Hisense

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TC12016011C

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Hisense Multi-Function System

TC12016011C

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VRF AIR-CONDITIONER

Hisense Multi-Function System

Technical Catalog

— Design —
— Installation —
— Maintenance —

Model

- **Outdoor Unit**
  AFW-38U4SC AFW-48U4SC AFW-54U4SC
- **Water Module**
  AFM-54EX4SA

TC12016011C
<TCY12018028E>

Important

- Hisense pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- Hisense is not responsible for any accidental damage to the air conditioner operating in a particular environment.
- This air conditioner can only be used as an ordinary air conditioner.
- Please do not use this heat pump type air conditioner for drying clothes, freezing food, cooling or heating or other purposes.
- Any part of this manual shall not be copied without permission.
- Bold texts (danger, warning and attention) are used to indicate the degree of danger.Below is the definition of bold texts and the degree of danger.

DANGER : It will cause serious personal injury and even have direct risk of leading to the death.

Warning : It may cause serious personal injury, and even have the risk or unsafe condition of leading to the death.

Attention : It may cause minor personal injury, and have the risk or unsafe condition of products and property damage.

NOTE : These are tips and instructions on the operation, maintenance and repairs.

- If you have any doubts, please contact the dealer or our service center.
- Please install air conditioner in accordance with local standards.
- Designed temperature range of this heat pump type air conditioner is shown in the table below. Please operate the unit within this range.

Air to Air (°C)

		Min.	Max.
Cooling	Indoor	15WB	23WB
	Outdoor	-5DB	43DB
Heating	Indoor	15DB	27DB
	Outdoor	-23WB	15WB

DB: Dry Bulb Temperature WB: Wet Bulb Temperature

Air to Water (°C)

		Min.	Max.
Floor heating	Outdoor	-23WB	15WB
	Outlet Water Temperature	20	55
DHW (domestic hot water)	Outdoor	-23WB	43DB
	Outlet Water Temperature	20	55
Heat recovery	Indoor	15WB	23WB
	Outdoor	12DB	43DB
	Outlet Water Temperature	20	55

DB: Dry Bulb Temperature WB: Wet Bulb Temperature

⚠ DANGER

- Please don't perform refrigerant piping connection, water pipe connection, wiring connection and other installations without reading installation manual.Any violation will lead to leakage of the system, electrical failure or fire.
- This system uses refrigerant R410A.During leak detection and air tight test, please do not fill in oxygen, acetylene or inflammable and poisonous gases. These gases are quite dangerous and may lead to explosion.It is recommended to do this test with dry nitrogen.
- Please do not splash water into water module and outdoor unit. This machine is electrical product, so ingress of water will lead to serious electrical fault.
- Without disconnecting main power supply, please do not open outdoor unit, maintenance cover of water module and circuit boards, otherwise it may lead to serious security incident.
- It is strictly prohibited to touch or alter security devices inside the outdoor unit and water module without permission. If these devices are touched or altered, it may lead to serious security incident.
- Refrigerant leak may cause difficulty in breathing due to hypoxia.If a refrigerant leak occurs, please immediately turn off main switch, put out any open flame and then contact service dealer.
- Make sure that air tightness test is carried out.Refrigerant (carbon-oxygen compound) used in this machine is non-flammable, non-toxic and without odor.If a refrigerant leak occurs, exposure to open flame will produce toxic gases, and because the specific gravity of refrigerant gas is greater than that of air, suffocation may happen when the space near ground is filled with refrigerant gas.
- Use ELB above medium-speed induction(earth leakage breaker, action time of 0.1 second or less).Electric shock or fire may occur without it.
- For installation, refrigerant pipe must be firmly connected before the compressor starts running.For maintenance, refrigerant pipe must not be moved, disposed and removed before the compressor stops running.
- In operation, please do not make the protection device shorted, otherwise it may cause serious accidents including fire.

⚠ Warning

- Please do not use following sprays within 1m of the machine:Pesticides, paints, hair gel or other flammable gases.
- If the circuit breaker or fuse functions frequently, please stop running the system and then contact local dealer or customer service.
- Make sure that ground wire is firmly connected.If the machine is not properly grounded, it may lead to electrical failure. Please do not connect the ground wire to gas pipe, water pipe, lightning rod or telephone wire.
- Select a fuse based on specified capacity.
- In the process of soldering, make sure that there's no flammable materials around;While using refrigerant, please wear leather gloves to avoid frostbite.
- Prevent mice or other small animals from damaging wirings and electrical components.If the unprotected part is bitten, it may cause a fire.
- Please install the water module indoors on someplace solid enough to bear the weight.If the installation is not solid enough, it will lead to the fall of the water module, resulting in personal injury and machine damage.
- Please make sure to use the specified accessories and components for installation.Otherwise it may cause water leakage, electric shock, fire or failed operation of the water module.
- Please do not install the machine where there's a large amount of oil, vapour, organic solvents and corrosive gases (ammonia, sulfide and acid, etc.).Because the corrosion may lead to refrigerant leak, electrical failure, performance degradation and machine damage.

- Please carry out electrical construction in accordance with the installation manual and all the relevant requirements and standards, otherwise it will lead to electrical failure or fire due to inadequate capacity or inconformity with specifications.
- Please use specified wires on the machines and select correct ones, otherwise it will lead to electrical failure or fire.
- Make sure that the connection is tightened to the prescribed torque,otherwise a fire or electrical failure will be initiated at the terminal.

⚠ Attention

- Please do not trample the machine or place other materials on the machine.
- Please do not place additional materials inside the machine.
- Provide a sturdy and suitable basis so that:

  A.The water module will not tilt.

  B.There'll be no abnormal sound.
- Please use tap water and ensure that it's not hard water. Use of hard water will shorten the lifetime of plate type heat exchanger, auxiliary electrical heater, all the valves and others.Please do not use it to heat up water of high hardness such as underground water, spring water and well water; otherwise we cannot guarantee service life of this product.
- Please do not use galvanized parts in the water cycle, otherwise these parts lead to corrosion.
- When the product is not running in the winter, please do not disconnect power supply for the water module. The unit will automatically enter into antifreezing operation under certain conditions during off mode.
- When the product is not in use for a long time, please be sure to pump circulating water out of the system.If the circulating water is not pumped out before turning off the power, it will cause damage to the system due to freezing.
- If the interval time between debugging and use is over 1 month, please release circulating water out of the system.
- Please do not install indoor unit, outdoor unit, water module, remote controller and cable within 3 meters of strong electromagnetic radiation source(such as medical equipment) .
- The unit must be connected to the WM, otherwise it will not work properly.
- Address code of water module must be greater than those of indoor units.Before delivery, address code of water module has been set to 63, so the setting of indoor units should be below 63.
- Water module liquid pipe must be linked to the first branch which must adopt T-type three way branch pipe (namely "a" branch).Please refer to 3.6.3 for connection.
- When installing and debugging the water module, please open the automatic exhaust valve and ensure that air in the water system is evacuated.
- If the water module is not at the highest point of the water system, it is necessary to add an exhaust valve in the water system. When air in the water system is not fully evacuated, failure of electrical heater and water pump can happen more easily.
- If water tank and floor heating system are both installed, it is necessary to install the electric actuated three-way valve. For installation details, please refer to the relevant instructions below.
- If the system is only installed with water tank or floor heating system, it is not mandatory to install the electric actuated three-way valve.
- When installing water module, it is necessary to adjust the initial pressure of the expansion tank in accordance with the height of the water module and the water capacity of the system, especially when the water volume in the system is large, the initial pressure of the expansion tank must be adjusted.For adjustment methods, please refer to the relevant instructions below.
- When selecting water pipe of the water system, it is better to use Φ40PPR pipe,which will reduce the resistance of water.
- When installing inlet and outlet ball valve in the water module, please make sure that rubber washer is installed, otherwise it will lead to water leak.
- While designing the floor heating system, please make sure that pressure loss is below 30KPa, otherwise the low level of water flow in the system will affect the heating.
- The water module is equipped with a water flow switch. When water flow is below 0.84m3/h, the system will give an alarm. General requirement for the water flow is over 1.0m3.
- It is recommended to install a one-way valve on the tap water inlet pipe to avoid backflow.
- When the on-site floor heating pipe and the water module are to be added with water for test together, open the exhaust valve in the water module manually to evacuate air in the system before adding water.When the pressure gauge in the water module is up to 2bar, inlet and outlet ball valve in the water module must be closed and the pressure should never become 0.6MPa as the same with the water pipe system.

- When the outdoor environment temperature is very low or the space load is very high, the backup heater of system will start running automatically to generate additional heat.
- When a failure occurs to an outdoor unit, the emergency mode can be set up through the wired remote controller; during the floor heating mode, it can provide heat through the separate operation of a backup heater.During the domestic hot water mode, the heating is provided by the electric heating of individual water tank.
- Due to the high thermal inertia of water, room temperature may not rise quickly after the operation of the floor heating due to different conditions of on-site installations.
- When the unit is in cooling operation, if the heat recovery setup on the wired remote controller is effective, the system will automatically enter into the heat recovery operation mode (where the optional accessories of water tank is installed). But when the number of air conditioners in cooling operation is relatively few, the volume of heat recovery will also be less. In this case, water tank heating capacity may be insufficient if the heating of water tank is set up manually. Heating capacity of the water tank can be enhanced through increasing the number of indoor cooling units, or closing out all of the indoor air-conditioning units.
- While operating air conditioning heating and floor heating at the same time, or air conditioning heating and water tank heating at the same time, the system will automatically prioritize air conditioning heating operation.When the operation capacity of water tank heating or floor heating is insufficient, it'll automatically start auxiliary electric heating or backup electric heating to produce additional heat, but it may result in the increase of energy consumption.At this point, energy consumption can be reduced by turning off all indoor air conditioning units.Water module under the following conditions may not function normally.
- Water module under the following conditions may not function normally:

  *Electric power of power transformer is the same as that of water module.

  *Power supply of high-power electrical equipment is too close to the power line of the water module.

  Equipment: (for example) elevator, container crane, electric railway rectifier, inverter power supply device, electric arc furnace, electric furnace, large induction motor and large-scale relay and other equipment of high power consumption.

  Under the above mentioned conditions, power line of the water module will produce a large inductive voltage surge due to sharp changes of power consumption in the power equipment and switching action.So in order to protect the power supply of the water module, please check carefully the on-site installation specifications and standards before electrical construction.

Arrival inspection

- After receiving the product, please check if there is any delivery damage.
  If any damage is found on the surface or inside, please notify immediately to the transport company in written form.
- Check product model, electrical parameters (power, voltage, frequency) and accessories to determine if they are in compliance with the requirements.
- It is not recommended to use the machine without conforming to the conditions described in this manual.
- When any problem occurs, please contact the local agent.
- Hisense Hitachi Company will not be responsible for any change of equipment without its written consent.

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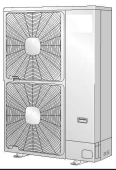
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Design

1. Characteristics

1.1 Outdoor Unit Series

Models	Figure
AFW-38U4SC AFW-48U4SC AFW-54U4SC	

1.2 System Characteristics

Hisense Multi-Function System

Hisense Multi-Function System is a multi-functional intelligent eco-home system that is integrated with household central air conditioner, radiant floor heating and domestic hot water. Efficient DC frequency conversion technology, air-source heat-pump technology and heat recovery technology are adopted to build a modern home life that is more intelligent and more comfortable.

Hisense Multi-Function System Series – Adopting R410A Refrigerant

Hisense has been committed to research and development of air-conditioning system that is more energy saving and environment-friendly to reduce the greenhouse effect and protect the earthly environment.By making use of environment-friendly refrigerant R410A that does not damage the ozone layer and energy-saving operation technology, Hisense Multi-Function System series of products are more adaptable to the needs of the global environmental protection.

Various Indoor Units and Combinations

Indoor Unit Type	Nominal Power(kBtu/h)										
	05	07	09	12	14	15	17	18	19	22	24
Ceiling Ducted Type (Low Static Pressure)		○	○	○	○		○	○		○	○
Ceiling Ducted Type (High Static Pressure)		○	○	○	○		○	○		○	○
Low-Height Ceiling Ducted Type	○	○	○	○	○		○	○		○	○
1-Way Cassette Type		○	○	○	○		○			○	
2-Way Cassette Type		○	○	○	○			○			○
4-Way Cassette Type			○	○	○		○	○		○	○
Compact 4-Way Cassette Type	○	○	○	○		○	○		○		
Wall-Mounted Type		○	○	○	○		○	○		○	○
Ceiling and Floor Type							○	○		○	○
Floor-Concealed Type			○		○			○			○
Console Type	○	○	○	○		○	○				

For one outdoor unit, the maximum combination number of indoor units can reach to 9.

By adopting DC frequency conversion technology, one outdoor unit can be connected with 9 indoor units at most, with configuration coverage of 50-130%.

Outdoor unit model	Min.IU combination capacity(kBtu/h)	Max.IU combination capacity(kBtu/h)	Min. Number of Connectable IU	Max. Number of Connectable IU	Min.single individual operation(kBtu/h)
AFW-38U4SC	19	49	1	6	05
AFW-48U4SC	24	62	1	8	
AFW-54U4SC	27	70	1	9	

NOTE: 1. In the design of the pipe system, please calculate the total refrigerant charge of the refrigerating system to ensure that the required refrigerant charge is within 9.6 kg.

2. The following conditions shall be met when one outdoor unit of Type 48 or Type 54 is connected with 8 or 9 indoor units:
   - The capacity of the indoor units which are in simultaneous operation is less than that of the outdoor unit
   - When in heating, outdoor environment temperature is greater than -5°C
   - The maximum pipe length (true length) is less than 40m, and the distance between each manifold pipe and the indoor unit is less than 5m

Humanized DIP Adjustment Setting

Humanized DIP adjusting set switch has been specially designed for indoor units with the capacity equal to or less than 7.1kW. Through the adjustment of the DIP switch,the capacity of the indoor unit can be increased or decreased to adapt to the indoor load change and facilitate the use of the user.

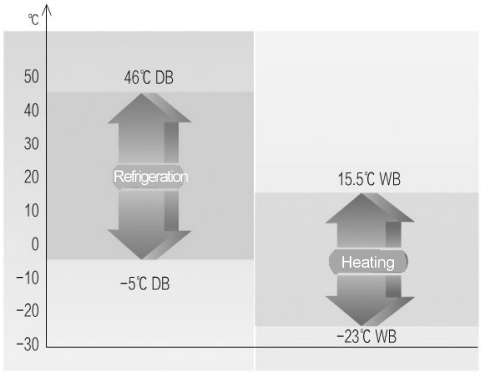
No.	Rated Capacity (kW)	Indoor Unit Type					DIP Switch Setting		
		AVD	AVE	AVC	AVS	AVH	Reduced Capacity	Standard Capacity	Increased Capacity
1	2.2←2.8	○	○						
2	2.8→3.2	○	○	○	○	○			
3	3.6←4.3	○	○	○	○	○			
4	4.3→4.5	○	○	○	○				
5	5.0←5.6		○		○	○			
6	6.3→7.1		○			○			

New Communication System

The communication lines of indoor units and outdoor units adopt non-polar double wired lines, there will be no damage from reverse connection of the polarity of the electric wire.

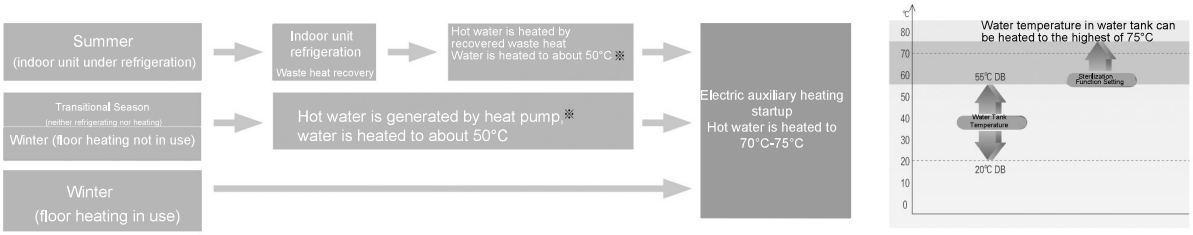
Operating Temperature Range of Outdoor Unit

The system can operate under a wide range of temperatures, and adapt to various climatic environment. The lowest operating temperature for heating can reach -23℃WB, which can meet the heating requirements in cold regions.

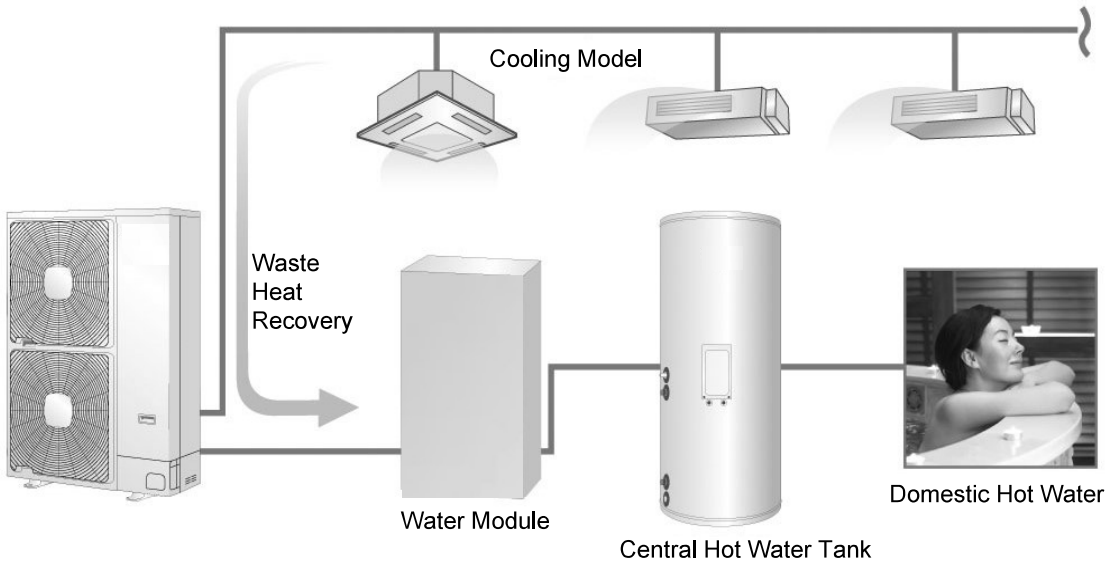


System Operating Range

Hot Water Temperature Range

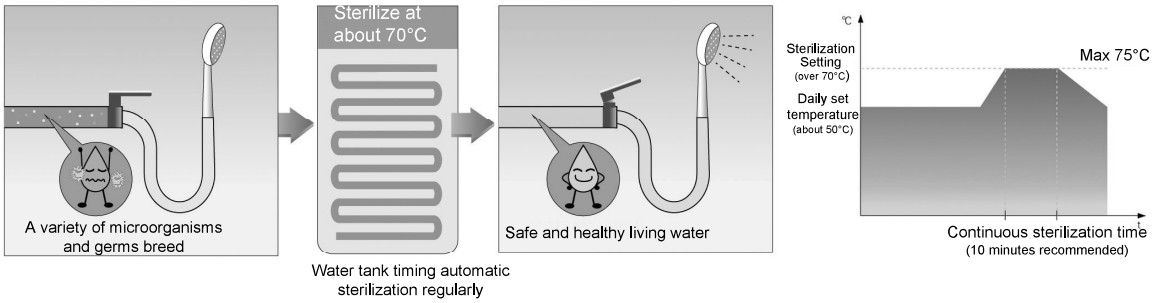


Industry-leading Heat Recovery Technology



When the air conditioner is operated in cooling model in summer, the the indoor heat can be transferred to outdoors, and the waste heat can be recycled efficiently to heat the domestic hot water through an efficient heat-exchange device. While the domestic hot water free of charge is enjoyed, the power consumption can be greatly saved, and the heat discharged into the nature can also be reduced, which is more environment-friendly and economical.

Automatic Sterilization Function



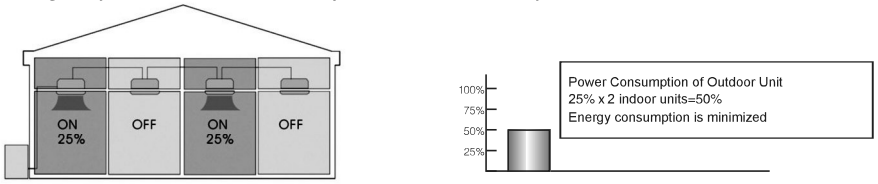
Some microorganisms will remain in still water. Through schedule setting, the system can start automatic sterilization function of the water tank to raise the water tank temperature to max 75°C, kill residual microorganisms and other germs and realize automatic sterilization regularly so that users can enjoy a healthy and convenient modern life.

Unique Energy-saving Technology

By adopting patented products and unique technology of Hisense, such as efficient, DC variable speed scroll compressor, stepless frequency conversion control and DC fan motor, outdoor units can automatically operate intelligently according to the actual load to save energy and operating costs and improve the energy efficiency ratio of the system.

Indoor units can be separately controlled

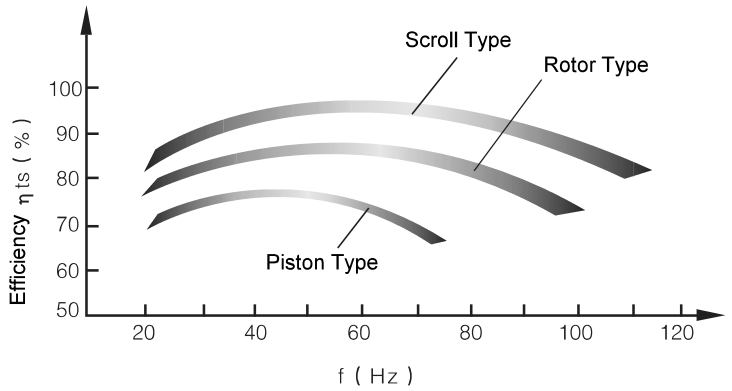
Hisense Multi-Function System series of products can be separately controlled according to users' needs, the indoor unit in each room can be separately started or stopped, the host unit can control the operating condition of the compressor according to the operating condition of the indoor unit, and adjust the operating frequency and output capacity of the host unit intelligently to avoid unnecessary waste of electricity.



Efficient Scroll Compressor

New type of scroll compressor of high back pressure is equipped with the function of internal oil separation. In view of the high-pressure characteristics of R410A refrigerant, unique rare earth permanent magnet synchronous motor is adopted, asymmetric scroll plate has been specially designed, and the bearing structure has been strengthened.

Compared with rotor compressor and piston compressor, scroll compressor has features like fewer moving parts, no air valve, little leakage, high efficiency, low noise, little vibration and long operating life, the efficiency and reliability of the compressor have been greatly improved.

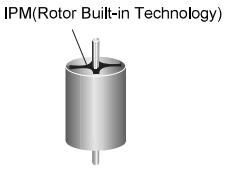


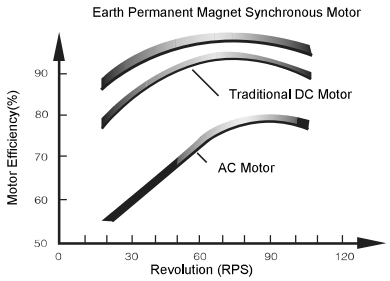


Frequency Conversion Adjustment Comparison Diagram of Different Types of Compressors

Rare Earth Permanent Magnet Synchronous Motor

The rare earth permanent magnet synchronous motor is a cluster-type motor, its efficiency can be greatly increased in low frequency and intermediate frequency operation; meanwhile IPM (rotor built-in) technology has been adopted so that torque has been increased by 20%, motor efficiency is further improved, it is more energy saving than AC motor and traditional DC motor.

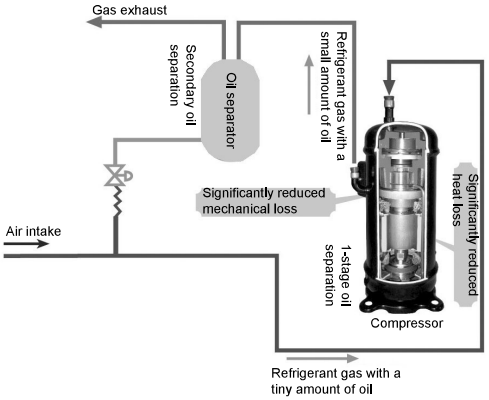




Comparison Diagram of Motor Efficiency

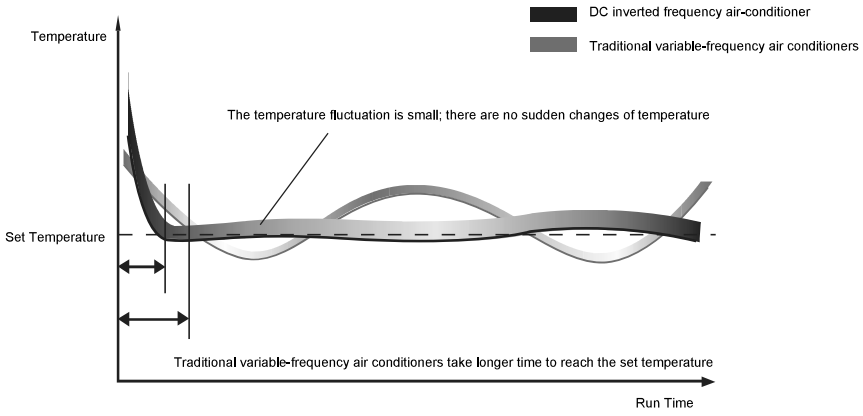
Two-stage Oil Separation Technology

Hisense Multi-Function System adopt the compressor with efficient first oil separation effect, meanwhile oil separation is set on the gas exhaust piping to realize the secondary oil separation, the oil separation effect is better so that more stable and reliable operation of the system is ensured.

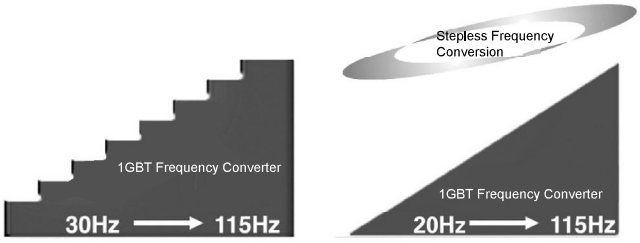


Compressor Stepless Frequency Conversion Technology

Stepless frequency conversion technology adopts combined control technology of pulse amplitude modulation (PAM), pulse width modulation (PWM) and power factor correction (PFC). At startup, with the help of PAM, the frequency converter can make the indoor temperature reach the set value quickly by speeding up the rotational frequency of the compressor. When the indoor temperature reaches the set value, with the help of PWM, the frequency converter can maintain the indoor temperature efficiently and accurately by controlling the rotating speed of the compressor, without consuming more energy. Stepless frequency conversion technology can achieve high power, high efficiency, stable operation and comfort and energy saving of the unit, the power factor can reach as high as 99.5%. It has advantages of remarkable energy-saving effect, economical operation and natural and comfortable indoor environment.



The working frequency of stepless frequency conversion technology can be adjusted continuously, accurately and freely according to the change of the system capacity. From 20Hz to 115Hz, the capacity output can be accurately adjusted automatically by accurately controlling the rotating speed of the motor according to the actual air conditioning load.



Step Frequency Conversion Schematic

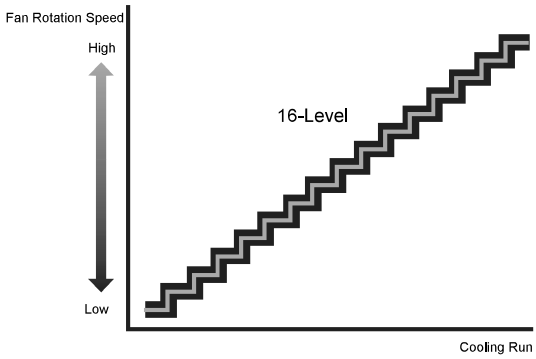
Stepless Frequency Conversion Schematic

Comparison between Stepless Frequency Conversion and Step Frequency Conversion

16-Level Speed Regulation of Outdoor Unit Fan

Hisense Multi-Function System outdoor unit fan can conduct 16-level speed regulation according to changes of the environment. Compared with the traditional fan speed control, this wide-range mode of regulation:

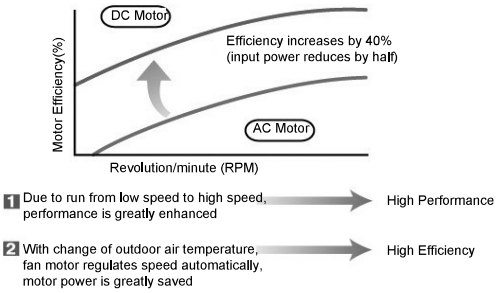
- ◆Greatly ensures the stability of the compressor discharge pressure and suction pressure, and improves the service life of the compressor;
- ◆ Ensures the stability of the dynamic allocation of indoor unit flow (capacity), and reduces indoor temperature fluctuation;
- ◆ Enhances the rapid response of the control system;
- ◆Ensures stable, durable and reliable operation of the unit at the same time.



16-level speed regulation schematic of outdoor unit fan under refrigeration

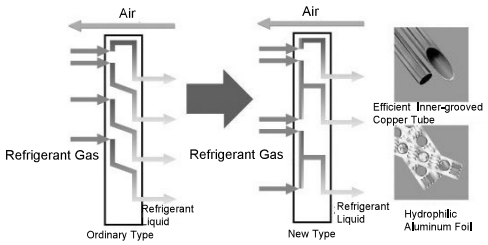
DC Fan Motor

Compared with the traditional unit with AC motor, the unit with DC motor greatly improves the efficiency. In addition, the influence of a blast of wind can be reduced by controlling the fan rotation speed, even if the face velocity reaches 10 m/s, the unit can still operate stably.



New-Type Heat Exchanger

Through specially designed “2¬1” refrigerant process, the heat exchange efficiency of the heat exchanger is optimized, the heat exchange area is larger, heat exchange effect is better, and system efficiency is higher.



RoHS Response

Hisense responds actively to the EU RoHS Directive, and strictly controls the use of certain hazardous substances. RoHS is the abbreviation of “Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment”, the hazardous substances are lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr VI), polybrominated biphenyls (PBB) or polybrominated diphenyl ether (PBDE). The Directive aims to protect human health and ensure that the recycling and disposal of discarded electrical and electronic equipment accord with environmental requirements.

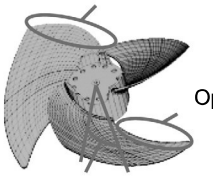
RoHS

Substance	RoHS Max Level	Typical Testing Methods
Lead	1000ppm	Wet Chemical Treatment or X-Ray Fluorescence
Cadmium	100ppm	Wet Chemical Treatment or X-Ray Fluorescence
Hexavalent Chromium	1000ppm	Wet Chemical Treatment or X-Ray Fluorescence
Mercury	1000ppm	Wet Chemical Treatment or X-Ray Fluorescence
PBB / PBDE	1000ppm	GCMS, FTTR, or X-Ray Fluorescence

Enjoy Quiet Life from Minimum Noise

Superflow Layer Axial Fan

The design of the fan has adopted the best fluid distribution design, and a new type of fan blade shape has been developed that can reduce turbulent flow around the fan. Noise is reduced by increasing the fan diameter and controlling the rotating speed.

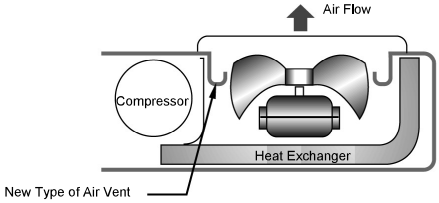


Optimal Distribution of Inlet Angle

Increased Angular Lifting Capacity

Adoption of New Type of Air Vent

New air vent (resin type) minimizes flow frictional resistance, and makes air flow smoothly and produce only little noise.

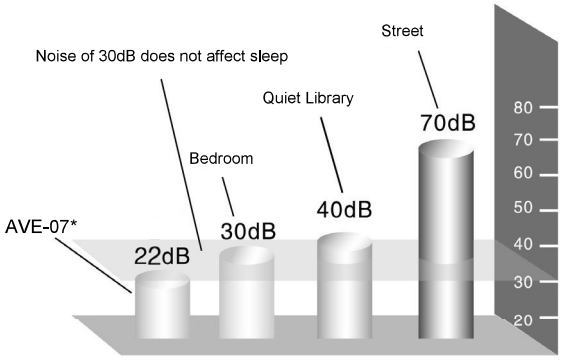


Very Low Level of Noise Realized in the Industry

The outdoor unit has a unique night run setting function, which makes the noise under the full load operation at night reduce 5-6 dB (A) compared with the normal operation during the daytime, the minimum level can reach 42dB(A)(AFW-38U4SC).

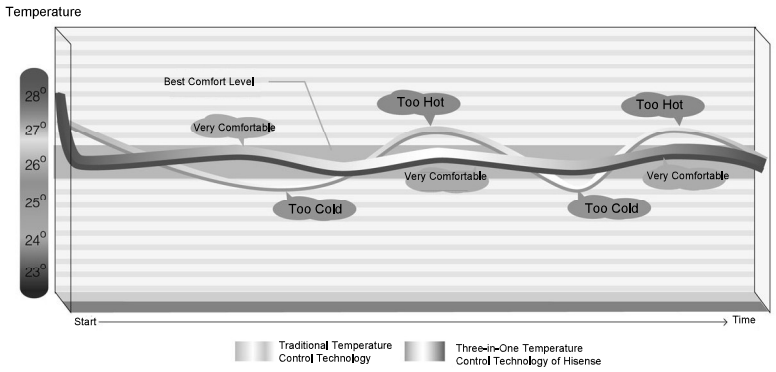


The operation noise of the thin air-duct air conditioner AVE-07* with minimum noise in the industry can be minimized to 22dB(A).



Three-in-one temperature control induction makes you enjoy comfortable temperature

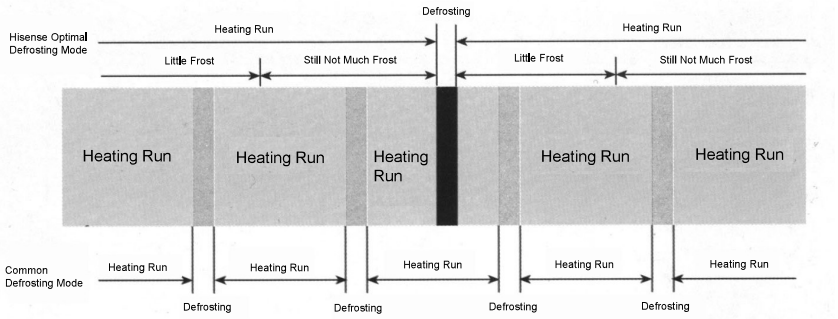
Three-in-one temperature control induction technology of outlet air temperature sensor, return air temperature sensor and remote-control temperature sensor can sense indoor temperature accurately and improve the comfort level greatly.



Strong Intelligent Defrosting and Heating

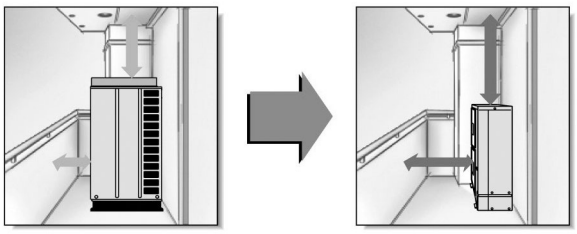
The system will not frost frequently under operation in winter, defrosting times are fewer, so that heating effect in winter is guaranteed.

The outdoor unit adopts outdoor temperature sensor and heat exchanger temperature sensor to conduct variable-parameter defrosting at accurate time. The optimal cycle control is conducted through the combined control of fan rotational speed, electronic expansion valve opening and compressor frequency conversion control, the occurrence of frosting is postponed, the frost quantity per unit time is significantly reduced, which is only 1/3 of the common defrosting mode.



Volume decrease and Space saving

The system host, compact in volume, light in weight, small in size and easy for installation, can be installed in sheltered places like balcony or storage room, and can meet the requirements of multiple rooms for cooling or heating at the same time. The outdoor unit will not damage the overall appearance of the building due to its reasonable placement.

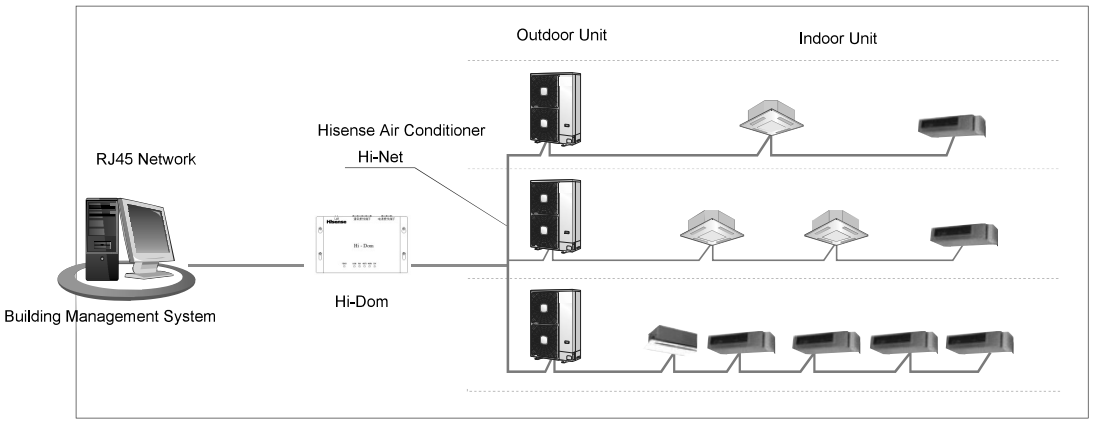


Hisense Centralized Control System

Hisense centralized control system can realize centralized monitoring and control of all air conditioners through the computer, the system has powerful functions and is simple to operate, a maximum of 2048 outdoor units and 4096 indoor units can be monitored and controlled by the system.

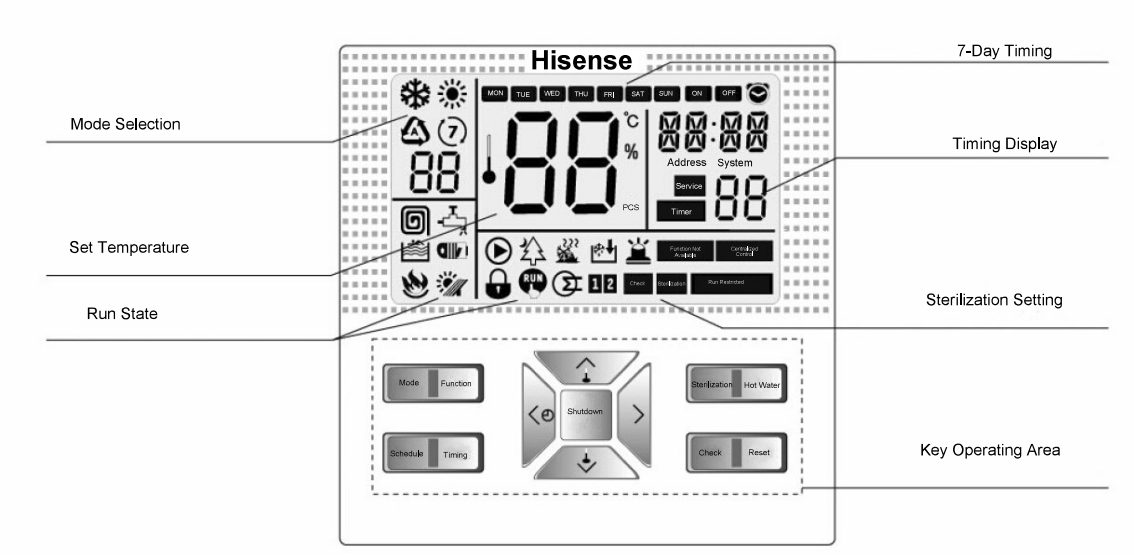
Hisense Smart Home Management System

Connection and normal communication can be realized between the air conditioning system and the smart home system through the air conditioning network converter, by incorporating household central air-conditioning system and hot water system into the smart home system, application management that is more humanized and more convenient can be realized.



Smart Controller of Central Water Heater

The system is equipped with a smart controller that is easy to operate. Heating time, heating method and heating temperature of the water tank can be set by appointment according to need.



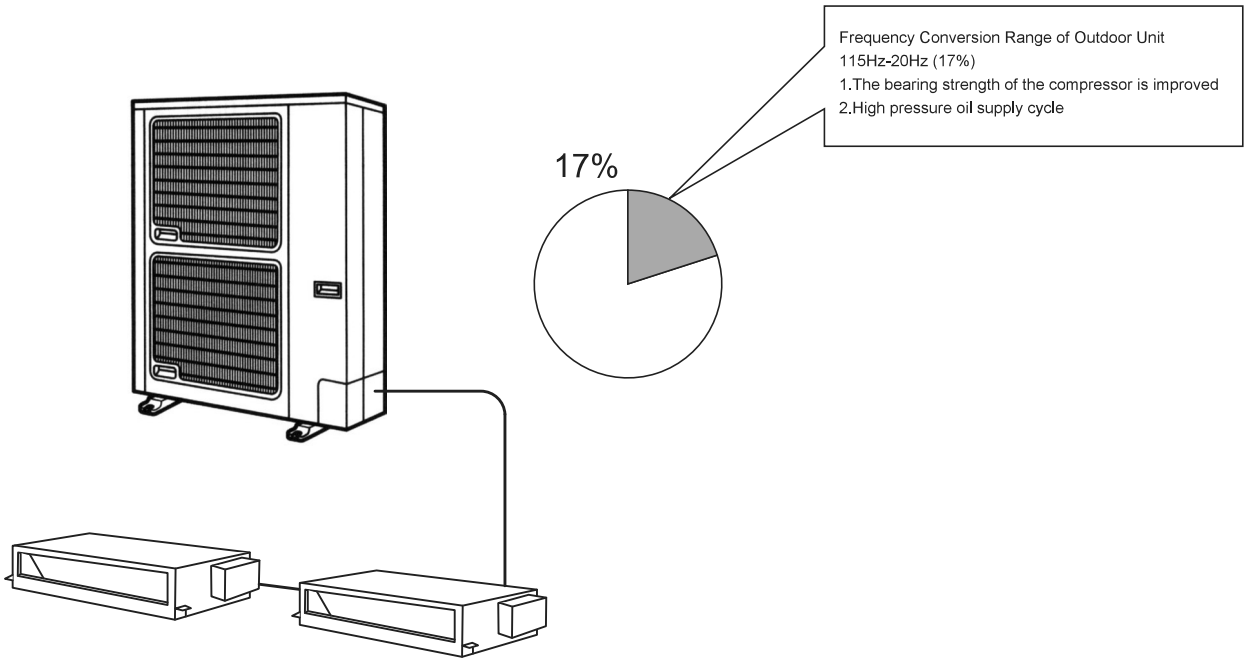
HYXE-F12H

- Daily water heating time can be set through the schedule setting.
- The controller can be set simultaneously with automatic switchover between preparation of domestic hot water and that of floor heating hot water.
- The water tank is not equipped with heat-preservation function, when the temperature is lower than the set temperature, the system will automatically heat to guarantee water temperature.

Electronic Volume Control

Outdoor unit capacity can be changed between 20Hz and 115Hz continuously through the frequency converter, wide operating range can be guaranteed through improvement of the bearing strength of the compressor and built-in oil separation function, so the air conditioning system can be perfectly adjusted according to the load changes throughout the day.

In addition, driven by inverter controlled compressor, and through check of return air temperature and set room temperature, indoor unit capacity can also be controlled. Thus, even a very small room can reach the comfortable air conditioning requirement without “ON/OFF” operation of the control equipment.



1.3 Test Run and Self Check Control

Test run function and self-check function of multifunctional remote controller and outdoor unit control panel

High quality control can be realized through the new type of wired remote controller, the self-check function of the latest equipment can speed up the check of the operating conditions of indoor units and outdoor units, in addition, the alarm data when a unit is abnormal can be conveniently kept in a computer.

The self-check function can also be realized through the control panel of the outdoor unit, the seven-segment digital display on the control panel can display a variety of operating data, such as electronic expansion valve opening and so on.

Through these functions, the cycles of the test run and maintenance work of the unit can be shortened, and the workload is reduced.

● The wired remote controller can be used for checks.

LCD wired remote controller (optional) can be used to check the PCB control panel, therefore, the check of PCB is fast and accurate.

● Date memory of the wired remote controller

When an abnormal situation occurs, the LCD wired remote controller displays an alarm code for fast check of the fault.

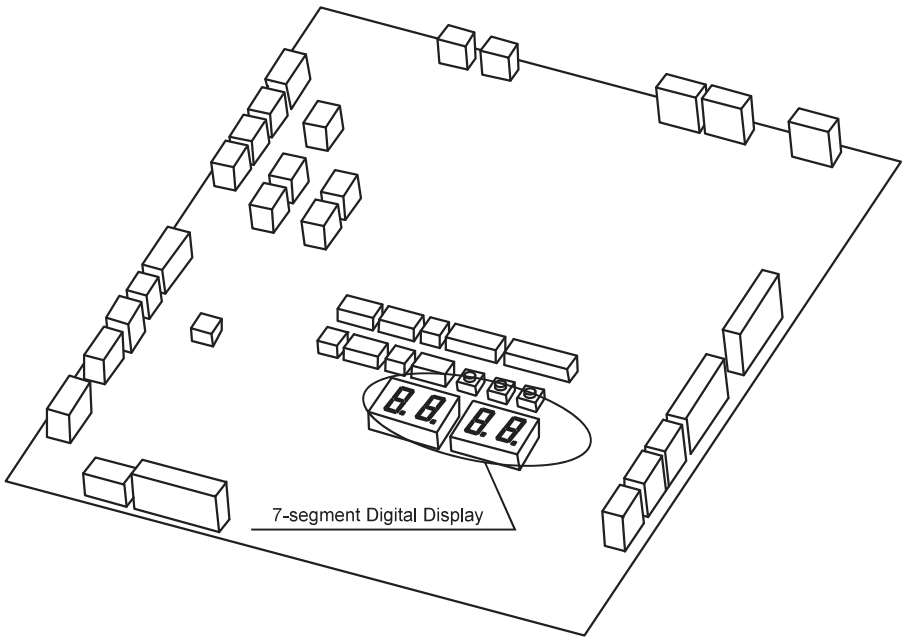
Self Check Function

● The seven-segment digital display of the outdoor unit can be used for check

The PCB of the outdoor unit is equipped with seven-segment digital display tubes, these digital display tubes can display a variety of operating parameters, such as:

- Outdoor environment temperature
- Discharge temperature
- Evaporating temperature at the time of heating operation
- Condensation temperature
- Discharge pressure
- Suction pressure
- Running time of the compressor

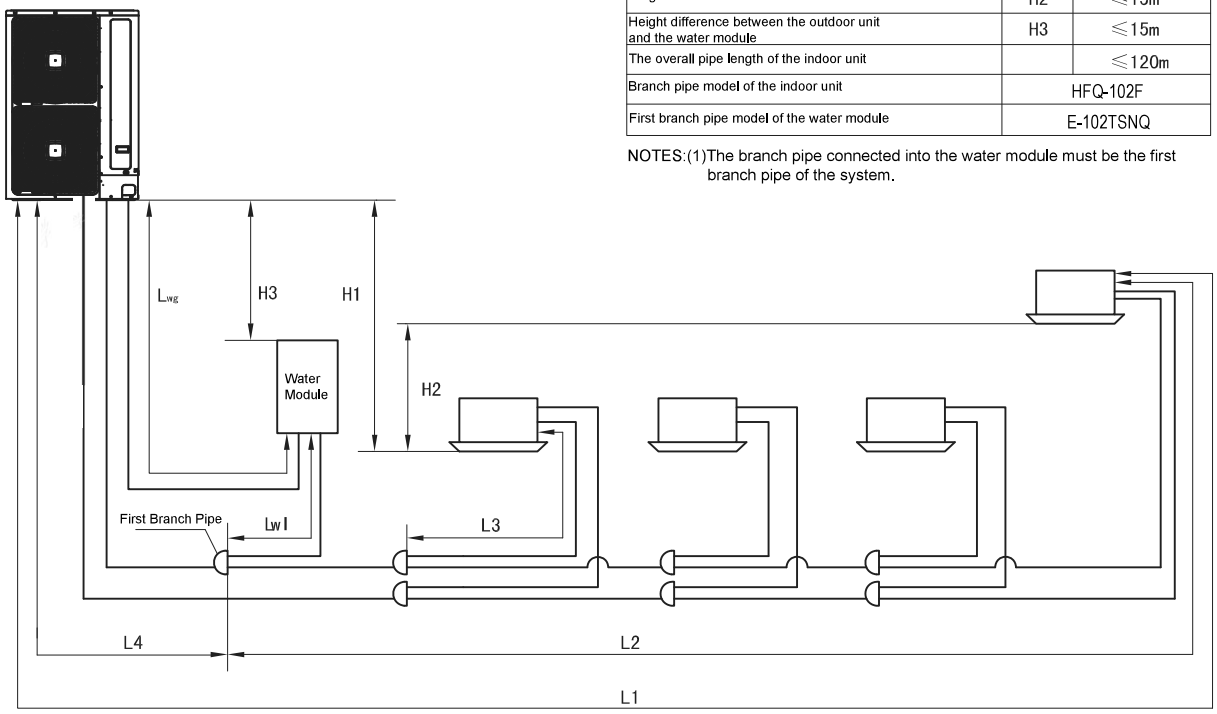
In addition, test run data or normal working data can also be provided fast and accurately.



Piping System

Item			Type 38~54
Refrigerant tube length	Actual length	L1	≤40m
	Equivalent length	L1	≤48m
The pipe length from the first branch pipe to the farthest indoor unit		L2	≤30m
The pipe length from each branch pipe to the indoor unit		L3	≤15m
The pipe length from the outdoor unit to the first branch pipe		L4	≤15m
Gas pipe length from the outdoor unit to the water module		Lwg	≤15m
Liquid pipe length from the first branch pipe to the water module		Lwl	≤15m
Height difference between the indoor unit and the outdoor unit		H1	≤30m
Height difference between the indoor units		H2	≤15m
Height difference between the outdoor unit and the water module		H3	≤15m
The overall pipe length of the indoor unit			≤120m
Branch pipe model of the indoor unit		HFQ-102F	
First branch pipe model of the water module		E-102TSNQ	

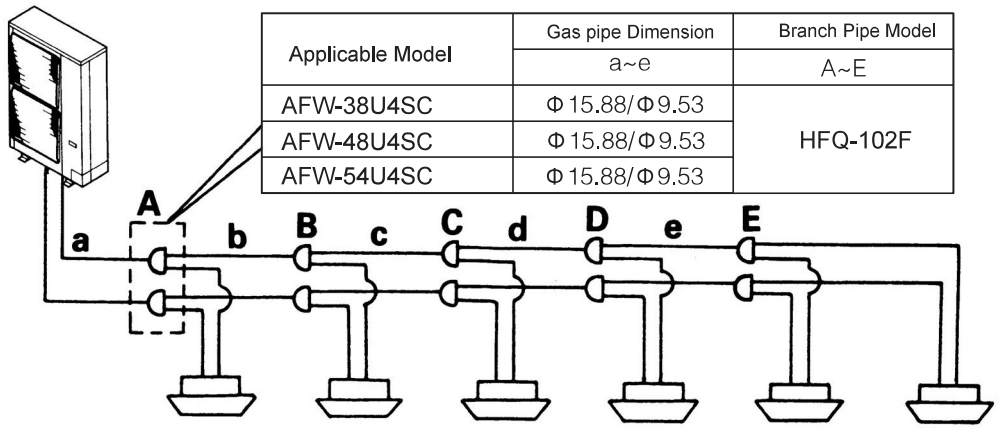
NOTES:(1)The branch pipe connected into the water module must be the first branch pipe of the system.



The same diameter piping system in the piping construction is greatly simplified

This new type of same diameter piping system can be applied only when the refrigerant main tube diameter is the same. Because the unified pipe diameter is adopted, the piping construction is very much simplified.

The design is simplified, and the complex work for selection of pipe diameters is avoided. Only two refrigerant tubes are needed in the refrigerant return passage. Various kinds of pipe joints are to be supplied according to the need of the site. These improvements make various problems easy to be resolved during the installation process. This new type of same diameter piping system saves both construction time and labor; it is undoubtedly a pioneering work. (Only the same diameter can be used)



Applicable Model	Gas pipe Dimension	Branch Pipe Model
	a~e	A~E
AFW-38U4SC	Φ15.88/Φ9.53	HFQ-102F
AFW-48U4SC	Φ15.88/Φ9.53	
AFW-54U4SC	Φ15.88/Φ9.53	

2. General Data

Comprehensive Parameters of Outdoor Unit

Model						AFW-38U4SC	AFW-48U4SC	AFW-54U4SC
Power Supply						220-240V~ 50Hz		
Performance	Air to Air*1	Cooling		Rated Capacity	kW	11.2	14.0	15.5
				Power Input	kW	2.99	3.92	4.44
				EER	-	3.75	3.57	3.49
		Heating		Rated Capacity	kW	12.5	16.0	18.0
				Power Input	kW	2.98	4.03	4.74
				COP	-	4.19	3.97	3.80
	Air to Water*2	Heating	A7/W35	Rated Capacity (Intergrated)	kW	11.2	14.0	16.0
				Power Input	kW	2.51	3.21	3.77
				COP	-	4.46	4.36	4.24
			A7/W45	Rated Capacity (Intergrated)	kW	10.45	12.74	14.72
				Power Input	kW	3.05	3.85	4.71
				COP	-	3.43	3.31	3.12
Noise Level (sound pressure)*3	Air to Air			Cooling	dB(A)	50	51	53
				Heating	dB(A)	53	54	55
Dimensions	Unit Dimensions			Height x Width x Depth	mm	1380×950×370		
	Package Dimensions			Height x Width x Depth	mm	1531×1070×515		
Weight	Net Weight				kg	102	103	104
	Gross Weight				kg	115		
Refrigerant	Type				-	R410A		
	Charge Amount(before shippment)				kg	3.6		
Components	Heat Exchanger					Multi-Pass Cross-Finned Tube		
	Compressor			Type		DC Sealed Scroll Type		
				Quantity	-	1	1	1
				Motor Output Power	kW	2.2	2.5	2.8
	Fan			Type	-	Axial Flow Type		
				Quantity	-	2	2	2
				Motor Output Power	W	51×2	51×2	51×2
				Air Volume	m3/min	90	90	100
Piping Connection	Gas Pipe				mm	Φ15.88		
	High Pressure Gas Pipe				mm	Φ12.7		
	Liquid Pipe				mm	Φ9.53		
	Branch Pipe Model			Connect to Indoor Units	-	HFQ-102F		
				Connect to Water Module	-	E-102TSNQ		

NOTE:Specifications may be subject to change without prior notice. All the permance test is performed according to EN14511.
*1.Air to Air operating conditions, piping length: 7.5m, piping lift: 0m, combination ratio 100%
a) Cooling-Indoor air inlet temperature: 27°C DB/19°C WB, Outdoor ambient temperature: 35°C DB
b) Heating-Indoor air inlet temperature: 20°C DB, Outdoor ambient temperature: 7°C DB/6°C WB
*2.Air to Water operating conditions, piping length: 7.5m, pipe lift: 0m, combination with AFM-54EX4SA
a) A7/W35-Water inlet/outlet temperature: 30/35°C, Outdoor ambient temperature: 7°C DB/6°C WB
b) A7/W45-Water inlet/outlet temperature: 40/45°C, Outdoor ambient temperature: 7°C DB/6°C WB
*3.Noise level(sound pressure) condition:
a) Noise parameters are measured in an anechoic chamber without reflection echo
b) At a place 1.5m from the ground and 1m from the maintenance panel surface of the outdoor unit
c) The noise test (cooling/Heating) condition is the same as *1

Comprehensive Parameters of the Water Module

Model			AFM-54EX4SA
Power Supply			220-240V~ 50Hz
Rated Heating Capacity		kW	16.0
Auxiliary Electrical Heating Capacity		kW	3.0
water flow	Nominal	m^3/h	2.75
	Min.	m^3/h	0.84
Shell	Color		White
	Material		Spraying Steel Plates
Dimensions	Height x Width x Depth	mm	890x520x320
Weight	Net Weight	kg	58
	Gross Weight	kg	74
Water Pump	Type	-	DC Inverter
	Input Power	W	180
Water Side Heat Exchanger	Type		Brazed Plate Heat Exchanger
	Quantity		1
	Water Storage Capacity	L	2.91
	Heating Water Flow	L/min	22.9
	Volume	L	8
Expansion Tank	Maximum Water Pressure	bar	3
	Pre-pressure	bar	1
Water Loop	Piping	inch	G1-1/4"
	Safety Valve	bar	3
Refrigerant Loop	High Pressure Gas Pipe	mm	Φ12.7
	Liquid Pipe	mm	Φ9.53
Noise Level	Sound Pressure	dB(A)	32

NOTE:The rated heating capacity is measured in the following operating conditions:

a) Combination with the outdoor unit AFW-54U4SC

b) Outlet water temperature of water module: 40°C, Outdoor ambient temperature: 7°C DB/6°C WB

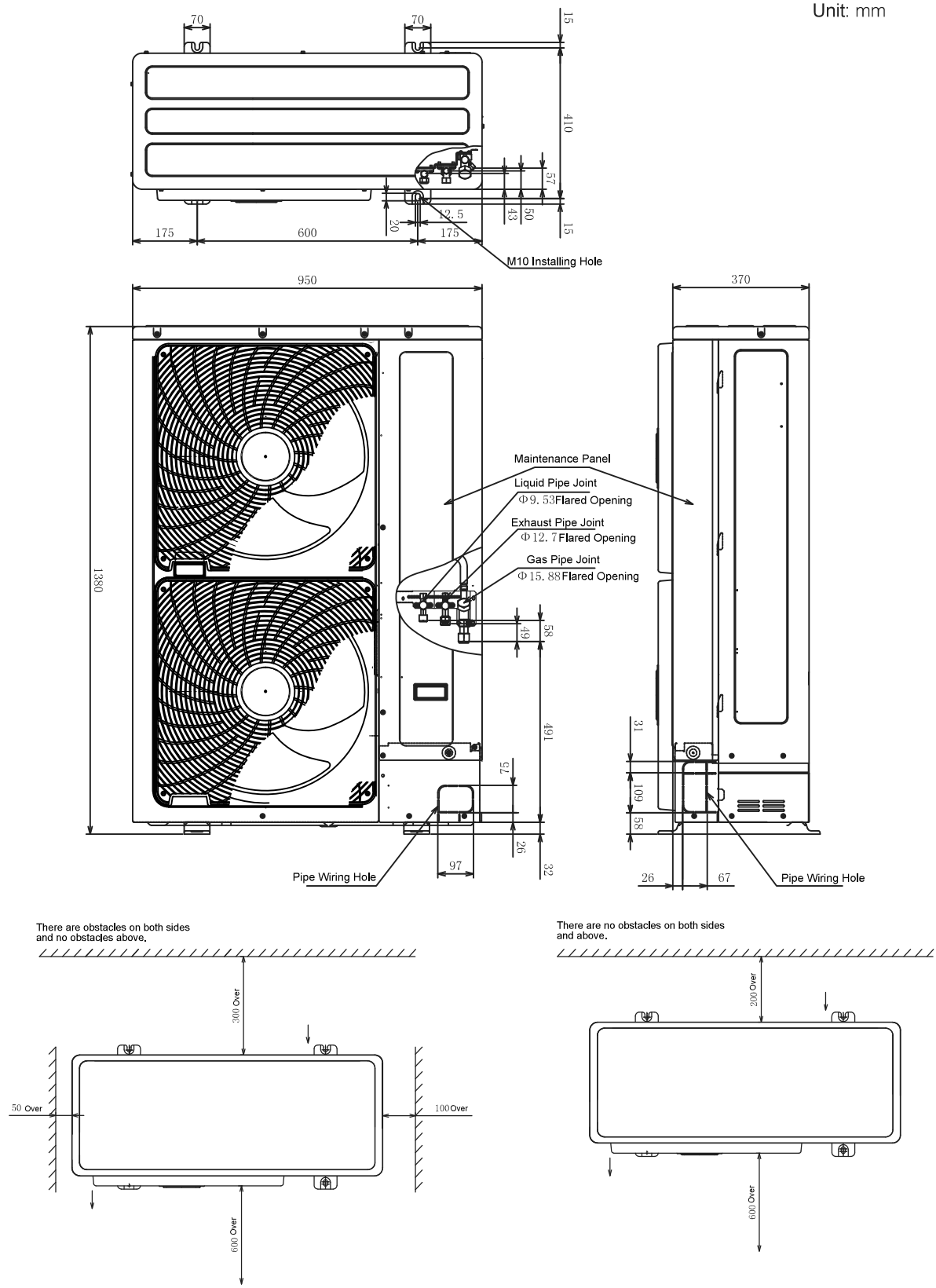
c) Piping length: 7.5m, Pipe lift: 0m

3.Dimension Data

3.1 Dimension Data of Outdoor Unit

Model: AFW-38U4SC AFW-48U4SC AFW-54U4SC

Unit: mm



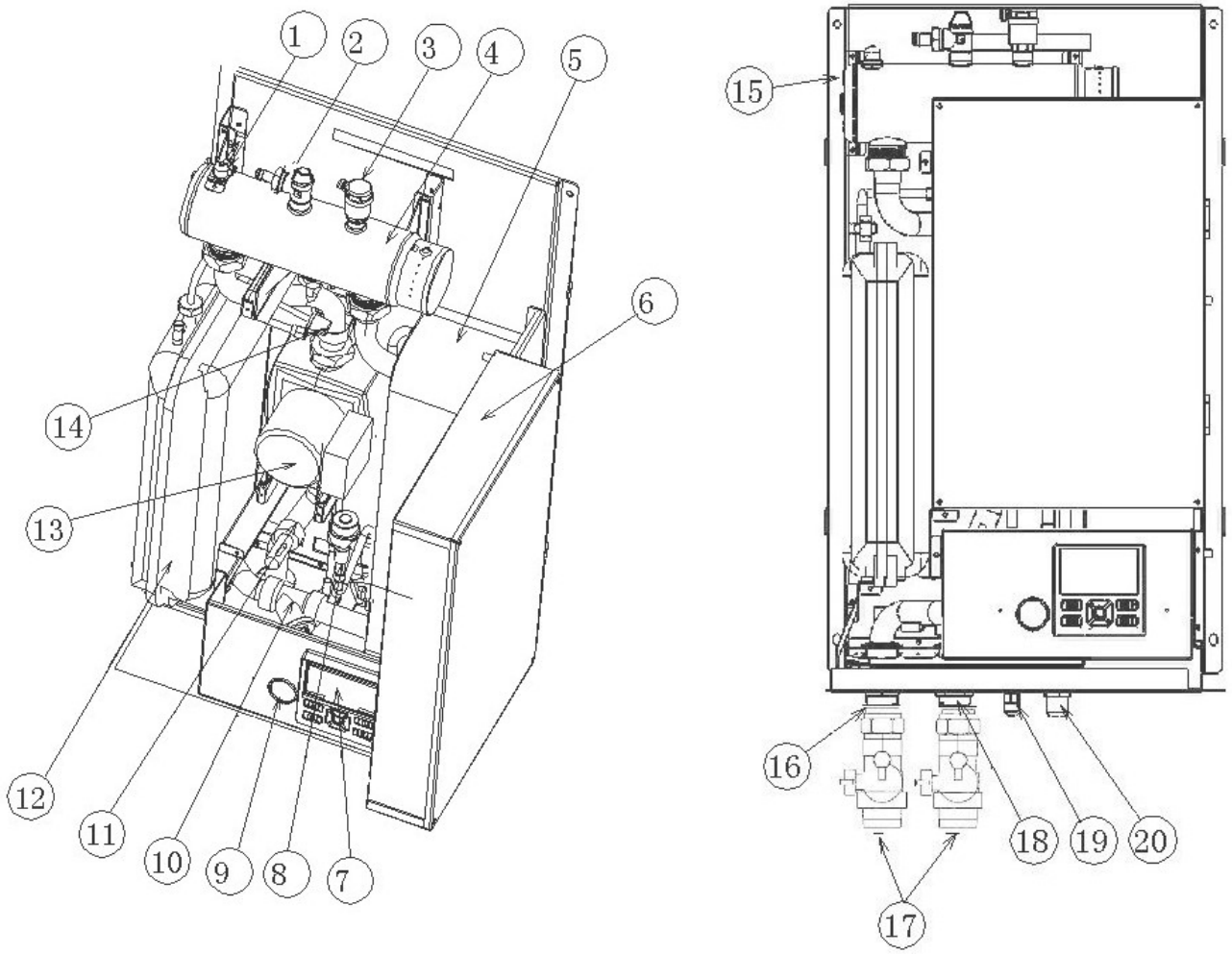
NOTE:

1.The stop valve is within the cabinet.

2.Fixed bolt installation interval size is 600x410.

3.2 Dimension Data of Water Module

3.2.1 Structure Diagram of Water Module



①Electric Heating Temperature Switch in Water Module

②Safety Valve

Safety Valve guarantees hydraulic pressure is below 3bar to prevent from too high hydraulic pressure in water cycle. When the hydraulic pressure is too high, drain some water.

③Automatic Vent Valve

Remove residual air in water system through automatic vent valve.

④ Electrical Heater

⑤ Plate Heat Exchanger

⑥ Electrical Box

⑦ Wire Controller

⑧ Electronic Expansion Valve

⑨ Pressure Gage

Read pressure in water circulating system.

⑩ Filter

⑪ Water Flow Switch

Water Flow Switch disconnects and the unit stops when water flow is too low.

⑫Expansion Tank

Volume change caused by temperature change in absorbed water circulating system.

⑬Water Pump

Feed power to water circulating system.

⑭Low Water Pressure Switch

It trips and the unit stops when pressure in water circulating system is too low.

⑮Temperature Fuse in Water Module Heater

Temperature fuse disconnects and electrical heater cuts off at too high temperature. It can not automatically restore.

⑯Water Inlet

⑰Ball Valve

Isolate water circulation after ball valves in water inlet and outlet are closed. Water make-up inlet in ball valve supplements water to water circulating system.

⑱Water Outlet

⑲Refrigerant Liquid Pipe Joint

⑳Refrigerant Gas Pipe Joint

3.2.2 Dimensions of Water Module

•Dimensions of water module are as shown in Figure 3.1 (Unit: mm).

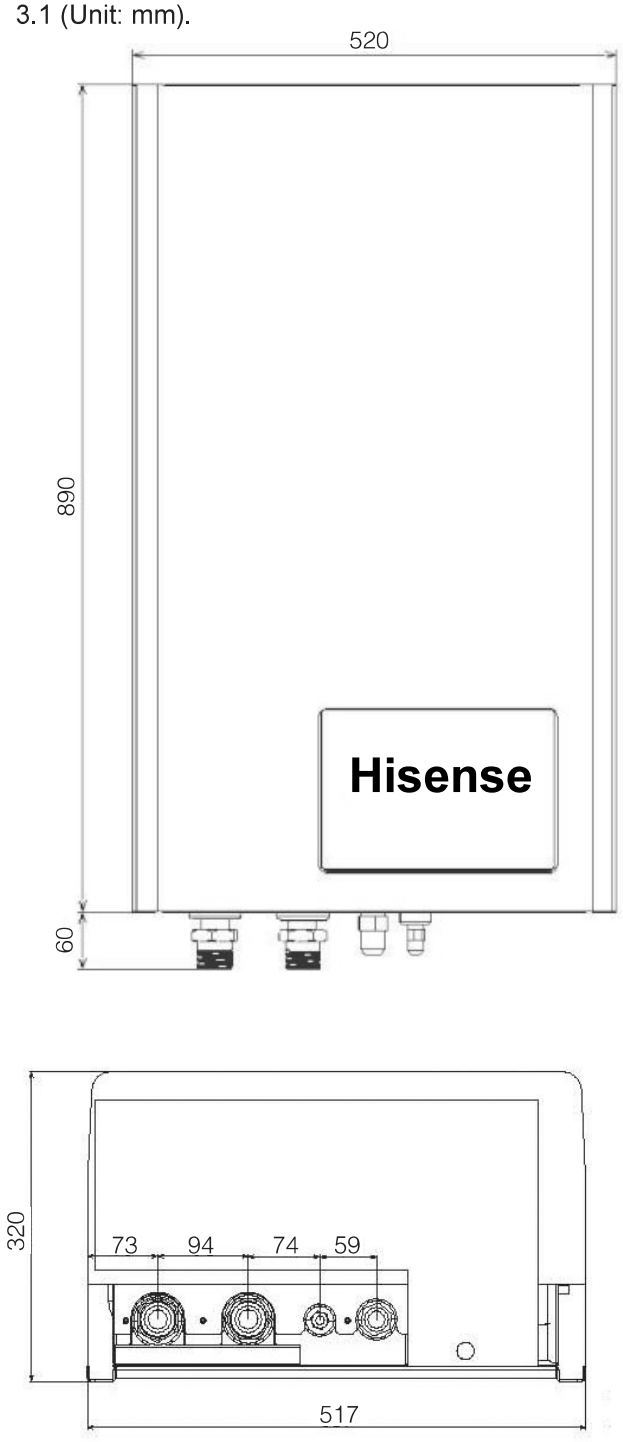


Figure 3.1 Dimensions of Water Module

•Install water module to a place where it is easy for operation and maintenance, as shown in Figure 3.2.

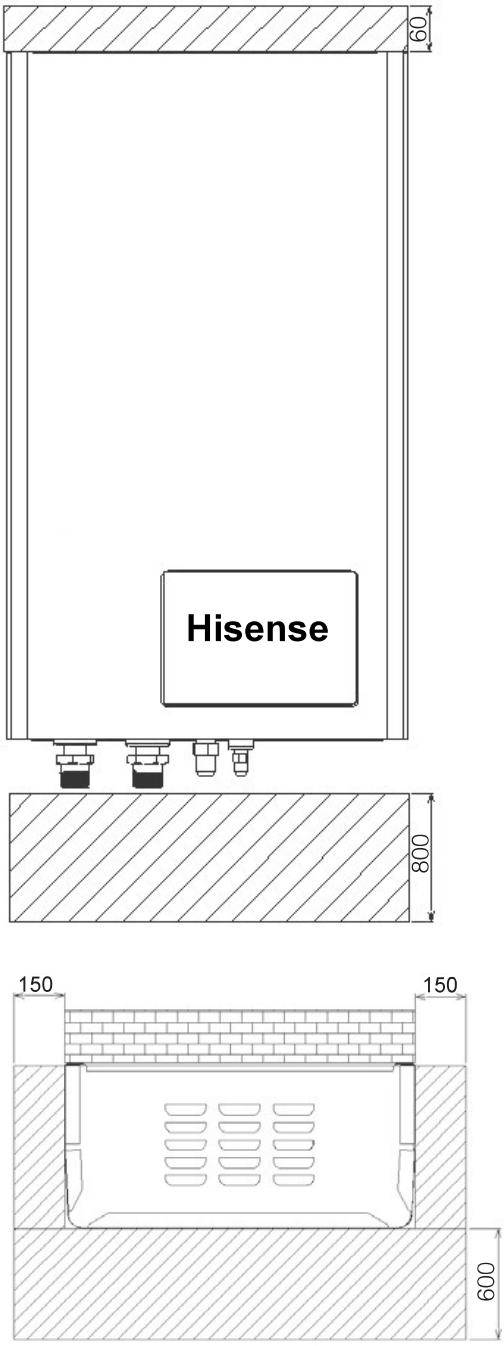


Figure 3.2b Installation and Maintenance Space

Selection of Installation Site:

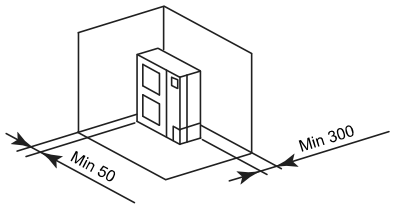
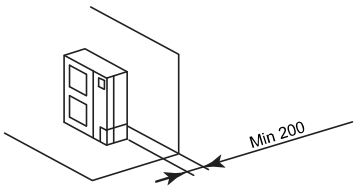
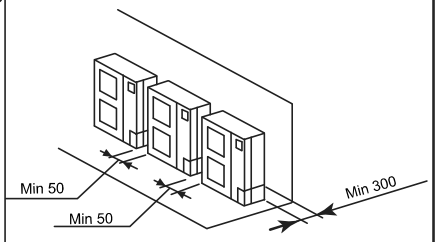
•Indoor installation is made in selected special machine room, closed balcony, basement, corridor, equipment room or other indoor area with sufficient space.

•Installation surface must be flat, vertical and nonflammable wall and bear running weight of the unit.

4. Selection of Application Parameters

4.1 Operation Space

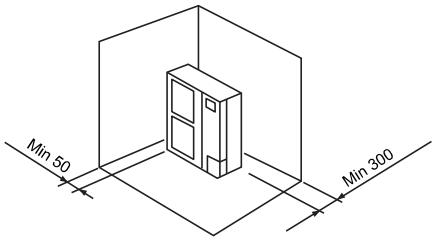
(mm)

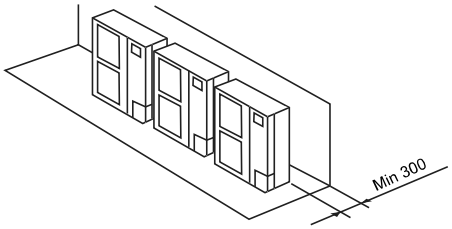
Independent Installation	Independent Installation	Installation of Multiple Units Together
Open on the right side and above 	Open on the left and right sides and above 	

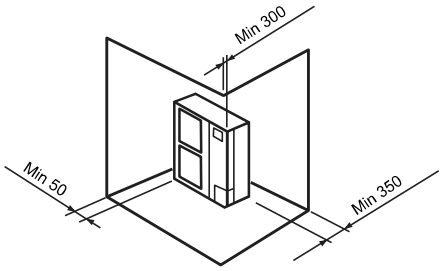
Outdoor Unit

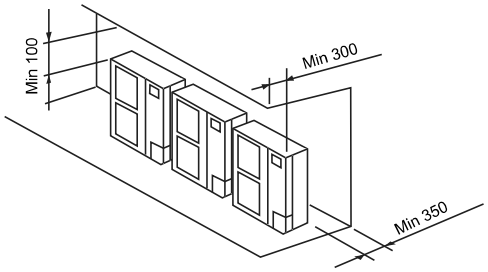
Sufficient space for maintenance should be left when an outdoor unit is installed according to the figure.

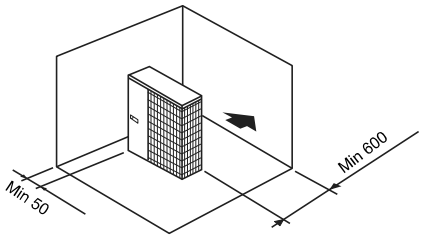
(mm)

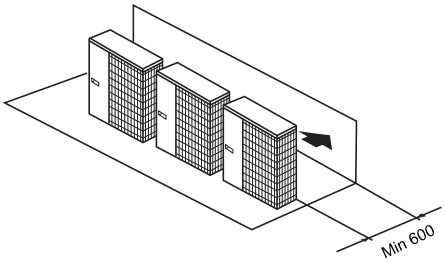
<table>
<tr><td colspan="4">Conditions when there are obstacles on both air-intake side and air-outtake side</td></tr>
<tr><td rowspan="3">Under the condition when there is no obstacle on air suction side</td><td>There are no obstacles above</td><td>One unit is installed</td><td>Multiple units are installed</td></tr>
<tr><td></td><td>

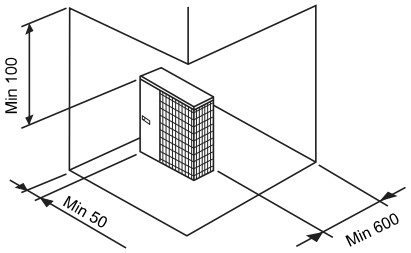
The maintenance panel space should be larger than 50mm, if both the left side and right side of the outdoor unit are open, there should be a space of 300mm at least behind.</td><td>

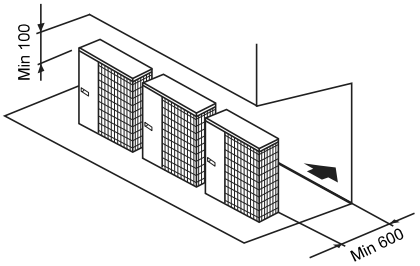
The distance between outdoor units is larger than 50mm, and there are no obstacles on both the left side and right side of the outdoor unit.</td></tr>
<tr><td>There are obstacles above</td><td>

50mm at least on each side</td><td>

The distance between outdoor units is larger than 50mm, and there are no obstacles on both the left side and right side of the outdoor unit.</td></tr>
<tr><td rowspan="3">Under the condition when there is no obstacle on air-outtake side</td><td>There are no obstacles above</td><td>

50mm at least on each side</td><td>

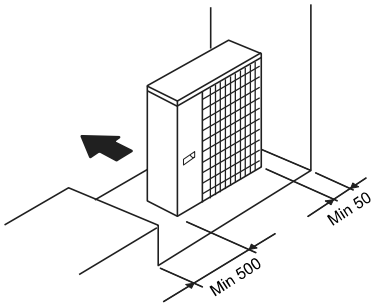
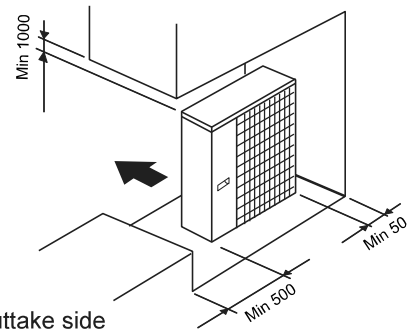
The distance between outdoor units is larger than 50mm, and there are no obstacles on both the left side and right side of the outdoor unit.</td></tr>
<tr><td>There are no obstacles above</td><td>

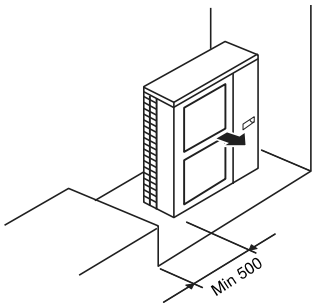
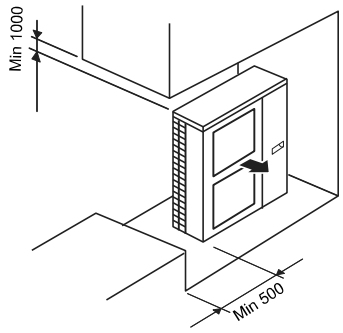
50mm at least on each side</td><td>

The distance between outdoor units is larger than 50mm, and there are no obstacles on both the left side and right side of the outdoor unit.</td></tr>
</table>

Installation Space (1)

(mm)

<table>
<tr><td colspan="2">If there are obstacles on both the left side and right side</td></tr>
<tr><td rowspan="2">If there are no obstacles above</td><td>When one outdoor unit is installed</td></tr>
<tr><td>
</td></tr>
<tr><td>If there are obstacles above</td><td>

Air deflector is installed on air-outtake side</td></tr>
<tr><td>If there are no obstacles above</td><td>
</td></tr>
<tr><td>If there are obstacles above</td><td>
</td></tr>
</table>

Installation Space (2)

(mm)

When multiple units are installed

Type A

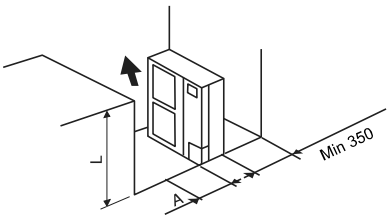
Wall

Front

Wall

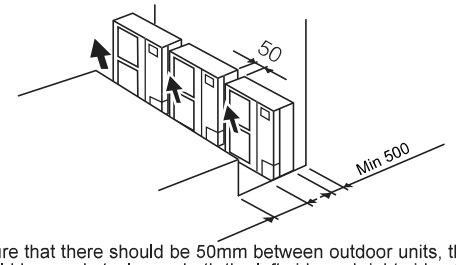
There are no obstacles above

If only one unit is installed



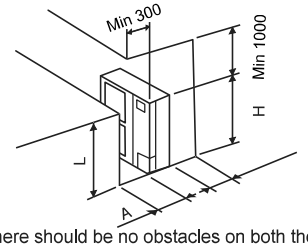
There should be no obstacles on both the left side and right side, check and confirm that an air deflector has been used.

Multiple units are installed

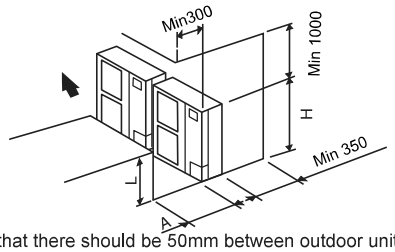


Ensure that there should be 50mm between outdoor units, there should be no obstacles on both the left side and right side of the outdoor unit, and there should be 500mm (in the rear of the unit where the sunlight can shine directly) between the unit and the wall. Check and confirm that an air deflector has been used.

There are obstacles above



There should be no obstacles on both the left side and right side, check and confirm that an air deflector has been used.



Ensure that there should be 50mm between outdoor units, and there should be no obstacles on both the left side and right side of the outdoor unit, check and confirm that an air deflector has been used.

A Dimension Table

L	A
0 < L≤1/2H	Min 600
1/2H < L ≤H	Min 1200

If L>H raise the unit to make L< H

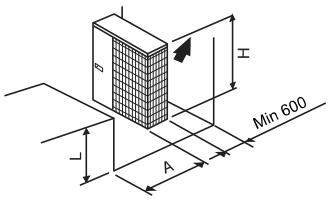
Type B

Wall

Front

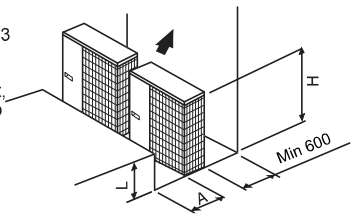
Wall

There are no obstacles above



There should be no obstacles on both the left side and right side, check and confirm that an air deflector has been used.

Ensure that there should be 50mm between outdoor units, do not install 3 or over 3 outdoor units on both the left side and right side of the outdoor unit, and there should be no obstacles on both the left side and right side of the outdoor unit, check and confirm that an air deflector has been used.



A Dimension Table

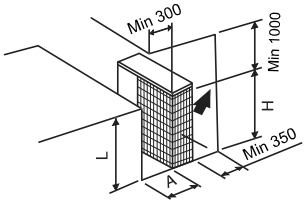
L	A
0 < L≤1/2H	Min 200
1/2H < L ≤H	Min 300

If L>H raise the unit to make L< H

L	A
0 < L≤1/2H	Min 200
1/2H < L ≤H	Min 350

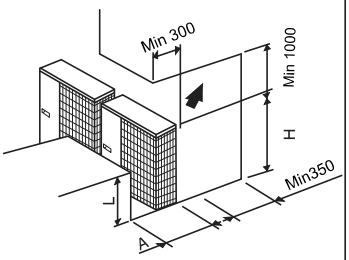
If L>H raise the unit to make L< H

There are obstacles above



There should be no obstacles on both the left side and right side, check and confirm that an air deflector has been used.

Ensure that there should be 50mm between outdoor units, do not install 3 or over 3 outdoor units on both the left side and right side of the outdoor unit, and there should be no obstacles on both the left side and right side of the outdoor unit, check and confirm that an air deflector has been used.



A Dimension Table

L	A
0 < L≤1/2H	Min 600
1/2H < L ≤H	Min 1200

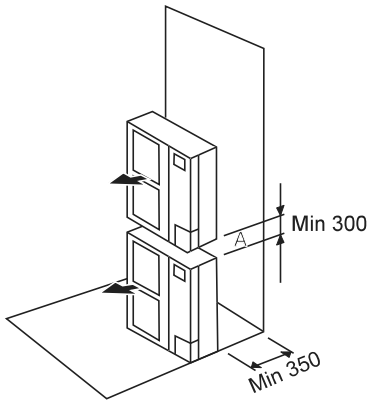
If L>H raise the unit to make L< H

Installation Space (3)

(mm)

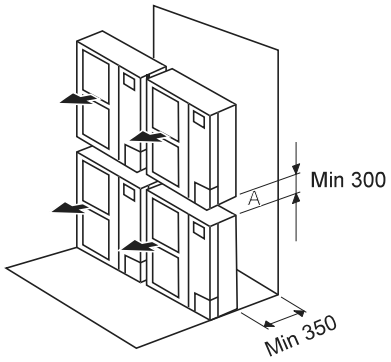
Install (a maximum of 2 units) in vertical direction

One unit installed vertically

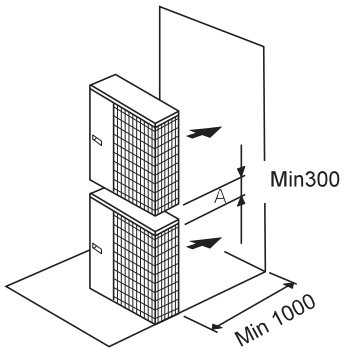


Fill in "A" space to avoid the inlet or outlet short circuit, do not let the condensate water of the above outdoor unit drip.

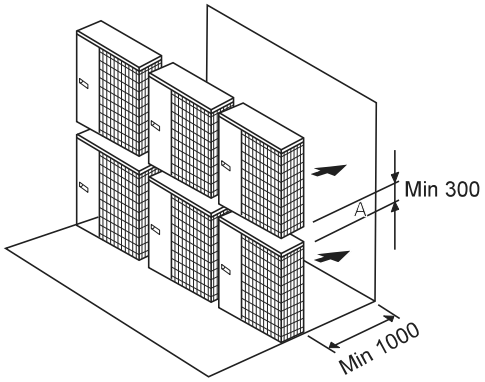
Multiple units installed vertically



When the distance between outdoor units is over 50mm, do not install over 3 outdoor units. There should be no obstacles on both sides of the unit. Fill in "A" space to avoid the inlet or outlet short circuit, do not let the condensate water of the above outdoor unit drip.



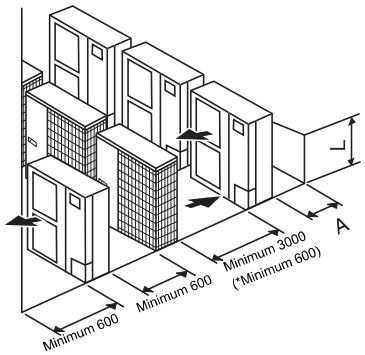
Fill in "A" space to avoid the inlet or outlet short circuit, do not let the condensate water of the above outdoor unit drip.



When the distance between outdoor units is over 50mm, do not install over 3 outdoor units. There should be no obstacles on both sides of the unit. Fill in "A" space to avoid the inlet or outlet short circuit, do not let the condensate water of the above outdoor unit drip.

Installation Space (4)

Multiple units installed simultaneously



50mm should be left on the sides of the unit.

Dimensions are as follows

L	A
0 < L≤1/2H	Min200
1/2H < L ≤H	Min300

If L>H raise the unit to make L< H

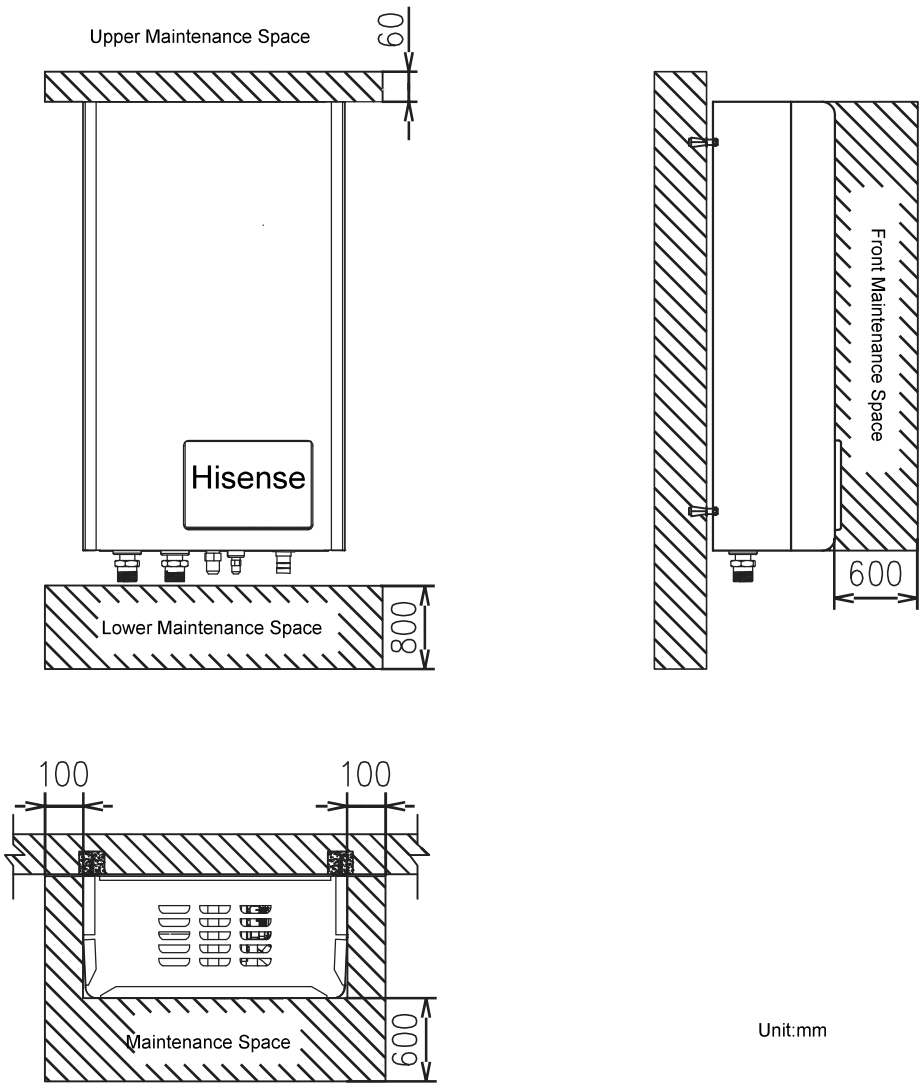
Ensure that a current transformer has been used where dimensions marked with "*" have been used.

4.2 Installation Space of Water Module

Model: AFM-54EX4SA

Selection of Installation Site

- Installation must be made indoors. Indoor installation is made in selected special machine room, closed balcony, basement, corridor, equipment room or other indoor area with sufficient space, such as toilet.
- Installation surface must be flat, vertical and nonflammable wall and bear running weight of the unit.
- Installation location is free from frosting.
- Water module is installed in cool place, avoiding exposure to sunshine, high temperature or radiation by heat source.
- Temperature of place where water module is installed should be within 5-35°C, and relative humidity is no more than 80%.
- Water module should be put in a place free from corrosive acid and alkaline gas.
- Do not install water module in places with high greasy dirt, fibre, dust and volatile flammable gas such as gasoline and paint solvent.
- Do not install water module in a place where the electromagnetic wave can directly radiate electric box.
- Keep 3m away from electromagnetic wave radiation at least.
- Noise of water module should not affect people's daily life and working.
- Not less than 600 mm is to be reserved to facilitate removal of front panel and replacement of water pump and expansion tank, etc.
- Not less than 100 mm is to be reserved on the left and right sides to facilitate removal of and free rotation of electric device.
- Not less than 800 mm is to be reserved below the unit to facilitate piping and water pipe connection below and connection of automatic water refilling valve and filter.
- Not less than 60 mm is to be reserved at the top of the unit to facilitate installation and disassembly.



Installation and Maintenance Space

4.3 Installation Space of Water Tank

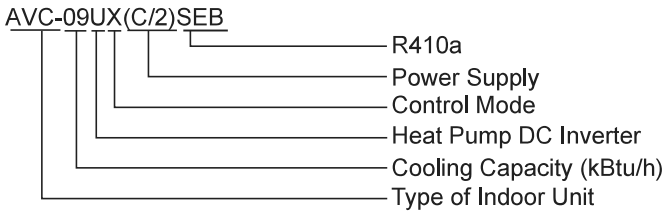
Guide for Installation and Maintenance:

- Read carefully the manual before installing water tank. User should keep the manual properly.
- Power cut before maintenance and repair. Non-professional personnel are not allowed to operate.
- Power supply in water tank must be grounded reliably.
- It is dangerous to touch this equipment in wet body or when barefooted.
- Power cut before cleaning water tank.
- Do not put any articles above water tank. Falling or turning over will lead to injury. Do not block water inlet or outlet of water tank.
- Recommend installing this equipment to balcony or outdoor at temperature from 0°C to 43°C.
- If not use for a long time, drain out the unit and water pipeline on site.
- Hot water may cause serious burns. Use after the hot water and cold water are mixed.
- Hot water above 50°C may cause burns. Do not test water temperature with hands directly. Use after the hot water and cold water are mixed till proper temperature.
- This unit is equipped with temperature and pressure valves, for need of safety, the installation position of such valves can not be changed privately, and it is strictly prohibited to block their outlets.
- Use tap water that is not hard. If use hard water, water tank liner, heat exchange coil, valves and motor heat tube will shorten their service lives. Do not use well water, underground water, spring water, otherwise, the service life of product can not be guaranteed. ● The water can not be drunk. If solids, discoloration, sludge and foreign taste occur, do not use and contact local dealer.
- Connecting of water tube with tap water should be operated by qualified staff using proper piping material according to local regulations and standards.
- Do not use complete defluoridation device because it may cause bacteria proliferation in water tank.
- When water is treated by water purifying system, water quality problem may occur. Contact local dealer.
- Do not add bath agent into water tank, which may cause water tank and piping failure.
- The tank should be installed according to local regulation. If you have any questions about the tank, please contact the tank supplier.

4.4 Type Selection Guide

(1) Type Note

For Example :



Indoor Unit Type

Ceiling Ducted Type (Low Static Pressure)	AVD
Ceiling Ducted Type (High Static Pressure)	AVD
Low-Height Ceiling Ducted Type	AVE
1-Way Cassette Type	AVY
2-Way Cassette Type	AVL
4-Way Cassette Type	AVBC
Compact 4-Way Cassette Type	AVC
Wall-Mounted Type	AVS
Ceiling and Floor Type	AVV
Floor-Concealed Type	AVH
Console Type	AVK

NOTE:

In selection of indoor and outdoor units, the total horsepower of all the indoor units must match that of outdoor units.

(2) Indoor Unit Standard Capacity

Indoor Unit Model		Type 05	Type 07	Type 09	Type 12	Type 14
Cooling Capacity	kW	1.7	2.2	2.8	3.6	4.3
	kcal/h	1,500	1,900	2,400	3,100	3,700
	Btu/h	5,800	7,500	9,500	12,300	14,700
Heating Capacity	kW	1.9	2.8	3.3	4.2	4.9
	kcal/h	1,700	2,400	2,800	3,600	4,200
	Btu/h	6,500	9,500	11,100	14,300	16,700

Indoor Unit Model		Type 17	Type 18	Type 22	Type 24
Cooling Capacity	kW	5.0	5.6	6.3	7.1
	kcal/h	4,300	4,800	5,400	6,100
	Btu/h	17,000	19,100	21,500	24,200
Heating Capacity	kW	5.6	6.5	7.5	8.5
	kcal/h	5,000	5,600	6,500	7,300
	Btu/h	19,800	22,200	25,600	29,000

(3) In the aspect of standard capacity, the total capacity of all the indoor units must be equal to that of outdoor units (distribution rate is 100%). When it is not equal, please refer to parameters in 4.5 "Outdoor Unit Capacity Characteristic Curve".

(4) Maximum Actual Capacity of Outdoor Unit

Max actual capacity of outdoor units (outdoor unit capacity in rated condition x correction factor of total capacity of all indoor units x correction factor of piping length and height difference x correction factor of temperature condition)

4.5 Outdoor Unit Capacity at Different Temperatures

4.5.1 Air to Air : Cooling

* All the performance test is performed according to EN14511.
* The actual capacity would vary along with the installation conditions.

Model: AFW-38U4SC

Combination (%)	Outdoor temperature (DB,℃)	Indoor temperature(WB,℃)													
		15		16		18		19		20		22		23	
		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130%	10	9.05	1.29	10.16	1.67	12.37	2.44	13.47	2.82	13.78	2.84	14.40	2.90	14.71	2.92
	12	9.05	1.30	10.16	1.68	12.37	2.44	13.47	2.83	13.78	2.85	14.38	2.90	14.69	2.93
	14	9.05	1.30	10.16	1.68	12.37	2.45	13.47	2.83	13.77	2.86	14.36	2.91	14.66	2.93
	16	9.05	1.32	10.16	1.70	12.37	2.45	13.47	2.83	13.77	2.86	14.36	2.91	14.66	2.93
	18	9.05	1.34	10.16	1.71	12.37	2.47	13.47	2.84	13.77	2.87	14.36	2.92	14.66	2.95
	20	9.05	1.34	10.16	1.72	12.37	2.47	13.47	2.85	13.77	2.87	14.36	2.92	14.66	2.95
	22	9.05	1.37	10.16	1.74	12.37	2.49	13.47	2.86	13.77	2.89	14.36	2.94	14.65	2.97
	24	9.05	1.40	10.16	1.77	12.37	2.52	13.47	2.89	13.77	2.92	14.36	2.97	14.65	3.00
	25	9.05	1.42	10.15	1.79	12.34	2.54	13.44	2.91	13.74	2.93	14.35	2.99	14.65	3.01
	26	9.05	1.44	10.15	1.81	12.34	2.55	13.44	2.92	13.74	2.95	14.35	3.00	14.65	3.03
	28	8.89	1.51	9.97	1.87	12.13	2.59	13.20	2.95	13.50	2.98	14.10	3.03	14.40	3.06
	30	8.73	1.56	9.79	1.92	11.91	2.63	12.97	2.99	13.26	3.02	13.85	3.07	14.14	3.09
	32	8.47	1.65	9.51	2.00	11.57	2.70	12.60	3.04	12.86	3.07	13.37	3.12	13.63	3.14
	34	8.13	1.71	9.12	2.05	11.10	2.74	12.10	3.08	12.32	3.11	12.77	3.17	12.99	3.20
	35	7.88	1.75	8.85	2.09	10.79	2.78	11.76	3.12	11.96	3.15	12.37	3.21	12.58	3.24
	36	7.53	1.84	8.45	2.18	10.28	2.85	11.20	3.19	11.38	3.21	11.73	3.27	11.91	3.30
	38	6.99	2.01	7.81	2.34	9.47	2.99	10.29	3.32	10.42	3.34	10.68	3.38	10.81	3.40
	40	6.44	2.16	7.18	2.48	8.65	3.13	9.39	3.45	9.47	3.48	9.64	3.52	9.72	3.54
	43	5.75	2.37	6.47	2.69	7.92	3.34	8.64	3.66	8.74	3.68	8.94	3.73	9.04	3.76
120%	10	8.55	1.23	9.59	1.59	11.68	2.31	12.72	2.67	13.02	2.70	13.60	2.75	13.89	2.77
	12	8.55	1.23	9.59	1.59	11.68	2.32	12.72	2.68	13.01	2.70	13.58	2.75	13.87	2.77
	14	8.55	1.23	9.59	1.60	11.68	2.32	12.72	2.68	13.00	2.71	13.57	2.75	13.85	2.78
	16	8.55	1.25	9.59	1.61	11.68	2.33	12.72	2.69	13.00	2.71	13.57	2.76	13.85	2.78
	18	8.55	1.27	9.59	1.63	11.68	2.34	12.72	2.70	13.00	2.73	13.56	2.78	13.84	2.80
	20	8.55	1.28	9.59	1.64	11.68	2.35	12.72	2.71	13.00	2.74	13.56	2.78	13.84	2.81
	22	8.55	1.31	9.59	1.66	11.68	2.37	12.72	2.73	13.00	2.75	13.56	2.81	13.84	2.83
	24	8.55	1.34	9.59	1.69	11.68	2.41	12.72	2.76	13.00	2.79	13.56	2.84	13.84	2.86
	25	8.55	1.36	9.58	1.71	11.66	2.42	12.69	2.78	12.98	2.80	13.55	2.85	13.84	2.88
	26	8.55	1.38	9.58	1.74	11.66	2.45	12.69	2.80	12.98	2.83	13.55	2.88	13.84	2.90
	28	8.44	1.46	9.47	1.81	11.51	2.50	12.54	2.85	12.82	2.87	13.38	2.92	13.67	2.95
	30	8.33	1.51	9.34	1.86	11.37	2.55	12.38	2.89	12.66	2.92	13.22	2.97	13.50	2.99
	32	8.16	1.61	9.15	1.95	11.14	2.63	12.13	2.97	12.38	2.99	12.88	3.04	13.13	3.06
	34	7.93	1.68	8.90	2.02	10.83	2.69	11.80	3.03	12.01	3.06	12.45	3.12	12.67	3.15
	35	7.75	1.73	8.71	2.07	10.62	2.74	11.57	3.07	11.77	3.10	12.18	3.17	12.38	3.20
	36	7.50	1.82	8.41	2.15	10.24	2.81	11.15	3.14	11.32	3.17	11.68	3.23	11.85	3.25
	38	7.09	1.98	7.93	2.31	9.60	2.96	10.44	3.28	10.57	3.30	10.83	3.34	10.96	3.37
	40	6.68	2.14	7.44	2.46	8.97	3.10	9.74	3.42	9.82	3.44	9.99	3.49	10.08	3.51
	43	5.96	2.34	6.71	2.66	8.21	3.30	8.96	3.62	9.06	3.65	9.27	3.70	9.37	3.72

110%	10	8.05	1.16	9.03	1.50	10.99	2.18	11.98	2.52	12.25	2.55	12.80	2.59	13.07	2.62
	12	8.05	1.16	9.03	1.50	10.99	2.19	11.98	2.53	12.25	2.55	12.79	2.60	13.06	2.62
	14	8.05	1.17	9.03	1.51	10.99	2.19	11.98	2.54	12.24	2.56	12.77	2.60	13.03	2.63
	16	8.05	1.19	9.03	1.53	10.99	2.20	11.98	2.54	12.24	2.57	12.77	2.61	13.03	2.64
	18	8.05	1.21	9.03	1.54	10.99	2.22	11.98	2.56	12.24	2.58	12.77	2.63	13.03	2.66
	20	8.05	1.21	9.03	1.56	10.99	2.24	11.98	2.58	12.24	2.60	12.76	2.64	13.03	2.67
	22	8.05	1.24	9.03	1.58	10.99	2.26	11.98	2.60	12.24	2.62	12.76	2.67	13.03	2.70
	24	8.05	1.27	9.03	1.61	10.99	2.29	11.98	2.63	12.24	2.66	12.76	2.70	13.03	2.73
	25	8.05	1.30	9.02	1.64	10.97	2.31	11.95	2.65	12.22	2.68	12.75	2.72	13.02	2.75
	26	8.05	1.32	9.02	1.66	10.97	2.34	11.95	2.68	12.22	2.70	12.75	2.75	13.02	2.78
	28	7.99	1.40	8.96	1.74	10.90	2.40	11.87	2.74	12.14	2.76	12.67	2.81	12.94	2.83
	30	7.94	1.46	8.90	1.80	10.83	2.46	11.79	2.80	12.06	2.82	12.59	2.87	12.85	2.89
	32	7.85	1.57	8.80	1.90	10.71	2.56	11.67	2.89	11.91	2.92	12.38	2.96	12.62	2.98
	34	7.73	1.65	8.67	1.99	10.56	2.65	11.50	2.98	11.71	3.01	12.13	3.07	12.35	3.10
	35	7.63	1.71	8.57	2.04	10.45	2.70	11.39	3.03	11.59	3.06	11.98	3.12	12.18	3.15
	36	7.47	1.79	8.37	2.12	10.19	2.78	11.10	3.10	11.27	3.13	11.62	3.18	11.80	3.21
	38	7.19	1.96	8.04	2.28	9.74	2.92	10.59	3.25	10.72	3.27	10.99	3.31	11.12	3.33
	40	6.92	2.12	7.71	2.44	9.29	3.07	10.08	3.39	10.17	3.41	10.35	3.45	10.44	3.47
	43	6.17	2.32	6.95	2.64	8.50	3.27	9.28	3.59	9.39	3.61	9.60	3.66	9.71	3.68
100%	10	7.54	1.09	8.46	1.41	10.31	2.06	11.23	2.38	11.48	2.40	12.00	2.44	12.26	2.47
	12	7.54	1.09	8.46	1.41	10.31	2.06	11.23	2.38	11.48	2.40	11.99	2.45	12.24	2.47
	14	7.54	1.10	8.46	1.42	10.31	2.07	11.23	2.39	11.47	2.41	11.97	2.45	12.22	2.47
	16	7.54	1.12	8.46	1.44	10.31	2.08	11.23	2.40	11.47	2.42	11.97	2.46	12.22	2.49
	18	7.54	1.14	8.46	1.46	10.31	2.10	11.23	2.42	11.47	2.44	11.97	2.49	12.21	2.51
	20	7.54	1.15	8.46	1.47	10.31	2.12	11.23	2.44	11.47	2.46	11.97	2.51	12.21	2.53
	22	7.54	1.18	8.46	1.50	10.31	2.15	11.23	2.47	11.47	2.49	11.97	2.54	12.21	2.56
	24	7.54	1.21	8.46	1.53	10.31	2.18	11.23	2.50	11.47	2.53	11.97	2.57	12.21	2.59
	25	7.54	1.23	8.46	1.56	10.29	2.20	11.20	2.52	11.45	2.55	11.96	2.59	12.21	2.62
	26	7.54	1.27	8.46	1.59	10.29	2.24	11.20	2.56	11.45	2.58	11.96	2.63	12.21	2.65
	28	7.54	1.35	8.46	1.67	10.29	2.31	11.20	2.63	11.45	2.65	11.96	2.70	12.21	2.72
	30	7.54	1.41	8.45	1.74	10.28	2.38	11.20	2.70	11.45	2.73	11.96	2.77	12.21	2.79
	32	7.53	1.53	8.45	1.85	10.28	2.49	11.20	2.82	11.43	2.84	11.89	2.88	12.12	2.91
	34	7.53	1.63	8.45	1.95	10.28	2.61	11.20	2.93	11.41	2.96	11.82	3.02	12.03	3.05
	35	7.50	1.68	8.43	2.01	10.28	2.66	11.20	2.99	11.40	3.02	11.79	3.08	11.98	3.11
	36	7.43	1.77	8.33	2.09	10.14	2.74	11.05	3.06	11.22	3.09	11.57	3.14	11.74	3.17
	38	7.29	1.94	8.15	2.26	9.88	2.89	10.74	3.21	10.87	3.23	11.14	3.27	11.27	3.29
	40	7.16	2.10	7.97	2.41	9.61	3.04	10.43	3.35	10.52	3.37	10.71	3.42	10.80	3.44
	43	6.39	2.30	7.19	2.61	8.80	3.24	9.60	3.55	9.71	3.58	9.93	3.62	10.04	3.65

90%	10	6.78	0.99	7.61	1.26	9.27	1.79	10.10	2.06	10.33	2.10	10.79	2.18	11.02	2.22
	12	6.78	0.99	7.61	1.26	9.27	1.80	10.10	2.07	10.32	2.11	10.78	2.18	11.01	2.22
	14	6.78	0.99	7.61	1.26	9.27	1.80	10.10	2.07	10.32	2.11	10.76	2.18	10.99	2.22
	16	6.78	1.01	7.61	1.28	9.27	1.82	10.09	2.09	10.32	2.12	10.76	2.20	10.98	2.23
	18	6.78	1.03	7.61	1.30	9.26	1.83	10.09	2.10	10.31	2.14	10.76	2.22	10.98	2.25
	20	6.78	1.04	7.61	1.31	9.26	1.85	10.09	2.12	10.31	2.16	10.76	2.23	10.98	2.27
	22	6.78	1.07	7.61	1.34	9.26	1.87	10.09	2.14	10.31	2.18	10.75	2.26	10.98	2.30
	24	6.78	1.09	7.61	1.36	9.26	1.90	10.09	2.17	10.31	2.21	10.75	2.29	10.98	2.33
	25	6.78	1.11	7.60	1.38	9.25	1.92	10.07	2.19	10.29	2.23	10.75	2.31	10.97	2.35
	26	6.78	1.14	7.60	1.41	9.24	1.95	10.07	2.22	10.29	2.26	10.75	2.34	10.97	2.38
	28	6.78	1.22	7.60	1.48	9.24	2.02	10.07	2.28	10.29	2.33	10.75	2.41	10.97	2.45
	30	6.77	1.28	7.60	1.54	9.24	2.08	10.06	2.35	10.29	2.39	10.75	2.47	10.97	2.51
	32	6.77	1.38	7.59	1.65	9.24	2.18	10.06	2.45	10.27	2.49	10.69	2.57	10.90	2.61
	34	6.76	1.47	7.59	1.74	9.24	2.28	10.06	2.55	10.25	2.59	10.63	2.69	10.82	2.74
	35	6.74	1.52	7.57	1.79	9.23	2.33	10.06	2.60	10.24	2.65	10.60	2.74	10.78	2.79
	36	6.68	1.60	7.50	1.86	9.12	2.39	9.94	2.66	10.10	2.71	10.43	2.80	10.59	2.85
	38	6.57	1.75	7.35	2.01	8.90	2.53	9.68	2.79	9.81	2.83	10.08	2.91	10.21	2.95
	40	6.45	1.89	7.20	2.15	8.69	2.66	9.43	2.91	9.53	2.96	9.73	3.04	9.83	3.09
	43	5.83	2.07	6.56	2.33	8.03	2.83	8.76	3.09	8.87	3.13	9.10	3.23	9.21	3.28
80%	10	6.02	0.88	6.76	1.10	8.23	1.53	8.96	1.75	9.17	1.81	9.58	1.91	9.79	1.96
	12	6.02	0.88	6.76	1.10	8.23	1.54	8.96	1.76	9.17	1.81	9.57	1.91	9.77	1.96
	14	6.02	0.88	6.76	1.10	8.23	1.54	8.96	1.76	9.16	1.81	9.56	1.92	9.76	1.97
	16	6.02	0.90	6.76	1.12	8.23	1.55	8.96	1.77	9.16	1.82	9.55	1.93	9.75	1.98
	18	6.02	0.92	6.75	1.13	8.22	1.57	8.96	1.78	9.16	1.84	9.55	1.94	9.75	2.00
	20	6.02	0.93	6.75	1.15	8.22	1.58	8.96	1.80	9.15	1.85	9.55	1.96	9.74	2.01
	22	6.02	0.95	6.75	1.17	8.22	1.60	8.95	1.82	9.15	1.87	9.54	1.98	9.74	2.04
	24	6.01	0.98	6.75	1.19	8.22	1.63	8.95	1.84	9.15	1.90	9.54	2.01	9.74	2.06
	25	6.02	0.99	6.75	1.21	8.20	1.64	8.93	1.86	9.13	1.92	9.54	2.03	9.74	2.08
	26	6.02	1.02	6.74	1.24	8.20	1.67	8.93	1.89	9.13	1.94	9.54	2.05	9.74	2.11
	28	6.01	1.09	6.74	1.30	8.20	1.73	8.93	1.94	9.13	2.00	9.53	2.11	9.74	2.17
	30	6.01	1.14	6.74	1.35	8.20	1.78	8.93	1.99	9.13	2.05	9.53	2.17	9.73	2.22
	32	6.01	1.23	6.74	1.44	8.20	1.87	8.93	2.08	9.12	2.14	9.49	2.25	9.68	2.31
	34	6.00	1.31	6.73	1.52	8.20	1.95	8.93	2.16	9.10	2.23	9.45	2.36	9.62	2.42
	35	5.98	1.36	6.72	1.57	8.19	1.99	8.92	2.20	9.09	2.27	9.42	2.41	9.59	2.48
	36	5.94	1.43	6.66	1.63	8.11	2.05	8.83	2.26	8.98	2.32	9.29	2.46	9.44	2.52
	38	5.84	1.56	6.54	1.76	7.93	2.16	8.63	2.36	8.76	2.43	9.01	2.56	9.14	2.62
	40	5.75	1.69	6.42	1.89	7.76	2.28	8.43	2.47	8.54	2.54	8.75	2.67	8.85	2.74
	43	5.28	1.85	5.94	2.04	7.26	2.43	7.92	2.62	8.04	2.69	8.27	2.83	8.38	2.90

70%	10	5.26	0.77	5.90	0.94	7.19	1.27	7.83	1.44	8.01	1.51	8.37	1.64	8.55	1.71
	12	5.26	0.77	5.90	0.94	7.19	1.28	7.83	1.44	8.01	1.51	8.36	1.65	8.54	1.71
	14	5.26	0.78	5.90	0.95	7.19	1.28	7.83	1.45	8.00	1.51	8.35	1.65	8.52	1.72
	16	5.26	0.79	5.90	0.96	7.19	1.29	7.83	1.45	8.00	1.52	8.35	1.66	8.52	1.73
	18	5.26	0.81	5.90	0.97	7.18	1.30	7.82	1.47	8.00	1.53	8.34	1.67	8.51	1.74
	20	5.26	0.82	5.90	0.98	7.18	1.31	7.82	1.48	7.99	1.55	8.34	1.69	8.51	1.76
	22	5.25	0.84	5.89	1.00	7.18	1.33	7.82	1.49	7.99	1.57	8.33	1.71	8.50	1.78
	24	5.25	0.86	5.89	1.02	7.17	1.35	7.81	1.52	7.99	1.59	8.33	1.73	8.51	1.80
	25	5.25	0.87	5.89	1.04	7.16	1.37	7.80	1.53	7.98	1.60	8.33	1.74	8.50	1.82
	26	5.25	0.90	5.89	1.06	7.16	1.39	7.80	1.55	7.97	1.62	8.33	1.77	8.50	1.84
	28	5.25	0.96	5.89	1.12	7.16	1.43	7.80	1.59	7.97	1.67	8.32	1.82	8.50	1.89
	30	5.25	1.00	5.88	1.16	7.16	1.48	7.79	1.64	7.97	1.71	8.32	1.86	8.50	1.94
	32	5.24	1.08	5.88	1.24	7.16	1.55	7.79	1.71	7.96	1.78	8.30	1.94	8.46	2.02
	34	5.24	1.15	5.88	1.30	7.15	1.62	7.79	1.77	7.95	1.86	8.26	2.03	8.42	2.11
	35	5.23	1.19	5.87	1.35	7.15	1.66	7.79	1.81	7.94	1.90	8.24	2.07	8.39	2.16
	36	5.19	1.25	5.82	1.40	7.09	1.71	7.72	1.86	7.86	1.94	8.14	2.11	8.29	2.20
	38	5.12	1.37	5.73	1.52	6.96	1.80	7.57	1.94	7.70	2.03	7.95	2.20	8.08	2.28
	40	5.05	1.49	5.64	1.62	6.84	1.90	7.43	2.03	7.54	2.12	7.76	2.30	7.88	2.39
	43	4.72	1.63	5.31	1.76	6.49	2.02	7.08	2.15	7.20	2.25	7.43	2.44	7.55	2.53
60%	10	4.50	0.67	5.05	0.78	6.15	1.01	6.70	1.13	6.85	1.21	7.16	1.38	7.32	1.46
	12	4.50	0.67	5.05	0.78	6.15	1.01	6.70	1.13	6.85	1.21	7.15	1.38	7.30	1.46
	14	4.50	0.67	5.05	0.79	6.15	1.02	6.70	1.13	6.85	1.22	7.14	1.38	7.29	1.47
	16	4.50	0.68	5.05	0.80	6.15	1.03	6.70	1.14	6.84	1.22	7.14	1.39	7.29	1.47
	18	4.50	0.70	5.04	0.81	6.14	1.03	6.69	1.15	6.84	1.23	7.13	1.40	7.28	1.49
	20	4.49	0.70	5.04	0.82	6.14	1.05	6.69	1.16	6.83	1.24	7.13	1.41	7.28	1.50
	22	4.49	0.72	5.04	0.83	6.13	1.06	6.68	1.17	6.83	1.26	7.12	1.43	7.27	1.52
	24	4.49	0.74	5.03	0.85	6.13	1.08	6.68	1.19	6.83	1.27	7.12	1.45	7.27	1.54
	25	4.49	0.75	5.03	0.87	6.12	1.09	6.67	1.20	6.82	1.29	7.12	1.46	7.27	1.55
	26	4.49	0.77	5.03	0.88	6.12	1.10	6.66	1.21	6.81	1.30	7.12	1.48	7.27	1.57
	28	4.49	0.82	5.03	0.93	6.12	1.14	6.66	1.25	6.81	1.34	7.11	1.52	7.26	1.61
	30	4.48	0.86	5.03	0.97	6.11	1.18	6.66	1.28	6.81	1.38	7.11	1.56	7.26	1.66
	32	4.48	0.93	5.02	1.03	6.11	1.24	6.66	1.34	6.80	1.43	7.10	1.63	7.24	1.72
	34	4.47	0.99	5.02	1.09	6.11	1.29	6.66	1.39	6.80	1.49	7.08	1.69	7.22	1.80
	35	4.47	1.03	5.01	1.13	6.10	1.32	6.65	1.42	6.79	1.52	7.06	1.74	7.20	1.84
	36	4.45	1.08	4.99	1.18	6.07	1.36	6.61	1.45	6.74	1.56	7.00	1.77	7.13	1.88
	38	4.40	1.19	4.93	1.27	5.99	1.44	6.52	1.52	6.64	1.63	6.89	1.84	7.01	1.95
	40	4.34	1.28	4.87	1.36	5.91	1.51	6.43	1.59	6.55	1.70	6.78	1.93	6.90	2.04
	43	4.16	1.40	4.68	1.47	5.72	1.62	6.24	1.69	6.36	1.80	6.60	2.04	6.72	2.16

50%	10	3.74	0.56	4.20	0.63	5.11	0.75	5.57	0.82	5.70	0.91	5.95	1.11	6.08	1.21
	12	3.74	0.56	4.20	0.63	5.11	0.75	5.57	0.82	5.69	0.92	5.95	1.11	6.07	1.21
	14	3.74	0.56	4.20	0.63	5.11	0.76	5.57	0.82	5.69	0.92	5.94	1.11	6.06	1.21
	16	3.74	0.58	4.19	0.64	5.11	0.76	5.56	0.82	5.69	0.92	5.93	1.12	6.05	1.22
	18	3.73	0.59	4.19	0.65	5.10	0.77	5.56	0.83	5.68	0.93	5.92	1.13	6.05	1.23
	20	3.73	0.59	4.19	0.65	5.10	0.78	5.55	0.84	5.67	0.94	5.92	1.14	6.04	1.24
	22	3.73	0.61	4.18	0.67	5.09	0.79	5.55	0.85	5.67	0.95	5.91	1.15	6.03	1.26
	24	3.72	0.62	4.18	0.68	5.08	0.80	5.54	0.86	5.66	0.96	5.91	1.17	6.04	1.27
	25	3.73	0.63	4.18	0.69	5.08	0.81	5.53	0.87	5.66	0.97	5.91	1.18	6.03	1.28
	26	3.72	0.65	4.18	0.71	5.08	0.82	5.53	0.88	5.66	0.98	5.90	1.19	6.03	1.30
	28	3.72	0.69	4.17	0.75	5.08	0.85	5.53	0.90	5.65	1.01	5.90	1.23	6.03	1.34
	30	3.72	0.73	4.17	0.78	5.07	0.88	5.52	0.93	5.65	1.04	5.90	1.26	6.02	1.37
	32	3.71	0.79	4.17	0.83	5.07	0.92	5.52	0.97	5.65	1.08	5.90	1.31	6.03	1.43
	34	3.71	0.83	4.16	0.87	5.07	0.96	5.52	1.00	5.64	1.12	5.89	1.36	6.01	1.49
	35	3.71	0.87	4.16	0.91	5.06	0.99	5.51	1.03	5.63	1.15	5.88	1.40	6.00	1.53
	36	3.70	0.91	4.15	0.95	5.05	1.02	5.50	1.05	5.62	1.18	5.86	1.43	5.98	1.55
	38	3.67	1.00	4.12	1.02	5.02	1.07	5.47	1.10	5.59	1.23	5.83	1.48	5.95	1.61
	40	3.64	1.08	4.09	1.10	4.98	1.13	5.43	1.15	5.56	1.28	5.80	1.55	5.92	1.69
	43	3.61	1.18	4.05	1.19	4.95	1.21	5.40	1.22	5.52	1.36	5.77	1.65	5.89	1.79

Model:AFW-48U4SC

Combination（%）	Outdoor temperature (DB,℃)	Indoor temperature(WB,℃)													
		15		16		18		19		20		22		23	
		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130%	10	11.31	1.70	12.70	2.20	15.46	3.19	16.84	3.69	17.23	3.73	18.00	3.80	18.39	3.83
	12	11.31	1.70	12.70	2.20	15.46	3.20	16.84	3.70	17.22	3.74	17.98	3.80	18.36	3.84
	14	11.31	1.71	12.70	2.21	15.46	3.21	16.84	3.71	17.21	3.74	17.96	3.81	18.33	3.84
	16	11.31	1.73	12.70	2.23	15.46	3.22	16.84	3.71	17.21	3.75	17.95	3.81	18.33	3.85
	18	11.31	1.76	12.70	2.25	15.46	3.23	16.84	3.73	17.21	3.76	17.95	3.83	18.32	3.86
	20	11.31	1.76	12.70	2.25	15.46	3.24	16.84	3.73	17.21	3.76	17.95	3.83	18.32	3.86
	22	11.31	1.79	12.70	2.28	15.46	3.26	16.84	3.75	17.21	3.78	17.95	3.85	18.32	3.89
	24	11.31	1.83	12.70	2.32	15.46	3.30	16.84	3.79	17.21	3.82	17.95	3.89	18.32	3.93
	25	11.31	1.86	12.69	2.35	15.43	3.32	16.80	3.81	17.18	3.85	17.94	3.91	18.31	3.95
	26	11.31	1.89	12.69	2.38	15.43	3.35	16.80	3.83	17.18	3.86	17.94	3.93	18.31	3.97
	28	11.12	1.99	12.46	2.46	15.16	3.40	16.51	3.87	16.88	3.91	17.62	3.97	17.99	4.01
	30	10.91	2.05	12.24	2.52	14.89	3.45	16.21	3.92	16.58	3.95	17.31	4.02	17.67	4.05
	32	10.59	2.16	11.88	2.62	14.46	3.53	15.75	3.99	16.07	4.02	16.72	4.08	17.04	4.12
	34	10.16	2.24	11.40	2.69	13.88	3.59	15.12	4.04	15.40	4.08	15.96	4.16	16.24	4.20
	35	9.85	2.30	11.06	2.75	13.49	3.64	14.70	4.08	14.96	4.13	15.47	4.21	15.72	4.25
	36	9.42	2.41	10.56	2.85	12.85	3.74	14.00	4.18	14.22	4.21	14.66	4.29	14.88	4.32
	38	8.73	2.63	9.77	3.06	11.83	3.92	12.87	4.35	13.03	4.38	13.35	4.43	13.51	4.46
	40	8.05	2.83	8.97	3.26	10.81	4.10	11.73	4.53	11.84	4.56	12.05	4.61	12.15	4.64
	43	7.19	3.10	8.09	3.53	9.90	4.37	10.80	4.80	10.93	4.83	11.18	4.89	11.30	4.93

120%	10	10.69	1.61	11.99	2.08	14.60	3.03	15.91	3.50	16.27	3.53	17.00	3.60	17.36	3.63
	12	10.69	1.61	11.99	2.08	14.60	3.04	15.91	3.51	16.26	3.54	16.98	3.60	17.34	3.63
	14	10.69	1.62	11.99	2.09	14.60	3.04	15.91	3.52	16.26	3.55	16.96	3.61	17.31	3.64
	16	10.69	1.64	11.99	2.11	14.60	3.05	15.91	3.52	16.26	3.56	16.96	3.62	17.31	3.65
	18	10.69	1.67	11.99	2.14	14.60	3.07	15.91	3.54	16.25	3.57	16.95	3.64	17.30	3.67
	20	10.69	1.68	11.99	2.15	14.60	3.09	15.91	3.56	16.25	3.59	16.95	3.65	17.30	3.68
	22	10.69	1.71	11.99	2.18	14.60	3.11	15.91	3.58	16.25	3.61	16.95	3.68	17.30	3.71
	24	10.69	1.75	11.99	2.22	14.60	3.15	15.91	3.62	16.25	3.65	16.95	3.72	17.30	3.75
	25	10.69	1.78	11.98	2.25	14.57	3.18	15.87	3.64	16.22	3.68	16.94	3.74	17.30	3.78
	26	10.69	1.82	11.98	2.28	14.57	3.21	15.87	3.67	16.22	3.70	16.94	3.77	17.30	3.80
	28	10.55	1.91	11.83	2.37	14.39	3.28	15.67	3.73	16.02	3.76	16.73	3.83	17.08	3.86
	30	10.42	1.99	11.68	2.44	14.21	3.34	15.47	3.79	15.82	3.83	16.52	3.89	16.87	3.92
	32	10.20	2.11	11.44	2.55	13.93	3.45	15.17	3.89	15.48	3.92	16.10	3.98	16.41	4.01
	34	9.91	2.20	11.12	2.65	13.54	3.53	14.75	3.97	15.02	4.01	15.56	4.09	15.83	4.13
	35	9.69	2.27	10.88	2.71	13.27	3.59	14.47	4.03	14.72	4.07	15.22	4.15	15.47	4.19
	36	9.37	2.38	10.52	2.82	12.80	3.69	13.94	4.12	14.16	4.16	14.60	4.23	14.82	4.27
	38	8.86	2.60	9.91	3.03	12.00	3.88	13.05	4.30	13.22	4.33	13.54	4.38	13.70	4.41
	40	8.35	2.80	9.30	3.22	11.21	4.06	12.17	4.48	12.28	4.51	12.49	4.57	12.60	4.60
	43	7.45	3.07	8.39	3.49	10.26	4.33	11.20	4.75	11.33	4.78	11.59	4.85	11.72	4.88
110%	10	10.06	1.52	11.29	1.97	13.74	2.86	14.97	3.31	15.31	3.34	16.00	3.40	16.34	3.43
	12	10.06	1.52	11.29	1.97	13.74	2.87	14.97	3.32	15.31	3.35	15.98	3.41	16.32	3.43
	14	10.06	1.53	11.29	1.98	13.74	2.88	14.97	3.32	15.30	3.35	15.96	3.41	16.29	3.44
	16	10.06	1.55	11.29	2.00	13.74	2.89	14.97	3.34	15.30	3.37	15.96	3.43	16.29	3.45
	18	10.06	1.58	11.29	2.02	13.74	2.91	14.97	3.36	15.30	3.39	15.96	3.45	16.29	3.48
	20	10.06	1.59	11.29	2.04	13.74	2.93	14.97	3.38	15.30	3.41	15.96	3.47	16.28	3.50
	22	10.06	1.63	11.29	2.07	13.74	2.96	14.97	3.40	15.30	3.44	15.95	3.50	16.28	3.53
	24	10.06	1.67	11.29	2.11	13.74	3.01	14.97	3.45	15.30	3.48	15.95	3.54	16.28	3.58
	25	10.06	1.70	11.28	2.14	13.71	3.03	14.93	3.48	15.27	3.51	15.94	3.57	16.28	3.60
	26	10.06	1.74	11.28	2.18	13.71	3.07	14.93	3.51	15.27	3.54	15.94	3.61	16.28	3.64
	28	9.99	1.84	11.20	2.28	13.62	3.15	14.84	3.59	15.17	3.62	15.84	3.68	16.17	3.72
	30	9.92	1.92	11.12	2.36	13.53	3.23	14.74	3.67	15.07	3.70	15.73	3.76	16.07	3.79
	32	9.81	2.05	11.00	2.49	13.39	3.36	14.58	3.79	14.88	3.82	15.48	3.88	15.78	3.91
	34	9.66	2.17	10.84	2.60	13.20	3.47	14.37	3.91	14.64	3.95	15.17	4.03	15.43	4.07
	35	9.53	2.24	10.71	2.67	13.06	3.54	14.23	3.97	14.48	4.01	14.98	4.09	15.23	4.13
	36	9.33	2.35	10.47	2.78	12.74	3.64	13.87	4.07	14.09	4.10	14.53	4.18	14.75	4.21
	38	8.99	2.57	10.05	2.99	12.17	3.83	13.24	4.25	13.40	4.28	13.73	4.34	13.90	4.36
	40	8.65	2.78	9.64	3.19	11.61	4.02	12.60	4.44	12.72	4.47	12.94	4.52	13.05	4.55
	43	7.72	3.04	8.69	3.46	10.63	4.29	11.60	4.70	11.74	4.74	12.00	4.80	12.14	4.83

100%	10	9.43	1.43	10.58	1.85	12.88	2.69	14.03	3.12	14.36	3.15	15.00	3.20	15.32	3.23
	12	9.43	1.43	10.58	1.85	12.88	2.70	14.03	3.12	14.35	3.15	14.98	3.21	15.30	3.23
	14	9.43	1.44	10.58	1.86	12.88	2.71	14.03	3.13	14.34	3.16	14.96	3.21	15.27	3.24
	16	9.43	1.47	10.58	1.89	12.88	2.73	14.03	3.15	14.34	3.18	14.96	3.23	15.27	3.26
	18	9.43	1.49	10.58	1.91	12.88	2.75	14.03	3.17	14.34	3.20	14.96	3.26	15.27	3.29
	20	9.43	1.51	10.58	1.93	12.88	2.78	14.03	3.20	14.34	3.23	14.96	3.29	15.27	3.31
	22	9.43	1.55	10.58	1.97	12.88	2.81	14.03	3.23	14.34	3.26	14.96	3.33	15.27	3.36
	24	9.43	1.59	10.58	2.01	12.88	2.86	14.03	3.28	14.34	3.31	14.96	3.37	15.26	3.40
	25	9.43	1.62	10.57	2.04	12.86	2.89	14.00	3.31	14.32	3.34	14.95	3.40	15.26	3.43
	26	9.43	1.66	10.57	2.08	12.86	2.93	14.00	3.36	14.32	3.39	14.95	3.45	15.26	3.48
	28	9.43	1.77	10.57	2.19	12.86	3.03	14.00	3.45	14.32	3.48	14.95	3.54	15.26	3.57
	30	9.42	1.85	10.57	2.28	12.86	3.12	14.00	3.54	14.32	3.57	14.95	3.63	15.26	3.66
	32	9.42	2.00	10.56	2.42	12.85	3.27	14.00	3.69	14.29	3.72	14.86	3.78	15.15	3.81
	34	9.41	2.13	10.56	2.56	12.85	3.42	14.00	3.84	14.26	3.88	14.77	3.96	15.03	4.00
	35	9.38	2.21	10.53	2.64	12.84	3.49	14.00	3.92	14.24	3.96	14.73	4.04	14.98	4.08
	36	9.29	2.32	10.42	2.74	12.68	3.59	13.81	4.02	14.03	4.05	14.46	4.12	14.68	4.16
	38	9.11	2.54	10.19	2.96	12.35	3.79	13.42	4.21	13.59	4.23	13.92	4.29	14.09	4.31
	40	8.94	2.75	9.97	3.16	12.02	3.98	13.04	4.40	13.15	4.42	13.39	4.48	13.50	4.51
	43	7.98	3.01	8.99	3.42	11.00	4.25	12.00	4.66	12.14	4.69	12.42	4.75	12.56	4.78
90%	10	8.48	1.29	9.51	1.65	11.58	2.35	12.62	2.71	12.91	2.76	13.49	2.85	13.78	2.90
	12	8.48	1.29	9.51	1.65	11.58	2.36	12.62	2.71	12.90	2.76	13.47	2.86	13.76	2.90
	14	8.48	1.30	9.51	1.65	11.58	2.37	12.62	2.72	12.90	2.77	13.45	2.86	13.73	2.91
	16	8.48	1.32	9.51	1.68	11.58	2.38	12.62	2.73	12.90	2.78	13.45	2.88	13.73	2.93
	18	8.48	1.35	9.51	1.70	11.58	2.40	12.62	2.75	12.89	2.80	13.45	2.90	13.73	2.95
	20	8.48	1.36	9.51	1.72	11.58	2.43	12.62	2.78	12.89	2.83	13.45	2.93	13.72	2.98
	22	8.47	1.40	9.51	1.75	11.58	2.46	12.61	2.81	12.89	2.86	13.44	2.96	13.72	3.01
	24	8.47	1.43	9.51	1.79	11.58	2.50	12.61	2.85	12.89	2.90	13.44	3.00	13.72	3.05
	25	8.47	1.46	9.50	1.81	11.56	2.52	12.58	2.87	12.87	2.93	13.43	3.03	13.72	3.08
	26	8.47	1.50	9.50	1.85	11.56	2.56	12.58	2.91	12.87	2.97	13.43	3.07	13.72	3.12
	28	8.47	1.60	9.50	1.95	11.55	2.65	12.58	3.00	12.87	3.05	13.43	3.15	13.72	3.21
	30	8.47	1.67	9.50	2.02	11.55	2.73	12.58	3.08	12.86	3.13	13.43	3.24	13.72	3.29
	32	8.46	1.81	9.49	2.16	11.55	2.86	12.58	3.21	12.84	3.26	13.36	3.37	13.62	3.42
	34	8.46	1.92	9.49	2.28	11.55	2.98	12.58	3.34	12.82	3.40	13.29	3.53	13.53	3.59
	35	8.43	1.99	9.47	2.35	11.54	3.05	12.58	3.40	12.80	3.47	13.26	3.60	13.48	3.66
	36	8.36	2.10	9.37	2.44	11.40	3.14	12.42	3.49	12.63	3.55	13.04	3.67	13.24	3.73
	38	8.21	2.30	9.18	2.64	11.13	3.31	12.11	3.65	12.27	3.71	12.60	3.82	12.76	3.87
	40	8.07	2.48	9.00	2.82	10.86	3.48	11.79	3.82	11.91	3.88	12.16	3.99	12.28	4.05
	43	7.29	2.72	8.20	3.05	10.04	3.71	10.95	4.05	11.09	4.11	11.38	4.23	11.52	4.30

	10	7.53	1.15	8.45	1.44	10.29	2.01	11.20	2.30	11.46	2.37	11.98	2.51	12.23	2.57
	12	7.53	1.15	8.45	1.44	10.29	2.02	11.20	2.30	11.46	2.37	11.96	2.51	12.22	2.57
	14	7.53	1.16	8.45	1.45	10.29	2.02	11.20	2.31	11.45	2.38	11.95	2.51	12.19	2.58
	16	7.53	1.18	8.44	1.47	10.28	2.04	11.20	2.32	11.45	2.39	11.94	2.53	12.19	2.60
	18	7.52	1.20	8.44	1.49	10.28	2.05	11.20	2.34	11.44	2.41	11.94	2.55	12.18	2.62
	20	7.52	1.22	8.44	1.50	10.28	2.07	11.20	2.36	11.44	2.43	11.93	2.57	12.18	2.64
	22	7.52	1.25	8.44	1.53	10.28	2.10	11.19	2.38	11.44	2.46	11.93	2.60	12.18	2.67
	24	7.52	1.28	8.44	1.56	10.27	2.13	11.19	2.42	11.44	2.49	11.93	2.63	12.18	2.71
	25	7.52	1.30	8.43	1.59	10.26	2.15	11.17	2.44	11.42	2.51	11.92	2.66	12.17	2.73
80%	26	7.52	1.34	8.43	1.62	10.25	2.19	11.17	2.47	11.42	2.55	11.92	2.69	12.17	2.77
	28	7.52	1.42	8.43	1.70	10.25	2.26	11.16	2.54	11.42	2.62	11.92	2.77	12.17	2.84
	30	7.51	1.49	8.43	1.77	10.25	2.33	11.16	2.61	11.41	2.69	11.92	2.84	12.17	2.92
	32	7.51	1.61	8.42	1.89	10.25	2.45	11.16	2.72	11.40	2.80	11.87	2.96	12.10	3.03
	34	7.50	1.71	8.42	1.99	10.25	2.55	11.16	2.83	11.38	2.92	11.81	3.09	12.03	3.18
	35	7.48	1.78	8.40	2.06	10.24	2.61	11.16	2.89	11.36	2.98	11.78	3.16	11.99	3.25
	36	7.42	1.87	8.33	2.14	10.13	2.69	11.03	2.96	11.23	3.05	11.61	3.22	11.80	3.31
	38	7.30	2.05	8.17	2.31	9.92	2.84	10.79	3.10	10.95	3.18	11.27	3.35	11.43	3.43
	40	7.19	2.22	8.02	2.47	9.70	2.98	10.54	3.24	10.67	3.33	10.93	3.50	11.06	3.59
	43	6.59	2.43	7.42	2.68	9.07	3.18	9.90	3.43	10.04	3.53	10.33	3.71	10.48	3.81
	10	6.58	1.01	7.38	1.23	8.99	1.67	9.79	1.89	10.01	1.98	10.46	2.16	10.69	2.25
	12	6.58	1.01	7.38	1.23	8.99	1.67	9.79	1.89	10.01	1.98	10.45	2.16	10.67	2.25
	14	6.58	1.02	7.38	1.24	8.99	1.68	9.79	1.90	10.01	1.99	10.44	2.16	10.65	2.25
	16	6.57	1.04	7.38	1.26	8.98	1.69	9.79	1.91	10.00	2.00	10.43	2.17	10.65	2.26
	18	6.57	1.06	7.37	1.27	8.98	1.71	9.78	1.92	10.00	2.01	10.43	2.19	10.64	2.28
	20	6.57	1.07	7.37	1.29	8.98	1.72	9.78	1.94	9.99	2.03	10.42	2.21	10.64	2.30
	22	6.57	1.10	7.37	1.31	8.97	1.74	9.77	1.96	9.99	2.05	10.42	2.24	10.63	2.33
	24	6.56	1.12	7.36	1.34	8.97	1.77	9.77	1.99	9.98	2.08	10.42	2.27	10.63	2.36
	25	6.57	1.15	7.36	1.36	8.95	1.79	9.75	2.00	9.97	2.10	10.41	2.29	10.63	2.38
70%	26	6.57	1.18	7.36	1.39	8.95	1.82	9.75	2.03	9.97	2.13	10.41	2.32	10.63	2.41
	28	6.56	1.25	7.36	1.46	8.95	1.88	9.75	2.09	9.97	2.19	10.40	2.38	10.62	2.48
	30	6.56	1.31	7.35	1.52	8.95	1.94	9.74	2.15	9.96	2.25	10.40	2.44	10.62	2.54
	32	6.55	1.42	7.35	1.62	8.94	2.03	9.74	2.24	9.95	2.34	10.37	2.54	10.58	2.65
	34	6.55	1.51	7.35	1.71	8.94	2.12	9.74	2.32	9.94	2.43	10.33	2.66	10.52	2.77
	35	6.53	1.56	7.33	1.77	8.93	2.17	9.73	2.37	9.92	2.49	10.30	2.72	10.49	2.83
	36	6.49	1.64	7.28	1.84	8.86	2.24	9.65	2.43	9.83	2.55	10.18	2.77	10.36	2.88
	38	6.40	1.80	7.17	1.99	8.70	2.36	9.47	2.55	9.63	2.66	9.94	2.88	10.10	2.99
	40	6.31	1.95	7.05	2.13	8.54	2.48	9.29	2.66	9.43	2.78	9.71	3.01	9.84	3.13
	43	5.90	2.13	6.64	2.31	8.11	2.65	8.85	2.82	9.00	2.95	9.29	3.20	9.44	3.32

60%	10	5.63	0.88	6.31	1.03	7.69	1.33	8.38	1.48	8.57	1.59	8.95	1.81	9.14	1.92
	12	5.63	0.88	6.31	1.03	7.69	1.33	8.38	1.48	8.56	1.59	8.94	1.81	9.13	1.92
	14	5.63	0.88	6.31	1.03	7.69	1.33	8.38	1.49	8.56	1.59	8.93	1.81	9.11	1.92
	16	5.62	0.90	6.31	1.05	7.68	1.34	8.37	1.49	8.55	1.60	8.92	1.82	9.11	1.93
	18	5.62	0.91	6.30	1.06	7.68	1.36	8.36	1.50	8.55	1.62	8.91	1.84	9.10	1.95
	20	5.62	0.92	6.30	1.07	7.67	1.37	8.36	1.52	8.54	1.63	8.91	1.85	9.09	1.96
	22	5.61	0.95	6.30	1.09	7.67	1.39	8.35	1.53	8.54	1.65	8.90	1.87	9.09	1.99
	24	5.61	0.97	6.29	1.12	7.66	1.41	8.35	1.56	8.53	1.67	8.90	1.90	9.09	2.01
	25	5.61	0.99	6.29	1.13	7.65	1.42	8.33	1.57	8.52	1.68	8.90	1.92	9.09	2.03
	26	5.61	1.01	6.29	1.16	7.65	1.45	8.33	1.59	8.52	1.71	8.89	1.94	9.08	2.06
	28	5.61	1.08	6.29	1.22	7.65	1.50	8.33	1.64	8.51	1.76	8.89	2.00	9.08	2.11
	30	5.60	1.13	6.28	1.27	7.64	1.54	8.32	1.68	8.51	1.80	8.89	2.05	9.07	2.17
	32	5.60	1.22	6.28	1.36	7.64	1.62	8.32	1.75	8.50	1.88	8.87	2.13	9.06	2.26
	34	5.59	1.30	6.27	1.43	7.64	1.69	8.32	1.82	8.49	1.95	8.85	2.22	9.02	2.36
	35	5.58	1.35	6.26	1.48	7.63	1.73	8.31	1.86	8.48	2.00	8.83	2.28	9.00	2.42
	36	5.56	1.42	6.23	1.54	7.58	1.78	8.26	1.90	8.42	2.04	8.75	2.32	8.92	2.46
	38	5.50	1.56	6.16	1.67	7.49	1.89	8.15	2.00	8.30	2.14	8.61	2.41	8.77	2.55
	40	5.43	1.68	6.08	1.78	7.39	1.98	8.04	2.09	8.19	2.23	8.48	2.52	8.63	2.67
	43	5.20	1.84	5.85	1.93	7.15	2.12	7.80	2.21	7.95	2.37	8.25	2.68	8.40	2.83
50%	10	4.68	0.74	5.25	0.82	6.39	0.99	6.96	1.07	7.12	1.20	7.44	1.46	7.60	1.59
	12	4.68	0.74	5.25	0.82	6.39	0.99	6.96	1.07	7.12	1.20	7.43	1.46	7.59	1.59
	14	4.68	0.74	5.25	0.82	6.39	0.99	6.96	1.07	7.11	1.20	7.42	1.46	7.58	1.59
	16	4.67	0.75	5.24	0.84	6.38	1.00	6.95	1.08	7.11	1.21	7.41	1.47	7.57	1.60
	18	4.67	0.77	5.24	0.85	6.38	1.01	6.95	1.09	7.10	1.22	7.40	1.48	7.56	1.61
	20	4.66	0.78	5.23	0.86	6.37	1.02	6.94	1.10	7.09	1.23	7.40	1.49	7.55	1.63
	22	4.66	0.80	5.23	0.87	6.36	1.03	6.93	1.11	7.08	1.24	7.39	1.51	7.54	1.65
	24	4.65	0.82	5.22	0.89	6.36	1.05	6.92	1.13	7.08	1.26	7.39	1.53	7.55	1.67
	25	4.66	0.83	5.22	0.91	6.35	1.06	6.92	1.13	7.07	1.27	7.39	1.55	7.54	1.68
	26	4.66	0.85	5.22	0.93	6.35	1.08	6.91	1.15	7.07	1.29	7.38	1.57	7.54	1.70
	28	4.65	0.91	5.22	0.98	6.35	1.11	6.91	1.18	7.06	1.32	7.38	1.61	7.53	1.75
	30	4.65	0.95	5.21	1.02	6.34	1.15	6.90	1.22	7.06	1.36	7.37	1.65	7.53	1.80
	32	4.64	1.03	5.21	1.09	6.34	1.21	6.90	1.27	7.06	1.42	7.37	1.72	7.53	1.87
	34	4.64	1.09	5.20	1.14	6.33	1.25	6.90	1.31	7.05	1.47	7.36	1.79	7.52	1.95
	35	4.63	1.14	5.20	1.19	6.32	1.29	6.89	1.34	7.04	1.51	7.35	1.84	7.50	2.00
	36	4.62	1.19	5.19	1.24	6.31	1.33	6.87	1.38	7.02	1.54	7.33	1.87	7.48	2.04
	38	4.59	1.31	5.15	1.34	6.27	1.41	6.83	1.44	6.98	1.61	7.28	1.95	7.43	2.11
	40	4.55	1.41	5.11	1.44	6.23	1.48	6.79	1.51	6.94	1.68	7.25	2.04	7.41	2.21
	43	4.51	1.55	5.07	1.56	6.19	1.59	6.75	1.60	6.90	1.78	7.21	2.16	7.36	2.35

Model: AFW-54U4SC

Combination (%)	Outdoor temperature (DB,℃)	Indoor temperature(WB,℃)													
		15		16		18		19		20		22		23	
		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130%	10	12.53	1.92	14.06	2.49	17.12	3.62	18.65	4.18	19.07	4.22	19.93	4.30	20.36	4.34
	12	12.53	1.92	14.06	2.49	17.12	3.63	18.65	4.20	19.07	4.23	19.91	4.31	20.33	4.34
	14	12.53	1.93	14.06	2.50	17.12	3.64	18.65	4.20	19.06	4.24	19.88	4.31	20.29	4.35
	16	12.53	1.96	14.06	2.52	17.12	3.64	18.65	4.21	19.06	4.24	19.88	4.32	20.29	4.36
	18	12.53	1.99	14.06	2.55	17.12	3.66	18.65	4.22	19.06	4.26	19.88	4.34	20.29	4.38
	20	12.53	1.99	14.06	2.55	17.12	3.67	18.65	4.23	19.05	4.26	19.87	4.34	20.28	4.38
	22	12.53	2.03	14.06	2.59	17.12	3.69	18.65	4.24	19.05	4.29	19.87	4.37	20.28	4.41
	24	12.53	2.08	14.06	2.63	17.12	3.74	18.65	4.29	19.05	4.33	19.87	4.41	20.28	4.45
	25	12.53	2.11	14.05	2.66	17.08	3.76	18.60	4.32	19.02	4.36	19.86	4.43	20.28	4.47
	26	12.53	2.14	14.05	2.69	17.08	3.79	18.60	4.34	19.02	4.38	19.86	4.46	20.28	4.49
	28	12.31	2.25	13.80	2.78	16.78	3.85	18.27	4.39	18.69	4.43	19.51	4.50	19.92	4.54
	30	12.08	2.32	13.55	2.85	16.48	3.91	17.95	4.44	18.35	4.48	19.16	4.55	19.57	4.59
	32	11.73	2.45	13.16	2.97	16.01	4.00	17.44	4.52	17.79	4.56	18.51	4.63	18.87	4.66
	34	11.25	2.54	12.62	3.05	15.37	4.06	16.74	4.57	17.05	4.62	17.67	4.71	17.97	4.76
	35	10.90	2.61	12.24	3.11	14.93	4.12	16.28	4.63	16.56	4.67	17.13	4.77	17.41	4.81
	36	10.43	2.73	11.70	3.23	14.23	4.23	15.50	4.73	15.74	4.77	16.23	4.85	16.48	4.89
	38	9.67	2.98	10.81	3.47	13.10	4.44	14.25	4.93	14.42	4.96	14.78	5.02	14.95	5.05
	40	8.91	3.21	9.93	3.69	11.97	4.65	12.99	5.13	13.11	5.16	13.34	5.23	13.45	5.26
	43	7.96	3.51	8.96	3.99	10.96	4.95	11.96	5.43	12.10	5.47	12.37	5.54	12.51	5.58
120%	10	11.83	1.82	13.28	2.36	16.16	3.43	17.61	3.96	18.01	4.00	18.82	4.08	19.22	4.11
	12	11.83	1.82	13.28	2.36	16.16	3.44	17.61	3.98	18.01	4.01	18.80	4.08	19.20	4.12
	14	11.83	1.83	13.28	2.37	16.16	3.45	17.61	3.98	18.00	4.02	18.78	4.09	19.16	4.13
	16	11.83	1.86	13.28	2.39	16.16	3.46	17.61	3.99	18.00	4.03	18.77	4.10	19.16	4.13
	18	11.83	1.89	13.28	2.42	16.16	3.48	17.61	4.01	18.00	4.05	18.77	4.12	19.16	4.16
	20	11.83	1.90	13.28	2.43	16.16	3.49	17.61	4.03	18.00	4.06	18.77	4.13	19.16	4.17
	22	11.83	1.94	13.28	2.47	16.16	3.52	17.61	4.05	18.00	4.09	18.77	4.17	19.15	4.21
	24	11.83	1.98	13.28	2.51	16.16	3.57	17.61	4.10	18.00	4.14	18.77	4.21	19.15	4.25
	25	11.83	2.02	13.26	2.54	16.13	3.60	17.57	4.13	17.96	4.16	18.75	4.24	19.15	4.28
	26	11.83	2.06	13.26	2.58	16.13	3.63	17.57	4.16	17.96	4.20	18.75	4.27	19.15	4.31
	28	11.68	2.17	13.10	2.68	15.93	3.71	17.35	4.23	17.74	4.26	18.52	4.34	18.91	4.37
	30	11.53	2.25	12.93	2.76	15.73	3.79	17.13	4.30	17.52	4.33	18.29	4.41	18.68	4.44
	32	11.29	2.39	12.67	2.89	15.42	3.90	16.79	4.41	17.14	4.44	17.82	4.51	18.17	4.55
	34	10.97	2.50	12.31	3.00	14.99	4.00	16.33	4.50	16.63	4.55	17.23	4.64	17.53	4.68
	35	10.73	2.57	12.05	3.07	14.69	4.07	16.02	4.56	16.30	4.61	16.85	4.70	17.13	4.75
	36	10.38	2.70	11.64	3.19	14.17	4.18	15.43	4.67	15.67	4.71	16.16	4.79	16.40	4.83
	38	9.81	2.95	10.97	3.43	13.29	4.39	14.45	4.87	14.63	4.90	14.99	4.97	15.17	5.00
	40	9.24	3.18	10.30	3.65	12.42	4.60	13.47	5.08	13.59	5.11	13.83	5.18	13.95	5.21
	43	8.25	3.48	9.29	3.95	11.36	4.91	12.40	5.38	12.54	5.42	12.83	5.49	12.97	5.53

110%	10	11.13	1.72	12.49	2.23	15.21	3.24	16.57	3.75	16.95	3.78	17.71	3.85	18.09	3.89
	12	11.13	1.72	12.49	2.23	15.21	3.25	16.57	3.76	16.95	3.79	17.69	3.86	18.07	3.89
	14	11.13	1.73	12.49	2.24	15.21	3.26	16.57	3.77	16.94	3.80	17.67	3.87	18.04	3.90
	16	11.13	1.76	12.49	2.27	15.21	3.27	16.57	3.78	16.94	3.81	17.67	3.88	18.03	3.91
	18	11.13	1.79	12.49	2.29	15.21	3.30	16.57	3.80	16.94	3.84	17.67	3.91	18.03	3.94
	20	11.13	1.80	12.49	2.31	15.21	3.32	16.57	3.83	16.94	3.86	17.67	3.93	18.03	3.96
	22	11.13	1.85	12.49	2.35	15.21	3.35	16.57	3.86	16.94	3.89	17.66	3.97	18.03	4.00
	24	11.13	1.89	12.49	2.39	15.21	3.40	16.57	3.91	16.94	3.94	17.66	4.01	18.03	4.05
	25	11.13	1.93	12.48	2.43	15.18	3.43	16.53	3.94	16.91	3.97	17.65	4.04	18.02	4.08
	26	11.13	1.97	12.48	2.47	15.18	3.48	16.53	3.98	16.91	4.02	17.65	4.09	18.02	4.12
	28	11.06	2.08	12.40	2.58	15.08	3.57	16.42	4.07	16.80	4.10	17.54	4.17	17.91	4.21
	30	10.98	2.17	12.32	2.67	14.98	3.66	16.32	4.16	16.68	4.19	17.42	4.26	17.79	4.30
	32	10.86	2.33	12.18	2.82	14.82	3.80	16.15	4.30	16.48	4.33	17.14	4.40	17.47	4.43
	34	10.70	2.46	12.00	2.95	14.61	3.93	15.91	4.43	16.21	4.47	16.79	4.56	17.09	4.60
	35	10.56	2.54	11.86	3.03	14.46	4.01	15.76	4.50	16.03	4.55	16.58	4.64	16.86	4.68
	36	10.33	2.66	11.59	3.15	14.10	4.12	15.36	4.61	15.60	4.65	16.09	4.73	16.33	4.77
	38	9.95	2.91	11.12	3.39	13.48	4.34	14.66	4.82	14.84	4.85	15.20	4.91	15.39	4.94
	40	9.57	3.15	10.67	3.62	12.86	4.56	13.95	5.03	14.08	5.06	14.33	5.13	14.45	5.16
	43	8.55	3.44	9.62	3.92	11.77	4.86	12.84	5.33	12.99	5.36	13.29	5.44	13.44	5.47
100%	10	10.44	1.62	11.71	2.10	14.26	3.05	15.54	3.53	15.89	3.56	16.61	3.63	16.96	3.66
	12	10.44	1.62	11.71	2.10	14.26	3.06	15.54	3.54	15.89	3.57	16.59	3.63	16.94	3.66
	14	10.44	1.63	11.71	2.11	14.26	3.07	15.54	3.55	15.88	3.58	16.57	3.64	16.91	3.67
	16	10.44	1.66	11.71	2.14	14.26	3.09	15.54	3.56	15.88	3.60	16.56	3.66	16.91	3.69
	18	10.44	1.69	11.71	2.17	14.26	3.12	15.54	3.59	15.88	3.62	16.56	3.69	16.90	3.73
	20	10.44	1.71	11.71	2.19	14.26	3.15	15.54	3.63	15.88	3.66	16.56	3.72	16.90	3.75
	22	10.44	1.75	11.71	2.23	14.26	3.19	15.54	3.66	15.88	3.70	16.56	3.77	16.90	3.80
	24	10.44	1.80	11.71	2.28	14.26	3.24	15.54	3.72	15.88	3.75	16.56	3.82	16.90	3.85
	25	10.44	1.83	11.70	2.31	14.23	3.27	15.50	3.75	15.85	3.78	16.55	3.85	16.90	3.88
	26	10.44	1.88	11.70	2.36	14.23	3.32	15.50	3.80	15.85	3.83	16.55	3.90	16.90	3.94
	28	10.44	2.00	11.70	2.48	14.23	3.43	15.50	3.91	15.85	3.94	16.55	4.01	16.90	4.04
	30	10.43	2.10	11.70	2.58	14.23	3.53	15.50	4.01	15.85	4.05	16.55	4.12	16.90	4.15
	32	10.43	2.27	11.69	2.75	14.23	3.70	15.50	4.18	15.82	4.22	16.45	4.28	16.77	4.32
	34	10.42	2.42	11.69	2.90	14.23	3.87	15.50	4.35	15.79	4.40	16.36	4.49	16.64	4.53
	35	10.38	2.50	11.66	2.99	14.22	3.96	15.50	4.44	15.77	4.48	16.31	4.57	16.58	4.62
	36	10.28	2.63	11.53	3.11	14.04	4.07	15.29	4.55	15.53	4.59	16.01	4.67	16.25	4.71
	38	10.09	2.88	11.28	3.35	13.67	4.29	14.86	4.76	15.05	4.79	15.42	4.85	15.60	4.88
	40	9.90	3.11	11.04	3.58	13.30	4.51	14.44	4.98	14.56	5.01	14.82	5.07	14.95	5.11
	43	8.84	3.41	9.95	3.88	12.18	4.81	13.29	5.28	13.44	5.31	13.75	5.38	13.90	5.42

90%	10	9.39	1.46	10.53	1.86	12.83	2.67	13.97	3.07	14.29	3.12	14.93	3.23	15.25	3.29
	12	9.39	1.46	10.53	1.87	12.83	2.67	13.97	3.07	14.29	3.13	14.92	3.24	15.23	3.29
	14	9.39	1.47	10.53	1.87	12.83	2.68	13.97	3.08	14.28	3.14	14.90	3.24	15.20	3.30
	16	9.39	1.50	10.53	1.90	12.82	2.70	13.97	3.10	14.28	3.15	14.89	3.26	15.20	3.32
	18	9.38	1.53	10.53	1.93	12.82	2.72	13.97	3.12	14.28	3.18	14.89	3.29	15.20	3.35
	20	9.38	1.54	10.53	1.95	12.82	2.75	13.97	3.15	14.27	3.21	14.89	3.32	15.19	3.37
	22	9.38	1.58	10.53	1.98	12.82	2.78	13.97	3.18	14.27	3.24	14.88	3.36	15.19	3.41
	24	9.38	1.62	10.53	2.02	12.82	2.83	13.96	3.23	14.27	3.29	14.88	3.40	15.19	3.46
	25	9.38	1.65	10.52	2.05	12.79	2.85	13.93	3.25	14.25	3.31	14.87	3.43	15.19	3.49
	26	9.38	1.70	10.52	2.10	12.79	2.90	13.93	3.30	14.24	3.36	14.87	3.48	15.19	3.54
	28	9.38	1.81	10.52	2.20	12.79	3.00	13.93	3.39	14.24	3.45	14.87	3.57	15.19	3.63
	30	9.38	1.90	10.51	2.29	12.79	3.09	13.93	3.49	14.24	3.55	14.87	3.67	15.18	3.73
	32	9.37	2.05	10.51	2.44	12.79	3.24	13.93	3.63	14.22	3.69	14.80	3.82	15.08	3.88
	34	9.36	2.18	10.50	2.58	12.79	3.38	13.93	3.78	14.19	3.85	14.72	3.99	14.98	4.06
	35	9.33	2.26	10.48	2.66	12.78	3.46	13.93	3.86	14.18	3.93	14.68	4.07	14.93	4.15
	36	9.25	2.37	10.38	2.77	12.63	3.56	13.75	3.95	13.98	4.02	14.43	4.16	14.66	4.23
	38	9.09	2.60	10.17	2.99	12.32	3.75	13.40	4.14	13.58	4.20	13.95	4.32	14.13	4.39
	40	8.93	2.81	9.96	3.19	12.02	3.95	13.05	4.33	13.19	4.39	13.46	4.52	13.60	4.59
	43	8.07	3.08	9.08	3.46	11.11	4.21	12.12	4.58	12.28	4.65	12.59	4.79	12.75	4.86
80%	10	8.33	1.31	9.35	1.63	11.39	2.28	12.41	2.60	12.69	2.68	13.26	2.84	13.54	2.92
	12	8.33	1.31	9.35	1.63	11.39	2.28	12.41	2.61	12.68	2.69	13.24	2.84	13.52	2.92
	14	8.33	1.31	9.35	1.64	11.39	2.29	12.41	2.61	12.68	2.69	13.23	2.85	13.50	2.92
	16	8.33	1.34	9.35	1.66	11.38	2.31	12.40	2.63	12.68	2.71	13.22	2.86	13.50	2.94
	18	8.33	1.36	9.35	1.68	11.38	2.33	12.40	2.65	12.67	2.73	13.22	2.89	13.49	2.97
	20	8.33	1.38	9.35	1.70	11.38	2.35	12.40	2.67	12.67	2.75	13.21	2.91	13.49	2.99
	22	8.33	1.41	9.34	1.73	11.38	2.38	12.39	2.70	12.66	2.78	13.21	2.95	13.48	3.03
	24	8.32	1.45	9.34	1.77	11.37	2.42	12.39	2.74	12.66	2.82	13.21	2.98	13.48	3.07
	25	8.33	1.48	9.34	1.80	11.35	2.44	12.36	2.76	12.64	2.84	13.20	3.01	13.48	3.09
	26	8.33	1.51	9.33	1.84	11.35	2.48	12.36	2.80	12.64	2.88	13.20	3.05	13.48	3.13
	28	8.32	1.61	9.33	1.93	11.35	2.56	12.36	2.88	12.64	2.96	13.20	3.13	13.47	3.22
	30	8.32	1.69	9.33	2.01	11.35	2.64	12.36	2.96	12.64	3.04	13.19	3.22	13.47	3.30
	32	8.31	1.83	9.32	2.14	11.35	2.77	12.36	3.08	12.62	3.17	13.14	3.35	13.40	3.44
	34	8.31	1.94	9.32	2.26	11.34	2.89	12.36	3.21	12.60	3.30	13.08	3.50	13.32	3.60
	35	8.28	2.02	9.30	2.33	11.33	2.96	12.35	3.27	12.58	3.37	13.04	3.58	13.27	3.68
	36	8.22	2.12	9.22	2.43	11.22	3.04	12.22	3.35	12.43	3.45	12.85	3.65	13.06	3.75
	38	8.09	2.32	9.05	2.62	10.98	3.21	11.94	3.51	12.12	3.61	12.48	3.79	12.65	3.89
	40	7.96	2.51	8.88	2.80	10.74	3.38	11.67	3.67	11.81	3.77	12.10	3.97	12.25	4.07
	43	7.30	2.75	8.22	3.03	10.05	3.60	10.96	3.89	11.12	4.00	11.44	4.21	11.60	4.31

70%	10	7.28	1.15	8.17	1.40	9.95	1.89	10.84	2.14	11.09	2.24	11.58	2.44	11.83	2.54
	12	7.28	1.15	8.17	1.40	9.95	1.89	10.84	2.14	11.08	2.24	11.57	2.44	11.82	2.54
	14	7.28	1.16	8.17	1.40	9.95	1.90	10.84	2.15	11.08	2.25	11.56	2.45	11.80	2.55
	16	7.28	1.18	8.17	1.42	9.95	1.91	10.83	2.16	11.07	2.26	11.55	2.46	11.79	2.56
	18	7.28	1.20	8.16	1.44	9.94	1.93	10.83	2.18	11.07	2.28	11.54	2.48	11.78	2.59
	20	7.27	1.21	8.16	1.46	9.94	1.95	10.83	2.20	11.06	2.30	11.54	2.50	11.78	2.61
	22	7.27	1.24	8.16	1.49	9.93	1.97	10.82	2.22	11.06	2.32	11.53	2.53	11.77	2.64
	24	7.27	1.27	8.15	1.52	9.93	2.01	10.81	2.25	11.05	2.36	11.53	2.57	11.77	2.67
	25	7.27	1.30	8.15	1.54	9.91	2.03	10.80	2.27	11.04	2.38	11.53	2.59	11.77	2.70
	26	7.27	1.33	8.15	1.57	9.91	2.06	10.79	2.30	11.04	2.41	11.52	2.63	11.77	2.73
	28	7.27	1.42	8.15	1.66	9.91	2.13	10.79	2.37	11.03	2.48	11.52	2.70	11.76	2.81
	30	7.26	1.49	8.14	1.72	9.91	2.20	10.79	2.43	11.03	2.54	11.52	2.77	11.76	2.88
	32	7.25	1.61	8.14	1.84	9.90	2.30	10.78	2.53	11.02	2.65	11.48	2.88	11.71	3.00
	34	7.25	1.71	8.13	1.94	9.90	2.40	10.78	2.63	11.00	2.76	11.43	3.01	11.65	3.13
	35	7.23	1.77	8.12	2.00	9.89	2.46	10.78	2.69	10.99	2.82	11.41	3.08	11.62	3.21
	36	7.19	1.86	8.06	2.09	9.81	2.53	10.68	2.76	10.88	2.88	11.27	3.14	11.47	3.27
	38	7.09	2.04	7.93	2.25	9.63	2.67	10.48	2.89	10.66	3.01	11.00	3.26	11.18	3.39
	40	6.98	2.21	7.81	2.41	9.46	2.81	10.28	3.02	10.44	3.15	10.75	3.41	10.90	3.55
	43	6.53	2.42	7.35	2.61	8.98	3.00	9.80	3.20	9.96	3.34	10.29	3.62	10.45	3.76
60%	10	6.23	0.99	6.99	1.16	8.51	1.50	9.27	1.67	9.49	1.80	9.91	2.05	10.12	2.17
	12	6.23	0.99	6.99	1.16	8.51	1.51	9.27	1.68	9.48	1.80	9.90	2.05	10.11	2.17
	14	6.23	1.00	6.99	1.17	8.51	1.51	9.27	1.68	9.48	1.81	9.89	2.05	10.09	2.18
	16	6.23	1.02	6.99	1.18	8.51	1.52	9.27	1.69	9.47	1.82	9.88	2.06	10.08	2.19
	18	6.22	1.03	6.98	1.20	8.50	1.54	9.26	1.70	9.46	1.83	9.87	2.08	10.07	2.21
	20	6.22	1.05	6.98	1.21	8.50	1.55	9.26	1.72	9.46	1.85	9.87	2.10	10.07	2.22
	22	6.21	1.07	6.97	1.24	8.49	1.57	9.25	1.74	9.45	1.87	9.86	2.12	10.06	2.25
	24	6.21	1.10	6.97	1.27	8.48	1.60	9.24	1.76	9.45	1.89	9.86	2.15	10.06	2.28
	25	6.21	1.12	6.97	1.28	8.47	1.61	9.23	1.78	9.43	1.91	9.85	2.17	10.06	2.30
	26	6.21	1.15	6.96	1.31	8.47	1.64	9.22	1.80	9.43	1.94	9.85	2.20	10.05	2.33
	28	6.21	1.22	6.96	1.38	8.47	1.70	9.22	1.85	9.43	1.99	9.84	2.26	10.05	2.40
	30	6.20	1.28	6.96	1.44	8.46	1.75	9.22	1.90	9.42	2.04	9.84	2.32	10.05	2.46
	32	6.20	1.39	6.95	1.54	8.46	1.84	9.21	1.98	9.42	2.13	9.82	2.41	10.03	2.56
	34	6.19	1.47	6.95	1.62	8.46	1.91	9.21	2.06	9.40	2.21	9.79	2.52	9.99	2.67
	35	6.18	1.53	6.94	1.67	8.45	1.96	9.20	2.11	9.39	2.26	9.77	2.58	9.96	2.74
	36	6.15	1.61	6.90	1.75	8.40	2.02	9.15	2.16	9.33	2.32	9.69	2.63	9.87	2.79
	38	6.08	1.76	6.82	1.89	8.29	2.14	9.02	2.26	9.19	2.42	9.53	2.73	9.70	2.89
	40	6.01	1.90	6.73	2.02	8.18	2.25	8.90	2.36	9.06	2.53	9.39	2.86	9.55	3.02
	43	5.76	2.09	6.48	2.19	7.92	2.40	8.63	2.50	8.80	2.68	9.14	3.03	9.30	3.21

50%	10	5.18	0.83	5.81	0.93	7.07	1.12	7.71	1.21	7.88	1.36	8.24	1.65	8.41	1.80
	12	5.18	0.83	5.81	0.93	7.07	1.12	7.71	1.21	7.88	1.36	8.23	1.65	8.40	1.80
	14	5.18	0.84	5.81	0.93	7.07	1.12	7.71	1.22	7.88	1.36	8.22	1.66	8.39	1.80
	16	5.17	0.85	5.80	0.95	7.07	1.13	7.70	1.22	7.87	1.37	8.21	1.66	8.38	1.81
	18	5.17	0.87	5.80	0.96	7.06	1.14	7.69	1.23	7.86	1.38	8.20	1.68	8.37	1.83
	20	5.16	0.88	5.79	0.97	7.05	1.15	7.68	1.24	7.85	1.39	8.19	1.69	8.36	1.84
	22	5.16	0.90	5.79	0.99	7.05	1.17	7.68	1.26	7.84	1.41	8.18	1.71	8.35	1.86
	24	5.15	0.92	5.78	1.01	7.04	1.19	7.66	1.27	7.84	1.43	8.18	1.74	8.35	1.89
	25	5.16	0.94	5.78	1.03	7.03	1.20	7.66	1.29	7.83	1.44	8.18	1.75	8.35	1.91
	26	5.15	0.97	5.78	1.05	7.03	1.22	7.65	1.30	7.83	1.46	8.17	1.77	8.34	1.93
	28	5.15	1.03	5.78	1.11	7.02	1.26	7.65	1.34	7.82	1.50	8.17	1.82	8.34	1.98
	30	5.15	1.08	5.77	1.15	7.02	1.30	7.64	1.38	7.82	1.54	8.16	1.87	8.33	2.04
	32	5.14	1.17	5.77	1.23	7.02	1.37	7.64	1.43	7.82	1.61	8.16	1.95	8.34	2.12
	34	5.13	1.23	5.76	1.30	7.01	1.42	7.64	1.48	7.81	1.66	8.15	2.02	8.32	2.21
	35	5.13	1.29	5.75	1.35	7.00	1.46	7.63	1.52	7.80	1.71	8.14	2.08	8.31	2.26
	36	5.12	1.35	5.74	1.40	6.99	1.51	7.61	1.56	7.78	1.75	8.11	2.12	8.28	2.31
	38	5.08	1.48	5.70	1.52	6.94	1.60	7.56	1.63	7.73	1.82	8.06	2.21	8.23	2.40
	40	5.04	1.60	5.66	1.63	6.90	1.68	7.52	1.71	7.69	1.91	8.03	2.31	8.20	2.50
	43	4.99	1.75	5.61	1.77	6.85	1.80	7.47	1.81	7.64	2.02	7.98	2.45	8.15	2.66

4.5.2 Air to Air: Maximum Heating Capacity(Peak Value)

* All the performance test is performed according to EN14511.
* Peak value: Tested without defrost operation.
* The actual capacity would vary along with the installation conditions.

Model: AFW-38U4SC

Combination (%)	Outdoor temperature (WB,℃)	Indoor temperature(DB,℃)																	
		15		16		18		20		21		22		24		26		27	
		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	-20	6.34	2.71	6.35	2.81	6.36	2.99	6.38	3.17	6.38	3.19	6.38	3.20	6.38	3.23	6.38	3.25	6.38	3.27
	-17	7.09	2.71	7.09	2.81	7.09	2.99	7.09	3.17	7.09	3.19	7.09	3.20	7.09	3.23	7.09	3.25	7.09	3.27
	-15	7.54	2.69	7.54	2.78	7.54	2.96	7.54	3.15	7.54	3.16	7.54	3.17	7.54	3.20	7.54	3.22	7.54	3.24
	-13	7.99	2.67	7.99	2.76	7.99	2.94	7.99	3.12	7.99	3.13	7.99	3.15	7.99	3.17	7.99	3.20	7.99	3.21
	-11	8.43	2.64	8.43	2.73	8.43	2.91	8.43	3.09	8.43	3.11	8.43	3.12	8.43	3.14	8.43	3.17	8.43	3.18
	-10	8.66	2.62	8.66	2.71	8.66	2.89	8.66	3.07	8.66	3.08	8.66	3.09	8.66	3.12	8.66	3.14	8.66	3.15
	-9	8.93	2.60	8.93	2.69	8.93	2.86	8.92	3.04	8.92	3.05	8.92	3.06	8.92	3.09	8.92	3.11	8.92	3.13
	-7	9.47	2.60	9.47	2.69	9.46	2.86	9.45	3.04	9.45	3.05	9.45	3.06	9.45	3.09	9.45	3.11	9.45	3.13
	-6	9.74	2.58	9.74	2.66	9.72	2.84	9.70	3.01	9.70	3.02	9.70	3.04	9.70	3.06	9.70	3.09	9.70	3.10
	-5	10.03	2.55	10.02	2.64	10.01	2.81	10.00	2.99	10.00	3.00	10.00	3.01	10.00	3.03	10.00	3.06	10.00	3.07
	-3	10.56	2.53	10.55	2.62	10.52	2.79	10.49	2.96	10.49	2.97	10.49	2.98	10.49	3.01	10.49	3.03	10.49	3.04
	-1	11.09	2.51	11.07	2.59	11.03	2.76	10.99	2.93	10.99	2.94	10.99	2.96	10.99	2.98	10.99	3.00	10.99	3.02
	0	11.36	2.51	11.33	2.59	11.29	2.76	11.24	2.93	11.24	2.94	11.24	2.96	11.24	2.98	11.24	3.00	11.24	3.02
	1	11.57	2.48	11.54	2.57	11.48	2.74	11.41	2.90	11.41	2.92	11.41	2.93	11.41	2.95	11.41	2.98	11.41	2.99
	3	12.00	2.46	11.95	2.54	11.85	2.71	11.76	2.88	11.76	2.89	11.76	2.90	11.76	2.93	11.76	2.95	11.76	2.96
	5	12.42	2.44	12.36	2.52	12.23	2.69	12.11	2.85	12.11	2.86	12.11	2.87	12.11	2.90	12.11	2.92	12.11	2.93
	6	13.17	2.41	13.15	2.50	13.10	2.66	13.05	2.82	13.05	2.84	13.05	2.85	13.05	2.87	13.05	2.89	13.05	2.91
	7	13.39	2.39	13.37	2.47	13.32	2.63	13.27	2.80	13.27	2.81	13.27	2.82	13.27	2.84	13.27	2.87	13.27	2.88
	9	13.71	2.37	13.66	2.45	13.57	2.61	13.48	2.77	13.48	2.78	13.48	2.80	13.48	2.82	13.48	2.84	13.48	2.85
	10	14.12	2.32	14.07	2.40	13.98	2.55	13.89	2.71	13.89	2.72	13.89	2.73	13.89	2.76	13.89	2.78	13.89	2.79
	11	14.21	2.28	14.18	2.36	14.10	2.52	14.02	2.67	14.02	2.68	14.02	2.69	14.02	2.72	14.02	2.74	14.02	2.75
	14	14.38	2.18	14.33	2.26	14.24	2.41	14.14	2.55	14.14	2.57	14.14	2.58	14.14	2.60	14.14	2.62	14.14	2.63
	15	14.85	2.15	14.81	2.22	14.72	2.37	14.64	2.52	14.64	2.53	14.64	2.54	14.64	2.56	14.64	2.58	14.64	2.59
120	-20	6.31	2.99	6.32	3.06	6.33	3.21	6.35	3.36	6.35	3.38	6.35	3.39	6.35	3.43	6.35	3.46	6.35	3.48
	-17	7.05	2.98	7.05	3.05	7.05	3.20	7.05	3.35	7.05	3.36	7.05	3.38	7.05	3.42	7.05	3.45	7.05	3.47
	-15	7.51	2.94	7.51	3.02	7.51	3.16	7.51	3.31	7.51	3.33	7.51	3.34	7.51	3.38	7.51	3.41	7.51	3.43
	-13	7.95	2.91	7.95	2.98	7.95	3.13	7.95	3.27	7.95	3.29	7.95	3.31	7.95	3.34	7.95	3.37	7.95	3.39
	-11	8.39	2.88	8.39	2.95	8.39	3.09	8.39	3.23	8.39	3.25	8.39	3.27	8.39	3.30	8.39	3.34	8.39	3.35
	-10	8.62	2.85	8.62	2.92	8.62	3.06	8.62	3.21	8.62	3.22	8.62	3.24	8.62	3.27	8.62	3.31	8.62	3.32
	-9	8.89	2.83	8.89	2.90	8.89	3.04	8.88	3.18	8.88	3.19	8.88	3.21	8.88	3.24	8.88	3.28	8.88	3.29
	-7	9.43	2.82	9.42	2.89	9.41	3.03	9.40	3.17	9.40	3.18	9.40	3.20	9.40	3.23	9.40	3.27	9.40	3.28
	-6	9.70	2.78	9.69	2.85	9.68	2.99	9.66	3.13	9.66	3.15	9.66	3.16	9.66	3.20	9.66	3.23	9.66	3.24
	-5	9.98	2.75	9.97	2.82	9.96	2.96	9.95	3.09	9.95	3.11	9.95	3.13	9.95	3.16	9.95	3.19	9.95	3.21
	-3	10.51	2.71	10.50	2.78	10.47	2.92	10.45	3.05	10.45	3.07	10.45	3.09	10.45	3.12	10.45	3.15	10.45	3.17
	-1	11.04	2.68	11.02	2.75	10.98	2.88	10.94	3.02	10.94	3.03	10.94	3.05	10.94	3.08	10.94	3.11	10.94	3.13
	0	11.31	2.66	11.28	2.73	11.23	2.86	11.19	3.00	11.19	3.01	11.19	3.03	11.19	3.06	11.19	3.09	11.19	3.11
	1	11.52	2.64	11.49	2.70	11.42	2.84	11.36	2.97	11.36	2.98	11.36	3.00	11.36	3.03	11.36	3.06	11.36	3.08
	3	11.94	2.61	11.89	2.68	11.80	2.81	11.71	2.94	11.71	2.96	11.71	2.97	11.71	3.00	11.71	3.03	11.71	3.05
	5	12.36	2.59	12.30	2.65	12.18	2.78	12.05	2.91	12.05	2.93	12.05	2.94	12.05	2.97	12.05	3.00	12.05	3.02
	6	12.99	2.55	12.96	2.62	12.91	2.75	12.86	2.88	12.86	2.89	12.86	2.91	12.86	2.94	12.86	2.97	12.86	2.98
	7	13.21	2.52	13.19	2.58	13.14	2.71	13.10	2.84	13.10	2.85	13.10	2.87	13.10	2.90	13.10	2.93	13.10	2.94
	9	13.59	2.50	13.54	2.56	13.45	2.69	13.36	2.81	13.36	2.83	13.36	2.84	13.36	2.87	13.36	2.90	13.36	2.91
	10	13.94	2.46	13.90	2.52	13.81	2.65	13.72	2.77	13.72	2.78	13.72	2.80	13.72	2.83	13.72	2.86	13.72	2.87
	11	14.04	2.43	14.00	2.49	13.92	2.61	13.85	2.73	13.85	2.75	13.85	2.76	13.85	2.79	13.85	2.82	13.85	2.83
	14	14.25	2.36	14.20	2.42	14.11	2.54	14.01	2.66	14.01	2.67	14.01	2.68	14.01	2.71	14.01	2.74	14.01	2.75
	15	14.59	2.33	14.55	2.39	14.47	2.50	14.38	2.62	14.38	2.63	14.38	2.65	14.38	2.68	14.38	2.70	14.38	2.72

	-20	6.28	3.26	6.29	3.32	6.30	3.43	6.32	3.54	6.32	3.56	6.32	3.59	6.32	3.63	6.32	3.67	6.32	3.70
	-17	7.02	3.24	7.02	3.30	7.02	3.41	7.02	3.52	7.02	3.54	7.02	3.57	7.02	3.61	7.02	3.65	7.02	3.68
	-15	7.47	3.20	7.47	3.25	7.47	3.36	7.47	3.47	7.47	3.49	7.47	3.52	7.47	3.56	7.47	3.60	7.47	3.62
	-13	7.91	3.15	7.91	3.21	7.91	3.32	7.91	3.42	7.91	3.45	7.91	3.47	7.91	3.51	7.91	3.55	7.91	3.57
	-11	8.35	3.11	8.35	3.16	8.35	3.27	8.35	3.38	8.35	3.40	8.35	3.42	8.35	3.46	8.35	3.50	8.35	3.52
	-10	8.58	3.08	8.58	3.13	8.58	3.24	8.58	3.35	8.58	3.37	8.58	3.39	8.58	3.43	8.58	3.47	8.58	3.49
	-9	8.85	3.06	8.85	3.11	8.84	3.21	8.84	3.32	8.84	3.34	8.84	3.36	8.84	3.40	8.84	3.44	8.84	3.46
	-7	9.39	3.04	9.38	3.09	9.37	3.19	9.36	3.30	9.36	3.32	9.36	3.34	9.36	3.38	9.36	3.42	9.36	3.44
	-6	9.65	2.99	9.65	3.04	9.63	3.15	9.62	3.25	9.62	3.27	9.62	3.29	9.62	3.33	9.62	3.37	9.62	3.39
	-5	9.93	2.95	9.93	3.00	9.92	3.10	9.90	3.20	9.90	3.22	9.90	3.24	9.90	3.28	9.90	3.32	9.90	3.34
	-3	10.46	2.90	10.45	2.95	10.42	3.05	10.40	3.15	10.40	3.17	10.40	3.19	10.40	3.23	10.40	3.27	10.40	3.29
110	-1	10.99	2.85	10.97	2.90	10.93	3.00	10.89	3.10	10.89	3.12	10.89	3.14	10.89	3.18	10.89	3.22	10.89	3.24
	0	11.25	2.82	11.23	2.87	11.18	2.96	11.14	3.06	11.14	3.08	11.14	3.10	11.14	3.14	11.14	3.18	11.14	3.20
	1	11.46	2.79	11.43	2.84	11.37	2.94	11.31	3.03	11.31	3.05	11.31	3.07	11.31	3.11	11.31	3.15	11.31	3.17
	3	11.89	2.76	11.84	2.81	11.74	2.91	11.65	3.01	11.65	3.02	11.65	3.04	11.65	3.08	11.65	3.12	11.65	3.14
	5	12.31	2.74	12.24	2.79	12.12	2.88	11.99	2.98	11.99	3.00	11.99	3.01	11.99	3.05	11.99	3.09	11.99	3.11
	6	12.80	2.69	12.78	2.74	12.73	2.83	12.68	2.93	12.68	2.95	12.68	2.96	12.68	3.00	12.68	3.04	12.68	3.05
	7	13.04	2.65	13.02	2.69	12.97	2.79	12.92	2.88	12.92	2.90	12.92	2.91	12.92	2.95	12.92	2.99	12.92	3.00
	9	13.47	2.62	13.42	2.67	13.33	2.76	13.24	2.85	13.24	2.87	13.24	2.89	13.24	2.92	13.24	2.96	13.24	2.97
	10	13.77	2.60	13.72	2.65	13.64	2.74	13.55	2.83	13.55	2.85	13.55	2.87	13.55	2.90	13.55	2.94	13.55	2.95
	11	13.86	2.57	13.83	2.62	13.75	2.71	13.67	2.80	13.67	2.81	13.67	2.83	13.67	2.87	13.67	2.90	13.67	2.92
	14	14.11	2.54	14.07	2.58	13.97	2.67	13.88	2.76	13.88	2.78	13.88	2.79	13.88	2.83	13.88	2.86	13.88	2.88
	15	14.34	2.51	14.29	2.55	14.21	2.64	14.13	2.73	14.13	2.74	14.13	2.76	14.13	2.79	14.13	2.83	14.13	2.84
	-20	6.25	3.54	6.26	3.58	6.27	3.65	6.29	3.73	6.29	3.75	6.29	3.78	6.29	3.83	6.29	3.88	6.29	3.91
	-17	6.99	3.51	6.99	3.55	6.99	3.62	6.99	3.70	6.99	3.72	6.99	3.75	6.99	3.80	6.99	3.85	6.99	3.88
	-15	7.44	3.45	7.44	3.49	7.44	3.56	7.44	3.64	7.44	3.66	7.44	3.69	7.44	3.74	7.44	3.79	7.44	3.82
	-13	7.88	3.40	7.88	3.43	7.88	3.50	7.88	3.58	7.88	3.60	7.88	3.63	7.88	3.68	7.88	3.73	7.88	3.75
	-11	8.32	3.34	8.32	3.38	8.32	3.45	8.32	3.52	8.32	3.54	8.32	3.57	8.32	3.62	8.32	3.67	8.32	3.69
	-10	8.54	3.31	8.54	3.35	8.54	3.42	8.54	3.49	8.54	3.51	8.54	3.54	8.54	3.59	8.54	3.64	8.54	3.66
	-9	8.81	3.28	8.81	3.32	8.80	3.39	8.80	3.46	8.80	3.48	8.80	3.51	8.80	3.56	8.80	3.60	8.80	3.63
	-7	9.34	3.26	9.34	3.29	9.33	3.36	9.32	3.43	9.32	3.45	9.32	3.48	9.32	3.52	9.32	3.57	9.32	3.60
	-6	9.61	3.20	9.60	3.23	9.59	3.30	9.57	3.37	9.57	3.39	9.57	3.42	9.57	3.46	9.57	3.51	9.57	3.54
	-5	9.89	3.14	9.88	3.18	9.87	3.24	9.86	3.31	9.86	3.33	9.86	3.36	9.86	3.40	9.86	3.45	9.86	3.47
	-3	10.41	3.09	10.40	3.12	10.37	3.18	10.35	3.25	10.35	3.27	10.35	3.29	10.35	3.34	10.35	3.39	10.35	3.41
100	-1	10.94	3.03	10.92	3.06	10.88	3.12	10.84	3.19	10.84	3.21	10.84	3.23	10.84	3.28	10.84	3.33	10.84	3.35
	0	11.20	2.97	11.18	3.00	11.13	3.07	11.08	3.13	11.08	3.15	11.08	3.17	11.08	3.22	11.08	3.26	11.08	3.29
	1	11.41	2.94	11.38	2.98	11.32	3.04	11.25	3.10	11.25	3.12	11.25	3.14	11.25	3.19	11.25	3.23	11.25	3.25
	3	11.83	2.92	11.78	2.95	11.69	3.01	11.60	3.07	11.60	3.09	11.60	3.11	11.60	3.16	11.60	3.20	11.60	3.22
	5	12.25	2.89	12.19	2.92	12.06	2.98	11.94	3.04	11.94	3.06	11.94	3.08	11.94	3.13	11.94	3.17	11.94	3.19
	6	12.62	2.83	12.60	2.86	12.55	2.92	12.50	2.98	12.50	3.00	12.50	3.02	12.50	3.07	12.50	3.11	12.50	3.13
	7	12.86	2.77	12.84	2.80	12.80	2.86	12.75	2.92	12.75	2.94	12.75	2.96	12.75	3.00	12.75	3.05	12.75	3.07
	9	13.35	2.75	13.30	2.77	13.21	2.83	13.13	2.89	13.13	2.91	13.13	2.93	13.13	2.97	13.13	3.01	13.13	3.04
	10	13.59	2.75	13.55	2.77	13.46	2.83	13.38	2.89	13.38	2.91	13.38	2.93	13.38	2.97	13.38	3.01	13.38	3.04
	11	13.69	2.72	13.65	2.75	13.58	2.80	13.50	2.86	13.50	2.88	13.50	2.90	13.50	2.94	13.50	2.98	13.50	3.00
	14	13.98	2.72	13.93	2.75	13.84	2.80	13.75	2.86	13.75	2.88	13.75	2.90	13.75	2.94	13.75	2.98	13.75	3.00
	15	14.08	2.69	14.04	2.72	13.96	2.77	13.88	2.83	13.88	2.85	13.88	2.87	13.88	2.91	13.88	2.95	13.88	2.97

	-20	6.21	3.40	6.22	3.44	6.24	3.53	6.25	3.61	6.25	3.64	6.25	3.66	6.25	3.72	6.25	3.77	6.25	3.79
	-17	6.81	3.37	6.81	3.41	6.81	3.50	6.81	3.58	6.81	3.60	6.81	3.63	6.81	3.68	6.81	3.73	6.81	3.76
	-15	7.20	3.31	7.20	3.35	7.20	3.43	7.20	3.51	7.20	3.54	7.20	3.56	7.20	3.61	7.20	3.66	7.20	3.69
	-13	7.58	3.24	7.58	3.28	7.58	3.36	7.58	3.44	7.58	3.46	7.58	3.48	7.58	3.53	7.58	3.58	7.58	3.61
	-11	7.95	3.18	7.95	3.22	7.95	3.29	7.95	3.37	7.95	3.40	7.95	3.42	7.95	3.47	7.95	3.52	7.95	3.54
	-10	8.15	3.14	8.15	3.18	8.15	3.26	8.15	3.33	8.15	3.36	8.15	3.38	8.15	3.43	8.15	3.48	8.15	3.50
	-9	8.40	3.10	8.39	3.14	8.39	3.21	8.39	3.29	8.39	3.31	8.39	3.34	8.39	3.38	8.39	3.43	8.39	3.45
	-7	8.85	3.06	8.85	3.09	8.84	3.17	8.83	3.24	8.83	3.26	8.83	3.29	8.83	3.33	8.83	3.38	8.83	3.40
	-6	9.07	2.98	9.06	3.02	9.05	3.09	9.03	3.16	9.03	3.19	9.03	3.21	9.03	3.26	9.03	3.30	9.03	3.32
	-5	9.31	2.91	9.31	2.94	9.30	3.01	9.29	3.08	9.29	3.10	9.29	3.12	9.29	3.17	9.29	3.21	9.29	3.23
	-3	9.76	2.82	9.75	2.85	9.73	2.92	9.70	2.99	9.70	3.01	9.70	3.03	9.70	3.07	9.70	3.11	9.70	3.13
90	-1	10.21	2.78	10.19	2.81	10.16	2.88	10.12	2.94	10.12	2.96	10.12	2.98	10.12	3.03	10.12	3.07	10.12	3.09
	0	10.48	2.71	10.45	2.74	10.41	2.81	10.37	2.87	10.37	2.89	10.37	2.91	10.37	2.95	10.37	2.99	10.37	3.01
	1	10.65	2.68	10.62	2.72	10.56	2.78	10.50	2.84	10.50	2.86	10.50	2.89	10.50	2.93	10.50	2.97	10.50	2.99
	3	11.02	2.66	10.98	2.69	10.89	2.75	10.80	2.82	10.80	2.84	10.80	2.86	10.80	2.90	10.80	2.94	10.80	2.96
	5	11.38	2.63	11.32	2.66	11.21	2.72	11.10	2.79	11.10	2.81	11.10	2.83	11.10	2.87	11.10	2.91	11.10	2.93
	6	11.69	2.58	11.66	2.61	11.62	2.67	11.58	2.73	11.58	2.75	11.58	2.77	11.58	2.81	11.58	2.85	11.58	2.87
	7	11.90	2.53	11.88	2.56	11.84	2.62	11.80	2.68	11.80	2.70	11.80	2.72	11.80	2.76	11.80	2.79	11.80	2.81
	9	12.31	2.49	12.26	2.52	12.18	2.58	12.10	2.64	12.10	2.66	12.10	2.68	12.10	2.72	12.10	2.75	12.10	2.77
	10	12.52	2.49	12.48	2.52	12.40	2.58	12.33	2.63	12.33	2.65	12.33	2.67	12.33	2.71	12.33	2.75	12.33	2.77
	11	12.60	2.46	12.56	2.49	12.49	2.55	12.43	2.61	12.43	2.62	12.43	2.64	12.43	2.68	12.43	2.72	12.43	2.74
	14	12.86	2.45	12.82	2.48	12.73	2.53	12.65	2.59	12.65	2.61	12.65	2.63	12.65	2.67	12.65	2.70	12.65	2.72
	15	12.96	2.42	12.92	2.45	12.85	2.51	12.78	2.56	12.78	2.58	12.78	2.60	12.78	2.64	12.78	2.67	12.78	2.69
	-20	6.18	3.26	6.18	3.31	6.20	3.40	6.22	3.50	6.22	3.52	6.22	3.55	6.22	3.60	6.22	3.65	6.22	3.67
	-17	6.64	3.23	6.64	3.28	6.64	3.37	6.64	3.46	6.64	3.49	6.64	3.51	6.64	3.56	6.64	3.61	6.64	3.64
	-15	6.96	3.16	6.96	3.21	6.96	3.30	6.96	3.39	6.96	3.41	6.96	3.44	6.96	3.48	6.96	3.53	6.96	3.56
	-13	7.28	3.07	7.28	3.12	7.28	3.21	7.28	3.29	7.28	3.32	7.28	3.34	7.28	3.39	7.28	3.44	7.28	3.46
	-11	7.59	3.01	7.59	3.06	7.59	3.14	7.59	3.23	7.59	3.25	7.59	3.28	7.59	3.32	7.59	3.37	7.59	3.39
	-10	7.77	2.97	7.77	3.01	7.77	3.10	7.77	3.18	7.77	3.20	7.77	3.23	7.77	3.27	7.77	3.32	7.77	3.34
	-9	7.99	2.92	7.98	2.96	7.98	3.04	7.98	3.12	7.98	3.15	7.98	3.17	7.98	3.21	7.98	3.26	7.98	3.28
	-7	8.36	2.86	8.36	2.90	8.35	2.98	8.34	3.06	8.34	3.08	8.34	3.10	8.34	3.14	8.34	3.19	8.34	3.21
	-6	8.53	2.77	8.52	2.81	8.51	2.88	8.49	2.96	8.49	2.98	8.49	3.00	8.49	3.05	8.49	3.09	8.49	3.11
	-5	8.74	2.67	8.74	2.71	8.73	2.78	8.72	2.85	8.72	2.87	8.72	2.89	8.72	2.93	8.72	2.98	8.72	3.00
	-3	9.12	2.55	9.10	2.58	9.08	2.65	9.06	2.72	9.06	2.74	9.06	2.76	9.06	2.80	9.06	2.84	9.06	2.86
80	-1	9.49	2.52	9.47	2.56	9.44	2.63	9.40	2.70	9.40	2.71	9.40	2.73	9.40	2.77	9.40	2.81	9.40	2.83
	0	9.75	2.45	9.73	2.48	9.69	2.55	9.65	2.61	9.65	2.63	9.65	2.65	9.65	2.69	9.65	2.72	9.65	2.74
	1	9.89	2.43	9.86	2.46	9.81	2.52	9.75	2.59	9.75	2.61	9.75	2.63	9.75	2.66	9.75	2.70	9.75	2.72
	3	10.21	2.40	10.17	2.43	10.09	2.50	10.01	2.56	10.01	2.58	10.01	2.60	10.01	2.63	10.01	2.67	10.01	2.69
	5	10.50	2.37	10.45	2.41	10.36	2.47	10.26	2.53	10.26	2.55	10.26	2.57	10.26	2.61	10.26	2.64	10.26	2.66
	6	10.75	2.33	10.73	2.36	10.69	2.43	10.65	2.49	10.65	2.51	10.65	2.53	10.65	2.56	10.65	2.60	10.65	2.61
	7	10.95	2.28	10.93	2.32	10.89	2.38	10.85	2.44	10.85	2.46	10.85	2.47	10.85	2.51	10.85	2.54	10.85	2.56
	9	11.26	2.24	11.23	2.27	11.15	2.33	11.08	2.39	11.08	2.41	11.08	2.43	11.08	2.46	11.08	2.49	11.08	2.51
	10	11.46	2.23	11.42	2.26	11.35	2.32	11.28	2.38	11.28	2.39	11.28	2.41	11.28	2.44	11.28	2.48	11.28	2.50
	11	11.51	2.20	11.48	2.23	11.41	2.29	11.35	2.35	11.35	2.37	11.35	2.38	11.35	2.42	11.35	2.45	11.35	2.47
	14	11.74	2.18	11.70	2.21	11.63	2.26	11.55	2.32	11.55	2.34	11.55	2.36	11.55	2.39	11.55	2.42	11.55	2.44
	15	11.85	2.15	11.81	2.18	11.74	2.24	11.68	2.30	11.68	2.31	11.68	2.33	11.68	2.36	11.68	2.39	11.68	2.41

	-20	6.14	3.13	6.15	3.18	6.16	3.28	6.18	3.39	6.18	3.41	6.18	3.43	6.18	3.48	6.18	3.53	6.18	3.56
	-17	6.47	3.09	6.47	3.14	6.47	3.24	6.47	3.35	6.47	3.37	6.47	3.39	6.47	3.44	6.47	3.49	6.47	3.51
	-15	6.73	3.02	6.73	3.07	6.73	3.16	6.73	3.26	6.73	3.29	6.73	3.31	6.73	3.36	6.73	3.40	6.73	3.43
	-13	6.98	2.91	6.98	2.96	6.98	3.06	6.98	3.15	6.98	3.18	6.98	3.20	6.98	3.24	6.98	3.29	6.98	3.31
	-11	7.23	2.85	7.23	2.90	7.23	2.99	7.23	3.09	7.23	3.11	7.23	3.13	7.23	3.17	7.23	3.22	7.23	3.24
	-10	7.39	2.80	7.39	2.84	7.39	2.94	7.39	3.03	7.39	3.05	7.39	3.07	7.39	3.11	7.39	3.16	7.39	3.18
	-9	7.58	2.73	7.57	2.78	7.57	2.87	7.57	2.96	7.57	2.98	7.57	3.00	7.57	3.04	7.57	3.08	7.57	3.10
	-7	7.87	2.65	7.87	2.70	7.86	2.78	7.85	2.87	7.85	2.89	7.85	2.91	7.85	2.95	7.85	2.99	7.85	3.01
	-6	7.98	2.55	7.98	2.59	7.97	2.68	7.95	2.76	7.95	2.78	7.95	2.80	7.95	2.84	7.95	2.88	7.95	2.90
	-5	8.17	2.43	8.16	2.47	8.15	2.55	8.14	2.63	8.14	2.64	8.14	2.66	8.14	2.70	8.14	2.74	8.14	2.76
	-3	8.47	2.28	8.46	2.32	8.44	2.39	8.41	2.46	8.41	2.48	8.41	2.49	8.41	2.53	8.41	2.56	8.41	2.58
70	-1	8.76	2.27	8.75	2.31	8.72	2.38	8.69	2.45	8.69	2.47	8.69	2.48	8.69	2.52	8.69	2.55	8.69	2.57
	0	9.03	2.18	9.01	2.22	8.97	2.29	8.93	2.35	8.93	2.37	8.93	2.39	8.93	2.42	8.93	2.46	8.93	2.47
	1	9.13	2.17	9.10	2.20	9.05	2.27	9.00	2.33	9.00	2.35	9.00	2.37	9.00	2.40	9.00	2.43	9.00	2.45
	3	9.40	2.14	9.36	2.17	9.29	2.24	9.21	2.31	9.21	2.32	9.21	2.34	9.21	2.37	9.21	2.41	9.21	2.42
	5	9.63	2.12	9.59	2.15	9.51	2.21	9.43	2.28	9.43	2.30	9.43	2.31	9.43	2.35	9.43	2.38	9.43	2.39
	6	9.82	2.08	9.80	2.11	9.76	2.18	9.73	2.24	9.73	2.26	9.73	2.28	9.73	2.31	9.73	2.34	9.73	2.36
	7	9.99	2.04	9.97	2.07	9.93	2.13	9.90	2.20	9.90	2.21	9.90	2.23	9.90	2.26	9.90	2.29	9.90	2.31
	9	10.22	1.99	10.19	2.02	10.12	2.08	10.05	2.14	10.05	2.16	10.05	2.17	10.05	2.20	10.05	2.23	10.05	2.25
	10	10.39	1.97	10.36	2.00	10.29	2.06	10.23	2.12	10.23	2.14	10.23	2.15	10.23	2.18	10.23	2.21	10.23	2.23
	11	10.42	1.94	10.39	1.97	10.33	2.03	10.28	2.09	10.28	2.11	10.28	2.12	10.28	2.15	10.28	2.18	10.28	2.20
	14	10.63	1.91	10.59	1.94	10.52	1.99	10.45	2.05	10.45	2.07	10.45	2.08	10.45	2.11	10.45	2.14	10.45	2.16
	15	10.73	1.88	10.70	1.91	10.64	1.97	10.58	2.03	10.58	2.04	10.58	2.06	10.58	2.09	10.58	2.11	10.58	2.13
	-20	6.10	2.99	6.11	3.05	6.13	3.16	6.14	3.27	6.14	3.30	6.14	3.32	6.14	3.37	6.14	3.41	6.14	3.44
	-17	6.30	2.95	6.30	3.01	6.30	3.12	6.30	3.23	6.30	3.25	6.30	3.28	6.30	3.32	6.30	3.37	6.30	3.39
	-15	6.49	2.87	6.49	2.92	6.49	3.03	6.49	3.14	6.49	3.16	6.49	3.19	6.49	3.23	6.49	3.28	6.49	3.30
	-13	6.68	2.75	6.68	2.80	6.68	2.91	6.68	3.01	6.68	3.03	6.68	3.06	6.68	3.10	6.68	3.14	6.68	3.16
	-11	6.86	2.69	6.86	2.74	6.86	2.84	6.86	2.94	6.86	2.96	6.86	2.98	6.86	3.03	6.86	3.07	6.86	3.09
	-10	7.01	2.63	7.01	2.68	7.01	2.77	7.01	2.87	7.01	2.89	7.01	2.91	7.01	2.96	7.01	3.00	7.01	3.02
	-9	7.16	2.55	7.16	2.60	7.16	2.69	7.16	2.79	7.16	2.81	7.16	2.83	7.16	2.87	7.16	2.91	7.16	2.93
	-7	7.38	2.45	7.38	2.50	7.37	2.59	7.36	2.68	7.36	2.70	7.36	2.72	7.36	2.76	7.36	2.80	7.36	2.82
	-6	7.44	2.34	7.44	2.38	7.43	2.47	7.41	2.56	7.41	2.57	7.41	2.59	7.41	2.63	7.41	2.67	7.41	2.68
	-5	7.59	2.20	7.59	2.24	7.58	2.32	7.57	2.40	7.57	2.42	7.57	2.43	7.57	2.47	7.57	2.50	7.57	2.52
	-3	7.82	2.01	7.81	2.05	7.79	2.12	7.77	2.20	7.77	2.21	7.77	2.23	7.77	2.26	7.77	2.29	7.77	2.31
60	-1	8.04	2.02	8.03	2.05	8.00	2.13	7.97	2.20	7.97	2.22	7.97	2.23	7.97	2.27	7.97	2.30	7.97	2.31
	0	8.30	1.92	8.29	1.96	8.25	2.03	8.22	2.10	8.22	2.11	8.22	2.13	8.22	2.16	8.22	2.19	8.22	2.20
	1	8.36	1.91	8.34	1.94	8.30	2.01	8.25	2.08	8.25	2.09	8.25	2.11	8.25	2.14	8.25	2.17	8.25	2.18
	3	8.59	1.88	8.55	1.92	8.49	1.99	8.42	2.05	8.42	2.07	8.42	2.08	8.42	2.11	8.42	2.14	8.42	2.16
	5	8.75	1.86	8.72	1.89	8.65	1.96	8.59	2.03	8.59	2.04	8.59	2.06	8.59	2.09	8.59	2.11	8.59	2.13
	6	8.88	1.83	8.87	1.87	8.83	1.93	8.80	2.00	8.80	2.01	8.80	2.03	8.80	2.06	8.80	2.08	8.80	2.10
	7	9.03	1.79	9.01	1.83	8.98	1.89	8.95	1.96	8.95	1.97	8.95	1.99	8.95	2.01	8.95	2.04	8.95	2.06
	9	9.18	1.74	9.15	1.77	9.09	1.83	9.03	1.89	9.03	1.91	9.03	1.92	9.03	1.95	9.03	1.97	9.03	1.99
	10	9.32	1.71	9.29	1.74	9.23	1.80	9.18	1.86	9.18	1.88	9.18	1.89	9.18	1.92	9.18	1.94	9.18	1.96
	11	9.33	1.69	9.30	1.72	9.25	1.78	9.20	1.84	9.20	1.85	9.20	1.87	9.20	1.89	9.20	1.92	9.20	1.93
	14	9.51	1.64	9.48	1.67	9.41	1.72	9.35	1.78	9.35	1.80	9.35	1.81	9.35	1.83	9.35	1.86	9.35	1.87
	15	9.61	1.61	9.59	1.64	9.53	1.70	9.48	1.76	9.48	1.77	9.48	1.78	9.48	1.81	9.48	1.83	9.48	1.85

50	-20	6.06	2.85	6.07	2.91	6.09	3.04	6.10	3.16	6.10	3.18	6.10	3.21	6.10	3.25	6.10	3.30	6.10	3.32
	-17	6.13	2.81	6.13	2.87	6.13	2.99	6.13	3.11	6.13	3.14	6.13	3.16	6.13	3.20	6.13	3.25	6.13	3.27
	-15	6.25	2.72	6.25	2.78	6.25	2.90	6.25	3.02	6.25	3.04	6.25	3.06	6.25	3.10	6.25	3.15	6.25	3.17
	-13	6.38	2.59	6.38	2.65	6.38	2.76	6.38	2.87	6.38	2.89	6.38	2.91	6.38	2.95	6.38	2.99	6.38	3.01
	-11	6.50	2.53	6.50	2.58	6.50	2.69	6.50	2.80	6.50	2.82	6.50	2.84	6.50	2.88	6.50	2.92	6.50	2.94
	-10	6.63	2.46	6.63	2.51	6.63	2.61	6.63	2.72	6.63	2.74	6.63	2.76	6.63	2.80	6.63	2.84	6.63	2.86
	-9	6.75	2.37	6.75	2.42	6.75	2.52	6.75	2.62	6.75	2.64	6.75	2.66	6.75	2.70	6.75	2.73	6.75	2.75
	-7	6.89	2.25	6.89	2.30	6.88	2.40	6.88	2.50	6.88	2.52	6.88	2.53	6.88	2.57	6.88	2.61	6.88	2.62
	-6	6.90	2.12	6.90	2.17	6.89	2.26	6.88	2.35	6.88	2.37	6.88	2.39	6.88	2.42	6.88	2.45	6.88	2.47
	-5	7.02	1.96	7.02	2.00	7.01	2.09	7.00	2.17	7.00	2.19	7.00	2.20	7.00	2.23	7.00	2.26	7.00	2.28
	-3	7.17	1.74	7.16	1.78	7.14	1.86	7.13	1.93	7.13	1.95	7.13	1.96	7.13	1.99	7.13	2.02	7.13	2.03
	-1	7.32	1.77	7.30	1.80	7.28	1.88	7.25	1.96	7.25	1.97	7.25	1.98	7.25	2.01	7.25	2.04	7.25	2.05
	0	7.58	1.66	7.56	1.69	7.53	1.77	7.50	1.84	7.50	1.85	7.50	1.86	7.50	1.89	7.50	1.92	7.50	1.93
	1	7.60	1.65	7.58	1.68	7.54	1.75	7.50	1.83	7.50	1.84	7.50	1.85	7.50	1.88	7.50	1.90	7.50	1.92
	3	7.78	1.62	7.75	1.66	7.69	1.73	7.63	1.80	7.63	1.81	7.63	1.83	7.63	1.85	7.63	1.88	7.63	1.89
	5	7.88	1.60	7.85	1.64	7.80	1.71	7.75	1.77	7.75	1.79	7.75	1.80	7.75	1.83	7.75	1.85	7.75	1.86
	6	7.95	1.58	7.94	1.62	7.91	1.69	7.88	1.75	7.88	1.77	7.88	1.78	7.88	1.80	7.88	1.83	7.88	1.84
	7	8.07	1.55	8.06	1.58	8.03	1.65	8.00	1.72	8.00	1.73	8.00	1.74	8.00	1.77	8.00	1.79	8.00	1.80
	9	8.14	1.48	8.11	1.52	8.05	1.58	8.00	1.64	8.00	1.66	8.00	1.67	8.00	1.69	8.00	1.71	8.00	1.73
	10	8.26	1.45	8.23	1.48	8.18	1.54	8.13	1.61	8.13	1.62	8.13	1.63	8.13	1.65	8.13	1.68	8.13	1.69
	11	8.24	1.43	8.22	1.46	8.17	1.52	8.13	1.58	8.13	1.59	8.13	1.61	8.13	1.63	8.13	1.65	8.13	1.66
	14	8.39	1.37	8.36	1.40	8.31	1.46	8.25	1.51	8.25	1.53	8.25	1.54	8.25	1.56	8.25	1.58	8.25	1.59
	15	8.50	1.35	8.47	1.37	8.42	1.43	8.38	1.49	8.38	1.50	8.38	1.51	8.38	1.53	8.38	1.56	8.38	1.57

Model: AFW-48U4SC

Combination (%)	Outdoor temperature(WB,℃)	Indoor temperature(DB,℃)																	
		15		16		18		20		21		22		24		26		27	
		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	-20	8.11	3.67	8.12	3.79	8.14	4.04	8.16	4.29	8.16	4.31	8.16	4.33	8.16	4.36	8.16	4.40	8.16	4.42
	-17	9.07	3.67	9.07	3.79	9.07	4.04	9.07	4.29	9.07	4.31	9.07	4.33	9.07	4.36	9.07	4.40	9.07	4.42
	-15	9.65	3.64	9.65	3.76	9.65	4.01	9.65	4.26	9.65	4.27	9.65	4.29	9.65	4.33	9.65	4.36	9.65	4.38
	-13	10.22	3.61	10.22	3.73	10.22	3.97	10.22	4.22	10.22	4.24	10.22	4.25	10.22	4.29	10.22	4.32	10.22	4.34
	-11	10.79	3.58	10.79	3.70	10.79	3.94	10.79	4.18	10.79	4.20	10.79	4.22	10.79	4.25	10.79	4.29	10.79	4.30
	-10	11.08	3.55	11.08	3.67	11.08	3.91	11.08	4.15	11.08	4.16	11.08	4.18	11.08	4.21	11.08	4.25	11.08	4.27
	-9	11.43	3.51	11.43	3.63	11.43	3.87	11.42	4.11	11.42	4.13	11.42	4.14	11.42	4.18	11.42	4.21	11.42	4.23
	-7	12.13	3.51	12.12	3.63	12.11	3.87	12.09	4.11	12.09	4.13	12.09	4.14	12.09	4.18	12.09	4.21	12.09	4.23
	-6	12.47	3.48	12.46	3.60	12.44	3.84	12.42	4.07	12.42	4.09	12.42	4.11	12.42	4.14	12.42	4.17	12.42	4.19
	-5	12.83	3.45	12.83	3.57	12.81	3.80	12.80	4.04	12.80	4.05	12.80	4.07	12.80	4.10	12.80	4.14	12.80	4.15
	-3	13.52	3.42	13.50	3.54	13.47	3.77	13.43	4.00	13.43	4.02	13.43	4.03	13.43	4.07	13.43	4.10	13.43	4.12
	-1	14.20	3.39	14.17	3.50	14.12	3.73	14.07	3.96	14.07	3.98	14.07	4.00	14.07	4.03	14.07	4.06	14.07	4.08
	0	14.54	3.39	14.51	3.50	14.45	3.73	14.39	3.96	14.39	3.98	14.39	4.00	14.39	4.03	14.39	4.06	14.39	4.08
	1	14.81	3.36	14.77	3.47	14.69	3.70	14.61	3.93	14.61	3.94	14.61	3.96	14.61	3.99	14.61	4.03	14.61	4.04
	3	15.36	3.33	15.29	3.44	15.17	3.67	15.05	3.89	15.05	3.91	15.05	3.92	15.05	3.96	15.05	3.99	15.05	4.00
	5	15.90	3.30	15.82	3.41	15.66	3.63	15.50	3.86	15.50	3.87	15.50	3.89	15.50	3.92	15.50	3.95	15.50	3.97
	6	16.86	3.27	16.83	3.38	16.76	3.60	16.70	3.82	16.70	3.83	16.70	3.85	16.70	3.88	16.70	3.91	16.70	3.93
	7	17.14	3.23	17.11	3.34	17.05	3.56	16.99	3.78	16.99	3.80	16.99	3.81	16.99	3.85	16.99	3.88	16.99	3.89
	9	17.55	3.21	17.49	3.31	17.37	3.53	17.25	3.75	17.25	3.76	17.25	3.78	17.25	3.81	17.25	3.84	17.25	3.86
	10	18.07	3.13	18.02	3.24	17.90	3.45	17.78	3.67	17.78	3.68	17.78	3.70	17.78	3.73	17.78	3.76	17.78	3.77
	11	18.19	3.09	18.14	3.19	18.04	3.40	17.94	3.61	17.94	3.63	17.94	3.64	17.94	3.67	17.94	3.70	17.94	3.72
	14	18.41	2.95	18.35	3.05	18.22	3.25	18.10	3.45	18.10	3.47	18.10	3.48	18.10	3.51	18.10	3.54	18.10	3.55
	15	19.01	2.91	18.96	3.01	18.85	3.20	18.74	3.40	18.74	3.42	18.74	3.43	18.74	3.46	18.74	3.49	18.74	3.50

	-20	8.08	4.04	8.09	4.14	8.11	4.34	8.13	4.54	8.13	4.56	8.13	4.59	8.13	4.64	8.13	4.68	8.13	4.71
	-17	9.03	4.03	9.03	4.13	9.03	4.33	9.03	4.53	9.03	4.55	9.03	4.57	9.03	4.62	9.03	4.67	9.03	4.69
	-15	9.61	3.98	9.61	4.08	9.61	4.28	9.61	4.48	9.61	4.50	9.61	4.52	9.61	4.57	9.61	4.62	9.61	4.64
	-13	10.18	3.94	10.18	4.03	10.18	4.23	10.18	4.42	10.18	4.45	10.18	4.47	10.18	4.52	10.18	4.56	10.18	4.59
	-11	10.74	3.89	10.74	3.99	10.74	4.18	10.74	4.37	10.74	4.40	10.74	4.42	10.74	4.47	10.74	4.51	10.74	4.53
	-10	11.03	3.86	11.03	3.95	11.03	4.14	11.03	4.34	11.03	4.36	11.03	4.38	11.03	4.43	11.03	4.47	11.03	4.49
	-9	11.38	3.82	11.38	3.92	11.37	4.11	11.37	4.30	11.37	4.32	11.37	4.34	11.37	4.39	11.37	4.43	11.37	4.46
	-7	12.07	3.81	12.06	3.91	12.05	4.09	12.04	4.28	12.04	4.31	12.04	4.33	12.04	4.37	12.04	4.42	12.04	4.44
	-6	12.41	3.76	12.40	3.86	12.38	4.05	12.36	4.23	12.36	4.26	12.36	4.28	12.36	4.32	12.36	4.37	12.36	4.39
	-5	12.77	3.72	12.77	3.81	12.75	4.00	12.74	4.18	12.74	4.20	12.74	4.23	12.74	4.27	12.74	4.31	12.74	4.34
	-3	13.45	3.67	13.44	3.76	13.40	3.95	13.37	4.13	13.37	4.15	13.37	4.17	13.37	4.22	13.37	4.26	13.37	4.28
120	-1	14.13	3.63	14.11	3.72	14.05	3.90	14.00	4.08	14.00	4.10	14.00	4.12	14.00	4.17	14.00	4.21	14.00	4.23
	0	14.47	3.60	14.44	3.69	14.38	3.87	14.32	4.05	14.32	4.07	14.32	4.10	14.32	4.14	14.32	4.18	14.32	4.20
	1	14.74	3.57	14.70	3.66	14.62	3.84	14.54	4.02	14.54	4.04	14.54	4.06	14.54	4.10	14.54	4.14	14.54	4.16
	3	15.28	3.53	15.22	3.62	15.10	3.80	14.98	3.98	14.98	4.00	14.98	4.02	14.98	4.06	14.98	4.10	14.98	4.12
	5	15.83	3.50	15.75	3.59	15.59	3.76	15.43	3.94	15.43	3.96	15.43	3.98	15.43	4.02	15.43	4.06	15.43	4.08
	6	16.62	3.45	16.59	3.54	16.53	3.71	16.47	3.89	16.47	3.91	16.47	3.93	16.47	3.97	16.47	4.01	16.47	4.03
	7	16.91	3.41	16.88	3.49	16.82	3.67	16.77	3.84	16.77	3.86	16.77	3.88	16.77	3.92	16.77	3.96	16.77	3.98
	9	17.39	3.37	17.34	3.46	17.22	3.63	17.10	3.80	17.10	3.82	17.10	3.84	17.10	3.88	17.10	3.92	17.10	3.94
	10	17.85	3.33	17.79	3.41	17.68	3.58	17.56	3.75	17.56	3.77	17.56	3.79	17.56	3.82	17.56	3.86	17.56	3.88
	11	17.97	3.28	17.92	3.37	17.82	3.53	17.72	3.70	17.72	3.72	17.72	3.74	17.72	3.77	17.72	3.81	17.72	3.83
	14	18.24	3.19	18.18	3.27	18.06	3.43	17.93	3.59	17.93	3.61	17.93	3.63	17.93	3.67	17.93	3.71	17.93	3.72
	15	18.68	3.15	18.63	3.23	18.52	3.39	18.41	3.54	18.41	3.56	18.41	3.58	18.41	3.62	18.41	3.66	18.41	3.67
	-20	8.04	4.41	8.05	4.49	8.07	4.64	8.09	4.79	8.09	4.82	8.09	4.85	8.09	4.91	8.09	4.97	8.09	5.00
	-17	8.99	4.39	8.99	4.46	8.99	4.61	8.99	4.76	8.99	4.79	8.99	4.82	8.99	4.88	8.99	4.94	8.99	4.97
	-15	9.57	4.33	9.57	4.40	9.57	4.55	9.57	4.70	9.57	4.73	9.57	4.75	9.57	4.81	9.57	4.87	9.57	4.90
	-13	10.13	4.27	10.13	4.34	10.13	4.48	10.13	4.63	10.13	4.66	10.13	4.69	10.13	4.75	10.13	4.80	10.13	4.83
	-11	10.69	4.20	10.69	4.28	10.69	4.42	10.69	4.56	10.69	4.59	10.69	4.62	10.69	4.68	10.69	4.74	10.69	4.76
	-10	10.98	4.17	10.98	4.24	10.98	4.38	10.98	4.53	10.98	4.55	10.98	4.58	10.98	4.64	10.98	4.69	10.98	4.72
	-9	11.33	4.13	11.32	4.20	11.32	4.34	11.32	4.49	11.32	4.51	11.32	4.54	11.32	4.60	11.32	4.65	11.32	4.68
	-7	12.01	4.11	12.01	4.18	11.99	4.32	11.98	4.46	11.98	4.49	11.98	4.52	11.98	4.57	11.98	4.63	11.98	4.65
	-6	12.36	4.05	12.35	4.11	12.33	4.25	12.31	4.39	12.31	4.42	12.31	4.45	12.31	4.50	12.31	4.56	12.31	4.58
	-5	12.72	3.98	12.71	4.05	12.69	4.19	12.68	4.33	12.68	4.35	12.68	4.38	12.68	4.44	12.68	4.49	12.68	4.52
	-3	13.39	3.92	13.37	3.99	13.34	4.13	13.31	4.26	13.31	4.29	13.31	4.31	13.31	4.37	13.31	4.42	13.31	4.45
110	-1	14.07	3.86	14.04	3.93	13.99	4.06	13.94	4.20	13.94	4.22	13.94	4.25	13.94	4.30	13.94	4.35	13.94	4.38
	0	14.40	3.81	14.37	3.88	14.31	4.01	14.25	4.14	14.25	4.17	14.25	4.19	14.25	4.24	14.25	4.30	14.25	4.32
	1	14.67	3.77	14.63	3.84	14.55	3.97	14.47	4.10	14.47	4.13	14.47	4.15	14.47	4.21	14.47	4.26	14.47	4.28
	3	15.21	3.74	15.15	3.80	15.03	3.93	14.91	4.06	14.91	4.09	14.91	4.11	14.91	4.17	14.91	4.22	14.91	4.24
	5	15.75	3.70	15.67	3.77	15.51	3.90	15.35	4.03	15.35	4.05	15.35	4.08	15.35	4.13	15.35	4.17	15.35	4.20
	6	16.39	3.64	16.36	3.70	16.30	3.83	16.23	3.96	16.23	3.98	16.23	4.01	16.23	4.06	16.23	4.11	16.23	4.13
	7	16.69	3.58	16.66	3.64	16.60	3.77	16.54	3.89	16.54	3.92	16.54	3.94	16.54	3.99	16.54	4.04	16.54	4.06
	9	17.24	3.54	17.18	3.61	17.07	3.73	16.95	3.86	16.95	3.88	16.95	3.90	16.95	3.95	16.95	4.00	16.95	4.02
	10	17.62	3.52	17.57	3.58	17.45	3.70	17.34	3.83	17.34	3.85	17.34	3.88	17.34	3.92	17.34	3.97	17.34	3.99
	11	17.75	3.48	17.70	3.54	17.60	3.66	17.50	3.78	17.50	3.81	17.50	3.83	17.50	3.88	17.50	3.92	17.50	3.95
	14	18.07	3.43	18.01	3.49	17.89	3.61	17.77	3.73	17.77	3.75	17.77	3.78	17.77	3.82	17.77	3.87	17.77	3.89
	15	18.35	3.39	18.30	3.45	18.19	3.57	18.09	3.69	18.09	3.71	18.09	3.73	18.09	3.78	18.09	3.82	18.09	3.85

100	-20	8.00	4.79	8.01	4.84	8.03	4.94	8.05	5.04	8.05	5.07	8.05	5.11	8.05	5.18	8.05	5.25	8.05	5.29
	-17	8.94	4.75	8.94	4.80	8.94	4.90	8.94	5.00	8.94	5.03	8.94	5.07	8.94	5.14	8.94	5.21	8.94	5.25
	-15	9.52	4.67	9.52	4.72	9.52	4.82	9.52	4.92	9.52	4.95	9.52	4.99	9.52	5.06	9.52	5.13	9.52	5.16
	-13	10.08	4.59	10.08	4.64	10.08	4.74	10.08	4.84	10.08	4.87	10.08	4.91	10.08	4.97	10.08	5.04	10.08	5.08
	-11	10.64	4.52	10.64	4.57	10.64	4.66	10.64	4.76	10.64	4.79	10.64	4.82	10.64	4.89	10.64	4.96	10.64	4.99
	-10	10.93	4.48	10.93	4.53	10.93	4.62	10.93	4.72	10.93	4.75	10.93	4.78	10.93	4.85	10.93	4.92	10.93	4.95
	-9	11.27	4.44	11.27	4.49	11.27	4.58	11.26	4.67	11.26	4.71	11.26	4.74	11.26	4.81	11.26	4.88	11.26	4.91
	-7	11.96	4.40	11.95	4.45	11.94	4.54	11.93	4.63	11.93	4.67	11.93	4.70	11.93	4.77	11.93	4.83	11.93	4.87
	-6	12.30	4.33	12.29	4.37	12.27	4.46	12.25	4.55	12.25	4.59	12.25	4.62	12.25	4.68	12.25	4.75	12.25	4.78
	-5	12.66	4.25	12.65	4.29	12.63	4.38	12.62	4.47	12.62	4.51	12.62	4.54	12.62	4.60	12.62	4.67	12.62	4.70
	-3	13.33	4.17	13.31	4.22	13.28	4.30	13.25	4.39	13.25	4.42	13.25	4.46	13.25	4.52	13.25	4.58	13.25	4.61
	-1	14.00	4.10	13.97	4.14	13.92	4.23	13.87	4.31	13.87	4.34	13.87	4.37	13.87	4.44	13.87	4.50	13.87	4.53
	0	14.34	4.02	14.31	4.06	14.25	4.15	14.19	4.23	14.19	4.26	14.19	4.29	14.19	4.35	14.19	4.41	14.19	4.44
	1	14.60	3.98	14.56	4.02	14.49	4.11	14.41	4.19	14.41	4.22	14.41	4.25	14.41	4.31	14.41	4.37	14.41	4.40
	3	15.14	3.94	15.08	3.98	14.96	4.07	14.84	4.15	14.84	4.18	14.84	4.21	14.84	4.27	14.84	4.33	14.84	4.36
	5	15.68	3.91	15.60	3.95	15.44	4.03	15.28	4.11	15.28	4.14	15.28	4.17	15.28	4.23	15.28	4.29	15.28	4.32
	6	16.15	3.83	16.12	3.87	16.06	3.95	16.00	4.03	16.00	4.06	16.00	4.09	16.00	4.15	16.00	4.20	16.00	4.23
	7	16.46	3.75	16.44	3.79	16.38	3.87	16.32	3.95	16.32	3.98	16.32	4.01	16.32	4.06	16.32	4.12	16.32	4.15
	9	17.09	3.71	17.03	3.75	16.91	3.83	16.80	3.91	16.80	3.94	16.80	3.96	16.80	4.02	16.80	4.08	16.80	4.10
	10	17.40	3.71	17.34	3.75	17.23	3.83	17.12	3.91	17.12	3.94	17.12	3.96	17.12	4.02	17.12	4.08	17.12	4.10
	11	17.52	3.68	17.47	3.71	17.38	3.79	17.28	3.87	17.28	3.90	17.28	3.92	17.28	3.98	17.28	4.03	17.28	4.06
	14	17.90	3.68	17.84	3.71	17.72	3.79	17.60	3.87	17.60	3.90	17.60	3.92	17.60	3.98	17.60	4.03	17.60	4.06
	15	18.02	3.64	17.97	3.68	17.86	3.75	17.76	3.83	17.76	3.86	17.76	3.88	17.76	3.94	17.76	3.99	17.76	4.02
90	-20	7.95	4.60	7.96	4.66	7.98	4.77	8.00	4.88	8.00	4.92	8.00	4.95	8.00	5.02	8.00	5.09	8.00	5.13
	-17	8.72	4.56	8.72	4.61	8.72	4.73	8.72	4.84	8.72	4.87	8.72	4.91	8.72	4.98	8.72	5.05	8.72	5.08
	-15	9.22	4.47	9.22	4.53	9.22	4.64	9.22	4.75	9.22	4.78	9.22	4.82	9.22	4.88	9.22	4.95	9.22	4.99
	-13	9.70	4.38	9.70	4.43	9.70	4.54	9.70	4.65	9.70	4.68	9.70	4.71	9.70	4.78	9.70	4.84	9.70	4.88
	-11	10.18	4.30	10.18	4.35	10.18	4.46	10.18	4.56	10.18	4.59	10.18	4.63	10.18	4.69	10.18	4.76	10.18	4.79
	-10	10.44	4.25	10.44	4.30	10.44	4.40	10.44	4.51	10.44	4.54	10.44	4.57	10.44	4.64	10.44	4.70	10.44	4.73
	-9	10.75	4.19	10.75	4.24	10.74	4.35	10.74	4.45	10.74	4.48	10.74	4.51	10.74	4.58	10.74	4.64	10.74	4.67
	-7	11.33	4.13	11.32	4.18	11.31	4.28	11.30	4.38	11.30	4.41	11.30	4.45	11.30	4.51	11.30	4.57	11.30	4.60
	-6	11.61	4.04	11.60	4.08	11.58	4.18	11.56	4.28	11.56	4.31	11.56	4.34	11.56	4.40	11.56	4.46	11.56	4.49
	-5	11.92	3.93	11.92	3.98	11.90	4.07	11.89	4.17	11.89	4.20	11.89	4.23	11.89	4.28	11.89	4.34	11.89	4.37
	-3	12.50	3.81	12.48	3.86	12.45	3.95	12.42	4.04	12.42	4.07	12.42	4.09	12.42	4.15	12.42	4.21	12.42	4.24
	-1	13.07	3.75	13.05	3.80	13.00	3.89	12.95	3.98	12.95	4.01	12.95	4.04	12.95	4.09	12.95	4.15	12.95	4.18
	0	13.41	3.66	13.38	3.71	13.33	3.80	13.27	3.88	13.27	3.91	13.27	3.94	13.27	3.99	13.27	4.05	13.27	4.08
	1	13.63	3.63	13.59	3.67	13.52	3.76	13.44	3.85	13.44	3.87	13.44	3.90	13.44	3.96	13.44	4.01	13.44	4.04
	3	14.11	3.59	14.05	3.64	13.94	3.72	13.83	3.81	13.83	3.83	13.83	3.86	13.83	3.92	13.83	3.97	13.83	4.00
	5	14.56	3.56	14.49	3.60	14.35	3.68	14.21	3.77	14.21	3.80	14.21	3.82	14.21	3.88	14.21	3.93	14.21	3.96
	6	14.96	3.49	14.93	3.53	14.87	3.62	14.82	3.70	14.82	3.72	14.82	3.75	14.82	3.80	14.82	3.86	14.82	3.88
	7	15.24	3.42	15.21	3.46	15.16	3.54	15.10	3.62	15.10	3.65	15.10	3.68	15.10	3.73	15.10	3.78	15.10	3.81
	9	15.75	3.37	15.70	3.41	15.59	3.49	15.49	3.57	15.49	3.60	15.49	3.62	15.49	3.67	15.49	3.72	15.49	3.75
	10	16.03	3.36	15.98	3.40	15.88	3.48	15.78	3.56	15.78	3.59	15.78	3.61	15.78	3.66	15.78	3.71	15.78	3.74
	11	16.13	3.33	16.08	3.37	15.99	3.44	15.90	3.52	15.90	3.55	15.90	3.57	15.90	3.62	15.90	3.67	15.90	3.70
	14	16.46	3.31	16.41	3.35	16.30	3.43	16.19	3.50	16.19	3.53	16.19	3.55	16.19	3.60	16.19	3.65	16.19	3.68
	15	16.59	3.27	16.54	3.31	16.45	3.39	16.35	3.47	16.35	3.49	16.35	3.52	16.35	3.57	16.35	3.61	16.35	3.64

	-20	7.90	4.41	7.92	4.48	7.94	4.60	7.96	4.73	7.96	4.77	7.96	4.80	7.96	4.87	7.96	4.93	7.96	4.97
	-17	8.50	4.37	8.50	4.43	8.50	4.56	8.50	4.68	8.50	4.72	8.50	4.75	8.50	4.82	8.50	4.88	8.50	4.92
	-15	8.91	4.28	8.91	4.34	8.91	4.46	8.91	4.58	8.91	4.61	8.91	4.65	8.91	4.71	8.91	4.78	8.91	4.81
	-13	9.31	4.16	9.31	4.22	9.31	4.34	9.31	4.45	9.31	4.49	9.31	4.52	9.31	4.58	9.31	4.65	9.31	4.68
	-11	9.71	4.08	9.71	4.14	9.71	4.25	9.71	4.37	9.71	4.40	9.71	4.43	9.71	4.49	9.71	4.55	9.71	4.59
	-10	9.95	4.02	9.95	4.07	9.95	4.19	9.95	4.30	9.95	4.33	9.95	4.36	9.95	4.42	9.95	4.48	9.95	4.52
	-9	10.22	3.94	10.22	4.00	10.22	4.11	10.21	4.22	10.21	4.25	10.21	4.28	10.21	4.34	10.21	4.40	10.21	4.43
	-7	10.70	3.86	10.70	3.92	10.69	4.02	10.68	4.13	10.68	4.16	10.68	4.19	10.68	4.25	10.68	4.31	10.68	4.34
	-6	10.91	3.74	10.90	3.80	10.89	3.90	10.87	4.01	10.87	4.03	10.87	4.06	10.87	4.12	10.87	4.18	10.87	4.21
	-5	11.19	3.61	11.18	3.66	11.17	3.76	11.16	3.86	11.16	3.89	11.16	3.91	11.16	3.97	11.16	4.02	11.16	4.05
	-3	11.67	3.45	11.65	3.49	11.62	3.59	11.60	3.68	11.60	3.71	11.60	3.73	11.60	3.79	11.60	3.84	11.60	3.87
80	-1	12.15	3.41	12.12	3.46	12.08	3.55	12.04	3.65	12.04	3.67	12.04	3.70	12.04	3.75	12.04	3.80	12.04	3.83
	0	12.48	3.31	12.46	3.35	12.40	3.44	12.35	3.53	12.35	3.56	12.35	3.58	12.35	3.63	12.35	3.68	12.35	3.71
	1	12.66	3.28	12.62	3.32	12.55	3.41	12.48	3.50	12.48	3.53	12.48	3.55	12.48	3.60	12.48	3.65	12.48	3.68
	3	13.07	3.24	13.02	3.29	12.91	3.38	12.81	3.46	12.81	3.49	12.81	3.51	12.81	3.56	12.81	3.61	12.81	3.64
	5	13.44	3.21	13.38	3.25	13.26	3.34	13.14	3.43	13.14	3.45	13.14	3.48	13.14	3.52	13.14	3.57	13.14	3.60
	6	13.76	3.15	13.74	3.20	13.68	3.28	13.63	3.37	13.63	3.39	13.63	3.41	13.63	3.46	13.63	3.51	13.63	3.53
	7	14.01	3.09	13.99	3.13	13.94	3.21	13.89	3.30	13.89	3.32	13.89	3.35	13.89	3.39	13.89	3.44	13.89	3.46
	9	14.42	3.03	14.37	3.07	14.27	3.15	14.18	3.23	14.18	3.26	14.18	3.28	14.18	3.33	14.18	3.37	14.18	3.40
	10	14.67	3.01	14.62	3.05	14.53	3.13	14.43	3.21	14.43	3.24	14.43	3.26	14.43	3.31	14.43	3.35	14.43	3.38
	11	14.73	2.98	14.69	3.02	14.61	3.10	14.53	3.18	14.53	3.20	14.53	3.22	14.53	3.27	14.53	3.31	14.53	3.34
	14	15.03	2.94	14.98	2.98	14.88	3.06	14.78	3.14	14.78	3.16	14.78	3.19	14.78	3.23	14.78	3.28	14.78	3.30
	15	15.16	2.91	15.12	2.95	15.03	3.03	14.94	3.10	14.94	3.13	14.94	3.15	14.94	3.19	14.94	3.24	14.94	3.26
	-20	7.86	4.23	7.87	4.30	7.89	4.44	7.91	4.58	7.91	4.61	7.91	4.64	7.91	4.71	7.91	4.78	7.91	4.81
	-17	8.28	4.18	8.28	4.25	8.28	4.39	8.28	4.53	8.28	4.56	8.28	4.59	8.28	4.65	8.28	4.72	8.28	4.75
	-15	8.61	4.08	8.61	4.15	8.61	4.28	8.61	4.41	8.61	4.45	8.61	4.48	8.61	4.54	8.61	4.60	8.61	4.64
	-13	8.93	3.94	8.93	4.01	8.93	4.13	8.93	4.26	8.93	4.29	8.93	4.33	8.93	4.39	8.93	4.45	8.93	4.48
	-11	9.25	3.86	9.25	3.92	9.25	4.05	9.25	4.17	9.25	4.20	9.25	4.23	9.25	4.29	9.25	4.35	9.25	4.38
	-10	9.46	3.78	9.46	3.85	9.46	3.97	9.46	4.09	9.46	4.12	9.46	4.15	9.46	4.21	9.46	4.27	9.46	4.30
	-9	9.70	3.70	9.70	3.76	9.69	3.88	9.69	4.00	9.69	4.03	9.69	4.05	9.69	4.11	9.69	4.17	9.69	4.20
	-7	10.08	3.59	10.07	3.65	10.06	3.76	10.05	3.88	10.05	3.91	10.05	3.94	10.05	3.99	10.05	4.05	10.05	4.07
	-6	10.22	3.45	10.21	3.51	10.20	3.62	10.18	3.73	10.18	3.76	10.18	3.78	10.18	3.84	10.18	3.89	10.18	3.92
	-5	10.45	3.29	10.45	3.34	10.44	3.45	10.42	3.55	10.42	3.58	10.42	3.60	10.42	3.65	10.42	3.70	10.42	3.73
	-3	10.84	3.09	10.82	3.13	10.80	3.23	10.77	3.33	10.77	3.35	10.77	3.37	10.77	3.42	10.77	3.47	10.77	3.49
70	-1	11.22	3.07	11.20	3.12	11.16	3.22	11.12	3.31	11.12	3.34	11.12	3.36	11.12	3.41	11.12	3.45	11.12	3.48
	0	11.56	2.95	11.53	3.00	11.48	3.09	11.43	3.18	11.43	3.21	11.43	3.23	11.43	3.27	11.43	3.32	11.43	3.34
	1	11.68	2.93	11.65	2.97	11.59	3.07	11.52	3.16	11.52	3.18	11.52	3.20	11.52	3.25	11.52	3.29	11.52	3.32
	3	12.03	2.90	11.98	2.94	11.89	3.03	11.79	3.12	11.79	3.14	11.79	3.17	11.79	3.21	11.79	3.25	11.79	3.28
	5	12.32	2.86	12.27	2.91	12.17	3.00	12.06	3.08	12.06	3.11	12.06	3.13	12.06	3.17	12.06	3.22	12.06	3.24
	6	12.57	2.82	12.54	2.86	12.50	2.95	12.45	3.03	12.45	3.06	12.45	3.08	12.45	3.12	12.45	3.17	12.45	3.19
	7	12.78	2.76	12.76	2.80	12.72	2.89	12.67	2.97	12.67	2.99	12.67	3.02	12.67	3.06	12.67	3.10	12.67	3.12
	9	13.08	2.69	13.04	2.73	12.95	2.81	12.86	2.90	12.86	2.92	12.86	2.94	12.86	2.98	12.86	3.02	12.86	3.04
	10	13.30	2.66	13.26	2.70	13.17	2.79	13.09	2.87	13.09	2.89	13.09	2.91	13.09	2.95	13.09	2.99	13.09	3.01
	11	13.34	2.63	13.30	2.67	13.23	2.75	13.15	2.83	13.15	2.85	13.15	2.87	13.15	2.91	13.15	2.95	13.15	2.97
	14	13.60	2.58	13.56	2.62	13.47	2.70	13.38	2.78	13.38	2.80	13.38	2.82	13.38	2.86	13.38	2.90	13.38	2.92
	15	13.73	2.55	13.69	2.59	13.62	2.66	13.54	2.74	13.54	2.76	13.54	2.78	13.54	2.82	13.54	2.86	13.54	2.88

	-20	7.81	4.04	7.82	4.12	7.84	4.27	7.86	4.43	7.86	4.46	7.86	4.49	7.86	4.55	7.86	4.62	7.86	4.65
	-17	8.06	3.99	8.06	4.07	8.06	4.22	8.06	4.37	8.06	4.40	8.06	4.43	8.06	4.49	8.06	4.56	8.06	4.59
	-15	8.30	3.88	8.30	3.95	8.30	4.10	8.30	4.25	8.30	4.28	8.30	4.31	8.30	4.37	8.30	4.43	8.30	4.46
	-13	8.54	3.72	8.54	3.79	8.54	3.93	8.54	4.07	8.54	4.10	8.54	4.13	8.54	4.19	8.54	4.25	8.54	4.28
	-11	8.78	3.64	8.78	3.71	8.78	3.84	8.78	3.98	8.78	4.01	8.78	4.04	8.78	4.09	8.78	4.15	8.78	4.18
	-10	8.97	3.55	8.97	3.62	8.97	3.75	8.97	3.89	8.97	3.91	8.97	3.94	8.97	4.00	8.97	4.05	8.97	4.08
	-9	9.17	3.45	9.17	3.51	9.17	3.64	9.16	3.77	9.16	3.80	9.16	3.83	9.16	3.88	9.16	3.93	9.16	3.96
	-7	9.45	3.32	9.45	3.38	9.44	3.51	9.43	3.63	9.43	3.66	9.43	3.68	9.43	3.73	9.43	3.79	9.43	3.81
	-6	9.53	3.16	9.52	3.22	9.50	3.34	9.49	3.46	9.49	3.48	9.49	3.51	9.49	3.56	9.49	3.61	9.49	3.63
	-5	9.72	2.97	9.71	3.02	9.70	3.13	9.69	3.24	9.69	3.27	9.69	3.29	9.69	3.34	9.69	3.38	9.69	3.41
	-3	10.01	2.72	9.99	2.77	9.97	2.87	9.95	2.97	9.95	2.99	9.95	3.01	9.95	3.06	9.95	3.10	9.95	3.12
60	-1	10.29	2.73	10.27	2.78	10.24	2.88	10.20	2.98	10.20	3.00	10.20	3.02	10.20	3.06	10.20	3.11	10.20	3.13
	0	10.63	2.60	10.61	2.65	10.56	2.74	10.52	2.83	10.52	2.85	10.52	2.88	10.52	2.92	10.52	2.96	10.52	2.98
	1	10.71	2.58	10.68	2.63	10.62	2.72	10.56	2.81	10.56	2.83	10.56	2.85	10.56	2.89	10.56	2.93	10.56	2.95
	3	10.99	2.55	10.95	2.59	10.86	2.68	10.78	2.78	10.78	2.80	10.78	2.82	10.78	2.86	10.78	2.90	10.78	2.92
	5	11.20	2.51	11.16	2.56	11.08	2.65	10.99	2.74	10.99	2.76	10.99	2.78	10.99	2.82	10.99	2.86	10.99	2.88
	6	11.37	2.48	11.35	2.52	11.31	2.61	11.26	2.70	11.26	2.72	11.26	2.74	11.26	2.78	11.26	2.82	11.26	2.84
	7	11.56	2.43	11.54	2.47	11.50	2.56	11.46	2.65	11.46	2.67	11.46	2.69	11.46	2.72	11.46	2.76	11.46	2.78
	9	11.75	2.35	11.71	2.39	11.63	2.47	11.55	2.56	11.55	2.58	11.55	2.60	11.55	2.63	11.55	2.67	11.55	2.69
	10	11.93	2.31	11.90	2.35	11.82	2.44	11.74	2.52	11.74	2.54	11.74	2.56	11.74	2.59	11.74	2.63	11.74	2.65
	11	11.94	2.28	11.91	2.32	11.84	2.40	11.78	2.49	11.78	2.50	11.78	2.52	11.78	2.56	11.78	2.59	11.78	2.61
	14	12.17	2.21	12.13	2.25	12.05	2.33	11.97	2.41	11.97	2.43	11.97	2.45	11.97	2.48	11.97	2.52	11.97	2.53
	15	12.31	2.18	12.27	2.22	12.20	2.30	12.13	2.38	12.13	2.40	12.13	2.41	12.13	2.45	12.13	2.48	12.13	2.50
	-20	7.76	3.86	7.77	3.94	7.79	4.11	7.81	4.27	7.81	4.30	7.81	4.33	7.81	4.40	7.81	4.46	7.81	4.49
	-17	7.84	3.80	7.84	3.88	7.84	4.05	7.84	4.21	7.84	4.24	7.84	4.27	7.84	4.33	7.84	4.39	7.84	4.42
	-15	8.00	3.68	8.00	3.76	8.00	3.92	8.00	4.08	8.00	4.11	8.00	4.14	8.00	4.20	8.00	4.25	8.00	4.28
	-13	8.16	3.50	8.16	3.58	8.16	3.73	8.16	3.88	8.16	3.91	8.16	3.94	8.16	3.99	8.16	4.05	8.16	4.08
	-11	8.32	3.42	8.32	3.49	8.32	3.64	8.32	3.79	8.32	3.81	8.32	3.84	8.32	3.89	8.32	3.95	8.32	3.97
	-10	8.48	3.32	8.48	3.39	8.48	3.54	8.48	3.68	8.48	3.71	8.48	3.73	8.48	3.78	8.48	3.84	8.48	3.86
	-9	8.65	3.20	8.64	3.27	8.64	3.41	8.64	3.55	8.64	3.57	8.64	3.60	8.64	3.65	8.64	3.70	8.64	3.72
	-7	8.82	3.05	8.82	3.11	8.81	3.25	8.80	3.38	8.80	3.40	8.80	3.43	8.80	3.47	8.80	3.52	8.80	3.55
	-6	8.83	2.87	8.83	2.93	8.81	3.06	8.80	3.18	8.80	3.21	8.80	3.23	8.80	3.27	8.80	3.32	8.80	3.34
	-5	8.99	2.65	8.98	2.71	8.97	2.82	8.96	2.94	8.96	2.96	8.96	2.98	8.96	3.02	8.96	3.06	8.96	3.08
	-3	9.18	2.36	9.17	2.41	9.14	2.51	9.12	2.61	9.12	2.63	9.12	2.65	9.12	2.69	9.12	2.73	9.12	2.75
50	-1	9.36	2.39	9.35	2.44	9.31	2.54	9.28	2.65	9.28	2.66	9.28	2.68	9.28	2.72	9.28	2.76	9.28	2.78
	0	9.70	2.24	9.68	2.29	9.64	2.39	9.60	2.49	9.60	2.50	9.60	2.52	9.60	2.56	9.60	2.59	9.60	2.61
	1	9.73	2.23	9.71	2.28	9.65	2.37	9.60	2.47	9.60	2.49	9.60	2.50	9.60	2.54	9.60	2.57	9.60	2.59
	3	9.96	2.20	9.92	2.24	9.84	2.34	9.76	2.43	9.76	2.45	9.76	2.47	9.76	2.50	9.76	2.54	9.76	2.56
	5	10.08	2.17	10.05	2.21	9.98	2.31	9.92	2.40	9.92	2.42	9.92	2.43	9.92	2.47	9.92	2.50	9.92	2.52
	6	10.18	2.14	10.16	2.19	10.12	2.28	10.08	2.37	10.08	2.39	10.08	2.41	10.08	2.44	10.08	2.47	10.08	2.49
	7	10.33	2.10	10.31	2.14	10.28	2.23	10.24	2.32	10.24	2.34	10.24	2.36	10.24	2.39	10.24	2.42	10.24	2.44
	9	10.41	2.01	10.38	2.05	10.31	2.14	10.24	2.22	10.24	2.24	10.24	2.25	10.24	2.29	10.24	2.32	10.24	2.33
	10	10.57	1.96	10.53	2.00	10.47	2.09	10.40	2.17	10.40	2.19	10.40	2.20	10.40	2.23	10.40	2.27	10.40	2.28
	11	10.55	1.93	10.52	1.97	10.46	2.06	10.40	2.14	10.40	2.16	10.40	2.17	10.40	2.20	10.40	2.23	10.40	2.25
	14	10.74	1.85	10.70	1.89	10.63	1.97	10.56	2.05	10.56	2.06	10.56	2.08	10.56	2.11	10.56	2.14	10.56	2.15
	15	10.88	1.82	10.85	1.86	10.78	1.94	10.72	2.02	10.72	2.03	10.72	2.05	10.72	2.07	10.72	2.10	10.72	2.12

Model: AFW-54U4SC

Combination (%)	Outdoor temperature(WB,℃)	Indoor temperature(DB,℃)																	
		15		16		18		20		21		22		24		26		27	
		Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
130	-20	9.13	4.32	9.14	4.46	9.16	4.76	9.19	5.05	9.19	5.07	9.19	5.09	9.19	5.13	9.19	5.17	9.19	5.19
	-17	10.20	4.32	10.20	4.46	10.20	4.76	10.20	5.05	10.20	5.07	10.20	5.09	10.20	5.13	10.20	5.17	10.20	5.19
	-15	10.86	4.28	10.86	4.42	10.86	4.71	10.86	5.01	10.86	5.03	10.86	5.05	10.86	5.09	10.86	5.13	10.86	5.15
	-13	11.50	4.24	11.50	4.39	11.50	4.67	11.50	4.96	11.50	4.98	11.50	5.00	11.50	5.04	11.50	5.09	11.50	5.11
	-11	12.14	4.21	12.14	4.35	12.14	4.63	12.14	4.92	12.14	4.94	12.14	4.96	12.14	5.00	12.14	5.04	12.14	5.06
	-10	12.46	4.17	12.46	4.31	12.46	4.59	12.46	4.88	12.46	4.90	12.46	4.92	12.46	4.96	12.46	5.00	12.46	5.02
	-9	12.86	4.13	12.86	4.27	12.85	4.55	12.85	4.83	12.85	4.85	12.85	4.87	12.85	4.91	12.85	4.95	12.85	4.97
	-7	13.64	4.13	13.63	4.27	13.62	4.55	13.60	4.83	13.60	4.85	13.60	4.87	13.60	4.91	13.60	4.95	13.60	4.97
	-6	14.03	4.10	14.02	4.24	14.00	4.51	13.97	4.79	13.97	4.81	13.97	4.83	13.97	4.87	13.97	4.91	13.97	4.93
	-5	14.44	4.06	14.43	4.20	14.41	4.47	14.40	4.75	14.40	4.77	14.40	4.79	14.40	4.83	14.40	4.87	14.40	4.89
	-3	15.20	4.02	15.19	4.16	15.15	4.43	15.11	4.71	15.11	4.73	15.11	4.74	15.11	4.78	15.11	4.82	15.11	4.84
	-1	15.97	3.99	15.94	4.12	15.88	4.39	15.83	4.66	15.83	4.68	15.83	4.70	15.83	4.74	15.83	4.78	15.83	4.80
	0	16.35	3.99	16.32	4.12	16.25	4.39	16.18	4.66	16.18	4.68	16.18	4.70	16.18	4.74	16.18	4.78	16.18	4.80
	1	16.66	3.95	16.62	4.08	16.53	4.35	16.43	4.62	16.43	4.64	16.43	4.66	16.43	4.70	16.43	4.73	16.43	4.75
	3	17.27	3.91	17.21	4.05	17.07	4.31	16.93	4.58	16.93	4.60	16.93	4.62	16.93	4.65	16.93	4.69	16.93	4.71
	5	17.89	3.88	17.80	4.01	17.62	4.27	17.43	4.53	17.43	4.55	17.43	4.57	17.43	4.61	17.43	4.65	17.43	4.67
	6	18.97	3.84	18.93	3.97	18.86	4.23	18.79	4.49	18.79	4.51	18.79	4.53	18.79	4.57	18.79	4.60	18.79	4.62
	7	19.28	3.80	19.25	3.93	19.18	4.19	19.11	4.45	19.11	4.47	19.11	4.49	19.11	4.52	19.11	4.56	19.11	4.58
	9	19.74	3.77	19.68	3.90	19.54	4.15	19.41	4.41	19.41	4.43	19.41	4.45	19.41	4.48	19.41	4.52	19.41	4.54
	10	20.33	3.69	20.27	3.81	20.14	4.06	20.01	4.31	20.01	4.33	20.01	4.35	20.01	4.38	20.01	4.42	20.01	4.44
	11	20.47	3.63	20.41	3.76	20.30	4.00	20.19	4.25	20.19	4.27	20.19	4.28	20.19	4.32	20.19	4.35	20.19	4.37
	14	20.71	3.47	20.64	3.59	20.50	3.83	20.36	4.06	20.36	4.08	20.36	4.10	20.36	4.13	20.36	4.16	20.36	4.18
	15	21.39	3.42	21.33	3.54	21.20	3.77	21.08	4.00	21.08	4.02	21.08	4.03	21.08	4.07	21.08	4.10	21.08	4.12
120	-20	9.08	4.75	9.10	4.87	9.12	5.11	9.14	5.34	9.14	5.37	9.14	5.40	9.14	5.45	9.14	5.51	9.14	5.54
	-17	10.16	4.74	10.16	4.86	10.16	5.09	10.16	5.32	10.16	5.35	10.16	5.38	10.16	5.44	10.16	5.49	10.16	5.52
	-15	10.81	4.68	10.81	4.80	10.81	5.03	10.81	5.26	10.81	5.29	10.81	5.32	10.81	5.37	10.81	5.43	10.81	5.46
	-13	11.45	4.63	11.45	4.74	11.45	4.97	11.45	5.20	11.45	5.23	11.45	5.26	11.45	5.31	11.45	5.37	11.45	5.39
	-11	12.09	4.58	12.09	4.69	12.09	4.92	12.09	5.14	12.09	5.17	12.09	5.20	12.09	5.25	12.09	5.31	12.09	5.33
	-10	12.41	4.54	12.41	4.65	12.41	4.87	12.41	5.10	12.41	5.13	12.41	5.15	12.41	5.21	12.41	5.26	12.41	5.29
	-9	12.80	4.50	12.80	4.61	12.80	4.83	12.79	5.06	12.79	5.08	12.79	5.11	12.79	5.16	12.79	5.21	12.79	5.24
	-7	13.58	4.48	13.57	4.59	13.56	4.82	13.54	5.04	13.54	5.07	13.54	5.09	13.54	5.14	13.54	5.20	13.54	5.22
	-6	13.96	4.43	13.95	4.54	13.93	4.76	13.91	4.98	13.91	5.01	13.91	5.03	13.91	5.08	13.91	5.14	13.91	5.16
	-5	14.37	4.37	14.36	4.48	14.35	4.70	14.33	4.92	14.33	4.95	14.33	4.97	14.33	5.02	14.33	5.07	14.33	5.10
	-3	15.13	4.32	15.12	4.43	15.08	4.64	15.04	4.86	15.04	4.88	15.04	4.91	15.04	4.96	15.04	5.01	15.04	5.04
	-1	15.90	4.26	15.87	4.37	15.81	4.59	15.75	4.80	15.75	4.82	15.75	4.85	15.75	4.90	15.75	4.95	15.75	4.97
	0	16.28	4.23	16.25	4.34	16.18	4.55	16.11	4.77	16.11	4.79	16.11	4.82	16.11	4.87	16.11	4.92	16.11	4.94
	1	16.58	4.19	16.54	4.30	16.45	4.51	16.36	4.72	16.36	4.75	16.36	4.77	16.36	4.82	16.36	4.87	16.36	4.89
	3	17.19	4.16	17.13	4.26	16.99	4.47	16.86	4.68	16.86	4.70	16.86	4.73	16.86	4.78	16.86	4.82	16.86	4.85
	5	17.81	4.12	17.72	4.22	17.53	4.43	17.35	4.63	17.35	4.66	17.35	4.68	17.35	4.73	17.35	4.78	17.35	4.80
	6	18.70	4.06	18.67	4.16	18.60	4.37	18.52	4.57	18.52	4.60	18.52	4.62	18.52	4.67	18.52	4.72	18.52	4.74
	7	19.03	4.01	18.99	4.11	18.93	4.31	18.86	4.51	18.86	4.54	18.86	4.56	18.86	4.61	18.86	4.65	18.86	4.68
	9	19.57	3.97	19.50	4.07	19.37	4.27	19.24	4.47	19.24	4.50	19.24	4.52	19.24	4.56	19.24	4.61	19.24	4.63
	10	20.08	3.91	20.01	4.01	19.89	4.21	19.76	4.41	19.76	4.43	19.76	4.45	19.76	4.50	19.76	4.54	19.76	4.57
	11	20.22	3.86	20.16	3.96	20.05	4.15	19.94	4.35	19.94	4.37	19.94	4.39	19.94	4.44	19.94	4.48	19.94	4.51
	14	20.51	3.76	20.45	3.85	20.31	4.04	20.18	4.23	20.18	4.25	20.18	4.27	20.18	4.31	20.18	4.36	20.18	4.38
	15	21.02	3.71	20.96	3.80	20.83	3.98	20.71	4.17	20.71	4.19	20.71	4.21	20.71	4.26	20.71	4.30	20.71	4.32

	-20	9.04	5.19	9.05	5.28	9.08	5.46	9.10	5.63	9.10	5.67	9.10	5.70	9.10	5.77	9.10	5.84	9.10	5.88
	-17	10.11	5.16	10.11	5.25	10.11	5.43	10.11	5.60	10.11	5.64	10.11	5.67	10.11	5.74	10.11	5.81	10.11	5.85
	-15	10.76	5.09	10.76	5.18	10.76	5.35	10.76	5.52	10.76	5.56	10.76	5.59	10.76	5.66	10.76	5.73	10.76	5.76
	-13	11.40	5.02	11.40	5.10	11.40	5.27	11.40	5.45	11.40	5.48	11.40	5.51	11.40	5.58	11.40	5.65	11.40	5.68
	-11	12.03	4.94	12.03	5.03	12.03	5.20	12.03	5.37	12.03	5.40	12.03	5.44	12.03	5.50	12.03	5.57	12.03	5.60
	-10	12.35	4.90	12.35	4.99	12.35	5.15	12.35	5.32	12.35	5.36	12.35	5.39	12.35	5.46	12.35	5.52	12.35	5.55
	-9	12.74	4.86	12.74	4.94	12.74	5.11	12.73	5.28	12.73	5.31	12.73	5.34	12.73	5.41	12.73	5.47	12.73	5.51
	-7	13.52	4.83	13.51	4.91	13.49	5.08	13.48	5.25	13.48	5.28	13.48	5.31	13.48	5.38	13.48	5.44	13.48	5.47
	-6	13.90	4.76	13.89	4.84	13.87	5.00	13.85	5.17	13.85	5.20	13.85	5.23	13.85	5.30	13.85	5.36	13.85	5.39
	-5	14.30	4.69	14.30	4.77	14.28	4.93	14.26	5.09	14.26	5.12	14.26	5.15	14.26	5.22	14.26	5.28	14.26	5.31
	-3	15.06	4.61	15.05	4.69	15.01	4.85	14.97	5.01	14.97	5.04	14.97	5.08	14.97	5.14	14.97	5.20	14.97	5.23
110	-1	15.82	4.54	15.80	4.62	15.74	4.78	15.68	4.94	15.68	4.97	15.68	5.00	15.68	5.06	15.68	5.12	15.68	5.15
	0	16.20	4.48	16.17	4.56	16.10	4.72	16.03	4.87	16.03	4.90	16.03	4.93	16.03	4.99	16.03	5.05	16.03	5.08
	1	16.51	4.44	16.46	4.52	16.37	4.67	16.28	4.83	16.28	4.86	16.28	4.89	16.28	4.95	16.28	5.01	16.28	5.04
	3	17.12	4.40	17.05	4.47	16.91	4.63	16.78	4.78	16.78	4.81	16.78	4.84	16.78	4.90	16.78	4.96	16.78	4.99
	5	17.72	4.35	17.63	4.43	17.45	4.58	17.27	4.73	17.27	4.76	17.27	4.79	17.27	4.85	17.27	4.91	17.27	4.94
	6	18.44	4.28	18.40	4.36	18.33	4.51	18.26	4.66	18.26	4.69	18.26	4.71	18.26	4.77	18.26	4.83	18.26	4.86
	7	18.77	4.21	18.74	4.28	18.68	4.43	18.61	4.58	18.61	4.61	18.61	4.64	18.61	4.69	18.61	4.75	18.61	4.78
	9	19.40	4.17	19.33	4.24	19.20	4.39	19.07	4.54	19.07	4.56	19.07	4.59	19.07	4.65	19.07	4.70	19.07	4.73
	10	19.83	4.14	19.76	4.21	19.64	4.36	19.51	4.50	19.51	4.53	19.51	4.56	19.51	4.61	19.51	4.67	19.51	4.70
	11	19.96	4.09	19.91	4.16	19.80	4.31	19.69	4.45	19.69	4.48	19.69	4.51	19.69	4.56	19.69	4.62	19.69	4.64
	14	20.32	4.04	20.26	4.11	20.12	4.25	19.99	4.39	19.99	4.42	19.99	4.44	19.99	4.50	19.99	4.55	19.99	4.58
	15	20.64	3.99	20.58	4.06	20.47	4.20	20.35	4.34	20.35	4.36	20.35	4.39	20.35	4.44	20.35	4.50	20.35	4.52
	-20	9.00	5.63	9.01	5.69	9.03	5.81	9.06	5.93	9.06	5.97	9.06	6.01	9.06	6.09	9.06	6.18	9.06	6.22
	-17	10.06	5.58	10.06	5.64	10.06	5.76	10.06	5.88	10.06	5.92	10.06	5.96	10.06	6.05	10.06	6.13	10.06	6.17
	-15	10.71	5.49	10.71	5.55	10.71	5.67	10.71	5.78	10.71	5.82	10.71	5.87	10.71	5.95	10.71	6.03	10.71	6.07
	-13	11.34	5.40	11.34	5.46	11.34	5.57	11.34	5.69	11.34	5.73	11.34	5.77	11.34	5.85	11.34	5.93	11.34	5.97
	-11	11.97	5.31	11.97	5.37	11.97	5.48	11.97	5.59	11.97	5.63	11.97	5.67	11.97	5.75	11.97	5.83	11.97	5.87
	-10	12.29	5.27	12.29	5.32	12.29	5.43	12.29	5.55	12.29	5.59	12.29	5.63	12.29	5.70	12.29	5.78	12.29	5.82
	-9	12.68	5.22	12.68	5.28	12.68	5.39	12.67	5.50	12.67	5.54	12.67	5.58	12.67	5.66	12.67	5.73	12.67	5.77
	-7	13.45	5.18	13.44	5.23	13.43	5.34	13.42	5.45	13.42	5.49	13.42	5.53	13.42	5.61	13.42	5.68	13.42	5.72
	-6	13.84	5.09	13.82	5.14	13.80	5.25	13.78	5.36	13.78	5.39	13.78	5.43	13.78	5.51	13.78	5.59	13.78	5.62
	-5	14.24	5.00	14.23	5.05	14.21	5.16	14.20	5.26	14.20	5.30	14.20	5.34	14.20	5.41	14.20	5.49	14.20	5.52
	-3	14.99	4.91	14.98	4.96	14.94	5.06	14.90	5.17	14.90	5.20	14.90	5.24	14.90	5.31	14.90	5.39	14.90	5.42
100	-1	15.75	4.82	15.72	4.87	15.66	4.97	15.61	5.07	15.61	5.11	15.61	5.14	15.61	5.22	15.61	5.29	15.61	5.33
	0	16.13	4.73	16.09	4.78	16.03	4.88	15.96	4.98	15.96	5.01	15.96	5.05	15.96	5.12	15.96	5.19	15.96	5.23
	1	16.43	4.68	16.39	4.73	16.30	4.83	16.21	4.93	16.21	4.96	16.21	5.00	16.21	5.07	16.21	5.14	16.21	5.18
	3	17.04	4.64	16.97	4.69	16.83	4.78	16.70	4.88	16.70	4.92	16.70	4.95	16.70	5.02	16.70	5.09	16.70	5.13
	5	17.64	4.59	17.55	4.64	17.37	4.74	17.19	4.83	17.19	4.87	17.19	4.90	17.19	4.97	17.19	5.04	17.19	5.08
	6	18.17	4.50	18.14	4.55	18.07	4.65	18.00	4.74	18.00	4.77	18.00	4.81	18.00	4.88	18.00	4.94	18.00	4.98
	7	18.52	4.41	18.49	4.46	18.42	4.55	18.36	4.65	18.36	4.68	18.36	4.71	18.36	4.78	18.36	4.84	18.36	4.88
	9	19.22	4.37	19.16	4.41	19.03	4.51	18.90	4.60	18.90	4.63	18.90	4.66	18.90	4.73	18.90	4.79	18.90	4.83
	10	19.57	4.37	19.51	4.41	19.38	4.51	19.26	4.60	19.26	4.63	19.26	4.66	19.26	4.73	19.26	4.79	19.26	4.83
	11	19.71	4.32	19.66	4.37	19.55	4.46	19.44	4.55	19.44	4.58	19.44	4.62	19.44	4.68	19.44	4.75	19.44	4.78
	14	20.13	4.32	20.07	4.37	19.93	4.46	19.80	4.55	19.80	4.58	19.80	4.62	19.80	4.68	19.80	4.75	19.80	4.78
	15	20.27	4.28	20.21	4.32	20.10	4.41	19.98	4.50	19.98	4.54	19.98	4.57	19.98	4.63	19.98	4.70	19.98	4.73

	-20	8.95	5.41	8.96	5.48	8.98	5.61	9.00	5.75	9.00	5.79	9.00	5.83	9.00	5.91	9.00	5.99	9.00	6.03
	-17	9.81	5.36	9.81	5.43	9.81	5.56	9.81	5.69	9.81	5.73	9.81	5.77	9.81	5.86	9.81	5.94	9.81	5.98
	-15	10.37	5.26	10.37	5.33	10.37	5.46	10.37	5.59	10.37	5.63	10.37	5.67	10.37	5.75	10.37	5.83	10.37	5.87
	-13	10.91	5.15	10.91	5.21	10.91	5.34	10.91	5.46	10.91	5.50	10.91	5.54	10.91	5.62	10.91	5.70	10.91	5.74
	-11	11.45	5.05	11.45	5.12	11.45	5.24	11.45	5.37	11.45	5.40	11.45	5.44	11.45	5.52	11.45	5.59	11.45	5.63
	-10	11.74	5.00	11.74	5.06	11.74	5.18	11.74	5.30	11.74	5.34	11.74	5.38	11.74	5.45	11.74	5.53	11.74	5.57
	-9	12.09	4.93	12.09	4.99	12.09	5.11	12.08	5.23	12.08	5.27	12.08	5.31	12.08	5.38	12.08	5.46	12.08	5.49
	-7	12.75	4.86	12.74	4.92	12.73	5.04	12.71	5.16	12.71	5.19	12.71	5.23	12.71	5.30	12.71	5.38	12.71	5.41
	-6	13.06	4.75	13.05	4.80	13.03	4.92	13.00	5.03	13.00	5.07	13.00	5.11	13.00	5.18	13.00	5.25	13.00	5.29
	-5	13.41	4.62	13.40	4.68	13.39	4.79	13.37	4.90	13.37	4.93	13.37	4.97	13.37	5.04	13.37	5.11	13.37	5.14
	-3	14.06	4.48	14.04	4.54	14.01	4.64	13.97	4.75	13.97	4.78	13.97	4.82	13.97	4.88	13.97	4.95	13.97	4.99
90	-1	14.71	4.42	14.68	4.47	14.63	4.57	14.57	4.68	14.57	4.71	14.57	4.75	14.57	4.81	14.57	4.88	14.57	4.91
	0	15.09	4.31	15.05	4.36	14.99	4.46	14.93	4.57	14.93	4.60	14.93	4.63	14.93	4.70	14.93	4.76	14.93	4.79
	1	15.33	4.27	15.29	4.32	15.21	4.42	15.13	4.52	15.13	4.56	15.13	4.59	15.13	4.65	15.13	4.72	15.13	4.75
	3	15.87	4.23	15.81	4.28	15.68	4.38	15.56	4.48	15.56	4.51	15.56	4.54	15.56	4.61	15.56	4.67	15.56	4.70
	5	16.38	4.18	16.30	4.23	16.14	4.33	15.99	4.43	15.99	4.46	15.99	4.50	15.99	4.56	15.99	4.62	15.99	4.65
	6	16.83	4.11	16.80	4.15	16.73	4.25	16.67	4.35	16.67	4.38	16.67	4.41	16.67	4.47	16.67	4.54	16.67	4.57
	7	17.14	4.02	17.11	4.07	17.05	4.17	16.99	4.26	16.99	4.29	16.99	4.32	16.99	4.38	16.99	4.45	16.99	4.48
	9	17.72	3.97	17.66	4.01	17.54	4.11	17.42	4.20	17.42	4.23	17.42	4.26	17.42	4.32	17.42	4.38	17.42	4.41
	10	18.04	3.96	17.98	4.00	17.86	4.10	17.75	4.19	17.75	4.22	17.75	4.25	17.75	4.31	17.75	4.37	17.75	4.40
	11	18.14	3.91	18.09	3.96	17.99	4.05	17.89	4.14	17.89	4.17	17.89	4.20	17.89	4.26	17.89	4.32	17.89	4.35
	14	18.52	3.89	18.46	3.94	18.34	4.03	18.22	4.12	18.22	4.15	18.22	4.18	18.22	4.24	18.22	4.30	18.22	4.33
	15	18.66	3.85	18.61	3.90	18.50	3.99	18.40	4.08	18.40	4.11	18.40	4.14	18.40	4.19	18.40	4.25	18.40	4.28
	-20	8.89	5.19	8.90	5.27	8.93	5.42	8.95	5.57	8.95	5.61	8.95	5.65	8.95	5.72	8.95	5.80	8.95	5.84
	-17	9.56	5.14	9.56	5.21	9.56	5.36	9.56	5.51	9.56	5.55	9.56	5.59	9.56	5.66	9.56	5.74	9.56	5.78
	-15	10.03	5.03	10.03	5.10	10.03	5.24	10.03	5.39	10.03	5.43	10.03	5.47	10.03	5.54	10.03	5.62	10.03	5.66
	-13	10.48	4.89	10.48	4.96	10.48	5.10	10.48	5.24	10.48	5.28	10.48	5.31	10.48	5.39	10.48	5.46	10.48	5.50
	-11	10.93	4.80	10.93	4.86	10.93	5.00	10.93	5.14	10.93	5.17	10.93	5.21	10.93	5.28	10.93	5.36	10.93	5.39
	-10	11.19	4.72	11.19	4.79	11.19	4.92	11.19	5.06	11.19	5.09	11.19	5.13	11.19	5.20	11.19	5.28	11.19	5.31
	-9	11.50	4.64	11.50	4.71	11.49	4.84	11.49	4.97	11.49	5.00	11.49	5.04	11.49	5.11	11.49	5.18	11.49	5.22
	-7	12.04	4.54	12.04	4.61	12.02	4.73	12.01	4.86	12.01	4.89	12.01	4.93	12.01	5.00	12.01	5.07	12.01	5.10
	-6	12.28	4.40	12.27	4.47	12.25	4.59	12.23	4.71	12.23	4.74	12.23	4.78	12.23	4.85	12.23	4.91	12.23	4.95
	-5	12.59	4.25	12.58	4.30	12.56	4.42	12.55	4.54	12.55	4.57	12.55	4.60	12.55	4.67	12.55	4.73	12.55	4.76
	-3	13.13	4.06	13.11	4.11	13.08	4.22	13.04	4.33	13.04	4.36	13.04	4.39	13.04	4.45	13.04	4.52	13.04	4.55
80	-1	13.66	4.01	13.64	4.07	13.59	4.18	13.54	4.29	13.54	4.32	13.54	4.35	13.54	4.41	13.54	4.47	13.54	4.50
	0	14.04	3.89	14.01	3.94	13.95	4.05	13.90	4.16	13.90	4.19	13.90	4.21	13.90	4.27	13.90	4.33	13.90	4.36
	1	14.24	3.86	14.20	3.91	14.12	4.01	14.04	4.12	14.04	4.15	14.04	4.18	14.04	4.24	14.04	4.30	14.04	4.32
	3	14.70	3.82	14.64	3.87	14.53	3.97	14.41	4.07	14.41	4.10	14.41	4.13	14.41	4.19	14.41	4.25	14.41	4.28
	5	15.12	3.77	15.05	3.83	14.92	3.93	14.78	4.03	14.78	4.06	14.78	4.09	14.78	4.15	14.78	4.20	14.78	4.23
	6	15.48	3.71	15.45	3.76	15.39	3.86	15.34	3.96	15.34	3.99	15.34	4.02	15.34	4.07	15.34	4.13	15.34	4.16
	7	15.76	3.63	15.73	3.68	15.68	3.78	15.62	3.88	15.62	3.91	15.62	3.93	15.62	3.99	15.62	4.05	15.62	4.07
	9	16.22	3.56	16.17	3.61	16.06	3.71	15.95	3.80	15.95	3.83	15.95	3.86	15.95	3.91	15.95	3.97	15.95	3.99
	10	16.50	3.54	16.45	3.59	16.34	3.69	16.24	3.78	16.24	3.81	16.24	3.83	16.24	3.89	16.24	3.94	16.24	3.97
	11	16.57	3.50	16.53	3.55	16.44	3.64	16.34	3.74	16.34	3.76	16.34	3.79	16.34	3.84	16.34	3.90	16.34	3.92
	14	16.91	3.46	16.86	3.51	16.74	3.60	16.63	3.69	16.63	3.72	16.63	3.75	16.63	3.80	16.63	3.85	16.63	3.88
	15	17.06	3.42	17.01	3.47	16.91	3.56	16.81	3.65	16.81	3.68	16.81	3.70	16.81	3.75	16.81	3.81	16.81	3.83

	-20	8.84	4.97	8.85	5.06	8.87	5.22	8.90	5.39	8.90	5.42	8.90	5.46	8.90	5.54	8.90	5.62	8.90	5.66
	-17	9.32	4.92	9.32	5.00	9.32	5.16	9.32	5.32	9.32	5.36	9.32	5.40	9.32	5.47	9.32	5.55	9.32	5.59
	-15	9.68	4.80	9.68	4.88	9.68	5.03	9.68	5.19	9.68	5.23	9.68	5.27	9.68	5.34	9.68	5.41	9.68	5.45
	-13	10.05	4.63	10.05	4.71	10.05	4.86	10.05	5.02	10.05	5.05	10.05	5.09	10.05	5.16	10.05	5.23	10.05	5.27
	-11	10.41	4.54	10.41	4.61	10.41	4.76	10.41	4.91	10.41	4.94	10.41	4.98	10.41	5.05	10.41	5.12	10.41	5.15
	-10	10.64	4.45	10.64	4.52	10.64	4.67	10.64	4.81	10.64	4.85	10.64	4.88	10.64	4.95	10.64	5.02	10.64	5.06
	-9	10.91	4.35	10.91	4.42	10.90	4.56	10.90	4.70	10.90	4.74	10.90	4.77	10.90	4.84	10.90	4.90	10.90	4.94
	-7	11.34	4.22	11.33	4.29	11.32	4.43	11.31	4.56	11.31	4.60	11.31	4.63	11.31	4.69	11.31	4.76	11.31	4.79
	-6	11.50	4.06	11.49	4.13	11.47	4.26	11.45	4.39	11.45	4.42	11.45	4.45	11.45	4.51	11.45	4.58	11.45	4.61
	-5	11.76	3.87	11.75	3.93	11.74	4.05	11.73	4.18	11.73	4.21	11.73	4.24	11.73	4.30	11.73	4.36	11.73	4.38
	-3	12.19	3.63	12.18	3.69	12.15	3.80	12.12	3.91	12.12	3.94	12.12	3.97	12.12	4.02	12.12	4.08	12.12	4.11
70	-1	12.62	3.61	12.60	3.67	12.55	3.78	12.51	3.90	12.51	3.92	12.51	3.95	12.51	4.01	12.51	4.06	12.51	4.09
	0	13.00	3.47	12.97	3.53	12.92	3.64	12.86	3.74	12.86	3.77	12.86	3.80	12.86	3.85	12.86	3.91	12.86	3.93
	1	13.14	3.45	13.11	3.50	13.03	3.61	12.96	3.71	12.96	3.74	12.96	3.77	12.96	3.82	12.96	3.87	12.96	3.90
	3	13.53	3.41	13.48	3.46	13.37	3.56	13.27	3.67	13.27	3.70	13.27	3.72	13.27	3.78	13.27	3.83	13.27	3.85
	5	13.86	3.37	13.80	3.42	13.69	3.52	13.57	3.63	13.57	3.65	13.57	3.68	13.57	3.73	13.57	3.78	13.57	3.81
	6	14.14	3.31	14.11	3.36	14.06	3.47	14.00	3.57	14.00	3.60	14.00	3.62	14.00	3.67	14.00	3.72	14.00	3.75
	7	14.38	3.24	14.36	3.29	14.31	3.40	14.26	3.50	14.26	3.52	14.26	3.55	14.26	3.60	14.26	3.65	14.26	3.67
	9	14.72	3.16	14.67	3.21	14.57	3.31	14.47	3.41	14.47	3.43	14.47	3.46	14.47	3.50	14.47	3.55	14.47	3.58
	10	14.96	3.13	14.91	3.18	14.82	3.28	14.72	3.37	14.72	3.40	14.72	3.42	14.72	3.47	14.72	3.52	14.72	3.54
	11	15.00	3.09	14.96	3.14	14.88	3.24	14.80	3.33	14.80	3.36	14.80	3.38	14.80	3.43	14.80	3.47	14.80	3.50
	14	15.30	3.03	15.25	3.08	15.15	3.17	15.05	3.27	15.05	3.29	15.05	3.31	15.05	3.36	15.05	3.41	15.05	3.43
	15	15.45	3.00	15.41	3.04	15.32	3.13	15.23	3.22	15.23	3.25	15.23	3.27	15.23	3.32	15.23	3.36	15.23	3.39
	-20	8.79	4.75	8.80	4.84	8.82	5.03	8.84	5.21	8.84	5.24	8.84	5.28	8.84	5.35	8.84	5.43	8.84	5.47
	-17	9.07	4.69	9.07	4.78	9.07	4.96	9.07	5.14	9.07	5.17	9.07	5.21	9.07	5.28	9.07	5.36	9.07	5.39
	-15	9.34	4.56	9.34	4.65	9.34	4.82	9.34	5.00	9.34	5.03	9.34	5.07	9.34	5.14	9.34	5.21	9.34	5.25
	-13	9.61	4.38	9.61	4.46	9.61	4.63	9.61	4.79	9.61	4.83	9.61	4.86	9.61	4.93	9.61	5.00	9.61	5.03
	-11	9.88	4.28	9.88	4.36	9.88	4.52	9.88	4.68	9.88	4.71	9.88	4.75	9.88	4.81	9.88	4.88	9.88	4.91
	-10	10.09	4.18	10.09	4.26	10.09	4.41	10.09	4.57	10.09	4.60	10.09	4.64	10.09	4.70	10.09	4.77	10.09	4.80
	-9	10.32	4.06	10.32	4.13	10.31	4.28	10.31	4.44	10.31	4.47	10.31	4.50	10.31	4.56	10.31	4.63	10.31	4.66
	-7	10.63	3.90	10.63	3.98	10.61	4.12	10.60	4.27	10.60	4.30	10.60	4.33	10.60	4.39	10.60	4.45	10.60	4.48
	-6	10.72	3.72	10.71	3.79	10.69	3.93	10.68	4.07	10.68	4.09	10.68	4.12	10.68	4.18	10.68	4.24	10.68	4.27
	-5	10.94	3.49	10.93	3.56	10.92	3.69	10.90	3.81	10.90	3.84	10.90	3.87	10.90	3.92	10.90	3.98	10.90	4.01
	-3	11.26	3.20	11.24	3.26	11.22	3.38	11.19	3.49	11.19	3.52	11.19	3.54	11.19	3.59	11.19	3.64	11.19	3.67
60	-1	11.58	3.21	11.56	3.27	11.52	3.39	11.47	3.50	11.47	3.53	11.47	3.55	11.47	3.60	11.47	3.65	11.47	3.68
	0	11.96	3.06	11.93	3.11	11.88	3.22	11.83	3.33	11.83	3.36	11.83	3.38	11.83	3.43	11.83	3.48	11.83	3.50
	1	12.05	3.03	12.01	3.09	11.95	3.20	11.88	3.31	11.88	3.33	11.88	3.36	11.88	3.40	11.88	3.45	11.88	3.47
	3	12.37	2.99	12.32	3.05	12.22	3.16	12.12	3.27	12.12	3.29	12.12	3.31	12.12	3.36	12.12	3.41	12.12	3.43
	5	12.60	2.96	12.55	3.01	12.46	3.12	12.37	3.23	12.37	3.25	12.37	3.27	12.37	3.32	12.37	3.36	12.37	3.39
	6	12.79	2.91	12.77	2.97	12.72	3.07	12.67	3.18	12.67	3.20	12.67	3.23	12.67	3.27	12.67	3.32	12.67	3.34
	7	13.00	2.85	12.98	2.91	12.93	3.01	12.89	3.11	12.89	3.14	12.89	3.16	12.89	3.20	12.89	3.25	12.89	3.27
	9	13.22	2.76	13.17	2.81	13.08	2.91	13.00	3.01	13.00	3.03	13.00	3.05	13.00	3.10	13.00	3.14	13.00	3.16
	10	13.43	2.72	13.38	2.77	13.30	2.87	13.21	2.96	13.21	2.99	13.21	3.01	13.21	3.05	13.21	3.09	13.21	3.11
	11	13.43	2.68	13.40	2.73	13.32	2.83	13.25	2.93	13.25	2.95	13.25	2.97	13.25	3.01	13.25	3.05	13.25	3.07
	14	13.69	2.60	13.64	2.65	13.55	2.74	13.46	2.84	13.46	2.86	13.46	2.88	13.46	2.92	13.46	2.96	13.46	2.98
	15	13.84	2.57	13.80	2.61	13.72	2.71	13.64	2.80	13.64	2.82	13.64	2.84	13.64	2.88	13.64	2.92	13.64	2.94

	-20	8.73	4.54	8.74	4.63	8.77	4.83	8.79	5.03	8.79	5.06	8.79	5.10	8.79	5.17	8.79	5.24	8.79	5.28
	-17	8.82	4.47	8.82	4.57	8.82	4.76	8.82	4.95	8.82	4.99	8.82	5.02	8.82	5.09	8.82	5.16	8.82	5.20
	-15	9.00	4.33	9.00	4.42	9.00	4.61	9.00	4.80	9.00	4.83	9.00	4.87	9.00	4.94	9.00	5.00	9.00	5.04
	-13	9.18	4.12	9.18	4.21	9.18	4.39	9.18	4.57	9.18	4.60	9.18	4.63	9.18	4.70	9.18	4.76	9.18	4.80
	-11	9.36	4.02	9.36	4.10	9.36	4.28	9.36	4.45	9.36	4.48	9.36	4.52	9.36	4.58	9.36	4.64	9.36	4.67
	-10	9.54	3.91	9.54	3.99	9.54	4.16	9.54	4.33	9.54	4.36	9.54	4.39	9.54	4.45	9.54	4.51	9.54	4.54
	-9	9.73	3.76	9.73	3.85	9.72	4.01	9.72	4.17	9.72	4.20	9.72	4.23	9.72	4.29	9.72	4.35	9.72	4.38
	-7	9.93	3.59	9.92	3.66	9.91	3.82	9.90	3.97	9.90	4.00	9.90	4.03	9.90	4.09	9.90	4.14	9.90	4.17
	-6	9.94	3.38	9.93	3.45	9.92	3.60	9.90	3.74	9.90	3.77	9.90	3.80	9.90	3.85	9.90	3.90	9.90	3.93
	-5	10.11	3.12	10.10	3.18	10.09	3.32	10.08	3.45	10.08	3.48	10.08	3.50	10.08	3.55	10.08	3.60	10.08	3.63
	-3	10.32	2.78	10.31	2.84	10.29	2.96	10.26	3.08	10.26	3.10	10.26	3.12	10.26	3.16	10.26	3.21	10.26	3.23
50	-1	10.54	2.81	10.52	2.87	10.48	2.99	10.44	3.11	10.44	3.13	10.44	3.16	10.44	3.20	10.44	3.24	10.44	3.27
	0	10.91	2.64	10.89	2.70	10.85	2.81	10.80	2.92	10.80	2.94	10.80	2.96	10.80	3.01	10.80	3.05	10.80	3.07
	1	10.95	2.62	10.92	2.68	10.86	2.79	10.80	2.90	10.80	2.92	10.80	2.94	10.80	2.99	10.80	3.03	10.80	3.05
	3	11.20	2.58	11.16	2.64	11.07	2.75	10.98	2.86	10.98	2.88	10.98	2.90	10.98	2.94	10.98	2.99	10.98	3.01
	5	11.34	2.55	11.30	2.60	11.23	2.71	11.16	2.82	11.16	2.84	11.16	2.86	11.16	2.90	11.16	2.94	11.16	2.96
	6	11.45	2.52	11.43	2.57	11.38	2.68	11.34	2.79	11.34	2.81	11.34	2.83	11.34	2.87	11.34	2.91	11.34	2.93
	7	11.62	2.46	11.60	2.52	11.56	2.62	11.52	2.73	11.52	2.75	11.52	2.77	11.52	2.81	11.52	2.85	11.52	2.87
	9	11.72	2.36	11.68	2.41	11.60	2.51	11.52	2.61	11.52	2.63	11.52	2.65	11.52	2.69	11.52	2.73	11.52	2.74
	10	11.89	2.31	11.85	2.36	11.78	2.46	11.70	2.56	11.70	2.57	11.70	2.59	11.70	2.63	11.70	2.67	11.70	2.68
	11	11.86	2.27	11.83	2.32	11.77	2.42	11.70	2.52	11.70	2.54	11.70	2.55	11.70	2.59	11.70	2.63	11.70	2.64
	14	12.08	2.17	12.04	2.22	11.96	2.31	11.88	2.41	11.88	2.43	11.88	2.44	11.88	2.48	11.88	2.51	11.88	2.53
	15	12.24	2.14	12.20	2.19	12.13	2.28	12.06	2.37	12.06	2.39	12.06	2.41	12.06	2.44	12.06	2.47	12.06	2.49

4.5.3 Air to Water: Maximum Heating Capacity (Integrated Value)

* All the performance test is performed according to EN14511.
* Integrated value: Tested with defrost operation.
* The actual capacity would vary along with the installation conditions.

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Outdoor temperature	Outlet Water Temperature(℃)													
	25		30		35		40		45		50		55	
	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
℃	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	8.74	3.39	8.51	3.71	8.06	4.04	7.95	4.44						
-15	9.97	3.54	9.74	3.71	9.18	4.32	8.06	4.22	8.74	4.87				
-10	10.86	3.11	9.97	3.46	9.74	3.92	8.74	4.39	9.07	5.02	9.30	5.47	8.62	5.90
-7	10.24	2.81	10.08	2.86	9.63	3.29	9.07	3.64	8.06	3.69	8.40	4.04	8.06	4.02
-2	10.62	2.64	10.30	2.71	9.74	3.11	8.85	3.39	8.40	3.56	8.40	4.14	7.84	4.47
2	10.86	2.48	10.53	2.71	10.08	2.99	9.18	3.19	9.07	3.41	8.51	3.82	7.62	4.07
7	11.65	2.11	11.31	2.16	11.20	2.51	10.42	2.89	10.45	3.05	10.19	3.51	9.74	3.51
10	12.77	2.07	12.54	2.28	12.43	2.76	11.31	2.76	11.55	3.21	10.64	3.51	10.30	3.87
12	13.40	2.09	13.13	2.26	12.88	2.68	11.94	2.80	11.95	3.22	11.22	3.52	10.93	3.91
15	14.34	2.11	14.00	2.23	13.55	2.56	12.88	2.85	12.54	3.24	12.10	3.54	11.87	3.97
20	15.46	2.11	15.46	2.26	15.68	2.69	15.46	3.04	15.23	3.46	14.00	3.79	13.22	4.07

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Outdoor temperature	Outlet Water Temperature(℃)													
	25		30		35		40		45		50		55	
	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
℃	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	10.50	4.49	10.64	5.01	10.10	5.52	9.52	5.91						
-15	12.18	4.69	11.90	4.98	11.62	5.78	10.78	5.94	10.78	6.42				
-10	13.30	4.17	12.74	4.88	12.60	5.62	11.76	6.16	11.90	6.74	10.92	7.06	10.08	7.67
-7	12.74	3.55	11.48	3.47	11.76	4.21	11.20	4.85	11.48	5.62	10.50	5.52	10.08	5.39
-2	12.46	3.27	12.74	3.60	11.87	3.85	10.92	4.33	11.06	4.82	10.08	5.14	9.38	5.62
2	12.60	3.02	12.88	3.47	11.99	3.63	11.20	4.01	10.50	4.17	9.66	4.49	8.96	4.94
7	14.56	2.73	14.28	2.89	14.00	3.21	13.16	3.74	12.74	3.85	12.74	4.43	11.90	4.40
10	15.26	2.57	15.82	2.95	15.30	3.47	14.28	3.69	14.70	4.17	13.16	4.56	12.32	4.98
12	16.10	2.58	16.66	2.99	16.16	3.44	15.18	3.70	15.60	4.33	14.17	4.60	13.16	5.05
15	17.36	2.60	17.92	3.05	17.45	3.40	16.52	3.72	16.94	4.56	15.68	4.65	14.42	5.17
20	20.30	2.82	19.32	2.95	19.60	3.53	17.78	3.69	18.48	4.49	17.50	4.98	16.52	5.46

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Outdoor temperature	Outlet Water Temperature(℃)													
	25		30		35		40		45		50		55	
	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P
℃	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	12.48	5.47	12.16	6.03	11.54	6.60	11.04	6.97						
-15	13.92	5.58	13.60	6.11	13.28	6.97	12.48	7.13	12.32	7.62				
-10	15.52	5.32	14.72	5.96	14.40	6.60	13.60	7.24	13.12	7.99	12.48	8.29	11.20	9.01
-7	14.40	4.07	13.76	4.34	13.44	4.94	12.96	5.84	12.48	6.33	12.16	6.45	11.20	6.33
-2	14.88	3.94	13.92	4.22	13.57	4.71	12.64	5.09	12.16	5.47	11.68	6.07	10.40	6.60
2	15.04	3.68	14.56	3.96	13.70	4.22	12.96	4.79	12.00	4.83	11.20	5.32	10.24	5.81
7	17.28	3.32	16.80	3.58	16.00	3.77	15.52	4.45	14.72	4.71	14.24	4.98	13.60	5.16
10	19.52	3.45	18.56	3.69	17.48	4.03	16.80	4.45	16.16	4.83	15.36	5.32	13.92	5.84
12	20.42	3.42	19.46	3.68	18.46	4.05	17.63	4.45	16.99	4.92	16.38	5.38	14.82	5.95
15	21.76	3.39	20.80	3.66	19.94	4.07	18.88	4.45	18.24	5.05	17.92	5.47	16.16	6.11
20	24.80	3.51	23.20	3.69	22.40	4.22	21.12	4.52	20.00	5.09	19.20	5.58	18.40	6.41

4.6 Piping Length Correction Factor

Unit Cooling Capacity Correction Factor and Corresponding Piping Length

Cooling capacity can be corrected according to the following formula:

CCA=CC X F

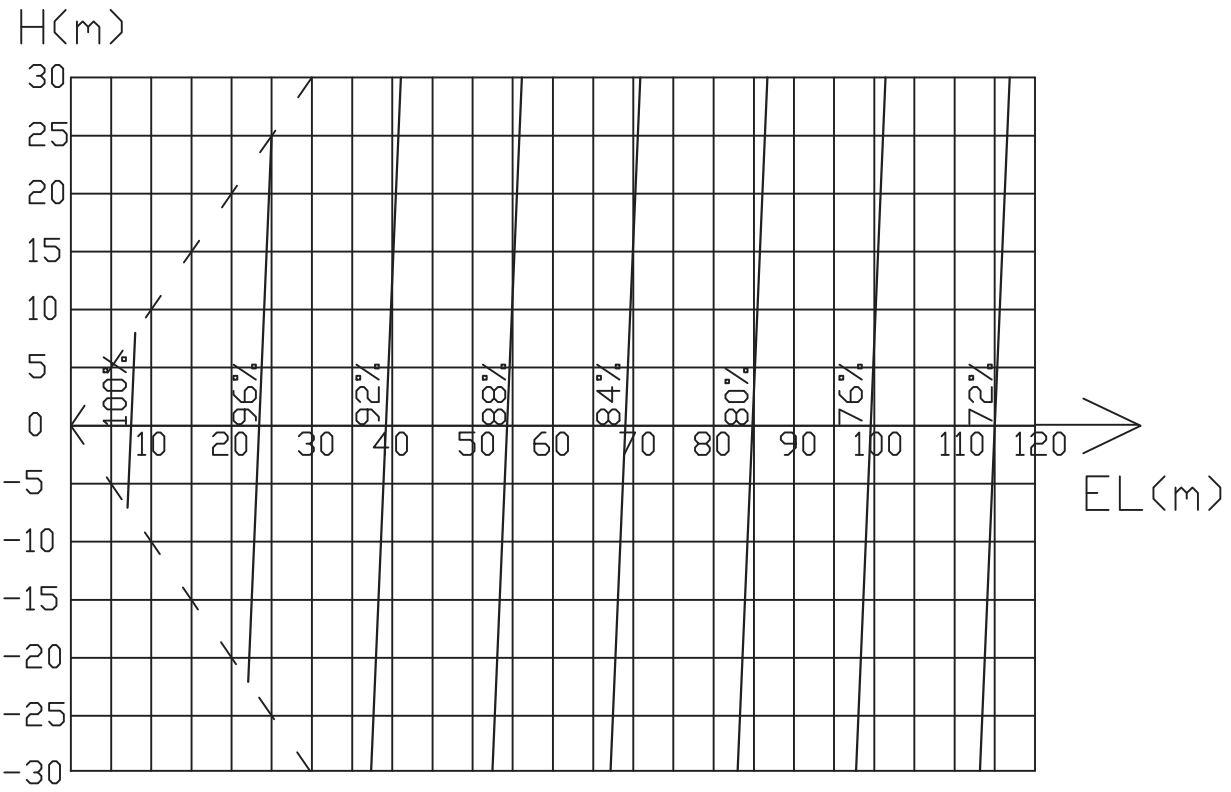
CCA: **Actual cooling capacity after correction (kW)**

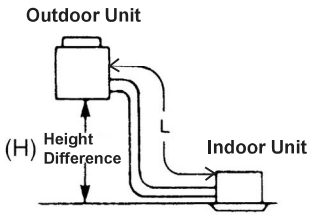
CC: **Cooling capacity in system capacity characteristic table (kW)**

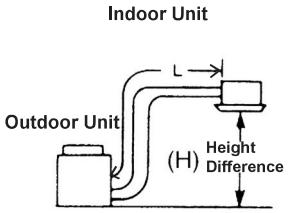
F: **Correction factor can be found from the following drawing lines according to the equivalent pipe length**

The functions of other pipe accessories can be taken into account by adopting the equivalent pipe length:

- **One 90°pipe joint is equivalent to 0.5m**
- **One 180°pipe joint is equivalent to 1.5m**
- **One branch pipe joint is equivalent to 0.5m**







H: Vertical height difference between indoor unit and outdoor unit (m)

EL: Equivalent pipe length difference between indoor unit and outdoor unit (m) (one-way equivalent pipe length)

H>0: Installation location of outdoor unit is higher than that of indoor unit

L: Actual one-way pipe length between indoor unit and outdoor unit (m)

Unit Heating Capacity Correction Factor and Corresponding Piping Length

Heating capacity can be corrected according to the following formula:

HCA=HC X F

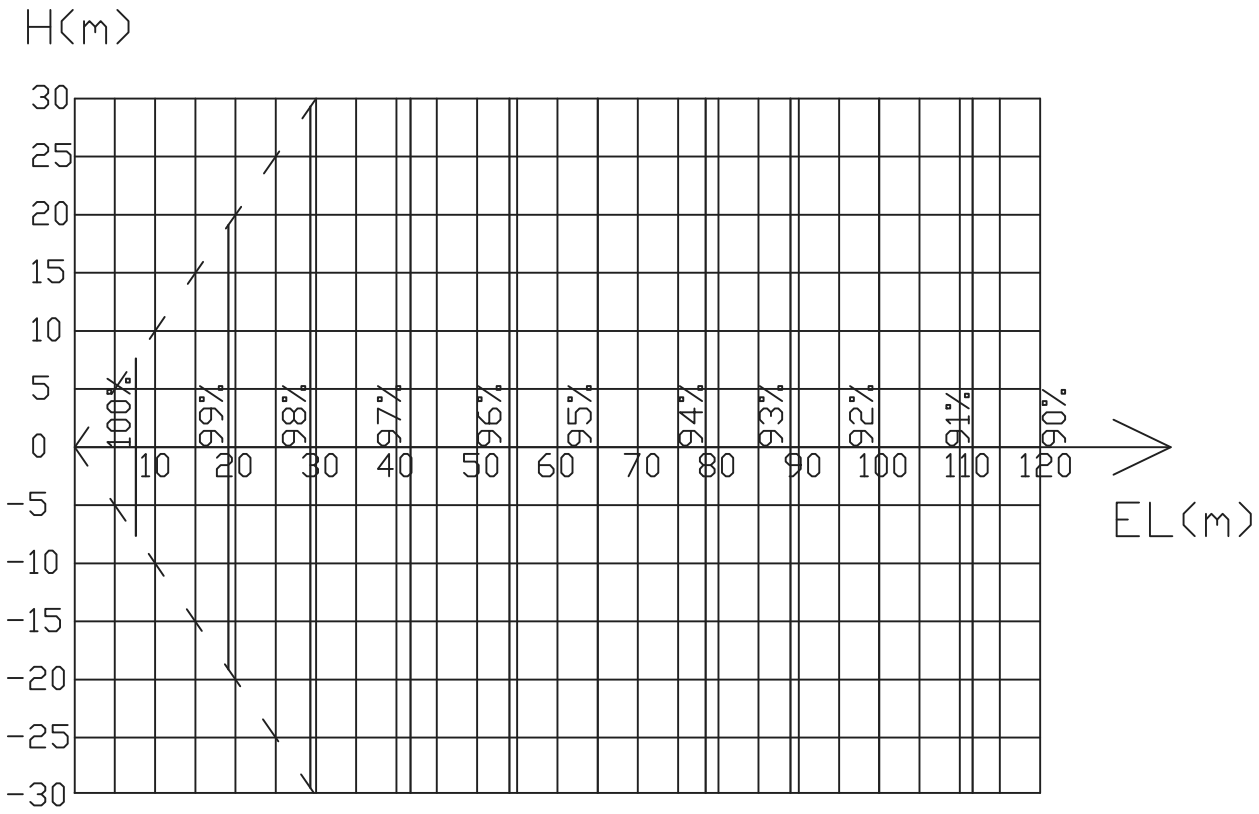
HCA: **Actual cooling capacity after correction (kW)**

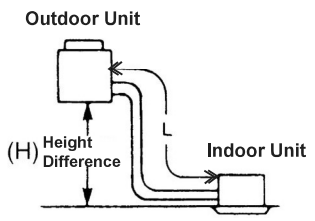
HC: **Heating capacity in unit capacity characteristic table (kW)**

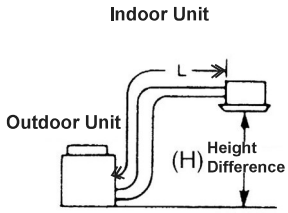
F: **Correction factor can be found from the following drawing lines according to the equivalent pipe length**

The functions of other pipe accessories can be taken into account by adopting the equivalent pipe length:

- **One 90°pipe joint is equivalent to 0.5m**
- **One 180°pipe joint is equivalent to 1.5m**
- **One branch pipe joint is equivalent to 0.5m**







H: Vertical height difference between indoor unit and outdoor unit (m)

EL: Equivalent pipe length difference between indoor unit and outdoor unit (m) (one-way equivalent pipe length)

H>0: Installation location of outdoor unit is higher than that of indoor unit

L: Actual one-way pipe length between indoor unit and outdoor unit (m)

4.7 Heating Capacity Correction Factor at Defrosting Operation

Unit frosting or defrosting operation process is not considered with regard to unit heating capacity as shown in the aforementioned table
By taking into consideration of frosting and defrosting operation processes, unit heating capacity can be corrected according to the following formula:
Corrected value of heating capacity = correction factor x heating capacity

Outdoor Dry Bulb Temperature (°C DB) (Relative Humidity 85%RH)	−20	−18	−16	−15	−14	−12	−10	−8	−6	−5	−4
Correction Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.93	0.91

Outdoor Dry Bulb Temperature (°C DB)Outdoor Dry Bulb Temperature (°C DB) (Relative Humidity 85%RH)	−2	−1	0	2	4	7	9	10	11	13	15	20
Correction Factor	0.87	0.86	0.85	0.86	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00

NOTE: Correction factor is not applicable to units under operation in special circumstances, such as at the time of snow or the operation mode is in the process of transformation.

5. Electrical Parameters

Outdoor Unit

Model	Power Supply	Voltage Range (V)	Rated Current (A)	Start-up current (A)	Breaker (A)	Maximum fuse current (A)	Minimum line current (A)
AFW-38U4SC	AC 1Φ, 220-240V/50Hz	198~264	24.5	1	32	30	27.5
AFW-48U4SC	AC 1Φ, 220-240V/50Hz	198~264	24.5	1	32	30	27.5
AFW-54U4SC	AC 1Φ, 220-240V/50Hz	198~264	24.5	1	32	30	27.5

VOL: Rated supply voltage (V)) PH: Phase (Φ) Hz: Frequency (Hz)) STC: Start-up current
RLA: Rated load current (A) IPT: Rated input power (kW) ELB: Electric leakage breaker TOCA: Maximum running current (A)

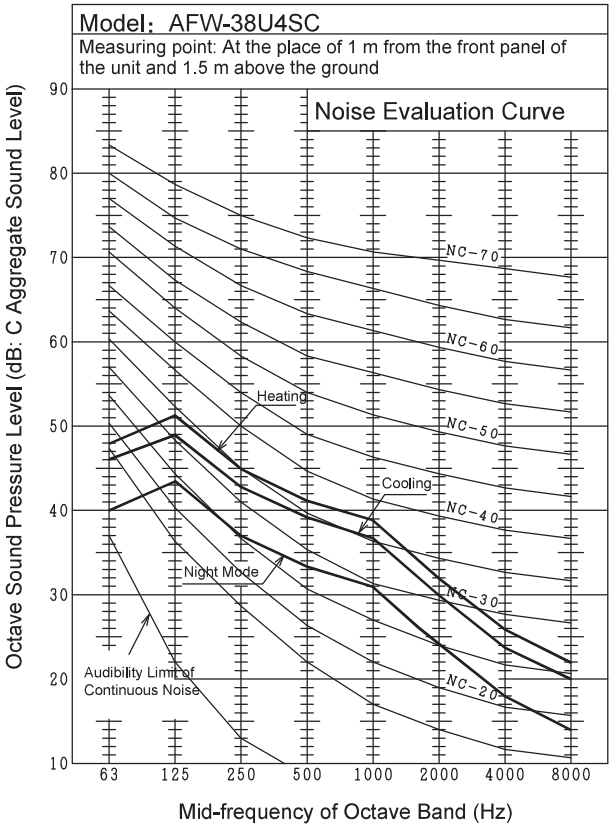
(1) The above parameters are tested when the distribution rate of indoor and outdoor units is 100%.
(2) The above parameters are tested according to equivalent pipe length of 7.5m and pipe height difference of 0m.
(3) It is suggested that distribution power be 120% of the rated power.

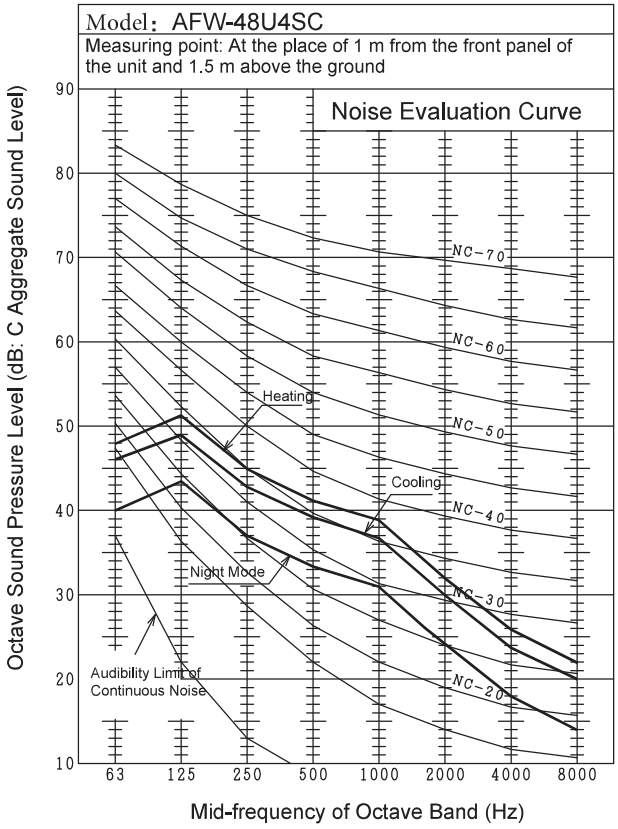
Model	Main Power Supply			Operating Voltage Range		Heating Operation		ELB		Maximum Current
	VOL	PH	Hz	Maximum	Minimum	RLA	IPT	Rated Current (A)	Sensitivity (mA)	TOCA
AFM-54EX4SA	220-240	1	50	264	198	1.36	0.29	25	30	16.9

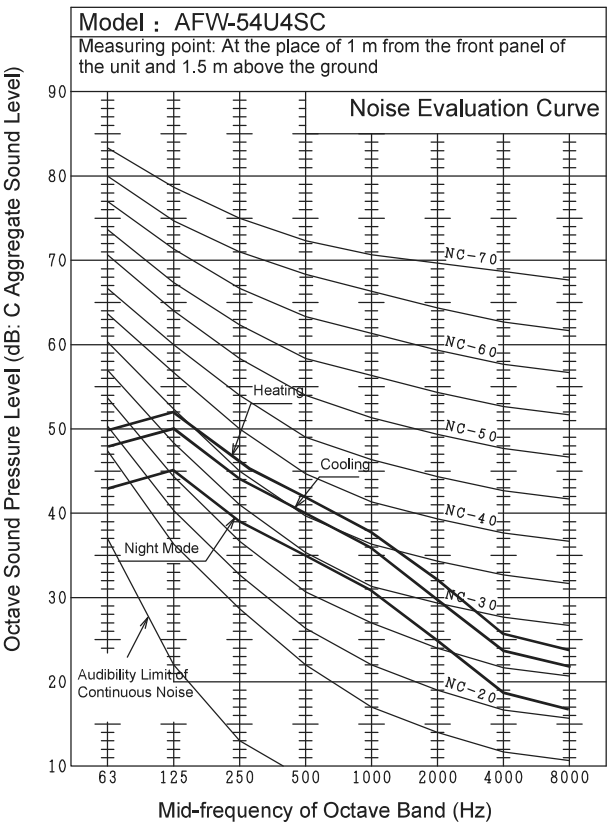
RLA: Rated load current IPT: Rated input power

Note: In case of 3KW electric heating, electric current will be increased by 15A after power-on.

6. Noise Parameters







7.Power Supply Working Range

●Working Voltage: 90% - 110% of rated voltage
●Unbalanced phase: Each phase voltage deviation is measured within 3% at the main power line end of the outdoor unit
●Start-up voltage: 85% higher than rated voltage

8.Parameters of Parts

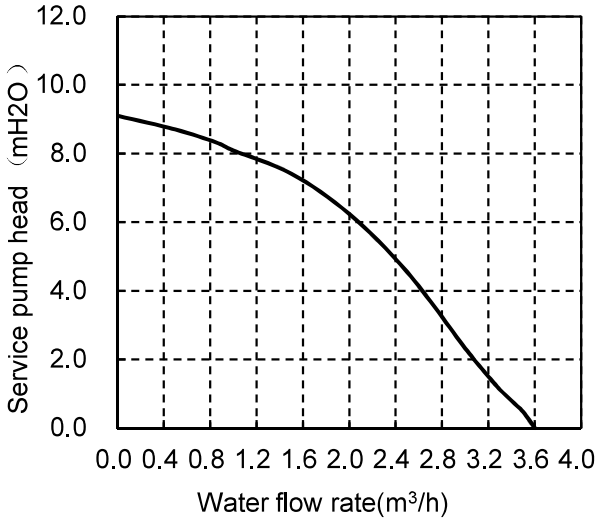
Model			AFW-38U4SC	AFW-48U4SC	AFW-54U4SC
	Heat Exchanger Form		Multipath Cross-flow Finned Tube	Multipath Cross-flow Finned Tube	Multipath Cross-flow Finned Tube
Heat Exchanger Form	Piping	Material	C1220T-0(Red Copper)	C1220T-0(Red Copper)	C1220T-0(Red Copper)
		Outside Diameter (OD)	7	7	7
		Row	2	2	2
		Quantity	66	66	66
	Fin	Material	Hydrophilic Al Foil	Hydrophilic Al Foil	Hydrophilic Al Foil
		Interval(mm)	1.9	1.9	1.9
	Max Working Pressure(Mpa)		4.15	4.15	4.15
	Max Windward Area(m^2)		1.5	1.5	1.5
	Quantity		1	1	1
Fan	Fan	Type	Axial Flow Fan	Axial Flow Fan	Axial Flow Fan
		Outside Diameter (OD)	544	544	544
		Rotating Speed	600	600	600
		Nominal Air Volume	90	90	100
	Fan Motor	Type	DC motor	DC motor	DC motor
		Starting Mode	Soft Starting		
		Nominal Output Power(W)	51+51		
		Quantity	2	2	2
		Insulation Class	E		

Compressor

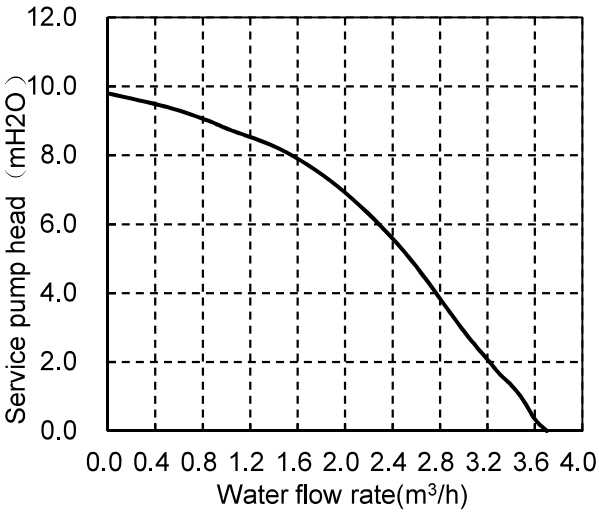
Compressor Model			E500HHD-36A2
Power Supply			AC 1Φ, 220V/50/60Hz
Type			Totally Enclosed Scroll Compressor
Air-tight Test Pressure	Discharge Pressure	MPa	4.2
	Suction Pressure	MPa	2.21
Compressor Motor	Type		Permanent Magnet Synchronous Motor
	Starting Mode		Soft Starting
	Pole		4
	Ins Class		E
Oil Type			FVC68D
Oil Charge		L	1.2
Oil Heater		W	56

9. Pump Performance Curves

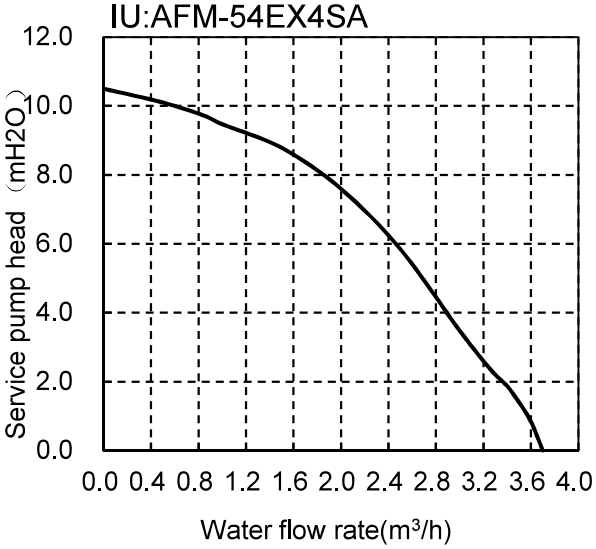
OU:AFW-38U4SC
IU:AFM-54EX4SA



OU:AFW-48U4SC
IU:AFM-54EX4SA



OU:AFW-54U4SC
IU:AFM-54EX4SA

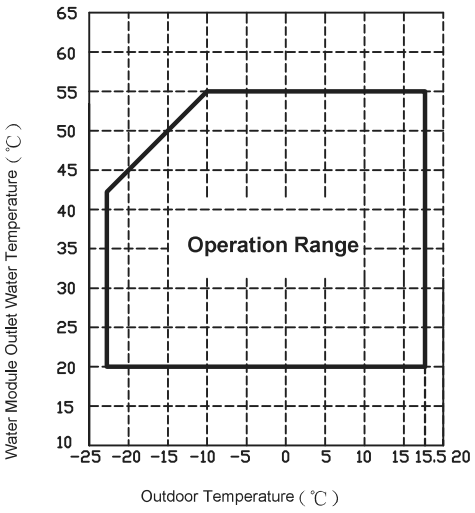


WARNING: If the resistance exceeds built-in pump head, the pump needs to be deployed on site.

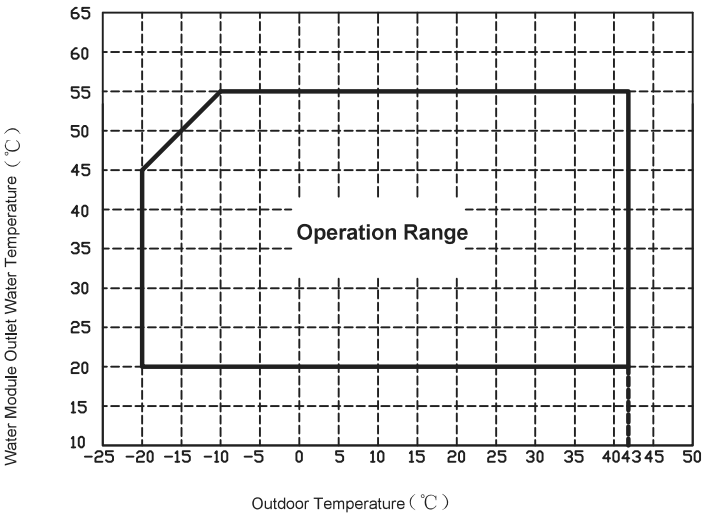
OU	IU	Rated water volume(m3/h)	Service pump head(mH20)
AFW-38U4SC	AFM-54E4SA	1.92	6.1
AFW-48U4SC		2.41	5.4
AFW-54U4SC		2.75	4.6

10. Operation Range

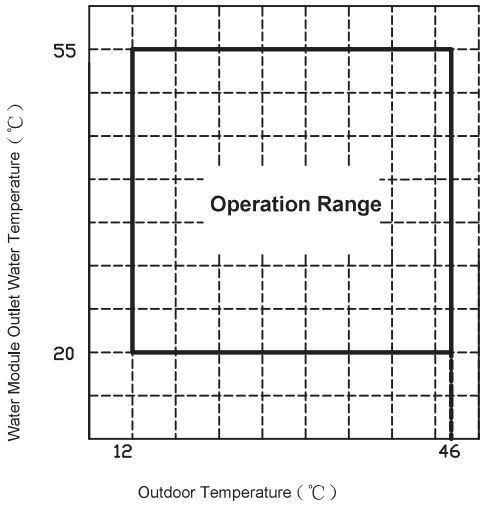
Floor Heating



Domestic Hot Water



Heat Recovery



NOTE: The operation range of the aforementioned product depends on its operating conditions.
Refer to Comprehensive Parameters for test conditions.

11. System Control

11.1 Remote Controller Installed Indoors

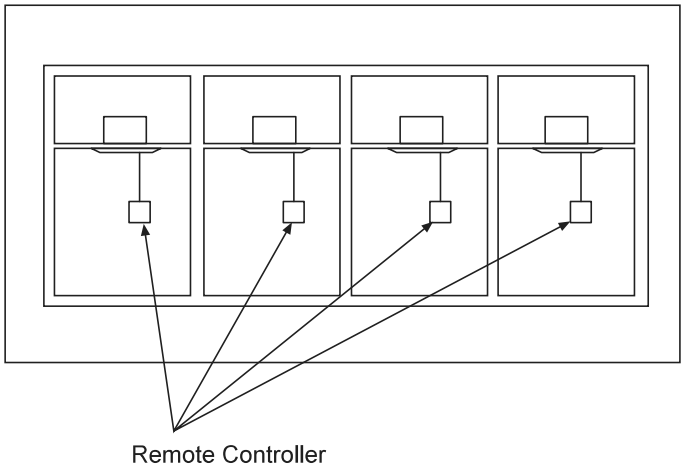
Independent Operating System with Multiple Units Being Controlled Simultaneously

"One-to-One" Control refers to that one indoor unit is controlled by one remote controller

Control Mode	One-to-One
Run Mode	Independent
(1)ON/OFF	OK
(2)Run Mode Setting	OK*
(3)Indoor Temperature Setting	OK
(4)Air Speed Setting	OK
(5)Time Setting	OK
(6)Timing ON/OFF Setting	OK
(7)Run Display	OK
(8)Alarm Display	OK
(9)Check Function	OK
(10)Test Mode	OK

*: Cooling and heating can not be operated simultaneously

Independent Control

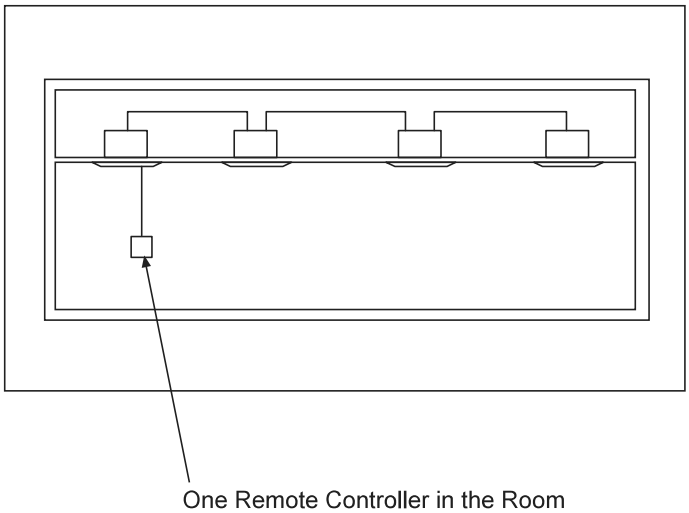


Operating System of Multiple Units under Centralized Control

One remote controller can control up to 16 indoor units simultaneously. This system is suitable for locations with broad space, such as hospital, hotel lobby and office building. One remote controller can switch on and off all the indoor units easily and quickly.

Control Mode	One Remote Controller
Run Mode	Group as Unit
(1)ON/OFF	OK
(2)Run Mode Setting	OK
(3)Indoor Temperature Setting	OK
(4)Air Speed Setting	OK
(5)Time Setting	OK
(6)Timing ON/OFF Setting	OK
(7)Run Display	OK
(8)Alarm Display	OK
(9)Check Function	OK
(10)Test Mode	OK

Centralized Control

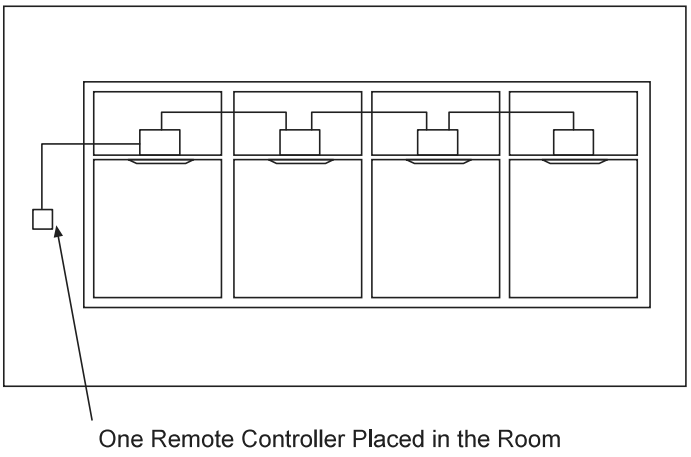


11.2 Remote Centralized Control

One remote controller can control up to 16 indoor units simultaneously. This system is suitable for locations with broad space, such as hospital, hotel lobby and office building. One remote controller can switch on and off all the indoor units easily and quickly.

Control Mode	Control of Groups
Run Mode	Independent
(1)ON/OFF	OK
(2)Run Mode Setting	OK*
(3)Indoor Temperature Setting	OK
(4)Air Speed Setting	OK
(5)Time Setting	OK
(6)Timing ON/OFF Setting	OK
(7)Run Display	OK
(8)Alarm Display	OK
(9)Check Function	OK
(10)Test Mode	OK

Simultaneous Control



One Remote Controller Placed in the Room

11.3 Controller Installed Indoors/Remote Control

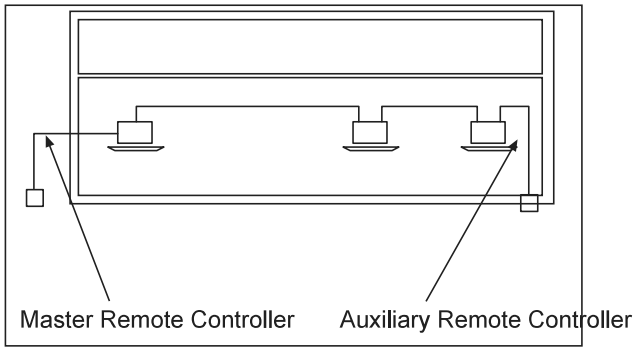
One master remote controller and one auxiliary remote controller are used to control up to 16 indoor units

Simultaneous Operating System

Two remote controllers are used to control up to 16 indoor units, one remote controller is installed in a room, and the other is installed in the room with remote central control. This system is very suitable for open places for air conditioners, such as hotel lobby and restaurant.

Control Mode	Remote controller purchased for use in the room	Remote controller purchased for long-distance use
Run Mode	One Group	One Group
(1)ON/OFF	OK	OK
(2)Run Mode Setting	OK*	OK*
(3)Indoor Temperature Setting	OK	OK
(4)Air Speed Setting	OK	OK
(5)Time Setting	OK	OK
(6)Timing ON/OFF Setting	OK	OK
(7)Run Display	OK	OK
(8)Alarm Display	OK	OK
(9)Check Function	OK	OK
(10)Test Mode	OK	OK

Control with Two Remote Controllers



NOTE:

In this system with control of two remote controllers, the remote controller set last has priority.

12. Safety and Protection Devices

Compressor Protection

The compressor is protected by the following devices and their combination.
When the compressor discharge pressure exceeds the set value, the switch will switch off (trip).
The tubular oil heater can prevent the lubricating oil from agglomeration (solidification) at the startup of refrigeration, especially when the compression stops running.

Fan Motor Protection

An automatic temperature controller is built-in in fan motor coil, when the fan motor wire temperature exceeds the set value, it will switch off (trip) automatically.

●Setting of Safety and Protection Devices

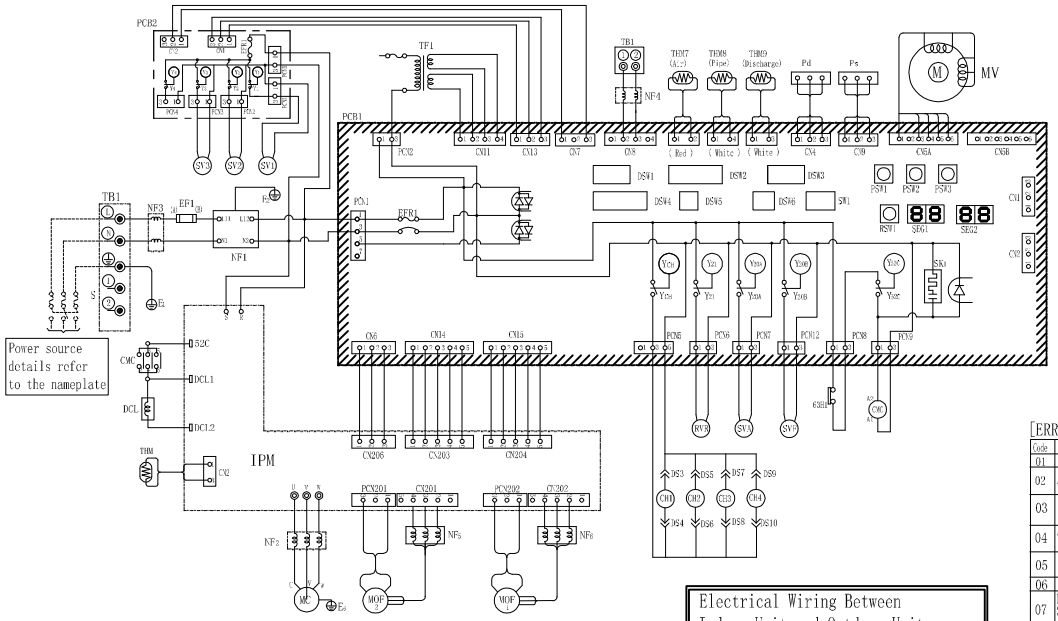
Outdoor Unit Model				AFW-38/48/54U4SC
Compressor	Pressure Switch High Pressure	Switch off	MPa	Automatic reset, nonadjustable $4.15\ ^{-0.05}_{-0.15}$
		Close up	MPa	3.2 ± 0.15
	Control circuit fuse current		A	50
	Oil heating tape power		W	56
	Time setting of CCP timer		Min	Nonadjustable 3
Control circuit PCB fuse capacity			A	10

13. Standard Circuit Diagram

ELECTRICAL WIRING DIAGRAM

(AFW-38U4SC AFW-48U4SC AFW-54U4SC)

Turn OFF the main power switch to the indoor unit and the outdoor unit and wait for at least 10 minutes before electrical wiring work or a periodical check is performed



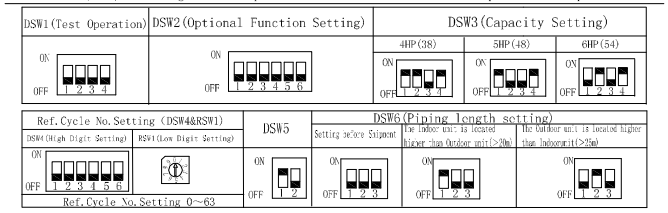
Service Operation Service Operation on the talbe below can be peformed through the Setting of DSW1 and PSW1. Setting of DSW should be according to the Table 1. Take care of the remarks on the right durning operation.

- Do not touch any other electrical parts when operating switches on the PCB.
- Do not attach or detach service cover when the power source for the outdoor unit is ON and the outdoor unit is operated.
- Turn all the dip switches of DSW1 OFF when the test run operation is completed.

	Dip Switch Setting	Operation	Remarks
1 Test Run	• Setting of Operation Mode Cooling: Set DSW1-2 OFF. Heating: Set DSW1-2 ON. • Starting Test Run Set DSW1-1 ON and the operation is started after a few 20 seconds.	• The indoor unit automatically start to operate when the test run of the outdoor unit is set. • The ON/OFF operation can be performed from the remote control switch of DSW1-1 of the outdoor unit. • Continuous operation during 2 hours is performed without Thermo-OFF.	• Take care that the indoor units operate in accordance with the test run operation of the outdoor unit. • In case that the plural indoor units are connected with one remote control switch, all the units start test run operation at the same time, therefore, turn the power source OFF for the indoor units not to operate test run. • The setting of DSW1 is not required for the test run from the remote control switch.
2 Manual OFF of Compressor	• Setting Compressor Manual OFF: Set DSW1-4 ON Compressor Manual OFF Release: Set DSW1-4 OFF	• When DSW1-4 is ON durning compressor operation, the compressor stops to operate immediately and the indoor unit is under the condition of Thermo-OFF. • When DSW1-4 is OFF, the compressor starts to operate after the cancellation of 3-minutes guard.	• Do not repeat compressor ON/OFF frequently.
3 Manual Defrost	• Manual Defrost Operation Starts Press PSW-1 for more than 3 seconds during heating operation. • Manual Defrost Operation Ends Press PSW-1 for more than 3 seconds durning Defrost operation. OR is automatically ended.	• Defrost operation is available regardless of frosting condition and total time of heating operation. • Defrost operation is not performed when the temperature of outdoor heat exchanger is higher than 20℃, high pressure is higher or Thermo-OFF.	• Do not repeat defrost operation frequently.

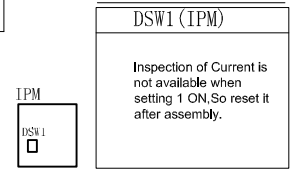
Manual Defrost on the above table is peformed only for heat pump.

Table 1、DSW(PCB1)'s setting before shipment (The mark of ■ indicates the position of dip switchies.)

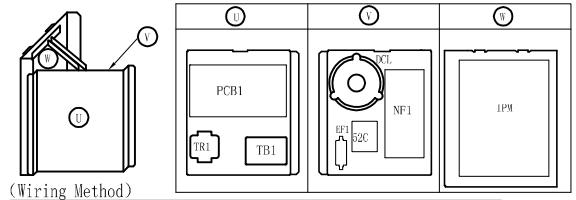


Electrical Wiring Between Indoor Unit and Outdoor Unit:
Do not connect the power source line to the terminals 1 and 2. These terminals are for the control line. If connected, the printedcircuit board will be damaged.

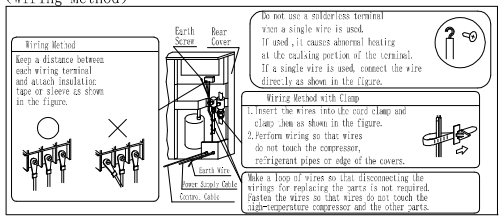
Table2、Setting of DSW1(IPM)



(Electrical Control Box)



(Wiring Method)



(Refrigerant Charging Quantity)

• Additional Refrigerant Charge Calculation for Liquid Piping (W1 kg)

W11 (Additional Refrigerant Charging Quantity for ø9.53 Liquid Piping)

= 0.05kg/m × m

= kg

W12 (Additional Refrigerant Charging Quantity for ø6.35 Liquid Piping)

= 0.02kg/m × m

= kg

W1 = W11 + W12 = kg

[ERROR CODE LIST]

Code	Content of Abnormality	Leading Cause
01	Activation of Protection Device	Activation of Float Switch, High Water Level in Drain Pan
02	Activation of Protection Device	Activation of PSH, Pipe Clogging, Excessive Ref., Inert Gas Mixing
03	Abnormality between I.U. and O.U./O.U. and O.U.	Incorrect Wiring, Loose Terminals, Disconnected Wire, Tripping of Fuse
04	Abnormality between Inverter PCB and O.U. PCB	Transmission Failure (Loose Connector)
05	Abnormal Power Source Phases	Incorrect Power Source Connection to Reversed-Phase, Open Phase
06	Abnormal Inverter Voltage	O.U. Voltage Drop Insufficient Power Capacity
07	Decrease of Discharge Gas Superheat	Excessive Ref. Charge, Failure of Thermistor, Incorrect Wiring
08	Increase of Discharge Gas Temperature	Insufficient Ref. Charge, Pipe Clogging, Failure of Thermistor, Incorrect Wiring
09	Activation of Protection Device for Indoor Unit Fan	Fan Motor Overheat, Locking
11	Inlet Air Thermistor(Indoor)	Thermistor incorrect wiring, disconnected wiring, short circuit
12	Outlet Air Thermistor(Indoor)	
13	Freeze Protection Thermistor(Indoor)	
14	Gas Piping Thermistor(Indoor)	
16	Remote Control Thermistor	
17	Remote Control Switch Thermistor	
21	High Pressure Sensor(outdoor)	
22	Outdoor Air Thermistor	Thermistor or sensor incorrect wiring, disconnected wiring, short circuit
23	Discharge Gas Thermistor(outdoor)	
24	Evaporating Piping Thermistor(outdoor)	
29	Low Pressure Sensor(outdoor)	
31	Incorrect Capacity of O.U. and I.U.	Incorrect Setting of Capacity Combination
35	Incorrect Setting of I.U. No.	Duplication of Indoor Unit No.
36	Incorrect Combination of I.U. No.	Refrigerant of Indoor Unit No.
38	Abnormality of Protective Circuit in O.U.	Failure of Protection Detecting Circuit
43	Activation of Low-Pressure Decrease Protection Device	Detective Compression (Failure of Compressor of Inverter, Loose Power Supply Connection)
44	Activation of Low-Pressure Increase Protection Device	Overload at Cooling High Temp. at Heating Locking (Loose Connector)
45	Activation of High-Pressure Increase Protection Device	Overload Operation (Clogging, Short-Pass), Pipe Clogging, Insufficient Ref., Incrt Gas Mixing
47	Activation of Low-Pressure Decrease Protection Device (Vacuum Operation)	Insufficient Ref., Ref. Pipe Clogging, Locking (Loose Connector)
48	Activation of Inverter Overcurrent Protection Device	Overload Operation, Comp. Failure
51	Abnormal Current Sensor	Current Sensor Failure
53	Inverter Error Signal Detection	Driver IC Error Signal Detection, (Protection for Overcurrent, Low Voltage, Short-Circuit)
54	Increase of Inverter Fin Temperature	Abnormal Inverter Fin Thermistor, Heat Exchanger Clogging, Abnormal Fan
55	Inverter Failure	Inverter PCB Failure
57	Fan Motor Abnormality	Disconnected Wiring Incorrect Wiring between Control PCB (PCB1) and Fan Relay PCB (PCB3, PCB5), Fan Motor Failure
EE	Compressor Protection Alarm	Failure of Compressor
b1	Incorrect O.U. No. Setting	Over 64 No. is set for Address or Ref. Cycle
b5	Incorrect I.U. No. Setting	More than 17 Non-Corresponding to H-LINK2 Units are Connected to One System

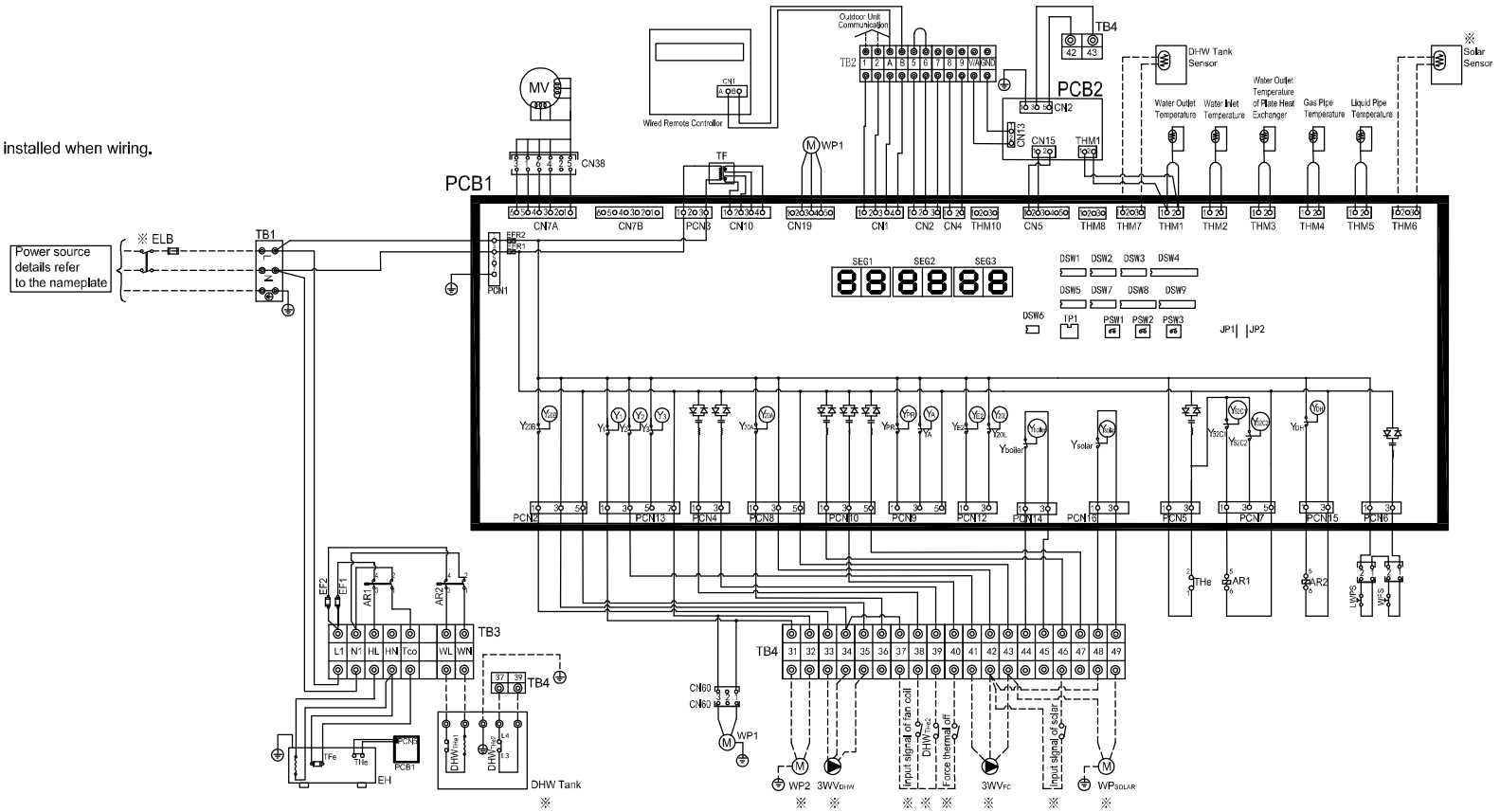
MARK	NAME
MC	Motor for Compressor
MOF_1	Motor for Outdoor Fan
MOF_2	Motor for Outdoor Fan
EF_1	Fuse
CMC	Contactor for Compressor Motor
RVR	4-Way Valve
MV	Micro-Computer Control Expansion Valve
SVA	Solenoid Valve for Hot Gas Bypass
SVF	Solenoid Valve for Backing Of Oil
SV_1~SV_3	Solenoid Valve
63H1	High Pressure Switch For Protection
P_d, P_s	Sensor for Refrigerant Pressure
TB_1	Terminal Board
TF_1	Transformer
PCB_1, PCB_2	Printed Circuit Board
EFR_1	Fuse
Y_{52C}	Relay (CMC)
Y_{21}	Relay (RVR)
Y_{CH}	Relay (CH)
Y_{20A}	Relay (SVA)
Y_{20B}	Relay (SVF)
$Y_{1\sim3}$	Relay (SV_1~SV_3)
THM7, THM8, THM9	Thermistor
DCL	Reactor
IPM	Inverter System Power Podule
$NF_{1\sim4}$	Noise Filter
PSW1	Push Switch on PCB1
PSW2	Push Switch on PCB1
PSW3	Push Switch on PCB1
DSW1	Dip Switch on PCB1
DSW2	Dip Switch on PCB1
DSW3	Dip Switch on PCB1
DSW4	Dip Switch on PCB1
DSW5	Dip Switch on PCB1
DSW6	Dip Switch on PCB1
$CH_{1\sim4}$	Crankcase Heater

ELECTRICAL WIRING DIAGRAM

(AFM-54EX4SA)

HEAT PUMP

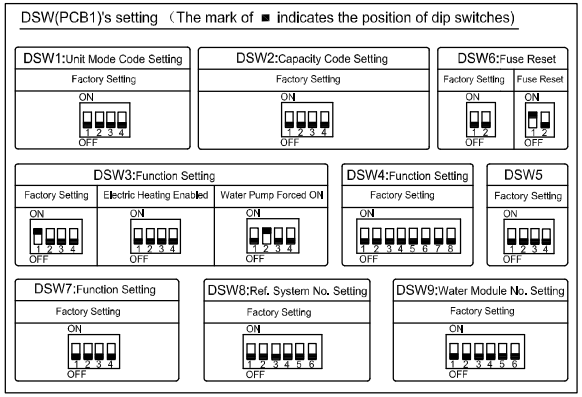
———— : Factory Wiring
- - - - - - - - : Field Wiring
ELB : Leakage Protector must be installed when wiring.
※ : Field-supplied



WARNING	When checking the electrical components, set the operation switch to OFF, meanwhile turn off the main switch.

Note :
1.All the field wiring and equipment must comply with local codes.

DSW(PCB1)'s setting （The mark of ■ indicates the position of dip switches)



Mark	Name
AR1,AR2	Relay
CN1~5,CN7A,CN7B,CN10,CN19	Connector(on PCB1)
CN2,CN13,CN15	Connector(on PCB2)
CN38,CN60	Connector
DHW	Domestic Hot Water
DHW_{THe1},DHW_{THe2}	DHW Tank Thermostat
DSW1~9	Dip Switch for Setting(on PCB1)
EF1,EF2	Fuse
EFR1,EFR2	Fuse (on PCB1)
EH	Electric Heating for Water Module
LWPS	Low Water Pressure Switch
MV	Micro-Computer Control Expansion Valve
PCB1,PCB2	Printed Circuit Board
PCN1~10,PCN12~16	Connector(on PCB1)
PSW1~3	Push Switch(on PCB1)

Mark	Name
TB1~4	Terminal Board
TF	Transformer
TFe	Fuse of Electric Heating
THe	Thermostat of Electric Heating
THM1~8,THM10	Connector for Thermistor(on PCB1)
WFS	Water Failure Switch
WP1	The Built Water Pump in Water Module
WP2	External Water Pump(Field-supplied)
WP_{SOLAR}	Solar Water Pump(Field-supplied)
Y_1~Y_3,Y_{20A},Y_{20B}	Relay (on PCB1)
Y_{boiler},Y_{solar},Y_{S2C1},Y_{S2C2},Y_{DH}	Relay (on PCB1)
Y_A,Y_{PR},Y_{E2},Y_{2DL}	Relay (on PCB1)
$3WV_{DHW}$	3-way Valve for DHW Tank
$3WV_{FC}$	3-way Valve for Fan Coil

14. Wired Remote Controller

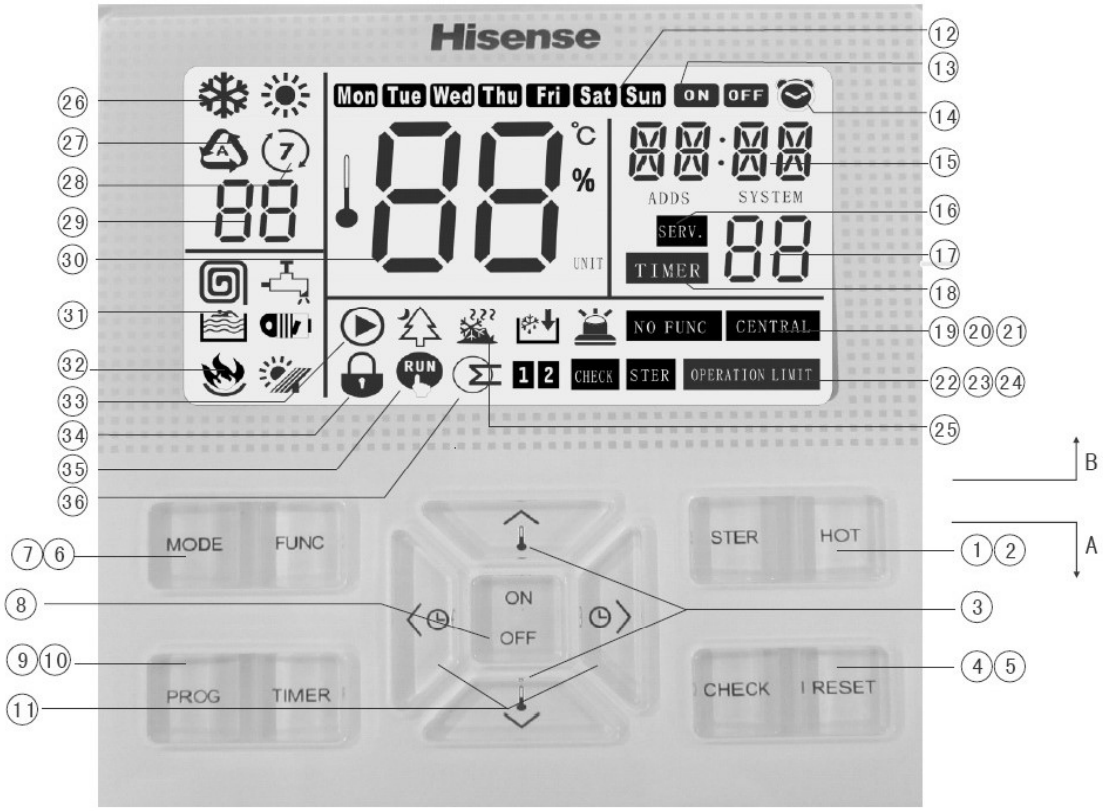


Figure Wired Remote Controller (HYXE-F12H)

A Operation buttons

① "STER"button

② Domestic hot water button

③ "TEMP."button

④ "CHECK"button

⑤ "RESET"button

⑥ FUNC(Function Selection)

⑦ "MODE" button

⑧ "RUN/ STOP" button (LED light)

⑨ "SCHEDULE"button

⑩ "Timer"button

⑪ "TIME"button

B LCD Display

⑫ Date display

⑬ "ON/OFF"display

⑭ Clock icon display

⑮ "TIME"display

⑯ "SERVICE" display

⑰ Service code display

⑱ "TIMER"(timing run) display

⑲ Alarm icon display

⑳ "NO FUNCTION" display

㉑ "CENTRAL" display

㉒ "CHECK" display

㉓ "STER" display

㉔ "RUN CTRL" display

㉕ Defrosting / anti-freezing icon display

㉖ COOL / HEAT run mode display

㉗ "AUTO"

㉘ 7 -day timing mode display

㉙ Temperature code display

㉚ "SET TEMP."display

㉛ Floor heating / Domestic hot water / Pool water / Fan coil function display

㉜ Boiler Solar energy function display

㉝ Water pump run Energy saving - icon display

㉞ Locked icon display

㉟ Test run icon display

㊱ Electrical heater icon display