



30RAM/RHM

MODULAR AIR-COOLED CHILLER



Turn To The Experts



In 1998, Time magazine named Dr. Carrier one of its 20 most influential builders and titans of the 20th century.

Inheriting a rich legacy of innovation including inventing modern air-conditioning, Carrier has been a global leader in innovations for Heating Ventilation Air Conditioning (HVAC) and refrigeration solutions. Carrier is a part of UTC Climate, Controls & Security, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide.

With a broad portfolio of advanced technical patent awards, our global R&D center in Shanghai develops innovative heat, ventilation and air-conditioning (HVAC) solutions.



DIRECTORY

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PRODUCT NOMENCLATURE



The modular air-cooled chiller (heat pump) unit is a central air conditioning using the air as cold & heat source and the water as refrigerant carrier, which can be integrated with various air side units such as fan coil unit, air handling unit to form a central air conditioning system. With 115 years of experience in R&D, design and application, Carrier constantly launches new environment-friendly modular units, which improves the structures, systems and programs based on original products, and designs special series of comfortable and technological units. The environment-friendly modular unit has complete functions and various specifications, with basic modules of any combination available for different models, including 66kW, 100kW, 130kW, and at most 16 modules can be connected in parallel, providing combination products of 66kW- 2080kW. The unit is easy to install, with a system without cooling water, with simple pipelines, moderate cost, short construction period, allowing staged investment, widely applied in such commercial, industrial and civil buildings such as villas, hotels, hospitals, office buildings, restaurants, supermarkets, movie theaters.

30RAM
30RHM

201

X

H

Feature code: H-Heat pump

C: Cooling only CA: Year-round cooling

HR: Total heat recovery

X: Design code

201: Specification code

30RAM: Modular air-cooled chiller

30RHM: Modular air-cooled chiller Heat pump

R410A CLASSICAL MODULAR UNIT

The new generation of X series environment-friendly modular air-cooled unit is based on years of experience in R&D and design, which is greatly improved in aspects of the structure, system and microcomputer control technology, providing wider operation range of refrigeration and heating, and higher adaptability to applications with requirements on comfort and technology. There are basic modules of any combination available for different models, including 66kW, 100kW, 130kW, and at most 16 modules can be connected in parallel, providing combination products of 66kW - 2080kW.

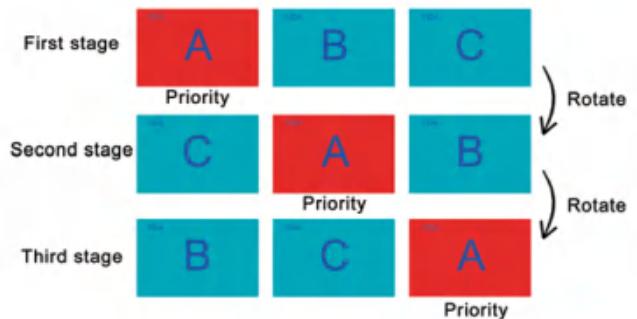
Excellent Capacity

Units of the same model or different models can be combined freely. Each group can combine up to 16 modules.



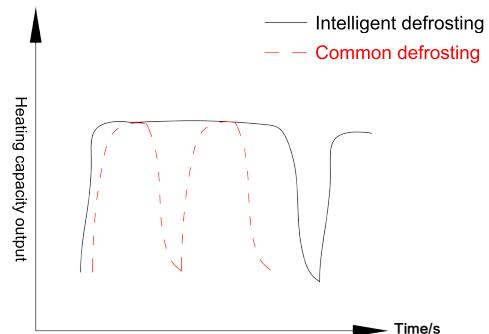
Free master Module Design

Any single unit can operate as the master once connected with the wired controller. It overcomes the problem that the whole system would fail to work properly when the fixed master unit malfunctions.



Intelligent Defrosting Technology, Non-stop When Defrosting

The unit control system can determine whether defrosting is necessary according to the ambient temperature in heating mode, evaporating temperature and running time; when defrosting conditions are met, the unit will automatically activate the defrosting program to complete defrosting within a short time and provide heating operation efficiency up to over 90% , ensuring the optimum heating capacity and high EER.



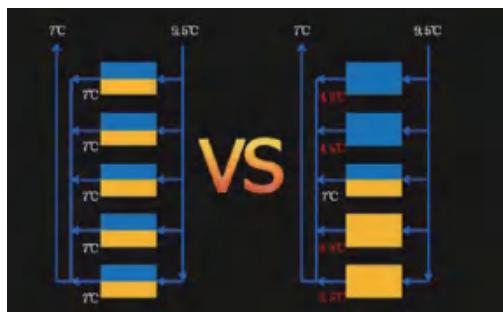
Intelligent Air Volume Management

The shared duct system is adopted to greatly expand the operating range. The single-module unit can automatically increase or reduce fans based on the ambient temperature to achieve optimal matching between air volume and load and deliver outstanding performance.



Intelligent Energy Management Technology

Unique intelligent energy regulation technology in multi-module combination ensures that each module loads or unloads a refrigerant circuit before loading or unloading other refrigerant circuits in the single module, thereby providing higher efficiency, stability and IPLV.



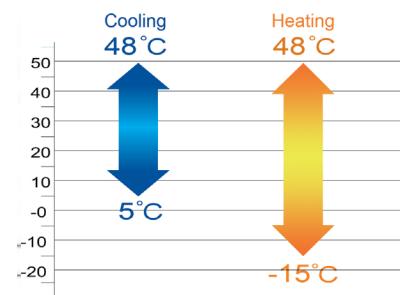
Widely Operation Range

Low temperature cooling

5°C- 48°C

High temperature heating

-15°C- 48°C



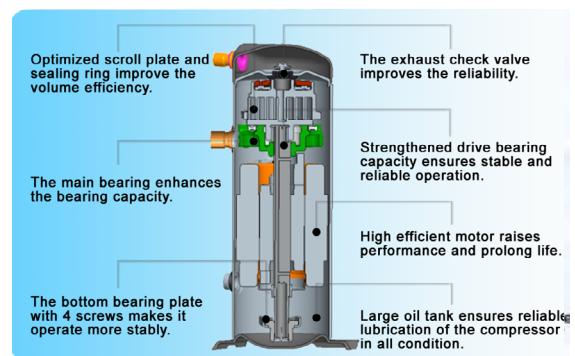
Compact Design And Smaller Footprint

Unique and compact structure results in small size and occupied area, significant reductions in installation space and cost; the unit is compact and easy to install. A 130KW unit covers floor space of only 2.42m², a 50% reduction compared to its equivalents.



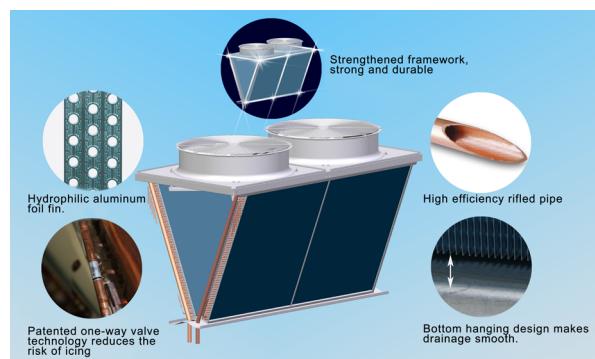
Reliable Hermetic Scroll Compressor

Unit adopt Reliable hermetic scroll compressor, which is high-efficient, energy saving and operates stably, with low noise, slight vibration and long service life.



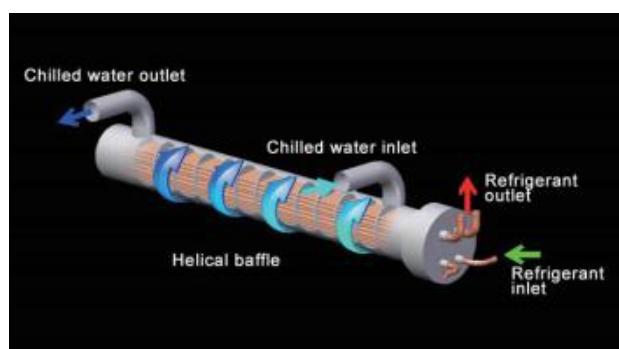
V-Shaped Condenser

The v-shaped condenser has used an integral reinforcing metal frame, internal thread and triple anti-frosting features (patented design of open-window hydrophilic aluminum foil + bottom elevated + one-way valve), providing higher structural stability and corrosion resistance; with heat exchange efficiency improved through full use of heat exchange area, low tendency to dust accumulation and frosting in winter, low loss of pressure, smoother drainage and higher reliability.



Efficient Shell And Tube Heat Exchanger

The waterside efficient shell and internal thread heat exchanger is of helical baffle type, with better heat transfer performance and higher resistance to freezing than plate heat exchanger, lower water resistance and lower requirements for water quality.



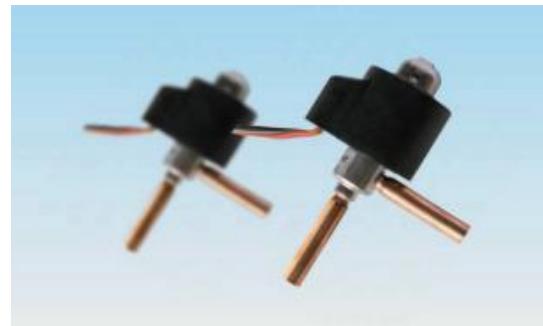
Saw-shaped Condenser Fan Blades

Compared to plastic impellers, the saw-shaped condenser fan blade provide large air volume, high durability and high air supply efficiency with low noise.



High Precision Electronic Expansion Valve

The electronic expansion valve achieves 480 regulating range, supplemented by Carrier's patented precision throttle control technology to realize dynamic matching in refrigerating system, fully improve the optimum efficiency of each component and ensure the optimum condition of system operation pressure and temperature.



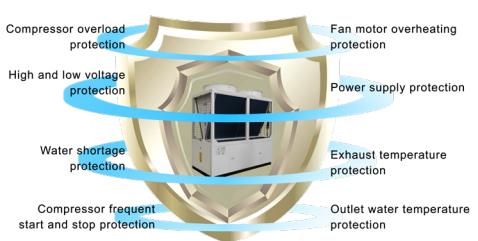
In House Engineered Microprocessor Control

Carrier control panel is fully upgraded based on original control panels with years of experience in R&D and design, which combines more functions including phase sequence detection, current detection, RS-485 communication interface, delivering stronger performance, utility, standardization, convenience and universality. The USB interface is also provided to facilitate later-stage maintenance and upgrade of control function. The panel is supplemented by Carrier developed control program which offers full operation control and multiple safety protection functions.



Multiple Protection Functions, Providing Safety And Reliable

The unit has multiple safety protection functions which ensure safety and stable operation of the unit and systems. The water flow switch and multiple anti-freezing program designs protect the unit and systems in an all-round way.



Specifications

| Model | | | 30RHM201XH | 30RHM401XH | 30RAM201 | 30RAM401 |
|------------------------------|---------------------------|-------------------|-----------------------------------------------|----------------|---------------|----------------|
| Power supply | | V-ph-Hz | 380-415-3-50 | 380-415-3-50 | 380-415-3-50 | 380-415-3-50 |
| Cooling | Cooling capacity | kW | 66 | 130 | 66 | 130 |
| | Cooling power input | kW | 21.29 | 41.9 | 21.29 | 41.9 |
| | Cooling current | A | 40.3 | 75.5 | 37.9 | 75.5 |
| Heating | Heating capacity | kW | 70 | 140 | / | / |
| | Heating power input | kW | 21.85 | 43.7 | / | / |
| | Heating current | A | 41.4 | 76.5 | / | / |
| Maximum power input | | kW | 30.2 | 57.6 | 30.2 | 57.6 |
| Maximum input current | | A | 50 | 100 | 50 | 100 |
| Starting current | | A | 140 | 266.1 | 172 | 266.1 |
| Energy regulation | | % | 0-50-100 | 0-50-100 | 0-50-100 | 0-50-100 |
| Compressor | Type | | Hermetic scroll compressor | | | |
| | Qty | | 2 | 2 | 2 | 2 |
| Evaporator | Type | - | High-efficiency shell-and-tube heat exchanger | | | |
| | Water flow | m ³ /h | 11.4 | 22.4 | 11.4 | 22.4 |
| | Water pressure drop | kPa | 45 | 45 | 45 | 45 |
| | Connection pipe dimension | - | DN65(Flange) | | | |
| Fan | Qty | | 2 | 2 | 2 | 2 |
| | Air flow | m ³ /h | 28000 | 48000 | 28000 | 48000 |
| | Current | A | 2.35 | 5.3 | 2.35 | 5.3 |
| | Power | kW | 1.13 | 2.2 | 1.13 | 2.2 |
| Unit dimensions (L*W*H) | | mm | 2200x860x2000 | 2200x1100x2205 | 2200x860x2000 | 2200x1100x2205 |
| Packaging dimensions (L*W*H) | | mm | 2260x920x2000 | 2260x1160x2205 | 2260x920x2000 | 2260x1160x2205 |
| Net weight | | kg | 580 | 900 | 570 | 850 |
| Operating weight | | kg | 640 | 1000 | 630 | 950 |
| Refrigerant | Type | - | R410A | R410A | R410A | R410A |

*CE: 380-415V/3N/50Hz

Combined Capacity Parameter Table(Total Heat Recovery)

| Model and modular quantity | 30RAM201 30RHM201XH | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|----------------------------|------------------------|------|------|------|------|-----|------|------|------|-------|-----|-------|-------|-------|-------|------|-------|
| Cooling capacity | kW | 66 | 132 | 198 | 264 | 330 | 396 | 462 | 528 | 594 | 660 | 726 | 792 | 858 | 924 | 990 | 1056 |
| Heating capacity | kW | 70 | 140 | 210 | 280 | 350 | 420 | 490 | 560 | 630 | 700 | 770 | 840 | 910 | 980 | 1050 | 1120 |
| Water flow volume | m ³ /h | 11.4 | 22.8 | 34.2 | 45.6 | 57 | 68.4 | 79.8 | 91.2 | 102.6 | 114 | 125.4 | 136.8 | 148.2 | 159.6 | 171 | 182.4 |

| | | | | | | | | | | | | | | | | | |
|----------------------------|------------------------|------|------|------|------|-----|-------|-------|-------|-------|------|-------|-------|-------|-------|------|-------|
| Model and modular quantity | 30RAM401 30RHM401XH | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Cooling capacity | kW | 130 | 260 | 390 | 520 | 650 | 780 | 910 | 1040 | 1170 | 1300 | 1430 | 1560 | 1690 | 1820 | 1950 | 2080 |
| Heating capacity | kW | 140 | 280 | 420 | 560 | 700 | 840 | 980 | 1120 | 1260 | 1400 | 1540 | 1680 | 1820 | 1960 | 2100 | 2240 |
| Water flow volume | m ³ /h | 22.4 | 44.8 | 67.2 | 89.6 | 112 | 134.4 | 156.8 | 179.2 | 201.6 | 224 | 246.4 | 268.8 | 291.2 | 313.6 | 336 | 358.4 |

| Model | Cooling capacity | Compressor Number | Circulation loop | Main Board Number | Maximum Combination Number | Maximum Combination Capacity |
|------------------------|------------------|-------------------|------------------|-------------------|----------------------------|------------------------------|
| 30RAM201 30RHM201XH | 66 | 2 | 2 | 1 | 16 | 1040 |
| | | | | | | |
| 30RAM401 30RHM401XH | 130 | 2 | 2 | 1 | 16 | 2080 |

★ Notes:

1. Nominal cooling operating conditions:leaving water temperature 7°C, ambient temperature 35°C; Nominal heating operating conditions: leaving water temperature 45°C ,outdoor dry bulb temperature 7°C, wet bulb temperature 6°C.
2. In actual use, the cooling/heating loss should be considered after the installation of the system piping, pumps, valve, dirt, etc. about 6%.
3. For other working conditions or capacity parameters, Please contact Carrier offices for cooling ambient condition under 5°C .
4. There will be no further notice if the parameters changes due to product optimization.
5. The units of the same model or different models can be combined freely. Each system can combine up to 16 modules.
6. The controllers need to be ordered separately, including wired controller, communication line, IOM, temperature sensor. Manufacturer reserves the right to make changes to above specifications without prior notice, please refer to the factory configuration when purchasing.

CAPACITY CORRECTION FACTOR

Cooling Capacity Correction Factor

| Leaving Water Temperature °C | Ambient Temperature °C | | | | | | | | | | | | | | | | | |
|---------------------------------------|------------------------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|
| | 5 | | 10 | | 15 | | 20 | | 25 | | 30 | | 35 | | 40 | | 48 | |
| | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input |
| 5 | 1.06 | 0.72 | 1.08 | 0.73 | 1.09 | 0.71 | 1.09 | 0.78 | 1.04 | 0.84 | 0.99 | 0.90 | 0.93 | 0.97 | 0.87 | 1.01 | 0.80 | 1.08 |
| 7 | 1.14 | 0.75 | 1.16 | 0.76 | 1.17 | 0.74 | 1.16 | 0.81 | 1.11 | 0.87 | 1.06 | 0.93 | 1.00 | 1.00 | 0.94 | 1.04 | 0.87 | 1.11 |
| 9 | 1.21 | 0.78 | 1.23 | 0.79 | 1.24 | 0.77 | 1.23 | 0.84 | 1.18 | 0.90 | 1.13 | 0.96 | 1.07 | 1.03 | 1.01 | 1.07 | 0.94 | 1.14 |
| 12 | 1.28 | 0.81 | 1.30 | 0.82 | 1.31 | 0.80 | 1.30 | 0.87 | 1.25 | 0.93 | 1.20 | 0.99 | 1.14 | 1.06 | 1.08 | 1.10 | 1.01 | 1.17 |
| 15 | 1.35 | 0.84 | 1.37 | 0.85 | 1.38 | 0.83 | 1.37 | 0.90 | 1.32 | 0.96 | 1.27 | 1.02 | 1.21 | 1.09 | 1.15 | 1.13 | 1.08 | 1.20 |

★ Note: Above correction factors adapt to 30RAM201/401, 30RHM201/301/401XH, 30RHM201XHR.

Heating Capacity Correction Factor

| Leaving Water Temperature °C | Ambient Temperature °C | | | | | | | | | | | | | | | | | |
|---------------------------------------|------------------------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|
| | -15 | | -10 | | -5 | | 0 | | 7 | | 10 | | 15 | | 20 | | 25 | |
| | Heating | Power input | Heating | Power input | Heating | Power input | Heating | Power input | Heating | Power input | Heating | Power input | Heating | Power input | Heating | Power input | Heating | Power input |
| 35 | 0.48 | 0.77 | 0.63 | 0.78 | 0.74 | 0.79 | 0.87 | 0.85 | 1.03 | 0.89 | 1.05 | 0.91 | 1.10 | 0.93 | 1.15 | 0.95 | 1.20 | 0.97 |
| 40 | 0.46 | 0.83 | 0.61 | 0.84 | 0.72 | 0.85 | 0.85 | 0.91 | 1.01 | 0.95 | 1.03 | 0.97 | 1.08 | 0.99 | 1.13 | 1.01 | 1.18 | 1.03 |
| 45 | - | - | 0.60 | 0.89 | 0.71 | 0.90 | 0.84 | 0.96 | 1.00 | 1.00 | 1.01 | 1.03 | 1.06 | 1.05 | 1.11 | 1.07 | 1.16 | 1.09 |

★ Note: Above correction factors adapt to 30RHM201/301/401XH, 30RHM201XHR.

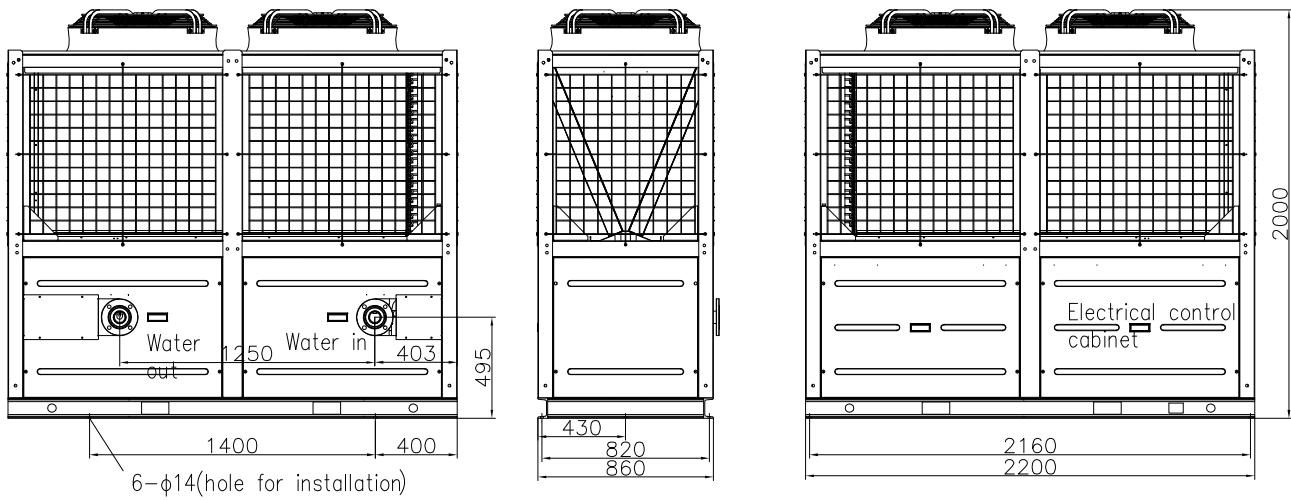
Year-round Cooling Capacity Correction Factor

| Leaving Water Temperature °C | Ambient Temperature °C | | | | | | | | | | | | | | | | |
|---------------------------------------|------------------------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|---------|
| | -10 | | -5 | | 0 | | 7 | | 15 | | 25 | | 35 | | 48 | | |
| | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling | Power input | Cooling |
| 0 | 1.01 | 0.65 | 0.99 | 0.73 | 0.97 | 0.69 | 0.96 | 0.69 | 0.98 | 0.72 | 0.92 | 0.82 | 0.84 | 0.94 | 0.68 | 1.12 | |
| 5 | 1.11 | 0.68 | 1.09 | 0.76 | 1.07 | 0.72 | 1.06 | 0.72 | 1.08 | 0.75 | 1.02 | 0.85 | 0.94 | 0.97 | 0.78 | 1.15 | |
| 7 | 1.17 | 0.71 | 1.15 | 0.79 | 1.13 | 0.75 | 1.12 | 0.75 | 1.14 | 0.78 | 1.08 | 0.88 | 1.00 | 1.00 | 0.84 | 1.18 | |
| 10 | 1.25 | 0.75 | 1.23 | 0.83 | 1.21 | 0.79 | 1.20 | 0.79 | 1.22 | 0.82 | 1.16 | 0.92 | 1.08 | 1.04 | 0.92 | 1.22 | |
| 15 | 1.35 | 0.80 | 1.33 | 0.88 | 1.31 | 0.84 | 1.30 | 0.84 | 1.32 | 0.87 | 1.26 | 0.97 | 1.18 | 1.09 | 1.02 | 1.27 | |
| 20 | 1.43 | 0.84 | 1.41 | 0.92 | 1.39 | 0.88 | 1.38 | 0.88 | 1.40 | 0.91 | 1.34 | 1.01 | 1.26 | 1.13 | 1.10 | 1.31 | |

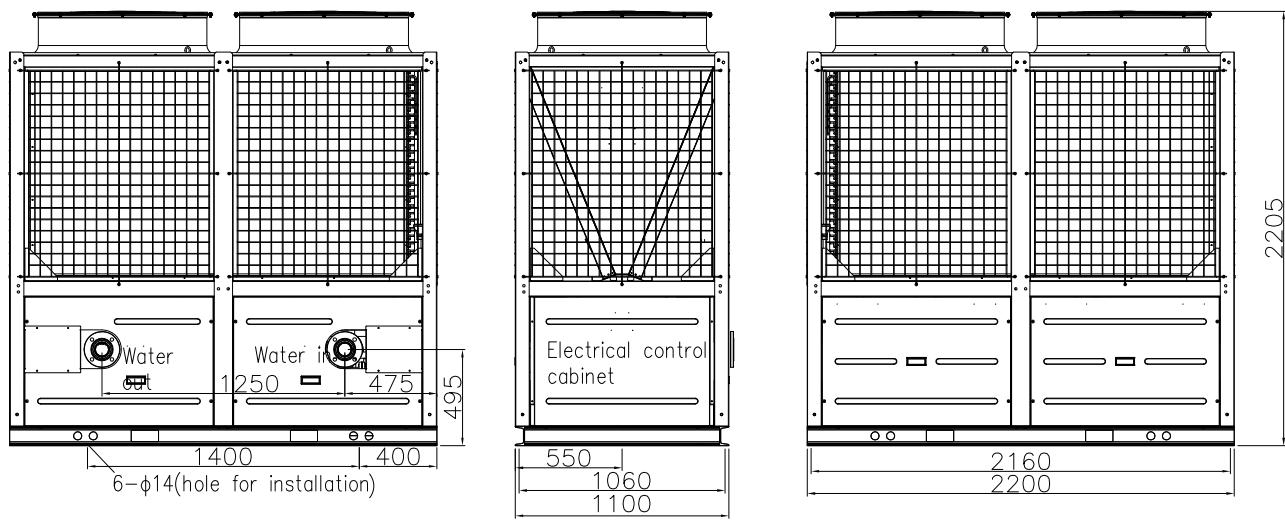
★ Note: Above correction factors adapt to 30RHM201XHA.

UNIT DIMENSION(mm)

30RAM201
30RHM201XH



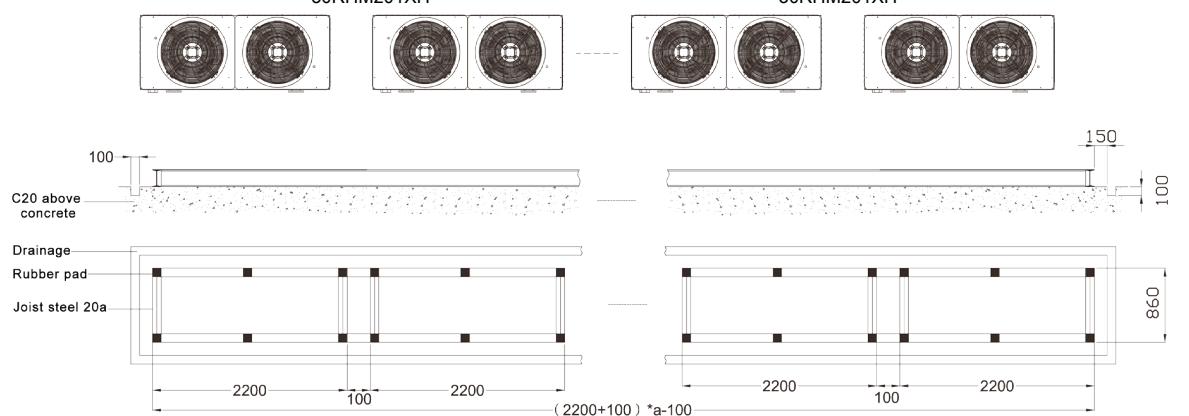
30RAM401



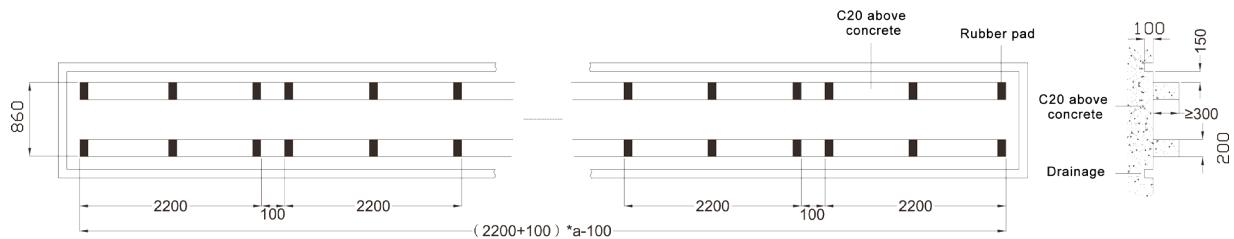
FOUNDATION

Program 1 (Horizontal)

30RAM201
30RHM201XH



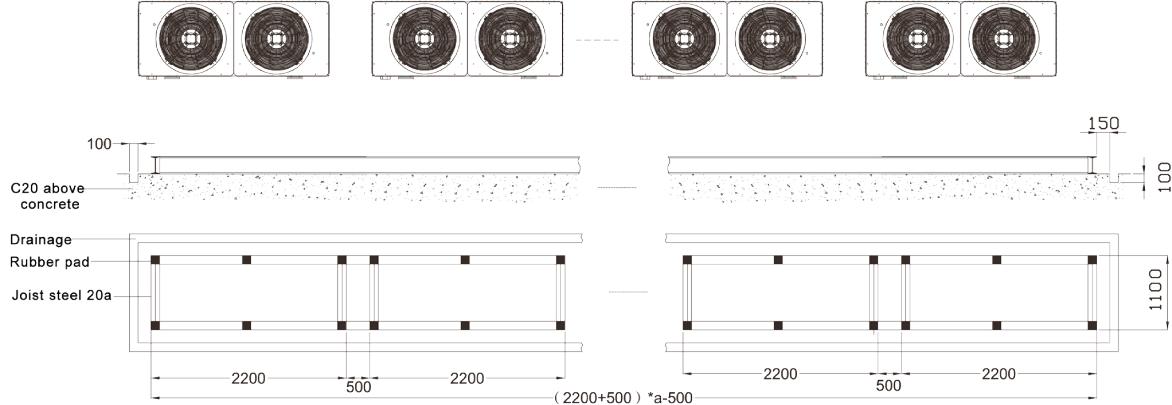
a. Joist steel foundation diagram



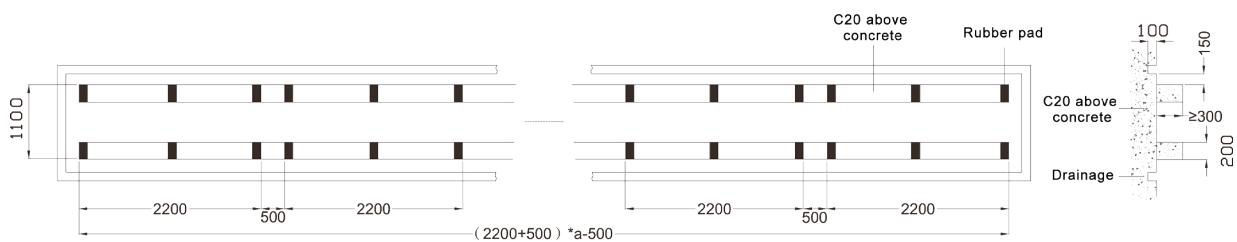
b. Concrete foundation diagram

30RAM401
30RHM401XH

30RAM401
30RHM401XH

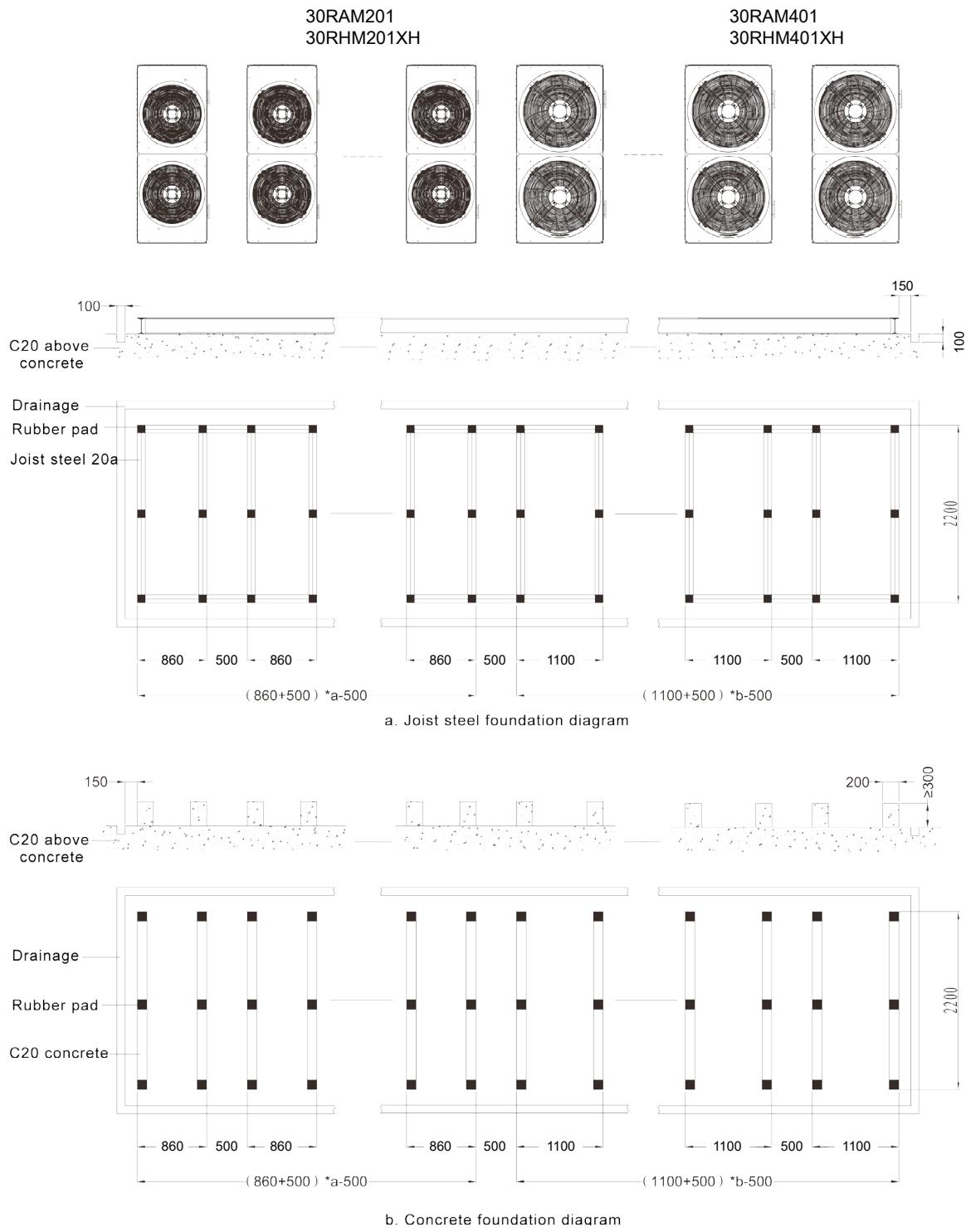


a. Joist steel foundation diagram



b. Concrete foundation diagram

Program 2 (Vertical)



NOTE



Carrier improves the world around us; Carrier improves people's lives; our products and services improve building performance; our culture of improvement will not allow us to rest when it comes to the environment.



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