

# *Central Air Conditioner*

## **Convenient Cooling**

Reliable comfort comes from reliable technology.

# SUPER KOOL Commercial A/C Model Line Up



Cooling



Heating



C&H



Free Cooling



Heat Recovery

## Air to Air Series

### ■ Rooftop Packaged Unit

Page 01

Cooling Capacity: 12kW~300kW / 3.4Ton~85.7Ton  
Optional: Economizer and free cooling, Energy recovery, Electric heater, Hot water coil, Explosion proof, Gas burner etc



### ■ Ducted Split Unit

Page 16

Cooling Capacity: 20kW~104kW / 5.6Ton~29.6Ton



## Air to Water Series

### ■ Air Cooled Mini Chiller and Heat Pump

Page 19

Cooling Capacity: 5kW~50kW / 1.4Ton~14.3Ton  
Optional: Dairy/Brewery/Beverage industry



### ■ Air Cooled Modular Chiller and Heat Pump

Page 25

Cooling Capacity: 60kW~260kW / 17.1Ton~74.3Ton  
Optional: Dairy/Brewery/Beverage industry and cooling machine



### ■ Air Cooled Screw Chiller and Heat Pump

Page 30

Cooling Capacity: 150kW~1180kW / 44.6Ton~334.9Ton



## Water to Air Series

### ■ Water Cooled Packaged Unit

Page 33

Cooling Capacity: 2.5kW~130kW / 0.7Ton~37.7Ton  
Packaged Type: Small size  
Split Type: Indoor unit with pre/medium/HEPA filter (optional)



## Water to Water Series

### Water Cooled Scroll Chiller

Cooling Capacity: 80kW~160kW / 22.9Ton~45.7Ton  
Optional: Low temperature -25°C water outlet

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### Water Cooled Screw Chiller

Cooling Capacity: 130kW~4180kW / 37.1Ton~1194.3Ton

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## Isothermal & Isohumidity Air Conditioner

### Unitary Isothermal & Isohumidity Unit

Page 43

Cooling Capacity: 12kW~136kW / 3.5Ton~38.9Ton  
Optional: Medical purificatory, Laboratory, Computer room



## Terminal

### Chilled Water Fan Coil Unit

Air Flow: 340m<sup>3</sup>/h~2380m<sup>3</sup>/h  
Cooling Capacity: 0.5Ton~3.6Ton

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### Big Duct Fan Coil Unit

Air Flow: 1600CFM~4000CFM  
Cooling Capacity: 4Ton~9.8Ton

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## Project

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# Rooftop Packaged Unit

12kW~300kW



3.4Ton~85.7Ton

## Application areas

- Large and light commercial buildings (retail, airports, restaurants, shops, petrol stations...)
- Cinemas, theaters
- Industrial buildings and logistic centers

## Why this choice?

- Energy efficient solution
- Cost effective package for fast and easy installation
- Multiple heating options available
- Fresh air control and free cooling management
- Wide choice of communication interfaces
- Electronic expansion valve, EC plug fan



## Benefits

### Compact design

The compact design gives an aesthetic and neat appearance when installed in line of sight. Compact size benefits transport, handling and positioning on site, simplified and cheaper than traditional units.

### Reliability

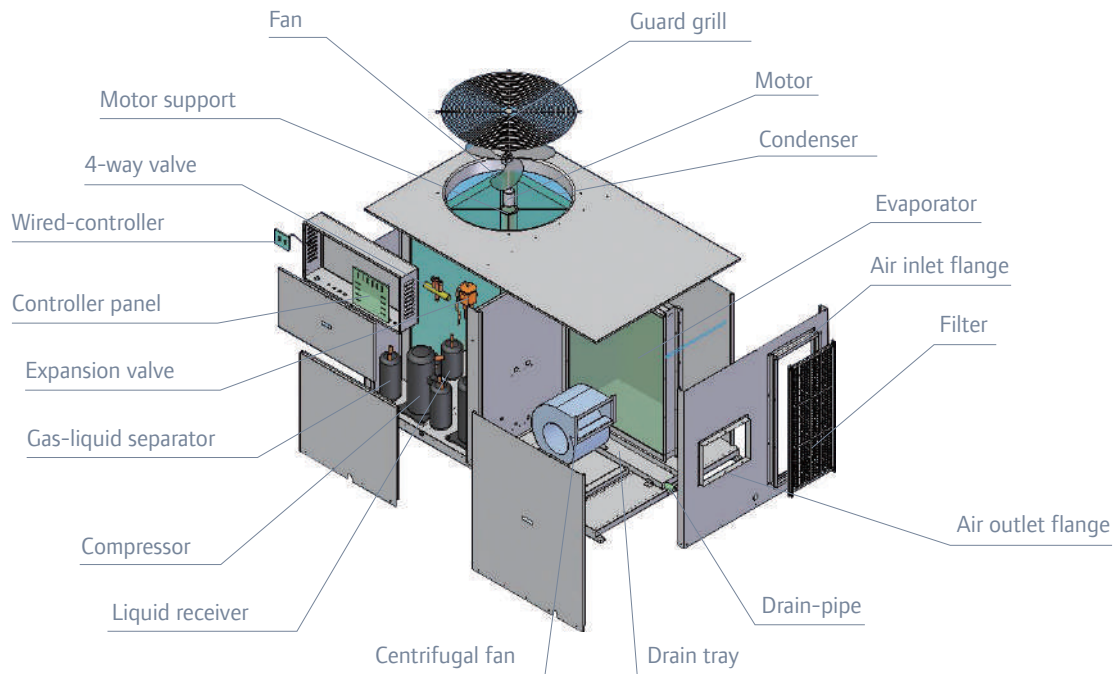
All products are rigorously factory tested to ensure the top arrived condition in site. The strict testing procedure includes rain test, shipping test, shake and drop test, rigging test, coil leak test, and the whole unit running test. All units are fully factory tested; plug and play

for the easier installation in site by reducing any unnecessary costs. This is one of the SUPER KOOL's rigorous requirements of responsibility to customers to make sure the reliability of our products.

### Durability

Cabinets are constructed from galvanized steel with polyester powder coated for all weather protection. The outdoor air coils' aluminum fins could be epoxy coated for extra protection in corrosive environments, for example the salt laden sea air. External fasteners are made by stainless steel or galvanized steel as well as the corrosion resistant drain trays. 10 years anti-corrosion warranty is guaranteed.





## Flexibility

The dedicated vertical or horizontal supply/return configurations allow easy utilization on replacement jobs or new construction applications. Unit may be configured to precisely match the building requirements through the use of factory-installed options such as: integrated economizer, power air exhaust, high static pressure indoor fan and coil protection options.

## Economy

2-4 stages operation compressors are progressively switched on only as they are needed. This has the added advantage of lowering start-up current. Especially, economizer such as free cooling or heat recovery option helps to reduce the operating costs.

## Safety

The refrigeration system operates with a number of protection means: dry-filter, discharge temperature protector, liquid sight glass, HP and LP switches, phase sequence relay, circuit breaker and contactor etc.

## Low noise

Electrical and compressor section are insulated to reduce noise. The upward discharge of condensing fans carries away effectively the operating noise. And all compressors and fans are mounted on rubber anti-vibration supports for quiet design.

## Easy maintenance

The condenser and evaporator fan motor bearings are permanently lubricated with long life, and no annual maintenance need, adding greater reliability to the unit. The service access ports are protected, externally mounted, re-usable, provided on both the high and low lines for ease of evacuating and charging the system. A large, single panel covers the electrical controls makes servicing easy. The blower compartment has a large panel which will allow the blower fan assembly to slide-out for ease of maintenance and trouble shooting.

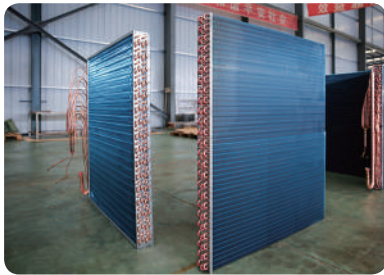
# Features

## Casing

Panels are made by galvanized steel with polyester powder paint for excellent finish, weatherability and corrosion resistance. The pre-treated galvanized steel provides a better paint to steel bond, which resists corrosion and rust creep. Special primer formulas and matted-textured finish insure less fading when exposed to sunlight. The stainless steel screws are used throughout to further reduce possibility of rusting.

## Compressor

The units use high efficiency, hermetically sealed, compressors, oil return lubrication and rubber vibration damper. The thermal overload cut-out, phase sequence relay and crankcase heater are integrated as the security protection to enhance reliability and performance.



## Heat exchanger

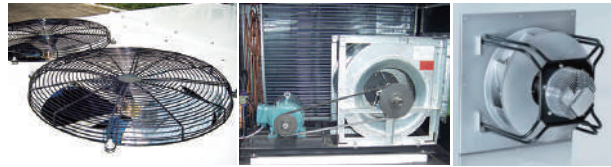
Condenser/ evaporator coils are manufactured from seamless inner grooved copper tubes with all joints brazed mechanically bonded to aluminum fins to ensure optimum heat transfer. The standard feature represent by  $\Phi 9.52\text{mm}$  tubes and high hydrophilic blue aluminum fins. All coils are tested at  $30\text{kg/cm}^2$  (450 Psi) air pressure to avoid leakage.

## External thermal expansion valve

Independent thermal expansion valve with external balance offers better refrigerant control and wider load condition.

## Condenser fan

Condenser fans are direct-driven axial type, air-discharged vertically with a low level noise, which use aluminum blades riveted with corrosion resistant steel spider bracket to allow a statically balanced and smooth operation. All condenser fans are protected by wire guards, and fans motors are secured by permanently lubricated bearings against overload conditions. The condenser fan with optional EC motor.



## Centrifugal fan

Belt-drive centrifugal fans of air supply section are designed with forward-curved blades, ac asynchronous induction motors and multi-speed control for maximum efficiency and adequate airflow distribution. Motors are highly efficient inducted, with class B insulation to ensure quiet operation and smooth performance. VFD drive modulating, upgrade plug fan and EC plug fan are possible as option.

## Filter

5 mm thickness washable Nylon filter is used as standard feature. G4 filter is available optionally.

## Electric components

- Direct-on-line starting contactor for the compressors and condenser fan motor.
- Internal thermal protector for compressor and fan motor.
- Anti-recycling protection (time delay) for compressors through microprocessor.
- Crankcase heater for compressor.
- Control circuit breaker and power circuit breaker.
- Phase sequence relay

## Defrost
















Dynamic and alternate defrost function is provided to heat pump rooftop units to ensure efficient operation in winter. Units start defrost cycle when the ambient temperature is below a set temperature and repeat the defrost cycles periodically. The defrost cycle is automatically controlled by outdoor sensor. The timing and duration of defrost can be set up by a combination of timing functions on the control device.

## Control

SUPER KOOL standard controller provides unit control for heating, cooling and ventilation utilizing input from indoor and outdoor sensors. Quality and reliability are enhanced through the smart control and logic for:

- Anti-short cycle timer prevents the unit from short cycling, considerably improving compressor life
- Optional soft start avoids electrical “spikes” by using staging on fans, compressors and heaters
- Interoperability with Modbus protocol allows to integrate with BMS for outstanding control benefits
- Automatic lock out system on failure and reset by interruption of power supply.
- Automatic defrost
- Compressor lead-lag operation to ensure longer life for the compressors and equal running hours between compressors
- External remote ON/OFF button for remote operation of the unit using external ON/OFF switch or connection to BMS
- High and low pressure safety switch (capsule type, factory Pre-set)
- Remote standard control panel with the same functions as the unit on-board control panel at a distance of 20 m

## Options

- |   |  |  |
|---|--|--|
|  Heat recovery   |  Hot water coil         |  Electronic expansion valve |
|  Fresh air       |  Electrical heater      |  EC plug-fan                |
|  Economizer      |  Gas burner             |  Emergency switch           |
|  Free-cooling    |  T3 tropical condition  |  Siemens PLC controller     |
|  Explosion proof |  Medium and HEPA filter |  Carel controller           |

# Technical Data

Model		RTU12	RTU15	RTU18	RTU24	RTU30	RTU35	
Cooling capacity	kW	12	15.2	17.5	24	30.3	35.6	
Heating capacity	kW	13.2	16.6	18.4	26.5	33.3	37.7	
Power supply		380V / 3Ph / 50HZ						
Cooling power input	kW	4.1	5.3	5.5	8.8	11.3	12.3	
Heating power input	kW	3.8	4.8	5.1	8.2	10.4	11.3	
Start current	A	48	62	63	63	74	76	
Working current in cooling	A	7.4	9.7	10.2	16.1	21.2	23.3	
Working current in heating	A	6.9	9.2	9.7	15.1	20.1	22.2	
Throttle methods		Thermal expansion valve						
Circuits		1	1	1	1	2	2	
Refrigerant		R410A						
Comp.	Type	Scroll type 380V / 3Ph / 50HZ						
	Qty	1	1	1	1	2	2	
Condensor side								
Condensor	Type	Al+copper tube						
	Qty	1	1	1	1	1	1	
Axial fan	Drive	Direct drive						
	Motor power	kW	0.25	0.37	0.37	0.55	0.75	0.75
	Air flow	m <sup>3</sup> /h	4600	7800	7800	9000	12600	12600
Evaporator side								
Evaporator	Type	Al+copper tube						
	Qty	1	1	1	1	1	1	
Centrifugal fan	Motor power	kW	0.32	0.37	0.45	1.1	1.5	2.2
	Air flow	m <sup>3</sup> /h	2100	2600	3400	4100	5200	6300
	Drive		Direct drive			Belt drive		
External static pressure (Pa)		100	100	100	200	200	250	
Filter		Aluminum frame filter G3						
Noise level dB(A)		67	67	68	71	72	72	
Dimension	L	mm	1410	1410	1410	1978	1978	1978
	W	mm	1100	1100	1100	1175	1175	1175
	H	mm	1095	1095	1095	1095	1095	1095
Weight	kg	240	260	290	420	480	500	

\* Performance values refer to the following conditions:

Cooling: room air temperature 27.0°C DB RH 50%, ambient air temperature 35°C;

Heating: room air temperature 20.0°C DB, ambient air temperature 7°C DB / 6°C WB.

\*\* Noise level measured by adopting average value in the noise lab with background noise of 25 dB(A), at a distance of 1.5m high fan speed.



## Technical Data

Model		RTU45	RTU50	RTU60	RTU72	RTU90	RTU105	
Cooling capacity	kW	44.5	50	60	70	90	105	
Heating capacity	kW	48.7	54.3	64	75.4	96.2	113.2	
Power supply		380V / 3Ph / 50HZ						
Cooling power input	kW	17	19.5	22.8	26.7	32.9	39.7	
Heating power input	kW	15.6	18	21	24.8	30.4	36.7	
Start current	A	168	186	175	199	197	266	
Working current in cooling	A	31.7	35.6	39.9	48.3	61	70.6	
Working current in heating	A	29.9	33.5	37.5	45.4	57.3	66.3	
Throttle methods		Thermal expansion valve						
Circuits		2	2	2	2	3	3	
Refrigerant		R410A						
Comp.	Type	Scroll type		380V / 3Ph / 50HZ				
	Qty	2	2	2	2	3	3	
Condensor side								
Condensor	Type	Al+copper tube						
	Qty	1	1	1	1	2	2	
Axial fan	Drive	Direct drive						
	Motor power	kW	1.1	1.5	1.5	2.2	2x1.1	2x1.5
	Air flow	m <sup>3</sup> /h	16500	21000	21000	27000	33000	42000
Evaporator side								
Evaporator	Type	Al+copper tube						
	Qty	1	1	1	1	1	1	
Centrifugal fan	Motor power	kW	3	3	4	4	5.5	5.5
	Air flow	m <sup>3</sup> /h	7600	8500	10900	12500	16000	19500
	Drive		Belt drive					
External static pressure(Pa)		250	250	300	300	300	300	
Filter		Aluminum frame filter G3						
Noise level dB(A)		73	73	73	75	74	75	
Dimension	L	mm	2268	2268	2298	2298	2878	2878
	W	mm	1440	1440	1650	1650	2140	2270
	H	mm	1167	1167	1400	1400	1964	1964
Weight	kg	750	770	830	860	1160	1350	

\* Performance values refer to the following conditions:

Cooling: room air temperature 27.0°C DB RH 50%, ambient air temperature 35°C;

Heating: room air temperature 20.0°C DB, ambient air temperature 7°C DB / 6°C WB.

\*\* Noise level measured by adopting average value in the noise lab with background noise of 25 dB(A), at a distance of 1.5m high fan speed.

## Technical Data

Model		RTU120	RTU140	RTU150	RTU180	RTU210	RTU300	
Cooling capacity	kW	120	140	149	180	210	298	
Heating capacity	kW	128.3	150	159.2	192.5	226	318	
Power supply		380V / 3Ph / 50HZ						
Cooling power input	kW	45.1	55.7	55.1	69.9	83	106.7	
Heating power input	kW	41.7	51.8	51.5	64.8	77	100	
Start current	A	218	252	323	232	301	415	
Working current in cooling	A	82.4	101.4	100.2	130.9	151	192.3	
Working current in heating	A	77.4	95.7	95.1	123.5	142.3	184.3	
Throttle methods		Thermal expansion valve						
Circuits		4	4	2	6	6	4	
Refrigerant		R410A						
Compressor	Type	Scroll type 380V / 3Ph / 50HZ						
	Qty	4	4	2	6	6	4	
Condensor side								
Condensor	Type	Al+copper tube						
	Qty	2	2	2	4	4	4	
Axial fan	Drive	Direct drive						
	Motor power	kW	2x1.5	2x2.2	2x2.2	4x1.1	4x1.5	4x2.2
	Air flow	m <sup>3</sup> /h	42000	54000	54000	66000	84000	108000
Evaporator side								
Evaporator	Type	Al+copper tube						
	Qty	1	1	1	1	1	1	
Centrifugal fan	Motor power	kW	7.5	11	11	15	15	18.5
	Air flow	m <sup>3</sup> /h	21000	25000	26000	32000	38000	54000
	Drive		Belt drive					
External static pressure(Pa)		400	400	400	500	500	500	
Filter		Aluminum frame filter G3						
Noise level dB(A)		75	79	79	80	80	82	
Dimension	L	mm	3626	3626	3626	4690	4690	5660
	W	mm	2200	2200	2200	2330	2330	2330
	H	mm	2047	2047	2047	2055	2055	2055
Weight	kg	1710	1820	1850	2180	2430	2860	

\* Performance values refer to the following conditions:

Cooling: room air temperature 27.0°C DB RH 50%, ambient air temperature 35°C;

Heating: room air temperature 20.0°C DB, ambient air temperature 7°C DB / 6°C WB.

\*\* Noise level measured by adopting average value in the noise lab with background noise of 25 dB(A), at a distance of 1.5m high fan speed.

# Optional Function

## Economizer and Free Cooling

It is one of the most important features of this rooftop as it maximise seasonal efficiency by reducing the use of thermodynamic cooling in mid season. Thermodynamic cooling can be replaced by Free Cooling when outdoor temperature is below the building set point saving up to 15% on annual energy consumption.

Rooftop units are supplied with economizer and fresh air hood to improve comfort through better fresh air management and allow energy savings with free cooling.



### Exhaust air

- Gravity exhaust damper

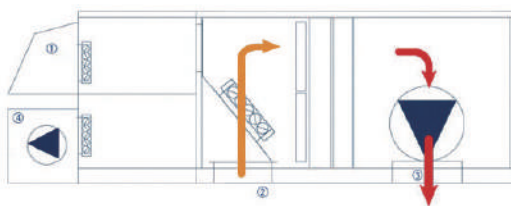
Gravity exhaust damper Installed with economizer assembly, gravity exhaust damper relief pressure when outside air is being introduced in the system. It is a cheap and smart way to avoid over pressure in a building.

- Power exhaust fans

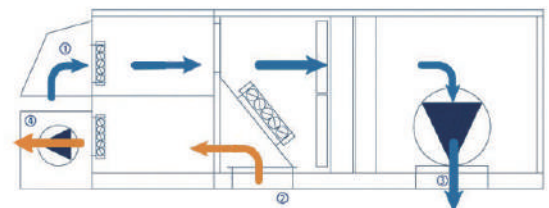
Installed with economizer assembly, it provides exhaust air pressure relief when high levels of fresh air are being introduced in the system.

Interlocked to run when return air dampers are being closed and supply air blower is in operation. The extraction fans run when outdoor air dampers are at least 50% open (adjustable). It is also overload protected. A gravity exhaust damper is supplied with this option to prevent air from entering the unit during shutdown. The power exhaust fans have been size to exhaust 50% of the nominal air flow of the unit.

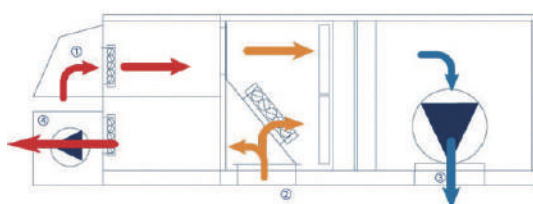
Cooling/heating mode without fresh air



Free-cooling mode



Cooling/heating mode with fresh air



- ① Fresh air      ② Return air      ③ Supply air      ④ Exhaust air

# Heat Recovery



Improvement of indoor air quality is one of the major missions of air conditioner equipment. To introduce the ambient fresh air into the building is an ecological and effective solution which is mandatory to control indoor CO<sub>2</sub> level and comfort. SUPER KOOL air to air HR system offers a parfait energy recovery solution by absorbing heat from the exhaust air in order to pre-treat the fresh air to achieve at the same time:

- A high performance of the improvement of indoor air quality and comfort.
- A economical operation for remarkable energy

saving.

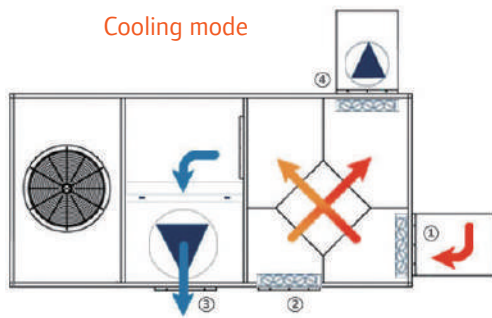
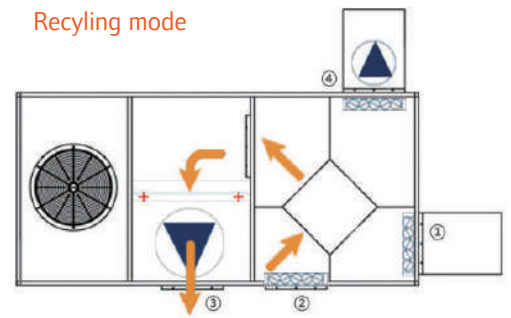
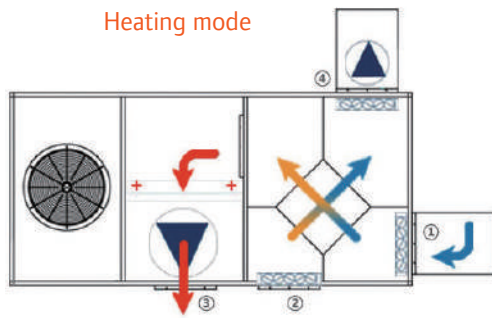
Two types of HR equipment are available according to the project requirement: Plate heat exchanger or Wheel heat exchanger. Although the use of the HR system maybe increase some of energy consumption of fans, but the benefit of energy saving will be certainty greater than that. The test data prove that the performance of heat recovery can be up to 70% for recovery efficiency and 100% for volume of exhaust air.

The HR system is now widely applied in residential, commercial, industrial applications. Practically, applications which demand the higher quality air and fresh air rate are strongly recommended.



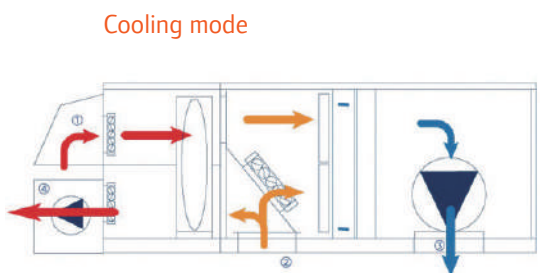
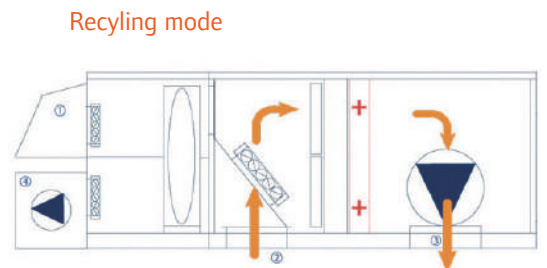
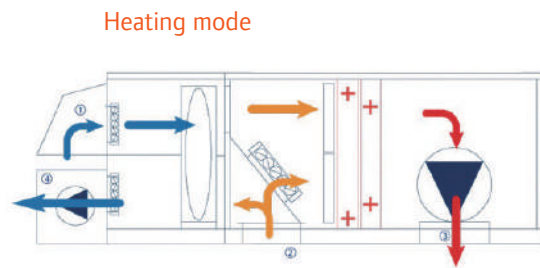
# Heat Recovery Diagram

## • Plate heat recovery



- ① Fresh air
- ② Return air
- ③ Supply air
- ④ Exhaust air

## • Wheel heat recovery



- ① Fresh air
- ② Return air
- ③ Supply air
- ④ Exhaust air(optional)

Note: For downflow only, otherwise it will be different structure

## Heating Possibilities

### Electric heater

The electric heater comprises of shielded resistance heaters, which are smooth stainless steel tubes 6 W/cm<sup>2</sup> capacity. High temperature limit control offers overload protection and is set to 90°C and located at less than 150mm after electric heaters. This is provided as a standard feature on the electric heater, with the electric power supply cables made of reticulated silicon rubber, resistant to temperatures up to 200°C. For any rooftop unit size, three sizes of electric heater are available, S (standard), M (Medium) and H (high).



### Hot water coil

Hot water coils offer fully modulating control through the use of a 3 way valve. The hot water coil, connections and valves are all tested at pressure of 15 bars. Frost protection is provided by forcing the opening the 3 way valve when supply temperature from hot water coil falls below 8°C and by stopping the outdoor fan when that supply temperature falls below 6°C. In addition to that, the 3 way valve is also opened at 10% value if the outdoor temperature falls below an adjustable value.

Hot water coils are always factory fitted, wired and fully tested, prior to shipment.

## Explosion Proof

Designed for Group II A, IIB, IIC.  
Designed for Temperature classes T1-T6.  
Designed for Explosive atmosphere Zone1, Zone2.  
Designed for petroleum exploitation, refinery, storage, chemical, medicine, military facilities, etc.  
Efficient energy saving and low noise.  
Single refrigeration type and refrigeration & heating type.  
Explosion-proof mark: EXdemib II BT4, EXdemia II CT4.



## Gas Burner



SUPER KOOL rooftop units can be fitted with a gas burner. As one of the auxiliary heating devices, it allows the rooftop units to heat without running the refrigeration system or only with a part of it to achieve a high performance of energy-saving at lower ambient temperature in winter and to reduce massively the heating operating costs specially for where the natural gas is cheaper than electricity.

The gas heating modular use a safe and reliable atmospheric gas burner made of aluminized steel tube heat exchanger designed to offer maximum heat transfer and 92% efficiency (PCI%). It runs with natural gas in an operating range of 1.3-2.6KPa. The standard gas module offers 2 stages of control which helps in improving space comfort by avoiding large supply air temperature deviations. The airflow rate in the burner is controlled as the gas flow is being reduced maintaining the burner to its highest efficiency level.

S: 30kW

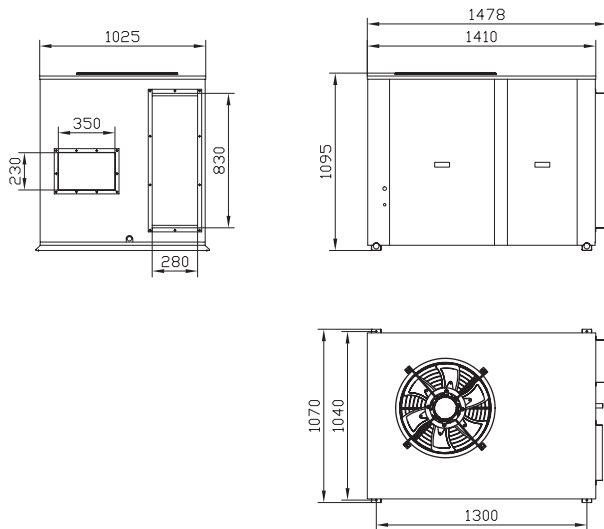
M: 50kW

L:100kW

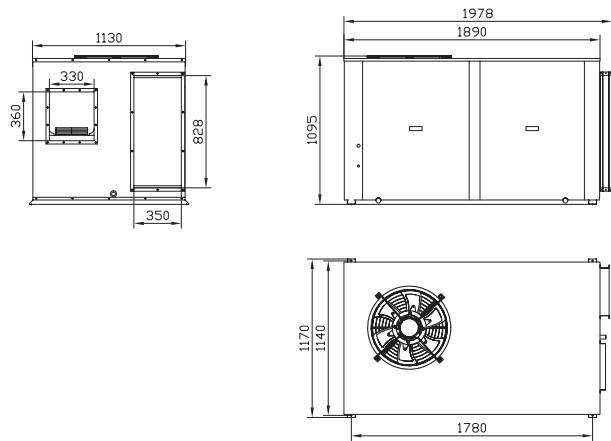
3 modules are available, which can provide separately 30kW, 50kW and 100kW heating capacity in standard working condition according to your different heating requirements. Where more capacity is required a modulating version is available with flexible combination. For safety reasons, the rooftop unit with gas heating can't be installed inside a technical room.

# Standard Dimensions

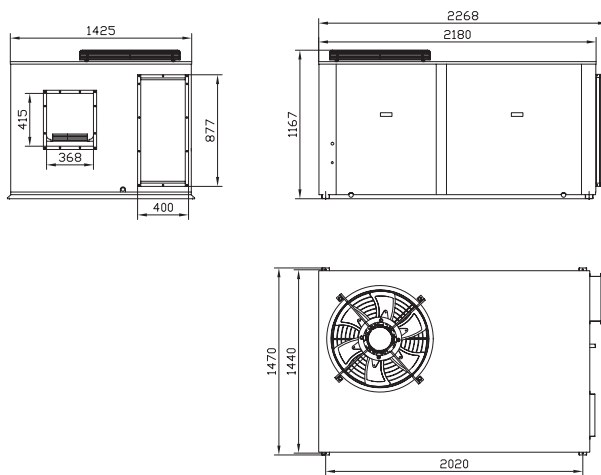
## RTU12-18



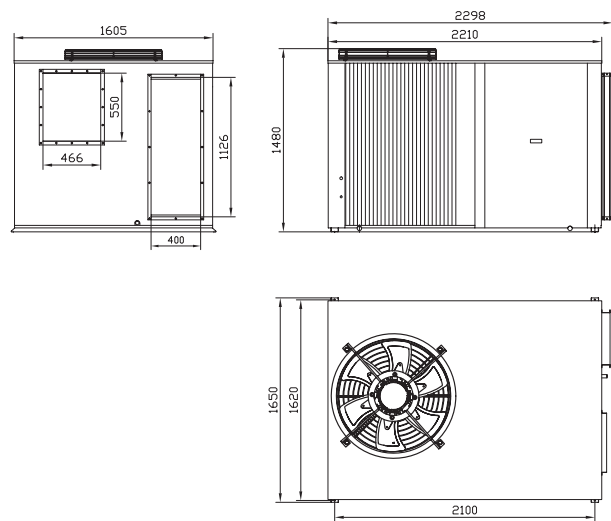
## RTU24-36



## RTU48-50

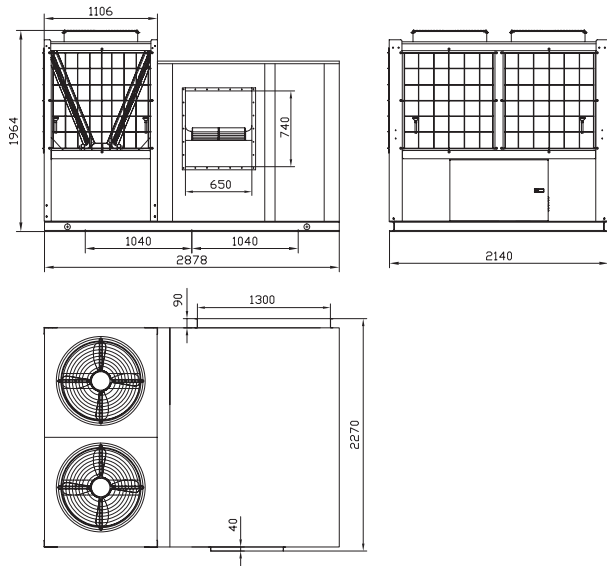


## RTU60-72

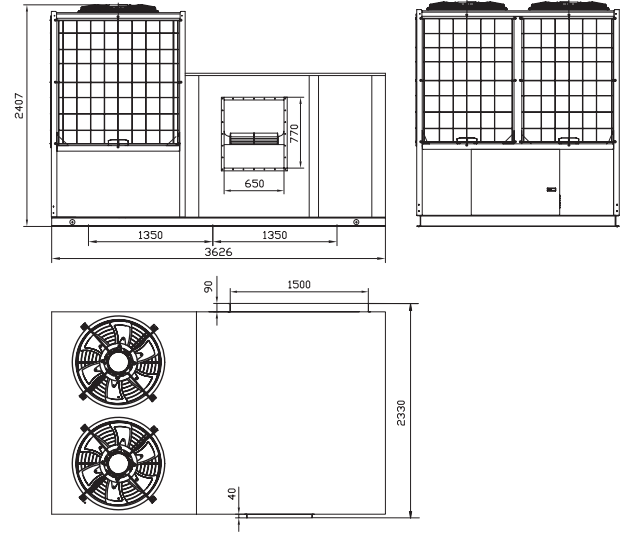




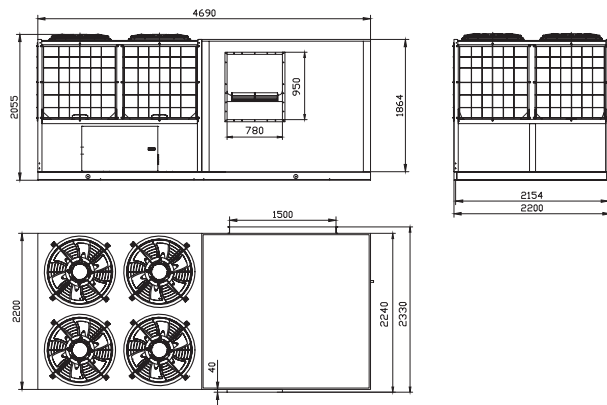
### RTU90-105



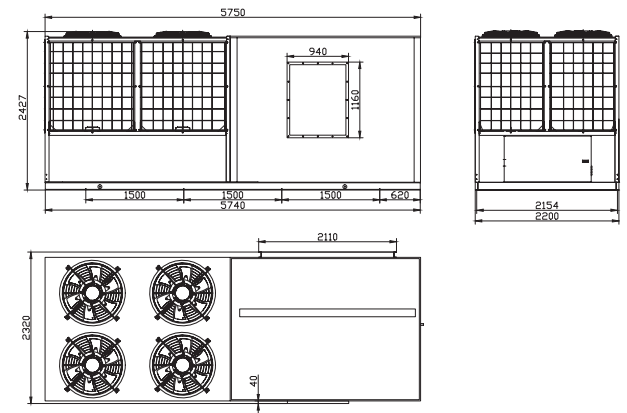
### RTU120-150



### RTU190-210



### RTU300



# Installation, Operation and Maintenance

## Installation

SUPER KOOL equipment has been designed for quick and easy installation.

## Unit location

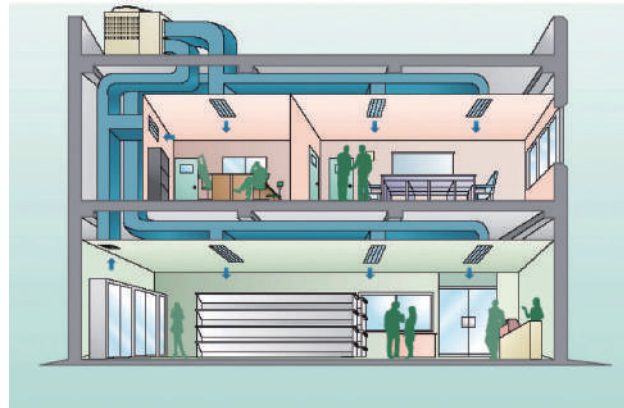
The electric unit is designed only for outdoor installations. Choosing the location of the unit should be based on minimizing the length of the supply ducts. Consideration should also be given to availability, service access, noise, and shade. The unit installation shall avoid areas where condensate drainage may cause problems.

## Setting the curb

Make openings in roof decking large enough, to allow for duct penetration and work space only. Do not make openings large than necessary. Set the curb to coincide with the openings. Make sure the curb is level. Unit must be level in both horizontal axes to support the unit and reduce noise and vibration.

## Electrical

All electrical work must be carried out by a qualified and licensed electrician. Then installation must comply with the current relevant standards wiring rules and local authority requirements. Wire sizing is the responsibility of the installer, as it depends on the conditions and regulations applicable to each installation site. Refer to the electrical drawing and specification of the unit for the electrical data. The electrical installation requirements are generally as follows:



- The air-conditioning unit shall be supplied directly from a distribution board through a mains lockable isolating switch.
- Pre-punched holes have been provided in the unit casing for the isolating switch. Do not drill into the cabinet as piles may be located behind.

## Operation

Unit operations should be controlled with thermostat, or unit controller, never at the main power supply, except for servicing, emergency, or complete shutdown of the unit.

## Maintenance

At least once each year, a trained, qualified service technician should check out the unit. Fans, evaporator coils, and filters should be inspected at least monthly.

# Ducted Split Unit

20kW~104kW    
 5.6Ton~29.6Ton

## Application areas

- Wide application as hotel, apartment, villa, factory, shopping center, office building, school, etc.

## Why this choice?

- High efficiency: Adopts famous brand compressor, multi-level adjustment, high efficiency anti-corrosion hydrophilic aluminum foil, which make the efficiency up to 30%.
- Extraordinary performance: Adopts well-know brand opponents, such as EMERSON, SPORLAN, DANFOSS brand etc.
- Intelligent control: Micro computer control, cooling, heating, auto, ventilation can be free switching.



## Characteristics

11 sizes available ranging from 19.5 kW to 103.7 kW cooling capacity.

Cooling only and heat pump version.

Wide application as hotel, apartment, villa, factory, shopping center, office building, school, etc.

Panels and frame are made from metal steel protected with polyester powder painting to ensure total resistance to atmospheric agents.

High efficiency scroll compressor for the whole range, with built-in thermal overload cut-out and crankcase heater, mounted on rubber vibration dampers.

Compact indoor design, long air supply distance.

Outdoor units are equipped with low noise axial fans.

Indoor units are equipped with quiet centrifugal fans.

Split installation, connected by means of flare/welding coupling.

Easy operation line controller:

- Cooling/Heating/Fan/Auto
- Error indication
- Timing On/Off
- Multi safety protection
- High/low pressure protection

- Overheat protection
- Current overload protection
- Phase sequence relay
- Time delay and antifreeze switch

### Optional

- Additional electric heater on indoor unit
- Additional heating coil on indoor unit

## Technical Data

Model	Unit	AA20	AA25	AA32	AA36	AA42	AA48
Nominal cooling capacity*	kW	19.5	24.8	31.2	35.6	41.3	47.4
	Ton	5.6	7.1	8.9	10.2	11.8	13.5
Nominal heating capacity**	kW	22.6	28.9	35.8	40.8	46.9	54.4
	Ton	6.5	8.3	10.2	11.7	13.4	15.5
Connection							
Method	/	Flare	Flare	Flare	Welding	Welding	Welding
Liquid pipe diameter	∅ mm	9.52x2	12.7x2	12.7x2	15.88x1	15.88/12.7	15.88/12.7
Gas pipe diameter	∅ mm	15.88x2	19.05x2	19.05x2	28x1	28/19.05	28/19.05
Power supply	/	380-415V/3Ph/50Hz					
Compressor							
Qty/refrigerant circuit	Nr.	2/2	2/2	2/2	1/1	2/2	2/2
Cooling power input*	kW	7.2	9.3	11.8	12.8	15.1	17.9
Heating power input**	kW	7.13	9.21	11.68	12.67	14.95	17.72
Energy adjustment	%	50-100	50-100	50-100	0-100	40-60-100	33-66-100
Axial fans							
Quantity	Nr.	1	1	1	1	2	2
Airflow	m <sup>3</sup> /h	9400	9400	12500	14200	18800	18800
Sound pressure level***	dB(A)	67	67	68	70	71	71
Net weight	kg	170	180	220	280	260	280
Centrifugal fans							
Quantity	Nr.	2	2	2	2	2	2
Airflow	m <sup>3</sup> /h	3500	4500	5650	6450	7400	8550
ESP	Pa	120	100	150	130	180	200
Sound pressure level***	dB(A)	64	64	66	66	68	68
Net weight	kg	90	100	150	160	180	200
Additional electric heater****	kW	2x3	2x4	2x5	2x6	2x6	2x8
Additional heating coil****	kW	22.2	28.4	35.1	40.0	46.0	53.3

Performance values refer to the following conditions:

\* Cooling capacity is measured under the condition: indoor temperature DB 27°C / WB 19°C, ambient temperature DB 35°C / WB 24°C.

\*\* Heating capacity is measured under the condition: indoor temperature DB 20°C / WB 15°C, ambient temperature DB 7°C / WB 6°C.

\*\*\* Sound pressure measured at a distance of 1 m and a height of 1.5 m above the ground in a dear field.

\*\*\*\* Optional as request.



## Technical Data

Model	Unit	AA52	AA62	AA72	AA88	AA104
Nominal cooling capacity*	kW	51.3	63.3	71.3	87.9	103.7
	Ton	14.7	18.1	20.4	25.1	29.6
Nominal heating capacity**	kW	58.9	72.6	81.9	100.0	115.8
	Ton	16.8	20.7	23.4	28.6	33.1
Connection						
Method	/	Welding	Welding	Welding	Welding	Welding
Liquid pipe diameter	∅ mm	15.88/12.7	15.88×2	15.88×2	15.88×2	19.05×2
Gas pipe diameter	∅ mm	28/19.05	28×2	28×2	28×2	35×2
Power supply	/	380-415V/3Ph/50Hz				
Compressor						
Qty/refrigerant circuit	Nr.	2/2	2/2	2/2	2/2	2/2
Cooling power input*	kW	18.4	23.1	26.6	28.1	39.3
Heating power input**	kW	18.22	22.87	26.33	27.82	38.91
Energy adjustment	%	30-70-100	50-100	50-100	50-100	50-100
Outdoor unit						
Axial fans						
Quantity	Nr.	2	2	2	2	2
Airflow	m <sup>3</sup> /h	21500	26500	29880	36500	43500
Sound pressure level***	dB(A)	71	71	71	71	71
Net weight	kg	330	460	460	780	800
Indoor unit						
Centrifugal fans						
Quantity	Nr.	2	2	2	2	2
Airflow	m <sup>3</sup> /h	9250	11450	12900	14800	17100
ESP	Pa	200	300	300	280	500
Sound pressure level***	dB(A)	68	68	69	69	70
Net weight	kg	220	230	300	320	400
Additional electric heater****	kW	2×8	2×10	2×10	2×12	2×14
Additional heating coil****	kW	57.8	71.2	80.3	98.0	113.5

Performance values refer to the following conditions:

\* Cooling capacity is measured under the condition: indoor temperature DB 27°C / WB 19°C, ambient temperature DB 35°C / WB 24°C.

\*\* Heating capacity is measured under the condition: indoor temperature DB 20°C / WB 15°C, ambient temperature DB 7°C / WB 6°C.

\*\*\* Sound pressure measured at a distance of 1 m and a height of 1.5 m above the ground in a dear field.

\*\*\*\* Optional as request.

# Air Cooled Mini Chiller and Heat Pump

5kW~50kW



1.4Ton~14.3Ton

## Application areas

- Small Offices, Hotels, Hospitals
- Industry
- Administration
- Small commercial and residential buildings

## Why this choice?

- Very high efficiency with R410A
- Very low noise operation
- Rotary/scroll compressors
- Advanced control
- Unit with pump and optional buffer tank
- Very compact for outdoor or indoor installation



## Characteristics

### Structure

Panels and base frame are made from galvanized steel protected with polyester powder painting to ensure total resistance to atmospheric agents.

### Compressor

Hermetic scroll type compressor, equipped with the crankcase heater and thermal protection with thermal overload cut-out and crankcase heater mounted on rubber vibration isolators.

### Axial fan

External rotor type axial fans, equipped with single phase direct drive motors, low noise 6 poles, protection level IP54, provided with a protective outlet grille.

### Evaporator

High efficiency and low pressure drop stainless steel (AISI 316) water exchangers, with anti-freeze heating element (option) and differential pressure switch, factory insulated with flexible close cell material.

## Condenser

Coils are consisting of seamless copper tubes mechanically expanded into blue hydrophilic aluminum fins, 100% fully quality tested; sub cooling circuit to prevent freezing at the base (optional); protected with metal grill.

## Desuperheater

High efficiency stainless steel brazed plate heat exchanger, factory insulated with flexible close cell material (optional).

## Refrigerant circuit

Copper tube connection with charge valve, filter, sight glass, gas-liquid separator, thermostatic expansion valve, low pressure switch with automatic reset, high pressure switch with manual reset. The heat pump unit is completed also with 4-way valve, liquid receiver and one way valve.



## Water circuit

Built with air vent valve, water drain connection, and female-threaded hydraulic connectors  
Water pump (8kW-30kW), differential pressure switch

Expansion tank (8kW-30kW)

## Electric panel

Compressor contactor

Compressor protection breaker

Fan motor protection breaker

Control circuit protection breaker

Phase sequence relay (only for 3-phase)

Programmable microprocessor controller

## Optional

Additional electric heater embedded in the coils for defrosting in low temperature ambient. It must be factory installed

Stainless steel covering

Remote condenser

Tube in tube heat exchanger

Water circuit electric heater

## Technical Data (Side Discharge)

Model		AW5	AW7	AW10	AW10	AW14	AW16	
Cooling mode								
Cooling capacity	kW	5.6	7.4	9.5	10.7	13.3	16.4	
Input	kW	1.9	2.5	3.3	3.6	4.1	5.0	
EER	/	3.00	2.96	2.97	2.97	3.21	3.26	
Energy class full load operation	/	B	B	B	C	A	A	
ESEER	/	3.43	3.4	3.33	4.01	3.74	3.82	
Comfort application	Seasonal energy efficiency ratio SEER	/	3.88	3.81	3.81	3.82	3.96	3.84
	Season energy efficiency $\eta_{s,c}$	%	152	149	150	162	152	156
Process application	Seasonal energy performance ratio SEER SEPR-high temperature(7°C)	/	5.24	5.25	5.39	4.98	5.04	5.01
	Seasonal energy performance ratio SEER SEPR-medium temperature(-8°C)	/	3.20	3.09	3.65	3.5	3.78	3.91
Heating mode								
Rated heating capacity	kW	6.2	7.9	12	12	16	17.9	
Input	kW	2.2	2.8	3.9	4.1	5.1	5.81	
COP	/	2.81	2.82	3.07	2.92	3.13	3.08	
Energy class full load operation	/	B						
Seasonal coefficient of performance SCOP	/	3.23	3.24	3.34	3.23	3.6	3.43	
Seasonal energy efficiency	%	126	126	130	126	140	132	
Seasonal energy efficiency class	/	A+						
Electrical data	Voltage	220-240V/1ph/50Hz			380-415V/3ph/50Hz			
Max running current	A	15.1	17.2	24.5	8	10.3	13.5	
Compressor	Type	Rotary			Fixed scroll			
Refrigeration circuit and compressor number	/	1/1						
Air side heat exchanger	Type	Fin-coil						
	Fan motor type	AC motor						
	Quantity of fan motor	Nr.	1	1	2	2	2	2
	Air flow	m <sup>3</sup> /h	3000	4000	3000X2	3500X2	4500X2	4500X2
Water side heat exchanger	Type	spiral drum heat exchanger						
	Pressure drop	kPa	25	29	35	35	36	36
	Nominal water flow rate	m <sup>3</sup> /h	0.9	1.3	1.8	1.8	2.5	2.7
Water pump	Pump head	m	6	6	8	8	8	8
	Water flow	L/min	4	4	7.5	7.5	7.5	7.5
Expansion tank volume	L	2	2	4	4	4	4	
Economizer heat exchanger	/	Plate heat exchanger(option)						
Hydraulic connection	Type	Threaded-male			Victaulic or welded			
	Diameter	mm	DN25	DN25	DN32	DN32	DN32	DN32

## Technical Data (Side Discharge)

Model			AW5	AW7	AW10	AW10	AW14	AW16
Acoustic data	Sound power level	dB(A)	50	56	60	55	58	58
Refrigerant	Type	/	R410a					
	Charge volume	kg	1.8	2.2	3	3.6	5	6
	Throttle type	/	EXV					
Unit dimension(WxHxD)		mm	1200x830x560	1200x830x560	1000x1316x560	1000x1316x560	1100x1316x620	1100x1316x620
Packing dimension(WxHxD)		mm	1350x980x630	1350x980x630	1100x1466x650	1100x1366x640	1200x1456x700	1200x1456x700
Net/Gross weight		kg	120/140	138/158	145/170	145/165	160/190	168/198
Operating limits								
Cooling mode								
Min outlet water temperature		°C	-12(option)/+5(standard)					
Max inlet water temperature		°C	20					
Min difference water inlet/outlet		°C	3					
Max difference water inlet/outlet		°C	8					
Min ambient air temperature		°C	-20(option)/+6(standard)					
Max ambient air temperature		°C	46					
Heating mode								
Max outlet water temperature		°C	50					
Min ambient air temperature		°C	-25(option)/-12(standard)					

(1)T1 application, (220-240V/1ph/50Hz, 380-415V/3ph/50Hz)

Cooling mode: Water temperature=12/7, Ambient temperature=35

Heating mode: Water temperature=40/45, Ambient temperature=7

(2)ESEER in according with standard EN14511

(3)SEER in accordance with standard EN14825

(4)Seasonal energy efficiency following EU2016/2281 on space cooling, normalized leaving water temperature at 7, in accordance with standard EN14825

(5)Following EU2016/2281 on process cooling units, normalized leaving water temperature at 7, in accordance with standard EN14825

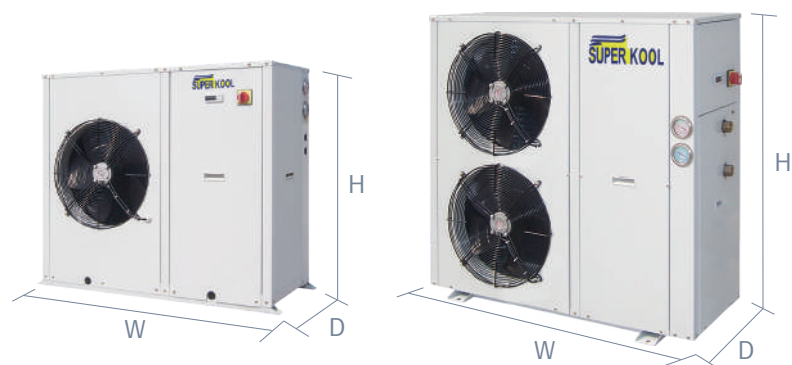
(6)Following EU2015/1095 on process cooling chillers, normalized leaving water temperature at -8, in accordance with standard EN14825

(7)SCOP in accordance with standard EN14825 Heating mode performance is defined for average climate conditions

(8)Seasonal energy efficiency: following EU813/2013 on space heaters, normalized leaving water temperature at 7, in accordance with standard EN14825, average climate conditions

(9)Following energy labeling regulation EU811/2013 on space heaters.

Sound power level and sound pressure level at 10m from the unit, in free field conformity with ISO3744 norm.



## Technical Data (Top Discharge)

Model		AW10	AW20	AW25	AW30	AW35	AW40	AW50	
Cooling mode									
Cooling capacity	kW	10.7	20.3	25.8	29	36.4	40.3	51.8	
Input	kW	4	6.5	8.8	10	14.4	12.9	17.5	
EER	/	2.67	2.62	2.74	2.9	2.52	3.12	2.96	
Energy class full load operation	/	C	C	C	B	C	A	B	
ESEER	/	4.0	4.1	4.15	4.25	4.01	2.86	3.45	
Comfort application	Seasonal energy efficiency ratio SEER	/	4.11	4.05	4.15	4.13	4.11	4.1	3.99
	Season energy efficiency $\eta_{s,c}$	%	162	160	164	162	162	161	157
Process application	Seasonal energy performance ratio SEER SEPR-high temperature(7°C)	/	5.04	5.02	5.04	5.6	5.03	5.01	5.02
	Seasonal energy performance ratio SEER SEPR-medium temperature(-8°C)	/	3.54	3.39	3.54	3.33	3.5	3.59	3.6
Heating mode									
Rated heating capacity	kW	13.5	26.3	29	34	41.8	45.8	60	
Input	kW	4.55	8.7	9.23	9.43	14.3	13.8	20.45	
COP	/	2.96	3.02	3.14	3.6	2.92	3.33	2.93	
Energy class full load operation	/	B	B	B	B	B	A	B	
Seasonal coefficient of performance SCOP	/	3.24	3.25	3.65	3.45	3.23	3.83	3.28	
Seasonal energy efficiency	%	126	127	143	135	128	150	128	
Seasonal energy efficiency class	/	A+							
Electrical data	Voltage	/ 380-415V/3ph/50Hz							
Compressor	Type	/ Fixed scroll							
Refrigeration circuit and compressor number	/	1/1					2/2		
Air side heat exchanger	Type	/ Fin-coil							
	Fan motor type	/ AC motor							
	Quantity of fan motor	Nr.	1	1	1	1	2	2	2
Water side heat exchanger	Air flow	m <sup>3</sup> /h	4500	9000	9000	12580	8500x2	8500x2	11000x2
	Type	/	spiral drum heat exchanger(standard)/plate heat exchanger(option)						
	Pressure drop	kPa	33	42	39	42	50	52	52
Water pump	Nominal Water flow rate	m <sup>3</sup> /h	1.8	3.7	4.3	5.2	6.1	7.1	8.7
Expansion tank volume	Pump head	m	8	8	8	8	16	18	20
Economizer heat exchanger	L	4	4	4	4	6	6	6	
Hydraulic connection	Type	/ Threaded-male							
	Diameter	mm	DN32	DN40	DN40	DN40	DN40	DN40	DN40
Acoustic data	Sound power level	dB(A)	55	66	66	68	70	70	70



## Technical Data (Top Discharge)

Model			AW10	AW20	AW25	AW30	AW35	AW40	AW50
	Type	/							
Refrigerant	Charge volume	kg	3.6	4.7	6	8.5	4.4x2	4.7x2	5.5x2
	Throttle type	/							
Unit dimension(WxHxD)	mm		1400x1010x600	1600x1080x900	1600x1080x900	1600x1080x900	2000x1080x900	2000x1080x900	2000x1080x900
Packing dimension(WxHxD)	mm		1500x1160x680	1700x1230x980	1700x1230x980	1700x1230x980	2100x1230x980	2100x1230x980	2100x1230x980
Net/Gross weight	kg		145/165	270/300	280/310	300/330	360/395	380/415	465/500
Operating limits									
Cooling mode									
Min outlet water temperature	°C								-12(option)/+5(standard)
Max inlet water temperature	°C								20
Min difference water inlet/outlet	°C								3
Max difference water inlet/outlet	°C								8
Min ambient air temperature	°C								-20(option)/+6(standard)
Max ambient air temperature	°C								46
Heating mode									
Max outlet water temperature	°C								50
Min ambient air temperature	°C								-25(option)/-12(standard)

(1)T1 application, (380-415V/3ph/50Hz)

Cooling mode: Water temperature=12/7, Ambient temperature=35

Heating mode: Water temperature=40/45, Ambient temperature=7

(2)ESEER in according with standard EN14511

(3)SEER in accordance with standard EN14825

(4)Seasonal energy efficiency following EU2016/2281 on space cooling, normalized leaving water temperature at 7, in accordance with standard EN14825

(5)Following EU2016/2281 on process cooling units, normalized leaving water temperature at 7, in accordance with standard EN14825

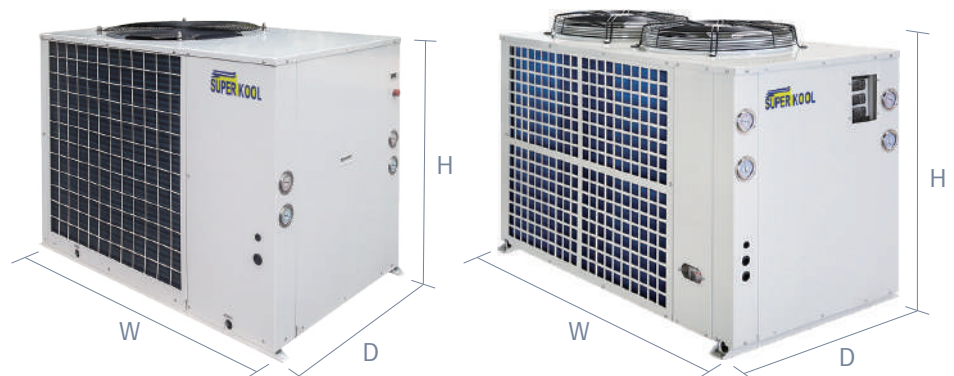
(6)Following EU2015/1095 on process cooling chillers, normalized leaving water temperature at -8, in accordance with standard EN14825

(7)SCOP in accordance with standard EN14825 Heating mode performance is defined for average climate conditions

(8)Seasonal energy efficiency: following EU813/2013 on space heaters, normalized leaving water temperature at 7, in accordance with standard EN14825, average climate conditions

(9)Following energy labeling regulation EU811/2013 on space heaters.

Sound power level and sound pressure level at 10m from the unit, in free field conformity with ISO3744 norm.



# Air Cooled Modular Chiller and Heat Pump

60kW~260kW



17.1Ton~74.3Ton

## Application areas

- Offices, Hotels, Hospitals
- Industry
- Administration
- Light commercial and residential buildings

## Why this choice?

- Very low noise operation
- R410A scroll compressors
- Advanced control
- Unit with pump and optional buffer tank
- Very compact for outdoor or indoor installation



## Characteristics

The master module can work independently or together with up to 16 slave modules. Units with V type heat exchanger: panels, frame and base are made from galvanized steel protected with polyester powder painting to ensure total resistance to atmospheric agents. 3-phase scroll type compressor, with built-in thermal overload cut-out and crankcase heater, mounted on rubber vibration dampers. External rotor type axial fans, equipped with three phase direct drive motors, low noise 8 poles, protection level IP54, provided with a protective outlet grille.

Evaporator built with high efficiency shell and tube type heat exchanger, factory insulated with flexible close cell material. Condenser built with seamless copper tubes mechanically expanded into blue hydrophilic aluminum fins. Refrigerant circuit complete with charge valves, filter drier, sight glass, gas-liquid separator, thermostatic expansion valve, high & low pressure switch. The heat pump unit is completed also with 4-way valve, liquid receiver and one way valve. Hydraulic circuit built with galvanized pipe, complete with water discharge connection for tube in tube heat exchanger and flange type hydraulic connectors in two directions easy for connections from both sides of the units.

Electric panel consist of:  
 compressor contactor, fan motor contactor,  
 compressor protection breaker, fan  
 protection breaker, phase sequence relay and  
 microprocessor with function display (display  
 only for master/packaged unit)  
 Automatic operation dramatically reducing  
 maintenance cost thanks to reliable  
 microprocessor system.

## Optional

Paddle flow switch;  
 Metallic filter for hydraulic circuit;  
 Water pump;  
 Rubber antivibration mounting.  
 Heat recovery functions

## Technical Data

Model		AW60	AW68	AW80	AW100	
Cooling mode						
Cooling capacity	kW	58.2	66	84	100.1	
Input	kW	19.9	23.3	30.5	35	
EER	/	2.92	3.25	3.23	2.86	
Energy class full load operation	/	B	A	A	B	
ESEER	/	4	4.41	4.42	4.35	
Comfort application	Seasonal energy efficiency ratio SEER	/	4.2	4.28	4.33	4.2
	Season energy efficiency $\eta_{s,c}$	%	165	168	169	168
Process application	Seasonal energy performance ratio SEER SEPR-high temperature(7°C)	/	5.6	5.64	5.64	5.62
	Seasonal energy performance ratio SEER SEPR-medium temperature(-8°C)	/	3.44	3.54	3.56	3.39
Heating mode						
Rated heating capacity	kW	62	70	90	106.3	
Input	kW	20.6	21.1	26	34	
COP	/	3	3.31	3.46	3.12	
Energy class full load operation	/	B	B	B	A	
Seasonal coefficient of performance SCOP	/	3.5	3.45	3.35	3.45	
Seasonal energy efficiency	%	126	133	135	133	
Seasonal energy efficiency class	/	A+				
Electrical data	Voltage	/ 380-415V/3ph/50Hz				
Compressor	Type	/ Fixed scroll				
Refrigeration circuit and compressor number	/	4/4	2/2	2/2	2/2	
Air side heat exchanger	Type	/ Fin-coil				
	Fan motor type	/ AC motor				
	Quantity of fan motor	Nr.	2	2	2	2
	Air flow	m <sup>3</sup> /h	12000X2	12000X2	17900X2	19500x2

# Technical Data

Model			AW60	AW68	AW80	AW100
Water side heat exchanger	Type	/	Shell and tube(standard) spiral drum heat exchanger(option)/plate heat exchanger(option)			
	Pressure drop	kPa	43	43	42	41
	Nominal Water flow rate	m <sup>3</sup> /h	10.3	11.7	15.1	17.2
Economizer heat exchanger	Type	/	Plate heat exchanger(option)			
Hydraulic connection	Type	/	Threaded-male			
	Diameter	mm	DN65			
Acoustic data	Sound power level	dB(A)	70	74	72	73
Refrigerant	Type	/	R410a			
	Charge volume	kg	4.4x4	8.5x2	12x2	17x2
	Throttle type	/	EXV			
Unit dimension(WxHxD)		mm	2100x2030x1060			
Packing dimension(WxHxD)		mm	2200x2180x1120			
Net/Gross weight		kg	720/780	740/800	810/870	1100/1180
Operating limits						
Cooling mode						
Min outlet water temperature		°C	-12(option)/+5(standard)			
Max inlet water temperature		°C	20			
Min difference water inlet/outlet		°C	3			
Max difference water inlet/outlet		°C	8			
Min ambient air temperature		°C	-20(option)/+6(standard)			
Max ambient air temperature		°C	46			
Heating mode						
Max outlet water temperature		°C	50			
Min ambient air temperature		°C	-25(option)/-12(standard)			

(1)T1 application, (380-415V/3ph/50Hz)

Cooling mode: Water temperature=12/7, Ambient temperature=35

Heating mode: Water temperature=40/45, Ambient temperature=7

(2)ESEER in according with standard EN14511

(3)SEER in accordance with standard EN14825

(4)Seasonal energy efficiency following EU2016/2281 on space cooling, normalized leaving water temperature at 7, in accordance with standard EN14825

(5)Following EU2016/2281 on process cooling units, normalized leaving water temperature at 7, in accordance with standard EN14825

(6)Following EU2015/1095 on process cooling chillers, normalized leaving water temperature at -8, in accordance with standard EN14825

(7)SCOP in accordance with standard EN14825 Heating mode performance is defined for average climate conditions

(8)Seasonal energy efficiency: following EU813/2013 on space heaters, normalized leaving water temperature at 7, in accordance with standard EN14825, average climate conditions

(9)Following energy labeling regulation EU811/2013 on space heaters.

Sound power level and sound pressure level at 10m from the unit, in free field conformity with ISO3744 norm.

## Technical Data

Model		AW130	AW150	AW200	AW240	AW260	
Cooling mode							
Cooling capacity	kW	120.5	148.2	199	236	266	
Input	kW	39	53.9	71	83.6	82	
EER	/	3.08	2.74	2.8	2.82	3.24	
Energy class full load operation	/	B	A	C	C	A	
ESEER	/	4.16	4.37	3.76	3.98	4.16	
Comfort application	Seasonal energy efficiency ratio SEER	/	4.19	4.25	3.82	3.92	4.23
	Season energy efficiency $\eta_{s,c}$	%	161	166	149	154	166
Process application	Seasonal energy performance ratio SEER SEPR-high temperature(7°C)	/	5.64	5.4	4.8	5.06	5.25
	Seasonal energy performance ratio SEER SEPR-medium temperature(-8°C)	/	3.56	3.33	3.66	3.32	3.23
Heating mode							
Rated heating capacity	kW	136	158	206	253	296	
Input	kW	43.4	51.6	72	78.3	96	
COP	/	3.13	3.06	2.86	3.23	3.08	
Energy class full load operation	/	A	B	A	A	A	
Seasonal coefficient of performance SCOP	/	3.38	3.40	3.23	3.70	3.39	
Seasonal energy efficiency	%	132	133	126	145	132	
Seasonal energy efficiency class	/	A+					
Electrical data	Voltage	380-415V/3ph/50Hz					
Compressor	Type	Fixed scroll					
Refrigeration circuit and compressor number	/	4/4	4/4	4/4	4/4	4/4	
Air side heat exchanger	Type	Fin-coil					
	Fan motor type	AC motor					
	Quantity of fan motor	Nr.	4	4	4	4	4
	Air flow	m <sup>3</sup> /h	12600x4	15600x4	24000x4	24000x4	24000x4
Water side heat exchanger	Type	Shell and tube(standard) spiral drum heat exchanger(option)/plate heat exchanger(option)					
	Pressure drop	kPa	44	45	45	46	55
	Nominal Water flow rate	m <sup>3</sup> /h	23	26	35	41	46
Economizer heat exchanger	/	Plate heat exchanger(option)					
Hydraulic connection	Type	Threaded-male					
	Diameter	mm	DN80	DN80	DN65	DN65	DN80
Acoustic data	Sound power level	dB(A)	77	77	75	75	75
	Sound pressure level 10meters from the unit	dB(A)	57	57	55	55	55

# Technical Data

Model			AW130	AW150	AW200	AW240	AW260
	Type	/			R410a		
Refrigerant	Charge volume	kg	8.5x4	12x4	17x4	20x4	22x4
	Throttle type	/			EXV		
Unit dimension(WxHxD)		mm	2308x2160x2240				
Packing dimension(WxHxD)		mm	2350x2200x2200				
Net/Gross weight		kg	1400/1440	1500/1540	1900/1950	2000/2050	2150/2200
Operating limits							
Cooling mode							
Min outlet water temperature		°C	-12(option)/+5(standard)				
Max inlet water temperature		°C	20				
Min difference water inlet/outlet		°C	3				
Max difference water inlet/outlet		°C	8				
Min ambient air temperature		°C	-20(option)/+6(standard)				
Max ambient air temperature		°C	46				
Heating mode							
Max outlet water temperature		°C	50				
Min ambient air temperature		°C	-25(option)/-12(standard)				

(1)T1 application, (380-415V/3ph/50Hz)

Cooling mode: Water temperature=12/7, Ambient temperature=35

Heating mode: Water temperature=40/45, Ambient temperature=7

(2)ESEER in according with standard EN14511

(3)SEER in accordance with standard EN14825

(4)Seasonal energy efficiency following EU2016/2281 on space cooling, normalized leaving water temperature at 7, in accordance with standard EN14825

(5)Following EU2016/2281 on process cooling units, normalized leaving water temperature at 7, in accordance with standard EN14825

(6)Following EU2015/1095 on process cooling chillers, normalized leaving water temperature at -8, in accordance with standard EN14825

(7)SCOP in accordance with standard EN14825 Heating mode performance is defined for average climate conditions

(8)Seasonal energy efficiency: following EU813/2013 on space heaters, normalized leaving water temperature at 7, in accordance with standard EN14825, average climate conditions

(9)Following energy labeling regulation EU811/2013 on space heaters.

Sound power level and sound pressure level at 10m from the unit, in free field conformity with ISO3744 norm.





# Air Cooled Screw Chiller and Heat Pump

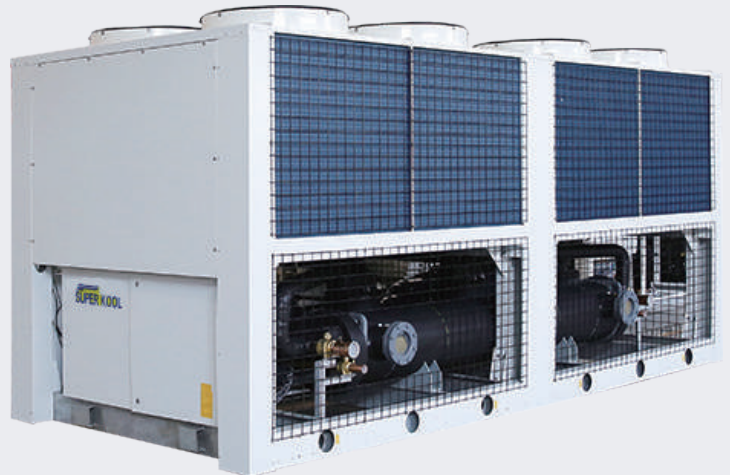
150kW~1180kW      
44.6Ton~334.9Ton

## Application areas

- Offices, Hotels, Hospitals
- Industry
- Administration
- Medium and large commercial buildings

## Why this choice?

- High efficiency
- Very low noise operation
- Screw compressors
- Advanced control
- Reduced total cost of ownership



## Characteristics

### The compressor

The unit is equipped with semi-hermetic screw compressor, compared with the piston compressor, semi-hermetic screw compressor has two advantages:

- Less parts(About 1/3 of the piston compressor), simple structure, less wearing parts, high reliability and long life.
- Compressor suction and exhaust uniform, exhaust temperature is low, vibration is small, not sensitive to wet compression, anti-liquid strike ability.

### Tube-fin air-cooled condenser

The tube-fin air-cooled condenser adopts the inverted "V" type layout, on the one hand, it improves the space utilization ratio, increases the heat exchange area, on the other hand, it improves the airflow and heat transfer efficiency, so that improve the unit's cooling and heating capacity.

### Throttling equipment

For expansion valve, we select the most advanced products, with a compact overall design, rugged stainless steel diaphragm, and in a wide range of operating conditions to provide stable and accurate control.

## Tube-shell evaporator

Using shell and tube structure, the outside is proceeded with fire-retardant, waterproof insulation materials, water side of the working pressure is 1.0MPa.

Evaporator with PVC plastic water board, corrosion resistance. Chilled water along the diaphragm up and down circuitous flow, in order to increase the spoiler effect to improve the evaporator heat transfer capacity.

Using the latest DAC corrugated spiral high efficiency heat transfer tubes, strengthen the fluorine side heat transfer capacity, improve the heat transfer coefficient to ensure that the unit good refrigeration and heating performance.

## Electronic control

Air-cooled hot and cold water unit uses a microcomputer as the core of the control system, the control system control precision, anti-interference ability to ensure that the unit safe, reliable and economical operation.

Energy regulation automatic control can make the unit always in the best economic mode point efficient operation.

Protection function complete unit with overload, short circuit protection, frost protection, high and low voltage protection, overheating protection and other functions.

## Technical Data

Model	Unit	AW150	AW180	AW250	AW320	AW380	AW430	AW500
Cooling capacity *	kW	156	180	250	320	380	428	497.6
	Ton	44.6	51.4	71.4	91.4	108.6	122.3	142.2
Heating capacity *	kW	180	198	276	353	416	474	550
	Ton	51.4	56.6	78.9	100.9	118.9	124.7	157.1
Compressor								
Qty	Nr.	1	1	1	1	1	2	2
Cooling power input *	kW	49.3	54.2	77.4	96.7	114	131.6	154.8
Cooling current *	A	87.8	95.2	134	166	199	229.2	268
Heating power input *	kW	48.4	53.2	76	95	112	129.2	152
Heating current *	A	86.5	93.7	132	164	196	225.7	264
Energy adjustment steps	step	4	4	4	4	4	8	8
Evaporator								
Water flow rate	m <sup>3</sup> /h	26.7	31	42.8	54.8	65	74	85.6
Water side pressure drop	kPa	41	41	42	42	42	42	43
Water pipe	DN	100	100	100	125	125	125	125
Axial Fan								
Fan motor number	Nr.	4	4	6	6	8	10	12
Power input	kW	4*2.2	4*2.2	6*2.2	6*2.2	8*2.2	10*2.2	12*2.2
Current input	A	4*5.6	4*5.6	6*5.6	6*5.6	8*5.6	10*5.6	12*5.6
Air flow	m <sup>3</sup> /h	68000	96000	144000	144000	196000	240000	288000
Dimensions								
Length	mm	2500	2500	3300	3590	4680	5800	6790
Width	mm	2160	2160	2160	2160	2160	2160	2160
Height	mm	2450	2450	2450	2450	2450	2450	2450
Sound pressure level **	dB(A)	73	73	75	75	78	80	81
Net weight	kg	2050	2350	2750	3150	3650	4800	5250

## Technical Data

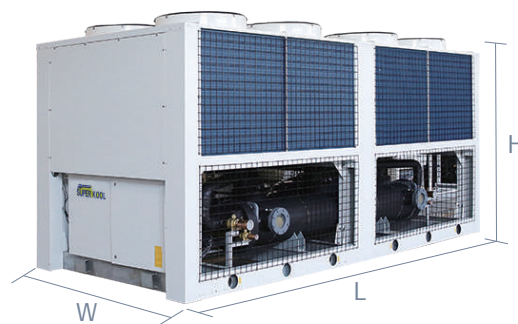
Model	Unit	AW570	AW640	AW700	AW760	AW870	AW930	AW1000	AW1180
Cooling capacity *	kW	568	637.8	700	758	868	923.8	992.8	1172
	Ton	162.3	182.2	200	216.6	248	263.9	283.7	334.9
Heating capacity *	kW	630	706	772	827	953	1014	1086	1264
	Ton	180	201.7	220.6	236.3	272.3	289.7	310.3	361.1
Compressor									
Qty	Nr.	2	2	2	2	3	3	3	3
Cooling power input *	kW	174.1	193.4	210.7	228	268.8	286.4	309.6	348.2
Cooling current *	A	300	332	365	398	467	497.2	536	600.4
Heating power input *	kW	171	190	207	224	264	281.2	304	342
Heating current *	A	296	328	360	392	460	489.7	528	591.2
Energy adjustment steps	step	8	8	8	8	12	12	12	12
Evaporator									
Water flow rate	m <sup>3</sup> /h	97.4	109.7	120	130	149	159	170.8	201.6
Water side pressure drop	kPa	43	44	45	45	45	45	45	45
Water pipe	DN	125	150	150	150	150	150	150	200
Axial fan									
Fan motor number	Nr.	12	12	14	16	18	18	18	20
Power input	kW	12*2.2	12*2.2	14*2.2	16*2.2	18*2.2	18*2.2	18*2.2	20*2.2
Current input	A	12*5.6	12*5.6	14*5.6	16*5.6	18*5.6	18*5.6	18*5.6	20*5.6
Air flow	m <sup>3</sup> /h	288000	288000	333600	384000	432000	432000	432000	576000
Dimensions									
Length	mm	6790	7190	8280	9370	10290	10580	10980	11780
Width	mm	2160	2160	2160	2160	2160	2160	2160	2160
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450
Sound pressure level **	dB(A)	81	81	82	83	83	83	83	83
Net weight	kg	5600	6150	6900	7600	8900	9650	10000	11000

\* The performance values refer to the following conditions:

Cooling: ambient air temperature 35°C; evaporator water in/out temperature 12/7°C.

Heating: ambient air temperature DB 7°C, WB 6°C; condenser water in/out temperature 40/45°C.

\*\* Sound pressure measured at a distance of 1 m and a height of 1.5 m above the ground in a clear field.



# Water Cooled Packaged Unit

2.5kW~130kW    
0.7Ton~37.7Ton

## Application areas

- Offices, hotels, hospitals
- Industry
- Administration
- Commercial buildings

## Why this choice?

- Saving space
- Galvanised steel construction
- AMWCP are well insulated to minimise condensation and attenuate noise.



## Characteristics

### Structure

Galvanised steel construction, closed cell foam lined compressor and fan compartments, with an insulated and powder coated drain tray for complete moisture protection, the drain tray is easily removed for inspection and cleaning.

### Refrigerant

Each unit is factory charged with refrigerant R410a, which is deemed to have zero ozone depletion potential.

### Hermetic compressor

Single phase rotary compressor is used for this type unit, with built-in thermal overload cut-out, mounted on rubber vibration dampers.

### Centrifugal fan

High efficiency, double inlet centrifugal fan Protection level IP44. Low noise, low speed, big air flow and high ESP.

### Water side heat exchanger

High efficiency coaxial heat exchanger, factory insulated with flexible close cell material.

### Air filter

An optional filter integrated return air spigot is available on all models. The filter is a washable polypropylene net media. Care should be taken, when locating each unit, that to enough space is provided to enable the one-piece filter to be withdrawn to its full length from either side of the unit.

## Electric heater(optional)

Electric heater is optional on cooling only versions. Electric elements have spirally wound stainless steel fins to give increased area and low surface temperature. They are totally enclosed within the unit and are supplied with safety cutouts. An optional fan run-on timer for rapid heat dissipation is available.

## Electric panel

Consists of:

Compressor contactor

Compressor protection breaker

Microprocessor with function display

## Insulation

AMWCP are well insulated to minimise condensation and attenuate noise.

## All models are equipped with wire controller with the following features

- 7 days programmable timer
- Auto random restart
- Error self diagnostic

## Safety protection

High pressure switch

Low pressure switch

Discharge temperature protection

Anti freezing protection

## Technical Data

Model		WCP2.5	WCP3.5	WCP5	WCP7	WCP10	WCP12	
Nominal cooling capacity	kW	2.5	3.5	5	7	10	12.2	
	Ton	0.7	1	1.4	2	2.9	3.5	
Cooling power input	kW	0.71	0.98	1.4	1.92	2.8	3.32	
Nominal heating capacity	kW	3	4.5	6.4	8.1	12.2	14.5	
	Ton	0.9	1.3	1.8	2.3	3.5	4.1	
Heating power input	kW	0.72	1.07	1.5	2	2.9	3.25	
Power	V/Ph/Hz	220V/1Ph/50Hz						
Minimum wiring specification	mm <sup>2</sup>	2×1.5mm <sup>2</sup> +1×1mm <sup>2</sup>		2×2.5mm <sup>2</sup> +1×1.5mm <sup>2</sup>		2×4mm <sup>2</sup> +1×2.5mm <sup>2</sup>		
Compressor type		Rotary						
Air flow amount	m <sup>3</sup> /h	490	680	950	1280	1900	2160	
External static pressure	Pa	60	60	120	120	160	200	
Refrigerant	Type	R410A						
	Charge	kg	0.4	0.6	0.85	1.1	1.7	1.9
Condenser	Type	- Tube in tube coaxial heat exchanger						
Fan	Type	- High efficiency low noise centrifugal fan						
	Power	V/Ph/Hz 220V/1Ph/50Hz						
Evaporator	Type	- High efficiency copper tubes aluminum fins heat exchanger						
Water flow amount	m <sup>3</sup> /h	0.6	0.8	1.1	1.5	2.2	2.7	
Water pressure drop	Kpa	8	8	10	14	16	20	
Diameter of water in/out pipe	mm	DN20						
Diameter of condensing pipe	mm	DN25						
Dimension	L	mm	1040	1040	1140	1140	1590	1590
	W	mm	655	655	815	815	815	815
	H	mm	345	345	445	445	445	445
Weight	kg	70	75	90	100	130	135	
Noise level	dB (A)	54	54	57	57	60	60	

# Technical Data

Model		WCP14	WCP18	WCP23	WCP30	WCP35	WCP45	
Nominal cooling capacity	kW	14.4	18	23	30	34	46	
	Ton	4.1	5.1	6.6	8.6	9.7	13.1	
Cooling power input	kW	4.06	5.1	6.18	7.8	8.26	11.6	
	kW	17.3	22.6	25.9	33	35.4	49	
Nominal heating capacity	Ton	4.9	6.5	7.4	9.4	10.1	14	
	kW	4	5.6	6.86	8.6	9.1	12.84	
Power	V/Ph/Hz	220V/1Ph/50Hz		380~420V/3Ph/50Hz				
Minimum wiring specification	mm <sup>2</sup>	2×6mm <sup>2</sup> +1×4mm <sup>2</sup>	3×2.5mm <sup>2</sup> +1×1.5mm <sup>2</sup>		3×4mm <sup>2</sup> +1×2.5mm <sup>2</sup>			
Compressor type		Rotary			Scroll			
Air flow amount	m <sup>3</sup> /h	2500	3200	4000	5200	6200	8000	
External static pressure	Pa	200	200	250	250	250	250	
Refrigerant	Type	R410A						
	Charge	kg	2.2	3	4	4.8	6	8
Condenser	Type	Tube in tube coaxial heat exchanger						
	Type	High efficiency low noise centrifugal fan						
Fan	Power	V/Ph/Hz 220V/1Ph/50Hz		380~420V/3Ph/50Hz				
	Type	High efficiency copper tubes aluminum fins heat exchanger						
Water flow amount	m <sup>3</sup> /h	3.2	4.0	5.0	6.5	7.3	9.9	
Water pressure drop	Kpa	20	23	26	30	33	33	
Diameter of water in/out pipe	mm	DN20			DN40			
Diameter of condensing pipe	mm	DN25						
Dimension	L	mm	1590	1750	1750	2100	2350	2800
	W	mm	815	970	970	1100	1100	1100
	H	mm	445	495	495	645	645	645
Weight	kg	140	155	170	200	220	245	
Noise level	dB (A)	63	66	66	68	68	69	

**Note:**

1. Nominal cooling capacity test condition: Water side water inlet/outlet 30°C/35°C, Ambient temperature DB 27 °C, WB 19 °C.
2. Nominal heating capacity test condition: Water side water inlet 20°C, Ambient temperature DB 20 °C, WB 15 °C.
3. Noise level measured in the noise lab with background noise of 25 dB(A), at a distance of 1 m.
4. As our continuous products improvement, SUPER KOOL reserves the right to change specifications and design without notice.





Model		WCP60	WCP72	WCP90	WCP110	WCP130	
Nominal cooling capacity	kW	60.5	72	92	108	132	
	Ton	17.3	20.6	26.3	30.9	37.7	
Cooling power input	kW	15.6	17	23.2	25.5	35.1	
Nominal heating capacity	kW	66	76	98	114	142	
	Ton	18.9	21.7	28	32.6	40.6	
Heating power input	kW	17.3	19.6	25.8	29.4	38.7	
Power	V/Ph/Hz	380~420V/3Ph/50Hz					
Minimum wiring specification	mm <sup>2</sup>	3×6mm <sup>2</sup> +1×4mm <sup>2</sup>		3×12mm <sup>2</sup> +1×6mm <sup>2</sup>			
Compressor type		Scroll					
Air flow amount	m <sup>3</sup> /h	10500	12800	16000	19000	24500	
External static pressure	Pa	260	280	300	320	330	
Refrigerant	Type	R410A					
	Charge	kg	16	17	18	21	24
Condenser	Type	- Tube in tube coaxial heat exchanger					
Fan	Type	- High efficiency low noise centrifugal fan					
	Power	V/Ph/Hz	380~420V/3Ph/50Hz				
Evaporator	Type	- High efficiency copper tubes aluminum fins heat exchanger					
Water flow amount	m <sup>3</sup> /h	13.1	15.3	19.8	23.0	28.7	
Water pressure drop	Kpa	34	35	35	36	36	
Diameter of water in/out pipe	mm	DN50					
Diameter of condensing pipe	mm	DN25					
Dimension	L	mm	2800	3000	3000	3300	3300
	W	mm	1230	1230	1270	1270	1270
	H	mm	850	850	850	850	850
Weight	kg	500	600	720	780	860	
Noise level	dB (A)	73	73	74	75	77	

Note:

1. Nominal cooling capacity test condition: Water side water inlet/outlet 30°C/35°C, Ambient temperature DB 27 °C, WB 19 °C.
2. Nominal heating capacity test condition: Water side water inlet 20°C, Ambient temperature DB 20 °C, WB 15 °C.
3. Noise level measured in the noise lab with background noise of 25 dB(A), at a distance of 1 m.
4. As our continuous products improvement, SUPER KOOL reserves the right to change specifications and design without notice.



# Water Cooled Scroll Chiller

80kW~160kW



22.9Ton~45.7Ton

## Application areas

- Industry process, precision, traditional manufacturing, food processing, government project, pharmaceutical.

## Why this choice?

- High efficiency scroll compressor, shell and tube type and environment friendly R410a Refrigerant.
- Multi units parallel technology, more compressors parallel design to save more power, heat recovery function.
- Micro computer control, each modular unit running independently. Integrated control is an optional.



## Characteristics

The master module can work independently or together with up to 7 slave modules, flexible design, stable performance, easy maintenance.

Reusable: using solar energy stored in earth as cooling & heating source.

Panels and frame are made from galvanized steel protected with polyester powder painting to ensure total resistance to atmospheric agents.

3-phase scroll type compressor, with built-in thermal overload cut-out and crankcase heater, mounted on rubber vibration dampers.

Shell and tube type evaporator, factory insulated with flexible close cell material.  
Shell and tube dry expansion type condenser, factory insulated with flexible close cell material.  
The refrigerant circuit is complete with filter drier, direct expansion valve, high and low pressure switch.

Acting as multi-function unit such as cooling, heating, with heat recovery function producing hot water for domestic use.

LCD display as standard

Automatic operation dramatically reducing maintenance cost thanks to reliable microprocessor system.

Wide application as hotel, apartment, villa, factory, shopping center, office building, school, etc.

## Electric panel

consists of:

Compressor breaker

Compressor contactor

Phase sequence relay

Control circuit breaker

Microprocessor with function display

## Optional

Desuperheater as optional

Electronic controller with BMS system.

## Technical Data

Model		WW80	WW120	WW160	
Water cooled conditions	Cooling capacity	kW	80	120	160
		Ton	22.9	34.2	45.7
	Cooling power input(kW)	15.5	23.5	31.0	
Compressor	Type	Danfoss/Copeland scroll compressor			
	Power input	380V/3N~50Hz			
	Qty	2	3	4	
User side heat exchanger	Type	Shell and tube heat exchanger			
	Water resistance(kpa)	40-60			
	Fouling factor(m <sup>2</sup> ·°C/kw)	0.086			
	Pipe size (mm)	DN65		DN80	
	Connection type	Flange			
	Water flow rate(m <sup>3</sup> /h)	13.8	20.5	27.5	
Source side heat exchanger	Type	Shell and tube heat exchanger			
	Water resistance(kpa)	40-60			
	Fouling factor(m <sup>2</sup> ·°C/kw)	0.086			
	Pipe size (mm)	DN65		DN80	
	Connection type	Flange			
	Water flow rate(m <sup>3</sup> /h)	16.5	24.5	32.8	
Dimension	Length(mm)	2110	2110	2530	
	Width(mm)	620	620	650	
	Height(mm)	1365	1365	1410	
Noise level≤dB(A)		67	67	67	
Unit weight (kg)		560	800	1050	

Note: 1. Cooling condition: User side water inlet/outlet 12°C/7°C, Source side water inlet/outlet 30°C/35°C.

2. Power supply: 3P-380V-50Hz.



# Water Cooled Screw Chiller

130kW~4180kW     
37.1Ton~1194.3Ton

## Application areas

- Industry process, precision, traditional manufacturing, food processing, government project, pharmaceutical.

## Why this choice?

- High efficiency screw compressor, shell and tube type and environment friendly R407c refrigerant.
- Multi units parallel technology, more compressors parallel design to save more power, heat recovery function.
- Micro computer control, each modular unit running independently. Integrated control is an optional.



## Characteristics

34 sizes available ranging from 130kW to 4180kW cooling capacity.

Acting as multi-function unit such as cooling, heating, sanitary hot water separately or simultaneously.

Wide application as hotel, apartment, villa, factory, shopping center, office building, school, etc.

Semi-hermetic screw compressor for the whole range. Each compressor is equipped with a crankcase heater and a built-in electronic

protection with temperature sensor located directly in the motor winding and on the discharge line.

The refrigerant circuit is complete with sight glass, filter drier, high and low pressure gauges, solenoid valve, electronic expansion valve, high and low pressure switch.

Shell and tube dry expansion type condenser, factory insulated with flexible close cell material.

Shell and tube evaporator, higher efficiency less water consumption, easy maintenance and cleaning, factory insulated with flexible close cell material.

The electric panel consists of compressor breaker, compressor contactor, phase sequence relay, control circuit breaker, microprocessor control with function display.

LCD display, touch screen control panel as standard.

Automatic operation dramatically reducing maintenance cost thanks to reliable microprocessor system.

An infinitely variable capacity control system that is capable of exactly matching the demand requirement of the system is to be supplied. This system is to provide precise and stable control of supply water temperature over the complete range of operating conditions.

### Optional

Desuperheater as optional.

Electronic controller with BMS system.

## Technical Data

Model	Unit	WW130	WW170	WW200	WW240	WW260	WW280	WW310
Cooling capacity*	kW	130	170	200	240	260	280	310
	Ton	37.1	48.6	57.1	68.6	74.3	80	88.6
Power supply	380-415V/3Ph/50Hz							
Compressor								
Qty/refrigerant circuit	Nr.	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Cooling power input*	kW	26	33	39	47	51	55	61
Energy adjustment steps	step	25%-100%						
Max.current for writing	A	69	87	108	128	154	158	161
Refrigerant charge	kg	32	39	46	55	60	64	68
Evaporator								
Water side pressure drop	kPa	42	45	45	45	45	46	46
Pipe size	mm	DN65	DN80	DN100	DN100	DN100	DN100	DN100
Water flow rate in cooling*	m <sup>3</sup> /h	22	29	34	41	45	48	53
Condenser								
Water side pressure drop	kPa	42	45	44	44	45	45	44
Pipe size	mm	DN65	DN80	DN100	DN100	DN100	DN100	DN100
Water flow rate in cooling*	m <sup>3</sup> /h	27	35	41	49	54	58	64
Dimensions								
Length	mm	2685	2720	2660	2880	2870	3170	3270
Width	mm	1090	1115	1175	1125	1125	1125	1230
Height	mm	1625	1555	1650	1645	1685	1685	1685
Net weight	kg	1600	1800	1900	2000	2100	2200	2250
Noise level**	dB(A)	68	69	69	70	70	72	73

\* Performance values refer to the following conditions:

Condenser water inlet/outlet temperature: 30°C/35°C, evaporator water inlet/outlet temperature: 12°C/7°C.

\*\* Noise level measured in free field condition at distance of 1 meter.



Model	Unit	WW360	WW380	WW420	WW480	WW530	WW610	WW680	WW710
Cooling capacity*	kW	360	380	420	480	530	610	680	710
	Ton	102.9	108.6	120	137.1	151.4	174.3	194.3	202.9
Power supply	380-415V/3Ph/50Hz								
Compressor									
Qty/refrigerant circuit	Nr.	1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/2
Cooling power input*	kW	71	75	83	94	104	120	134	140
Energy adjustment steps	step	25% - 100%							
Max. current for wiring	A	165	175	185	258	292	302	335	2×165
Refrigerant charge	kg	85	100	107	126	142	160	167	171
Evaporator									
Water side pressure drop	kPa	46	47	46	46	46	46	47	47
Pipe size	mm	DN125	DN125	DN125	DN125	DN125	DN125	DN150	DN150
Water flow rate in cooling*	m <sup>3</sup> /h	62	65	72	83	91	105	117	122
Condenser									
Water side pressure drop	kPa	44	44	42	42	42	44	42	44
Pipe size	mm	DN125	DN125	DN125	DN125	DN125	DN125	DN150	2×DN125
Water flow rate in cooling*	m <sup>3</sup> /h	74	78	86	99	109	126	140	146
Dimensions									
Length	mm	3170	3180	3180	3505	3505	3505	3520	4060
Width	mm	1200	1285	1285	1280	1315	1375	1380	1415
Height	mm	1685	1805	1805	1970	1990	1980	1980	1975
Net weight	kg	2400	3000	3100	3500	3800	4000	4100	4210
Noise level**	dB(A)	73	73	73	74	74	74	73	74

Model	Unit	WW760	WW860	WW960	WW1000	WW1120	WW 1200	WW1250	WW1360
Cooling capacity*	kW	760	860	960	1000	1120	1200	1250	1360
	Ton	217.1	245.7	274.3	285.7	320	342.9	357.1	388.6
Power supply	380-415V/3Ph/50Hz								
Compressor									
Qty/refrigerant circuit	Nr.	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Cooling power input*	kW	150	169	189	197	220	236	246	268
Energy adjustment steps	step	12.5% - 100%							
Max. current for wiring	A	2×175	2×175	2×185	2×246	2×258	2×292	2×302	2×315
Refrigerant charge	kg	199	210	220	242	261	295	302	327
Evaporator									
Water side pressure drop	kPa	46	47	46	46	46	46	46	46
Pipe size	mm	DN150	DN150	DN200	DN200	DN200	DN200	DN200	DN200
Water flow rate in cooling*	m <sup>3</sup> /h	131	148	165	172	193	206	215	234
Condenser									
Water side pressure drop	kPa	42	44	42	44	44	44	42	45
Pipe size	mm	2×DN125	2×DN125	2×DN125	2×DN125	2×DN150	2×DN150	2×DN150	2×DN150
Water flow rate in cooling*	m <sup>3</sup> /h	156	177	198	206	231	247	257	280
Dimensions									
Length	mm	4505	4505	4505	4660	4660	4660	4660	4660
Width	mm	1415	1415	1415	1460	1460	1585	1585	1585
Height	mm	2000	2000	2000	2090	2090	2215	2215	2240
Net weight	kg	4400	4740	5600	6600	6800	7000	7400	8000
Noise level**	dB(A)	74	74	74	74	74	74	74	75

\* Performance values refer to the following conditions:

Condenser water inlet/outlet temperature: 30°C/35°C, evaporator water inlet/outlet temperature: 12°C/7°C.

\*\* Noise level measured in free field condition at distance of 1 meter.



Model	Unit	WW1470	WW1720	WW1840	WW2000	WW2350	WW2500
Cooling capacity*	kW	1470	1720	1840	2000	2350	2500
	Ton	420	491.4	525.7	571.4	671.4	714.3
Power supply	380-415V/3Ph/50Hz						
Compressor							
Qty/refrigerant circuit	Nr.	4/4	4/4	4/4	4/4	4/4	4/4
Cooling power input*	kW	289	339	362	394	463	492
Energy adjustment steps	step	6.25% - 100%					
Max. current for wiring	A	4x175	4x185	4x246	4x258	4x258	4x292
Refrigerant charge	kg	338	393	430	453	494	537
Evaporator							
Water side pressure drop	kPa	45	45	46	46	47	47
Pipe size	mm	2xDN150	2xDN150	2xDN200	2xDN200	2xDN200	2xDN200
Water flow rate in cooling*	m <sup>3</sup> /h	253	296	316	344	404	430
Condenser							
Water side pressure drop	kPa	52	52	52	52	52	52
Pipe size	mm	2xDN200	2xDN200	2xDN200	2xDN200	2xDN200	2xDN200
Water flow rate in cooling*	m <sup>3</sup> /h	303	354	379	412	484	515
Dimensions							
Length	mm	4600	4650	4690	4600	4780	4800
Width	mm	2250	2270	2300	2450	2450	2450
Height	mm	2350	2380	2410	2460	2470	2500
Net weight	kg	8800	9000	9800	11600	12300	13000
Noise level**	dB(A)	76	80	80	81	81	81

Model	Unit	WW2720	WW2880	WW3320	WW3600	WW4180
Cooling capacity*	kW	2720	2880	3320	3600	4180
	Ton	777.1	822.9	948.6	1028.6	1194.3
Power supply	380V/3Ph/50Hz					
Compressor						
Qty/refrigerant circuit	Nr.	4/4	4/4	4/4	4/4	4/4
Cooling power input*	kW	543.6	576.8	658.8	702.4	800
Energy adjustment steps	step	6.25% - 100%				
Refrigerant charge	kg	548	590	692	751	820
Evaporator						
Water side pressure drop	kPa	46	46	46	46	47
Pipe size	mm	2xDN150	2xDN200	2xDN200	2xDN200	2xDN200
Water flow rate in cooling*	m <sup>3</sup> /h	467.8	495.4	571.0	619.2	719.0
Condenser						
Water side pressure drop	kPa	45	45	45	45	45
Pipe size	mm	2xDN200	2xDN200	2xDN200	2xDN200	2xDN200
Water flow rate in cooling*	m <sup>3</sup> /h	561.3	594.6	684.4	740.0	856.6
Dimensions						
Length	mm	5000	4750	4750	4850	4950
Width	mm	2460	2480	2400	2400	2500
Height	mm	2500	2500	2555	2575	2650
Net weight	kg	12500	12800	13000	15000	17000
Noise level**	dB(A)	82	82	83	83	85

\* Performance values refer to the following conditions:

Condenser water inlet/outlet temperature: 30°C/35°C, evaporator water inlet/outlet temperature: 12°C/7°C.

\*\* Noise level measured in free field condition at distance of 1 meter.

# Unitary Isothermal & Isohumidity Unit

12kW~136kW  
3.5Ton~38.9Ton

## Application areas

- Medical purificatory, laboratory
- Computer room, TV/broadcasting station
- Bank, office block

## Why this choice?

- More modules can be assembled.
- Temp controlled up to  $\pm 0.5^{\circ}\text{C}$  and  $\pm 5\%$  of humidity controlled accurately.
- Running during  $-15^{\circ}\text{C} \sim 45^{\circ}\text{C}$  ambient temp safe and reliable.



## Characteristics

### Refine outlook, simple maintenance

Patented design unit frame structure is simple and refined; outlook is generous and elegant, easily blend with conditioned room surrounding. Controller condition display, parameter modification and faulty diagnosis function provided, thus making operation simple and convenient.

### Ultra low noise level, silent operation

Uses the latest fully hermetic compressor, low noise level and small vibration. Uses double sound proofing structure design, compressor and air handling system are isolated,

noise will not interfere with each other, and also the inner panel side will have silence baffles pasted, which reduces unit noise level.

### Quality consistency, reliable performance

Refrigeration system control component uses SPORLAN, DANFOSS, SAGINOMIYA, ALCO etc Euro-America well known brand with consistent quality. While controller chooses LG, OMRON etc electronic component manufacturer which is known for their reliability in performance. Unit is equipped with high-low pressure, discharge temperature, fan blower, compressor overload circuit breaker etc various protection devices, ensuring unit is operating is safely.

## Intelligent control, high efficiency

Evaporator uses high purity inner groove copper tube and hydrophilic aluminum slit fin, heat transfer coefficient is 67% higher than normal evaporator.

Uses imported fully hermetic scroll compressor, COP is high and also operation is steady and reliable.

Microprocessor controller uses fuzzy logic control method, high adaptability and also precise control, temperature control precision can achieve up to  $\pm 1^{\circ}\text{C}$  and related humidity accuracy is  $\pm 5^{\circ}\text{C}$ .

Microprocessor control also has faulty analysis, capacity management, operation modes etc item auto control function, ensuring unit high efficiency operation.

## Technical Data (Water Cooled)

Item	Parameter	Model	WH 029AE	WH 034AE	WH 046AE	WH 059AE	WH 068AE	WH 088AE	WH 102AE	WH 118AE	WH 136AE	
Unit features	Cooling capacity	kW	29	34	46	59	68	88	102	118	136	
		Ton	8.3	9.7	13.1	16.9	19.4	25.1	29.1	33.7	38.9	
	Heating capacity	kW	16	20	24	28	36	44	50	60	72	
		Ton	4.6	5.7	6.9	8	10.3	12.6	14.3	17.1	20.6	
	Cycle air volume	m <sup>3</sup> /h	6000	7000	9000	12000	14000	18000	21000	23000	26000	
	External static pressure	Top discharge	Pa	80	80	100	100	150	200	200	200	300
		Side discharge	Pa	0	0	0	0	-	-	-	-	-
		Unit noise level	Top discharge	dB(A)	63	64	64	65	68	71	73	75
		Side discharge	dB(A)	61	63	63	64	-	-	-	-	-
	Temperate range	°C	18-28									
Power supply	380V/3~/50Hz											
Nominal cooling power	kW	8.1	9	12.1	16.8	18.8	25	27.7	31.5	40.6		
Unit maximum power	kW	30.1	35	42.1	56.8	66.8	81	89.7	109	130.1		
Refrigerant	Type	R407c										
	Distribution method	Capillary tube / Thermal expansion valve										
	Charge	kg	6	8	10	12	15	20	24	30	38	
Compressor	Type	Scroll compressor										
	Input power	kW	3.28 x 2	3.75 x 2	4.96 x 2	6.5 x 2	7.4 x 2	6.5 x 3	7.4 x 3	6.5 x 4	7.4 x 4	
	Evaporator coil	Type	Copper tube and aluminum fin									
Face area		m <sup>2</sup>	0.67	0.79	1.41	1.51	1.51	2.2	2.2	2.6	2.6	
Condenser	Type	Shell and tube heat exchanger										
	Water flow rate	m <sup>3</sup> /h	6.1	7	10.5	12.5	14.5	18.8	21.8	25	29	
	Water pressure drop	kPa	23	29	34	30	36	23	41	42	46	
	Inlet/outlet pipe		32	32	40	40	40	65	65	80	80	
Fan system	Blower	Type	Low noise double inter centrifugal type									
		Driven mode	Belt driven									
		Motor power	kW	1.5	1.5	2.2	3	4	5.5	5.5	5.5	11
Air filter	Nylon filter											
Heater	Type	Electrical heater										
	Power	kW	16	20	24	28	36	44	50	60	72	
Humidifier	Type	Electrode humidifier										
	Power	kW	6	6	6	12	12	12	17.5	17.5	17.5	
	Humidify capacity	kg/h	8	8	8	15	15	15	23	23	23	
	Water inlet pipe	mm	DN15									
Dimension	Width	mm	1480	1600	17780	2050	2050	2050	2050	2050	2050	
	Depth	mm	550	650	800	800	800	1200	1200	1500	1500	
	Height	Top discharge	mm	1900	1900	2100	2100	2100	1950	1950	1950	1950
		Side discharge	mm	2200	2200	2480	2480	-	-	-	-	-
Weight	Top discharge	kg	355	440	710	780	980	1450	1650	1800	1850	
	Side discharge	kg	375	465	740	810	-	-	-	-	-	

# Technical Data (Air Cooled)

Item	Parameter	Model	AH	AH	AH	AH	AH	AH	AH	AH	AH	AH	AH	AH	
			012AE	014AE	022AE	027AE	032AE	043AE	056AE	065AE	083AE	095AE	108AE	125AE	
Unit features	Cooling capacity	kW	12.2	14	22	26.5	31.5	43	56	65	82.5	94.5	108	125	
		Ton	3.5	4	6.3	7.6	9	12.3	16	18.6	23.6	27	30.9	35.7	
	Heating capacity	kW	9	11	13	16	20	24	28	36	44	50	60	72	
		Ton	2.6	3.1	3.7	4.6	5.7	6.9	8	10.3	12.6	14.3	17.1	20.6	
	Cycle air volume	m <sup>3</sup> /h	2400	3000	5000	6000	7000	9000	12000	14000	18000	21000	23000	26000	
	External static pressure	Top discharge	Pa	65	65	80	80	80	100	100	150	200	200	200	300
		Side discharge	Pa	0	0	0	0	0	0	0	-	-	-	-	-
	Unit noise level	Top discharge	dB(A)	61	62	63	63	64	64	65	68	71	73	75	76
		Side discharge	dB(A)	60	60	61	62	63	63	64	-	-	-	-	-
	Temperate range	°C	18-28												
	Power supply	380V/3~/50Hz													
	Nominal cooling power	kW	4.8	5.7	8.1	9.9	11.5	15.8	21.1	24.2	32.2	34.8	40.6	51.4	
	Unit maximum power	kW	16.8	19.7	27.1	31.9	37.5	45.8	61.1	72.2	88.2	96.8	120	140.9	
	Refrigerant	Type	R407c												
		Distribution method	Capillary tube / Thermal expansion valve												
		Charge	kg	3.5	4.5	7.5	8	10	13	17	20	27	32	36	38
Compressor	Type	Scroll compressor													
	Input Power	kW	3.85	4.3	3.1x2	4x2	5x2	5.9x2	8.0x2	9.35x2	8.5x3	9.35x3	8.5x4	9.35x4	
Evaporator coil	Type	Copper tube / Aluminium slit fin													
	Face Area	m <sup>2</sup>	0.33	0.33	0.67	0.67	0.79	1.41	1.51	1.51	2.2	2.2	2.6	2.6	
Fan blower	Type	Low noise double inter centrifugal type													
	Driven mode	Direct drive / Belt drive													
	Motor power	kW	0.55	0.55	1.1	1.5	1.5	2.2	3.0	4.0	5.5	5.5	5.5	11	
Air filter	Nylon filter														
Heater	Type	Electrical heater													
	Power	kW	9	11	13	16	20	24	28	36	44	50	60	72	
Humidifier	Type	Electrode humidifier													
	Power	kW	3	3	6	6	6	6	12	12	12	12	17.5	17.5	
	Humidify capacity	kg/h	4	4	8	8	8	8	15	15	15	15	23	23	
	Water inlet pipe	mm	DN15												
Dimension	Width	mm	880	880	1480	1480	1600	1780	1780	2050	2050	2050	2050	2050	
	Depth	mm	550	550	550	550	650	800	800	800	1200	1200	1500	1500	
	Height	Top discharge	mm	1900	1900	1900	1900	1900	2100	2100	2100	1950	1950	1950	1950
		Bide discharge	mm	2200	2200	2200	2200	2200	2480	2480	-	-	-	-	-
Weight	Top discharge	kg	260	270	320	340	420	690	750	950	1400	1500	1600	1750	
	Side discharge	kg	275	285	340	360	445	720	780	-	-	-	-	-	

Note: 1. Operating Condition- Return Air Temperature: 23°C/17°C; Ambient Temperature 3°C.

2. Unit normal operation range:

Cooling and humidify mode - Indoor air inlet temperature: 18°C-28°C, Outdoor air inlet temperature: 18-43°C.

Heating mode - Indoor maximum air inlet temperature: 27°C.

# Chilled Water Fan Coil Unit

340m<sup>3</sup>/h~2380m<sup>3</sup>/h  
0.5Ton~3.6Ton

## Application areas

- Bureaux, business building, superstore, hotel, hospital, bank, apartment and amusement place.

## Why this choice?

- Install type: horizontal concealed/exposed type and vertical concealed/exposed type
- External static pressure 12pa, 30pa and 50pa can be choosed
- Airfoil ABS wind wheel with high efficiency and U type bend pipe design



## Characteristics

### Durable construction

Casing of SUPER KOOL fan coil units shall be galvanized steel panel. And the condensate pan is treated by extruded seamless technology to prevent the leakage. Fire rated thermal insulation is attached to the condensate pan integrally. Construction of the units is sturdy and permanent.

### High efficiency

Coils shall be fabricated by  $\Phi 9.25$ mm cooper tubes and hydrophilic aluminum fins. Tubes are expanded into the fins accurately to confirm the heat transfer efficiency. Fans shall be high airflow rate and low noise design. And brass headers of copper tubes well distribute water

flow configuration to assure optimum heat transfer efficiency.

### Low noise and operating cost

Fans shall be specially designed with over-sized galvanized multi-blade centrifugal wheel, operating with low noise, high static pressure and airflow rate. And hi-static, permanent split capacitor motors shall be factory balance tested for proof the high efficiency and quite operation.

### Easy maintenance

Motors shall be fabricated with rolling bearing and quenched and tempered steel shaft with antirust treated. Three-speed or LCD thermostat is convenient to control the airflow and room temperature.

## Low installation cost

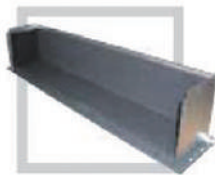
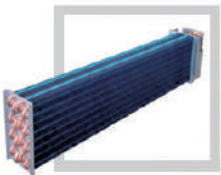
Units shall be low-weight design. Drain pipes and wires are easy for connection. The water connection direction and air return are changeable according to the site requirements.



## Specification

### Coil: high efficiency heat transfer performance

Coils shall be manufactured by  $\Phi 9.25\text{mm}$  cooper tubes and sine-wave hydrophilic aluminum fins. Copper tubes are mechanically expanded to bond with aluminum fins. Considering water flow configuration and the performance of heat transfer, headers shall be fabricated of brass material.



### Casing: reliable structure and elegant design

Casing shall be constructed by extruded galvanize steel panel (class 1), fitting for sturdy command.

### Drain pan: special design for no leakage

Condensate drain pans shall be fabricated by high quality panel with punch forming and hot-dip baking paint treated. PE insulation with thickness of 7 mm is designed to tightly bond with drain pan with the benefit of easy manufacturing, anti-leakage and elegant feature eventually extending the drain pan life.

### Motor: high efficiency and low power consumption

Motors shall consist of low noise permanent capacitor motors and total hermetic rolling bearing with permanent lubricated. The base of motor shall be isolated by rubber mount to minimize the vibration and operation noise.

### Fans: low acoustic level

Fans shall be equipped with efficient, low noise, multi-blade centrifugal fan with oversized fan wheel, and shall be manufactured with galvanized steel panel for well dynamic balance performance.



### Controller: facile and comfortable

Controller shall be facile with changeable speed of fans and friendly interface for users. AMT801 controller is used as optional allowing users to select operating mode and fan speed manually, to set the temperature by using the knob. Or AMT806 Series Thermostats is advanced control as optional using digital LCD display and EL Backlight, allowing users: to detect the room temperature with NTC sensor and compares it with the set-point for automatically keeping the room temperature stable; to adjust automatically 3-speed of fan; to save data and memory with output reliable by relay.

## Options

- ✦ Electric heater
- ✦ High static pressure fan
- ✦ Air return box (below return or back return)
- ✦ Fresh air inlet for air return box
- ✦ Removable aluminum filter
- ✦ Stainless steel condensate pan
- ✦ Controller: AMT801 controller or AMT806 Series Thermostats

## Advanced Option (Upgraded EC Fan Coil Unit)

Symbolizing by outstanding energy-saving effect, the EC fan coil unit saves more than 30% energy compared with traditional fan coil units at the same motor speed. When the fan motor operates at mid or low speed, the effect of energy-saving is more remarkable.

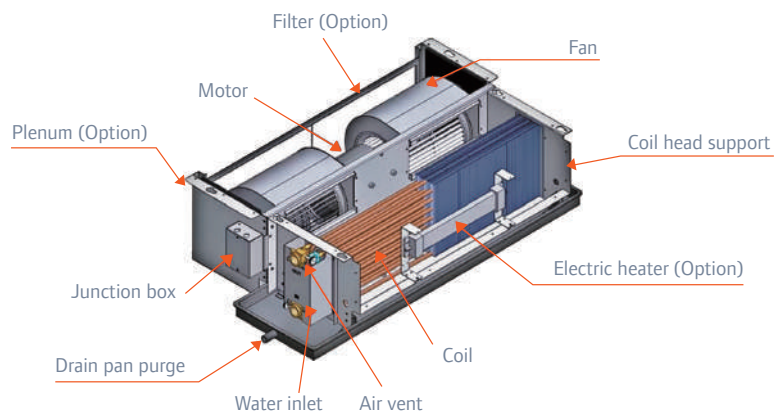
Intelligent control by standard smart thermostat, with microprocessor technology, effectively permits to achieve the stepless speed variation with automatic adjustment of motor charges and electrical dampers by detecting the ambient temperature and the set-point, significantly improve energy-saving, comfort and reliability.

Traditional fan coil unit is normally operating in 3-variable-speed with a range of  $\pm 2^{\circ}\text{C}$  for room temperature fluctuation. The upgraded EC fan coil unit features continuous automatic adjustment technology and stepless speed variation, which controls the room temperature fluctuation under  $\pm 0.5^{\circ}\text{C}$ .



Operating with small vibration and any electromagnetic noise ensures a quiet operation and improves the tranquility and comfort for room environment.

Using electronic commutation module, reducing the abrasion of electrical components, makes EC fan coil units with higher quality and longer life than traditional AC motor fan coil units.





## Technical Data for Standard Units (2 Pipes 3 Rows)

Model	Unit	34	51	68	85	102	136	170	204	238
Air flow	H m <sup>3</sup> /h	340	510	680	850	1020	1360	1700	2040	2380
	M m <sup>3</sup> /h	255	383	510	638	765	1020	1275	1530	1785
	L m <sup>3</sup> /h	170	255	340	425	510	680	850	1020	1190
Total cooling capacity *	H Ton	0.5	0.8	1	1.3	1.5	2.1	2.6	3.1	3.6
	H W	1800	2700	3600	4500	5400	7200	9000	10800	12600
	M W	1440	2160	2880	3600	4320	5760	7200	8640	10080
	L W	1170	1755	2340	2925	3510	4680	5850	7020	8190
Sensible cooling capacity*	H m <sup>3</sup> /h	1307	1961	2615	3268	3922	5229	6537	7844	10300
	M m <sup>3</sup> /h	1177	1765	2353	2942	3530	4706	5883	7060	8500
	L m <sup>3</sup> /h	1059	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H Ton	0.8	1.2	1.5	1.9	2.3	3.1	3.9	4.6	5.4
	H W	2700	4050	5400	6750	8100	10800	13500	16200	18900
	M W	2160	3240	4320	5400	6480	8640	10800	12960	15120
	L W	1857	2633	3510	4388	5265	7020	8775	10530	11340
Standard external pressure	Pa	12	12	12	12	12	12	12	12	12
Power input	12Pa W	35.2	46	57.4	69	86	123	160	189	228
	30Pa W	39.5	55	66.9	82	100	136	175	211	247
	50Pa W	49.5	59	85.4	93	108	155	188	236	297
Sound pressure Level**	12Pa dB(A)	37	39	41	43	45	46	48	50	52
	30Pa dB(A)	40	42	44	46	47	48	50	52	54
	50Pa dB(A)	42	44	46	47	49	50	52	54	56
Net weight	kg	10.5	14.6	16	16.5	18.5	23.5	25.5	30.5	35.5
Water flow rate	m <sup>3</sup> /h	0.4	0.51	0.71	0.92	1.05	1.4	1.75	2.1	2.5
Water pressure drop	kPa	20	20	25	30	35	40	40	45	50
Water connections	Inch	RC 3/4								
Drain pipe	Inch	RC 3/4								
Fan motor quantity	Nr.	1	1	1	1	1	2	2	2	2
Fan quantity	Nr.	1	2	2	2	2	3	4	4	4
Max. working pressure	Mpa	2								
Power supply	/	220V/1Ph/50Hz								

\*The data are referred to the following conditions:

Cooling: room temperature: 27°C 50% RH, water temperature: 7/12°C, high speed.

Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.

## Technical Data for Standard Units (4 Pipes 3+1 Rows)

Model	Unit	34	51	68	85	102	136	170	204	238
Air flow	H m <sup>3</sup> /h	340	510	680	850	1020	1360	1700	2040	2380
	M m <sup>3</sup> /h	255	383	510	638	765	1020	1275	1530	1785
	L m <sup>3</sup> /h	170	255	340	425	510	680	850	1020	1190
Total cooling capacity *	H Ton	0.5	0.8	1	1.3	1.5	2.1	2.6	3.1	3.6
	H W	1800	2700	3600	4500	5400	7200	9000	10800	12600
	M W	1440	2160	2880	3600	4320	5760	7200	8640	10080
	L W	1170	1755	2340	2925	3510	4680	5850	7020	8190
Sensible cooling capacity*	H m <sup>3</sup> /h	1307	1961	2615	3268	3922	5229	6537	7844	10300
	M m <sup>3</sup> /h	1177	1765	2353	2942	3530	4706	5883	7060	8500
	L m <sup>3</sup> /h	1059	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H Ton	0.2	0.3	0.5	0.6	0.7	0.9	1.2	1.4	1.8
	H W	810	1215	1620	2025	2430	3240	4050	4860	6300
	M W	729	1094	1458	1823	2187	2916	3645	4374	5040
	L W	656	984	1312	1640	1968	2624	3281	3937	4780
Standard external pressure	Pa	12	12	12	12	12	12	12	12	12
Power input	12Pa W	35.2	46	57.4	69	86	123	160	189	228
	30Pa W	39.5	55	66.9	82	100	136	175	211	247
	50Pa W	49.5	59	85.4	93	108	155	188	236	297
Sound pressure Level**	12Pa dB(A)	37	39	41	43	45	46	48	50	52
	30Pa dB(A)	40	42	44	46	47	48	50	52	54
	50Pa dB(A)	42	44	46	47	49	50	52	54	56
Net weight	kg	10.5	14.6	16	16.5	18.5	23.5	25.5	30.5	35.5
Water flow rate	m <sup>3</sup> /h	0.4	0.51	0.71	0.92	1.05	1.4	1.75	2.1	2.5
Water pressure drop	kPa	20	20	25	30	35	40	40	45	50
Water connections	Inch	RC 3/4								
Drain pipe	Inch	RC 3/4								
Fan motor quantity	Nr.	1	1	1	1	1	2	2	2	2
Fan quantity	Nr.	1	2	2	2	2	3	4	4	4
Max. working pressure	Mpa	2								
Power supply	/	220V/1Ph/50Hz								

\*The data are referred to the following conditions:

Cooling: room temperature: 27°C 50% RH, water temperature: 7/12°C, high speed.

Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.

## Technical Data for EC Units (2 Pipes 3 Rows)

Model	Unit	51	68	85	102	136	170	204	238
Air flow	H m <sup>3</sup> /h	510	680	850	1020	1360	1700	2040	2380
	M m <sup>3</sup> /h	383	510	638	765	1020	1275	1530	1785
	L m <sup>3</sup> /h	255	340	425	510	680	850	1020	1190
Total cooling capacity *	H Ton	0.8	1	1.3	1.5	2.1	2.6	3.1	3.6
	H W	2700	3600	4500	5400	7200	9000	10800	12600
	M W	2160	2880	3600	4320	5760	7200	8640	10080
	L W	1755	2340	2925	3510	4680	5850	7020	8190
Sensible cooling capacity*	H m <sup>3</sup> /h	1961	2615	3268	3922	5229	6537	7844	10300
	M m <sup>3</sup> /h	1765	2353	2942	3530	4706	5883	7060	8500
	L m <sup>3</sup> /h	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H Ton	1.2	1.5	1.9	2.3	3.1	3.9	4.6	5.4
	H W	4050	5400	6750	8100	10800	13500	16200	18900
	M W	3240	4320	5400	6480	8640	10800	12960	15120
	L W	2633	3510	4388	5265	7020	8775	10530	11340
Standard external pressure	Pa	12	12	12	12	12	12	12	12
Power input	12Pa W	23	34	43	53	67	82	115	157
	30Pa W	35	45	55	64	78	106	145	172
	50Pa W	41	64	70	84	108	140	169	214
Sound pressure Level**	12Pa dB(A)	35	35	37	38	40	40	42	42
	30Pa dB(A)	39	41	43	45	45	48	50	52
	50Pa dB(A)	43	44	46	47	48	50	52	54
Net weight	kg	17	18	20	22	32	35	37	41
Water flow rate	m <sup>3</sup> /h	0.46	0.62	0.77	0.93	1.24	1.55	1.86	2.17
Water pressure drop	kPa	20	25	30	35	40	40	45	50
Water connections	Inch	RC 3/4"							
Drain pipe	Inch	RC 3/4"							
Fan motor quantity	Nr.	1	1	1	1	1	2	2	2
Fan quantity	Nr.	2	2	2	2	2	4	4	4
Max. working pressure	Mpa	≤1.6							
Power supply	/	220V/1Ph/50Hz							

\*The data are referred to the following conditions:

Cooling: room temperature: 27°C 50% RH, water temperature: 7/12°C, high speed.

Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.

## Technical Data for EC Units (4 Pipes 3+1 Rows)

Model	Unit	51	68	85	102	136	170	204	238	
Air flow	H	m <sup>3</sup> /h	510	680	850	1020	1360	1700	2040	2380
	M	m <sup>3</sup> /h	383	510	638	765	1020	1275	1530	1785
	L	m <sup>3</sup> /h	255	340	425	510	680	850	1020	1190
Total cooling capacity *	H	Ton	0.8	1	1.3	1.5	2.1	2.6	3.1	3.6
	H	W	2700	3600	4500	5400	7200	9000	10800	12600
	M	W	2160	2880	3600	4320	5760	7200	8640	10080
	L	W	1755	2340	2925	3510	4680	5850	7020	8190
Sensible cooling capacity*	H	m <sup>3</sup> /h	1961	2615	3268	3922	5229	6537	7844	10300
	M	m <sup>3</sup> /h	1765	2353	2942	3530	4706	5883	7060	8500
	L	m <sup>3</sup> /h	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H	Ton	0.3	0.5	0.6	0.7	0.9	1.2	1.4	1.8
	H	W	1215	1620	2025	2430	3240	4050	4860	6300
	M	W	1094	1458	1823	2187	2916	3645	4374	5640
	L	W	984	1312	1640	1968	2624	3281	3937	5040
Standard external pressure	Pa	12	12	12	12	12	12	12	12	
Power input	12Pa	W	23	34	43	53	67	82	115	157
	30Pa	W	35	45	55	64	78	106	145	172
	50Pa	W	41	64	70	84	108	140	169	214
Sound pressure Level**	12Pa	dB(A)	35	35	37	38	40	40	42	42
	30Pa	dB(A)	39	41	43	45	45	48	50	52
	50Pa	dB(A)	43	44	46	47	48	50	52	54
Net weight	kg	17	18	20	22	32	35	37	41	
Water flow rate	m <sup>3</sup> /h	0.46	0.62	0.77	0.93	1.24	1.55	1.86	2.17	
Water pressure drop	kPa	20	25	30	35	40	40	45	50	
Water connections	Inch	RC 3/4"								
Drain pipe	Inch	RC 3/4"								
Fan motor quantity	Nr.	1	1	1	1	2	2	2	2	
Fan quantity	Nr.	2	2	2	2	3	4	4	4	
Max. working pressure	Mpa	≤1.6								
Power supply	/	220V/1Ph/50Hz								

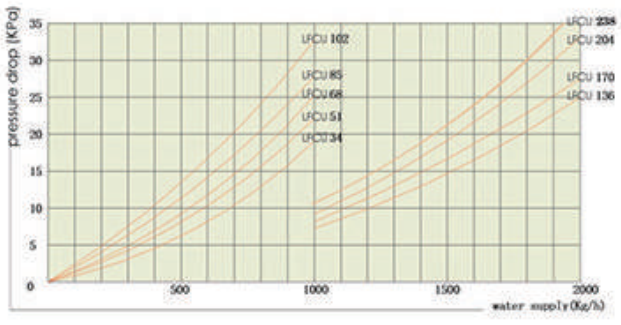
\*The data are referred to the following conditions:

Cooling: room temperature: 27°C 50% RH, water temperature: 7/12°C, high speed.

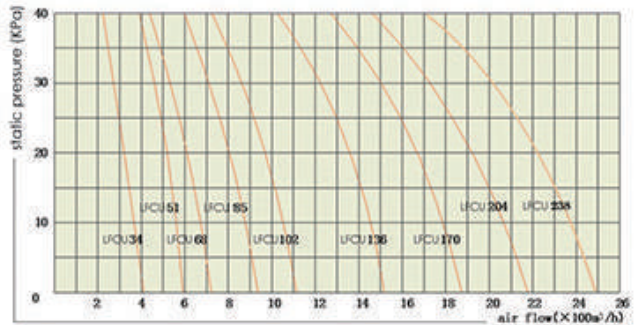
Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.

# Performance

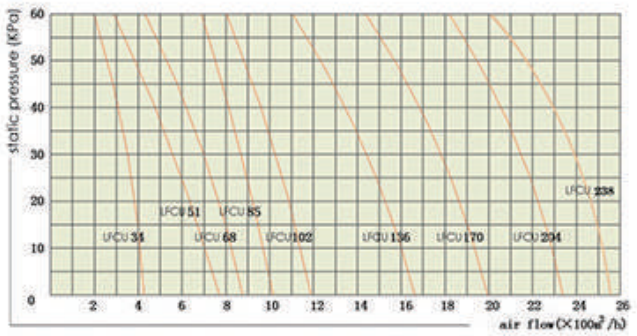
Coil pressure drops 3rows



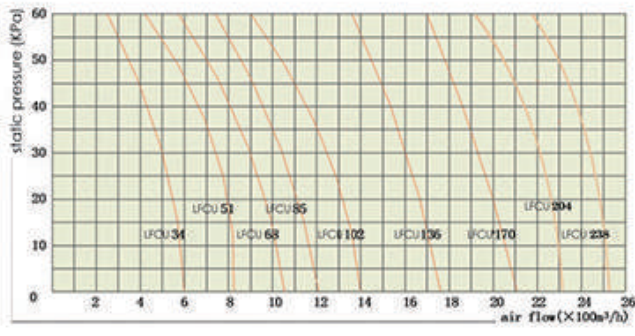
Unit fan features curve 12Pa



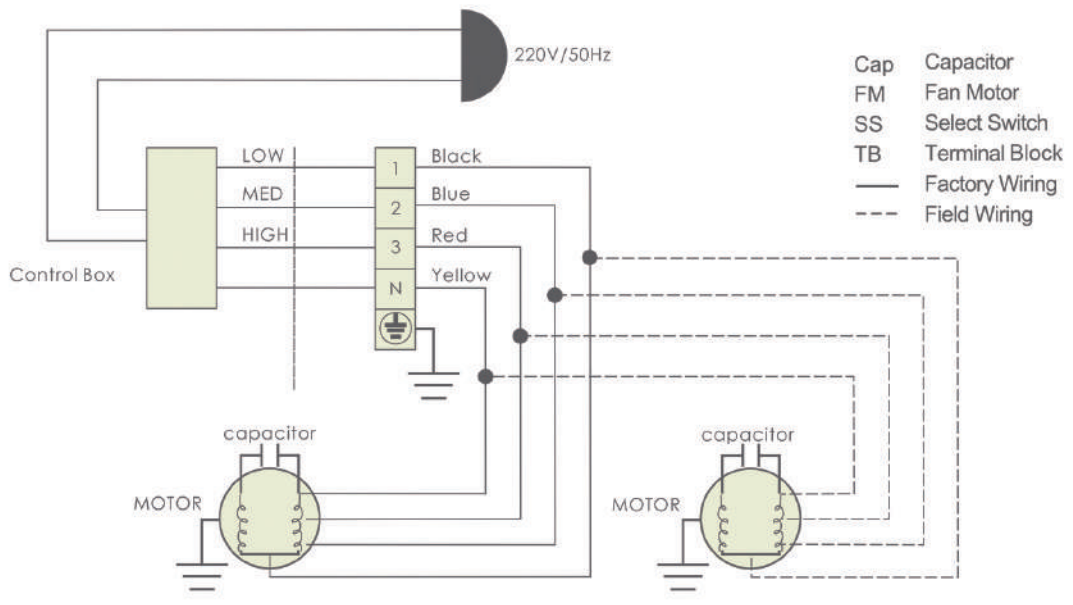
Unit fan features curve 30Pa



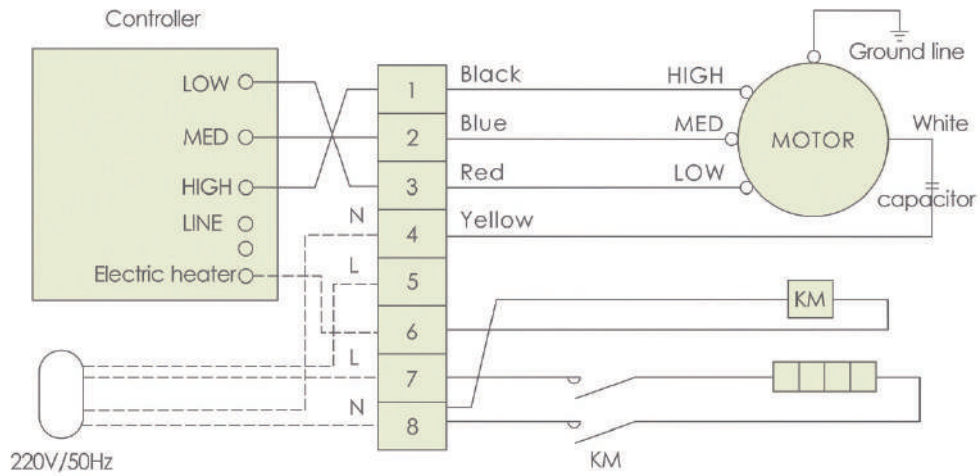
Unit fan features curve 50Pa



# Electric Diagram for Standard Units

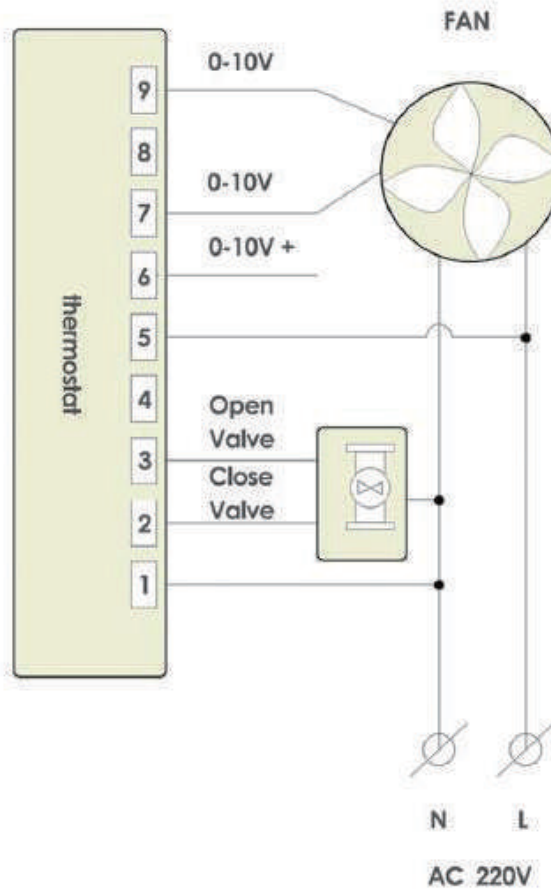


Wiring diagram/Standard



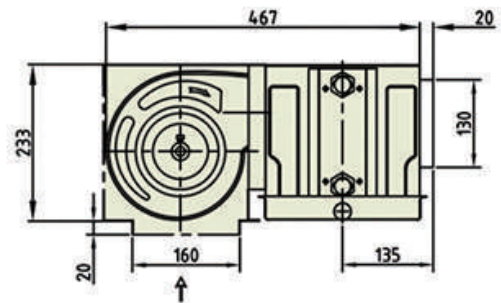
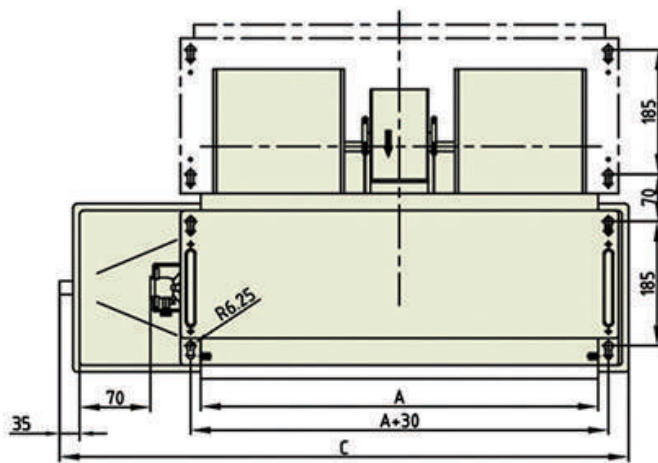
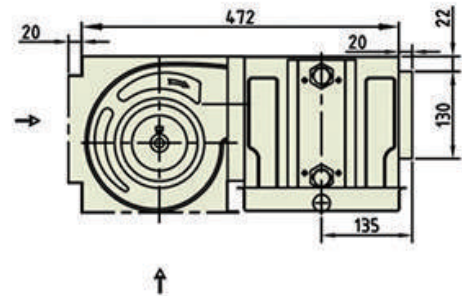
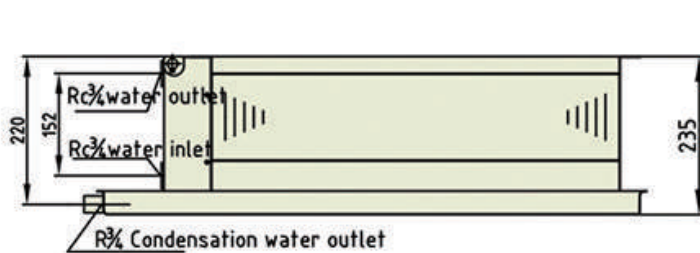
Wiring diagram with electric heater

## Electric Diagram for EC Units



# Dimensions for Standard Units

3 row coil & 3+1 row coil

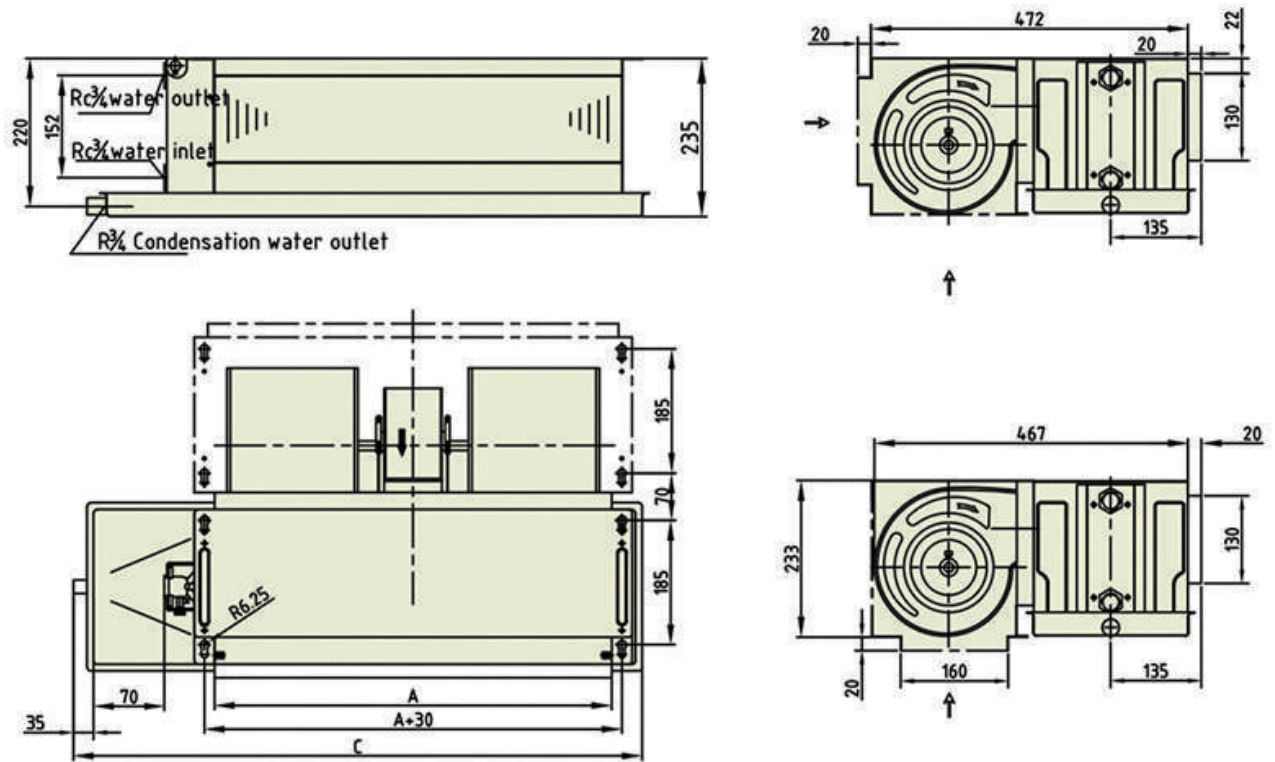


Model	A	C	Fan Motor	Water outlet	Water inlet	Condenser water
34	385	640	1	DN20	DN20	DN20
51	580	840	2	DN20	DN20	DN20
68	650	940	2	DN20	DN20	DN20
85	730	1040	2	DN20	DN20	DN20
102	870	1140	2	DN20	DN20	DN20
136	1030	1340	3	DN20	DN20	DN20
170	1250	1540	4	DN20	DN20	DN20
204	1350	1640	4	DN20	DN20	DN20
238	1670	1940	4	DN20	DN20	DN20



# Dimensions for EC Units

3 row coil & 3+1 row coil



Model	A	C	Water outlet pipe	Water inlet pipe
51	600	840	DN20	DN20
68	700	940	DN20	DN20
85	780	1040	DN20	DN20
102	920	1140	DN20	DN20
136	1060	1340	DN20	DN20
170	1280	1440	DN20	DN20
204	1390	1540	DN20	DN20
238	1720	1940	DN20	DN20

# Installation, Operation and Maintenance

## Installation

Make sure that all components inside shall not collide with each other.

Make sure that no dirt shall drop into the fan, motor and heat exchanger.

Make sure that drain pipe shall be mounted at least 3-5mm lower than the other side assuring the condensate removal.

## Air duct

The filter shall be installed at air inlet to prevent dust to block the fin and make sure good heat exchange efficiency.

## Water pipe connection

Water connections are inlet from the bottom and outlet from the top, flexible connectors are suggested for both inlet and outlet.

The torque shall be less than 2.5kg \* m during installation.

All water pipes shall be well insulated. All bolt connections shall be insulated and sealed by material of PTFE belt.

The drain pipe shall be mounted with proper gradient, no squash, no bending.

## Electrical connection

FCU must be earthing. All electrical wires exposing to the air should be well bonded to connectors before attach to unit. Also, it's necessary to check the mark and color of the terminals before connected to the 3-speed switch.

## Start-up procedure

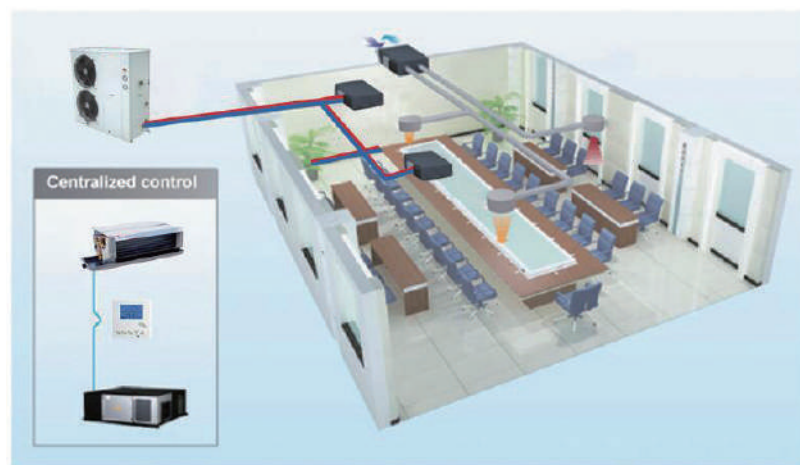
After proper installation the drain pan, fan casing and coil must be clean; then check all field connections of pipes and wires; and FCU can be started. The 3-speed switch is recommended to be turned on from high speed.

## Operation

The manual vent valve shall be regularly opened to release the air in the pipe system. The system water shall be softened and meet the water quality requirements.

## Maintenance

Fan coils and filters shall be cleaned regularly by blowing with compressed air in opposite direction of airflow. Clean water should be charged in the coils to reduce the rust while the unit stops working. And in winter, anti-freeze method shall be considered.



# Big Duct Fan Coil Unit

1600CFM~4000CFM  
4Ton~9.8Ton

## Application areas

- Any light commercial building
- Offices and shops
- Hotels

## Why this choice?

- Very high performances
- Easy and quick to install like a fan coil
- Many available configurations



## Characteristics

### Frame and structure

Panels and frame are made from galvanized steel, properly punched and punched for fixing both accessories and the unit itself.

### Water coil

The coils are made from seamless tubes expanded into aluminum fins in continuous block. The connections have brass headers with female fittings and provided with easily accessible vent and drainage valve.

### Fan deck

The fan decks are composed of double suction centrifugal fans with aluminum impellers and 3-speed fan motors. Each fan motor assembly is dynamically balanced.

### Drip tray

The drip trays are made from sheet metal treated with polyester powder coating to ensure total resistance to atmospheric agents.

### Filter

The easily removable filter is made of filtering honeycomb polypropylene fabric and supported by an aluminum frame. The filter is installed on the units with plenum only.

## Electrical connection box

All electric wires are connected to enclosed electrical terminal block, situated on the same side of the water connections.

## Optional

On-board thermostat and remote thermostat  
Electric heater

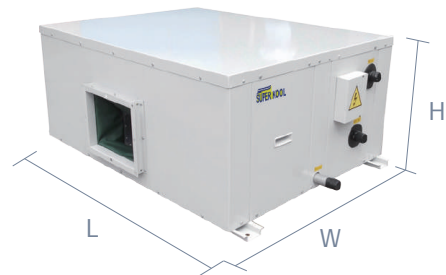
## Technical Data

Model Unit		25	34	42	55	68
Air flow	CFM	1600	2000	2500	3200	4000
Total cooling capacity	Ton	4	5	6.5	7.91	9.8
Sensible cooling capacity	But/hr	36000	48000	62500	72000	100000
Heating capacity	Ton	6.3	7.7	9.1	11.5	13.8
ESP	In.wg	0.30	0.30	0.4	0.5	0.5
Power supply	V/PH/Hz	380/3/50				
Water flow rate	m <sup>3</sup> /h	2.75	3	3.9	4.8	5.9
Water connection size	DN	25	32	32	32	40
Pressure drop	kPa	50	55	55	60	62
Fan motor quantity	Qty	1	1	2	2	2
Fan type	/	Centrifugal fan				
Fan blade material	/	Galvanized steel				
Fan driven	/	Direct drive				
Drain pipe	DN	25				
Dimension	mm	1300	1400	1650	1900	2200
		1050	1050	1050	1050	1050
		520	520	520	520	550
Net weight	kg	85	105	125	145	160

\*The data are referred to the following conditions:

Cooling: room temperature: 27°C 50% RH, water temperature: 7/12°C, high speed.

Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.



# PROJECT

## > Zambia project

Model: RTU105  
Cooling capacity: 105kW



## > Portable rooftop for helicopter maintenance cooling



## > Kaz JV LLP natural gas project

Model: RTU210, RTU105, RTU28  
Cooling capacity: 210kW, 105kW, 28kW



## > Gas burner rooftop for cultivation

Model: RTU105  
Cooling capacity: 105kW



## > Australia rent air conditioner

Model: RTU10  
Cooling capacity: 10kW



## > Beijing Olympic Games Hongkong racecourse project





> Australia vertical rooftop packaged unit

Cooling capacity: 45kW, 60kW  
Stainless steel case



> Australia manningham day hospital

Rooftop packaged units



> Poland project

Rooftop packaged units



> Bangladesh project

Model: RTU72  
Cooling capacity 72kW



## > Mexico tent air conditioner

Model:TA28

Cooling capacity:28kW



## > Nepal tent air conditioner

Model:TA28

Cooling capacity:28kW



## > Marine air conditioner





> Explosion proof rooftop packaged unit

Model: RTU105

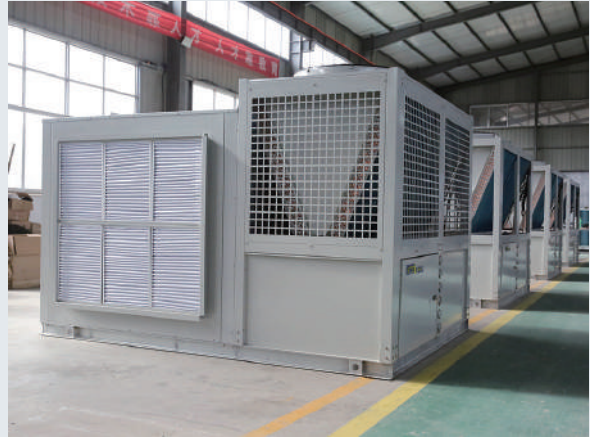
Cooling capacity: 105kW



> Singapore rooftop project

Model: RTU105

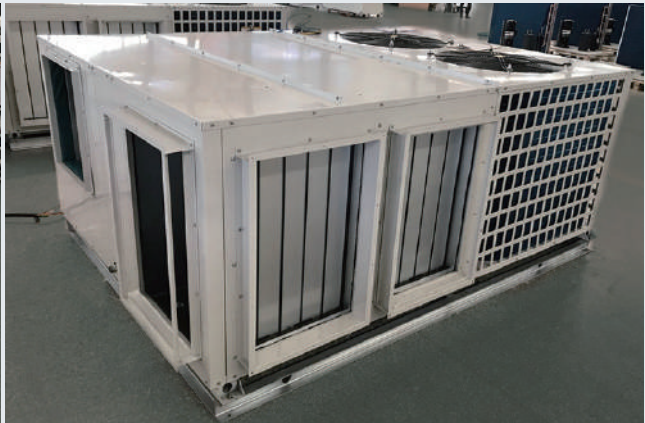
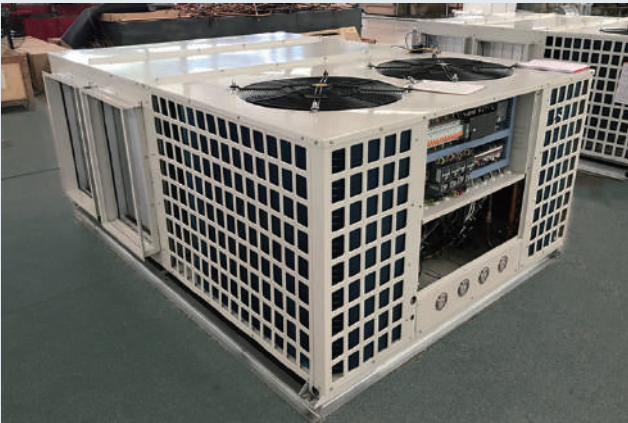
Cooling capacity: 105kW



> United Nations Development Programme Zambia

Rooftop packaged unit with free cooling and economizer, fresh air, return air and supply air damper

Cooling capacity 35kW, 60kW, 105kW





### > New Zealand 300cows project

Milk chiller  
Cooling capacity: 20kW



### > New Zealand 350cows project

Milk chiller  
Cooling capacity: 30kW



### > Glycol chiller in Australia

Model: AW80  
Cooling capacity: 80kW



### > Glycol chiller in Australia

Model: AW60  
Cooling capacity: 60kW



### > Milk chiller in Australia

Model: AW120  
Cooling capacity: 120kW





> Rent chiller project stainless steel type in UK farm

Model: AW60

Cooling capacity: 64kW



> Milk chiller in Republic of Belarus

Model: AW120

Cooling capacity: 120kW



> Air cooled modular chiller for Biogas

Model: AW240

Cooling capacity: 240kW



## > New Zealand

Industrial glycol chiller  
Cooling capacity 80kW, stainless steel case



## > The Republic of Peru

Air cooled screw chiller  
Cooling capacity 250kW



## > Australia

Air cooled screw chiller for the University of Melbourne  
Cooling capacity: 760kW



## > Australia

Air cooled screw chiller for the University of Melbourne  
Cooling capacity: 250kW





> Republic of Serbia

Air cooled scroll chiller  
Cooling capacity 260kW



> South Africa

Water cooled scroll chiller  
Cooling capacity 160kW



> South Africa

Water cooled screw chiller  
Model: WW255



> Bangladesh pharmaceutical factory

Water source heat pump  
Ceiling type handling unit



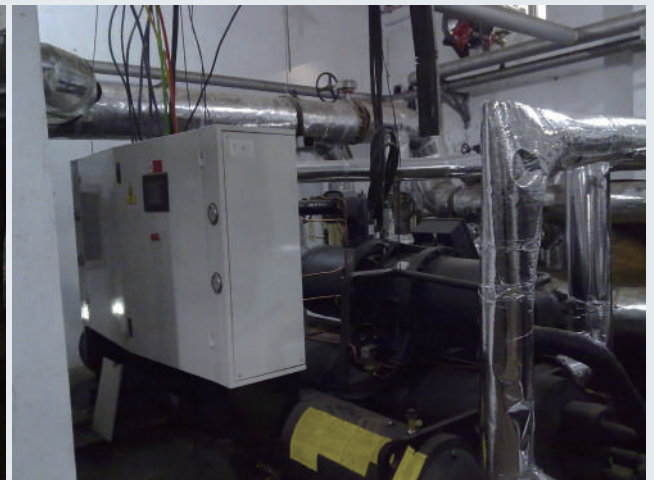
## > Israel office building

Water cooled screw chiller  
Cassette fan coil unit



## > Sri Lanka hospital project

Water source heat pump



## > Netherlands

Water cooled packaged unit  
Cooling capacity 10kW and 14kW





> Australia Melbourne central police station



> Bangladesh

Water cooled packaged unit (Split type)  
Cooling capacity 25Ton and 12Ton







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Literature Order Number	PROD-PDC010-EN
Date	Jan 2023

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SUPER KOOL has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.