Inquiry Us

Website

LONGWELL®
Turn to Experts - HVAC&R

Ningbo Longwell Electric Technology Co., Ltd

Headquarter: NO.100, South of Xuxiang River, Yuyao, Zhejiang Province, China 315400
Tell: +86 574 6218 9863
Fax: +86 574 6218 9863
Phone: 0086 183 5827 4663
Web: www.longwellfans.com | www.longwell-group.com | www.longwell-media.com
Email: sales@zjlongwell.com

LONGWELL®
Turn to Experts - HVAC&R

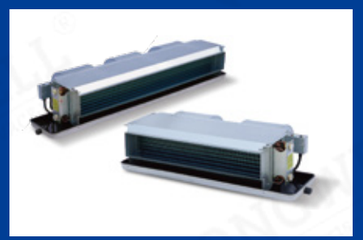


Longwell Technology Ventilation Equipment

—— Combined Air Conditioner

Ningbo Longwell Electric Technology Co., Ltd

Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com



Fan Coil Unit



Combined Air Conditioner



Air Source Heat Pump Unit



Screw-Type Air-Cooled Chiller Heat Pump Unit



Precision Constant Temperature and Humidity Unit



Rooftop Air Conditioning Unit



Screw-Type Water-Cooled Chiller Unit



Water and Ground Source Heat Pump Unit



Cabinet Air Handling Unit--Suspended Ceiling



Air Handling Unit-Horizontal



Remote Jet Unit



Air Handling Unit-Vertical

CATALOGUE

01-02	About Longwell	06	Type Code	28	Combination Method
03-04	Factory Display	07-12	Product Features	29-30	Control System
05	Certificate Display	13-27	Technical Specifications	31-38	Installation Instructions

About Longwell

Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com

The Ventilation and Drive Technology Partner for Mission-Critical Environments

Longwell Technology - Ventilation Equipment Division - primarily engages in the production and sales of central air conditioning equipment. Our products are sold all over the country and exported to more than 50 countries and regions worldwide. LONGWELL central air conditioning series includes a comprehensive range of products, such as air source heat pump units, Air-cooled chillers (heat pump) units, water (ground) source heat pump units, sewage source heat pump units, seawater source heat pump units, water-cooled chiller units, constant temperature and humidity units, heat pump drying units, combined air conditioners, roof air conditioning units, air handling units, remote jet units, fan coil units, etc. These products are widely used in factories, schools, hotels, hospitals, office buildings, shopping malls, residential communities, and other buildings.

We have passed the ISO9001 Quality Management System Certification, ISO45001 Occupational Health and Safety Management System Certification, ISO14001 Environmental Management System Certification, etc. Our company is committed to survival by product quality and development by technological innovation, continually researching and producing green, clean, environmentally friendly and energy-saving innovative products. With full work enthusiasm, swift and decisive actions, higher standards, continuous improvement, and innovation, we will strive to create more value for our customers.



Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com

Factory Display

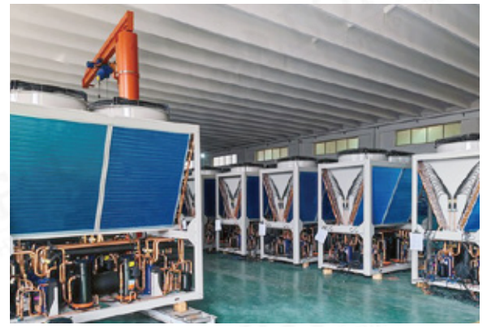
LONGWELL central air conditioning series includes a comprehensive range of products, such as air source heat pump units, Air-cooled chillers (heat pump) units, water (ground) source heat pump units, sewage source heat pump units, seawater source heat pump units, water-cooled chiller units, constant temperature and humidity units, heat pump drying units, combined air conditioners, roof air conditioning units, air handling units, remote jet units, fan coil units, etc. These products are widely used in factories, schools, hotels, hospitals, office buildings, shopping malls, residential communities, and other buildings.















Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com

Certificate Display

We have passed the ISO9001 Quality Management System Certification, ISO45001 Occupational Health and Safety Management System Certification, ISO14001 Environmental Management System Certification, etc.


Patent


Patent


ISO


ISO


CRAA


CRAA


CRAA


CRAA


Patent


Patent


Patent


Patent

Type Code

LW HZK 1830 - 25 H D

- LW-LONGWELL
- HZK-Combined Air Conditioner
- **Unit model**
  18-Height Modulus
  30-Width Modulus
- **Insulation Thickness**
  25mm-25 35mm-35 50mm-50
- **Unit Type**
  H-Horizontal
  V-Vertical
- Improvement Code

Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com

Combined Air Conditioner



Self-owned foam molding equipment

Using self-owned high-quality foam molding equipment, the unit box panels are independently foam molded, ensuring the quality control of the panels. High-quality boxes significantly reduce heat loss

High-Strength Enclosure

The box panels are integrally foam molded, with an aluminum-plastic composite frame around the perimeter, multiple sealing joints, steel plate interior lining, high-strength connecting cover plate, right-angle support fixing, bolted joint sealing, ensuring high mechanical strength of the enclosure

Complete Cold Bridge Disconnection

The profiles adopt an aluminum-plastic composite structure, with the inner and outer panels completely separated by materials such as PVC and EVA. The interior is filled with high-pressure foamed polyurethane insulation material, effectively eliminating cold bridges in the box and reducing heat loss.

Highly Sealed Inspection Door

The inspection door leaf is integrally foamed, and seamless adhesive technology, combined with a double-edged sealed door frame, ensures no deformation or leakage under a pressure of 3000Pa, eliminating any loss of cold.

Modular Design

The modular design of the integrated air conditioner allows for industrialized assembly and modularization, enabling free combination to meet the personalized product customization needs of different users.

Neat Interior of the Enclosure

The interior of the enclosure is seamlessly joined with a smooth surface, free of dust corners. The water tray adopts a three-dimensional dam-like structure to ensure complete drainage of condensate during operation, preventing bacterial growth.

Precision Engineering Design

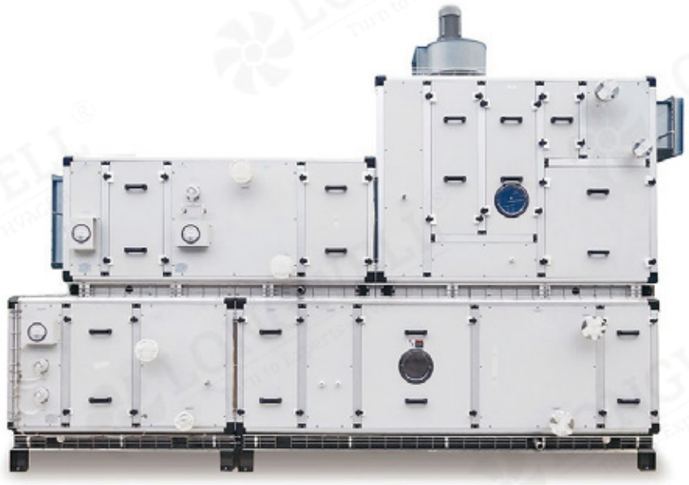
The stainless steel base plate can be equipped with anti-slip treatment according to user requirements. The connecting pipe between the inlet pipe and the condenser adopts a Z-shaped inclined design to ensure natural drainage of water inside the condenser, eliminating the risk of pipe freezing in winter due to condenser blockage. The filter screen of the filter adopts a snap design, facilitating disassembly.

Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com

Partial Product Types of Combined Air Conditioner



Efficient Purification Combined Air Conditioner



Fluidized Bed Air Treatment Combined Air Conditioner

Partial Product Types of Combined Air Conditioner



EC Digitalized Energy-Saving Combination Air Conditioner



Efficient Purification And Sterilization Combination Air Conditioner

Quick Selection Guide

Unit Module And Dimension Calculation Formula

- The total height of the unit equals the height module multiplied by 100 plus twice the thickness of the box plus the height of the base
- The total width of the unit equals the width module multiplied by 100 plus twice the thickness of the box
- The total length of the unit equals the length of the packing unit, which equals 100 times the length module

The Principle For Determining The Length Of The Packing Unit

- The permitted dimensions of transported goods by the country, in terms of length, width, and height.
- The dimensions of the access routes for equipment at the construction site.

Unit Orientation Determination

- Unit orientation: Along the direction of the airflow, if the heat exchanger connections are on the right side, it is classified as right-handed; if the heat exchanger connections are on the left side, it is classified as left-handed.



Professional Solution Selection

Centralized Project Management

A professional operating system, simple and efficient to use, automatically links with the design, integrating selection and design. With a comprehesive project management system, it quickly captures and responds to customer design requirements for products, allowing simultaneous optimization of projects and achieving optimal project outputs.

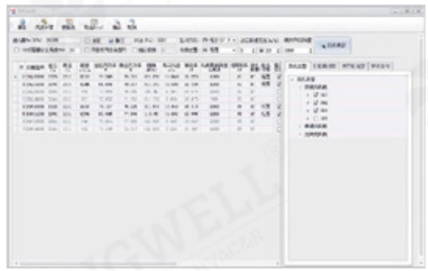


Modular Design

Selections can be quickly retrieved according to project requirements, providing users with complete solutions, and adjusting design schemes instantly based on different user needs. The software embeds various functional segment configurations to meet customers' comfort and process requirements. With an extensive database of unit models, it meets the design requirements for various enclosure sizes in different scenarios.

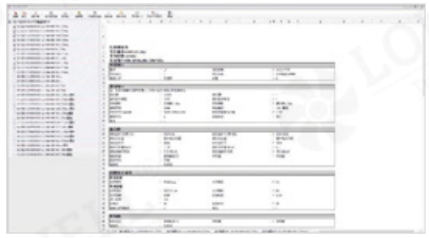
Selection of Core Components

A professional heat exchanger selection software that offers various coil row configurations, circuits, and fin numbers according to different user operating conditions. The fan motor autonomously determines the optimal fan and motor combination based on airflow and pressure requirements to optimize operational efficiency.



Complete Solution Output

The selection scheme can be fully outputted, including detailed technical parameter tables for each functional section of the unit, coil selection details, schematic diagrams of unit dimensions, etc., ensuring that the selection report is professional, accurate, and intuitive. Additionally, material detail lists and panel unfolding diagrams can be generated simultaneously, facilitating rapid response to design orders and shortening the design cycle.



Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com

Air Volume Table

Unit Specifications		Fresh Air Condition(Total Cooling Capacity/kW)					
Height modulus	Width modulus	2.00	2.25	2.50	2.80	3.00	3.5
06	07	1635	1840	2045	2250	2455	2865
06	08	1955	2200	2445	2690	2935	3425
06	09	2280	2560	2845	3130	3415	3985
06	10	2550	2870	3185	3505	3825	4460
07	10	3275	3685	4095	4505	4915	5730
07	11	3690	4150	4610	5070	5530	6450
08	10	3635	4090	4545	5000	5455	6365
08	11	4095	4605	5115	5630	6140	7165
08	12	4505	5070	5630	6195	6760	7885
08	13	4850	5455	6060	6665	7270	8485
08	14	5420	6100	6775	7450	8130	9485
10	12	5860	6595	7325	8055	8790	10255
10	13	6305	7095	7885	8670	9460	11035
10	15	7595	8435	9370	10305	11245	13115
10	16	8090	9100	10115	11125	12135	14155
11	15	8650	9730	10810	11890	12970	15135
11	16	9335	10500	11665	12835	14000	16335
11	17	10020	11275	12525	13775	15030	17535
12	17	10685	12020	13355	14690	16025	18695
12	18	11415	12840	14265	15695	17120	19975
13	17	12020	13520	15020	16525	18025	21030
13	18	12840	14445	16050	17655	19260	22470
13	19	13460	15140	16820	18505	20185	23550
14	19	14955	16820	18690	20560	22430	26165
14	20	15870	17850	19835	21815	23800	27765
15	19	15705	17670	19630	21595	23560	27485
15	21	17340	19505	21675	23840	26010	30340
16	21	18990	21365	23735	26110	28485	33230
16	22	20040	22545	25050	27555	30060	35070
16	24	22145	24915	27680	30450	33215	38755
19	22	22660	25495	28325	31160	33990	39655
19	23	24205	27235	30260	33285	36310	42360
19	25	26585	29910	33230	36555	39880	46525
20	25	28615	32190	35765	39345	42920	50070
20	26	29895	33630	37365	41101	44840	52315
21	26	32045	36050	40050	44060	48070	56080
22	27	33420	37595	41770	45950	50125	58480
23	26	34165	38435	42705	46975	51245	59785
22	30	37125	41765	46405	51045	55685	64965
25	28	41235	46385	51540	56695	61850	72155
25	31	46170	51940	57710	63485	69255	80795
25	34	48720	54810	60900	66990	73080	85260
28	34	54135	60900	67670	74435	81200	94735
28	38	60535	68100	75670	83235	90800	105935
29	40	67430	75855	84285	92715	101140	118000
31	41	75950	85445	94940	104430	113925	132910
32	45	83105	93490	103880	114265	124655	145430

Unit Functional Segment Length Table

Unit Specifications	Rated Air Volume(CMH)	Fresh Air Section	Return Air Section	Mixing Zone	Plate Filter Section	Bag Filter Section
0607	2045	600	600	600	100	500
0608	2445	600	600	600	100	500
0609	2845	600	600	600	100	500
0610	3185	600	600	600	100	500
0710	4095	600	600	600	100	500
0711	4610	600	600	600	100	500
0810	4545	600	600	600	100	500
0811	5115	600	600	600	100	500
0812	5630	600	600	600	100	500
0813	6060	700	700	700	100	500
0814	6775	700	700	700	100	500
1012	7325	700	700	700	100	500
1013	7885	700	700	700	100	500
1015	9370	700	700	700	100	500
1016	10115	700	700	700	100	500
1115	10810	700	700	700	100	500
1116	11665	700	700	700	100	500
1117	12525	700	700	700	100	500
1217	13355	700	700	700	100	500
1218	14265	700	700	700	100	500
1317	15020	800	800	800	100	500
1318	16050	800	800	800	100	500
1319	16820	800	800	800	100	500
1419	18690	800	800	800	100	500
1420	19835	800	800	800	100	500
1519	19630	800	800	800	100	500
1521	21675	1000	1000	1000	100	500
1621	23735	1000	1000	1000	100	500
1622	25050	1000	1000	1000	100	500
1624	27680	1000	1000	1000	100	500
1922	28325	1000	1000	1000	100	500
1923	30260	1000	1000	1000	100	500
1925	33230	1000	1000	1000	100	500
2025	35765	1000	1000	1000	100	500
2026	37365	1000	1000	1000	100	500
2126	40055	1200	1200	1200	100	500
2227	41770	1200	1200	1200	100	500
2326	42705	1200	1200	1200	100	500
2230	46405	1200	1200	1200	100	500
2528	51540	1200	1200	1200	100	500
2531	57710	1200	1200	1200	100	500
2534	60900	1200	1200	1200	100	500
2834	67670	1200	1200	1200	100	500
2838	75670	1500	1500	1500	100	500
2940	84285	1500	1500	1500	100	500
3141	94940	1500	1500	1500	100	500
3245	103880	1500	1500	1500	100	500

Unit Functional Segment Length Table

Unit Specifications	Pleated Filter Section	Fresh Air Return Section	Chilled Water Coil Section			
			1-4 Rows	5-6 Rows	7-8Rows	9-10 Rows
0607	400	1200	400	500	600	700
0608	400	1200	400	500	600	700
0609	400	1200	400	500	600	700
0610	400	1200	400	500	600	700
0710	400	1200	400	500	600	700
0711	400	1200	400	500	600	700
0810	400	1200	400	500	600	700
0811	400	1200	400	500	600	700
0812	400	1200	400	500	600	700
0813	400	1400	400	500	600	700
0814	400	1400	400	500	600	700
1012	400	1400	400	500	600	700
1013	400	1400	400	500	600	700
1015	400	1400	400	500	600	700
1016	400	1400	400	500	600	700
1115	400	1400	400	500	600	700
1116	400	1400	400	500	600	700
1117	400	1400	400	500	600	700
1217	400	1400	400	500	600	700
1218	400	1400	400	500	600	700
1317	400	1600	400	500	600	700
1318	400	1600	400	500	600	700
1319	400	1600	400	500	600	700
1419	400	1600	400	500	600	700
1420	400	1600	400	500	600	700
1519	400	1600	400	500	600	700
1521	400	2000	400	500	600	700
1621	400	2000	400	500	600	700
1622	400	2000	400	500	600	700
1624	400	2000	400	500	600	700
1922	400	2000	400	500	600	700
1923	400	2000	400	500	600	700
1925	400	2000	400	500	600	700
2025	400	2000	400	500	600	700
2026	400	2000	400	500	600	700
2126	400	2400	400	500	600	700
2227	400	2400	400	500	600	700
2326	400	2400	400	500	600	700
2230	400	2400	400	500	600	700
2528	400	2400	400	500	600	700
2531	400	2400	400	500	600	700
2534	400	2400	400	500	600	700
2834	400	2400	400	500	600	700
2838	400	3000	400	500	600	700
2940	400	3000	400	500	600	700
3141	400	3000	400	500	600	700
3245	400	3000	400	500	600	700

Unit Functional Segment Length Table

Unit Specifications	Hot Water Coil Section		Steam Coil Section		Electric Heating Section	Electrode Humidification Section
	1-3 Rows	4 Rows	1-2 Rows	3-4 Rows		
0607	200	300	200	300	600	600
0608	200	300	200	300	600	600
0609	200	300	200	300	600	600
0610	200	300	200	300	600	600
0710	200	300	200	300	600	600
0711	200	300	200	300	600	600
0810	200	300	200	300	600	600
0811	200	300	200	300	600	600
0812	200	300	200	300	600	600
0813	200	300	200	300	600	600
0814	200	300	200	300	600	600
1012	200	300	200	300	600	600
1013	200	300	200	300	600	600
1015	200	300	200	300	600	600
1016	200	300	200	300	600	600
1115	200	300	200	300	600	600
1116	200	300	200	300	600	600
1117	200	300	200	300	600	600
1217	200	300	200	300	600	600
1218	200	300	200	300	600	600
1317	200	300	200	300	600	600
1318	200	300	200	300	600	600
1319	200	300	200	300	600	600
1419	200	300	200	300	600	600
1420	200	300	200	300	600	600
1519	200	300	200	300	600	600
1521	200	300	200	300	600	600
1621	200	300	200	300	600	600
1622	200	300	200	300	600	600
1624	200	300	200	300	600	600
1922	200	300	200	300	600	600
1923	200	300	200	300	600	600
1925	200	300	200	300	600	600
2025	200	300	200	300	600	600
2026	200	300	200	300	600	600
2126	200	300	200	300	600	600
2227	200	300	200	300	600	600
2326	200	300	200	300	600	600
2230	200	300	200	300	600	600
2528	200	300	200	300	600	600
2531	200	300	200	300	600	600
2534	200	300	200	300	600	600
2834	200	300	200	300	600	600
2838	200	300	200	300	600	600
2940	200	300	200	300	600	600
3141	200	300	200	300	600	600
3245	200	300	200	300	600	600

Unit Functional Segment Length Table

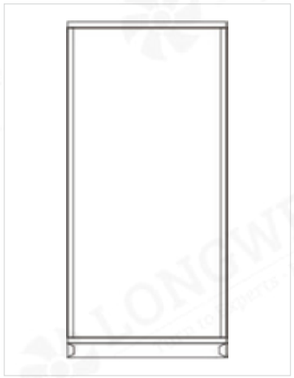
Unit Specifications	Middle Section	Uniform Flow Section	Silencing Section	Exhaust Section	Air Supply Section
0607	600	600	500	600	600
0608	600	600	500	600	600
0609	600	600	500	600	600
0610	600	600	500	600	600
0710	600	600	500	600	600
0711	600	600	500	600	600
0810	600	600	500	600	600
0811	600	600	500	600	600
0812	600	600	500	600	600
0813	600	600	500	700	700
0814	600	600	500	700	700
1012	600	600	500	700	700
1013	600	600	500	700	700
1015	600	600	500	700	700
1016	600	600	500	700	700
1115	600	600	500	700	700
1116	600	600	500	700	700
1117	600	600	500	700	700
1217	600	600	500	700	700
1218	600	600	500	700	700
1317	600	600	500	800	800
1318	600	600	500	800	800
1319	600	600	500	800	800
1419	600	600	500	800	800
1420	600	600	500	800	800
1519	600	600	500	800	800
1521	600	600	500	1000	1000
1621	600	600	500	1000	1000
1622	600	800	500	1000	1000
1624	600	800	500	1000	1000
1922	600	800	500	1000	1000
1923	600	800	500	1000	1000
1925	600	800	500	1000	1000
2025	600	800	500	1000	1000
2026	600	800	500	1000	1000
2126	600	800	500	1200	1200
2227	600	800	500	1200	1200
2326	600	800	500	1200	1200
2230	600	1000	500	1200	1200
2528	600	1000	500	1200	1200
2531	600	1000	500	1200	1200
2534	600	1000	500	1200	1200
2834	600	1000	500	1200	1200
2838	600	1200	500	1500	1500
2940	600	1200	500	1500	1500
3141	600	1200	500	1500	1500
3245	600	1200	500	1500	1500

Remarks: 1.The length of the electric heating section shall be calculated based on PTC power less than 60KW. 2.The length of the silencing section shall be calculated based on primary silencing.3.The length of the heat recovery section shall be selected based on specific circumstances.4.The length of the fan section shall be selected based on specific circumstances.

Explanation of Each Functional Section

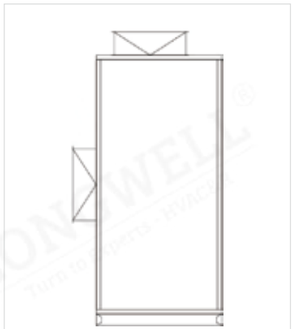
Box

The enclosure is assembled directly from panels standardized to modules (1 module = 100mm). Between the panels, patented aluminum alloy profiles are used, allowing each panel to be assembled and disassembled on-site. The external surface of the standard enclosure is made of white color steel plate, while the internal surface is hot-dip galvanized plate, forming a double-sided panel structure with polyurethane insulation material foamed in the factory, ensuring a strong, smooth, and gapless bond with the galvanized steel plate. This structure exhibits excellent corrosion resistance, high temperature resistance, and resistance to saltwater. The bottom panel of the enclosure can withstand the weight of personnel. Each panel is surrounded by an aluminum alloy frame, and at the intersection of two panels, there are two beams or columns, creating a double frame structure that is stronger than ordinary air conditioner enclosures, effectively preventing deformation during transportation and operation. The unit is equipped with lifting holes, and components requiring on-site assembly, such as fans, motors, and evaporators, are equipped with lifting holes or rings.



Mixing Section And Air Damper

Mixing Section: Including return air and fresh air outlets, used to adjust the proportion of new and return air to meet the needs of air conditioning; Fresh Air Exhaust Section: Adjustable to regulate the proportion of return air, fresh air, and exhaust air to meet the needs of air conditioning; Bypass Control: Bypass dampers are installed in the upper or side of the enclosure to control the airflow through coils or other equipment.
Air Damper Arrangement and Structure: The dampers are all double-leaf type with manual control linkage. Electric drives can be provided if required by the user. The blades, made of aluminum alloy, operate smoothly in an interlocking gear mechanism without the need for lubrication.
Selection Rule for Damper Size: Damper sizing is based on a wind speed of 8m/s to ensure that the noise generated by the damper does not exceed the unit's noise level. Within the width constraint of the enclosure, efforts are made to maximize the height of the damper. In cases of large return air volume, return air dampers can be placed on the end face of the unit to reduce costs.



Filter Section

The unit area mass,resistance,mechanical performance,anti-static properties, moisture absorption, flame resistance, and filtration efficiency of the primary and medium efficiency filters all comply with GB/T 14295. High efficiency filters comply with other relevant national standards
Sort：
1. The primary efficiency filters, including panel type and bag type, are made of polyester fiber and synthetic fiber materials.
2. The medium efficiency filters, including panel type and bag type, are made of polyester fiber or synthetic fiber materials.
3. The high efficiency filters, including pleated type and high airflow box type, are made of waterproof fiberglass.
4. The activated carbon filter is made from various organic chemical fibers through carbonization and activation, primarily used to remove odors, unpleasant smells, and low-density gaseous pollutants from the air environment. Both sides of the activated carbon filter need to be equipped with conventional filters, providing protection in the front to prevent dust from blocking the activated carbon material and protection in the back to prevent potential contamination of the ventilation system by activated carbon powder.

Note: According to user needs
1. The filtering area of panel, bag, and pleated filters is the same but with different thicknesses. The thickness of panel filters is 46mm, bag filters is 381mm, and bag filter thickness options are 550/600/635mm. Pleated filters have a thickness of 292mm.
2. External filters can be extracted from the side, while internal filters can be accessed from the front.

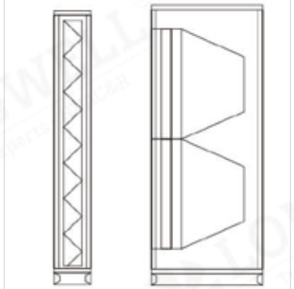


Plate Filter Section　　Bag Filter Section

Comparison Table of Efficiency Standards for China, the USA, and Europe

China GB/T14295		Initial efficiency≥5μm 80%> Efficiency ≥15%					Medium efficiency≥1μm 70%> Efficiency ≥20%				High-medium efficiency≥1μm 99%> Efficiency ≥70%			Sub-high efficiency≥0.5μm 99.9%> Efficiency ≥95%				High efficiency≥0.5μm Efficiency ≥99.9%			
America ASHRAE		C1	C2 ~ C4	L5	L6	L7	L8	M9	M10	M11	M12	H13	H14	H15~H16				UH17	UH18	UH19	UH20
Europe	New standard efficiency	G1 65%	G2 80%	G3 80%~90%			G4 >90%	M5 40%			M6 60%	F7 80%	F8 90%	F9 85%	H10 95%	H11 99%	H12 99.9%	H13 99.95%		H14 99.995%	U15U17 99.9995%
	Old specification	EU1	EU2	EU3			EU4	EU5			EU6	EU7	EU8	EU9	EU10		EU11	EU12	EU13	EU14	

Chilled Section and Heating Section

The chilled and heating coils are constructed with copper tubes and aluminum fins. The aluminum fins are mechanically expanded onto the copper tubes. The coil end plates are made of galvanized steel plate, while the collection pipes are made of steel pipes. There is an air vent at the top and a drain outlet at the bottom of the collection pipes. Both the supply and return pipes are made of standard specification steel pipes. The water inlet and outlet for the supply water, return water, and condensate are on the same side of the unit housing. A drip tray can be installed behind the coils as per user requirements to prevent water droplets from being blown out even at high air velocities. The drip tray is made of steel plate with a spray-coated finish and is externally insulated to prevent condensation. A drainage pipe is installed at the lowest point of the drip tray to facilitate the smooth drainage of condensate water.

Warning:

It is essential to ensure that the steam valve is closed before the fan stops for the steam coil. The steam coil must be equipped with a steam trap as per the operation manual.

Note: According to user needs

1. The fin material of the coil can be copper or hydrophilic aluminum foil.
2. The end plates of the coil are stainless steel, and the water collecting pan is also stainless steel.
3. The coil can be made of stainless steel pipes or galvanized steel pipes.



Humidification Section

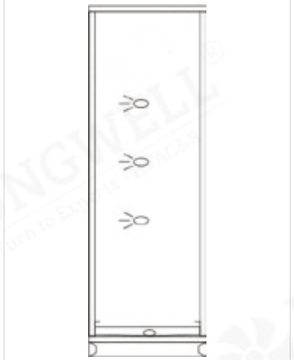
There are several types of humidifiers available:

a. Steam humidifier: Isothermal humidification, made entirely of stainless steel, corrosion-resistant, compact, easy to install, clean humidification, high humidification efficiency. Available in both electric and manual options. Suitable for places with steam sources.

b. Electrode humidifier: Uses AC power to directly treat tap water to produce clean steam. Microcomputer-controlled, with two control modes: proportional adjustment and switch quantity adjustment. Suitable for process humidification occasions without steam sources.

c. Evaporative (wet film) humidifier: Uses wet film material to absorb moisture. Air flows through the wet film, causing water to evaporate and vaporize, while also providing air purification and filtration. Can be used as a water baffle. Can use direct water supply or recirculated water.

d. High-pressure spray humidifier: Increases the pressure of tap water and atomizes it through nozzles to produce fine droplets that evaporate and humidify the air. When choosing a high-pressure spray humidifier, consider the humidification efficiency, typically around 40-50%.

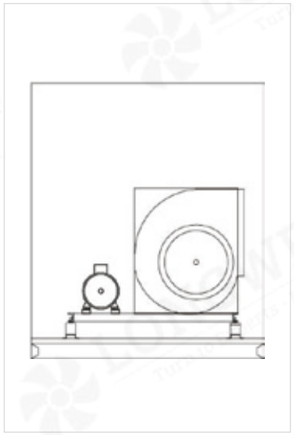


Fan Section

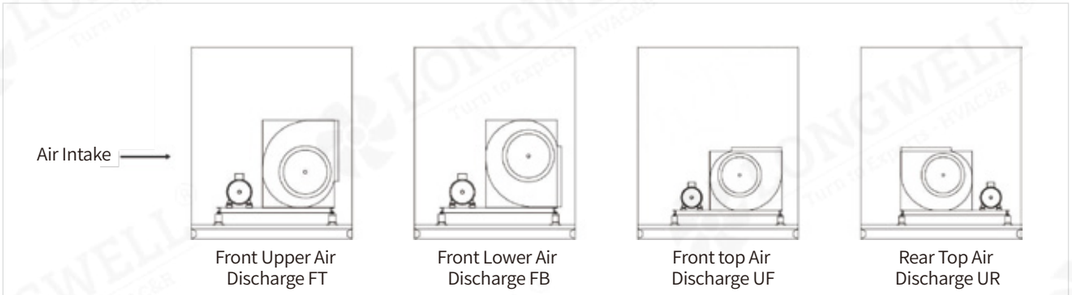
According to the requirements of air volume and static pressure, the fan section software selection can be equipped with one or more belt-driven fans. The fan blades can be forward-curved, backward-curved, or airfoil-shaped. All volutes and reinforcements are made of galvanized steel. The impeller undergoes dynamic and static balance experiments. The fan is driven by multiple anti-static belt drives. The bearings of small fans are sealed and do not require oiling. The motor is fully enclosed, with single-speed 4-pole as standard. The power supply is 380V 3N-50Hz. It is installed on sliding tracks connected to rigid structures. The motor base is adjustable. The fan and motor are positioned on a common base and equipped with shock absorbers. The outlet is connected to the casing with flexible connectors. The fan section has inspection doors or can be equipped with convenient detachable inspection panels.

Note: According to user requirements

1. Fans can be optionally equipped without volutes, direct drive.
2. Motors can be optionally equipped with single-speed 2-pole, 4-pole, 6-pole, dual-speed, and variable frequency motors.



Direction of Fan Output



Electric Heating Section

The electric heating elements are fixed on the frame.

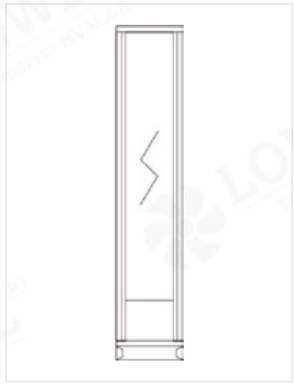
The power supply can be connected as 380V 3N~50Hz.

The control cabinet is to be installed by the user.

Two or more levels of gear shifting are available to meet different heating power control needs.

Warning:

1. Ensure that the fan is turned on before activating the electric heating.
2. When shutting down, the electric heating should be turned off for three minutes (extend the time appropriately if the electric heating is too high) before the fan can be stopped.
3. The overheat protection switch of the electric heater needs to be connected to the electric heating control circuit.
4. PTC electric heating cannot be controlled by thyristors to avoid safety issues caused by excessive neutral current and problems with poor linear control affecting temperature control accuracy.



Ningbo Longwell Electric Technology Co., Ltd
https://www.longwellfans.com Email:sales@zjlongwell.com

Silencing Section

According to different usage requirements and the characteristics of fan noise, this section can be equipped with either a perforated plate silencer or a perforated plate with built-in sound-absorbing cotton. When the airflow passes through the perforated plate with built-in sound-absorbing cotton, it effectively attenuates mid- to high-frequency noise. The interior of the perforated plate silencer is an empty cavity designed and manufactured based on the principles of physical resonance sound absorption, with the advantages of being non-polluting and moisture-resistant. It effectively attenuates low-frequency and some mid-frequency noise. The silencing section includes both return air silencing and supply air silencing.



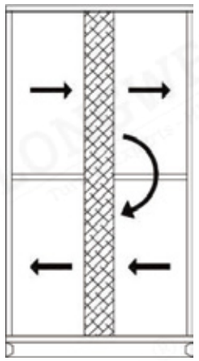
Spray Section

Spraying can achieve various air treatment processes, including dehumidification, cooling, humidification, and the formation of a water curtain in the airflow path for air purification and cleaning. It can be widely used in various settings.



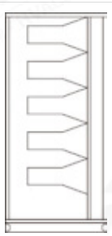
Heat Recovery Section

Rotary Heat Recovery: It can recover both sensible heat and latent heat, with a heat recovery efficiency of up to 70-80%. The exhaust and fresh air alternately flow in opposite directions through the rotary wheel, which has a self-cleaning function. Liquid Circulation Heat Recovery: The intermediate medium (generally water or ethylene glycol solution) circulates in heat exchangers located in the exhaust and fresh air systems, transferring the heat (cold) from the exhaust air back to the fresh air. It is suitable for air conditioning systems with not too large temperature differences, only recovering sensible heat, with a heat recovery efficiency of <50%. Plate Heat Recovery: Heat exchange occurs between the fresh and exhaust air in plate-fin heat exchangers. Depending on the material of the heat exchanger, it can be divided into sensible heat exchangers and total heat exchangers, with a heat recovery efficiency of <60%. There is no cross-contamination between fresh and exhaust air, suitable for various applications. Heat Pipe Heat Recovery: A heat pipe heat exchanger is a heat transfer element that utilizes the phase change of a working fluid (such as ammonia, fluorocarbon, etc.) for heat transfer. Heat pipe heat exchangers have a compact structure and high heat transfer efficiency.



Self-Cleaning High-Efficiency Cartridge Filter Section

The self-cleaning high-efficiency filter cartridge has a very large dust holding capacity. When the dust on the cartridge reaches a certain level, compressed air can be used to backflush the cartridge, causing the dust to fall onto the bottom plate of the air conditioning unit for centralized cleaning. This eliminates the need for frequent filter replacement, significantly reducing operational costs and labor, making it particularly suitable for use in environments with high dust production, such as cigarette factories.



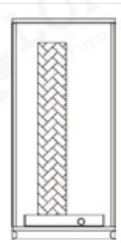
Combustion Section

Direct combustion air conditioning utilizes natural gas for direct heating, resulting in high thermal efficiency and low operational costs. It requires minimal initial investment and is highly suitable for heating large spaces during winter, such as automobile manufacturing workshops, exhibition halls, and sports arenas. In cases where there is no fresh air supply in the air-conditioned room, indirect combustion air conditioning can be used. After natural gas combustion, the high-temperature gas generated heats the air inside the air conditioner through heat exchange pipes without consuming oxygen in the room. The exhaust gases are directly expelled from the room, ensuring indoor air quality.



Evaporative Cooling Section

By spraying tap water or circulating water onto the evaporative media, heat is absorbed from the air, resulting in air cooling and humidification. The coolant used is tap water or circulating water, which is non-polluting, does not require refrigerants, and has extremely low power consumption. It is particularly suitable for regions with high temperatures and low humidity, such as Xinjiang, Qinghai, Gansu, Ningxia, etc.



Health, Sterilization Electronic Purification Section

Dust Purification

Ionizing the suspended particles in the air passing through the purification electric field, utilizing a high-voltage electrostatic field to positively charge all suspended particulate matter (as small as 0.01 micrometers), which are then quickly adsorbed by the dust collecting plate, achieving efficient dust purification. The one-time dust removal efficiency is greater than 98.9%.

Sterilization Purification

The discharge electrode generates plasma under high voltage, which rapidly destroys the nuclei of bacteria, viruses, dust mites, and other microorganisms in the air, thoroughly killing them. Residual substances are incinerated and simultaneously adsorbed by the dust collecting plate. The sterilization rate is over 99%, completely eliminating the reproduction and transmission of bacteria, viruses, and infectious pathogens through the central air conditioning system, thus preventing cross-infection. The one-time sterilization efficiency is greater than 94.69%.



Photocatalytic Purification And Sterilization Section

Sterilization, Deodorization, Formaldehyde Removal

Photocatalyst is a general term for semiconductor materials with photocatalytic functions, represented by nanoscale TiO_2. Under specific wavelengths of ultraviolet light, photocatalysts generate highly oxidizing hydroxyl radicals and active oxygen, capable of breaking down bacterial cell membranes and viral proteins, as well as decomposing organic pollutants (such as formaldehyde, benzene, etc.).



Activated Carbon Adsorption Section



Powerful Odor Adsorption And Deodorizing Capabilities

The functional section contains an activated carbon filter, which consists of very fine charcoal particles with a large surface area. Additionally, these charcoal particles contain even smaller pores - capillaries. These capillaries possess strong adsorption capabilities. Due to the large surface area of the charcoal particles, they can come into full contact with gases (impurities). When gases (impurities) come into contact with the capillaries, they are adsorbed, thus purifying the air.

Adsorption of Formaldehyde, Benzene, TVOC, and other organic harmful gases

Types of Activated Carbon	N4G1	N4S1	N4A1	N4B1	N4F1	N4M1
Application	General gas	Stench	Acid gas	Alkaline gas	Formaldehyde	Mercury vapor

Ultraviolet Rays



Ultraviolet Germicidal Disinfection

Ultraviolet germicidal disinfection utilizes ultraviolet radiation to destroy or alter the DNA structure of microorganisms, causing bacteria to die immediately or become unable to reproduce, achieving the goal of sterilization. The UVC ultraviolet light is truly effective in sterilization because the C-band ultraviolet radiation is readily absorbed by the DNA of living organisms, especially around 253.7nm wavelength, which is optimal. Ultraviolet germicidal disinfection belongs to purely physical disinfection methods, featuring advantages such as simplicity, broad-spectrum effectiveness, no secondary pollution, ease of management, and potential for automation.

Ozone Generator



Ozone Sterilization And Disinfection

Ozone, with the molecular formula O3, readily decomposes into oxygen O2 and single oxygen atoms at room temperature, with the latter exhibiting a strong oxidizing effect. It can oxidize and decompose the enzymes essential for bacteria internally, as well as directly interact with bacteria and viruses, damaging their cells, breaking down cell DNA, leading to the dissolution and death of cells, parasitic fungi, and virus particles.

Ozone generators utilize the gas discharge principle to produce ozone, employing gas-electric corona discharge. Through circulated airflow, they conduct periodic sterilization and disinfection of the entire system's controlled space. Compared to chemical disinfectants, this method achieves purification without leaving any harmful residues detrimental to human health.

Comparison of Various Purification and Sterilization Technologies

★-Strong,Space-Function not available

Sterilization Method	Dust Removal Capacity	Ability to Kill Bacteria and Viruses	Ability to Remove Formaldehyde, Benzene, TVOC
Electronic purification	★	★	
Activated carbon			★
Ultraviolet germicidal lamp		★	
Photocatalyst		★	★
Ozone generator		★	
Traditional plate bag filter	★		

Cooling Performance Parameter Table

Unit Specifications		Rated Air Volume(m^3/h)	Fresh Air Condition(Total Cooling Capacity/kW)		
Height modulus	Width modulus		4 Rows	6 Rows	8 Rows
06	07	2045	21.4	26.4	32.2
06	08	2445	26.1	33.1	39
06	09	2845	31.5	39.4	46.5
06	10	3185	35.7	44.8	50.2
07	10	4095	45.6	58.4	64.2
07	11	4610	48.7	66.5	74.3
08	10	4545	49.8	64.8	71.6
08	11	5115	54.6	71.6	79.8
08	12	5630	61.5	76.9	90.8
08	13	6060	68.5	82.7	99.7
08	14	6775	73.3	96.4	107.5
10	12	7325	78	99.3	111.5
10	13	7885	87.1	111.5	121.6
10	15	9370	100.7	133.8	147.7
10	16	10115	111.8	141.1	163.1
11	15	10810	116.1	157.1	175.8
11	16	11665	128.4	156.1	187.3
11	17	12525	133.7	169.7	197.3
12	17	13355	149.7	189.9	212.7
12	18	14265	153.4	197.7	233.5
13	17	15020	163.3	212.4	239.7
13	18	16050	181.9	224.8	265.2
13	19	16820	189.7	234.4	274.2
14	19	18690	204.7	264.9	298.8
14	20	19835	220.2	274.5	315.2
15	19	19630	219.5	274.4	301.7
15	21	21675	220.2	302.8	342
16	21	23735	243.5	333.1	387.8
16	22	25050	252.3	367.8	402.8
16	24	27680	293.6	392.7	438.9
19	22	28325	297.3	415.1	471.6
19	23	30260	319.2	446.8	480.8
19	25	33230	357.2	497.2	546.6
20	25	35765	383.1	537	572.1
20	26	37365	404.8	560.1	631.8
21	26	40055	436.6	602.8	640.8
22	27	41770	456.6	630.6	700.9
23	26	42705	463.9	641.1	665.7
22	30	46405	523.4	732.9	757.4
25	28	51540	581.6	803.1	811.8
25	31	57710	651	891	936.3
25	34	60900	679.7	874.7	987
28	34	67670	741.8	975.6	1000.8
28	38	75670	845.8	1082.2	1241.3
29	40	84285	968.9	1220.4	1354.3
31	41	94940	1096.1	1410.9	1471
32	45	103880	1089.1	1557.8	1650.8

Unit Specifications		Rated Air Volume(m^3/h)	Return Air Condition(Total Cooling Capacity/kW)		
Height modulus	Width modulus		4 Rows	6 Rows	8 Rows
06	07	2045	8.9	11.4	14.9
06	08	2445	11.1	14.5	18.5
06	09	2845	12.7	16.2	22.7
06	10	3185	14.5	20.6	23.6
07	10	4095	19.3	24.6	30.6
07	11	4610	21.9	29.6	38.9
08	10	4545	20.8	29.8	34.2
08	11	5115	23.9	31.2	40.8
08	12	5630	27.3	36.8	46.4
08	13	6060	29.2	40	49.5
08	14	6775	33.1	45	51.8
10	12	7325	35.5	44.7	57.8
10	13	7885	38.3	51.8	62.4
10	15	9370	43.5	58.7	72.7
10	16	10115	46.4	63.1	81.4
11	15	10810	49.1	74.2	87.8
11	16	11665	53.5	77.3	97.5
11	17	12525	57.7	84.7	98.1
12	17	13355	63.3	86.8	107.4
12	18	14265	68.3	97.7	107.7
13	17	15020	69.4	100.1	116.4
13	18	16050	75.4	100.9	136
13	19	16820	82.3	108.1	127.3
14	19	18690	89.9	116.9	156.6
14	20	19835	95.4	133.7	158.6
15	19	19630	94.7	123.2	162.3
15	21	21675	102.5	135.1	166.2
16	21	23735	116.3	153	196.8
16	22	25050	121.7	171.6	210.4
16	24	27680	130.5	179.4	213
19	22	28325	141	186.5	215.5
19	23	30260	146.8	189.9	245.3
19	25	33230	163.4	212.7	266.1
20	25	35765	176.6	239.6	304.1
20	26	37365	184.7	234.3	305.9
21	26	40055	198.9	253.4	319.4
22	27	41770	206.8	274.1	334.6
23	26	42705	209.6	274.9	350.4
22	30	46405	236.3	294.4	350
25	28	51540	273.2	327.3	388.7
25	31	57710	300.8	354.2	482.9
25	34	60900	311.6	366.1	448.6
28	34	67670	335.1	419.9	549.3
28	38	75670	379.2	463.1	558
29	40	84285	431.9	532.4	659.9
31	41	94940	486.1	562.5	764
32	45	103880	537.3	671.3	800.8

Remarks: 1. Fresh air condition: Inlet air dry bulb temperature 35°C, wet bulb temperature 28°C; 2. Return air condition: Inlet air dry bulb temperature 27°C, wet bulb temperature 19.5°C; 3. Chilled water inlet/outlet temperature 7/12°C, coil face velocity 2.5m/s; 4. The above parameters are for reference only. Changes in operating conditions or differences in coil circuit layout may result in variations in cooling capacity. For specific data, please contact the company.

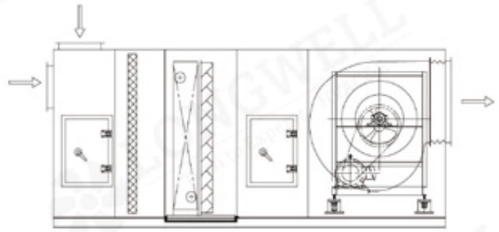
Heating Performance Parameter Table

Unit Specifications		Rated Air Volume(m^3/h)	Fresh Air Condition(Inlet air dry bulb temperature 7°C)(Total heat/KW)			
Height modulus	Width modulus		1 Rows	2 Rows	3 Rows	4 Rows
06	07	2045	9.6	16.1	22.5	24
06	08	2445	11.8	20.6	27.2	27.3
06	09	2845	14.7	23.1	30.3	33.4
06	10	3185	16	27.4	34.2	38.2
07	10	4095	23.3	33.8	43.8	47
07	11	4610	26.5	38.9	49.7	54.1
08	10	4545	25.7	37.4	48.6	52.4
08	11	5115	27.4	42.4	57.4	60.2
08	12	5630	30.2	47.8	60.9	67
08	13	6060	34.1	51.5	66.2	72.2
08	14	6775	35.3	58.6	75.1	77.7
10	12	7325	44.2	59.9	77	87.1
10	13	7885	40.1	65.3	84.5	90.9
10	15	9370	47.1	77.4	101.2	109.1
10	16	10115	56.1	83.8	109.2	114.3
11	15	10810	57.3	93.2	114.7	125.8
11	16	11665	72.7	101.7	127.3	140.2
11	17	12525	72.5	108	133.5	150
12	17	13355	83.6	114.3	144	154.4
12	18	14265	85.6	122.4	152.3	162.7
13	17	15020	88.7	123.8	169.9	173.8
13	18	16050	100.2	135.7	178	190.4
13	19	16820	92.4	137	190.5	200.7
14	19	18690	111.6	158.5	199.9	219.8
14	20	19835	121.9	168.9	212.5	238.8
15	19	19630	114.7	161.5	222.8	223.6
15	21	21675	135.9	181.4	239.9	241.3
16	21	23735	151	196.1	254.7	276.4
16	22	25050	134.7	204.7	276.7	283.5
16	24	27680	170.4	241.6	312.3	316.4
19	22	28325	160.4	235.2	307.7	314
19	23	30260	168	248.7	323.2	338.3
19	25	33230	167.9	285.5	356.5	387.2
20	25	35765	218.8	306.2	393.4	416.8
20	26	37365	220.9	296.1	397.7	432.6
21	26	40055	214.3	312.8	432	449.3
22	27	41770	244.5	348.9	454	490.2
23	26	42705	259.4	346.4	468.8	480.3
22	30	46405	282.9	374	510.1	549.4
25	28	51540	286.9	413	543.5	580.3
25	31	57710	314.7	478.9	639.5	650.9
25	34	60900	359.3	486.3	654.2	683.7
28	34	67670	408.8	538.6	716.3	793.1
28	38	75670	408.1	621.5	833.4	843
29	40	84285	480.3	672.2	915.8	940.6
31	41	94940	544.9	748.7	1017.9	1068.3
32	45	103880	540.8	853.6	1127.4	1153.2

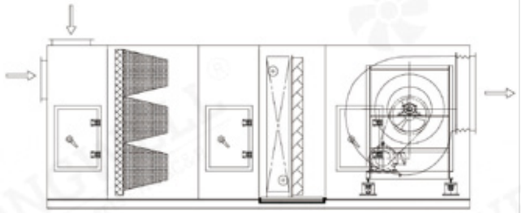
Unit Specifications		Rated Air Volume(m^3/h)	Return Air Condition(Inlet air dry bulb temperature 15°C)(Total heat/KW)			
Height modulus	Width modulus		1 Rows	2 Rows	3 Rows	4 Rows
06	07	2045	6.9	14	18.2	19.3
06	08	2445	8.8	16.8	21.3	23.2
06	09	2845	10.5	19.8	26.7	28.2
06	10	3185	11.5	22.1	28.2	31.1
07	10	4095	14.9	29.3	37.6	40.3
07	11	4610	16.9	31.7	41.7	46.5
08	10	4545	17.1	30.8	41.2	45.3
08	11	5115	18.7	36.8	47.9	49.6
08	12	5630	21.3	40.5	51.3	57.2
08	13	6060	23.2	44.2	56.3	57.8
08	14	6775	25.3	48.9	61.5	66.1
10	12	7325	28	50.5	69.3	70.3
10	13	7885	29.8	55	75.2	75.6
10	15	9370	35.4	67.8	87.4	92.7
10	16	10115	38.4	71.1	89.9	98.1
11	15	10810	42.9	75.4	96.7	106.5
11	16	11665	46.1	84.8	104.7	116.2
11	17	12525	48.6	88.1	116.8	124.5
12	17	13355	52.2	91.4	121.2	129.5
12	18	14265	57.5	100.8	130.2	138.2
13	17	15020	57.2	103.1	141.1	145.6
13	18	16050	63.6	114.6	150.6	155.8
13	19	16820	64.4	119	153.1	166.5
14	19	18690	75.9	136.2	169.7	181.4
14	20	19835	76.6	137.3	183.4	198.4
15	19	19630	78.1	138.9	175.9	189
15	21	21675	86.7	152.8	196.8	218.7
16	21	23735	92.2	171.8	214.5	229.7
16	22	25050	100.5	181.5	224.4	251.3
16	24	27680	112.1	195.6	256.6	275.6
19	22	28325	108.9	194.2	261.7	278.6
19	23	30260	119.1	213.1	277.9	294.8
19	25	33230	136.2	235.1	313	310.1
20	25	35765	139.5	258.4	338.1	354.3
20	26	37365	143.8	267.7	345.8	364
21	26	40055	154.8	271.9	369.8	396.5
22	27	41770	167.9	288.2	377.2	407.7
23	26	42705	173	290.5	373.8	417.9
22	30	46405	184.3	333.1	434.5	442.5
25	28	51540	191.4	368.9	465.7	484.1
25	31	57710	215.2	408.1	530.3	543.9
25	34	60900	235.6	424.6	545.1	574.2
28	34	67670	253.9	453.9	588.8	667.9
28	38	75670	278.9	531.1	672.9	711.6
29	40	84285	317.5	594.1	732	796.9
31	41	94940	361	675.9	877.2	911.9
32	45	103880	393.1	720.1	953.8	991.3

Remarks: 1. Hot water inlet/outlet temperature 60°C/50°C. Coil face velocity 2.5m/s; 2. Fresh air condition: Inlet air dry bulb temperature 7°C; 3. Return air condition: Inlet air dry bulb temperature 15°C; 4. The above parameters are for reference only. Differences in inlet air conditions and inlet/outlet water temperatures will result in different heat loads. For specific data, please contact the company.

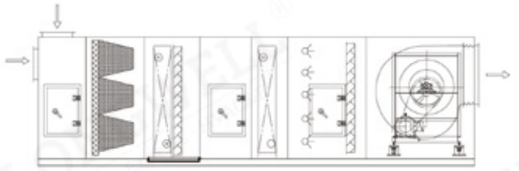
Common Functional Segment Combinations



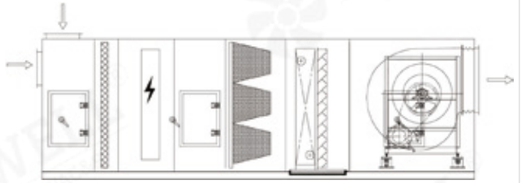
Mixed Segment + Flat Panel Primary Filtration Segment + Surface Cooling Segment (with Baffle Plate) + Fan Segment



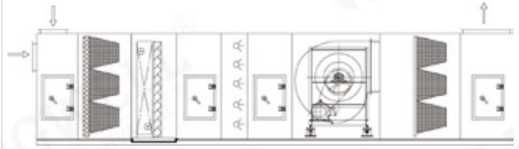
Mixed Segment + Primary and Intermediate Efficiency Filtration Segment + Inspection Segment + Surface Cooling Segment (with Baffle Plate) + Fan Segment



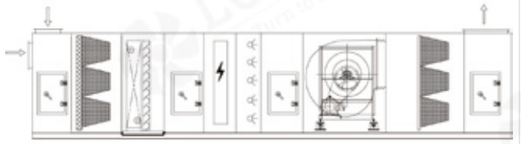
Mixed Segment + Primary and Intermediate Efficiency Filtration Segment + Surface Cooling Segment (with Baffle Plate) + Inspection Segment + Hot Water Coil Segment + High Pressure Fine Mist Humidification Segment + Fan Segment



Mixed Segment + Flat Panel Primary Filtration Segment + Electric Heating Segment + Inspection Segment + Bag Filtration Segment + Surface Cooling Segment (with Baffle Plate) + Fan Segment

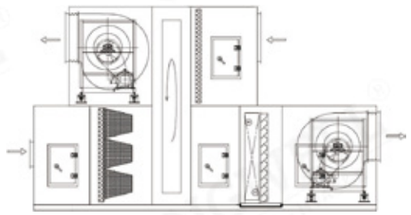


Mixed Segment + Primary and Intermediate Efficiency Filtration Segment + Surface Cooling Segment (with Baffle Plate) + Inspection Segment + Dry Steam Humidification Segment + Inspection Segment + Fan Segment + Uniform Flow Segment + Bag Filtration Segment + Exhaust Segment



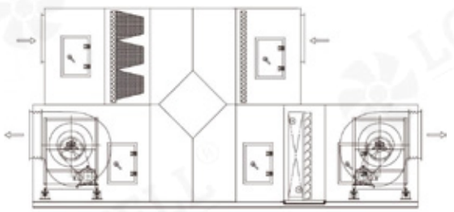
Mixed Segment + Primary and Intermediate Efficiency Filtration Segment + Surface Cooling Segment (with Baffle Plate) + Inspection Segment + Electric Heating Segment + Dry Steam Humidification Segment + Inspection Segment + Fan Segment + Uniform Flow Segment + Bag Filtration Segment + Exhaust Segment

Exhaust Segment + Rotary Heat Recovery Segment + Flat Panel Primary Filtration Segment + Return Air Segment



Inlet Air Segment + Primary and Intermediate Efficiency Filtration Segment + Rotary Heat Recovery Segment + Inspection Segment + Surface Cooling Segment (with Baffle Plate) + Supply Fan Segment

Fresh Air Segment + Primary and Intermediate Efficiency Filtration Segment + Plate Heat Recovery Segment + Flat Panel Primary Filtration Segment + Return Air Segment



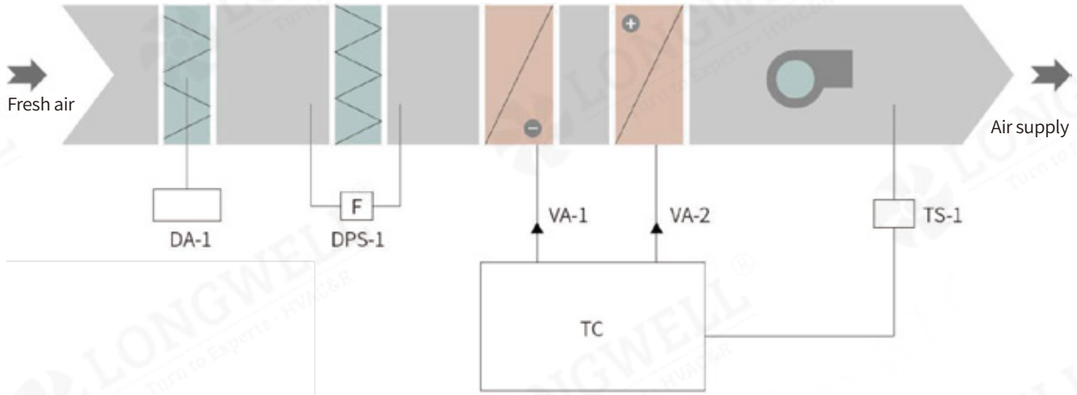
Exhaust Air Segment + Plate Heat Recovery Segment + Inspection Segment + Surface Cooling Segment (with Baffle Plate) + Supply Air Fan Segment

Unit Automated Control System

The modular air conditioner adopts advanced technology, stable performance, and precise automatic control devices, which are reasonably matched with air conditioning and refrigeration systems. This ensures that the air conditioning system fully operates and remains in optimal working condition, meeting both process and comfort requirements while minimizing energy consumption.

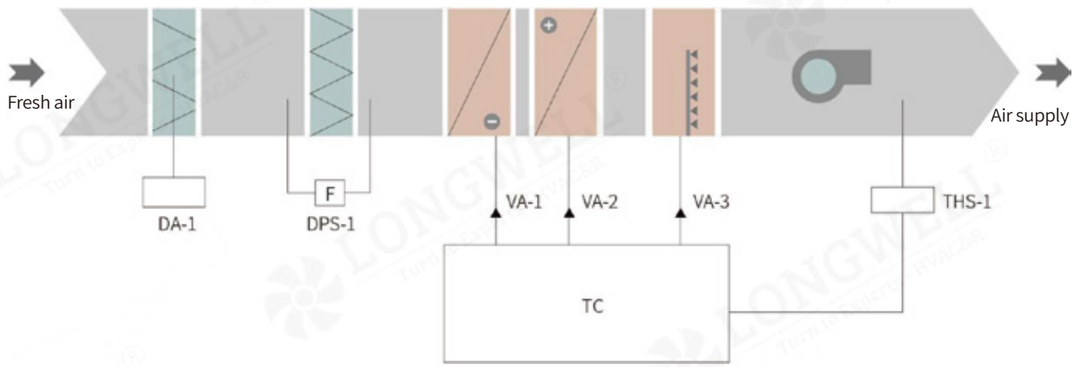
Temperature Control

TC - Liquid Crystal Display Temperature and Humidity Controller; DPS-1: Pressure Differential Switch; TS-1: Temperature and Humidity Sensor; DA-1: Air Valve Actuator; VA-1/2: Electric Control Valve



Constant Temperature And Humidity Control

TC - Liquid Crystal Display Temperature and Humidity Controller; DPS-1: Differential Pressure Switch; THS-1: Temperature and Humidity Sensor; DA-1: Air Valve Actuator; VA-1/2/3: Electric Control Valve



Temperature and Humidity Control: The controller detects the return air temperature and humidity through a temperature and humidity transmitter, compares the data with the set values, and outputs signals to control valves to adjust the flow of hot and cold water as well as humidifiers, aiming to bring the return air temperature and humidity closer to the set values.

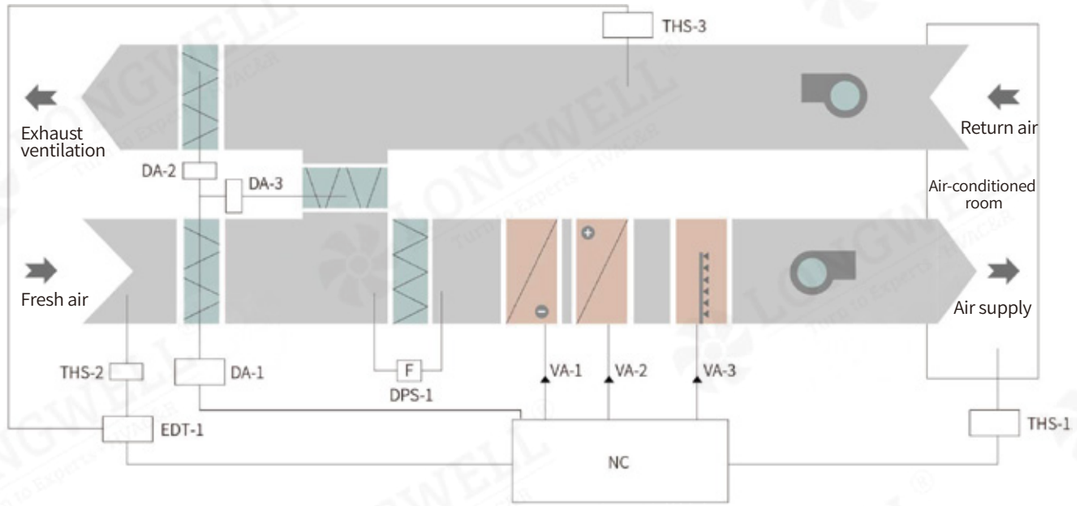
Filter Alarm: A pressure difference switch is set up to detect the pressure difference on both sides of the filter. When the filter becomes dirty or blocked, it triggers an alarm to remind timely cleaning and replacement.

Motor Safety Protection: It features protection against short circuits, phase loss, reverse phase, overload, over/under voltage, and three-phase voltage imbalance.

User-Friendly Interface: Equipped with a high-resolution touchscreen, the interface is user-friendly and easy to operate.

Thermostatic And Humidity Control With Enthalpy Differential Control Function

NC - LCD Display Multifunctional Controller; DPS-1: Differential Pressure Switch; EDT-1: Enthalpy Differential Transmitter; DA-1/2/3: Air Valve Actuator; VA-1/2/3: Electric Control Valve; THS-1/2/3: Temperature and Humidity Transmitter



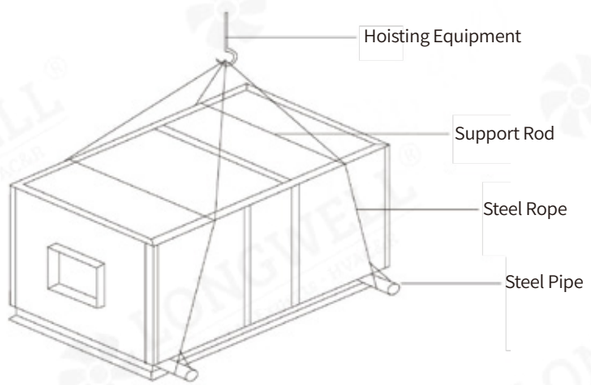
Multifunctional Control: The multifunctional controller is equipped with abundant input and output signal interfaces, closed-loop control, multiple control modes, and can directly display system parameters, operating modes, and process curves, etc.

Temperature Control: The indoor temperature detected by the temperature sensor is compared and calculated with the set temperature on the controller. This adjusts the cold water valve or hot water valve to regulate the supply air temperature.

Humidity Control: The indoor humidity detected by the temperature and humidity sensor is compared and calculated with the set humidity on the controller. This adjusts the cold water valve or humidifier to regulate the supply air humidity. When dehumidification signals conflict with cooling signals, priority is compared and confirmed, increasing the priority of cooling and dehumidification.

Mixed Air Control: The temperature and humidity values detected by the fresh/return air temperature and humidity sensors are converted into enthalpy differential signals by the enthalpy differential transmitter. The controller calculates the optimal fresh/return air mixing ratio based on the enthalpy differential signal. This is achieved by adjusting the electric air valves for fresh/return air, aiming to achieve energy efficiency while improving indoor air quality.

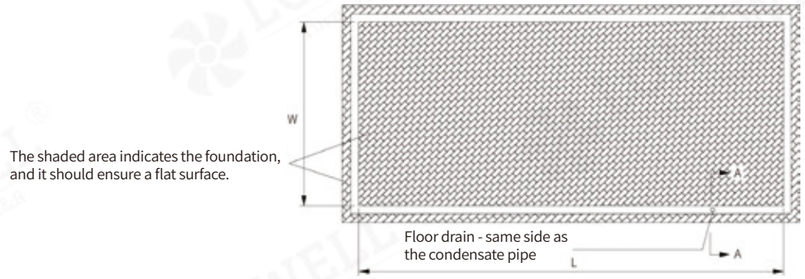
Hoisting Diagram

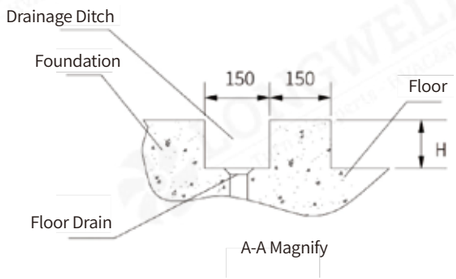


Hoisting Precautions

For safety, lifting must be carried out according to the illustrated method.
When lifting, cushioning materials such as hard cardboard should be placed where the steel rope contacts the casing to prevent abrasion of the unit by the steel rope.

Foundation Schematic Diagram





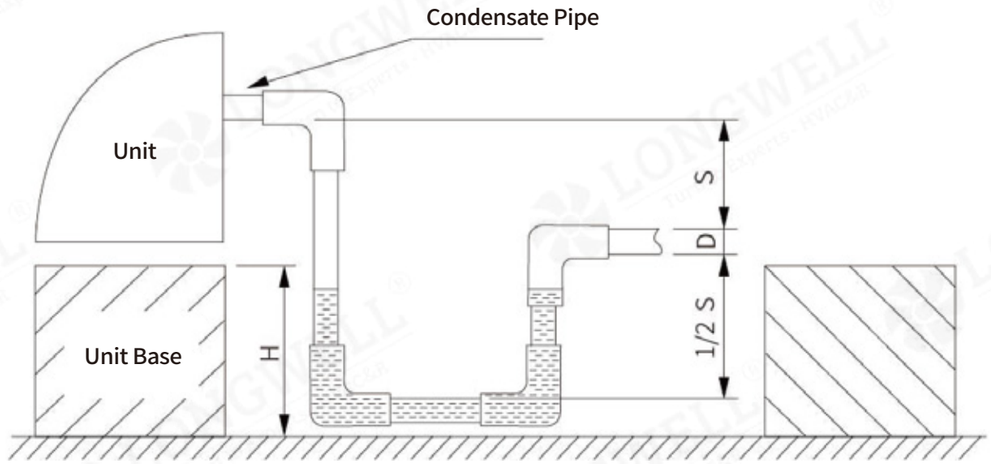
L = Unit Length + 200
W = Unit Width + 200
H = Unit Foundation Height (H ⩾ 150, Must simultaneously meet The height requirement for condensate pipe installation)

Unit Installation

The installation of the heat exchanger piping system should comply with local regulations. Pipes should be designed to minimize bends and vertical shifts as much as possible to save costs and maintain optimal unit performance. The pipes must be insulated. Proper installation should include the following points:

1. Shock absorbers: Reduce vibrations to prevent pipe loosening and water leakage.
2. Inspection valves: Can be closed during maintenance to isolate the unit from the piping system.
3. Maintain sufficient water pressure in the system, with coil resistance matching the nameplate of the corresponding unit. Our company's coil maximum working pressure is 1.0 MPa. If the working pressure exceeds 1.0 MPa, it should be declared to our company at the time of ordering, and special treatment will be provided.
4. Install a water filter before the unit's inlet pipe to eliminate impurities in the water, and install other devices specified in HVAC installation standards.
5. When connecting to the unit coil, follow the unit's identification for connections (our company's unit hot/cold water coils generally have bottom inlet and top outlet, steam coils have top inlet and bottom outlet) to avoid connection errors. When connecting, the unit pipe joints must be secured to prevent distortion of the copper pipe, leading to rupture.
6. During winter, after commissioning and when the unit is not providing heat, it is necessary to promptly drain the residual water from the coil (system) or use other methods (such as adding antifreeze) to prevent coil freezing and cracking. (When adding antifreeze, operation should be carried out under the guidance of a professional company or professional.)
7. To prevent the coil from becoming too cold or too hot, it is necessary to set up linkage between the inlet water and the fan, allowing the coil to operate only when the fan is running.
8. When the unit is not running, the supply of water to the coil must be cut off.
9. The condensate pipe of the unit must be equipped with a water seal, and the height of the water seal should meet the requirements as shown in the diagram: negative pressure water seal for condensate water (in the direction of airflow, with the drain pipe interface located before the supply fan) S⩾P/10+30mm.

Condensate Water Seal Installation Diagram



P: Total static pressure of the unit, in Pa

D: Outer diameter of the air conditioning drain pipe, in mm

H: Unit foundation height (H≥150, must meet the installation height requirements of the unit condensate drain pipe simultaneously), in mmc

Warning: When the ambient temperature or inlet air temperature is ≤2°C, a preheating device must be installed at the inlet of the fresh air unit. A sealed regulating valve should be installed at the fresh air outlet of the system, and a frost protection switch should be installed before the coil, with interlocking between the frost protection switch, fan, and water pump. When starting the unit: For all fresh air units, when the fresh air temperature is ≤2°C, the preheating coil must be activated first or other corresponding protective measures must be taken to prevent coil freezing and cracking.

Installation Precautions

1. The air conditioning unit is not allowed to operate in environments with corrosive gases such as acids, alkalis, and salt mist, as this may result in damage to the unit's casing, piping, or electrical components.
2. The area around the unit should be kept clean, dry, and well-ventilated. Regular cleaning (every 1-2 months) of the air-side heat exchanger can help maintain its efficient heat exchange performance and save energy.
3. The drain pipe must be installed according to the requirements of this manual to ensure smooth drainage and proper insulation to prevent condensation. The drain pipe must be checked before the unit starts operation. If there is any blockage, foreign objects must be removed to ensure smooth drainage of condensate water.
4. Regularly inspect the tightness of the connections in the unit's power supply and electrical systems, as well as the operation of electrical components for any abnormalities. In case of any abnormalities, prompt repair or replacement is necessary. Periodically check the reliability of the unit's grounding.
5. Check whether the power supply voltage matches the voltage specified on the unit nameplate. The power supply voltage to the unit must not exceed ±5% of the rated voltage, and the frequency must not exceed ±2% of the rated frequency.
6. Maintenance and repair operations on the unit are only allowed when it is shut down and the power supply is disconnected.
7. After a unit malfunction, the cause must be identified and resolved before restarting. It is not permissible to forcibly restart the unit without resolving the malfunction.
8. Do not short-circuit the lines of the unit's protection devices, as this may cause unit malfunctions.
9. The internal cables of the unit should be protected to prevent damage to the insulation layer by sharp objects.
10. Wires and cables should be kept away from heat sources, minimized in movement, and not subjected to severe bending or twisting.
11. Installation and Use of Control Cabinet:
    a. The control cabinet contains high-voltage AC electricity. Pay attention to safety when operating.
    b. The control lines of the unit should be isolated from the power supply lines to prevent interference.
    c. It is necessary to use a power supply that meets the specified requirements. The use of a power supply that does not meet the requirements may result in damage to the control cabinet.
    d. It is not allowed to randomly install wiring or store longer exposed wires inside the control cabinet. After inspecting the control cabinet, the cabinet door should be promptly reinstalled to prevent rainwater from entering.
    e. It is imperative to control the operation of the air conditioning unit through the control cabinet. Unplugging or plugging in power plugs to operate the unit is strictly prohibited, and frequent use of emergency stop switches to shut down the unit is not allowed.
    f. During use, do not operate the controller display screen with sharp objects, and avoid applying excessive force to prevent damage to the controller display screen.
    g. Do not use solvents or harsh chemical agents to wipe the surface of the controller display screen. If there is slight dust, gently brush it off with a clean, soft cloth or cotton swab; if the surface is heavily soiled, use a clean, soft cloth or cotton swab to remove the dirt and allow it to air dry naturally.
    H. When the control cabinet experiences malfunction alarms or displays faults, users should not attempt to repair them themselves; instead, they should call the air conditioning service hotline or contact the local service agency for air conditioning.
12. Air Filter:

Regularly (recommended twice a month) inspect the dust accumulation on the unit's filter mesh. For users with pressure difference detection devices, when the final resistance reaches the specified value, the filter should be cleaned or replaced promptly. The recommended final resistance value is:

Filter Efficiency Specifications	Recommended Final Resistance (Pa)
G3(Initial Efficiency)	100-160
G4(Initial Efficiency)	130-190
F5-F6(M5-M6)(Medium Efficiency)	160-220
F7-F8(M7-M8)(Medium Efficiency)	230-330
F9-H10(High Efficiency)	350-450
H11-F14(High Efficiency)	380-580

13. Heat Exchanger:

Attention should be paid to ensuring that there are no scratches or dents on the fins, copper tubes, etc., of the heat exchanger. Keep the coils clean, and nylon brushes can be used to clean the fins of the coils. Before brushing, it must be cleaned with a vacuum cleaner. If compressed air is available, high-pressure air hoses or nozzles can be used to clean the coils. After cleaning the coils, there should be no dust on the outer surface, and the heat exchange effect on the inner surface should reach its original upgraded heat exchange capacity. In addition to cleaning the fins, the scale inside the coils should be cleaned after 2-3 years of use. If conditions permit, softened water should be used for cooling and heating water in the unit coils.

14. After the unit has been in operation for one week, the tightness of the belts should be readjusted. Subsequently, a routine inspection should be conducted every three months during operation.

15. After the unit has been running for a period of time, the terminals of the electrical wire connections may loosen. A check and tightening should be carried out three days after the initial startup.

16. The bearings of the fan and motor need to be inspected regularly (recommended three times per month). Check the sealing ring of the motor shaft extension (such as V-type sealing ring), and replace it promptly if necessary. Inspect for loose installation connections.

Monitor the bearing operation through abnormal noise listening, vibration detection, monitoring oil quantity, or bearing vibration measurement components. In case of any abnormality, the machine should be stopped immediately, the cause investigated, and remedied promptly. Heating or special tools should be used for bearing installation and replacement; bearings should not be struck or pried forcefully.

17. The maintenance of fan bearings:

For fans equipped with grease nipples, it is necessary to regularly add lubricating grease that matches the specifications to the bearings. If a specific brand of grease is chosen by the user for greasing, it should be consistently used. The effective lifespan of the grease depends on the type of grease, the speed and diameter of the bearings, and the working environment. Under normal circumstances, the lubricating grease should be replaced after approximately 1500 hours of fan operation. For fans running continuously for 24 hours, the lubricating grease should be replaced every 500 to 700 hours of operation. The method of adding lubricating grease is as follows: When greasing, ensure that the shaft is rotating, and stop adding grease when fresh grease overflows from the dust cover. Quickly rotate the impeller by hand to expel excess grease.

18. It is essential to ensure that the steam valve for the steam coil is closed before the fan stops, and it is essential to ensure that the steam valve for the steam humidifier is closed before the fan stops.



Routine Maintenance

It is recommended that users record daily operational data of the equipment and perform regular maintenance and upkeep.

1. Before the initial deployment, it is necessary to check whether the terminal equipment and other components of the water system are functioning properly.

2. During equipment operation, we recommend users to employ the following maintenance and upkeep methods:

Inspection Items			Monthly	Quarter	Annual
Terminal Box	Inlet Air Section	Check if the filter screen is dirty or blocked	★	★	★
		Electronic dust filter	☆	☆	★
	Coil Section	Surface cooling coil	☆	☆	★
		Fluorine coil	☆	☆	☆
		Steam coil	☆	☆	★
		Condensate collection tray and drainage pipe	☆	☆	☆
	Humidification Section	Electrode humidifier	★	★	★
		High-pressure mist humidifier	☆	☆	☆
		Wet membrane humidifier	☆	☆	☆
		Dry steam humidifier	☆	☆	☆
	Fan Section	Check the tension of the belts	☆	☆	☆
		Inspection of fan and motor bearings	★	★	★
	Heat Recovery Section	Rotary heat exchanger	☆	☆	☆
		Plate heat exchanger	☆	☆	☆
	Heating Section	Burner	☆	☆	☆
Electrical Control	Electric Control Cabinet	Insurance	☆	☆	☆
		Contactor	☆	☆	☆
		Sensor	☆	☆	☆
		Are the wiring points loose	★	★	★
		Power supply check	★	★	★
		Phase sequence check	☆	☆	☆

Inspection Items			Focus Points
Terminal Box	Inlet Air Section	Check if the filter screen is dirty or blocked	The final resistance of the unit reaches the specified value (refer to the technical manual for alarm values)
		Electronic dust filter	Is there any dirt or blockage
	Coil Section	Evaporator coil	Is the surface covered with dust, oil stains, debris, etc
		Fluorine coil	Is the surface covered with dust, oil stains, debris, etc
		Steam coil	Check if the supply gas pressure steam gauge pressure is within 0.02~0.4Mpa, and if the steam trap is free from dirt or blockage
		Condensate collection tray and drainage pipe	Whether there is dirt or blockage, and whether drainage is smooth
	Humidification Section	Electrode humidifier	The humidification tank needs cleaning every 200 hours and electrode replacement every 2000 hours
		High-pressure mist humidifier	Refer to the technical manual for instructions on various types of humidifiers

Inspection Items			Focus Points
Terminal Box	Humidification Section	Wet membrane humidifier	Refer to the technical manual for instructions on various types of humidifiers
		Dry steam humidifier	Refer to the technical manual for instructions on various types of humidifiers
	Fan Section	Check the tension of the belts	Check for any cracking during inspection
		Inspection of fan and motor bearings	Under normal circumstances, the lubricating grease should be replaced after 1500 hours of fan operation; for fans running continuously for 24 hours, the lubricating grease should be replaced every 500 to 700 hours of operation
	Heat Recovery Section	Rotary heat exchanger	Operating condition
		Plate heat exchanger	Is there any dirt or blockage
	Heating Section	Burner	Operating condition
Electrical Control	Electric Control Cabinet	Insurance	Disconnect
		Contactor	Severe contact corrosion observed during inspection or noise during operation
		Sensor	The measured values deviate from the actual values even after calibration
		Are the wiring points loose	Toggle the connecting lines; check if the contacts are loose or able to rotate freely
		Power supply check	Rated voltage ±5%, phase imbalance ±2%
		Phase sequence check	Without missing phase or incorrect phase

Remarks:

① ★----Items that must be maintained or replaced; ☆----Items whose maintenance implementation depends on actual circumstances;

② Daily and monthly inspection tasks are to be carried out and recorded by the customer.

③ The replacement of consumable parts and materials is determined based on the unit's service life or operating time. For continuous or process-related usage, operating time is considered, while for regular or comfort-related usage, service life is considered.

④ It is recommended that the unit undergo comprehensive maintenance after approximately 1 year of use or around 1000 hours of operation. Cleanroom units with purification requirements should adjust maintenance intervals according to user cleanliness standards. Units operating in harsh environmental conditions should undergo maintenance checks monthly based on inspection results.

3. When the equipment is not in use for a long period, we recommend the following maintenance methods: When the unit is not running for an extended period or during the winter season, the power supply must be shut down, and the water in the unit's water system and steam coils must be drained. If necessary, maintenance procedures similar to those performed before the equipment was put into operation can be followed.