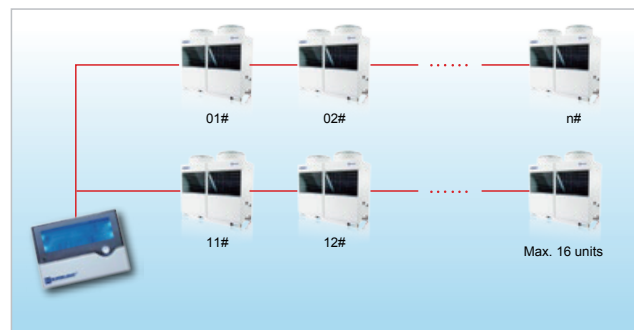
Hybrid Connection Technology

Units of this series support modular connection with common air-cooled heat pump units to meet various heat recovery requirements.



Smart Control

Units of this series are controlled by microcomputers. Each control module can control up to 16 units, making unit combination easier. Temperature and level of water in the water tank are controlled automatically, and the water pump starts/stops automatically. No dedicated operator is required, reducing the management cost by easy smart control.



Specification Table (Low-Temperature High-Efficiency Total Heat Recovery Model)

Specifications (Partial) for Combined Units Taking EKAC210 as Basic Module

Model			EKAC 210BRLHR	EKAC 420BRLHR	EKAC 360BRLHR	EKAC 840BRLHR	EKAC 1050BRLHR	EKAC 1260BRLHR
Air conditioning mode	Nominal cooling capacity	kW	58	116	174	232	290	348
	Nominal heating capacity	kW	63	126	189	252	315	378
	Total power of nominal cooling capacity	kW	16	32	48	64	80	96
	Total power of nominal heating capacity	kW	17	34	51	68	85	102
	Water flow rate for nominal cooling capacity	m ³ /h	10	20	30	40	50	60
	Water flow rate for nominal heating capacity	m ³ /h	10.8	21.6	32.4	43.2	54.0	64.8
Hot water mode	Nominal water flow	m ³ /h	13.2	26.4	39.6	52.8	66	79.2
	Nominal heating capacity	kW	77	154	231	308	385	462
	Total power of nominal heating capacity	kW	19	38	57	76	95	114
Cooling + Heat recovery mode	Nominal cooling capacity	kW	57	114	171	228	285	342
	Nominal heat recovery capacity	kW	70.5	141.0	211.5	282.0	352.5	423.0
	Total nominal power	kW	13.5	27.0	40.5	54.0	67.5	81.0
	Nominal water supply capacity at heat recovery side	m ³ /h	13.2	26.4	39.6	52.8	66.0	79.2
	Nominal water flow at evaporator side	m ³ /h	10.3	20.6	30.9	41.2	51.5	61.8
Power supply			380V/3N~/50Hz					
Flow control			Electronic expansion valve					
Refrigerant			R22					
Heat exchanger type	Air conditioning side		braze-welded panel-type heat exchanger					
	Hot water side		High-efficiency bucket heat exchanger					
Compressor	Type		High-efficiency bucket heat exchanger					
	Lubricant		LubricantMineral oil (SUNISO 3GS)					
Fan	Qty.	Set	2	4	6	8	10	12
	Type							
Water resistance	Air conditioning side	kPa	45	45	45	45	45	45
	Hot water side	kPa	65	65	65	70	70	70
Minimum diameter for water pipes	Air conditioning side	inch	≥2	≥2-1/2	≥3	≥4	≥4	≥5
	Hot water side	inch	≥2-1/2	≥3	≥4	≥4	≥5	≥5
Dimensions	L x H	mm	2012x1840					
	Width	mm	880	2125	3370	4615	5860	7015
Power cable specification	Section area of live line	mm ²	≥10	≥35	≥70	≥95	≥120	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥16	≥35	≥50	≥60	≥75
Net weight		kg	610	1220	1830	2440	3050	3660
Operation weight		kg	630	1260	1890	2520	3150	3780

Note:

- Air conditioning mode: Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172 m³/(h·kW); outdoor ambient temperature 35°C. Test conditions for nominal heating capacity: outlet water temperature: 45°C; water flow: 0.172m³/(h·kW); temperature of outdoor dry/wet bulb: 7°C/6°C.
- Cooling + Heat recovery mode Test conditions for nominal cooling capacity: Hot water side: Outlet water temp. 45°C; nominal water flow for hot water mode. Air conditioning side: Outlet water temp. 7°C; nominal water flow for heating mode.
- Hot water mode: Test conditions for nominal water flow: temperature of outdoor dry/wet bulb: 20/15°C; Temperature of inlet/outlet water: 50/55°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Water resistance at the hot water side includes water pressure drop of the unit and does not include the pressure drop at the Y-shaped filter and other components.
- Pipes outside the unit need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Full heat recovery units and other units can be combined to form partial heat recovery modular system. Full heat recovery units can also be combined to form a total heat recovery system. Modular units can be formed using the 1~16 basic modules. The above table lists the parameters for common module combinations.

Specification Table (Low-Temperature High-Efficiency Total Heat Recovery Model)

Cooling Capacity/Power Variation Table

Cooling power Outlet water temp.	15°C		20°C		25°C		30°C		35°C		40°C		45°C		48°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)
5°C	64.5	10.8	62.2	12.4	59.7	13.6	57.2	14.3	54.2	15.7	49.2	16.9	45.5	18.1	43.6	19.6
7°C	68.5	11.3	66.3	12.7	62.0	14.0	60.4	14.6	58.0	16.0	54.1	17.3	50.6	18.4	47.3	20.2
9°C	71.6	11.5	69.1	13.0	66.5	14.1	63.8	15.0	60.9	16.2	56.8	17.5	53.8	18.8	50.4	20.4
12°C	74.8	11.7	73.3	13.3	71.6	14.3	69.6	15.1	67.4	16.6	62.4	17.7	57.4	19.3	52.9	20.7
15°C	79.0	11.8	76.8	13.5	74.9	14.8	72.5	15.4	70.3	16.8	68.7	18.0	66.3	19.8	64.2	21.0

Heating Capacity/Power Variation Table

Heating power Outlet water temp.	-20°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)	Heating capacity (kW)	Power (kW)
35°C	30.5	13.1	36.4	13.2	40.9	13.3	47.5	13.6	54.7	13.7	64.7	13.8	68.3	14.0	72.3	14.0	73.2	14.2
40°C	29.6	14.6	35.4	14.7	40.1	14.8	46.8	14.9	53.3	15.1	63.8	15.4	66.7	15.7	71.2	16.3	72.1	16.6
45°C	28.6	15.5	33.5	15.6	39.4	15.8	46.5	16.2	52.2	16.6	63.0	17.0	66.2	17.2	69.5	17.5	71.3	17.7
50°C	27.8	17.3	32.0	17.5	39.0	17.6	45.8	17.9	51.5	18.2	62.2	18.3	65.5	18.3	67.7	18.4	70.9	18.6
55°C	-	-	31.2	19.0	38.2	19.1	44.7	19.4	50.3	19.5	60.5	19.7	65.2	19.8	66.5	19.9	68.2	20.1

Cooling + Heat Recovery Capacity/Power Variation Table

Heat recovery power Temp of outlet hot water	5°C			7°C			10°C			12°C		
	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)	Cooling capacity (kW)	Heat recovery capacity (kW)	Power (kW)
35°C	53.0	63.5	10.5	60.5	71.4	10.9	61.5	72.9	11.4	61.7	73.5	11.8
40°C	50.7	62.3	11.6	59.1	71.0	11.9	59.9	72.2	12.3	60.2	72.8	12.6
45°C	48.4	61.5	13.1	57.0	70.5	13.5	57.6	71.5	13.9	58.0	72.3	14.3
50°C	46.1	60.6	14.6	55.3	70.2	15.0	55.8	71.0	15.3	56.2	71.7	15.5
55°C	44.2	60.0	15.8	53.5	70.0	16.5	53.8	70.5	16.7	54.4	71.3	16.9
60°C	41.5	58.1	16.6	47.7	64.8	17.1	49.3	66.6	17.3	50.8	68.4	17.6
65°C	39.3	56.9	17.6	42.5	60.6	18.1	44.7	63.0	18.3	47.6	66.1	18.5

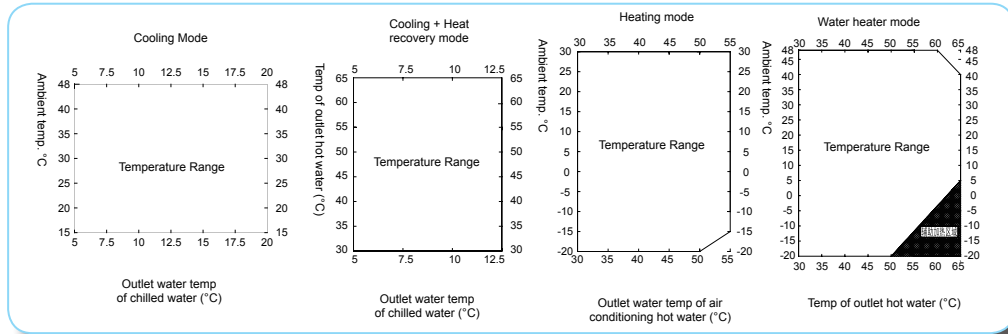
Hot water capacity/Power Variation Table

Hot water capacity Outlet water temp.	Ambient temp.															
	-20°C	-15°C	-10°C	-5°C	0°C	7°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	43°C	48°C	
35°C	28.0	32.6	39.1	44.1	52.7	59.7	67.7	74.5	79.4	84.3	86.2	89.5	90.7	91.3	92.7	
40°C	27.1	31.7	38.6	43.5	51.6	58.4	65.0	73.6	78.6	83.9	85.9	88.4	90.1	90.5	91.6	
45°C	26.2	30.9	38.0	42.3	50.4	57.5	63.7	72.2	78.0	82.3	84.8	87.5	89.6	90.2	91.1	
50°C	24.5	29.1	36.8	41.6	49.2	56.8	63.4	71.4	77.7	81.3	84.3	86.9	88.3	89.6	90.5	
55°C	-	26.8	35.2	40.4	48.6	55.8	63.0	70.5	77.0	80.8	83.9	85.5	87.6	88.5	89.8	
60°C	-	-	-	37.5	46.6	55.2	62.9	70.1	76.4	79.5	82.5	84.2	87.1	87.9	88.4	
65°C	-	-	-	-	-	54.5	62.7	69.8	75.6	78.8	80.8	83.8	86.3	-	-	

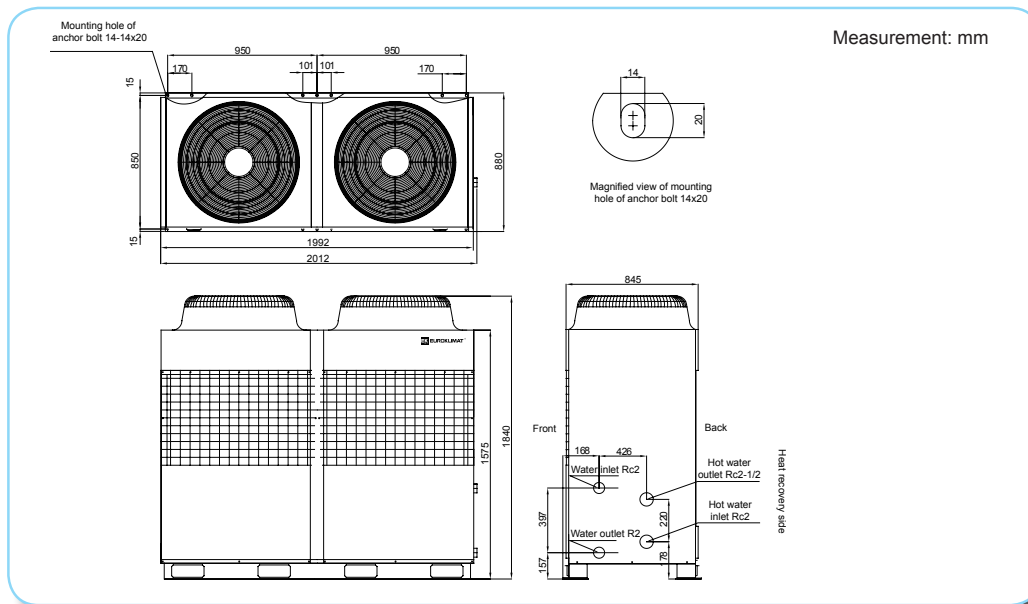
Hot water power Outlet water temp.	Ambient temp.															
	-20°C	-15°C	-10°C	-5°C	0°C	7°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	43°C	48°C	
35°C	13.4	13.5	13.6	13.7	13.9	14.0	14.1	14.2	14.4	13.1	13.3	13.4	13.5	13.6	13.6	
40°C	14.1	14.2	14.3	14.5	14.6	14.7	14.7	14.8	15.1	13.7	13.8	13.9	14.0	14.1	14.2	
45°C	15.3	15.4	15.4	15.6	15.7	15.8	15.9	16.0	16.0	14.6	14.7	14.7	14.8	14.8	14.8	
50°C	16.9	17.0	17.1	17.1	17.2	17.4	17.5	17.6	17.6	16.7	16.8	16.8	16.9	17.0	17.1	
55°C	-	18.5	18.6	18.7	18.8	18.8	18.9	18.9	19.0	17.6	17.6	17.7	17.8	17.9	18.0	
60°C	-	-	-	20.7	20.9	21.1	21.2	21.4	21.3	20.3	20.4	20.5	20.7	20.8	20.9	
65°C	-	-	-	-	-	22.8	23.0	23.1	23.2	21.8	21.9	22.2	22.4	-	-	

Specification Table (Low-Temperature High-Efficiency Total Heat Recovery Model)

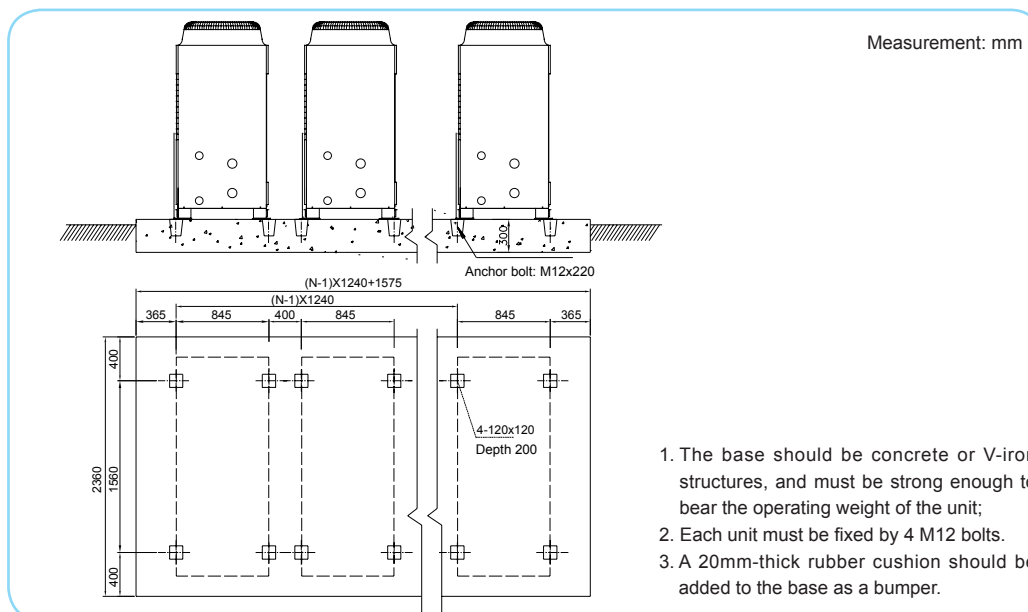
Operating Temperature Range



Dimension Diagram for EKAC210BRLHR



Installation Base Diagrams for EKAC210BRLHR



Modular Air-cooled Heat Pump Unit with Environment Friendly Refrigerant Model

EKAC Series

**Environment Friendly Refrigerant
Air-cooled Heat Pump Unit**



The modular air-cooled heat pump unit with environment friendly refrigerant model uses new-generation R410A refrigerant which does not cause ozone depletion. The unit features optimized system design and an excellent COP. The unit is not only cost effective but also environment friendly, easy to operate, reliable in performance, and can be installed flexibly. Therefore, units of this series are widely used in dining halls, bars, hotels, offices, top-tier clubs, hospitals, etc.

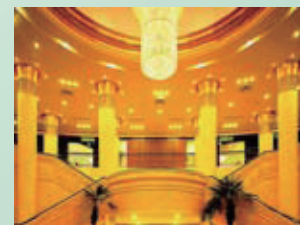
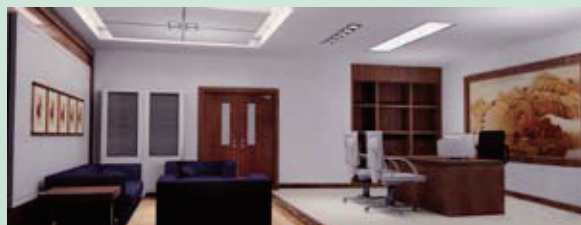


COP at Full Load up to 3.38



25

Application Scenarios



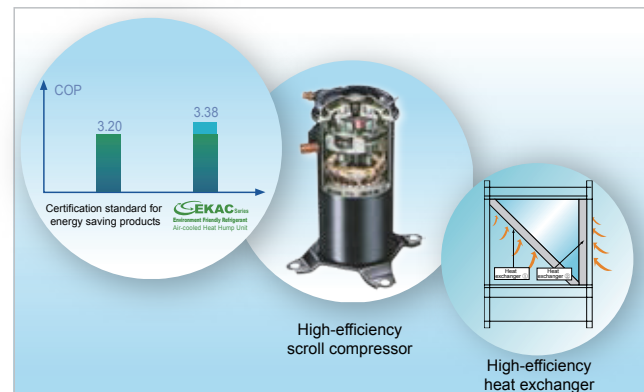
Environment Friendliness and Excellent Performance

- The unit uses environment friendly refrigerant R410A.
- The R410A refrigerant does not cause any ozone depletion.
 - The heat exchange performance is excellent, improving the COP.
 - Less refrigerant is used, reducing the green house effect.



Efficient and Energy Saving, Greatly Cutting Down Operation Cost

The unit features an efficient scroll compressor and heat exchanger. Modules of the system are best matched to improve heat exchange efficiency. The unit uses efficient and environment friendly refrigerant R410A, providing a higher COP. Multi-loop compressors are used to provide multiple capacity adjustment gears. This reduces startup current and electric investment. Excellent COP greatly reduces energy consumption and operation cost.



Easy Installation and Simple Maintenance

Before powering on and turning on the unit, you just need to connect the water pipe of each module to the main water pipe. A special access door is provided so that any inter parts of the unit can be conveniently serviced.



The unit is quiet and comfortable during operation

- A low-sound fan generates little operation sound and vibration.
- R410A scroll compressor generates little operation sound and vibration.
- A flexible installation base further reduces operation vibration.
- Air outlet pipes of the compressor are optimized to reduce vibration passed to the unit.



Specification Table (R410A Environment-friendly Refrigerant Model)

Specifications (Partial) for Combined Units Taking EKAC220 as Basic Module

Model		EKAC 220BR1	EKAC 440BR1	EKAC 660BR1	EKAC 880BR1	EKAC 1100BR1	EKAC 1320BR1	
Unit combination	Master unit	EKAC220BR1M	EKAC220BR1M	EKAC220BR1M	EKAC220BR1M	EKAC220BR1M	EKAC220BR1M	
	slave unit	--	EKAC220BR1S	2EKAC220BR1S	3EKAC220BR1S	4EKAC220BR1S	5EKAC220BR1S	
Nominal cooling capacity	kW	63	126	189	252	315	378	
	USRT	17.92	35.84	53.76	71.68	89.6	107.52	
	×10 ⁴ kcal/h	5.42	10.84	16.26	21.68	27.1	32.52	
Nominal heating capacity	kW	68	136	204	272	340	408	
	USRT	19.34	38.68	58.02	77.36	96.7	116.04	
	×10 ⁴ kcal/h	5.85	11.7	17.55	23.4	29.25	35.1	
Total power of nominal cooling capacity	kW	19.0	38	57	76	95	114	
Total power of nominal heating capacity	kW	19.8	39.6	59.4	79.2	99	118.8	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R410A						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Grease (POE-160SZ)						
	Qty.	Set	2	4	6	8	10	12
Fan	Type	High-efficiency vacuum braze-welded panel type						
	Qty.	Set	2	4	6	8	10	12
Water side heat exchanger	Type	High-efficiency vacuum braze-welded panel type						
	Water flow for cooling	m ³ /h	10.8	21.6	32.4	43.2	54	64.8
	Water flow rate in heating mode	m ³ /h	11.7	23.4	35.1	46.8	58.5	70.2
Water resistance	kPa	43	43	43	43	43	43	
Recommended diameter for general inlet/outlet water pipe	inch	≥2	≥3	≥3	≥4	≥4	≥5	
Power cable specification	Section area of live line	mm ²	≥10	≥35	≥70	≥95	≥120	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥16	≥35	≥50	≥60	≥75
	Qty. of grounding lines		1					
Dimensions	L x H	mm	2012×1840					
	Width	mm	880	2125	3370	4615	5860	7105
Unit weight	Net weight	kg	515	1030	1545	2060	2575	3090
	Operating weight	kg	525	1050	1575	2100	2625	3150

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (R410A Environment-friendly Refrigerant Model)

Specifications (Partial) for Combined Units Taking EKAC230 as Basic Module

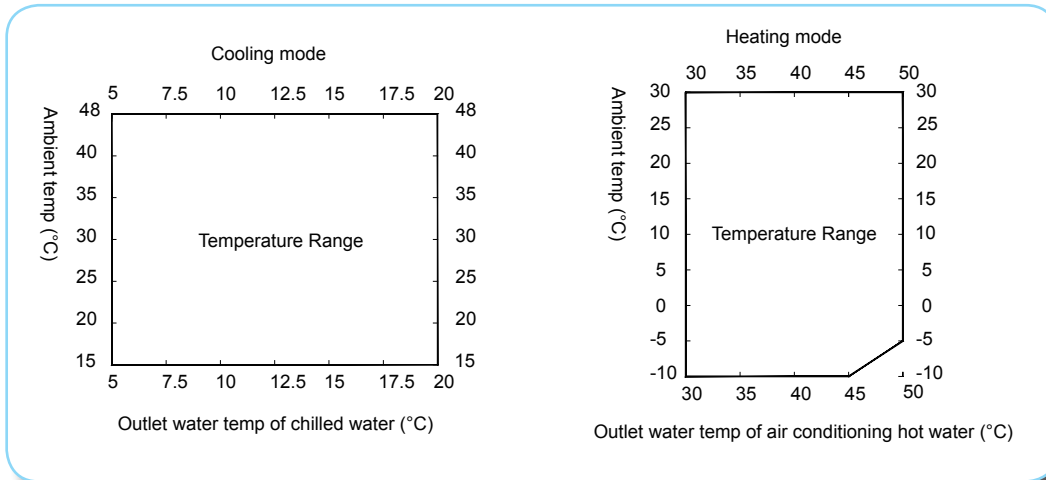
Model		EKAC 230B1	EKAC 460B1	EKAC 690B1	EKAC 920B1	EKAC 1150B1	EKAC 1380B1	
Unit combination	Master unit	EKAC230BR1	EKAC230BR1	EKAC230BR1	EKAC230BR1	EKAC230BR1	EKAC230BR1	
	slave unit	--	EKAC230BR1	2EKAC230BR1	3EKAC230BR1	4EKAC230BR1	5EKAC230BR1	
Nominal cooling capacity	kW	68	136	204	272	340	408	
	USRT	19.34	38.68	58.02	77.36	96.7	116.04	
	×10 ⁴ kcal/h	5.85	11.7	17.55	23.4	29.25	35.1	
Nominal heating capacity	kW	72	144	216	288	360	432	
	USRT	20.48	40.96	61.44	81.92	102.4	122.88	
	×10 ⁴ kcal/h	6.19	12.38	18.57	24.76	30.95	37.14	
Total power of nominal cooling capacity	kW	20.1	40.2	60.3	80.4	100.5	120.6	
Total power of nominal heating capacity	kW	21.1	42.2	63.3	84.4	105.5	126.6	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R410A						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Grease (POE-160SZ)						
	Qty.	Set	2	4	6	8	10	12
Fan	Type	High-efficiency vacuum braze-welded panel type						
	Qty.	Set	2	4	6	8	10	12
Water side heat exchanger	Type	High-efficiency vacuum braze-welded panel type						
	Water flow for cooling	m ³ /h	11.7	23.4	35.1	46.8	58.5	70.2
	Water flow rate in heating mode	m ³ /h	12.4	24.8	37.2	49.6	62	74.4
Water resistance	kPa	45	45	45	45	45	45	
Recommended diameter for general inlet/outlet water pipe	inch	≥2	≥3	≥3	≥4	≥4	≥5	
Power cable specification	Section area of live line	mm ²	≥10	≥35	≥70	≥95	≥120	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥16	≥35	≥50	≥60	≥75
	Qty. of grounding lines		1					
Dimensions	L x H	mm	2012×1840					
	Width	mm	880	2125	3370	4615	5860	7105
Unit weight	Net weight	kg	515	1030	1545	2060	2575	3090
	Operating weight	kg	525	1050	1575	2100	2625	3150

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (R410A Environment-friendly Refrigerant Model)

Operating Temperature Range



Cooling Capacity Variation Table

Model	Outlet water temp. (°C)	Ambient temp. (°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)
EKAC220BR1	5°C	48.6	23.11	51.0	21.74	55.4	19.78	59.6	18.12	62.2	16.55	64.7	15.96	65.6	15.47	66.1	14.48
	7°C	54.1	23.80	55.0	22.33	59.8	20.27	63.0	19.00	65.8	17.15	68.2	16.34	68.4	15.79	70.9	14.87
	9°C	55.7	24.39	59.6	22.81	63.5	20.86	66.2	19.29	69.6	17.53	72.8	16.53	73.6	16.17	75.1	15.27
	12°C	62.0	24.68	64.9	23.21	69.7	21.45	74.3	19.59	77.9	17.82	78.1	16.91	80.3	16.57	81.9	15.76
	15°C	67.8	25.07	70.2	23.90	75.3	22.33	78.9	20.08	79.5	18.31	80.8	17.29	82.4	16.92	85.8	16.25
EKAC230BR1	5°C	52.4	24.45	55.0	23.00	59.8	20.93	64.4	19.17	67.2	17.51	69.9	16.88	70.8	16.37	71.3	15.32
	7°C	58.3	25.18	59.4	23.62	64.6	21.45	68.0	20.10	71.0	18.14	73.6	17.29	73.8	16.70	76.5	15.74
	9°C	60.1	25.80	64.4	24.13	68.5	22.07	71.4	20.41	75.2	18.55	78.6	17.49	79.4	17.10	81.1	16.15
	12°C	67.0	26.11	70.1	24.56	75.3	22.69	80.1	20.72	84.1	18.86	84.3	17.89	86.7	17.53	88.5	16.67
	15°C	73.2	26.52	75.8	25.28	81.3	23.62	85.1	21.24	85.8	19.37	87.2	18.29	89.0	17.90	92.6	17.19

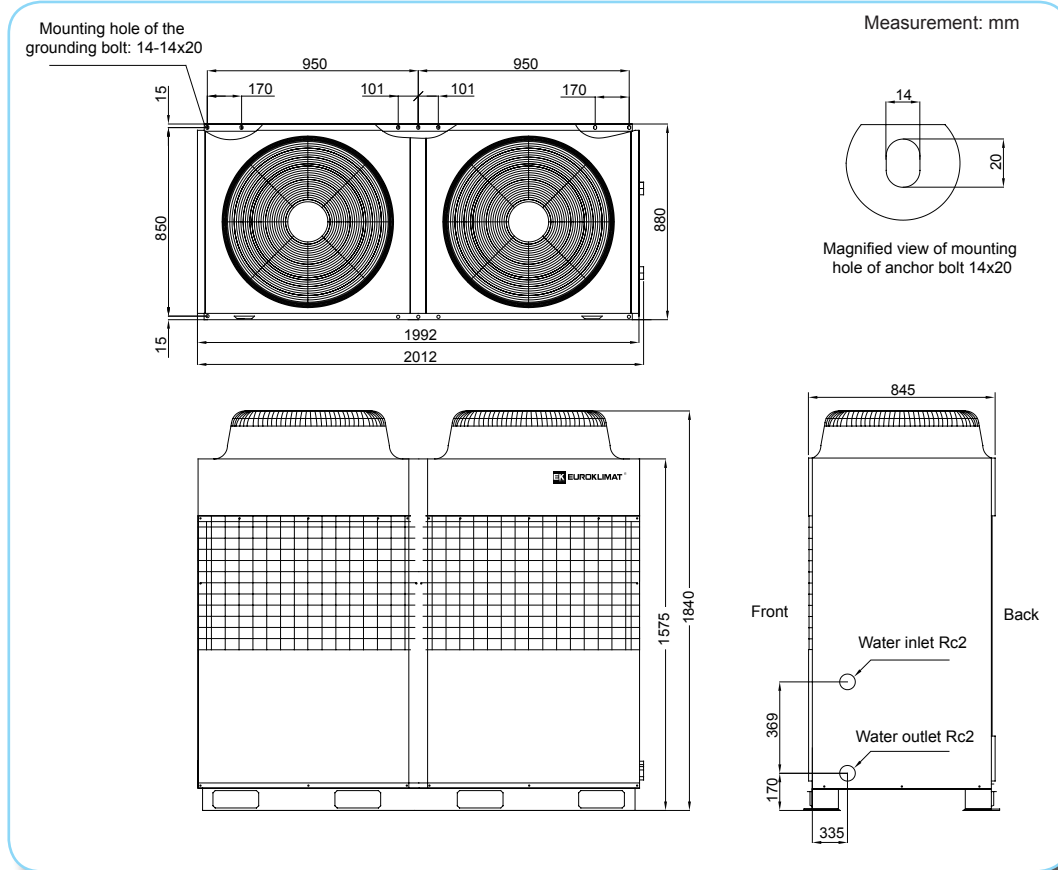
Heating Capacity Variation Table

Model	Outlet water temp. (°C)	Ambient temp. (°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)
EKAC220BR1	35°C	41.4	15.47	49.8	15.57	58.0	15.88	70.6	16.26	71.9	16.50	73.9	16.71	74.9	17.02
	40°C	40.0	16.91	47.7	17.22	56.2	17.53	69.2	17.74	71.3	18.03	72.2	18.25	74.4	18.46
	45°C	37.1	18.77	46.9	18.98	55.0	19.39	68.0	19.80	69.5	19.90	70.0	20.11	73.5	20.63
	50°C	--	--	45.7	20.11	52.5	21.35	67.3	21.86	68.0	22.17	75.1	22.28	72.9	22.89
EKAC230BR1	35°C	43.8	16.48	52.7	16.59	61.4	16.92	74.7	17.33	76.2	17.58	78.3	17.80	79.3	18.13
	40°C	42.4	18.02	50.5	18.35	59.5	18.68	73.3	18.90	75.4	19.21	76.5	19.45	78.8	19.67
	45°C	39.2	20.00	49.7	20.22	58.2	20.66	72.0	21.10	73.6	21.21	74.1	21.43	77.8	21.98
	50°C	--	--	48.4	21.43	55.6	22.75	71.3	23.30	72.0	23.63	79.5	23.74	77.2	24.40

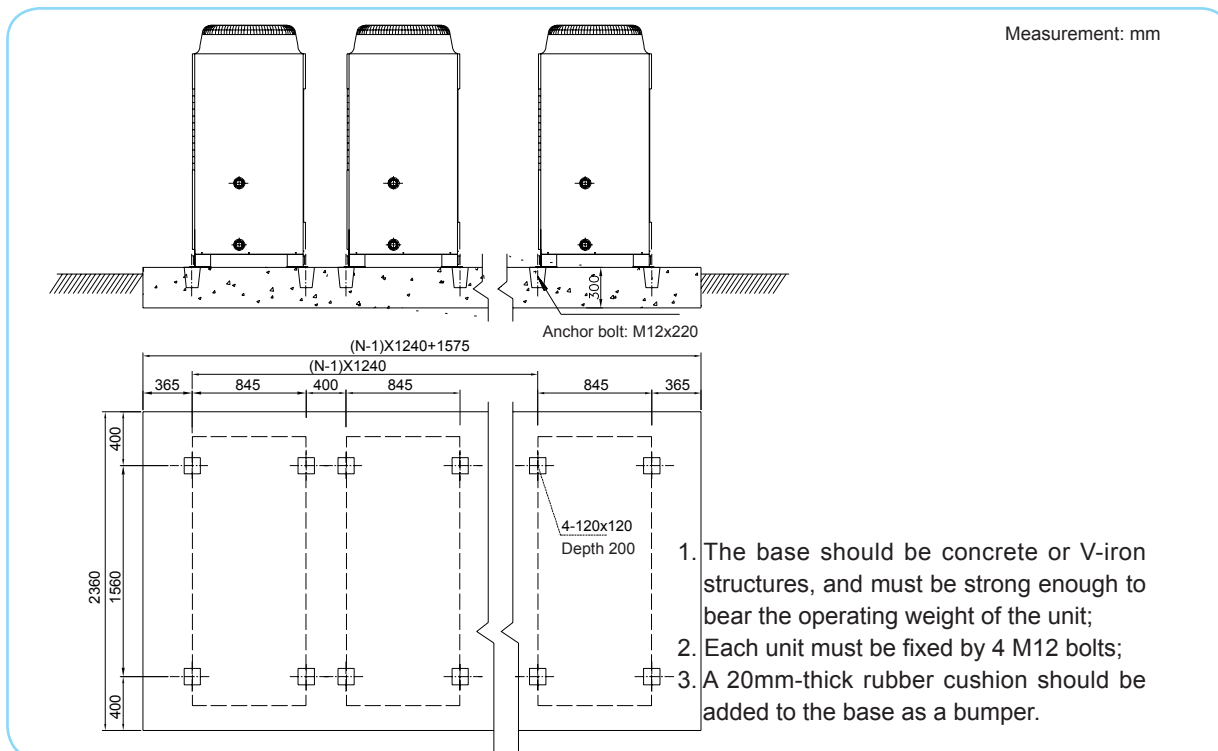
Note: parameters in the above table are measured when the unit operates at the rated water flow.

Dimensions (R410A Environment-friendly Refrigerant Model)

Dimension Diagrams for EKAC220 and EKAC230



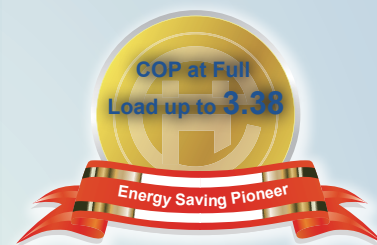
Installation Base Diagrams for EKAC220 and EKAC230



Common Modular Air-cooled Heat Pump Unit



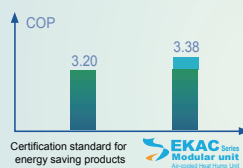
EKAC modular air-cooled heat pump units combines more than 40 years of Italian air-cooled heat pump design experience and the application practices of modular units in China, so as to meet customers' requirements on product efficiency, safety, smartness and comfort. This series of units have diversified models and are applicable to various environments, such as villas, hotels, recreation centers, hospitals, dining halls, office buildings, supermarkets, and various industrial processes that requires cooling.



COP at Full Load up to 3.38

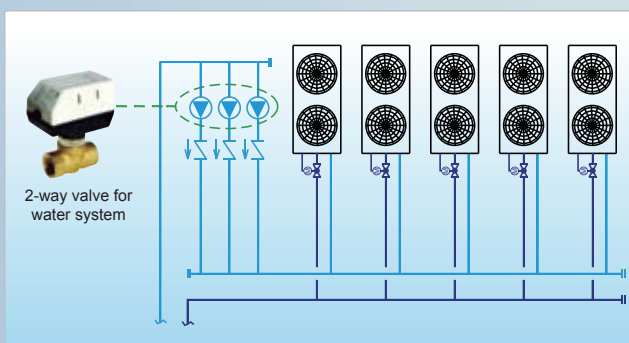
Leading-edge Energy Saving Design

- Based on its leading-edge design for air-cooled and heat pump units in Europe as well as the wide use of its air-cooled units in China, EK has launched this series of innovative modular air-cooled water chiller (heat pump) units. The full-load COP of this series is higher than that the energy saving product certification standard
- Each modular unit has two power gears. When multiple modular units are combined, there could be many power gears. Fully-optimized model selection and matching practice ensures that the units can always save as much energy as possible. When operating with a partial load (99% of full operation time), the EER is even 4% higher.
- With an optional 2-way valve water control feature, the unit can send out signals to turn off corresponding chilled water valves. This enables automatic flow control for pumps in line with the transducer, which helps save more energy.



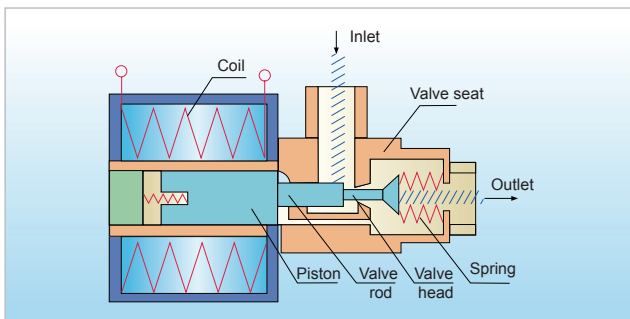
Modular Design and Reliable Operation

- The unit features modular design and starts up in steps to ease the shock on the power grid caused by startup current.
- The unit has undergone strict and long-duration tests according to the most stringent standards, and can work reliably to providing cooling when the ambient temperature is as high as 48°C and heating when the ambient temperature is as low as -10°C.
- The system features built-in high/low pressure protection, cooling freezing protection, winter freezing protection, compressor overload protection and water pressure-drop switch etc. to maximize the safety of the unit.



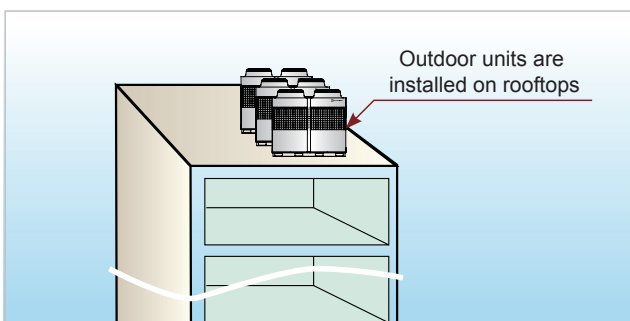
Precise Water Temperature Control

The unit uses a 500-step PMV electronic expansion valve for precise PID control, dynamic and real-time adjustment of the cooling system, and higher-precision water temperature control. This helps optimize the performance of each and every part of the system. The unit can work reliably under any load and automatically adapt to changing ambient temperatures, completely eliminating cooling system vibration.

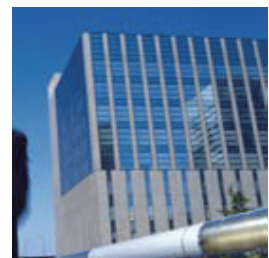
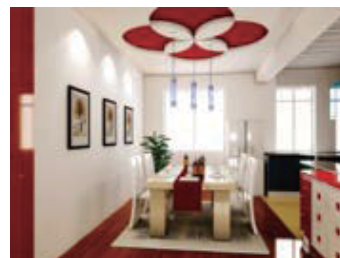
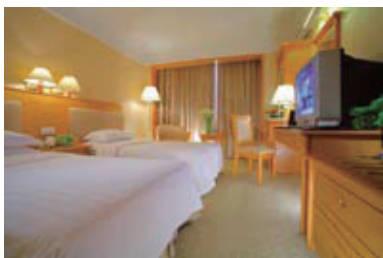


Flexible Installation, No Need for Equipment Room

- The unit needs no additional equipment room, and can be mounted on the floor, building roof, etc. Modular design makes each unit small in dimension and suitable for transportation by cargo elevator, thus saving hoist cost during construction. The unit can also be installed step by step to shorten the construction period.
- Each unit has a separate refrigerant circuit. This reduces the probability of refrigerant leakage which could damage the ozoneosphere.



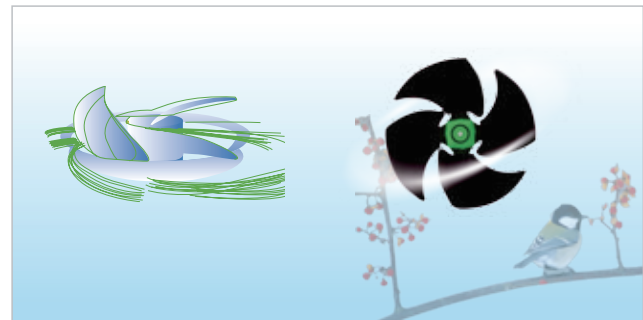
Application Scenarios



Silent and Comfortable

The entire unit features vibration isolation design and multiple noise reduction processes. Both noise level and vibration level of the unit take the lead in the industry thanks to its name-brand quite hermetic volute compressors and two-gear quiet fans. The noise level of the unit is significantly reduced using professional noise reduction practices, such as comparing, choosing and improving fans, motors, structures and pipelines based on noise spectrum analysis results.

Innovative smart silencing mode can automatically adjust the fan rev (high/low) according to outdoor temperature and the operation status of the unit. This makes the unit even quieter in operation mode.



Smart Control and Simple Operation

The unit uses a micro-computer controller with a large LCD screen to facilitate operation. Each controller can control and dynamically monitor the operation of up to 16 units. This facilitates centralized management.



Specification Table (Common Model R22)

Specifications (Partial) for Combined Units Taking EKAC210 as Basic Module

Model		EKAC 210B	EKAC 210BR	EKAC 420B	EKAC 420BR	EKAC 630B	EKAC 630BR	
Unit combination	Master unit	EKAC210BM	EKAC210BRM	EKAC210BM	EKAC210BRM	EKAC210BM	EKAC210BRM	
	slave unit	--	--	EKAC210BS	EKAC210BRS	2EKAC210BS	2EKAC210BRS	
Nominal cooling capacity	kW	61	61	122	122	183	183	
	USRT	17.35	17.35	34.70	34.70	52.04	52.04	
	×10 ⁴ kcal/h	5.25	5.25	10.49	10.49	15.74	15.74	
Nominal heating capacity	kW	--	64	--	128	--	192	
	USRT	--	18.20	--	36.4	--	54.6	
	×10 ⁴ kcal/h	--	5.50	--	11.0	--	16.5	
Total power of nominal cooling capacity	kW	18.0	18.0	36.0	36.0	54.0	54.0	
Total power of nominal heating capacity	kW	--	16.8	--	33.6	--	50.4	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R22						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Mineral oil (SUNISO 3GS)						
	Qty.	Set	2	2	4	4	6	6
Fan	Type	High-efficiency vacuum braze-welded panel type						
	Qty.	Set	2	2	4	4	6	6
Water side heat exchanger	Type	High-efficiency vacuum braze-welded panel type						
	Water flow for cooling	m ³ /h	10.5	10.5	21.0	21.0	31.5	31.5
	Water flow rate in heating mode	m ³ /h	--	11.0	--	22.0	--	33.0
Water resistance	kPa	43	43	43	43	43	43	
Recommended diameter for general inlet/outlet water pipe	inch	≥2	≥2	≥3	≥3	≥3	≥3	
Power cable specification	Section area of live line	mm ²	≥10	≥10	≥35	≥35	≥70	≥70
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥10	≥16	≥16	≥35	≥35
Dimensions	Qty. of grounding lines		1					
	L x H	mm	2012×1840					
	Width	mm	880	880	2125	2125	3370	3370
Unit weight	Net weight	kg	500	520	1000	1040	1500	1560
	Operating weight	kg	510	530	1020	1060	1530	1590

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (Common Model R22)

Specifications (Partial) for Combined Units Taking EKAC210 as Basic Module

Model		EKAC 840B	EKAC 840BR	EKAC 1050B	EKAC 1050BR	EKAC 1260B	EKAC 1260BR	
Unit combination	Master unit	EKAC210BM	EKAC210BRM	EKAC210BM	EKAC210BRM	EKAC210BM	EKAC210BRM	
	slave unit	3EKAC210BS	3EKAC210BRS	4EKAC210BS	4EKAC210BRS	5EKAC210BS	5EKAC210BRS	
Nominal cooling capacity	kW	244	244	305	305	366	366	
	USRT	69.39	69.39	86.74	86.74	104.09	104.09	
	×10 ⁴ kcal/h	20.98	20.98	26.23	26.23	31.47	31.47	
Nominal heating capacity	kW	--	256	--	320	--	384	
	USRT	--	72.8	--	91.0	--	109.2	
	×10 ⁴ kcal/h	--	22.0	--	27.5	--	33.0	
Total power of nominal cooling capacity	kW	72.0	72.0	90.0	90.0	108.0	108.0	
Total power of nominal heating capacity	kW	--	67.2	--	84.0	--	100.8	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R22						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Mineral oil (SUNISO 3GS)						
Fan	Qty.	Set	8	8	10	10	12	12
	Type	High-efficiency vacuum braze-welded panel type						
Water side heat exchanger	Qty.	Set	8	8	10	10	12	12
	Type	High-efficiency vacuum braze-welded panel type						
	Water flow for cooling	m ³ /h	42.0	42.0	52.5	52.5	63.0	63.0
Water resistance	Water flow rate in heating mode	m ³ /h	--	44.0	--	55.0	--	66.0
	kPa	43	43	43	43	43	43	
Recommended diameter for general inlet/outlet water pipe		inch	≥4	≥4	≥4	≥4	≥5	≥5
Power cable specification	Section area of live line	mm ²	≥95	≥95	≥120	≥120	≥150	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥50	≥50	≥60	≥60	≥75	≥75
Dimensions	Qty. of grounding lines		1					
	L x H	mm	2012×1840					
	Width	mm	4615	4615	5860	5860	7105	7105
Unit weight	Net weight	kg	2000	2080	2500	2600	3000	3120
	Operating weight	kg	2040	2120	2550	2650	3060	3180

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (Common Model R22)

Specifications (Partial) for Combined Units Taking EKAC230 as Basic Module

Model		EKAC 230B	EKAC 230BR	EKAC 460B	EKAC 460BR	EKAC 690B	EKAC 690BR	
Unit combination	Master unit	EKAC230BM	EKAC230BRM	EKAC230BM	EKAC230BRM	EKAC230BM	EKAC230BRM	
	slave unit	-	--	EKAC230BS	EKAC230BRS	2EKAC230BS	2EKAC230BRS	
Nominal cooling capacity	kW	65.5	65.5	131	131	196.5	196.5	
	USRT	18.63	18.63	37.26	37.26	55.88	55.88	
	×10 ⁴ kcal/h	5.63	5.63	11.26	11.26	16.90	16.90	
Nominal heating capacity	kW	--	69	--	138	--	207	
	USRT	--	19.62	--	39.2	--	58.9	
	×10 ⁴ kcal/h	--	5.93	--	11.9	--	17.8	
Total power of nominal cooling capacity	kW	19.4	19.4	38.8	38.8	58.2	58.2	
Total power of nominal heating capacity	kW	--	19.2	--	38.4	--	57.6	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R22						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Mineral oil (SUNISO 3GS)						
	Qty.	Set	2	2	4	4	6	6
Fan	Type	High-efficiency vacuum braze-welded panel type						
	Qty.	Set	2	2	4	4	6	6
Water side heat exchanger	Type	High-efficiency vacuum braze-welded panel type						
	Water flow for cooling	m ³ /h	11.3	11.3	22.6	22.6	33.9	33.9
	Water flow rate in heating mode	m ³ /h	--	11.9	--	23.8	--	35.7
Water resistance	kPa	45	45	45	45	45	45	
Recommended diameter for general inlet/outlet water pipe	inch	≥2	≥2	≥3	≥3	≥3	≥3	
Power cable specification	Section area of live line	mm ²	≥10	≥10	≥35	≥35	≥70	≥70
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥10	≥10	≥16	≥16	≥35	≥35
	Qty. of grounding lines		1					
Dimensions	L x H	mm	2012×1840					
	Width	mm	880	880	2125	2125	3370	3370
Unit weight	Net weight	kg	500	520	1000	1040	1500	1560
	Operating weight	kg	510	530	1020	1060	1530	1590

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (Common Model R22)

Specifications (Partial) for Combined Units Taking EKAC230 as Basic Module

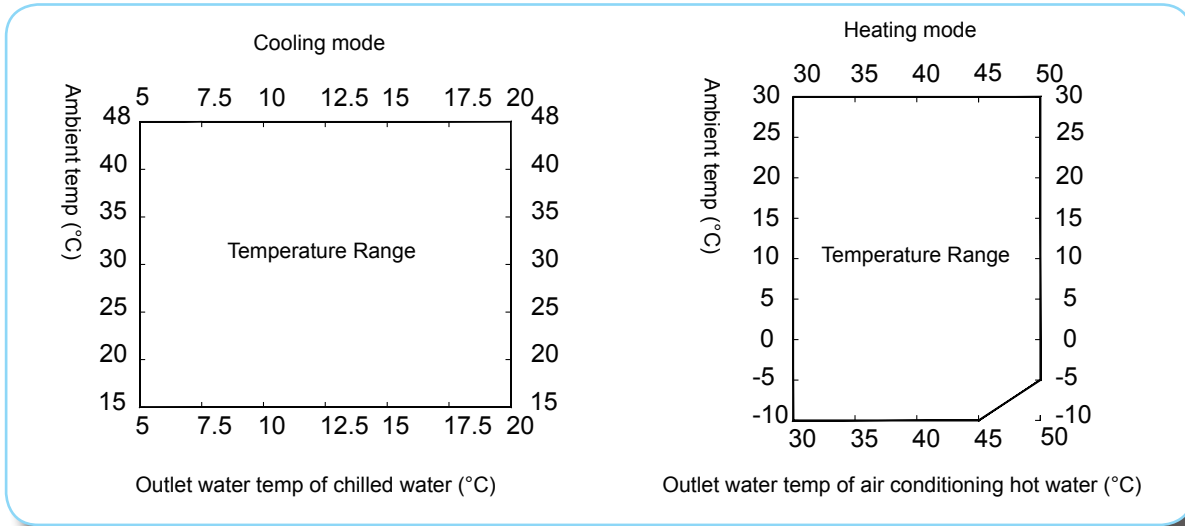
Model		EKAC 920B	EKAC 920BR	EKAC 1150B	EKAC 1150BR	EKAC 1380B	EKAC 1380BR	
Unit combination	Master unit	EKAC230BM	EKAC230BRM	EKAC230BM	EKAC230BRM	EKAC230BM	EKAC230BRM	
	slave unit	3EKAC230BS	3EKAC230BRS	4EKAC230BS	4EKAC230BRS	5EKAC230BS	5EKAC230BRS	
Nominal cooling capacity	kW	262	262	327.5	327.5	393	393	
	USRT	74.51	74.51	93.14	93.14	111.77	111.77	
	×10 ⁴ kcal/h	22.53	22.53	28.16	28.16	33.79	33.79	
Nominal heating capacity	kW	--	276	--	345	--	414	
	USRT	--	78.5	--	98.1	--	117.7	
	×10 ⁴ kcal/h	--	23.7	--	29.7	--	35.6	
Total power of nominal cooling capacity	kW	77.6	77.6	97.0	97.0	116.4	116.4	
Total power of nominal heating capacity	kW	--	76.8	--	96.0	--	115.2	
Power supply		380V/3N~/50Hz						
Refrigerant	Type	R22						
	Control	Electronic expansion valve						
Compressor	Type	Fully hermetic volute compressor						
	Lubricant	Mineral oil (SUNISO 3GS)						
Fan	Qty.	Set	8	8	10	10	12	12
	Type	High-efficiency vacuum braze-welded panel type						
Water side heat exchanger	Water flow for cooling	m ³ /h	45.2	45.2	56.5	56.5	67.8	67.8
	Water flow rate in heating mode	m ³ /h	--	47.6	--	59.5	--	71.4
	Water resistance	kPa	45	45	45	45	45	45
Recommended diameter for general inlet/outlet water pipe		inch	≥4	≥4	≥4	≥4	≥5	≥5
Power cable specification	Section area of live line	mm ²	≥95	≥95	≥120	≥120	≥150	≥150
	Qty. of live lines		3					
	Section area of null line	mm ²	≥4					
	Qty. of null lines		1					
	Section area of grounding line	mm ²	≥50	≥50	≥60	≥60	≥75	≥75
Dimensions	Qty. of grounding lines		1					
	L x H	mm	2012×1840					
Unit weight	Width	mm	4615	4615	5860	5860	7105	7105
	Net weight	kg	2000	2080	2500	2600	3000	3120
	Operating weight	kg	2040	2120	2550	2650	3060	3180

Note:

- Test conditions for nominal cooling capacity: outlet water temperature 7°C; water flow: 0.172m³/(h·kW); outdoor ambient temperature 35°C.
- Test conditions for nominal heating capacity: outlet water temperature 45°C; water flow: 0.172m³/(h·kW); outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance at the air conditioner side includes water pressure drop of the unit and the attached Y-shaped filter.
- Main Pipes of combined units need to be customized and installed on site. The diameter of the pipes must meet design requirements. EK does not provide the pipes.
- Modular units can be formed using the 1 - 16 basic modules of same type or of different types as per practical needs. The above table lists the parameters for common module combinations.
- For on-site electric wiring, see the name plate or installation menu of the unit.

Specification Table (Common Model R22)

Operating Temperature Range



Cooling Capacity Variation Table

Model	Outlet water temp. (°C)	Ambient temp. (°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)
EKAC210B(R)	5	46.6	21.8	48.9	20.5	53.2	18.2	57.2	17.2	59.8	15.5	62.1	14.5	61.7	14.1	63.4	13.2
	7	51.9	22.4	52.8	21.0	57.4	18.7	61.0	18.0	63.2	16.5	65.4	15.4	65.6	14.6	68.0	13.7
	9	53.5	23.0	57.3	20.6	60.9	19.0	63.5	18.1	66.8	16.4	69.9	15.7	70.6	15.0	72.1	14.0
	12	59.6	23.4	62.3	21.8	66.9	19.8	71.3	18.3	74.8	16.5	74.9	16.2	77.1	15.6	78.6	14.6
	15	65.0	23.6	67.4	22.5	72.2	20.6	75.7	18.6	76.6	16.9	76.9	16.4	79.1	16.0	82.3	15.1
EKAC230B(R)	5	50.5	23.6	53.0	22.2	57.6	20.2	62.0	18.5	64.7	16.9	67.3	15.3	66.9	15.8	68.7	14.4
	7	56.2	24.3	57.2	22.8	62.2	20.7	65.5	19.4	68.4	17.9	70.9	15.9	71.1	16.7	73.7	14.8
	9	57.9	24.9	62.0	23.1	66.0	21.3	68.8	19.7	72.4	18.0	75.7	15.7	76.5	16.7	78.1	15.1
	12	64.5	25.2	67.5	23.7	72.5	21.9	77.2	20.0	81.0	18.2	81.2	16.2	83.5	17.6	85.2	15.9
	15	70.5	25.6	73.0	24.4	78.3	22.8	82.0	20.5	83.0	18.7	83.3	16.4	85.7	16.5	89.2	16.4

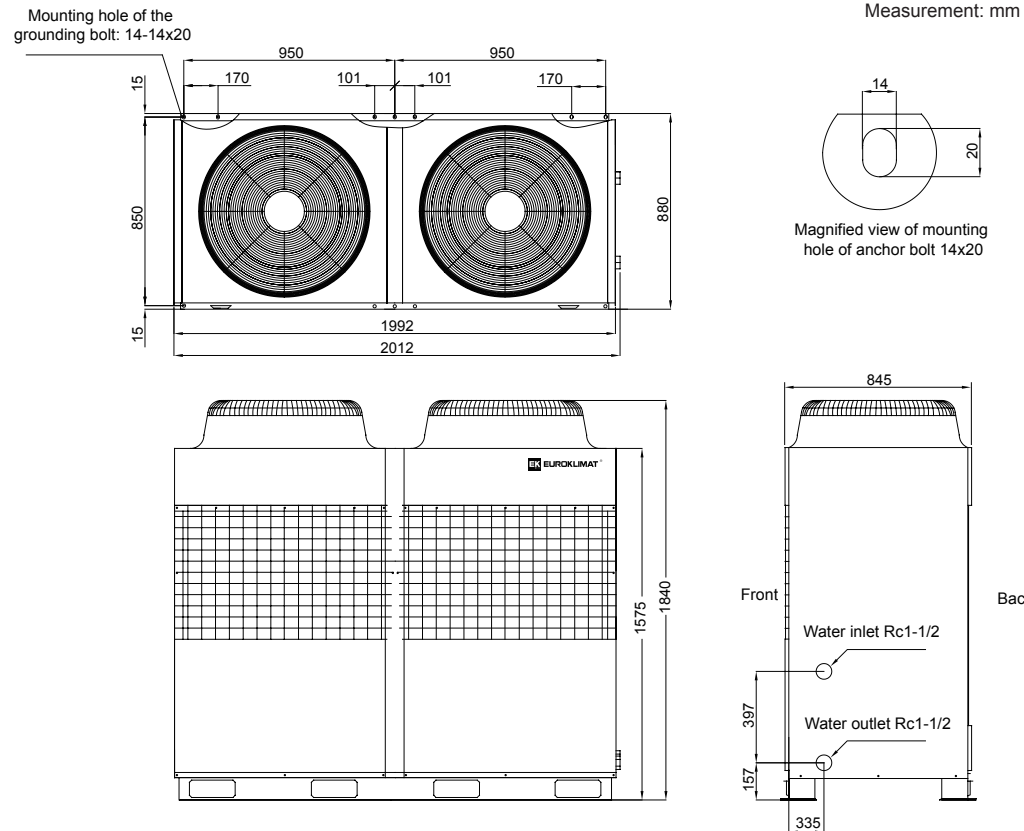
Heating Capacity Variation Table

Model	Outlet water temp. (°C)	Ambient temp. (°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)
EKAC210BR	35	38.9	13.0	46.7	13.1	52.9	13.3	64.8	13.7	69.5	13.8	67.7	13.1	69.9	13.2
	40	37.9	14.2	45.0	14.4	52.0	14.7	64.6	14.8	67.8	14.9	65.7	14.2	69.4	14.4
	45	34.9	15.7	44.5	15.8	49.8	16.2	64.0	16.8	67.1	16.6	62.9	15.8	69.0	15.9
	50	--	--	43.4	16.9	48.5	17.9	63.8	18.3	64.5	17.4	61.1	17.4	68.6	17.7
EKAC230BR	35	42.0	15.0	50.5	15.1	57.5	15.4	71.6	15.9	73.0	16.0	75.0	16.2	75.4	16.5
	40	40.6	16.4	48.4	16.7	57.0	17.0	70.2	17.2	72.3	17.3	73.3	17.7	75.5	17.9
	45	37.6	18.2	47.6	18.4	55.8	18.8	69.0	19.2	70.5	19.3	71.0	19.5	74.6	20.0
	50	--	--	46.4	19.5	53.3	20.7	68.3	21.2	69.0	21.5	69.3	21.6	74.0	22.2

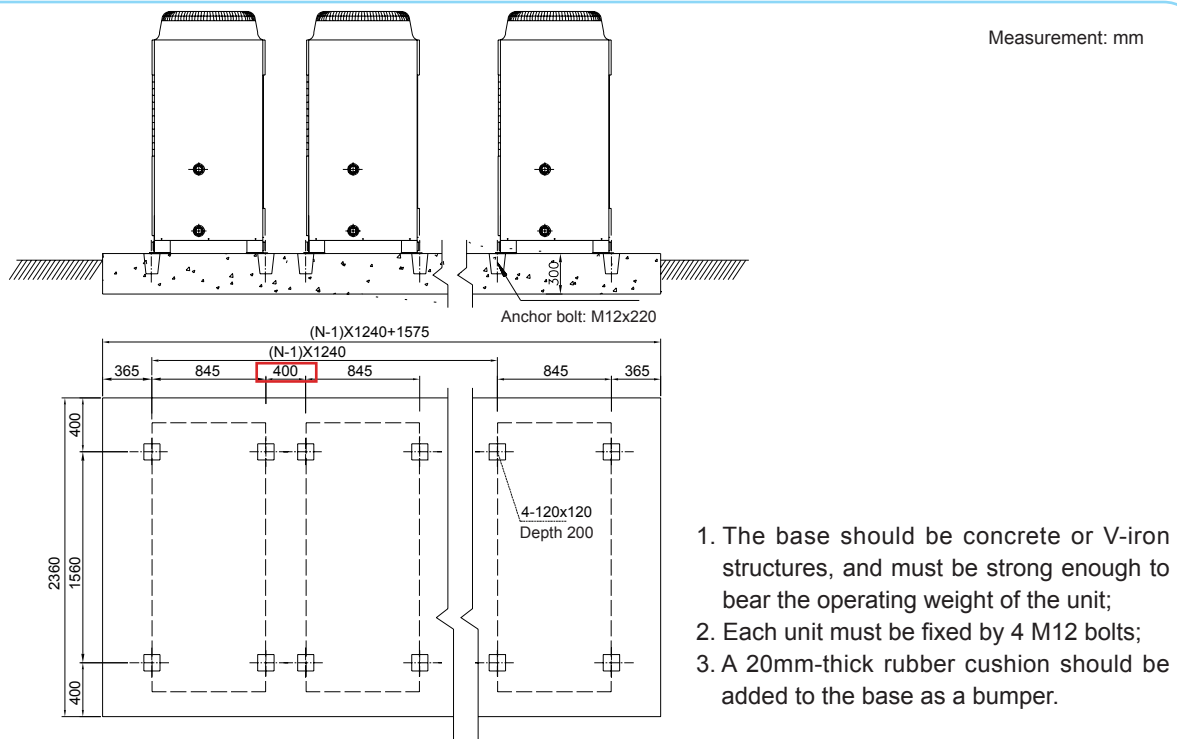
Note: parameters in the above table are measured when the unit operates at the rated water flow.

Dimensions (Common Model R22)

Dimension Diagrams for EKAC210 and EKAC230



Installation Base Diagrams for EKAC210 and EKAC230



Installation Space Requirement Illustration

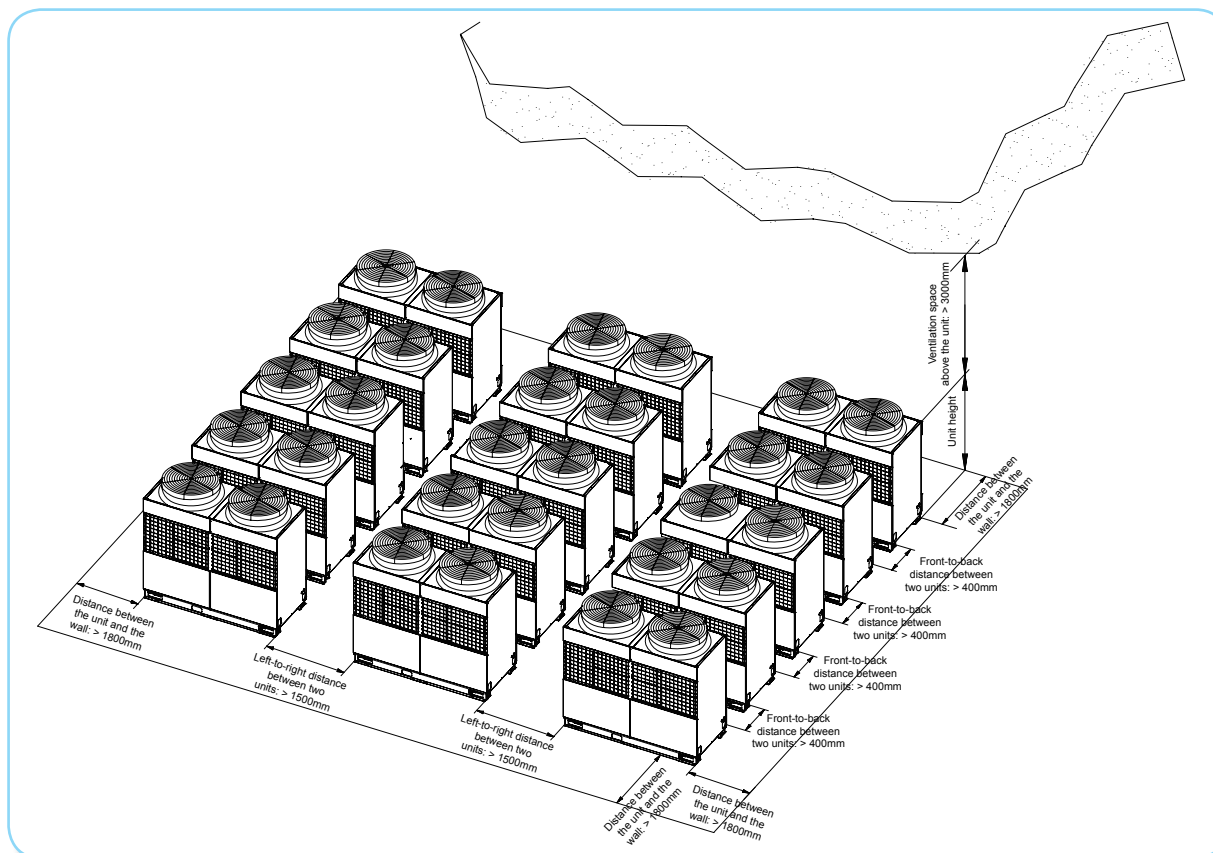
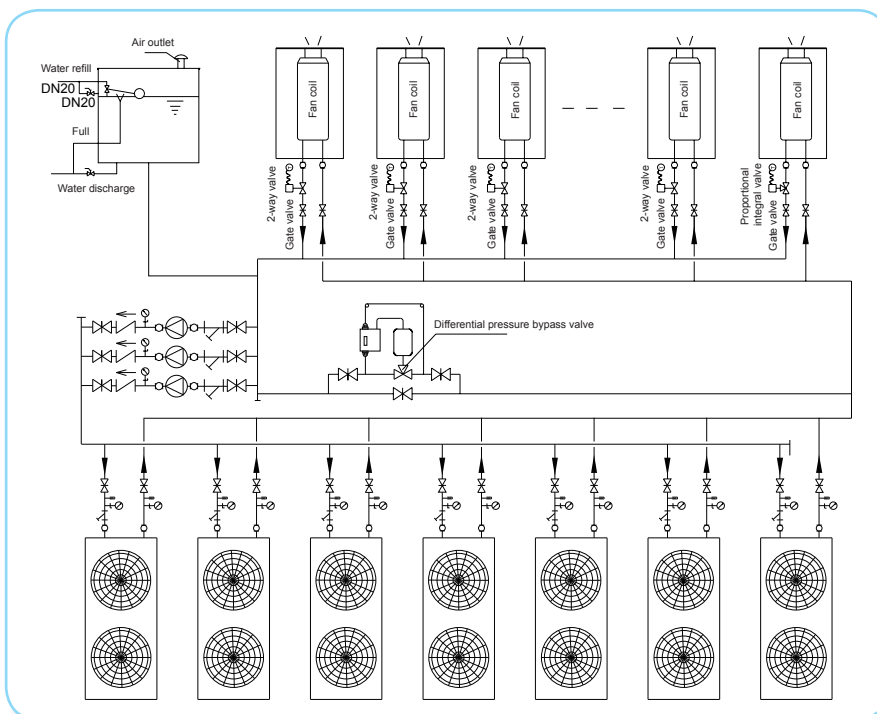
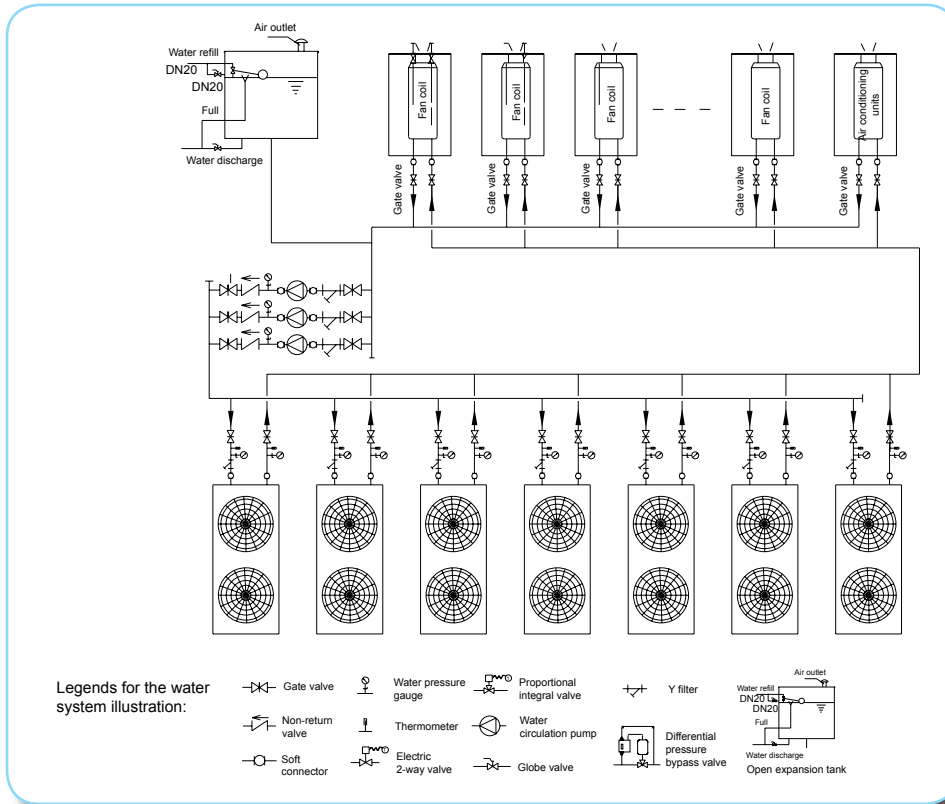


Illustration for variable flow rate water system which adjusts indoor temperature by adjusting flow rate of chilled water



Installation

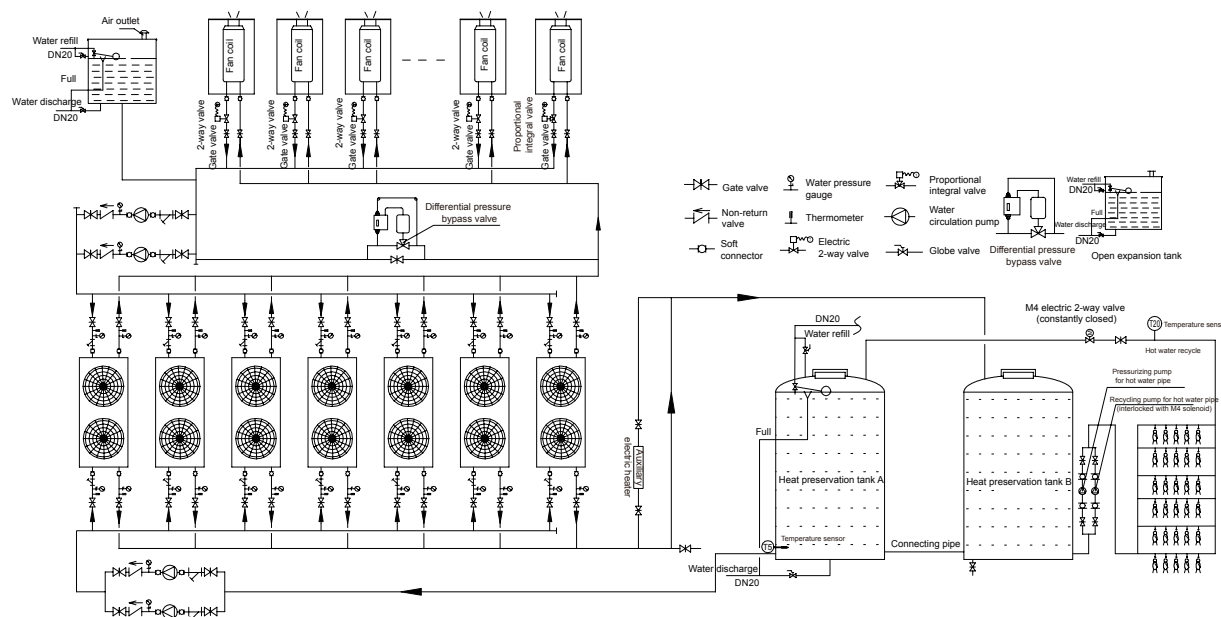
Illustration for constant flow rate water system which adjusts indoor temperature by adjusting terminal air rate



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Water system installation diagram for total heat recovery modular units (simple dual water tanks)

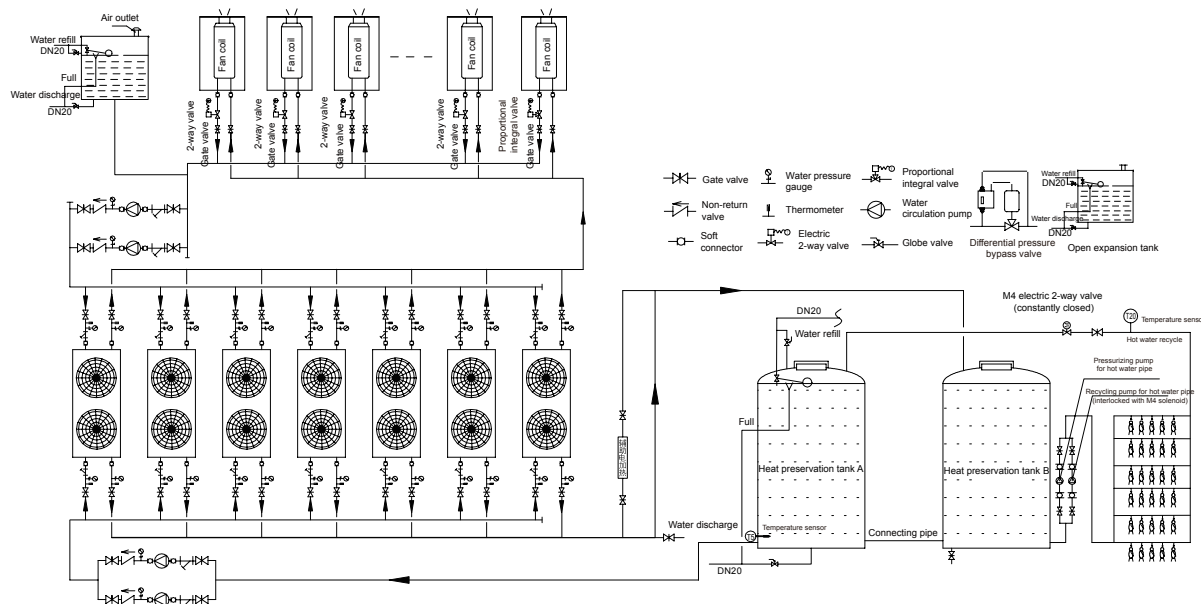
Illustration for variable flow rate water system which adjusts indoor temperature by adjusting flow rate of chilled water (total heat recovery with simple dual water tanks)



Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C.

Water system installation diagram for total heat recovery modular units (simple dual water tanks)

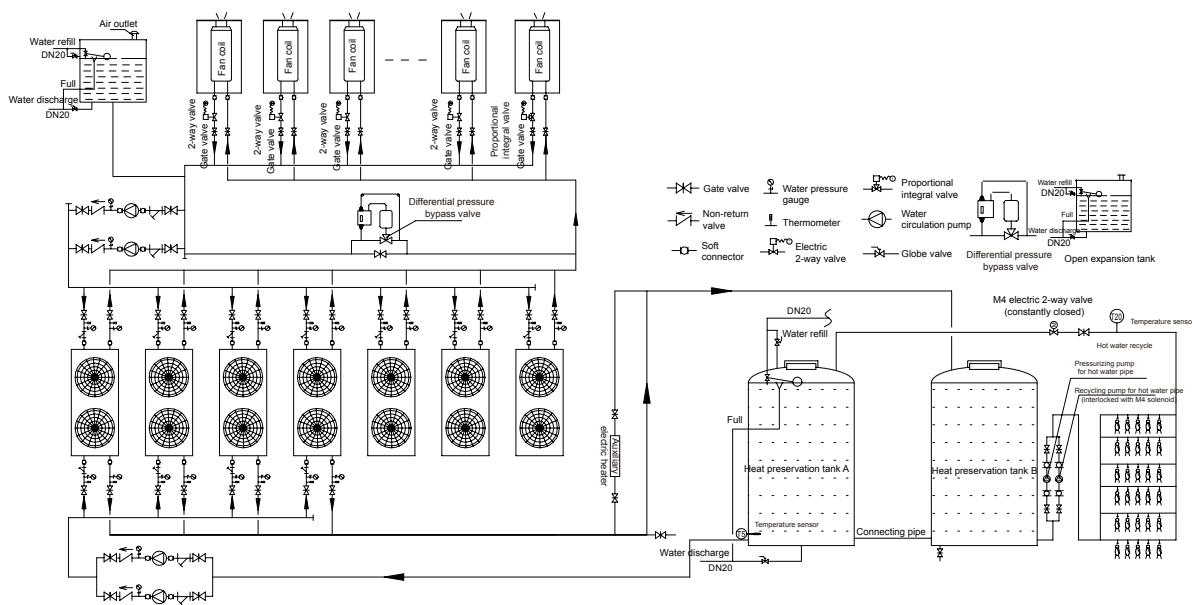
Illustration for constant flow rate water system which adjusts indoor temperature by adjusting flow rate of terminal conditioned air (total heat recovery with simple dual water tanks)



Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C .

Water system installation diagram for total heat recovery modular units (simple dual water tanks)

Illustration for variable flow rate water system which adjusts indoor temperature by adjusting flow rate of chilled water (partial heat recovery with simple dual water tanks)

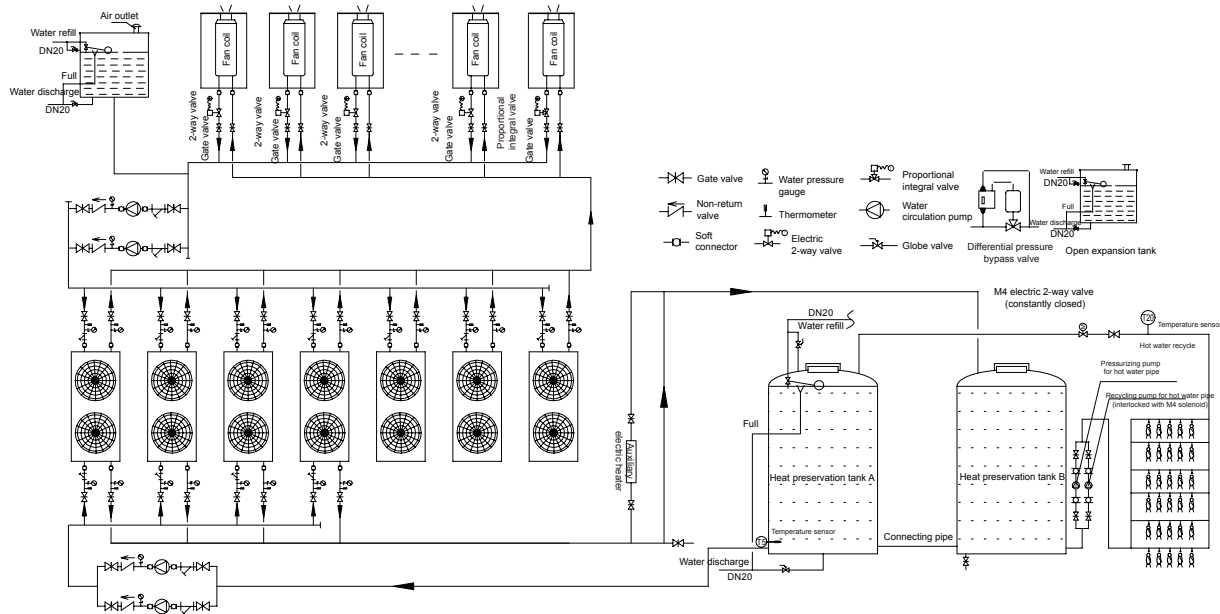


Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C .

Installation

Water system installation diagram for total heat recovery modular units (simple dual water tanks)

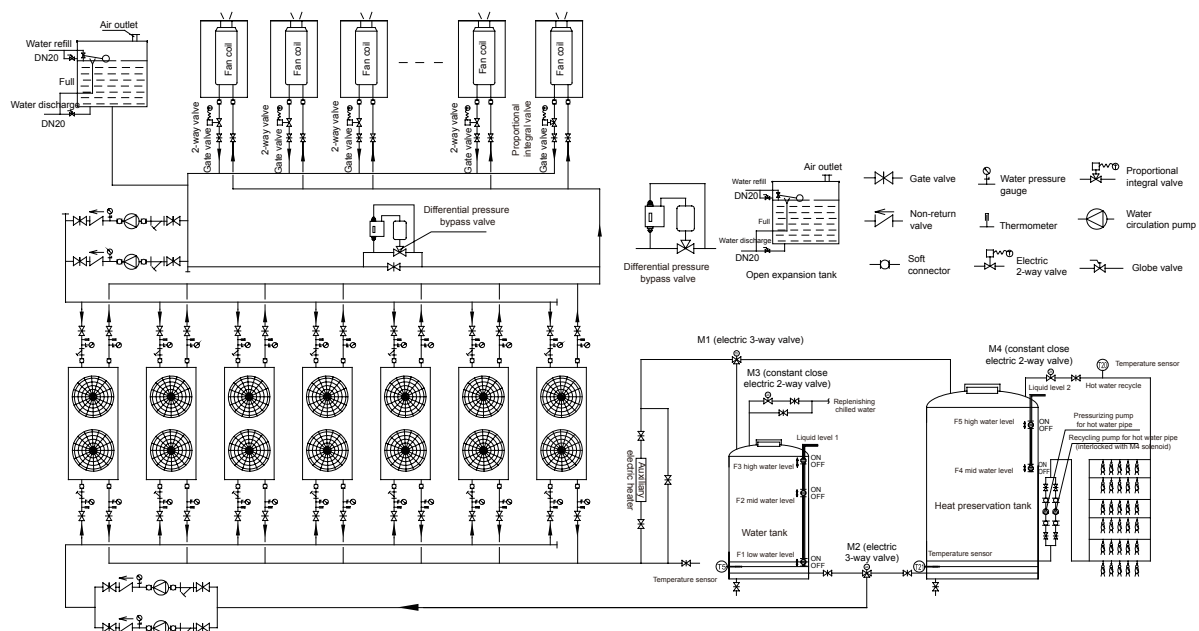
Illustration for constant flow rate water system which adjusts indoor temperature by adjusting flow rate of terminal conditioned air (partial heat recovery with simple dual water tanks)



Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C.

Water system installation diagram for total heat recovery modular units (constant temperature dual water tanks)

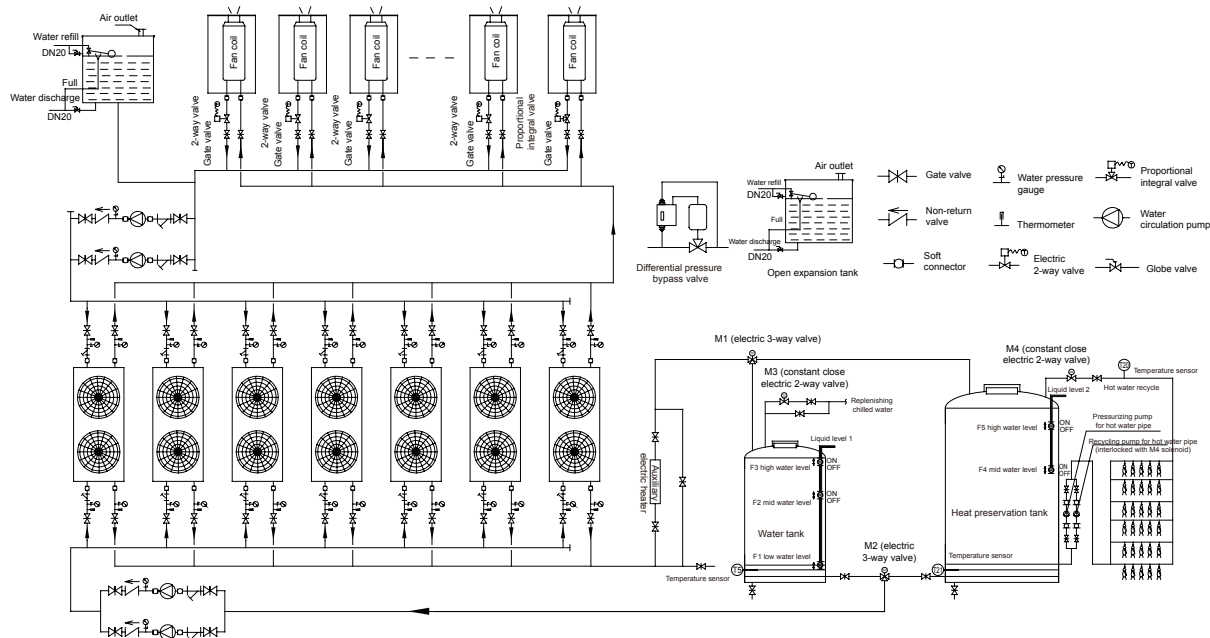
Illustration for variable flow rate water system which adjusts indoor temperature by adjusting flow rate of chilled water (total heat recovery with constant temperature dual water tanks)



Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C.

Water system installation diagram for total heat recovery modular units (constant temperature dual water tanks)

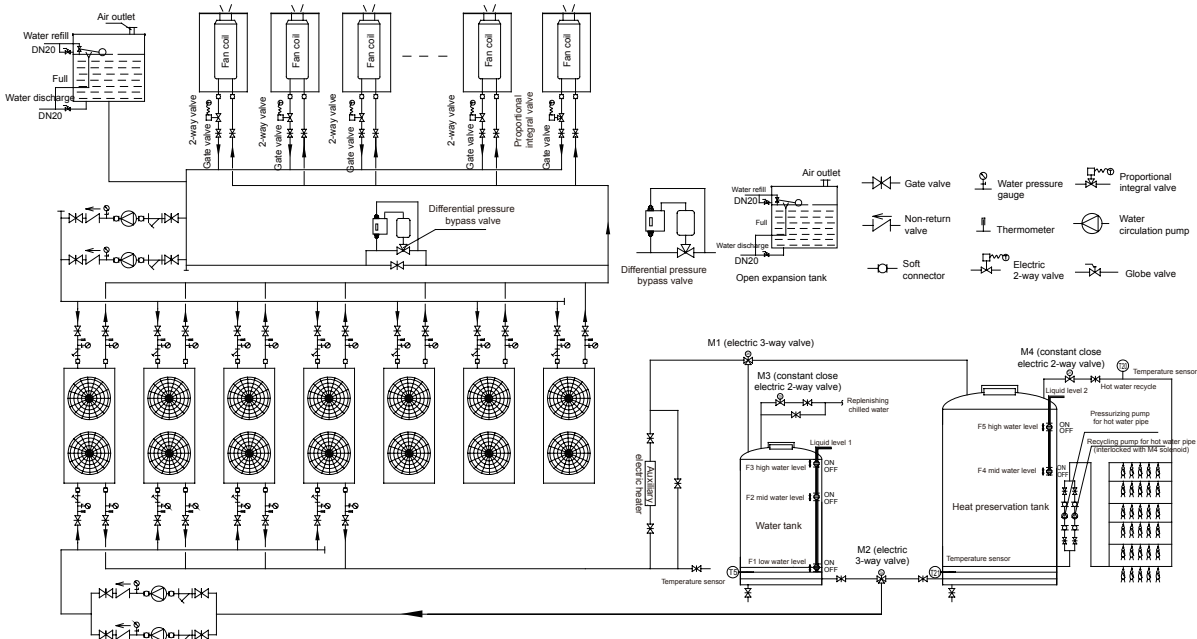
Illustration for constant flow rate water system which adjusts indoor temperature by adjusting flow rate of terminal conditioned air (total heat recovery with constant temperature dual water tanks)



Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C.

Water system installation diagram for total heat recovery modular units (constant temperature dual water tanks)

Illustration for variable flow rate water system which adjusts indoor temperature by adjusting flow rate of chilled water (partial heat recovery with constant temperature dual water tanks)

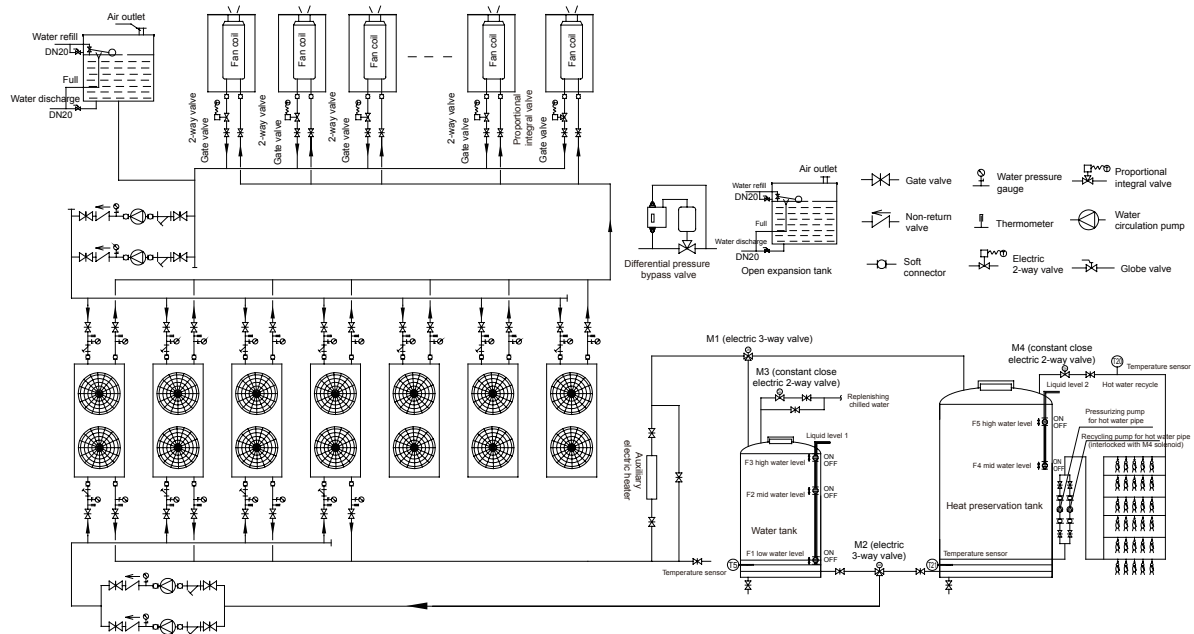


Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C.

Installation

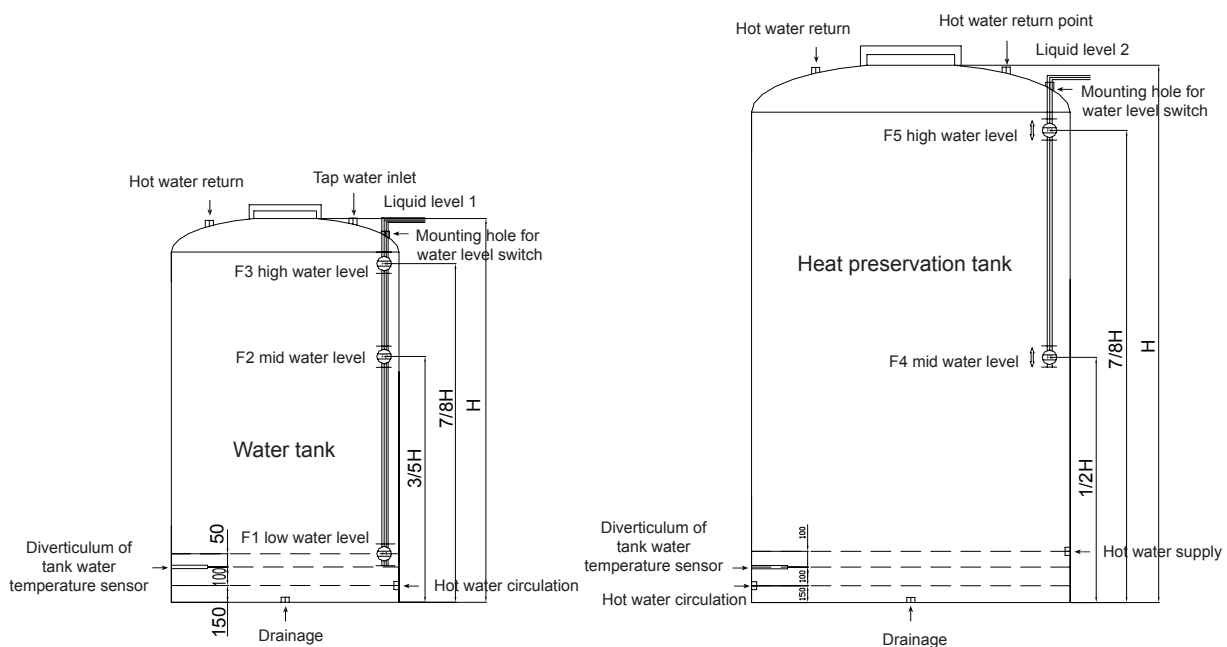
Water system installation diagram for total heat recovery modular units (constant temperature dual water tanks)

Illustration for constant flow rate water system which adjusts indoor temperature by adjusting flow rate of terminal conditioned air (partial heat recovery with constant temperature dual water tanks)



Note: auxiliary heaters are recommended when outdoor temperature drops below -5°C.

Water tank illustration

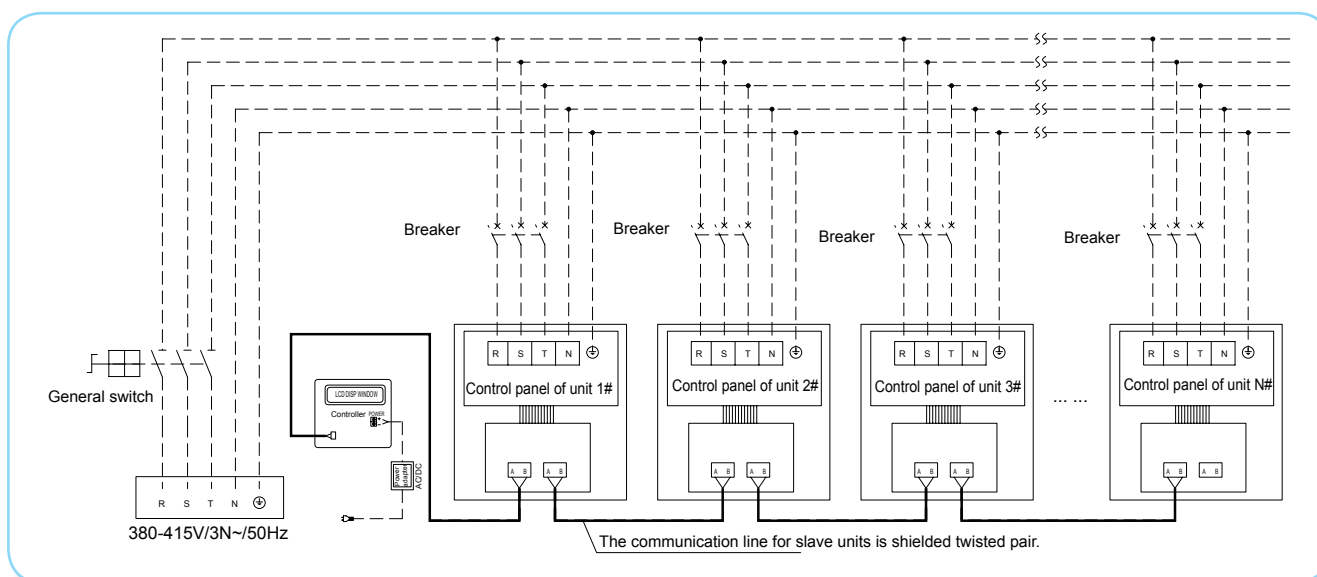


Installation considerations for the water system of a single unit:

- Circulatory water must be softened.
- A relief valve must be installed for the water supply system;
- Water flow must not be lower than rated.
- An air outlet valve must be installed at the highest point in the water system. A suitable water discharge valve must be installed at the lowest point in the water system;
- It is recommended that an adiabatic tank with a proper volume be installed to avoid frequent startup in case of low workload.
- An expansion water tank must be installed to accommodate water volume variations due to thermal expansion and contraction.
- A bypass must be installed for the water circuit. The water system must be thoroughly cleaned before water infusion and system startup.
- Please replace the attached water filter after cleaning the system and pilot run.
- It is recommended that customers check the water system twice a month.
- For parallel pipes with the same pressure at both ends, there is no need to install water pressure meters at each water inlet/outlet.
- As the wire controller can be used to read the inlet/outlet water temperature of each module, there is no need for extra thermometers.

Wiring Diagram for Power Cables and Control Lines of Master and Slave Units

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Note:

- General switch, breaker and dotted line sections are not attached with the unit. Customers need to prepare these parts.
- A wire controller is provided only for the master unit, not for slave units.
- The communication line between the master unit and the wire controller is 40m long, while the communication line for slave units is 5m long.



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