宏明空调
HON MING

组合式空调机组

Modular Air Handling Unit

专业的施工团队和售后服务

Professional Construction Team & After-sales Service

COMPANY PROFILE
公司简介

Founded in HONG KONG 1993, HON MING TECHNOLOGY GROUP is a professional comfortable & energy-saving air conditioner and cooling tower manufacturer which can provide full range of energy system solutions. Our cooling technology is widely used in many key projects in all over the world, such as Egypt, Philippines, Bangladesh, Vietnam, America, Singapore,UAE etc.

HON MING TECHNOLOGY GROUP′ s production base is located in Salt Lake Industrial Zone, Yuncheng City, Shanxi Province. The group provide high energy efficiency, high quality, green and pro-environment cooling tower, air conditioner equipment and energy systems to market. HON MING is specialized in the design, production and sales of various air conditioner, air handling unit, SS304 cooling tower, closed/open, cross flow, counter flow square cooling tower, FRP industrial cooling tower etc. HON MING integrates the energy system design, equipment installation, maintenance, energy management service.

HON MING HVAC products: air cooled / water cooled chiller unit, air cooled heat pump unit, DX Modular Air Handling Unit,integrated double high-efficiency water cooled chiller(heat pump) unit, air-cooled screw chiller(heat pump) unit, Flooded Type screw chiller(heat pump) unit, high-efficiency centrifugal chiller unit and low-temperature chiller unit. Terminal products: combined type air handling unit, fan coil unit, cabinet type air handling unit,fresh air air handling unit. Industrial purifying field: air-cooled / water-cooled DX constant temperature and humidity air handling unit, medical purifying combined type air handling unit, heat recovery fresh air handling unit, etc. The products had passed ISO 9001 quality management system certification, ISO 14001 environmental management system certification, OHSAS18001 occupational health and safety system certification.HON MING faith is "Innovation based, quality orientation", development idea is "self-development, self-innovation".

HON MING cooperated with Tianjin University, Tianjin Chengjian university, etc. HON MING insist "Focus on quality,R&D as innovation and high-quality service to win the market".

HON MING always adhere to people-oriented, attract excellent talents, create high efficiency, energetic and responsible team. With high efficiency, energy-saving and pro-environment products bring better life for human! Welcome partners from all over the world join with HON MING to contributions the energy saving and emission reduction!

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组 合式空 调机组
Modular air handing unit

Model Naming

HM ZK 020 M W

- W: Horizontal type,D: Ceiling type,L: Vertical type
- M: Mixing air type,H: Return air type,X: Fresh air type
- Air flow(×1000M3/h)
- Modular air handling unit
- HON MING

1. Widely used in industrial and civil central air conditioning system.
2. It has rich and perfect air handling combination, such as: cooling and heating, humidification, fan motor, various filter, muffler, heat recovery, dehumidification, spray, mixing air, airflow equalizing, diversion, maintenance, etc., can be flexibly combined according to actual project.
3. Different parts and materials are available.
4. Size and external interface form can be adjusted according to user requirements.
5. 30 years of rich professional experience formed a number of patented technologies and processes.
6. Anti-cold bridge aluminum alloy frame structure, assembly structure and cold room board structure, double-sided metal insulation board, convenient for on-site assembly, beautiful appearance.
7. Optional DDC or PLC intelligent control system.
8. Air flow range: 2000~200000m³/h.

AHU Features

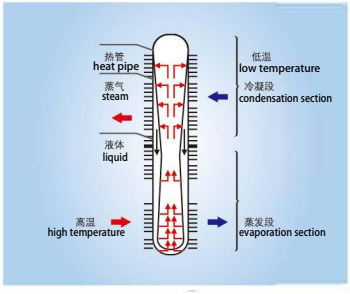
Humidification section

Following humidifiers are available:
● Dry steam humidifier: isothermal humidification, made of stainless steel, corrosion resistance, small size, easy installation, clean humidification, high humidification efficiency, electric and manual are available. Suitable for humidification situations with steam source.
● Electrode humidifier: Use AC power to process tap water to produce clean steam, microcomputer control, it has two control methods: proportional adjustment and switch adjustment. Suitable for process humidification situations without steam source.
● Vaporizing (wet film) humidifier: Use wet film material to absorb water, air flow through the wet film to evaporate and vaporize, can wash and filter the air at the same time, also can be used as water baffle. It can use direct water supply or circulating water.
● High-pressure spray humidifier: Tap water is pressurized and finely atomized through the nozzle, fine droplets evaporate and humidify in the air. When choosing high-pressure spray humidifier, humidification efficiency should be considered, generally is 40-50%.

Plate heat recovery device

● Fresh, exhaust air are heat exchanged in the plate-fin heat exchanger, according to different heat exchanger materials, can be divided into sensible heat exchanger and total heat exchanger, heat recovery efficiency＞60%.
● Plate-fin heat exchanger static installation, easy to arrange the air flow channel in AHU, to reduce AHU volume.
● Indoor and outdoor two-way ventilation, fresh and polluted air equal replacement, can achieve positive and negative pressure operation according to customer requirements. Fresh and exhaust air are completely separated to completely avoid cross contamination.

Intermediate media heat recovery device



● Intermediate media (usually water or glycol solution) flows in the intermediate heat exchanger located in fresh, exhaust air system, is brought into fresh air through exhaust air. It is used in air conditioning system with small temperature differences. Can recovery sensible heat, heat recovery efficiency is about 50%.

Heat pipe heat recovery device

● Heat pipe heat recovery device is a kind of heat exchange element that use phase change of working medium (such as ammonia, freon, etc.) to exchange heat. Heat pipe heat recovery device has compact structure, adopts fully enclosed design, high heat recovery efficiency and no loss.

Heater

● Optional steam coil, hot water coil, heat recovery coil, finned electric heating pipe, burner or PTC electric heating pipe.

Fan system

- Fan is double-inlet, double-width, forward or backward inclined centrifugal fan, passed strict static & dynamic balance test, balance accuracy is not lower than IS01940-G4.0 standard.
- Fan uses tapered sleeve bearing to reduce vibration problem caused by eccentric lock bearing. All are imported brand bearings, service life is more than 75,000 hours under design condition.
- All fans have passed AMCA product performance certification to ensure high reliability.
- Low operating noise, high efficiency, solid structure and stable performance.
- Use professional CAD selection software to optimize design.
- Various specifications are available, can meet different air flow and pressure requirements.
- Fan can be volute free fan, EC fan, wing fan, direct connection fan, and single inlet fan.

Electronic purification

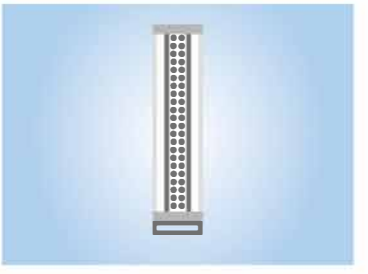
Dust removal and purification

- Ionize the suspended particles in the air through the purification electric field, use high voltage electrostatic field to make all suspended particles in the air (minimum to 0.01 microns) attach positive charges, then quickly adsorbed by dust collecting plate to achieve high efficiency dust removal and purification. Dust removal efficiency＞98.9%.

Sterilization and purification

- Discharge electrode produces plasma under high pressure, plasma will quickly destroy and completely kill the cell nucleus of microorganisms such as bacteria, viruses and dust mites in the air, residual materials will be sintered and adsorbed by the dust collecting plate at the same time, sterilization efficiency＞99%, completely eliminate the reproduction and spread of bacteria, viruses and infectious viruses, completely eliminate cross-infection. Sterilization efficiency＞95%.

Activated carbon adsorption section



Super strong odor adsorption and deodorization function

- Function section has built-in activated carbon filter, activated carbon is very fine carbon particle with large surface area, carbon particle has smaller hole - capillary. Capillary has strong adsorption capacity, due to the large surface area, it can fully contact with gas (impurities). When gas (impurities) contact the capillary, it is adsorbed.

Adsorb formaldehyde, benzene, TVOC organic harmful gases

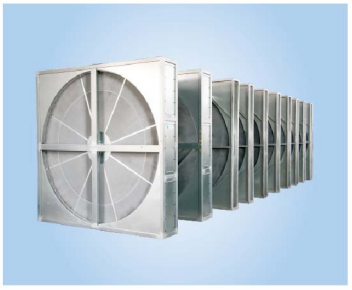
Activated carbon type	N4G1	N4S1	N4A1	N4B1	N4F1	N4M1
Use	General gas	Stench	Acid gas	Alkaline gas	Formaldehyde	Mercury vapor

AHU options

- Double-layer transparent insulation window, 24VLED safety inspection light, access door safety switch, water seal, start control cabinet, water baffle, differential pressure gauge, differential pressure switch, water valve, water valve actuator, air valve actuator, etc.

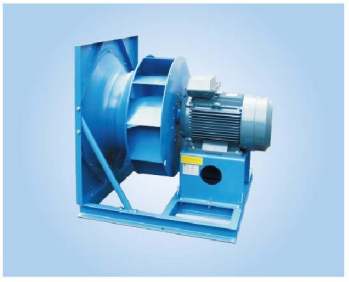
Rotary heat recovery device

- Overall winding+fixed spoke structure, solid and stable structure, can safely run in the range of -40C~ 120C, service life can reach more than 15 years, can be cleaned by high pressure air, water, steam, solution, etc.
- Heat recovery rate＞80%, small pressure loss.
- Total heat recovery & sensible heat recovery can be selected according to needs.
- Rotary heat exchanger speed is controlled at 10~12 RPM.
- Wheel core material is made of special alloy aluminum, high heat exchange coefficient, chlorine resistance, corrosion resistance and long service life.
- Adopt thickened aluminum foil, corrugated height is available in various specifications, wheel core honeycomb is triangle.
- High seal performance. Adopt double wear-resistant waterproof brush and rubber & plastic structure, high surface smoothness, tight seal, low air leakage rate. After adding double cleaning fan, mixing air rate can be controlled within 1%.
- Drive motor, lifelong lubrication, maintenance free, no need to add lubricating oil, insulation class F, protection class IP54.
- Drive belt has self-tensioning device, no need to adjust the belt length frequently.



Motor

- Motor is famous brand air-cooled fully closed three-phase asynchronous motor, protection class IP54 (optional IP55), F class insulation, has higher reliability and service life.
- Motor adopts optimized design, has higher efficiency, energy saving.
- Bearing service life more than 75,000 hours under the design condition.
- Standard voltage: 380V/3P/50HZ.
- Motor can be single-speed 2-pole, 4-pole, 6-pole, double-speed motor, three-speed motor and special variable frequency motor.



Drive system

- Equipped with tapered sleeve pulley, precision processing, good dynamic & static balance, easy disassembly & assembly.
- V-shaped triangle belt, flexibility and contact area increased, strong layer moves up, drive efficiency≥90%, large drive power, high number of flexible rotation, longer service life, and can withstand large preload force.
- Fan and motor are installed on C-type base, can be adjusted longitudinally and laterally, so that the parallelism of two shafts and belt pulley is higher, belt drive smoother.

Filter section

- The unit area mass, resistance, mechanical properties, antistatic properties, hygroscopicity, flame resistance and filter efficiency of primary and medium efficiency filter meets GB/T14295-2008, high efficiency filter meets other relevant national standards.

Classification:

——Primary efficiency filter: plate type and bag type optional, filter material is chemical fiber, non-woven fabric.

——Medium efficiency filter: plate type, bag type and fold type optional, filter material is chemical fiber, non-woven fabric or glass fiber.

——Sub high efficiency filter: bag type and fold type optional, filter material is glass fiber.

——High efficiency filter: fold type and large air flow box type optional, filter material is glass fiber.

China GB/T14295		Primary efficiency ≥5 μm 80%>Efficiency ≥15%					Medium efficiency ≥1 μm 70%>Efficiency ≥20%				Medium & high ≥1 μm 99%>Efficiency ≥70%			Sub high efficiency ≥0.5 μm 99.9%>Efficiency ≥95%				High efficiency ≥0.5 μm Efficiency ≥99.9%			
America ASHRAE		C1	C2 ~ C4	L5	L6	L7	L8	M9	M10	M11	M12	M13	M14	H12~H16				VH17	VH18	VH19	VH20
Europe	New	G1 65%	G2 80%	G3 80~90%		G4 >90%	F5 40%			F6 60%		F7 80%	F8 90%	F9 85%	H10 95%	H11 99%	H12 99.9%	H13 99.95%		H14 99.995%	U15U17 99.9995%
	Old	EU1	EU2	EU3		EU4	EU5			EU6		EU7	EU8	EU9	EU10		EU11	EU12	EU13	EU14	

Base

- Base is formed of high-strength sheet metal or integrally welded by channel steel, high strength and corrosion resistant.
- Base height ⩾80mm, can be customized according to water seal height and actual base height.
- The middle of the base is designed with vertical and horizontal layout according to the needs of the internal components to bear the load on the bottom surface. It is beneficial to the uniform load bearing of the base and installation ground, improves overall structure strength, ensures the internal flatness and safe maintenance, and reduces the vibration.
- All bases are equipped with lifting holes and installation holes (connecting holes), convenient for the lifting and on-site positioning.

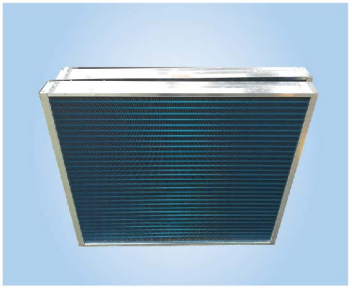
Water basin

- Bottom water basin adopts unique large slope dry antibacterial structure, can effectively inhibit the sewage retention and bacterial growth.
- Middle water basin is used in the double coil connected in parallel to avoid a large amount of water in the lower coil, improve the heat exchange efficiency of the double coil.
- Water basin drain outlet interface is external thread, external water seal device(optional) can ensure smooth drainage and no overflow.
- All water basins have passed leak test to ensure that there is no leakage.

Vibration reduction system

- Independent suspended vibration reduction system makes the fan and motor run more quiet, reduces noise and energy consumption losses caused by air disturbance.
- Closed combined absorber with self-locking integrates advantages of damping vibration reduction, air vibration reduction and elastic ZE vibration reduction, vibration reduction efficiency＞95%.
- An integral base carries the fan and motor. According to the load-bearing distribution of each part, corresponding equipped with different models and quantities of absorbers. Avoid beating, anti-vibration and resonance, make the fan and motor run more stable and comfortable.
- Fan and cabinet is isolated by soft connection to avoid vibration transmission, soft connection material meets the fire prevention requirements.

Heat exchanger--cold water coil, hot water coil, steam coil, evaporation coil, condensation coil, heat recovery coil



- Optimized design all coils by professional thermal software, not only can meet typical working condition requirements with best performance, but also can be specially designed and manufactured according to customers actual needs, can meet the specific working condition requirements of different users with maximum efficiency.

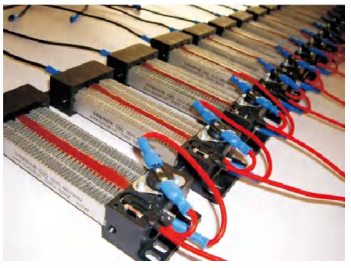
Main structure of high efficiency coil:

(1)Staggered copper pipe connected with louvers/full star aluminum fins, not only provide sufficient air side disturbance and high heat exchange efficiency, but also reduce air side resistance.

(2)Secondary flanging and mechanical expansion makes the fin and the copper pipe closely contact, reduce the heat exchange resistance.

(3)Optimized design loop process to ensure higher liquid side heat exchange efficiency and lower liquid side resistance.

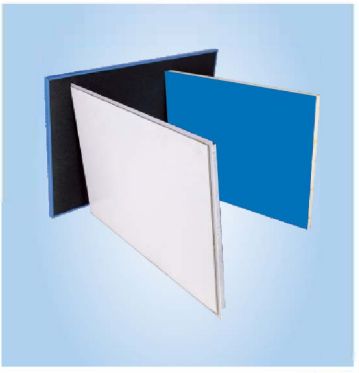
(4)Sheet spacing & pipe row combinations meets cooling & heating needs.



- When anti-corrosion and acid & alkali resistance are required, it is recommended to use coated aluminum sheet or copper sheet, and electrophoresis is optional.
- In addition to cold water coil, hot water coil and steam coil are also available.
- All coils passed 25MPa air pressure leak test.
- Liquid side large temperature difference: low flow, high circulation, large row coil design, can be widely used in ice storage, brine and ethylene glycol system, applicable liquid side temperature difference range: 5~12℃, 3~12℃, 6~ 15℃.
- Air side large temperature difference: grading uniform temperature cooling, large flow, high density, multi-row coil design, can be widely used in fresh air cooling, freezing dehumidification and small flow rapid cooling.
- Inlet and outlet pipes of the coil are available in optional interface types such as external thread (default standard), flange or clamp groove.
- When wind speed exceeds 2.5m/s, multi-fold corrugated hook-and-groove water baffle can be equipped. When wind speed is 3.5 m/s, the water flow is less than 0.31g/kg dry air.
- Design the loop process according to gravity self-drainage principle, can realize drainage and anti-freezing in winter.

Panel

New composite sandwich double-layer insulation panel is formed by color steel plate, galvanized plate and hard polyurethane insulation material. The frame uses PVC plate edge strip to separate the cold bridge between double-layer plate and aluminum profile.



- It has best performance in heat preservation, sound insulation, fire protection, strength, service life and cleanliness.
- Panel heat exchange coefficient K≤0.03W/m ′.k.
- Fire protection performance meets CSTB M1 fire protection requirements.
- Positive and negative pressure access doors of large air flow, large air pressure and large size AHU adopt pressure sealing technology, has tighter airtight effect with increasing pressure.
- Panel and aluminum profile are installed in integrated design, which makes the strength, flatness and air tightness of cabinet better.
- Panel sound insulation performance is not less than the following values:

Frequency median Hz	63	125	250	500	1000	2000	4000
Sound insulation value dB(A)	15	21	30	43	50	53	57

Muffler section

- According to different using requirements and fan noise features, can adopt microperforated plate muffler or perforated plate built-in sound absorbing cotton. When air flow through sound absorbing cotton muffler built in the perforated plate, it has good sound reduction effect on medium and high frequency noise. The cavity inside the microplate muffler is designed and manufactured by using the resonance sound absorption principle in physics, no pollution and no moisture, has effective muffling effect on low frequency and part of medium frequency noise. Muffling section is divided into return air muffling and supply air muffling.

Air flow control valve

- Type: closed split multi-leaf control valve, optional manual type, electric type, manual/electric integrated type.
- Material: galvanized plate and aluminum alloy material.
- Feature: gear drive has linear relationship with opening angle of the blade.
- Usage: used for manual or automatic control of air flow organization, distribution, throttling and bypass.

AHU Parameters

Cold water coil parameters

Inlet air DB temperature 27℃
Inlet air WB temperature 19.5℃
Inlet/outlet water temperature 7/12℃
Wind speed on coil 2.5m/s

HMZK	Air flow		4rows				6rows				8rows			
	M^3/h	m^3/s	TH kw	SH kw	Water flow l/s	Resistance kPa	TH kw	SH kw	Water flow l/s	Resistance kPa	TH kw	SH kw	Water flow l/s	Resistance kPa
02	2000	0.56	12.2	8.2	0.58	7.8	15.6	10.1	0.74	10.6	17.0	10.9	0.81	11.8
03	3000	0.83	18.3	12.3	0.87	7.8	23.4	15.2	1.12	10.6	25.5	16.3	1.22	11.8
04	4000	1.11	24.4	16.3	1.16	12.9	31.2	20.3	1.49	17.4	34.0	21.8	1.62	19.4
05	5000	1.39	30.5	20.4	1.46	20.0	39.0	25.4	1.86	27.0	42.5	27.2	2.03	30.0
06	6000	1.67	36.6	24.5	1.75	18.3	46.8	30.4	2.23	24.8	51.0	32.6	2.43	27.6
07	7000	1.94	42.7	28.6	2.04	19.5	54.6	35.5	2.61	26.4	59.5	38.1	2.84	29.3
08	8000	2.22	48.8	32.7	2.33	20.4	62.4	40.6	2.98	27.6	68.0	43.5	3.25	30.7
09	9000	2.50	54.9	36.8	2.62	21.2	70.2	45.6	3.35	28.7	76.5	49.0	3.65	31.9
10	10000	2.78	61.0	40.9	2.91	20.0	78.0	50.7	3.72	27.0	85.0	54.4	4.06	12.8
12	12000	3.33	73.2	49.0	3.49	21.2	93.6	60.8	4.47	28.7	102.0	65.3	4.87	13.6
14	14000	3.89	85.4	57.2	4.08	27.8	109.2	71.0	5.21	16.0	119.0	76.2	5.68	17.8
16	16000	4.44	97.6	65.4	4.66	30.2	124.8	81.1	5.96	17.4	136.0	87.0	6.49	19.4
18	18000	5.00	109.8	73.6	5.24	14.9	140.4	91.3	6.70	20.1	153.0	97.9	7.30	22.4
20	20000	5.56	122.0	81.7	5.82	16.9	156.0	101.4	7.45	22.9	170.0	108.8	8.11	25.5
25	25000	6.94	152.5	102.2	7.28	16.9	195.0	126.8	9.31	22.9	212.5	136.0	10.14	25.5
30	30000	8.33	183.0	122.6	8.73	16.9	234.0	152.1	11.17	22.9	255.0	163.2	12.17	25.5
35	35000	9.72	213.5	143.0	10.19	18.6	273.0	177.5	13.03	25.1	297.5	190.4	14.20	27.9
40	40000	11.11	244.0	163.5	11.65	23.0	312.0	202.8	14.89	31.1	340.0	217.6	16.23	14.7
45	45000	12.50	274.5	183.9	13.10	23.1	351.0	228.2	16.75	19.0	382.5	244.8	18.26	14.8
50	50000	13.89	305.0	204.4	14.56	25.2	390.0	253.5	18.61	20.7	425.0	272.0	20.29	16.1
60	60000	16.67	366.0	245.2	17.47	31.5	468.0	304.2	22.34	25.9	510.0	326.4	24.34	20.2
70	70000	19.44	427.0	286.1	20.38	14.4	546.0	354.9	26.06	27.7	595.0	380.8	28.40	21.6
80	80000	22.22	488.0	327.0	23.29	16.9	624.0	405.6	29.78	32.7	680.0	435.2	32.46	25.5
90	90000	25.00	549.0	367.8	26.20	19.6	702.0	456.3	33.51	37.8	765.0	489.6	36.51	29.5
100	100000	27.78	610.0	408.7	29.12	20.7	780.0	507.0	37.23	39.9	850.0	544.0	40.57	31.1
120	120000	33.33	732.0	490.4	34.94	25.9	936.0	608.4	44.68	35.0	1020.0	652.8	48.68	38.9
140	140000	38.89	854.0	572.2	40.76	27.3	1092.0	709.8	52.12	36.9	1190.0	761.6	56.80	41.1
160	160000	44.44	976.0	653.9	46.58	32.2	1248.0	811.2	59.57	43.5	1360.0	870.4	64.91	20.6
180	180000	50.00	1098.0	735.7	52.41	28.6	1404.0	912.6	67.01	38.7	1530.0	979.2	73.03	18.4
200	200000	55.56	1220.0	817.4	58.23	32.6	1560.0	1014.0	74.46	44.4	1700.0	1088.0	81.14	20.9

Note: TH is total heating capacity, SH is sensible cooling capacity

AHU Parameters

Cold water coil parameters

Inlet air DB temperature 34℃
Inlet air WB temperature 28℃

Inlet/outlet water temperature 7/12℃
Wind speed on coil 2.5m/s

HMZK	Air flow		4rows				6rows				8rows			
	M^3/h	m^3/s	TH kw	SH kw	Water flow l/s	Resistance kPa	TH kw	SH kw	Water flow l/s	Resistance kPa	TH kw	SH kw	Water flow l/s	Resistance kPa
02	2000	0.56	21.9	9.6	1.05	16.1	28.3	11.3	1.4	22.1	30.8	12.3	1.5	24.5
03	3000	0.83	32.8	14.3	1.57	16.1	42.4	17.0	2.0	22.1	46.2	18.5	2.2	24.5
04	4000	1.11	43.7	19.1	2.09	26.5	56.6	22.6	2.7	36.4	61.6	24.6	3.0	40.4
05	5000	1.39	54.7	23.9	2.62	17.5	70.7	28.3	3.4	24.0	77.0	30.8	3.7	26.7
06	6000	1.67	65.6	28.7	3.14	16.1	84.8	33.9	4.1	22.1	92.4	37.0	4.4	24.5
07	7000	1.94	76.5	33.4	3.66	17.1	99.0	39.6	4.7	23.5	107.8	43.1	5.2	26.1
08	8000	2.22	87.4	38.2	4.19	17.9	113.1	45.2	5.4	24.6	123.2	49.3	5.9	27.3
09	9000	2.50	98.4	43.0	4.71	18.6	127.3	50.9	6.1	25.5	138.6	55.4	6.6	28.4
10	10000	2.78	109.3	47.8	5.23	17.5	141.4	56.6	6.8	24.0	154.0	61.6	7.4	26.7
12	12000	3.33	131.2	57.3	6.28	18.6	169.7	67.9	8.1	25.5	184.8	73.9	8.9	28.4
14	14000	3.89	153.0	66.9	7.33	24.3	198.0	79.2	9.5	33.4	215.6	86.2	10.3	37.1
16	16000	4.44	174.9	76.4	8.38	26.5	226.2	90.5	10.8	36.4	246.4	98.6	11.8	40.4
18	18000	5.00	196.7	86.0	9.42	30.6	254.5	101.8	12.2	42.0	277.2	110.9	11.8	40.4
20	20000	5.56	218.6	95.5	10.47	34.9	282.8	113.1	13.5	47.9	308.0	123.2	14.8	22.7
25	25000	6.94	273.3	119.4	13.09	34.9	353.5	141.4	16.9	29.1	385.0	154.0	18.4	22.7
30	30000	8.33	327.9	143.3	15.70	34.9	424.2	169.7	20.3	29.1	462.0	184.8	22.1	22.7
35	35000	9.72	382.6	167.2	18.32	38.2	494.9	198.0	23.7	31.8	539.0	215.6	25.8	24.8
40	40000	11.11	437.2	191.1	20.94	47.2	565.6	226.2	27.1	39.4	616.0	246.4	29.5	30.7
45	45000	12.50	491.9	214.9	23.56	47.5	636.3	254.5	30.5	39.6	693.0	277.2	33.2	30.9
50	50000	13.89	546.5	238.8	26.17	22.1	707.0	282.8	33.9	18.4	770.0	308.0	36.9	33.7
60	60000	16.67	655.8	286.6	31.41	27.6	848.4	339.4	40.6	23.0	924.0	369.6	44.3	18.0
70	70000	19.44	765.1	334.3	36.64	29.6	989.8	395.9	47.4	24.7	1078.0	431.2	51.6	19.2
80	80000	22.22	874.4	382.1	41.88	34.9	1131.2	452.5	54.2	29.1	1232.0	492.8	59.0	22.7
90	90000	25.00	983.7	429.9	47.11	40.3	1272.6	509.0	60.9	33.6	1386.0	554.4	66.4	26.2
100	100000	27.78	1093.0	477.6	52.35	42.6	1414.0	565.6	67.7	35.5	1540.0	616.0	73.8	27.7
120	120000	33.33	1311.6	573.2	62.82	22.7	1696.8	678.7	81.3	44.4	1848.0	739.2	88.5	34.6
140	140000	38.89	1530.2	668.7	73.29	23.9	1979.6	791.8	94.8	46.8	2156.0	862.4	103.3	36.5
160	160000	44.44	1748.8	764.2	83.75	28.2	2262.4	905.0	108.4	55.2	2464.0	985.6	118.0	43.0
180	180000	50.00	1967.4	859.8	94.22	25.1	2545.2	1018.1	121.9	49.1	2772.0	1108.8	132.8	38.3
200	200000	55.56	2186.0	955.3	104.69	28.6	2828.0	1131.2	135.4	55.9	3080.0	1232.0	147.5	43.6

Note: TH is total heating capacity, SH is sensible cooling capacity

AHU Parameters

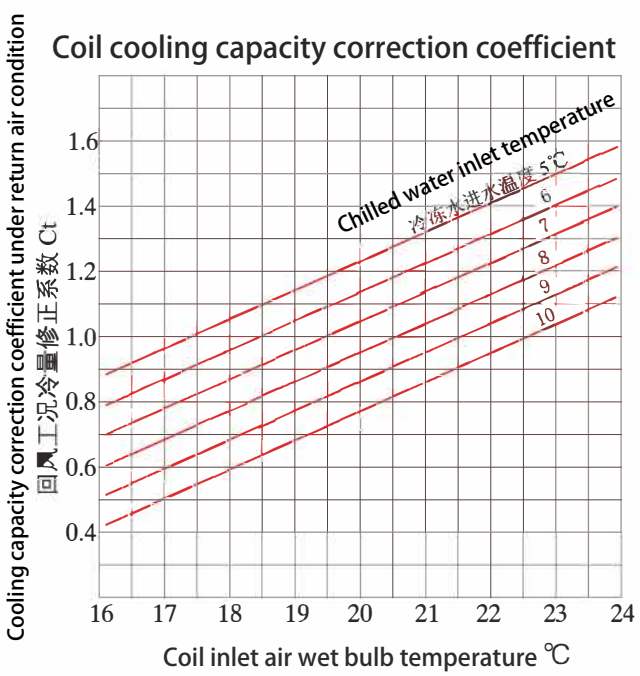
Heating coil parameters

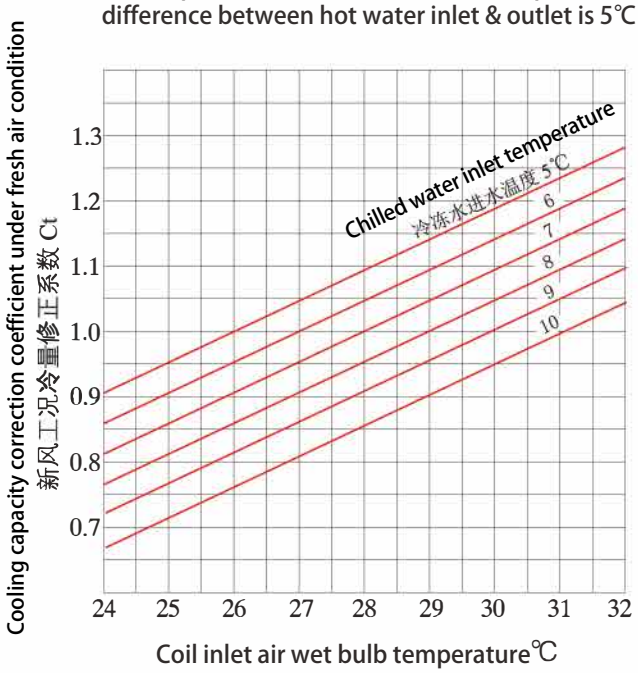
Data in the table is maximum heating capacity when per 1000m^/h air flow through the coil, in KW.

Coil type	Coil rows	Heating medium	Coil inlet air temperature											
			-15	-10	-5	0	5	7	10	15	17	19	21	23
Hot water coil	2 rows	50℃	9.1	8.3	7.6	6.9	6.1	5.5	5.3	4.6	4.2	3.9	3.7	3.4
		60℃	10.6	9.8	9.0	8.3	7.6	6.8	6.8	6.1	5.8	5.5	5.2	4.9
		70℃	12.2	11.4	10.6	9.8	9.2	8.1	8.3	7.7	7.4	7.0	6.8	6.4
		90℃	13.5	12.9	12.3	11.6	11.0	10.8	10.3	9.7	9.4	9.2	8.9	8.7
	4 rows	50℃	14.1	12.4	11.8	10.6	9.4	8.9	8.2	7.1	6.7	6.3	5.9	5.5
		60℃	16.5	15.3	14.1	12.9	11.8	11.0	10.5	9.8	9.4	8.9	8.4	7.9
		70℃	18.8	17.6	16.5	15.3	14.2	13.1	12.9	12.2	11.8	10.6	10.2	9.8
		90℃	21.9	20.9	19.9	18.8	17.7	17.3	16.7	15.6	15.2	14.8	14.4	14.0
	6 rows	50℃	19.4	15.0	13.8	12.2	11.0	10.7	9.4	8.2	7.7	7.2	6.7	6.2
		60℃	20.6	17.8	16.4	15.0	13.8	13.2	12.2	11.2	10.7	10.2	9.6	9.0
		70℃	21.8	20.5	19.1	17.7	16.5	15.8	15.0	14.0	13.5	13.0	12.4	11.8
		90℃	26.3	25.1	23.8	22.6	21.3	20.8	20.0	18.8	18.3	17.8	17.3	16.8
Steam coil	1 row	0.2MPa	11.3	10.9	10.6	10.3	9.9	9.8	9.6	9.2	9.1	9.0	8.8	8.6
		0.3MPa	12.1	11.7	11.4	11.1	10.7	10.6	10.4	10.0	9.9	9.8	9.6	9.5
	2 rows	0.2MPa	21.0	20.4	19.7	19.1	18.4	18.0	17.8	17.1	16.8	16.5	16.3	16.0
		0.3MPa	22.3	21.6	21.0	20.3	19.7	19.3	19.0	18.3	18.1	17.8	17.5	17.2

- Wind speed of the coil is 2.5m/s, temperature difference between hot water inlet & outlet is 5℃

Coil cooling capacity correction coefficient





AHU Parameters

AHU size table

HMZK	Air flow		Section size(mm)			AHU length(mm)							
	m^3/h	m^3/s	W	H	h	La0	Lb0	Lc0	Ld0	Lh0	Lh1	Lh2	Lh3
02	2000	0.56	880	980	100	4290	4510	5500	5940	4290	6270	5720	3740
03	3000	0.83	880	980	100	4290	4510	5500	5940	4290	6270	5720	3740
04	4000	1.11	1100	980	100	4290	4510	5500	5940	4290	6270	5720	3740
05	5000	1.39	1430	980	100	4290	4510	5500	5940	4290	6270	5720	3740
06	6000	1.67	1430	980	100	4510	4730	5720	6380	4510	6490	5940	3960
07	7000	1.94	1430	1200	100	4510	4730	5720	6380	4510	6490	5940	3960
08	8000	2.22	1430	1200	100	4510	4730	5720	6380	4510	6490	5940	3960
09	9000	2.50	1430	1200	100	4620	4840	5830	6600	4620	6600	6050	4070
10	10000	2.78	1430	1530	100	4620	5060	6160	6820	4620	6820	6380	4290
12	12000	3.33	1430	1530	100	4620	5060	6160	6820	4620	6820	6380	4290
14	14000	3.89	1760	1530	100	4840	5170	6270	7040	4840	6930	6490	4400
16	16000	4.44	1870	1530	100	4840	5170	6270	7040	4840	6930	6490	4400
18	18000	5.00	1980	1530	100	4840	5170	6270	7040	4840	6930	6490	4400
20	20000	5.56	1980	1640	100	5060	5280	6490	7260	5060	7150	6710	4510
25	25000	6.94	2200	1860	100	5060	5280	6490	7260	5060	7150	6710	4510
30	30000	8.33	2200	2300	100	5280	5720	6930	7920	5280	7590	6930	4950
35	35000	9.72	2420	2300	100	5280	5720	6930	7920	5280	7590	6930	4950
40	40000	11.11	2750	2300	100	5280	5720	6930	7920	5280	7590	6930	4950
45	45000	12.50	2750	2520	100	5280	5720	6930	792	5280	7590	7150	4950
50	50000	13.89	2970	2520	100	5830	6270	7810	8580	5940	8470	8030	5500
60	60000	16.67	3410	2520	100	5830	6270	7810	8580	5940	8470	8030	5500
70	70000	19.44	3410	2870	120	5940	6380	7920	8800	6060	8580	8140	5610
80	80000	22.22	3960	2870	120	5940	6380	7920	8800	6050	8580	8140	5610
90	90000	25.00	4620	2870	120	5940	6380	7920	8800	6050	8580	8140	5610
100	100000	27.78	4620	3090	120	6160	6710	8470	9020	6270	9130	8580	5940
120	120000	33.33	5720	3130	160	6380	6930	8690	9460	6490	9350	8800	6160
140	140000	38.89	5940	3460	160	6380	6930	8690	9460	6490	9350	8800	6160
160	160000	44.44	6710	3460	160	6380	6930	8690	9460	6490	9350	8800	6160
180	180000	50.00	6160	4120	160	6710	7480	9130	9680	6820	9790	9240	6380
200	200000	55.56	6820	4120	160	6930	7700	9350	10120	6820	10010	9460	6600

Note: Size listed in the table is only for reference, can be customized according to customer requirements, final size subject to size confirmed by customer before production.

AHU Parameters

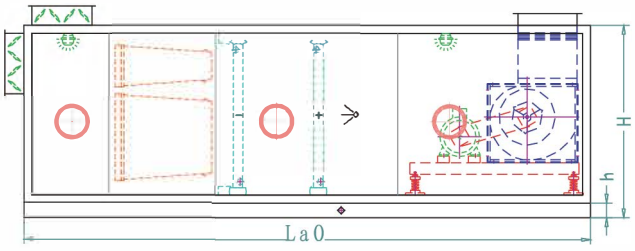
Section size table

HMZK	Air flow		Section length(mm)																
	m^3/h	m^3/s	Mixing air	Air outlet	Fan motor	Fan motor	Empty section	Medium efficiency filter	Primary medium filter	Sub high filter	Self-cleaning cartridge filter	Coil section	Heating and humidifying	Muffler section	Spray chamber	Combined shunt	Rotary dehumidification	Rotary heat recovery	Plate heat recovery
02	2000	0.56	770	660	1100	1100	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
03	3000	0.83	770	660	1100	1100	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
04	4000	1.11	770	660	1100	1100	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
05	5000	1.39	770	660	1100	1100	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
06	6000	1.67	770	660	1320	1320	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
07	7000	1.94	770	660	1320	1320	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
08	8000	2.22	770	660	1320	1320	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
09	9000	2.50	770	660	1430	1430	660	550	660	880	2860	880	770	1210	3300	1540	1760	1430	2200
10	10000	2.78	880	770	1430	1430	660	550	660	880	2860	880	770	1210	3300	1650	1760	1430	2200
12	12000	3.33	880	770	1430	1430	660	550	660	880	2860	880	770	1210	3300	1650	1760	1430	2200
14	14000	3.89	880	770	1540	1540	660	550	660	880	2860	880	770	1210	3300	1650	1760	1430	2200
16	16000	4.44	880	770	1540	1540	660	550	660	880	2860	880	770	1210	3300	1650	1760	1430	2200
18	18000	5.00	880	770	1540	1540	660	550	660	880	2860	880	770	1210	3300	1650	1760	1430	2200
20	20000	5.56	990	770	1650	1650	660	550	660	880	2860	880	770	1210	3300	1760	1760	1430	2200
25	25000	6.94	990	770	1650	1650	660	550	660	880	2860	880	770	1210	3300	1760	1760	1430	2200
30	30000	8.33	990	880	1870	1870	660	550	660	880	2860	880	770	1210	3300	1760	1760	1430	2200
35	35000	9.72	990	880	1870	1870	660	550	660	880	2860	880	770	1210	3300	1760	–	1430	2200
40	40000	11.11	990	880	1870	1870	660	550	660	880	2860	880	770	1210	3300	1760	–	1430	2200
45	45000	12.50	990	880	1870	1870	660	550	660	880	2860	880	770	1210	3300	1760	–	1430	2200
50	50000	13.89	1320	1100	2090	2090	660	550	660	880	2860	880	770	1210	3300	1980	–	1430	2200
60	60000	16.67	1320	1100	2090	2090	660	550	660	880	2860	880	770	1210	3300	1980	–	1430	2200
70	70000	19.44	1320	1100	2200	2200	660	550	660	880	2860	880	770	1210	3300	1980	–	1430	2200
80	80000	22.22	1320	1100	2200	2200	660	550	660	880	2860	880	770	1210	3300	1980	–	1430	2200
90	90000	25.00	1320	1100	2200	2200	660	550	660	880	2860	880	770	1210	3300	1980	–	1430	2200
100	100000	27.78	1540	1320	2200	2200	660	550	660	880	2860	880	770	1210	3300	2200	–	1430	2200
120	120000	33.33	1540	1320	2420	2420	660	550	660	880	2860	880	770	1210	3300	2200	–	1430	2200
140	140000	38.89	1540	1320	2420	2420	660	550	660	880	2860	880	770	1210	3300	2200	–	1430	2200
160	160000	44.44	1540	1320	2420	2420	660	550	660	880	2860	880	770	1210	3300	2200	–	1430	2200
180	180000	50.00	1760	1430	2530	2530	660	550	660	880	2860	880	770	1210	3300	2200	–	1430	2200
200	200000	55.56	1760	1430	2750	2750	660	550	660	880	2860	880	770	1210	3300	2200	–	1430	2200

Note: Size listed in the table is only for reference, can be customized according to customer requirements, final size subject to size confirmed by customer before production.

Application scheme

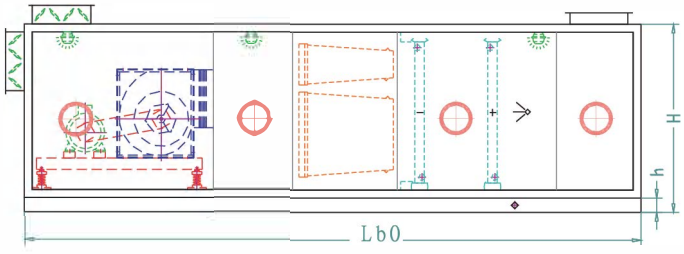
Type A



Feature:

- Fan is in the rear, all processing equipment is located in negative pressure section. AHU length is small, convenient for the layout. Suitable for air conditioning systems without purifying requirements.
- The combination scheme shown in the picture is basic type, including mixed, primary efficiency filter, medium efficiency filter, surface cooling, heating, humidification, forced draft fan, etc. Users can also select other function sections according to their needs.

Type B

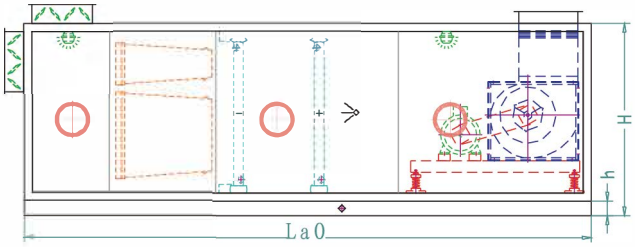


Feature:

- Fan is in the front, medium efficiency filter and all processing equipment are located in the positive pressure section, convenient for coil protection and condensate discharge. It is widely used in purifying air conditioning system.
- The combination scheme shown in the picture is basic type, including mixed, forced draft fan, average flow, primary efficiency filter, medium efficiency filter, surface cooling, heating, humidification, air outlet, etc. Users can also select other function sections according to their needs.

Application scheme

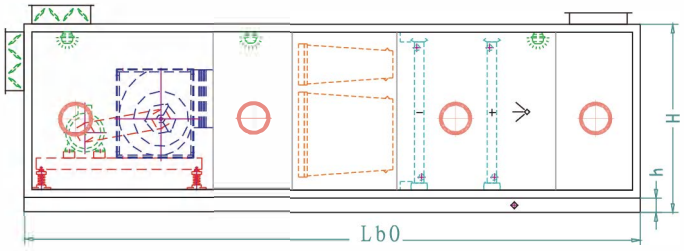
Type A



Feature:

- Fan is in the rear, all processing equipment is located in negative pressure section. AHU length is small, convenient for the layout. Suitable for air conditioning systems without purifying requirements.
- The combination scheme shown in the picture is basic type, including mixed, primary efficiency filter, medium efficiency filter, surface cooling, heating, humidification, forced draft fan, etc. Users can also select other function sections according to their needs.

Type B

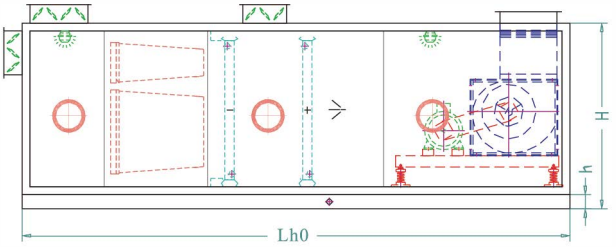


Feature:

- Fan is in the front, medium efficiency filter and all processing equipment are located in the positive pressure section, convenient for coil protection and condensate discharge. It is widely used in purifying air conditioning system.
- The combination scheme shown in the picture is basic type, including mixed, forced draft fan, average flow, primary efficiency filter, medium efficiency filter, surface cooling, heating, humidification, air outlet, etc. Users can also select other function sections according to their needs.

Application scheme

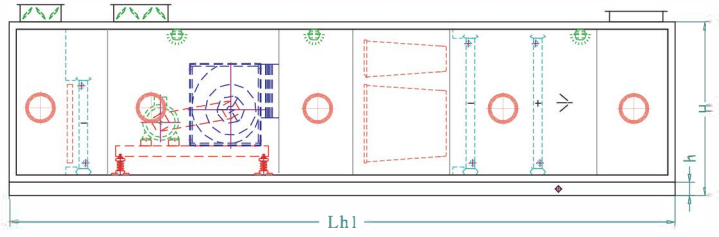
Type H0



Feature:

- Use secondary return air, can effectively save reheat. It is widely used in air conditioning systems with temperature and humidity control requirements, and design air supply state point is significantly higher than the design machine dew point.
- Secondary return air scheme is also suitable for C combination scheme.

Type H0

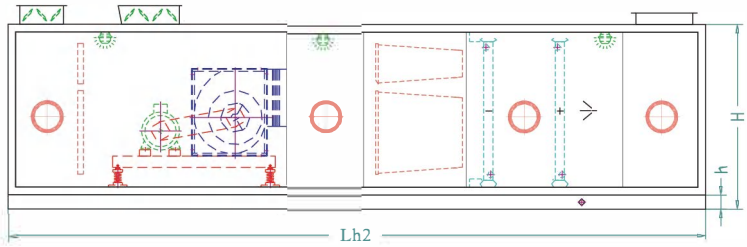


Feature:

- Fresh air pretreatment scheme with temperature and humidity independent control, pre-cooling coil undertakes all dehumidification function, re-cooling coil is used to adjust the air supply temperature, can effectively save reheat, and temperature and humidity are independent, simple control. It is suitable for purifying air conditioning system with small air supply temperature difference.
- Fresh air pretreatment scheme is also suitable for A and C combination schemes.

Application scheme

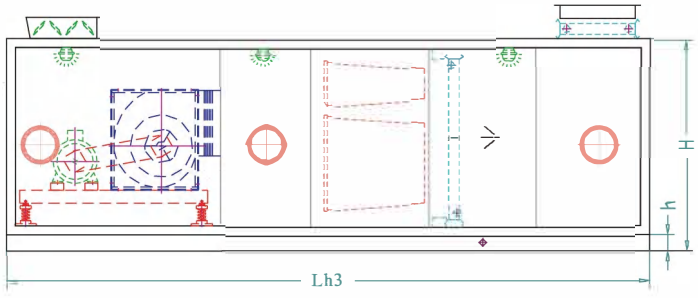
Type H2



Feature:

- Use fresh air pre-filtration, can effectively extend primary efficiency filter life. It is widely used in purifying air conditioning system without fresh air centralized treatment.
- Fresh air pre-filtration scheme is also suitable for A and C combination schemes.

Type H3

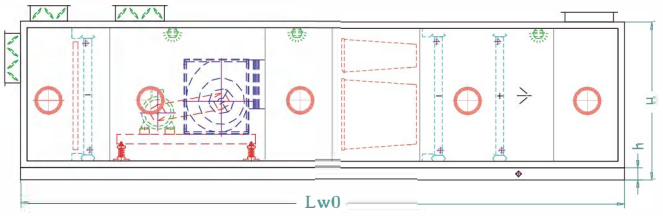


Feature:

- Heater is set at the air outlet, can effectively save heater cost and compress AHU length. It is widely used in purifying AHU with small fresh air ratio or fresh air centralized treatment.
- Air outlet heating scheme is also suitable for C combination scheme.

Application scheme

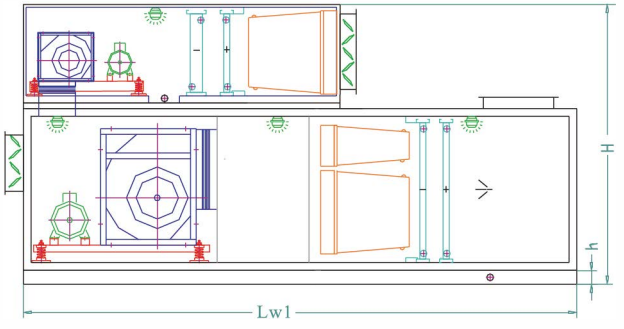
Type W0



Feature:

- Adopt secondary return air with temperature and humidity independent control. Pre-cooling coil is used to dehumidify the fresh air and primary return air, re-cooling coil is used to adjust the supply air temperature. It can effectively save reheat, quickly adjust humidity, and temperature and humidity are independent, simple control.
- It is suitable for purifying air conditioning system where fresh air dehumidification alone is not enough to offset residual humidity in controlled area.

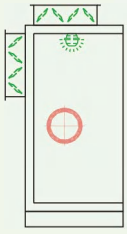
Type W1



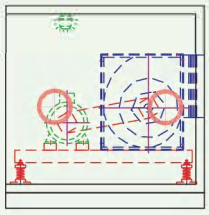
Feature:

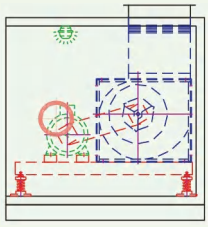
- Fresh air pretreatment scheme with temperature and humidity independent control. Independent fresh air AHU. Compared with other schemes, it has strong system independence, high reliability, more obvious energy-saving effect, simpler control and debugging, and easier to adjust normal/on-duty conditions.
- It is suitable for small purifying air conditioning system.

Application scheme

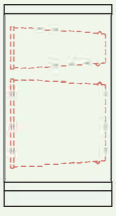

Mixing air section

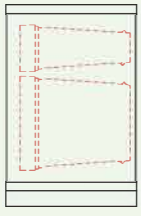

Air outlet section


Fan motor section

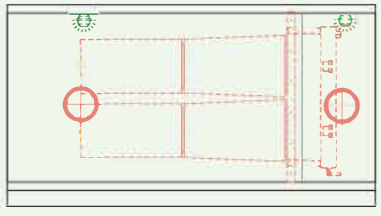

Fan motor section


Empty section


Medium efficiency filter section

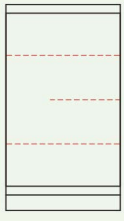

Primary and medium efficiency filter section

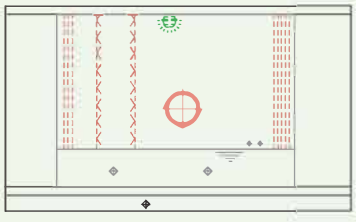

Sub high efficiency filter section

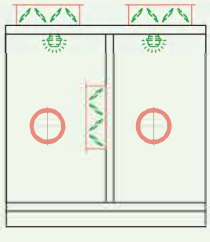

Self-cleaning cartridge filter section

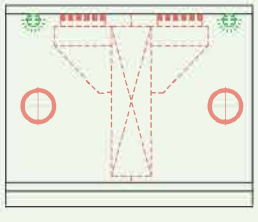

Coil section

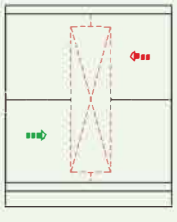

Heating & humidifying section


Muffler section


Spray chamber section


Combined shunt section


Rotary dehumidification section


Rotary heat recovery section

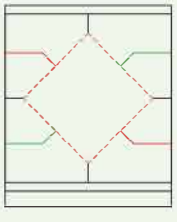


Plate heat recovery section

Application scheme

Motor power

HMZK	Air flow		Total Fan Pressure (Pa)						HMZK	Air flow		Total Fan Pressure (Pa)					
	m^3/h	m^3/s	600	800	1000	1200	1400	1600		m^3/h	m^3/s	600	800	1000	1200	1400	1600
02	2000	0.56	1.1	1.1	1.5	1.5	2.2	3.0	30	30000	8.33	11	11	15	18.5	18.5	22
03	3000	0.83	1.5	1.5	2.2	2.2	2.2	3.0	35	35000	9.72	11	15	15	18.5	22	22
04	4000	1.11	1.5	2.2	3.0	3.0	3.0	4.0	40	40000	11.11	15	18.5	22	22	30	30
05	5000	1.39	2.2	3.0	3.0	3.0	4.0	4.0	45	45000	12.50	15	18.5	22	30	30	30
06	6000	1.67	2.2	3.0	4.0	4.0	4.0	5.5	50	50000	13.89	15	18.5	22	30	30	30
07	7000	1.94	3.0	4.0	4.0	4.0	5.5	5.5	60	60000	16.67	22	22	30	30	37	37
08	8000	2.22	3.0	4.0	4.0	5.5	5.5	5.5	70	70000	19.44	22	30	30	37	37	45
09	9000	2.50	4.0	4.0	5.5	5.5	5.5	7.5	80	80000	22.22	30	30	37	45	45	55
10	10000	2.78	4.0	5.5	5.5	5.5	7.5	7.5	90	90000	25.00	30	30	37	45	55	55
12	12000	3.33	4.0	5.5	7.5	7.5	7.5	11	100	100000	27.78	37	37	45	55	55	75
14	14000	3.89	5.5	7.5	7.5	7.5	11	11	120	120000	33.33	37	37	45	55	75	75
16	16000	4.44	7.5	7.5	11	11	11	15	140	140000	38.89	45	55	55	75	75	90
18	18000	5.00	7.5	11	11	11	11	15	160	160000	44.44	55	75	75	90	90	110
20	20000	5.56	7.5	11	11	11	15	15	180	180000	50.00	75	75	90	90	110	160
25	25000	6.94	11	11	15	15	15	18.5	200	200000	55.56	75	90	90	110	160	160

Note: The data listed in the table is for reference. Specific power is subject to the contract.

Main components resistance table

Part name	Resistance (Pa)	Part name	Resistance (Pa)
Damper	20	Cold water coil (4 rows)	130
Primary efficiency filter	50~100	Cold water coil (6 rows)	190
Medium efficiency filter	100~250	Cold water coil (8 rows)	260
Cartridge filter	150~350	Cold water coil (10 rows)	320
Water baffle	120	Steam heating coil (1 row)	25
Muffler	40	Hot water heating coil (2 rows)	50

Quick selection guide

Selection steps	Selection basis	Selection method
Confirm combination scheme	User requirement Project nature	Different function combination schemes are suitable for different air conditioning systems, suggest that user chooses scheme with more reasonable technology or more energy saving system. Users can choose the type suitable for their own projects according to actual needs, or add or subtract corresponding function sections based on the basis scheme.
Confirm AHU model	Design air flow	Select suitable AHU according to the principle of air flow ⩾ design air flow. AHU model is listed in the table, that is, HMZK2.0~200.0. Same model AHU can be used with reduced air flow or higher than rated air flow (within 30%), but need to set water baffle behind the cold water coil, and correct the cooling & heating parameters. If user needs, please contact HON MING for detailed selection information.
Cold water coil selection	Design cooling capacity Air inlet condition Cold water temperature	Confirm cold water coil rows according to the principle of total cooling capacity (TH) ⩾ design total cooling capacity. When air inlet condition and water inlet & outlet condition of the coil are different from standard condition, should correct them. Refer to the correction coefficient table.
Heater selection	Design heating capacity Air inlet condition Hot water temperature Or steam pressure	Confirm hot water or steam coils rows according to the principle of heater heating capacity ⩾ maximum design heating capacity. When heater is used for both summer reheating and winter main heating, the larger of the two should be used as the basis for selection. When possible, hot water should be used first, followed by steam(⩽0.3MPa). Electric heating should be used as auxiliary heating method, or as the main heater in some small systems.
Humidifier selection	Humidification capacity On-site dynamic condition	HMZK series AHU can use various humidifiers to meet different humidification requirements. When user selects the model, need to confirm humidification method & required humidification capacity. When there is concentrated steam source, dry steam(⩽0.3MPa) humidification should be used first, followed by electrode or electric steam humidification. When there is no steam and system conditions allow, wet film, spray, enthalpy humidification methods can be used.
Confirm filter scheme	User requirement Process condition	General(non-purifying) AHU recommended to use plate primary efficiency(G4) or plate primary efficiency(G4)+bag medium efficiency(F7) filter scheme. Purifying AHU generally adopts plate primary efficiency(G4)+bag medium efficiency(F7) filter scheme, medium efficiency filter is set on the positive pressure side(that is, B, C type schemes). Fresh air AHU in the centralized fresh air system is generally equipped with three-stage filter, that is, plate primary efficiency(G4)+bag medium efficiency(F8)+box type sub high efficiency(H11), medium efficiency, sub high efficiency are set on the positive pressure section. For air conditioning system with high dust content, it is recommended to set self-cleaning filter or rotary filter device in the unit.
Confirm motor power	External residual pressure	According to air duct system resistance calculation result , confirm external residual pressure Py. According to function combination scheme and component resistance table, check each component resistance P1,P2,P3... Add external residual pressure and component resistance to get required total fan pressure Pt, that is, Pt=Py+P1+P2+P3+... Check the motor power according to design air flow and total fan pressure.
Confirm AHU size	Combination scheme AHU room condition	After select the model according to design air flow, confirm the section size(WxH). After confirm the combination type, confirm the length of basic type AHU(such as Lb0). According to specific function requirements, add or subtract function sections on the basis of basic type, and correct the length. According to AHU room condition, check whether the size meets the requirements. If the size needs to be adjusted due to site condition, please contact HON MING, we can supply non-standard design schemes.
Other	User requirement	New and return air control valves (D type including exhaust air and mixing air valves) are generally standard configuration. Location and size of each air outlet can be reasonably adjusted according to site needs. Piping (left or right) of hot & cold water and steam pipeline, and access door location can be adjusted according to site needs before production. Noise value is closely related to total fan pressure, it is not fixed value. If user needs, we can supply inlet and outlet noise value under specific design condition for user to calculate the noise reduction. If air conditioning system needs to take noise reduction measures, should use pipeline noise reduction first. If it cannot be set, can set muffler section in AHU, but noise reduction requirement should be provided.

SOME OF HONMING CUSTOMERS

Note: The above customers are ranked in no particular order

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