



Commercial Air Conditioners **2017/2018**



**Air Handling Unit &
Modular Air Handling Unit**



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Note: Product specifications change from time to time as product improvements and
developments are released and may vary from those in this document.

Midea CAC

Midea CAC is a key division of the Midea Group, a leading producer of consumer appliances and provider of heating, ventilation and air conditioning solutions. Midea CAC has continued with the tradition of innovation upon which it was founded, and emerged as a global leader in the HVAC industry. A strong drive for advancement has created a groundbreaking R&D department that has placed Midea CAC at the forefront of a competitive field. Through these independent efforts and joint cooperation with other global enterprises, Midea has supplied thousands of innovative solutions to customers worldwide.

There are three production bases: Shunde, Chongqing and Hefei.

MCAC Shunde: 38 product lines focusing on VRF, Split Products, Heat Pump Water Heaters, and AHU/FCU.

MCAC Chongqing: 14 product lines focusing on Water Cooled Centrifugal/Screw/Scroll Chillers, Air Cooled Screw/Scroll Chillers, and AHU/FCU.

MCAC Hefei: 11 product lines focusing on VRF, Chillers, and Heat Pump Water Heaters.

MIDEA GROUP
FORTUNE GLOBAL
FORTUNE
500

- 2016 >> Strategic alliance between Midea and Italy's Clivet
- 2015 >> JV with Carrier in China in chiller field, BOSCH in VRF production and Siix in smart control
- 2014 >> Launched the All DC Inverter V5X globally
- 2013 >> Launched the super high efficiency centrifugal chiller with full falling film technology
- 2012 >> Formed Midea-Carrier JV.Company in India and HK
- 2011 >> Launched the third generation of AHU&MAHU
- 2010 >> Built the 3rd manufacturing base in Hefei
- 2008 >> Launched the second generation of AHU&MAHU
- 2006 >> Launched the first generation of AHU&MAHU
- 2004 >> Acquired MGRE entered the chiller industry, launched the world's first digital scroll air-cooled heat pump module unit and JV with Toshiba Carrier
- 2001 >> Cooperated with Copeland to develop the digital scroll VRF system
- 2000 >> Developed the first inverter VRF with Toshiba
- 1999 >> Entered the CAC field

Midea Company
Introduction



Midea CAC
Introduction



Air Handling Unit



Suspended AHU
2,000m³/h ~ 15,000 m³/h
(1,200CFM ~ 8,800CFM)



Horizontal AHU
5,000m³/h ~ 35,000 m³/h
(3,000CFM ~ 21,000CFM)



Vertical AHU
3,000m³/h ~ 30,000 m³/h
(1,800CFM ~ 18,000CFM)

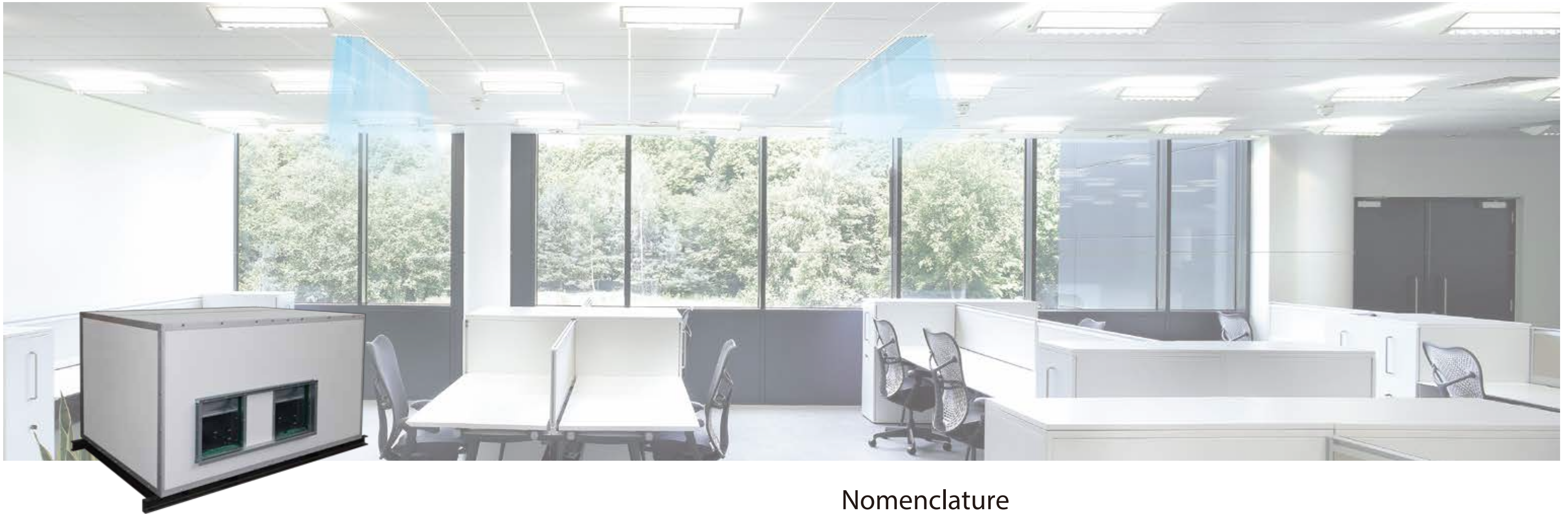
Modular Air Handling Unit



Modular Air Handling Unit
2,000m³/h ~ 240,000 m³/h
(1,200CFM ~ 140,000CFM)

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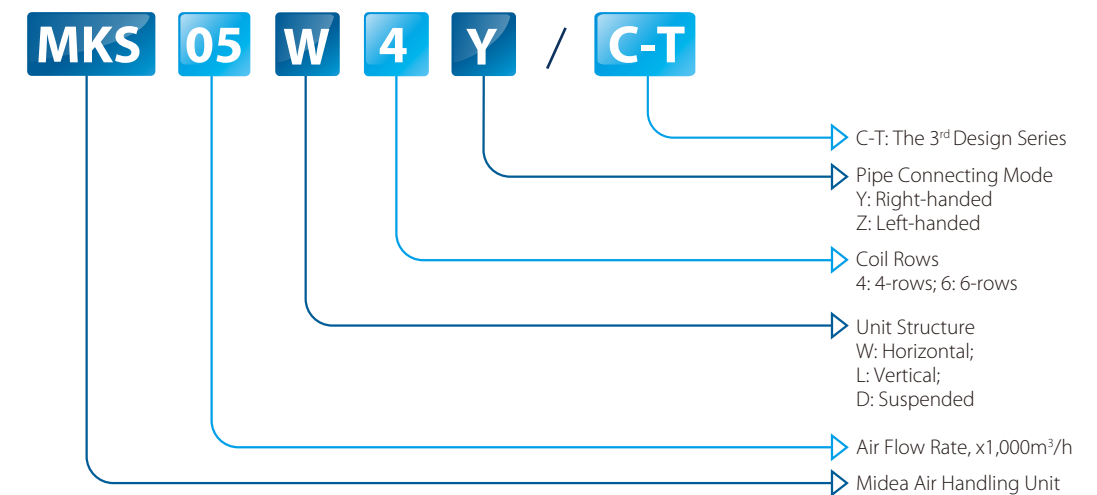


Air Handling Unit

Air Handling Unit (AHU) is the primary equipment in an air system of a central hydronic system. It handles and conditions the air and distributes it to various conditioned spaces. Midea air handling units (AHUs) have been designed and manufactured to meet the requirements of all kinds of space cooling and heating, such as office buildings, shopping malls, exhibition halls, airports, railway stations, hotels, factories and any other central air-conditioning systems.

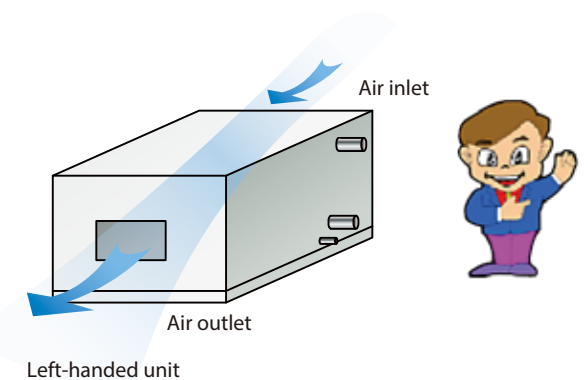
Midea AHUs have been widely used in most part of the world for a couple of years. Now, the 3rd generation AHU has been launched to provide you with more comfortable and convenient environment. It uses unitary structure design, more outstanding cold-bridge free performance, lower air leakage and more elegant appearance. There are 3 types - suspended type, horizontal type and vertical type, including 60 standard models, and the air flow rate is available from 2,000m³/h to 35,000m³/h. Different external static pressure (ESP) can be customized to meet different kinds of applications.

Nomenclature



Orientation

Unit handling orientation is determined by location of pipe connection while facing unit in the direction of air flow. The unit below is left-handed connection unit, otherwise is right-handed connection unit.



Features

High strength, high reliability >>

Panels are double-skin with injection of high density polyurethane. The external panel is anti-corrosion color-coated steel sheet, the internal liner is galvanized steel sheet or aluminum sheet. The unit cabinet consists of panels attaching to each other by combining with male and female aluminum alloy cards, and sealing strip tighten with concealed bolts.

Outstanding cold-bridge-free structure >>

The density of polyurethane injection is 50kg/m³ panel (thermal conductivity factor $K \leq 0.0201 \text{ W/m}^2 \cdot \text{K}$). Patented "Labyrinth" panel is integrated male and female aluminum profile. The access door leaf is integrated by highly pressure polyurethane foam without secondary outer frame mounted and a seal injected by machine without broken on the inner perimeter of the door to prevent air leakage and form cold-bridge broken.

Low air leakage rate >>

Patented "Labyrinth" panel is integrated male and female aluminum profile. Different panel of the unit casing are mounted and locked by the labyrinth profile, then fastened with bolts and nuts by embedded sheet metal inside the aluminum profile, interior steel frames are used on the panel connection to enhance the strength. Square steels would be mounted inside the units to enhance strength for large airflow casing. The air leakage rate is less than 0.14%.

- ❖ Simple structural components
- ❖ Less at-site work

High performance heat exchanger >>

- ❖ Copper pipe and aluminum fin type heat exchanger, optimal choice of fin spacing and number of rows.
- ❖ Optimal water circuits design, increased heat exchange efficiency and decreased water resistance, improving unit performance efficiency.
- ❖ Anti-corrosive layers of the fin can be customized which assures longer coil life and lower maintenance cost.



Stable air supply fan assembly >>

- ❖ Yilida brand centrifugal fan, high performance efficiency, 3-phase, class "F" insulation and IP54 protection AC motor.
- ❖ Belt drive, optimal selection of drive ratio, increase fan/motor assembly efficiency, easy for maintenance.
- ❖ Service door or service panel is equipped for inspection of motor and fan.



Low noise design >>

- ❖ Optimal fan selection, excellent working condition, efficient operation.
- ❖ Flexible connection at air outlet, minimizes vibration transmission.
- ❖ Equip with shock absorbers, decreases vibration, low noise. Tighten cabinet, secure against noise leakage.



Improved indoor air quality >>

- ❖ Aluminum alloy frame plate type filter, stable and durable.
- ❖ Cover the whole return air inlet, large filter surface, higher inlet air quality.
- ❖ Filter can be extracted in leftward and rightward way, easy for maintenance.



State-of-the-art design >>

- ❖ The external panel is colored steel sheet with anti-corrosion coat and is cleanable; the fastening bolts are zinc clean.
- ❖ The outer layer of film prevents panels from scratching during unit assembling and transportation. Clear, smooth and color coordination appearance looks attractive.

Wide usage >>

- ❖ Air flow rate ranging from 2,000m³/h to 35,000m³/h;
- ❖ Three structure design: horizontal type, vertical type and suspended type;
- ❖ Two pipe connecting mode: right-handed and left handed;
- ❖ Different ESP can be customized.



School



Factory



Hotel



Hospital



Office

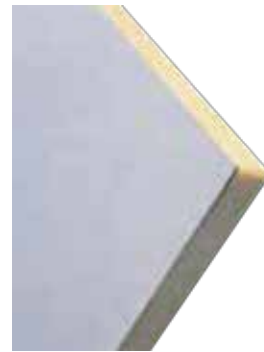
Mechanical specifications

Base frame >>

Unit sections are mounted on galvanized steel or angle steel base frame for easy shipment and handling. The galvanized steel frames provide holes for section connection, and holes for fork-lift truck. And the angle steel base frame is mounted on four wooden pallets of the four corners of base frame. However, for high static pressure application, because of drain pan's U-trap, additional concrete plinths or other additional bases are required at site to raise the AHU.

Double skin panel >>

Standard panels are 25mm thickness double skin type with polyurethane foam insulation foamed under highly pressure. The external panel is anti-corrosion color-coated steel sheet with a layer of film and the internal liner is galvanized steel sheet. The panel insulation is moisture proof and anti-corrosive. The insulation material is totally enclosed in the panel to avoid any possibility of insulation being exposed to air stream.



Coil >>

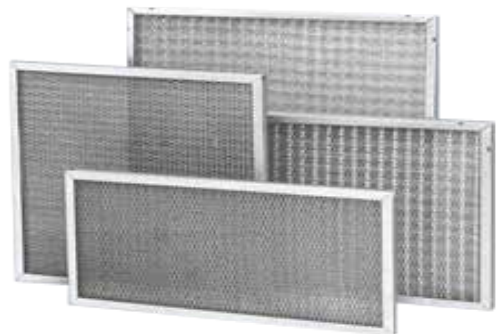
Coil is consisted of copper tubes and aluminum fins. The fins are sine-wave design with slits for better heat transfer efficiency and moisture carry-over limit performance.

Coil is mounted over a drain pan. The coil resets on U-shape supporter locating over the drain pan. The drain pan extends beyond the leaving side of the coil to recover the condensate water. Coil connections always extend through out of the unit cabinet, allowing for easy connection of valves and piping. Air discharge valve is on the top of water outlet pipe and is located outside the cabinet.

Drain pan >>

Standard drain pan is painted to prevent rust and corrosion. 10mm insulation is provided between the drain pan and the bottom panel. Stainless steel drain pan is optional.

Filter >>



Filter is aluminum alloy frame structure. Primary efficiency plate type filter is designed as standard. The structure of filters are stable and firm, high strength and intensity, washable and easy changing. Filter can be unloaded and loaded from both left and right side.

Fan and motor assembly >>

The fan is made of high grade hot galvanized steel sheet. It is designed to a special configuration according to aerodynamics. It is coated in order to be anti-corrosive. Fan connection is isolated from unit casing by a flexible canvas duct mounted at fan discharge outlet. Fan and motor assembly is internally isolated from unit casing with rubber pad, furnished and installed in the factory.

Motors are mounted on slide rails with provision for V-belt tensioning. Motor can be moved freely in four directions to reach the correct point. Installation and maintenance of motor, belt and pulley are time saving jobs. Fan and motor assembly is mounted on a rigid base frame which is supported by effective rubber shock absorber. Discharge fan is provided with a fire retardant flexible connection.



Fan and motor assembly

Access panel >>



Inside



Outside

Access panel is double skins with polyurethane foam insulation foamed under highly pressure. The external panel is anti-corrosion coated steel sheet, the internal liner is galvanized steel sheet or Al sheet. The polyurethane foam insulation is heat resistance and totally enclosed. 2 or 4 bolts are used to fixed the access panel, convenient for installation and maintenance. A durable rubber seal is around the panel's frame and a 10mm thick insulation seal is stuck around the back side frame of the panel to prevent air leakage.

Air dampers >>

Air dampers in AHUs are optional. Aerodynamically designed damper blades have built in high quality bearings. Blade edges are lined with sealing strip to restrict leakage to an absolute minimum. Air damper blades are either linked to give parallel turning operation or gear set to give opposing direction. The dampers are tested to yield linear control characteristic.



Specifications

Suspended type >>

❖ Return air condition

Model	Air volume	Rated cooling capacity	Rated heating capacity	Water flow rate	Water pressure drop	Motor power	Chilled water pipe	Cooling water pipe	External static pressure	Sound level	Power supply	Driven type
MKSxxY(Z)/C-T	m³/h	kW	kW	L/s	kPa	kW	DN	DN	Pa	dB(A)	\	\
02D	4	2000	9.8	20.6	0.5	11.0	0.32	32	25	80	55	Direct driven
	6		13.0	24.1	0.6	26.0	0.32	32	25			
03D	4	3000	14.9	30.6	0.7	31.0	0.75	32	25	160	59	
	6		19.2	35.4	0.9	24.0	0.75	32	25			
04D	4	4000	20.5	40.7	1.0	60.0	1.1	40	25	200	60	
	6		25.7	46.9	1.2	49.5	1.1	40	25			
05D	4	5000	25.3	50.9	1.3	40.0	1.5	40	25	200	62	
	6		31.0	58.4	1.5	32.0	1.5	40	25			
06D	4	6000	30.3	60.4	1.5	43.8	1.5	40	25	200	63	
	6		37.1	70.0	1.8	44.0	2.2	40	25			
07D	4	7000	34.8	69.6	1.7	58.0	2.2	40	25	240	64	
	6		42.2	80.9	2.0	59.0	2.2	50	25			
08D	4	8000	40.4	80.5	1.9	26.0	2.2	40	25	240	64	
	6		49.2	93.4	2.4	56.0	3.0	50	25			
09D	4	9000	45.0	90.1	2.2	34.0	3.0	40	25	280	66	
	6		60.5	103.0	2.9	25.4	3.0	50	25			
10D	4	10500	52.2	104.4	2.5	51.0	3.0	50	25	280	67	
	6		71.5	121.3	3.4	35.8	4.0	50	25			
12D	4	12000	56.7	121.2	2.7	54.0	4.0	50	25	280	68	
	6		79.6	135.4	3.8	41.6	4.0	50	25			
15D	4	15000	73.3	147.5	3.5	38.1	5.5	50	32	320	69	
	6		100.7	171.7	4.8	34.3	5.5	65	32			

1.Cooling capacity is based in the following condition

a)Water temperature: 7°C(inlet)/12°C(outlet)

b)Air entering condition: 27°C DB/19.5°C WB

2.Heating capacity is based on the following condition

a)Water temperature: 60°C(inlet) /50°C(outlet)

b)Air entering condition: 15°C DB

❖ Fresh air condition

Model	Air volume	Rated cooling capacity	Rated heating capacity	Water flow rate	Water pressu redrop	Motor power	Chilled water pipe	Cooling water pipe	External static pressure	Sound level	Power supply	Driven type
MKSxxY(Z)/C-T	m³/h	kW	kW	L/s	kPa	kW	DN	DN	Pa	dB(A)	\	\
02D	4	2000	24.3	25.6	1.2	43.0	0.32	32	25	80	55	Direct driven
	6		28.5	29.2	1.4	31.4	0.32	32	25			
03D	4	3000	36.2	37.5	1.7	48.0	0.75	40	25	160	59	
	6		42.2	41.3	2.0	33.0	0.75	40	25			
04D	4	4000	45.4	48.9	2.2	32.0	1.1	40	25	200	60	
	6		58.3	57.2	2.8	65.5	1.1	50	25			
05D	4	5000	58.9	61.8	2.8	63.0	1.5	50	25	200	62	
	6		71.7	66.9	3.4	41.0	1.5	50	25			
06D	4	6000	65.0	70.8	3.1	11.0	1.5	50	25	200	63	
	6		87.9	85.0	4.2	47.7	2.2	50	25			
07D	4	7000	75.9	81.6	3.6	15.1	2.2	50	25	240	64	
	6		101.1	98.3	4.8	68.4	2.2	65	25			
08D	4	8000	88.1	94.4	4.2	14.4	2.2	50	25	240	64	
	6		114.5	113.4	5.5	63.3	3.0	65	25			
09D	4	9000	99.1	106.2	4.7	19.0	3.0	65	25	280	66	
	6		126.6	127.6	6.0	37.5	3.0	65	25			
10D	4	10500	117.4	125.4	5.6	29.5	3.0	65	25	280	67	
	6		145.1	148.8	6.9	57.9	4.0	80	25			
12D	4	12000	130.1	138.3	6.2	32.5	4.0	65	25	280	68	
	6		157.0	166.8	7.5	68.8	4.0	80	25			
15D	4	15000	165.2	177.0	7.9	27.2	5.5	80	32	320	69	
	6		204.8	211.6	9.8	56.6	5.5	80	32			

1.Cooling capacity is based in the following condition

a)Water temperature: 7°C(inlet)/12°C(outlet)

b)Air entering condition: 35°C DB/28°C WB

2.Heating capacity is based on the following condition

a)Water temperature: 60°C(inlet) /50°C(outlet)

b)Air entering condition: 7°C DB

Horizontal type >>

❖ Return air condition

Model	Air volume	Rated cooling capacity	Rated heating capacity	Water flow rate	Water pressure drop	Motor power	Chilled water pipe	Cooling water pipe	External static pressure	Sound level	Power supply
MKSxxY(Z)/C-T	m³/h	kW	kW	L/s	kPa	kW	DN	DN	Pa	dB(A)	\
05W	4	5000	26.8	53.3	1.3	38.9	1.1	32	25	220	61
	6		33.4	61.0	1.6	30.3	1.5	32	25		
06W	4	6000	33.1	64.6	1.6	59.5	1.5	40	25	220	62
	6		40.7	73.5	1.9	40.3	2.2	40	25		
08W	4	8000	43.6	85.3	2.1	38.5	2.2	50	25	220	64
	6		55.3	98.0	2.6	74.7	2.2	50	25		
10W	4	10500	58.9	110.5	2.8	50.6	3.0	50	25	270	66
	6		69.3	128.7	3.3	48.8	3.0	50	25		
15W	4	15000	82.1	161.5	3.9	49.1	4.0	65	32	270	68
	6		103.5	183.0	4.9	38.0	5.5	65	32		
21W	4	21000	116.9	235.5	5.6	36.3	7.5	65	32	320	70
	6		150.1	264.3	7.2	26.4	7.5	65	32		
24W	4	24000	136.2	271.8	6.5	53.4	11.0	65	32	420	71
	6		174.4	303.4	8.3	37.7	11.0	65	32		
30W	4	30000	170.3	339.8	8.1	56.8	11.0	65	32	420	73
	6		218.0	379.2	10.4	39.8	15.0	65	32		
35W	4	35000	202.5	398.4	9.7	85.6	15.0	80	32	520	73.5
	6		258.4	444.4	12.3	61.6	15.0	80	32		

1.Cooling capacity is based in the following

a)Water temperature: 7°C(inlet)/12°C(outlet)

b)Air entering condition: 27°C DB/19.5°C WB

2.Heating capacity is based on the following

a)Water temperature: 60°C(inlet) /50°C(outlet)

b)Air entering condition: 15°C DB

❖ Fresh air condition

Model	Air volume	Rated cooling capacity	Rated heating capacity	Water flow rate	Water pressure drop	Motor power	Chilled water pipe	Cooling water pipe	External static pressure	Sound level	Power supply
MKSxxY(Z)/C-T	m³/h	kW	kW	L/s	kPa	kW	DN	DN	Pa	dB(A)	\
05W	4	5000	62.7	66.8	3	64.3	1.1	50	25	220	61
	6		72.7	76.0	3.5	53.5	1.5	50	25		
06W	4	6000	75.2	80.2	3.6	78.3	1.5	50	25	220	62
	6		88.7	91.2	4.2	74.9	2.2	50	25		
08W	4	8000	96.6	104.8	4.6	57.7	2.2	65	25	220	64
	6		117.7	121.1	5.6	42.8	2.2	65	25		
10W	4	10500	132.6	140.3	6.3	88.6	3.0	65	25	270	66
	6		154.5	159.7	7.4	60.0	3.0	65	25		
15W	4	15000	181.5	210.4	8.7	27.8	4.0	80	32	270	68
	6		230.3	232.0	11.0	62.8	5.5	80	32		
21W	4	21000	253.6	294.6	12.1	28.1	7.5	80	32	320	70
	6		303.7	326.2	14.5	78.3	7.5	80	32		
24W	4	24000	293.4	338.3	14.0	39.6	11.0	80	32	420	71
	6		340.2	372.8	16.3	70.7	11.0	80	32		
30W	4	30000	366.8	394.6	17.5	43.2	11.0	80	32	420	73
	6		425.2	464.0	20.3	75.0	15.0	80	32		
35W	4	35000	433.1	462.5	20.7	63.7	15.0	80	32	520	73.5
	6		514.5	539	24.6	83.6	15.0	80	32		

1.Cooling capacity is based in the following

a)Water temperature: 7°C(inlet)/12°C(outlet)

b)Air entering condition: 35°C DB/28°C WB

Vertical type >>

❖ Return air condition

Model		Air volume	Rated cooling capacity	Rated heating capacity	Water flow rate	Water pressure drop	Motor power	Chilled water pipe	Cooling water pipe	External static pressure	Sound level	Power supply
MKSxxY(Z)/C-T		m3/h	kW	kW	L/s	kPa	kW	DN	DN	\	dB(A)	\
03L	4	3000	16.1	32.0	0.8	28.7	0.55	32	25	120	58	380V, 3N~, 50HZ
	6		20.4	38.0	1.0	71.6	0.75	32	25			
04L	4	4000	21.4	42.4	1.0	45.3	1.1	32	25	170	59	
	6		26.4	49.6	1.3	34.8	1.1	32	25			
05L	4	5000	26.8	53.3	1.3	38.9	1.1	32	25	170	61	
	6		33.4	61.0	1.6	30.3	1.1	32	25			
06L	4	6000	33.1	64.6	1.6	59.5	1.5	40	25	170	62	
	6		40.7	73.5	1.9	40.3	1.5	40	25			
08L	4	8000	43.6	85.3	2.1	38.5	2.2	50	25	220	64	
	6		55.3	98.0	2.6	74.7	2.2	50	25			
10L	4	10500	58.9	110.5	2.8	50.6	3.0	50	25	270	66	
	6		69.3	128.7	3.3	48.8	3.0	50	25			
15L	4	15000	82.1	161.5	3.9	49.1	4.0	65	32	270	68	
	6		103.5	183.0	4.9	38.0	5.5	65	32			
21L	4	21000	116.9	235.5	5.6	36.3	7.5	65	32	270	70	
	6		150.1	264.3	7.2	26.4	7.5	65	32			
24L	4	24000	136.2	271.8	6.5	53.4	7.5	65	32	320	71	
	6		174.4	303.4	8.3	37.7	7.5	65	32			
30L	4	30000	170.3	339.8	8.1	56.8	11.0	65	32	320	73	
	6		218.0	379.2	10.4	39.8	11.0	65	32			

1.Cooling capacity is based in the following

a)Water temperature:7°C(inlet)/12°C(outlet)

b)Air entering condition:27°C DB/19.5°C WB

2.Heating capacity is based on the following:

a)Water temperature:60°C(inlet) /50°C(outlet)

b)Air entering condition:15°C DB

❖ Fresh air condition

Model		Air volume	Rated cooling capacity	Rated heating capacity	Water flow rate	Water pressure drop	Motor power	Chilled water pipe	Cooling water pipe	External static pressure	Sound level	Power supply
MKSxxY(Z)/C-T		m3/h	kW	kW	L/s	kPa	kW	DN	DN	\	dB(A)	\
03L	4	3000	38.7	40.7	1.8	44.0	0.55	40	25	120	58	380V, 3N~, 50HZ
	6		45.4	45.6	2.2	89.5	0.75	40	25			
04L	4	4000	49.5	52.9	2.4	62.5	1.1	50	25	170	59	
	6		59.1	60.9	2.8	55.8	1.1	50	25			
05L	4	5000	62.7	66.8	3.0	64.3	1.1	50	25	170	61	
	6		72.7	76.0	3.5	53.5	1.1	50	25			
06L	4	6000	75.2	80.2	3.6	78.3	1.5	50	25	170	62	
	6		88.7	91.2	4.2	74.9	1.5	50	25			
08L	4	8000	96.6	104.8	4.6	57.7	2.2	65	25	220	64	
	6		117.7	121.1	5.6	42.8	2.2	65	25			
10L	4	10500	132.6	140.3	6.3	88.6	3.0	65	25	270	66	
	6		154.5	159.7	7.4	60.0	3.0	65	25			
15L	4	15000	181.5	210.4	8.7	27.8	4.0	80	32	270	68	
	6		230.3	232.0	11.0	62.8	5.5	80	32			
21L	4	21000	253.6	294.6	12.1	28.1	7.5	80	32	270	70	
	6		303.7	326.2	14.5	78.3	7.5	80	32			
24L	4	24000	293.4	338.3	14.0	39.6	7.5	80	32	320	71	
	6		340.2	372.8	16.3	70.7	7.5	80	32			
30L	4	30000	366.8	394.6	17.5	43.2	11.0	80	32	320	73	
	6		425.2	464.0	20.3	75.0	11.0	80	32			

1.Cooling capacity is based in the following

a)Water temperature:7°C(inlet)/12°C(outlet)

b)Air entering condition:35°C DB/28°C WB

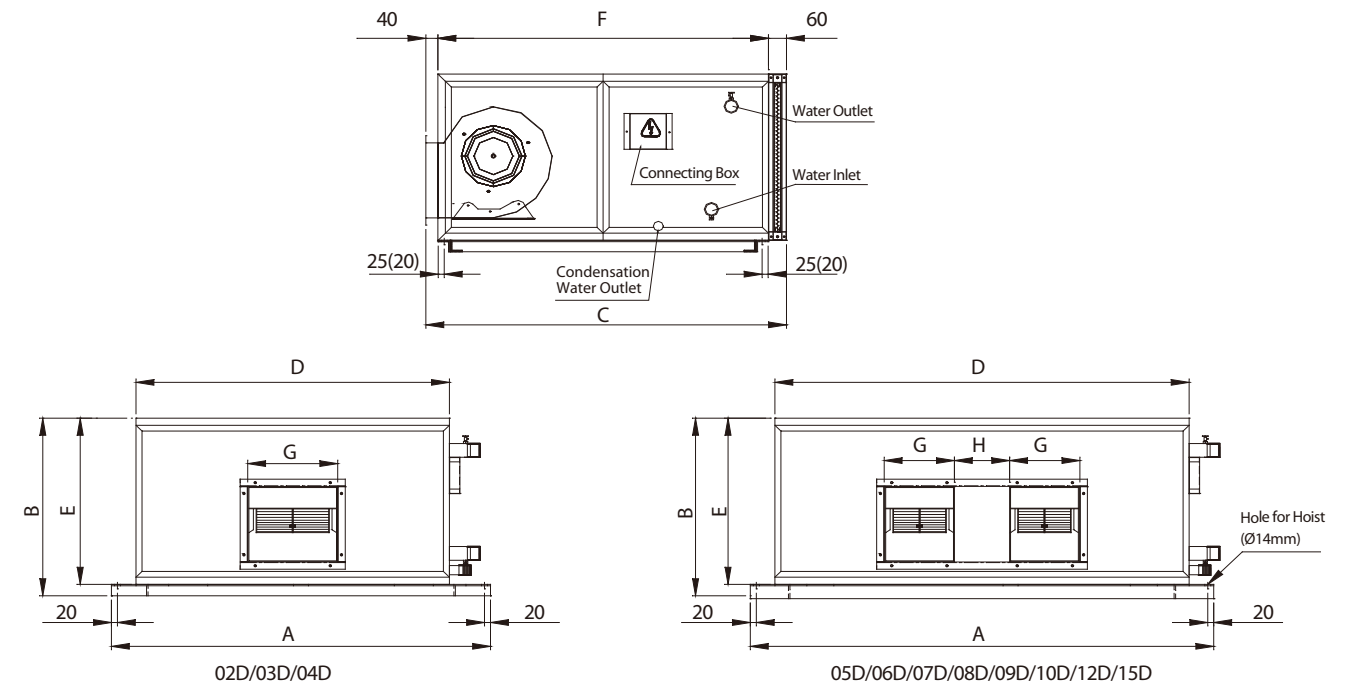
2.Heating capacity is based on the following:

a)Water temperature:60°C(inlet) /50°C(outlet)

b)Air entering condition:7°C DB

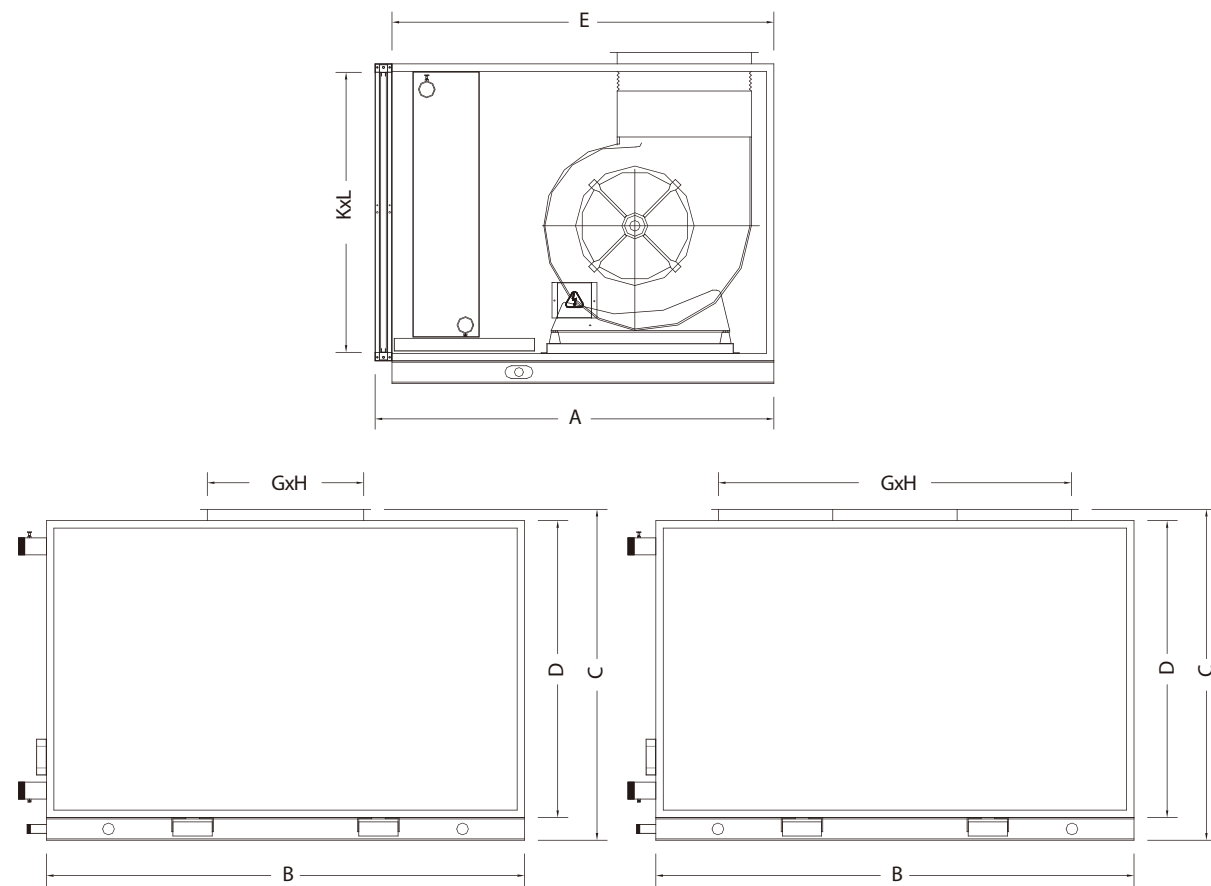
Dimensions

Suspended type >>



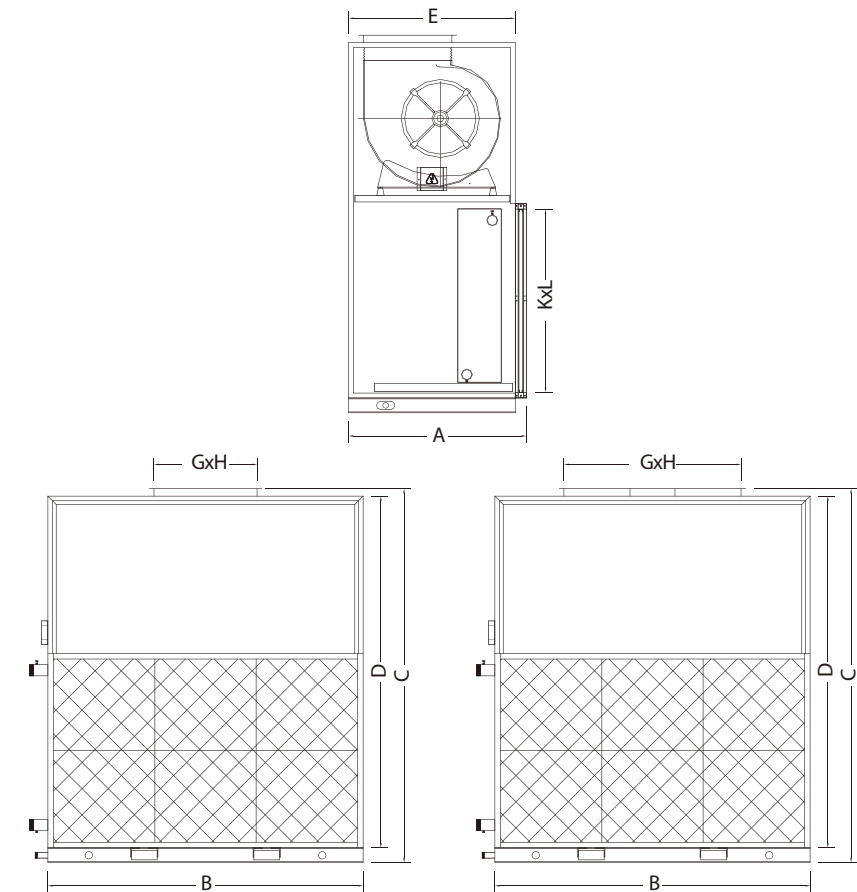
MKSxxY(Z)/C-T	02D	03D	04D	05D	06D	07D	08D	09D	10D	12D	15D
A	992	1207	1405	1657	1734	1859	1859	1988	2248	2298	2241
B	620	620	620	630	690	690	780	780	780	820	1155
C	950	1000	1000	1000	1000	1000	1000	1100	1100	1100	1300
D	828	1043	1241	1493	1570	1695	1695	1824	2084	2134	2041
E	580	580	580	580	640	640	730	730	730	770	1075
F	850	900	900	900	900	900	900	1000	1000	1000	1200
G	300	298	331	232	265	331	331	309	309	395	373
H	—	—	—	184	214	264	264	244	244	324	294
J	240	262	289	262	289	289	289	341	341	341	404
Return air flange (H×W)	768×520	983×520	1181×520	1433×520	1510×580	1635×580	1635×670	1764×670	2024×670	2074×710	1981×1015
Supply air flange (H×W)	300×240	298×262	331×289	648×262	744×289	926×289	926×289	862×341	862×341	1114×341	1040×404
Packing dimension (W×H×D)	1094×761×1034	1344×776×1064	1344×776×1064	1784×786×1084	1844×831×1084	1984×846×1084	1984×936×1084	2114×936×1184	2374×936×1184	2424×976×1184	2364×1311×1384
Weight (kg)	4R	71	90	99	128	139	192	231	270	279	372
	6R	81	121	129	158	180	222	271	305	309	414

Horizontal type >>



MKSxxY(Z)/C-T		05W	06W	08W	10W	15W	21W	24W	30W	35W
A		1160	1160	1260	1410	1360	1510	1510	1560	1710
B		1053	1153	1353	1553	1953	2353	2653	2653	3053
C		920	990	1070	1170	1270	1370	1390	1640	1640
D		800	870	950	1050	1150	1250	1250	1500	1500
E		1100	1100	1200	1350	1300	1450	1450	1500	1650
G		309	395	373	430	1040	1203	1572	1572	1776
H		341	341	404	478	404	478	478	478	638
K		993	1093	1293	1493	1893	2293	2593	2593	2993
L		740	810	890	990	1090	1190	1190	1440	1440
Packing dimension (WxHxD)		1244x1076x1270	1244x1146x1370	1344x1226x1570	1494x1326x1770	1444x1426x2170	1594x1526x2570	1594x1546x2870	1644x1796x2870	1794x1796x3270
Weight (kg)	4R	186	211	256	325	447	584	644	761	953
	6R	197	223	282	342	470	626	692	813	1022

Vertical type >>



MKSxxY(Z)/C-T		03L	04L	05L	06L	08L	10L	15L	21L	24L	30L
A		640	640	720	720	800	930	930	960	960	960
B		1000	1100	1100	1200	1400	1600	2000	2500	2800	2800
C		1220	1320	1520	1620	1720	1920	2020	2120	2220	2420
D		1100	1200	1400	1500	1600	1800	1900	2000	2100	2300
E		580	580	660	660	740	870	870	900	900	900
G		298	331	309	395	373	430	1040	1203	1572	1572
H		262	289	341	341	404	478	404	478	478	478
K		940	1040	1040	1140	1340	1540	1940	2440	2740	2740
L		490	550	700	750	800	900	1000	1050	1150	1350
Packing dimension (WxHxD)		1170x1379x720	1270x1479x720	1270x1679x800	1370x1779x800	1570x1879x880	1770x2079x1010	2170x2179x1010	2670x2279x1040	2970x2379x1040	2970x2579x1040
Weight (kg)	4R	153	175	206	231	272	360	491	631	682	786
	6R	160	183	216	244	289	376	520	673	730	845

Options

Customizable ESP >>

❖ Suspended type

MKSxxY(Z)/C-T	Air volume (m³/h)	Rows of cooling coil	Motor power (kW) corresponding to external static pressure (Pa)						
			80	120	160	200	240	280	320
02D	2000	4	0.32	0.32	0.32	0.32	0.32	0.32	
		6	0.32	0.32	0.32	0.32	0.32	0.37	
03D	3000	4	0.55	0.75	0.75	0.75	0.75	1.1	1.1
		6	0.75	0.75	0.75	0.75	1.1	1.1	1.1
04D	4000	4	1.1	1.1	1.1	1.1	1.1	1.1	1.5
		6	1.1	1.1	1.1	1.1	1.1	1.5	1.5
05D	5000	4	1.1	1.5	1.5	1.5	1.5	2.2	2.2
		6	1.5	1.5	1.5	1.5	2.2	2.2	2.2
06D	6000	4	1.5	1.5	1.5	1.5	2.2	2.2	2.2
		6	1.5	1.5	1.5	2.2	2.2	2.2	2.2
07D	7000	4	1.5	1.5	2.2	2.2	2.2	2.2	2.2
		6	1.5	2.2	2.2	2.2	2.2	2.2	3
08D	8000	4	2.2	2.2	2.2	2.2	2.2	3	3
		6	2.2	2.2	2.2	2.2	3	3	3
09D	9000	4	2.2	2.2	2.2	2.2	2.2	3	3
		6	2.2	2.2	2.2	2.2	3	3	3
10D	10500	4	3	3	3	3	3	3	4
		6	3	3	3	3	3	4	4
12D	12000	4	3	3	3	4	4	4	
		6	3	3	4	4	4	4	
15D	15000	4	4	4	4	5.5			5.5
		6	4	4	5.5	5.5			5.5

❖ Horizontal type

MKsxxY(Z)/C-T	Air volume (m³/h)	Rows of cooling coil	Motor power (kW) corresponding to external static pressure (Pa)								
			170	220	270	320	370	420	470	520	570
05W	5000	4		1.1	1.5	1.5	1.5	1.5	2.2		
		6		1.5	1.5	1.5	1.5	2.2	2.2		
06W	6000	4		1.5	2.2	2.2	2.2	2.2	2.2		
		6		2.2	2.2	2.2	2.2	2.2	3.0		
08W	8000	4		2.2	2.2	2.2	3.0	3.0	3.0		
		6		2.2	2.2	3.0	3.0	3.0	3.0		
10W	10500	4		3.0	3.0	3.0	3.0	4.0	4.0		
		6		3.0	3.0	3.0	4.0	4.0	4.0		
15W	15000	4		4.0	4.0	5.5	5.5	5.5	5.5	5.5	
		6		4.0	5.5	5.5	5.5	5.5	5.5	7.5	
21W	21000	4		5.5	7.5	7.5	7.5	7.5	11.0	11.0	
		6		7.5	7.5	7.5	7.5	11.0	11.0	11.0	
24W	24000	4		5.5	7.5	7.5	7.5	11.0	11.0	11.0	
		6		7.5	7.5	7.5	11.0	11.0	11.0	11.0	
30W	30000	4		11.0	11.0	11.0	11.0	11.0	15.0	15.0	15.0
		6		11.0	11.0	11.0	11.0	15.0	15.0	15.0	15.0
35W	35000	4				11.0	11.0	11.0	15.0	15.0	
		6				11.0	11.0	15.0	15.0	15.0	

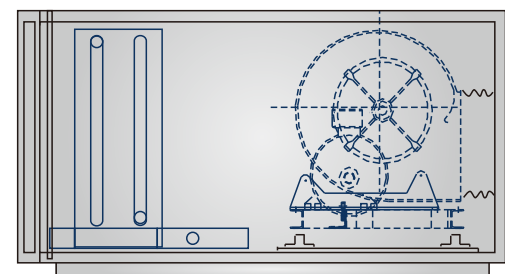
❖ Vertical type

MKSxxY(Z)/C-T	Air volume (m³/h)	Rows of cooling coil	Motor power (kW) corresponding to external static pressure (Pa)										
			120	170	220	270	320	370	420	470	520	570	620
03L	3000	4	0.55	0.75	0.75	0.75	1.1						
		6	0.75	0.75	0.75	1.1	1.1						
04L	4000	4	1.1	1.1	1.1	1.1	1.1	1.5					
		6	1.1	1.1	1.1	1.1	1.5	1.5					
05L	5000	4	1.1	1.1	1.1	1.5	1.5	1.5					
		6	1.1	1.1	1.5	1.5	1.5	1.5					
06L	6000	4	1.5	1.5	1.5	2.2	2.2	2.2					
		6	1.5	1.5	2.2	1.5	2.2	2.2					
08L	8000	4	2.2	2.2	2.2	2.2	2.2	3.0	3.0				
		6	2.2	2.2	2.2	2.2	3.0		3.0				
10L	10500	4	2.2	3.0	3.0	3.0	3.0	3.0	4.0				
		6	3.0	3.0	3.0	3.0	4.0	4.0					
15L	15000	4	3.0	4.0	4.0	4.0	5.5	5.5	5.5	5.5	5.5		
		6	4.0	4.0	4.0	5.5	5.5	5.5	5.5	7.5	7.5		
21L	21000	4			5.5	7.5	7.5	7.5	7.5	11.0	11.0		
		6			7.5	7.5	7.5	7.5	11.0	11.0	11.0		
24L	24000	4			5.5	7.5	7.5	7.5	11.0	11.0	11.0	11.0	
		6			7.5	7.5	7.5	11.0	11.0	11.0	11.0	11.0	
30L	30000	4			11.0	11.0	11.0	11.0	11.0	15.0	15.0	15.0	15.0
		6			11.0	11.0	11.0	11.0	15.0	15.0	15.0	15.0	15.0

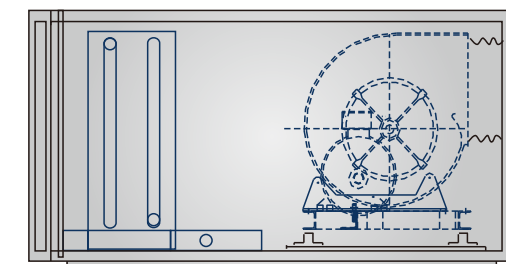
Note :
Characters in red are standard motor power input in standard ESP, others ESP must be customized.

Air outlet directions >>

❖ Suspended type

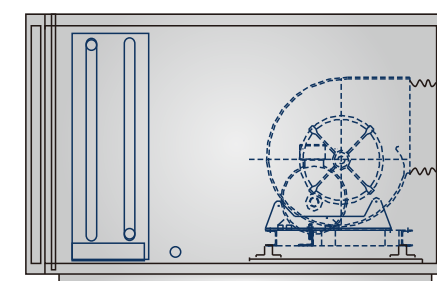


Standard: Front below

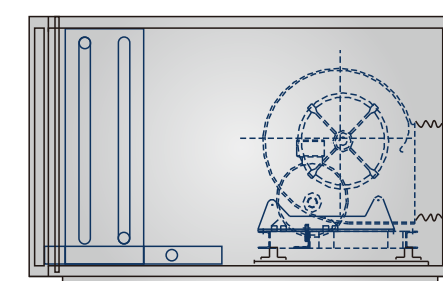


Option: Front up

❖ Horizontal type

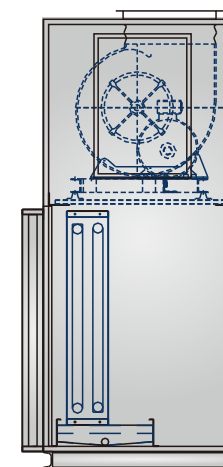


Standard: Front up

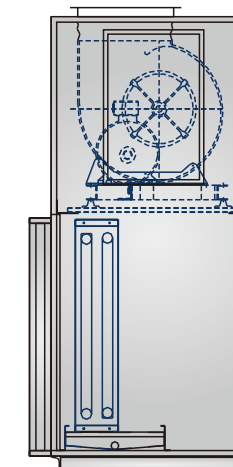


Option: Front below

❖ Vertical type



Standard: Up front



Option: Up rear

Customizable components >>

Name	Standard	Customized
Panel	Thickness: 25mm	35mm 50mm
Fan	Yilida	Kruger
Motor	Power supply: 380V/3N/50Hz; 400V/3N/50Hz	Other power supply: 220V/3N/60Hz; 440V/3N/60Hz; 460V/3N/60Hz
Cooling coil	4-rows and 6-rows; Aluminum fins; Seamless steel connecting water pipes; Painted steel drain pan	2-rows Hydrophilic aluminum fins; Copper connecting water pipes; Stainless steel drain pan
Heating coil	-	1-row heating coil; 2-rows heating coil
Air filter	10mm aluminum alloy plate type air filter; Side drawn	46mm aluminum alloy plate type filter
Eliminator	-	Aluminum alloy type eliminator; Wet film type eliminator
Humidifier	-	Wet film humidifier
Electric heater	-	Can be customized to meet the requirement
Service light	-	Can be customized to meet the requirement
UV germicidal lamp	-	Can be customized to meet the requirement
Service window	-	Can be customized to meet the requirement
Water seal	-	Can be customized to meet the requirement
Electrical control box	-	Can be customized to meet the requirement



Motor



Coil



Air filter



Humidifier



Electric heater



Eliminator



UV germicidal lamp

Selection

Selection procedures >>

❖ Step 1:

Determine the airflow (m³/h), inlet air condition, total cooling capacity (kW), or total heating capacity (kW). If the inlet air condition is beyond the standard condition of the above specifications, please check to the following formula:

$$Q=F1\times F2\times F3\times Q0$$

Note:

Q0—cooling capacity of standard cooling condition, refer to the unit specifications;

F1—temperature correction coefficient of cooling coil, refer to table A;

F2—temperature difference correction coefficient of water, refer to figure 1;

F3—water velocity correction coefficient, refer to figure 2

Table A. temperature correction coefficient of cooling coil *F1*

EWB	EWT	Enter water temperature °C						
		4	5	6	7	8	9	10
Entering air WB temperature	17	0.954	0.869	0.781	0.727	0.637	0.533	0.437
	18	1.077	0.982	0.895	0.849	0.746	0.649	0.553
	19	1.196	1.102	1.011	0.970	0.860	0.773	0.666
	19.5	1.247	1.158	1.073	1.000	0.922	0.828	0.732
	20	1.313	1.219	1.134	1.043	0.988	0.904	0.797
	21	1.433	1.349	1.255	1.229	1.113	1.014	0.914
	22	1.567	1.474	1.380	1.349	1.414	1.146	1.055
	23	1.702	1.611	1.519	1.482	1.379	1.276	1.191
	24	1.842	1.742	1.649	1.632	1.518	1.417	1.323
	26	2.126	2.032	1.934	1.922	2.046	1.726	1.620
	28	2.439	2.350	2.245	2.235	2.130	2.060	1.936
	30	2.759	2.679	2.573	2.569	2.450	2.387	2.251

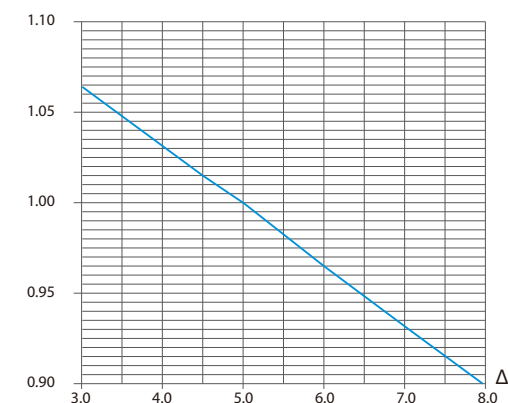


Figure 1. temperature difference correction coefficient of water *F2*

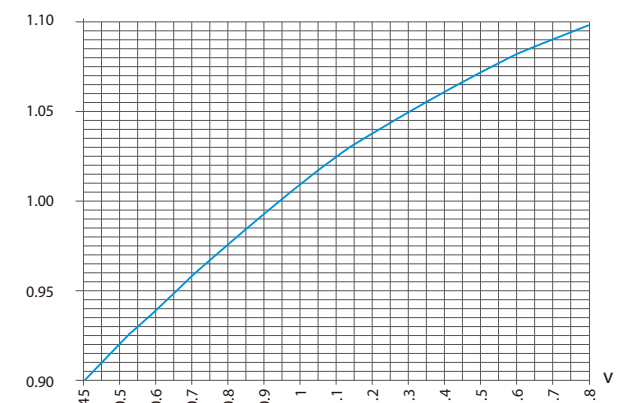


Figure 2. water velocity correction coefficient *F3*

❖ Step 2:

Determine the external static pressure (Pa). If the ESP is beyond the standard value of the above specifications, please indicate the required ESP when you take the order. Take table B as a reference to estimate the air pressure in the duct.

Table B. air resistance of duct

Air speed(m/s)	Total air pressure of the duct (Pto)				
	On-way resistance(Pa/m)	Local resistance (Pa/pcs)			
		Straight pipe	Damper	Diffuser	Bend Plenum
10	1.35	30	20 (air outlet speed ≤5m/s)	30	20
9	1	25		25	18
8	0.7	20		20	15
7	0.55	15		15	12
6	0.4	12		12	10

Note:

1. Pto = on-way resistance + local resistance, Pa.

2. ESP ≈ Pto.

❖ Step 3:

Determine the unit structure: horizontal type (W), vertical type (L) and suspended type (D).

❖ Step 4:

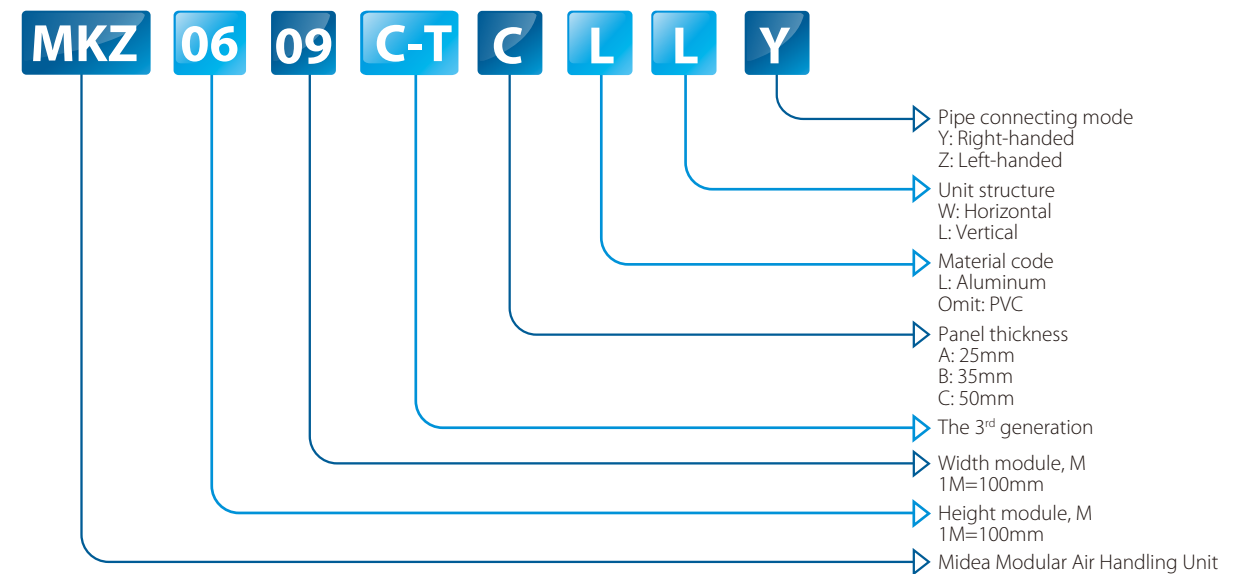
Determine the pipe connecting mode: right-handed (Y), left-handed (Z).



Modular Air Handling Unit

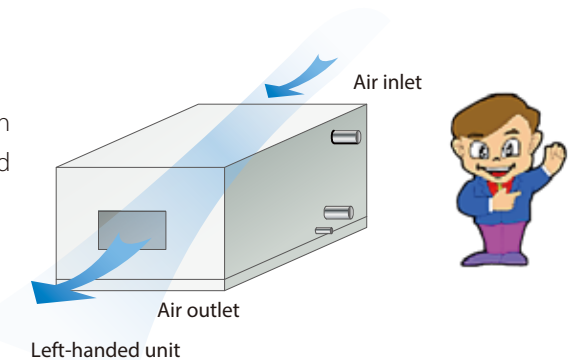
MAHUs are modular so that they have the flexibility to add components as required. The 3rd generation Midea MAHUs use unitary structure design, more outstanding cold-bridge-free performance, lower air leakage and more elegant appearance. It realizes a variety of functions: cooling, heating, humidification, dehumidification, air purification, noise elimination, and so on. The air flow rate is available from 2,000m³/h to 240,000m³/h. Total pressure (TP) exceeds 2000Pa to adapt to different kinds of applications, such as office buildings, shopping malls, exhibition halls, airports, railway stations, hotels, chemical fibres, electronics industries, textile mills, tobaccos, hospitals, printers, automobile factories and any other central air-conditioning systems.

Nomenclature



Orientation

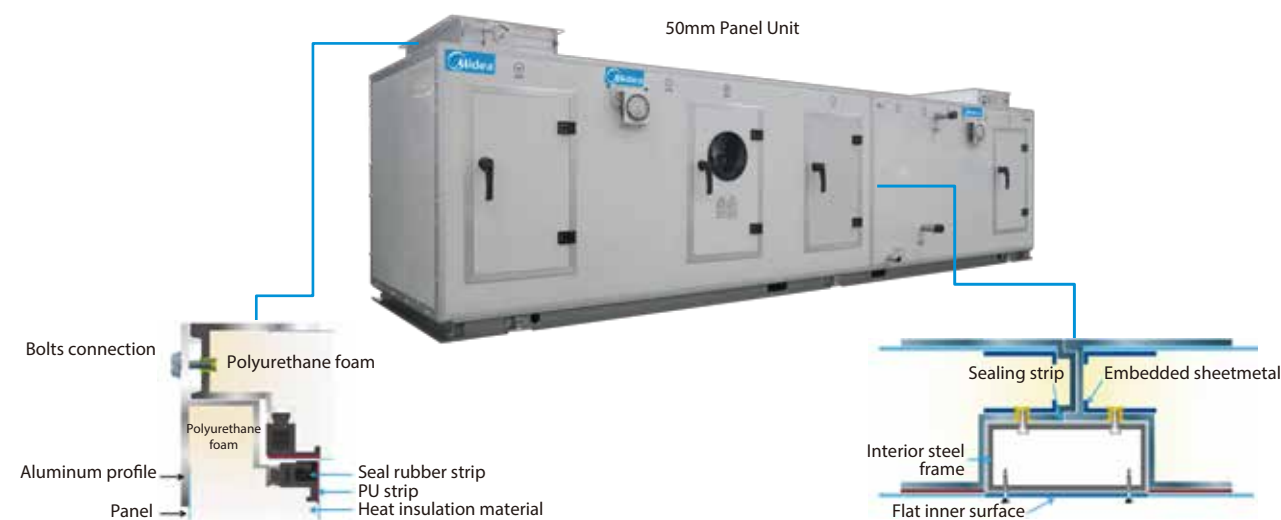
Unit handling orientation is determined by location of pipe connection while facing unit in the direction of air flow. The unit below is left-handed connection unit, otherwise is the right-handed connection unit.



Features

Reliable quality >>

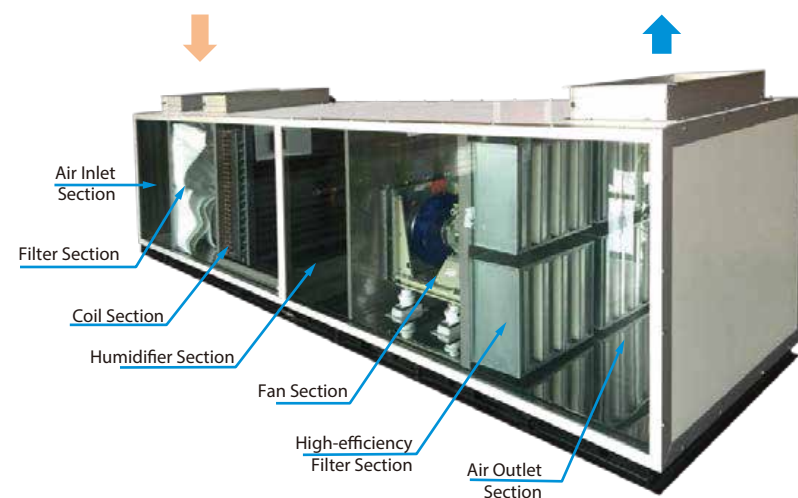
Patented "Labyrinth" panel is integrated male and female aluminum profile. Different panels of the unit casing are mounted and locked by the labyrinth profile, then fastened with bolts and nuts by embedded sheet metal inside the aluminum profile, and interior steel frame are used on the panel connection to enhance the strength. Square steels would be mounted inside the units to enhance strength for large airflow casing.



Modular design >>

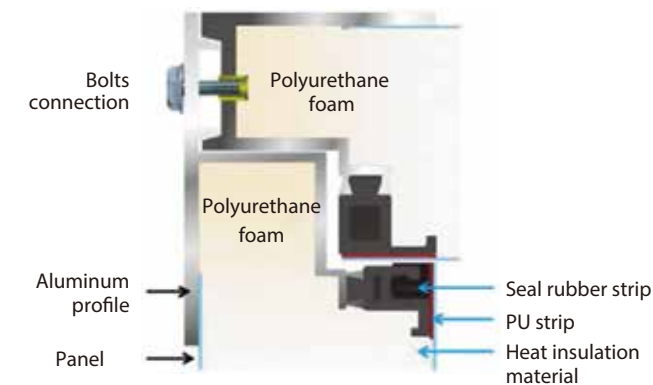
The MAHUs adopt module design. Usually including mixing section, primary efficiency filter section, medium efficiency filter section, high efficiency filter section, cooling coil section, heating coil section, humidifier section, sound attenuator section, service section, heat recovery section, fan section and so on. Function sections can be combined freely. Different function sections can be selected according to the specific applications.

The MAHUs can be shipped in divided sections. Each section is wholly completed at manufacturer's work place, and only connection of sections can be done at site. Oversized units cannot be fitted in normal container shipment or cannot be delivered through access at site can be considered shipment in complete knock down form, but reassembling works must be done by engineers of the manufacturer.



Cold-bridge-free structure >>

Patented "Labyrinth" panel is integrated male and female aluminum profile. Different panels of the unit casing are mounted and locked by the labyrinth profile forming labyrinth sealing structure to prevent air-leakage. And well-designed insulation is appropriately applied on the panel to break the cold-bridge. The access door leaf is integrated by highly pressure polyurethane foam without secondary outer frame mounted and a seal injected by machine without broken on the inner perimeter of the door to prevent air leakage and forming cold-bridge. Thus, the certified thermal bridging rating of AHRI is CB1 and air leakage rating reaches CL1 under 2500Pa test condition.



State-of-the-art design >>

The external panel is colored steel sheet with anti-corrosion coat and is cleanable; the fastening bolts are zinc clean. The outer layer of film prevents panels from scratching during unit assembling and transportation. Clear, smooth and color coordination appearance looks attractive.

Serviceability >>

Midea MAHUs are designed to provide easy access to interior components for routine maintenance and service. The easy-to-move panels and access doors of the units provide complete access to the unit interior and components.

Wide usage >>

Midea MAHUs can be widely used in chemical fibres, electronics industries, textile mills, tobaccos, hospitals, printers, automobile factories and any other central air-conditioning systems, especially these have special requirements of environment space.



Selection software >>

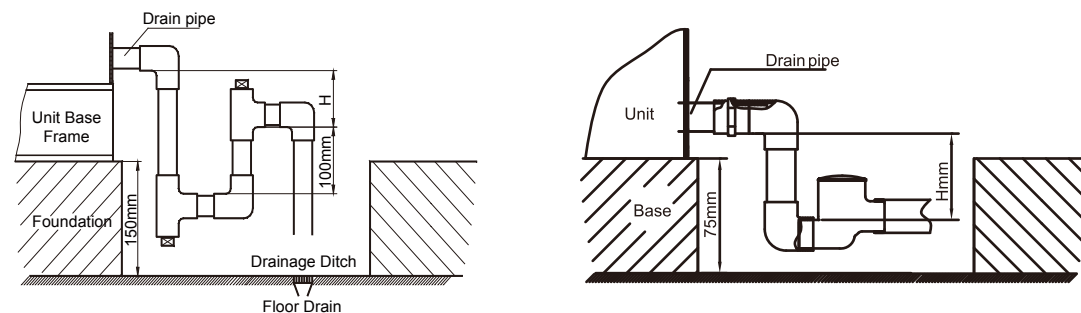
A user-friendly software selection program has been provided to help the customer easily define their product requirements.

Mechanical specifications

Base frame >>

Unit sections are mounted on galvanized steel or channel steel base frame for convenience of shipment and handling. The frames provide holes for section connection, and holes for fork-lifting truck. There is a guard rail cross the bottom in the holes to prevent unit damage by trucks.

The base frame can be used in occasion of concrete plinths or other additional bases that are used on site. However, for high static pressure application, additional concrete plinths or other additional bases are required at site to raise the units for drain pan's U-trap or float trap.



Double skin panel >>

The external panel is color-coated steel sheet that is resistant to scratch and nicks and shall allow for easy cleaning. The internal liner is galvanized steel sheet.

The panels are double skin type with injected polyurethane foam insulation. The panel is moisture proof and anti-corrosive. The insulation material is totally enclosed in the panel to avoid any possibility of insulation being exposed to air stream.

The panel is sturdy, in its standard design, unit sections of the same width can be stacked on the top of one another without additional reinforcement.

Drain pan >>

Standard drain pan is steel and painted, fully insulated on the outside with 10mm foam insulation. Stainless steel drain pan is optional. Connecting pipe is located at bottom of drain pan. The drain pipe is installed at same side as coil header.

Access door >>

The access doors are equipped with locking handle which is controllable internally and externally. The access door leaf is integrated by highly pressure polyurethane foam without secondary outer frame mounted and a seal injected by machine without broken on the inner perimeter of the door to prevent air leakage and form cold-bridge.



Vibration protector >>

The fan motors are mounted on a rigid base frame which is supported by effective spring shock absorber. Shipping brackets are equipped at the base frame to protect fans, motors and spring shock absorber during transportation.

Fan assembly >>

The vibration levels of the complete fan assembly (fan wheel, motor and drives assembled as a whole system) is checked and dynamically balanced in the factory.

Fans are mainly consisted of scroll, impeller, frame, bearing and shaft. The scroll is made of hot galvanized steel sheet. Its side plate has an outline complying with aerodynamics. The impeller is made of high grade hot galvanizing steel sheet and is designed to a special configuration according to aerodynamics to make the efficiency highest and the noise lowest. The high quality ball bearings are air-sealed, with preset lubricating oil, and of automatic alignment. The shafts are made of 40Cr or C45 carbon steel bars. They are coated after assembly in order to provide corrosion resistance.

Fan connection is isolated from unit casing by a flexible canvas duct mounted at fan discharge outlet. Fan and motor assembly is internally isolated from the unit casing with spring isolators, furnished and installed by the unit manufacturer.

The drive assembly consists of belt pulley and motor. The belt type is oil and heat resistant, antistatic and avoiding electric discharges. Motor is mounted on a sliding base to permit adjustment of drive belt tension. Standard motor is horizontal foot mounting, induction motor, and totally enclosed.

Unit is provided with a painted metal sheet belt guard. The belt guard is rigidly attached to the fan base support structure.

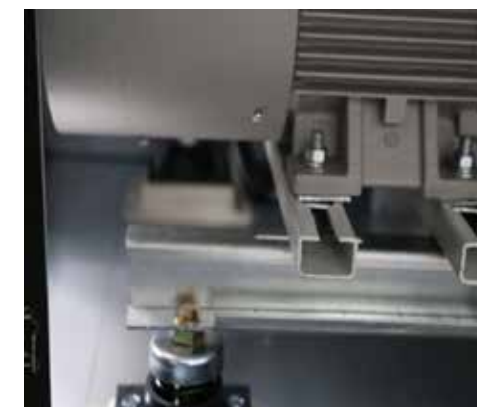
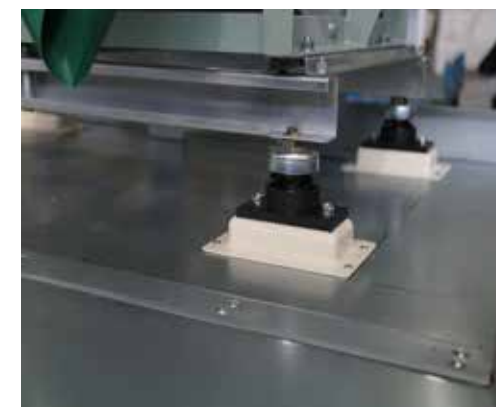
Fan assembly section is equipped with an access door with window on the drive side of the fan.



Motor >>

Totally enclosed fan cooled motors, with class F insulation, are mounted on slide rails with provision for V-belt tensioning. Fan and motor are mounted on a common base frame fitted with anti-vibration mountings and the fan discharge is provided with a fire retardant flexible connection to completely isolate the fan and motor assembly from the unit casing.

Fan motor is mounted on a horizontal flat plate and can't be supported by the fan or its structural members. Motor is mounted within the fan section casing on slide rails equipped with adjusting screws. So motor can be moved freely in the horizontal direction to reach the correct point then fasten bolts. Installation and maintenance are time saving.



Coil >>

Chilled water coils and hot water coils are AHRI certified and provided to meet the scheduled performance. Coils consist of copper tubes and aluminum fins. The fins are sine-wave design with slits for better heat transfer efficiency and moisture carry-over limit performance.

All coils are installed with space between each component for cleaning and mounting of controls.

All cooling coils are mounted over a drain pan. The drain pan extends beyond the leaving side of the coil to help recover condensate.

Coil connections always extend through out of the unit cabinet, allowing for the easy connection of valves and piping. Vents are located outside the cabinet.



Humidifier >>

Usually, there is no humidifier installed in the MAHUs for comfort air conditioning systems, but the outdoor climate is very cold in winter so that if a humidifier is not employed, the winter indoor relative humidity may be too low. Humidifiers are necessary for health care facilities and processing systems in pharmaceutical, semiconductor, textile, communication centers, and computer rooms.

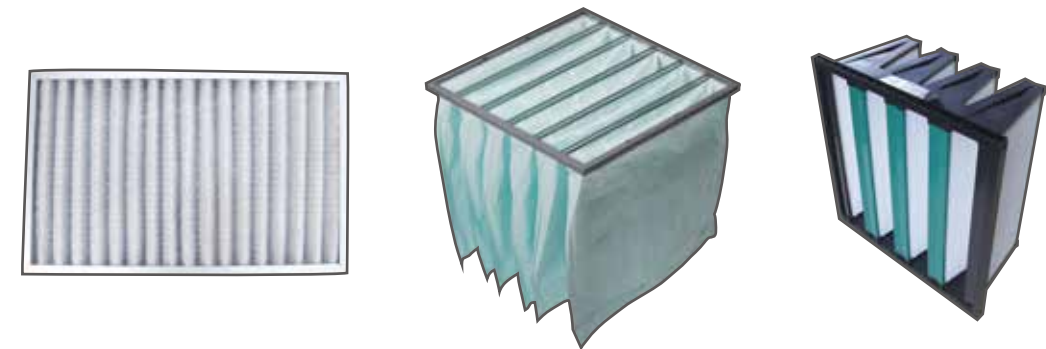
In Midea MAHUs, wet film vaporization, dry steam, electrode boiler, and water spray humidifiers are widely used. Wet film vaporization humidifier is a type of enthalpy humidifier or evaporation gasification humidifier. Through the principle of exchange of heat and moisture, the air is humidified and cooled. The medium is inorganic material which is high-life, high reliability, clean, good heat conduction and bacteria resistance. Dry steam or electrode boiler humidifiers are widely used in where a warm air supply and humidity control are needed in winter.



Filter >>

Air filtration is an important component to achieve an acceptable indoor air quality. In MAHUs, earlier low-efficiency filters of the panel type are giving way to the medium- and high-efficiency bag type and cartridge type of filters.

Filter section is consisted of galvanized steel filter frame structure and an access door for filter maintenance. Low efficiency plate filter is designed as standard. Bag, cartridge and other high efficiency filters is optional. The structure of filters are stable and firm, high strength and intensity, and easy changing. Filter can be loaded from both left and right side. Front loaded is optional. The filters efficiency is up to 95%.



Filter efficiency table

	Pre Filter ≥ 5µm 80% > Efficiency ≥ 20%						Secondary Filter ≥ 1µm 70% > Efficiency ≥ 20%				High Efficiency Filter ≥ 1µm 99% > Efficiency ≥ 70%			Secondary HEPA Filter ≥ 0.5µm 99.9% > Efficiency ≥ 95%				HEPA Filter ≥ 0.5µm Efficiency ≥ 99.99%			
China - GB/T14295 U.S. - ASHRAE	C1	C2 ~ C4	L5	L6	L7	L8	M9	M10	M11	M12	M13	M14	H12 ~ H16				VH17	VH18	VH19	VH20	
Europe - New Standard	G1 65%	G2 80%	G3 30% ~ 90%		G4 > 90%		F5 40%		F5 60%		F7 80%	F8 90%	F9 85%	H10 95%	H11 99%	H12 99.90%	H13 99.995%		H14 99.995%		V15~V17 99.995%
Europe - Old Standard	EU1	EU2	EU3		EU4		EU5		EU6		EU7	EU8	EU9	EU10		EU11	EU12	EU13	EU14		

Air dampers >>

Air dampers in MAHUs are optional. Aerodynamically designed damper blades have built in high quality bearings. Blade edges are lined with sealing strip to restrict leakage to an absolute minimum. Air damper blades are either linked to give parallel turning operation or gear set to give opposing direction. The dampers are tested to yield linear control characteristic.

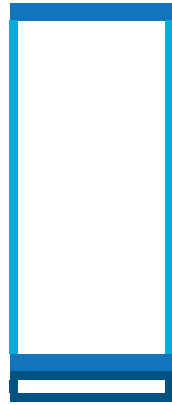
Mixing dampers working in pairs and can be coupled in such a way that if one is 75% open the other is 25% open.



Functional Sections

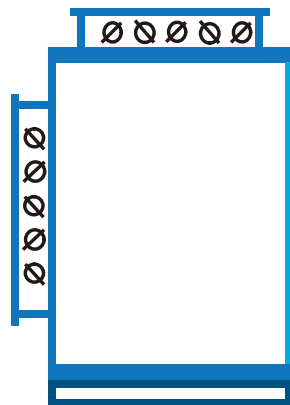
Functional Sections Description >>

❖ Cabinet



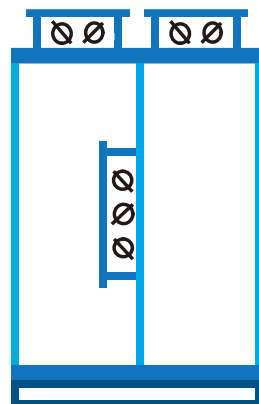
Cabinets consist of standard panels measuring 100mm each in length. The interconnecting parts of panels are made of proprietary designed aluminum profiles which guarantee minimum air leakage and panels are fitted together with bolts and nuts. As a result, the panels can be assembled or dis-assembled at site without compromising the quality of assembly. The construction of panels are formed with pre-coated grey color GI metal sheet (external surface), PU foam (as insulation material) and GI metal sheet (internal surface). The proprietary designed aluminum frames for panels act as built in structural supports and strengthened by additional internal/hidden frames. Apart from that, the bottom panels are designed to withstand weight of service and maintenance personnel without deformation of panels. The highly integrated method of joining ensure minimum leakage, no cold bridge, minimum or no corrosion, rigid and strong. The unit and components come with hanging/hoisting holes for easier transportation and commissioning at site.

❖ Mixing Section



Providing chamber for mixing of return air and fresh air to adjust the ratio of air mixture. It has air dampers, made of GI metal vanes with aerofoil profile which can be controlled manually or by motor. Sizing of air dampers is based on maintaining surface velocity of 8m/s to ensure that the noise generated by the air dampers does not exceed overall noise level of the unit. When the air dampers are installed in the unit, the section length will determine the height of the dampers and maximum height is equals: (Section Length - 160)mm.

❖ Fresh Air And Exhaust Air Section



Be able to modulate the exhaust air volume, fresh air and return air ratio.

❖ Filters Section



Panel Filter

The cross sectional air speed for entering air is uniform and greater than 80% of the nominal air speed of the unit.

Classification of filters:

- Primary
Panel and Bag type; Made of synthetic fiber and nonwoven cloth.

- Secondary
Panel, Bag and Rigid type; Made of fiber glass.

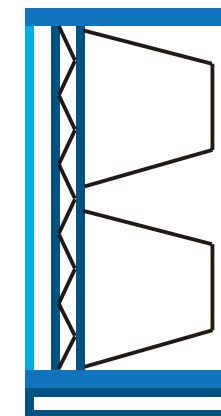
- Sub-Hepa
Bag and Rigid type; Made of fine fiber glass.

- Hepa

- Rigid and Paper type.

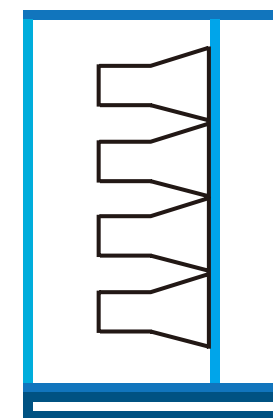
- Active Carbon Filter

Used to remove bad odor and pollution from air. Normal filters are required to be installed before and after Active Carbon Filter to prolong the lifespan of filter and to prevent loose carbon particles from entering the air stream.



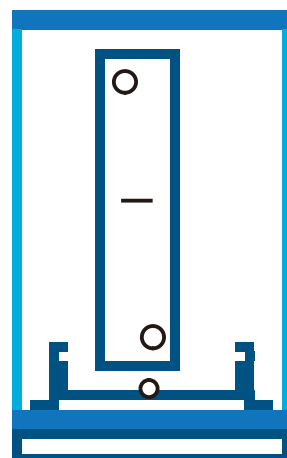
Bag Filter or Rigid Filter

❖ Self-Cleaning High Efficiency Filter Section



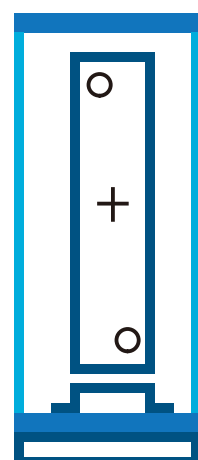
Self-cleaning High Efficiency Filter has high capacity for dust collection. When the dust has been accumulated, service personnel can remove the dust by blowing with compressed air and the dust will be collected at the metal pan at the bottom. This will avoid replacing the filter frequently.

❖ Coil Section

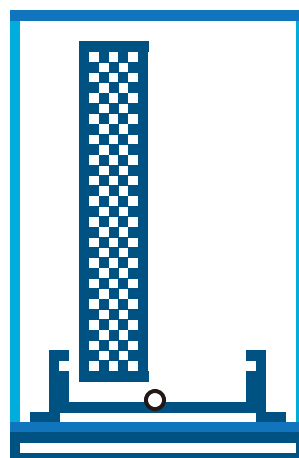


Cooling Coil

Cooling and Heating coils are made of aluminum fins and copper tubes. Copper tubes are mechanically expanded and securely bonded to aluminum fins. Aluminum fins range from 8 to 13 fins/inch. The coils are designed for easy maintenance and can be easily slid out for service and maintenance works. The headers of coil are made of steel with an air vent at the top and also an water release port at the bottom. Coil's cross sectional air speed is greater than 80% of nominal air speed. All coils have been leak tested with 2.5MPa pressure and the recommended maximum operating pressure is 1.6MPa. All water pipes and condensing water pipes are located at the same side of the unit. Optional water droplets eliminator can be installed to prevent water carry over even at high air velocity. The drain pan is made of insulated steel plate and galvanized steel pipes as condensate water discharge pipe.



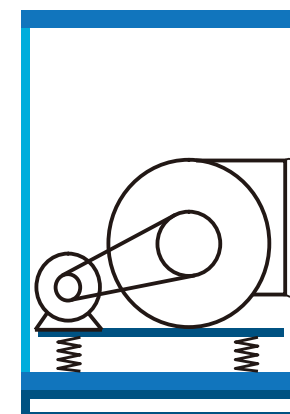
Heating Coil



Evaporative Cooling

Spraying water on evaporative material which achieve cooling through evaporation of water. No refrigerant is needed and the operating cost is low.

❖ Fan Section



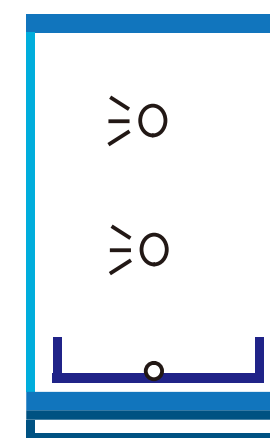
Base on the requirements of air flow rate and external static pressure, the selection software is able to select one or multiple centrifugal fan. Various types of fan blades design can be chosen base on different application needs, i.e. Forward Curved, Backward Curved and Aerofoil.

Fan are statically and dynamically balanced and are driven by multiple anti-static V-belts. Bearings are of seal type and there is no lubrication required for the whole operating life of bearings. All the blower housing and frames are made of GI steel.

Fan motors are totally closed, with single speed and 4 poles in general. Base bracket/frame of fan motor is adjustable and together with fan blower, they are sitting on a structure that equipped with vibration isolator (with noise damper and adjusting rod).

Flexible ducting is used to connect fan discharge to the unit and all Fan Sections are equipped with access door, detachable service panel that enable the fan and motor to be completely removed from unit for replacement or maintenance.

❖ Humidifying Section

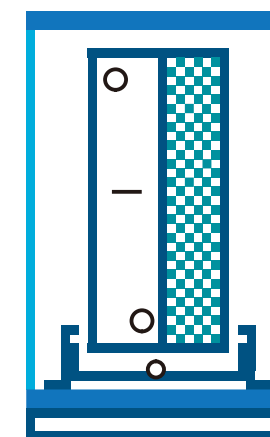


Steam Humidifier

There are a few types of humidifier:

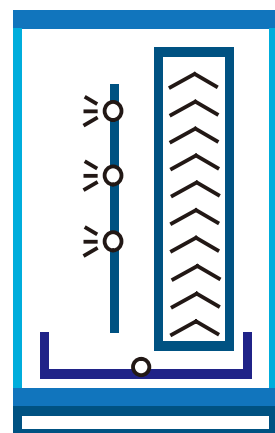
a. Dry steam humidifier - Isotherm humidifier, made of stainless steel and with properties of high corrosion resistance, small size, easy installation, clean humidification and high efficiency. There are 2 types of dry steam humidifier, i.e. electric driven or manual. Applicable for sites with steam source.

b. Electrode humidifier - Generate steam from water through application of AC current. It is microcomputer controlled with modulating control or ON/OFF control. Applicable for industrial sites without steam source.



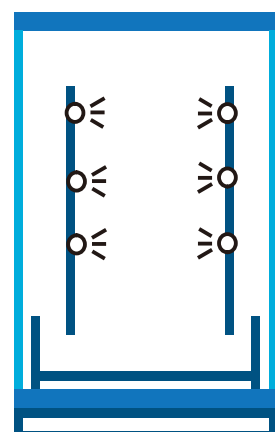
Wet Film Humidifier

c. Evaporative humidifier - Using wet film to absorb water and vaporize the water by air stream flowing through it. It has the effect of washing the air and can be used for droplets eliminator at the same time. It can use domestic tap water or recirculation water.



High Pressure Spray Humidifier

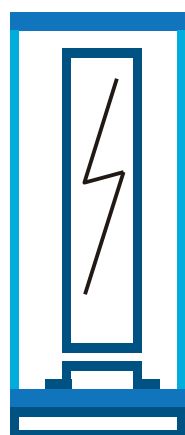
d. High pressure spray humidifier - pressurized the water and inject through nozzle to create mist and humidify the air through vaporization of the mist. The efficiency is about 40 ~ 50%.



Air Washer Humidifier

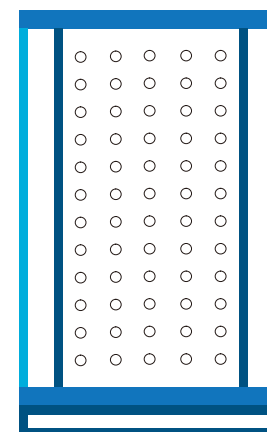
e. Air Washer Humidifier - can achieve various air treatment simultaneously. It is able to reduce the enthalpy, humidity and temperature of air and at the same time form an water curtain across the air stream to clean the air.

❖ Electric Heater Section



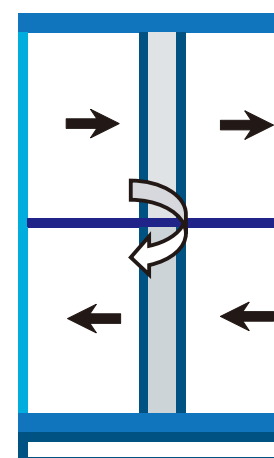
There are 2 types of electric heater used, spiral fins type or PTC heating elements. The heating elements are fitted on a frame and the control for heaters is field supplied.

❖ Sound Attenuator Section



Under different application requirements and noise characteristics of fan, 2 types of Sound Attenuators can be installed, i.e. Sound Absorption Medium Plate Muffler or a Micro-Perforated Plate Muffler. Sound Absorption Medium Plate Muffler is made of perforated panel filled with noise absorbing material. It has good sound attenuation effect towards high and medium frequency noise. Micro-Perforated Plate Muffler is made of micro-perforated panel which applying principles of resonance for sound attenuation. It has good filtering effect for low and medium frequency noise. Since it does not require sound absorbing medium, it is non-polluting and not affected by moisture. Sound attenuator can be classified as Return Air Sound Attenuator and Supply Air Sound Attenuator.

❖ Heat Recovery Section



There are a few types of Heat Recovery devices:

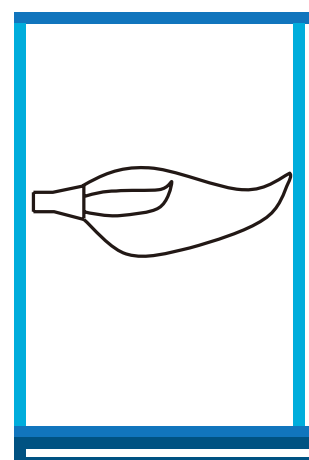
a. Heat Wheel - for both sensible and latent heat recovery with the efficiency of 70~90%. The counter flow between fresh air and exhaust air offers self-cleaning capability.

b. Intermediate heat exchanger - the media used can be water or glycol solution and can be applied for small temperature difference system. The efficiency is lower than 60%.

c. Counter flow plate heat exchanger - fresh air and exhaust air exchange the energy in the plate type heat exchanger and depends on the material used for heat exchanger, the heat transferred can be sensible only or total heat. The efficiency is about 50%, however, due to no physical contact of fresh air and exhaust air, there is no pollution of fresh air by the exhaust air.


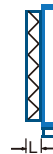

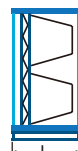
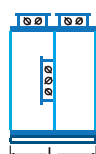
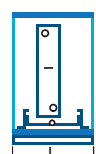



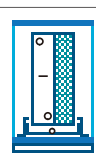
d. Heat pipe heat exchanger - each pipe contains Freon or ammonia as the working fluid and the heat recovery is done through phase change of working fluid with no moving parts involve.

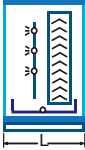
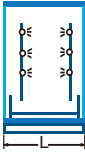
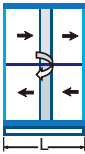
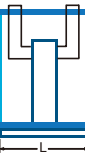
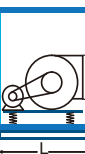

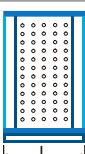


❖ Gas Heater Section



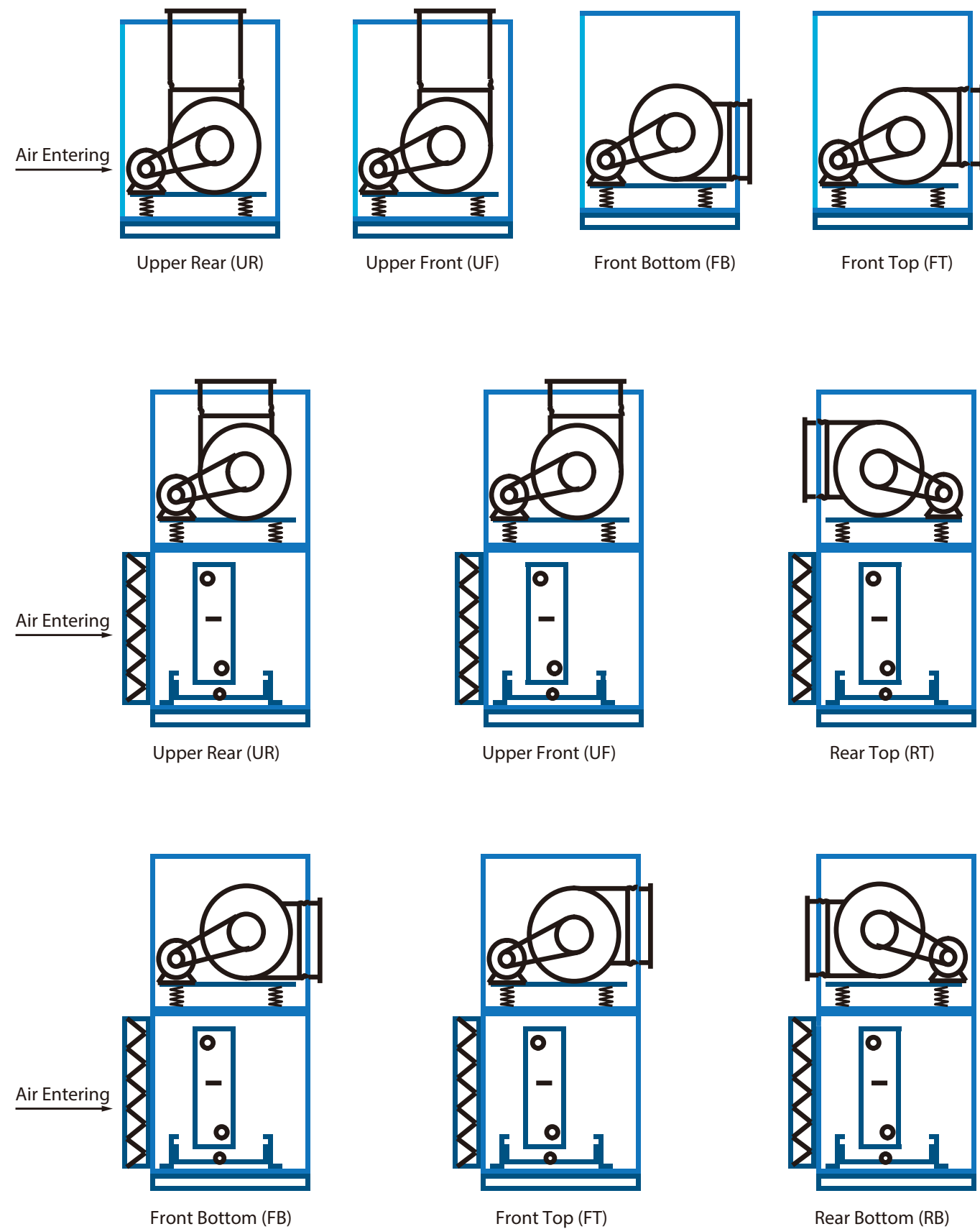
There are two methods of heating, one is to burn the gas directly inside the plenum to heat the air stream and it is suitable for huge conditions space. Second is to heat the air at the burner outside the unit and channel the hot air through tubes which are running within the air stream. This will avoid consuming the oxygen in the air stream and maintain the supply air quality.

Function Sections Specifications >>

Name	Sketch	Description (mm)			
Mixing Box		Unit Modules	L		
		0607-1117	600		
		1217-2126	800		
		2227-2534	1000		
		2834-4565	1200		
Outlet Filter		Installed outside the unit body, does not occupy the space.			
Plate Filter		L=100 The plate type filter has the primary effect and the middle effect for optional, and can be arranged in the mixed section or the outer space and not occupy the space.			
Bag Filter Close Knit Filter		Bag Filter Close Knit Filter	L=400 L=400		
Fresh Air Exhaust Section		Unit Modules	L		
		0607-1925	1200		
		2025-2940	1500		
		3141-4565	1800		
Chilled Water Coil		Unit Modules	L		
			(1-4Row)	(5-6Row)	(8-12Row)
		0607-2940	600	700	900
		3141-4565	1000	1000	1200
Heating Coil		Unit Modules	L(1-2Row)		
		0607-2940	300		
		3141-4565	600		
		For less than 3141 of the unit modules, if the heating section is located behind no more than 8 rows of the chiller water coil section and the section between and hot cold coil do not need for maintenance, the hot and cold coils in the same water plate, a total of 900mm.			
Electric Heater		T	L		
		<4	300		
		≥4	700		
		T=Electric Heat(W)/Air Volume(CMH)			
Steam Humidifier		L=600 If placed behind the fan section, requires 900mm.			
Wet Film Himidifier		Shared section length with chiller water coil section, if segmeted, it needs to be 600mm.			

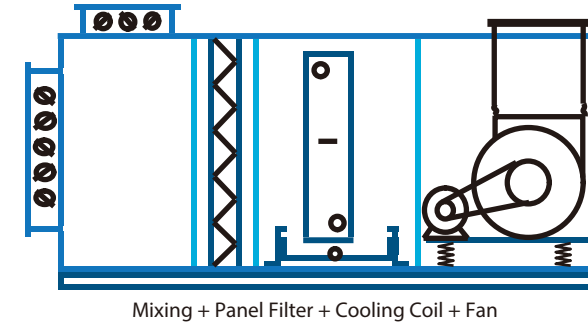
Name	Sketch	Description(mm)	
High Pressure Spray Humidifier		L=900 Eliminator is needed	
Spray Section		2 rows	L=2100
Heat Recovery Section		L according to the specific conditions to be selected.	
Dehumidification Section		L according to the specific conditions to be selected.	
Fan Section		L=700-3500	
Diffuser		L=600	
Silencer		L=500, 800, 1100	
Middle Section		L=600 Set before the filtering section, chilled water coil section, heating section and silencer section, easy to maintain and repair.	
Air Outlet Section		Unit Modules	L
		0607-1117	600
		1217-2126	800
		2227-2534	1000
		2834-4565	1200
Other Function Sections	Eliminator	Shared section length with chiller water coil	
	Evaporative cooling section	L=900	
	High-efficient self-cleaning filter barrel type filter section	L=1800	
	Combustion	L=3000	

Fan Outlet Direction >>

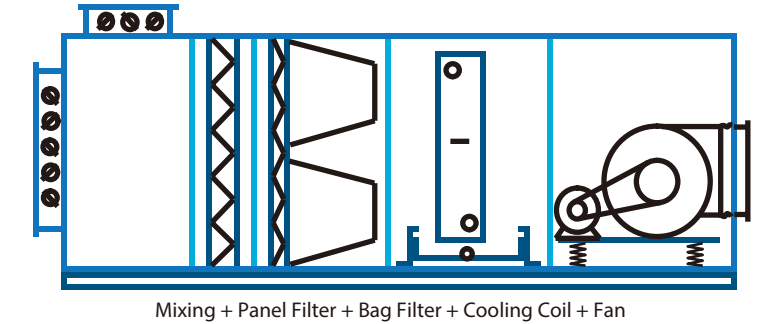


Configurations >>

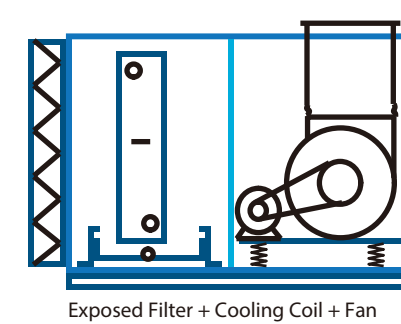
❖ Horizontal Combination 1:



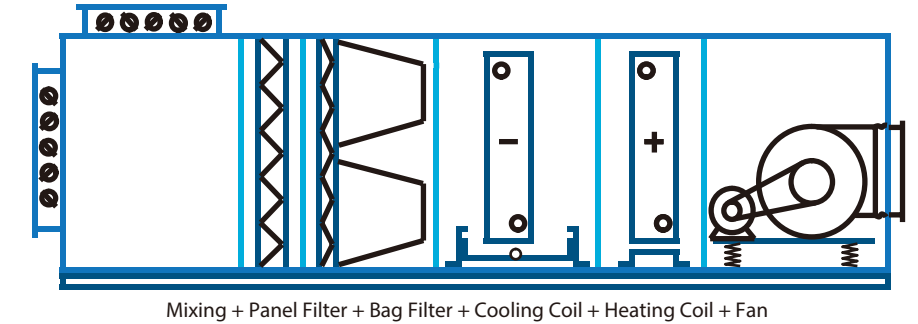
❖ Horizontal Combination 2:



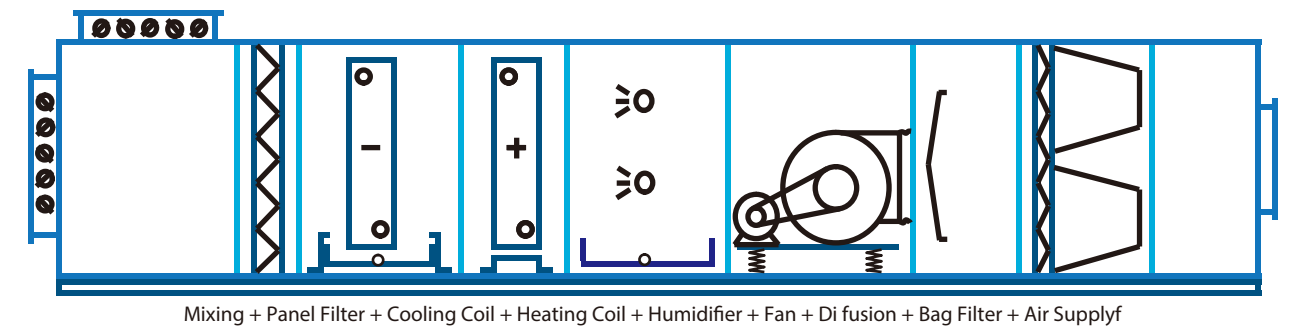
❖ Horizontal Combination 3:



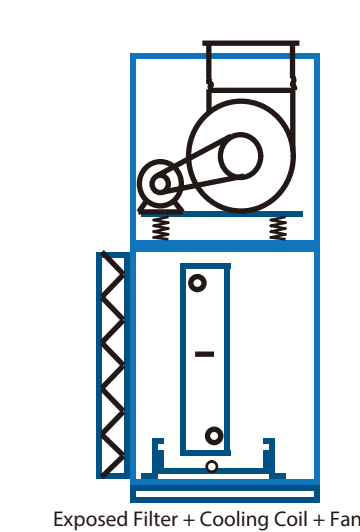
❖ Horizontal Combination 4:



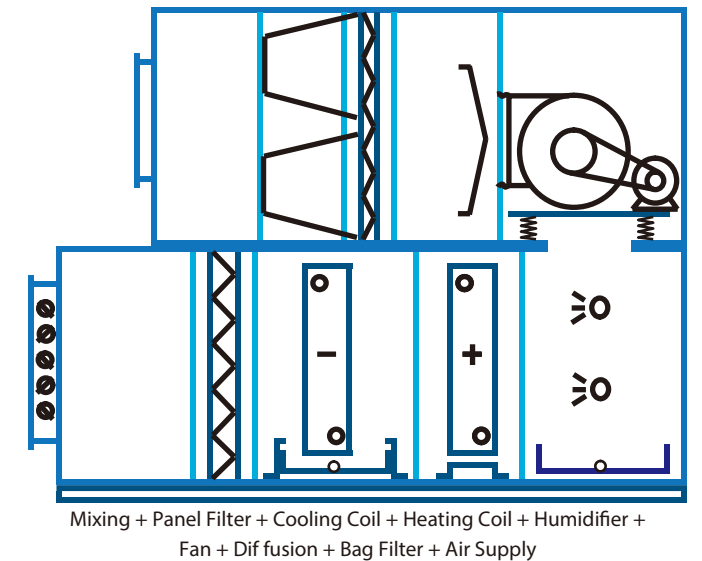
❖ Horizontal Combination 5:



❖ Vertical Combination 1:



❖ Vertical Combination 2:



Specifications

Air volume >>

MKZ/C-T \ Air flow volume (m³/h)		Coil face air velocity (m/s)					
		2.00	2.25	2.50	2.80	3.00	3.50
06	07	1567	1762	1958	2193	2351	2742
06	08	1790	2014	2238	2506	2685	3133
06	09	2207	2783	2758	3089	3311	3862
06	10	2527	2843	3158	3537	3791	4422
07	10	2888	3249	3610	4043	4332	5054
07	11	3253	3660	4067	4555	4880	5693
08	10	3610	4061	4512	5053	5415	6318
08	11	4067	4575	5083	5964	6101	7117
08	12	4524	5089	5655	6334	6786	7917
08	13	4981	5604	6226	6974	7472	8717
08	14	5438	6118	6798	7614	8157	9517
10	12	5881	6616	7351	8234	8822	10292
10	13	6476	7285	8094	9066	9714	11333
10	15	7664	8622	9580	10730	11496	13412
10	16	8259	9291	10323	11562	12389	14453
11	15	8843	9949	11054	12381	13265	15475
11	16	9529	10720	11911	13341	14294	16676
11	17	10215	11492	12769	14301	15323	17876
12	17	10896	12258	13620	15254	16344	19068
12	18	11628	13081	14534	16279	17442	20349
13	17	12258	13790	15322	17161	18387	21452
13	18	13081	14716	16351	18313	19622	22892
13	19	13904	15642	17380	19465	20856	24332
14	19	14676	16511	18345	20547	22014	25683
14	20	15545	17488	19431	21763	23318	27204
15	19	16221	18249	20277	22710	24332	28387
15	21	18141	20409	22677	25398	27212	31747
16	21	19005	21381	23757	26607	28508	33259
16	22	20011	22513	25014	28016	30017	35019
16	24	22023	24776	27529	30832	33035	38540
19	22	24559	27629	30699	34383	36839	42978
19	23	25794	29018	32242	36111	38691	45140
19	25	28263	31795	35328	39568	42395	49460
20	25	29309	32973	36637	41033	43964	51291
20	26	30589	34413	38237	42825	45884	53531
21	26	32774	36871	40968	45884	49161	57355
22	27	33866	38099	42333	47412	50799	59266
23	26	36052	40558	45065	50473	54078	63091
22	30	39536	44478	49420	55351	59304	69188
25	28	42621	47949	53276	59670	63932	74587
25	31	47559	53504	59449	66582	71339	83228
25	34	52497	59059	62621	73495	78746	91870
28	34	59788	67261	74735	83703	89682	104629
28	38	67286	75697	84107	94200	100929	117751
29	40	72767	81863	90959	101874	109151	127342
31	41	79292	89204	99115	111009	118938	138761
32	45	89467	100650	111833	125253	134201	156567
35	46	101523	114213	126904	142432	152285	177665
37	50	117371	132042	146713	164319	176057	205399
38	55	136921	154037	171152	191690	205382	239612
43	58	165054	185685	206317	231075	247581	
45	65	191575	215522	239469	268205	280000	

Cooling capacity >>

Unit Model MKZ/C-T		Rated Flow m³/h	Fresh Air Condition(7°C) Cooling Capacity						Return Air Condition(15°C) Cooling Capacity					
			4Row		6Row		8Row		4Row		6Row		8Row	
			Sensible kW	Total kW	Sensible kW	Total kW	Sensible kW	Total kW	Sensible kW	Total kW	Sensible kW	Total kW	Sensible kW	Total kW
06	07	1958	9	21	12	29	13	31	8	9	9	12	10	15
06	08	2238	11	24	14	33	15	36	9	11	10	14	11	17
06	09	2758	13	29	17	41	18	44	11	13	12	17	14	21
06	10	3158	15	33	19	46	21	50	12	15	14	19	16	24
07	10	3610	17	38	22	53	24	58	14	17	16	22	18	28
07	11	4067	19	43	25	60	27	65	16	20	18	25	21	31
08	10	4512	21	47	28	66	30	72	18	22	20	27	23	35
08	11	5083	24	53	31	75	34	81	20	24	22	31	26	39
08	12	5655	27	59	35	83	37	90	22	27	25	34	29	43
08	13	6226	29	66	38	92	41	99	24	30	27	38	31	48
08	14	6798	32	72	42	100	45	108	27	33	30	41	34	52
10	12	7351	35	77	45	108	49	117	29	35	32	45	37	56
10	13	8094	38	85	50	119	53	129	32	39	36	49	41	62
10	15	9580	45	101	59	141	63	153	37	46	42	58	48	73
10	16	10323	49	109	63	152	68	165	40	50	45	63	52	79
11	15	11054	52	116	68	163	73	176	43	53	49	67	56	85
11	16	11911	56	125	73	175	79	190	46	57	52	72	60	91
11	17	12769	60	134	78	188	84	204	50	61	56	78	54	98
12	17	13620	64	143	84	200	90	217	53	65	60	83	69	104
12	18	14534	69	153	89	214	96	232	57	70	64	88	73	111
13	17	15322	72	161	94	225	101	244	60	74	67	93	77	118
13	18	16351	77	172	100	241	108	261	64	79	72	99	82	125
13	19	17380	82	183	107	256	115	277	68	83	76	106	88	133
14	19	18345	87	193	113	270	121	293	72	88	81	111	93	141
14	20	19431	92	204	119	286	128	310	76	93	85	118	98	149
15	19	20277	96	213	124	298	134	324	79	97	89	123	102	156
15	21	22677	107	239	139	334	150	362	89	109	100	138	114	174
16	21	23757	112	250	146	350	157	379	93	114	104	144	120	182
16	22	25014	118	263	153	368	165	399	98	120	110	152	126	192
16	24	27529	130	290	169	405	182	439	107	132	121	167	139	211
19	22	30699	145	323	188	452	203	490	120	147	135	186	155	235
19	23	32242	152	339	198	474	213	514	126	155	142	196	163	247
19	25	35328	167	372	217	520	233	564	138	170	155	215	178	271
20	25	36637	173	385	225	539	242	585	143	176	161	222	185	281
20	26	38237	180	402	234	563	252	610	149	184	168	232	193	293
21	26	40968	193	431	251	603	270	654	160	197	180	249	207	314
22	27	42333	199	445	259	623	279	676	165	204	186	257	214	324
23	26	45065	212	474	276	663	297	719	176	216	198	274	227	346
22	30	49420	233	520	303	727	326	789	193	238	217	300	250	379
25	28	53276	251	560	327	784	352	850	208	256	234	324	269	409
25	31	59449	280	625	365	875	392	948	232	285	261	361	300	456
25	34	62621	309	690	402	965	433	1047	256	315	288	398	331	503
28	34	74735	352	786	458	1100	493	1192	292	359	328	454	377	573
28	38	84107	397	885	516	1237	555	1342	328	404	370	511	424	645
29	40	90959	429	957	558	1338	600	1451	355	437	400	552	459	698
31	41	99115	467	1043	608	1458	654	1581	387	476	435	602	500	760
32	45	111833	527	1177	686	1645	738	1784	436	537	491	679	564	858
35	46	126904	598	1335	778	1867	838	2025	495	609	558	771	640	973
37	50	146713	692	1543	900	2158	968	2341	573	705	645	891	740	1125
38	55	171152	807	1801	1050	2518	1130	2731	668	822	752	1039	863	1313
43	58	206317	973	2171	1265	3035	1362	3292	805	991	906	1253	1040	1582
45	65	239469	1129	2519	1468	3523	1581	3821	935	1150	1052	1454	1207	1837

- Notes:
- 1.Fresh air condition: air inlet 35°C DB/28°C WB;
 - 2.Return air condition: air inlet 27°C DB/19.5°C WB;
 - 3.Chilled water inlet/outlet temperature 7/12°C, coil face air velocity 2.5m/s;
 - 4.The above parameters are for reference only, if test conditions change will lead to different cooling capacity, specific data please contact us.

Heating capacity >>

Unit Model MKZ/C-T		Rated Flow	Fresh Air Condition(7°C) Total Heat				Return Air Condition(15°C) Total Heat			
			1Row	2Row	3Row	4Row	1Row	2Row	3Row	4Row
		m³/h	kW	kW	kW	kW	kW	kW	kW	kW
06	07	1958	12	18	23	26	9	14	19	21
06	08	2238	14	20	26	30	10	16	21	24
06	09	2758	17	25	32	37	12	20	26	30
06	10	3158	20	29	37	42	14	23	30	34
07	10	3610	23	33	42	48	16	26	34	39
07	11	4067	26	37	47	54	18	29	39	44
08	10	4512	28	41	52	60	20	32	43	49
08	11	5083	32	46	59	68	23	36	49	55
08	12	5655	36	52	65	75	25	41	54	62
08	13	6226	39	57	72	83	28	45	59	68
08	14	6798	43	62	79	91	30	49	65	74
10	12	7351	46	68	85	98	33	53	70	80
10	13	8094	51	74	94	108	36	58	77	88
10	15	9580	60	87	111	128	42	69	91	105
10	16	10323	65	94	120	138	46	74	99	113
11	15	11054	70	101	128	147	49	79	106	121
11	16	11911	75	109	138	159	53	85	114	130
11	17	12769	81	116	148	170	57	91	122	139
12	17	13620	86	124	158	182	60	98	130	149
12	18	14534	92	133	168	194	64	104	139	159
13	17	15322	97	140	177	204	68	110	146	167
13	18	16351	103	149	189	218	72	117	156	178
13	19	17380	110	158	201	232	77	124	166	190
14	19	18345	116	167	212	245	81	131	175	200
14	20	19431	123	177	225	259	86	139	186	212
15	19	20277	128	185	235	270	90	145	194	221
15	21	22677	143	207	263	302	100	162	217	247
16	21	23757	150	217	275	317	105	170	227	259
16	22	25014	158	228	290	334	111	179	239	273
16	24	27529	174	251	319	367	122	197	263	300
19	22	30699	194	280	355	409	136	220	293	335
19	23	32242	204	294	373	430	143	231	308	352
19	25	35328	223	322	409	471	157	253	337	386
20	25	36637	231	334	424	488	162	262	350	400
20	26	38237	241	349	443	510	169	274	365	417
21	26	40968	259	374	474	546	182	293	391	447
22	27	42333	268	389	497	562	184	303	399	454
23	26	45065	284	411	522	601	200	323	430	492
22	30	49420	313	454	581	656	215	353	466	530
25	28	53276	336	486	617	710	236	382	509	581
25	31	59449	375	542	688	793	263	426	568	649
25	34	62621	414	598	760	875	291	470	627	716
28	34	74735	472	682	865	996	331	535	714	816
28	38	84107	531	767	974	1121	373	602	803	918
29	40	90959	574	829	1053	1213	403	652	869	993
31	41	99115	626	904	1148	1322	439	710	947	1082
32	45	111833	706	1020	1295	1491	496	801	1068	1220
35	46	126904	801	1157	1469	1692	562	909	1212	1385
37	50	146713	926	1338	1699	1956	650	1051	1401	1601
38	55	171152	1080	1561	1982	2282	758	1226	1635	1868
43	58	206317	1302	1881	2389	2751	914	1478	1970	2251
45	65	239469	1512	2184	2773	3193	1061	1715	2287	2613

Notes:
1.Heating water inlet/outlet temperature 60/50°C, coil face air velocity 2.5m/s;
2.The above parameters are for reference only, if test conditions change will lead to different heating capacity, specific data please contact us.

Section length >>

Unit Model MKZ/C-T		Length(mm)													
		Mixing Box	Plate Filter	Bag Filter	Close Knit Filter	Fresh Air Exhaust Section	Chilled Water Coil(1-4row)	Chilled Water Coil(5-6row)	Chilled Water Coil(8-12row)	Steam Hot Water Heating	Middle Section	Silencer	Fan (Type A)	Fan (Type B)	Others
06	07	600	100	400	400	1200	600	700	900	300	600	800	900(200)	1100(225)	The length of the heat recovery section and dehumidification section should be selected according to the actual conditions; Combustion Section: 3000; Activated Carbon Section: 100-500.
06	08	600	100	400	400	1200	600	700	900	300	600	800	900(200)	1100(225)	
06	09	600	100	400	400	1200	600	700	900	300	600	800	700(200)	1200(280)	
06	10	600	100	400	400	1200	600	700	900	300	600	800	700(200)	1300(135)	
07	10	600	100	400	400	1200	600	700	900	300	600	800	700(200)	1300(135)	
07	11	600	100	400	400	1200	600	700	900	300	600	800	800(225)	1300(135)	
08	10	600	100	400	400	1200	600	700	900	300	600	800	700(200)	1300(135)	
08	11	600	100	400	400	1200	600	700	900	300	600	800	800(225)	1300(135)	
08	12	600	100	400	400	1200	600	700	900	300	600	800	800(315)		
08	13	600	100	400	400	1200	600	700	900	300	600	800	800(315)		
08	14	600	100	400	400	1200	600	700	900	300	600	800	800(315)		
10	12	600	100	400	400	1200	600	700	900	300	600	800	800(315)	1500(400)	
10	13	600	100	400	400	1200	600	700	900	300	600	800	900(355)	1500(400)	
10	15	600	100	400	400	1200	600	700	900	300	600	800	900(355)	1500(400)	
10	16	600	100	400	400	1200	600	700	900	300	600	800	900(355)	1500(400)	
11	15	600	100	400	400	1200	600	700	900	300	600	800	100(400)	1800(500)	
11	16	600	100	400	400	1200	600	700	900	300	600	800	100(400)	1800(500)	
11	17	600	100	400	400	1200	600	700	900	300	600	800	1100(450)	1800(500)	
12	17	800	100	400	400	1200	600	700	900	300	600	800	1100(450)		
12	18	800	100	400	400	1200	600	700	900	300	600	800	1100(450)	1200(500)	
13	17	800	100	400	400	1200	600	700	900	300	600	800	1100(450)		
13	18	800	100	400	400	1200	600	700	900	300	600	800	1100(450)	1200(500)	
13	19	800	100	400	400	1200	600	700	900	300	600	800	1100(450)	1300(560)	
14	19	800	100	400	400	1200	600	700	900	300	600	800	1200(500)	1300(560)	
14	20	800	100	400	400	1200	600	700	900	300	600	800	1200(500)	1300(560)	
15	19	800	100	400	400	1200	600	700	900	300	600	800	1200(500)	1300(560)	
15	21	800	100	400	400	1200	600	700	900	300	600	800	1300(560)	1500(630)	
16	21	800	100	400	400	1200	600	700	900	300	600	800	1300(560)	1500(630)	
16	22	800	100	400	400	1200	600	700	900	300	600	800	1300(560)	1500(630)	
16	24	800	100	400	400	1200	600	700	900	300	600	800	1300(560)	1700(710)	
19	22	800	100	400	400	1200	600	700	900	300	600	800	1500(630)	2600(800)	
19	23	800	100	400	400	1200	600	700	900	300	600	800	1500(630)	2600(800)	
19	25	800	100	400	400	1200	600	700	900	300	600	800	1700(710)	2600(800)	
20	25	800	100	400	400	1500	600	700	900	300	600	800	1700(710)	2600(800)	
20	26	800	100	400	400	1500	600	700	900	300	600	800	1800(800)	3000(900)	
21	26	800	100	400	400	1500	600	700	900	300	600	800	1800(800)	3000(900)	
22	27	1000	100	400	400	1500	600	700	900	300	600	800	2100(900)	3300(1000)	
23	26	1000	100	400	400	1500	600	700	900	300	600	800	1800(800)	3000(900)	
22	30	1000	100	400	400	1500	600	700	900	300	600	800	2100(900)	3300(1000)	
25	28	1000	100	400	400	1500	600	700	900	300	600	800	2100(900)	3300(1000)	
25	31	1000	100	400	400	1500	600	700	900	300	600	800	2100(900)	2200(1000)	
25	34	1000	100	400	400	1500	600	700	900	300	600	800	2100(900)	2200(1000)	
28	34	1200	100	400	400	1500	600	700	900	300	600	800	2100(900)	2200(1000)	
28	38	1200	100	400	400	1500	600	700	900	300	600	800	2600(800*2)		
29	40	1200	100	400	400	1500	600	700	900	300	600	800	2600(800*2)		
31	41	1200	100	400	400	1800	1000	1000	1200	600	600	800	2600(800*2)		
32	45	1200	100	400	400	1800	1000	1000	1200	600	600	800	2800(900*2)		
35	46	1200	100	400	400	1800	1000	1000	1200	600	600	800	3300(1000*2)		
37	50	1200	100	400	400	1800	1000	1000	1200	600	600	800	3300(1000*2)		
38	55	1200	100	400	400	1800	1000	1000	1200	600	600	800	3400(1120*2)		
43	58	1200	100	400	400	1800	1000	1000	1200	600	600	800	3400(1120*2)		
45	65	1200	100	400	400	1800	1000	1000	1200	600	600	800	3500(1250*2)		

Weight of function sections (empty box) >>

Unit Model MKZ/C-T		Empty Box Weight (kg)														
		Wall Thickness 25mm					Wall Thickness 35mm					Wall Thickness 50mm				
		End-plate	300	600	900	1200	End-plate	300	600	900	1200	End-plate	300	600	900	1200
06	07	5	38	68	86	99	6	40	70	90	104	7	41	73	99	111
06	08	6	40	70	88	101	7	42	72	93	107	8	43	75	102	116
06	09	7	42	72	97	111	8	44	74	101	116	9	45	77	104	126
06	10	8	44	74	102	117	9	46	75	106	122	10	47	79	106	132
07	10	8	45	75	104	119	9	47	77	107	124	10	48	81	110	134
07	11	9	47	77	107	123	9	49	79	109	125	10	50	83	112	138
08	10	10	46	76	105	121	11	48	78	108	126	12	49	82	112	136
08	11	10	48	78	108	124	11	50	80	110	127	12	51	84	114	139
08	12	10	50	80	110	127	11	52	82	112	132	12	53	86	116	142
08	13	11	52	82	112	132	12	54	84	114	139	13	55	88	118	145
08	14	12	54	84	114	135	13	56	86	116	143	14	57	90	120	148
10	12	12	52	82	111	131	13	53	84	113	142	14	55	87	118	146
10	13	13	54	84	113	136	14	55	86	115	145	15	57	89	119	149
10	15	15	58	88	117	143	16	59	90	119	150	17	61	93	123	155
10	16	16	60	90	119	146	17	61	92	122	152	18	63	95	125	158
11	15	17	59	89	118	146	18	60	91	121	150	19	62	94	124	156
11	16	18	61	91	120	149	19	62	93	123	153	20	64	96	126	159
11	17	19	63	93	122	152	21	64	95	125	156	22	66	98	129	162
12	17	20	64	94	124	154	22	65	96	127	158	23	67	99	131	164
12	18	21	66	96	126	156	23	67	98	129	160	24	69	101	133	166
13	17	22	65	95	124	154	23	66	97	127	158	24	68	100	131	164
13	18	24	67	97	126	156	25	68	99	129	160	25	70	102	133	166
13	19	25	69	99	128	158	26	70	101	131	162	27	72	104	135	168
14	19	25	70	100	131	160	26	71	102	132	164	27	73	105	137	172
14	20	27	72	102	134	162	28	73	104	136	166	29	75	107	139	176
15	19	27	71	101	133	161	28	72	103	135	168	29	74	106	138	175
15	21	31	75	105	140	165	32	78	109	142	178	33	78	110	144	185
16	21	33	77	107	144	168	34	80	111	146	183	35	80	112	148	190
16	22	34	79	109	149	172	36	82	114	150	188	37	82	115	154	196
16	24	37	85	123	160	197	40	86	127	165	204	43	88	131	172	213
19	22	41	84	122	161	200	44	85	126	166	206	48	87	130	172	215
19	23	42	86	124	163	202	45	87	128	168	208	50	89	132	174	217
19	25	44	90	128	168	206	47	91	132	172	212	52	93	136	178	221
20	25	49	93	134	175	216	52	95	138	180	222	56	97	142	187	231
20	26	50	95	136	177	218	53	97	140	182	224	58	99	144	189	233
21	26	53	96	139	182	225	56	98	142	187	231	60	100	147	193	240
22	27	57	98	141	184	227	61	100	144	189	234	72	102	149	196	243
23	26	57	100	143	186	229	61	102	146	191	236	72	104	151	198	245
22	30	63	110	158	205	253	67	113	161	211	260	79	115	167	219	270
25	28	66	124	182	240	297	69	126	186	245	305	80	128	191	253	315
25	31	72	133	193	253	312	72	135	197	258	320	87	138	202	266	331
25	34	79	142	203	265	327	84	144	208	272	335	94	147	213	280	347
28	34	91	147	213	279	345	98	149	213	279	345	109	156	224	295	366
28	38	102	158	226	294	362	107	160	230	301	371	128	163	237	311	384
29	40	104	162	230	298	362	109	164	234	305	375	130	167	241	315	388
31	41	121	171	244	318	391	135	173	250	326	402	153	165	257	337	417
32	45	132	181	257	332	408	148	184	263	341	419	166	188	270	352	434
35	46	150	192	276	360	444	163	195	282	369	455	182	199	289	381	472
37	50	163	206	292	378	464	174	209	298	387	477	206	213	306	400	493
38	55	197	222	313	404	494	208	226	320	414	507	223	231	329	427	525
43	58	235	249	343	439	534	247	252	348	444	547	266	258	359	462	570
45	65	274	279	375	479	585	289	282	379	484	597	311	288	398	512	633

Examples of cauculation:

- 1.Weight of chilled water coil section = Weight of chilled water coil section modules + Weight of differernt rows coil
- 2.Weight of fan section = Weight of box of fan section modules + Weight of fan + Weight of motor + Weight of transmission part + Weight of base of fan and motor
- 3.Total weight of unit = Weight of each function section cauculated according the above two examples + Weight of box panel

Weight of function sections (parts) >>

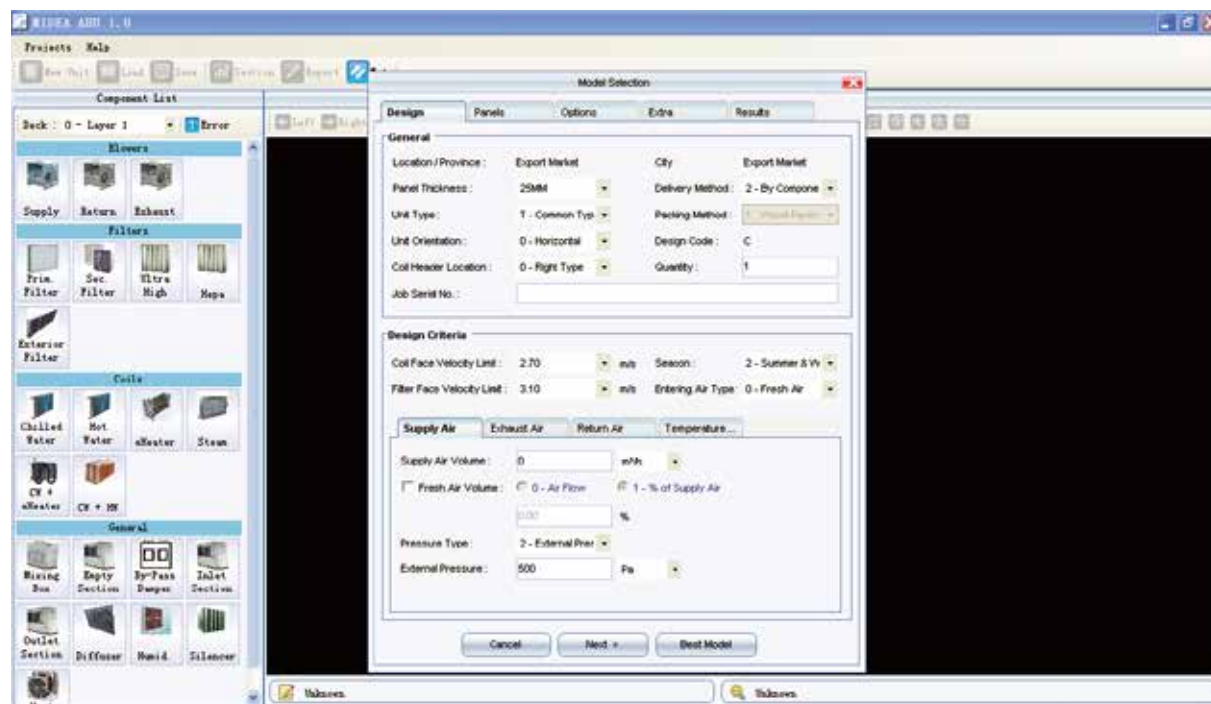
Unit Model MKZ/C-T		Weight (kg)																	
		Mixing Box Air Valve	Primary Efficiency Palte Filter	Primary Efficiency Bag Filter	Eliminator	Silencer	Wet Film Humidifier (Dry)				Standard 1/2 Coil (No Water)								
							Thickness 50mm	Thickness 100mm	Thickness 150mm	Thickness 200mm	1Row	2Row	3Row	4Row	5Row	6Row	8Row	10Row	12Row
06	07	11	4	4	5	15	7	8	10	11	15	19	21	23	25	28	32	37	41
06	08	11	5	5	6	18	7	9	10	11	17	22	23	25	28	31	36	41	46
06	09	15	5	5	7	20	8	9	11	13	17	22	24	26	30	33	39	45	50
06	10	18	6	6	8	22	8	10	11	13	17	23	26	28	32	36	43	49	55
07	10	18	6	7	10	26	8	10	12	14	19	26	29	32	36	40	47	54	61
07	11	20	7	8	11	28	8	10	12	15	20	27	30	34	38	43	51	59	66
08	10	18	7	8	12	29	9	11	13	15	23	31	34	38	43	48	57	66	74
08	11	20	8	9	14	32	9	11	13	16	24	32	36	40	46	52	62	71	80
08	12	22	9	10	15	35	9	12	14	17	25	34	38	43	49	55	66	76	86
08	13	24	10	10	17	38	9	12	15	17	26	36	40	45	52	59	70	81	92
08	14	26	10	11	19	41	10	12	15	18	27	37	42	48	55	62	75	86	98
10	12	22	11	12	20	44	10	12	15	18	31	42	48	53	61	69	83	96	108
10	13	24	12	13	22	48	10	13	16	19	32	44	50	56	65	73	88	102	116
10	15	29	14	15	26	55	11	14	17	21	34	47	55	62	72	81	99	115	131
10	16	31	15	16	28	59	11	14	18	22	35	49	57	65	75	86	104	121	139
11	15	29	15	17	30	61	11	15	18	22	38	53	62	70	81	92	112	130	149
11	16	31	16	18	33	65	11	15	19	23	39	55	64	73	85	97	118	138	158
11	17	33	17	19	35	69	12	16	20	24	40	57	67	76	89	101	124	145	166
12	17	48	19	21	37	75	12	16	20	25	43	60	71	81	94	107	131	154	176
12	18	51	20	22	40	79	12	17	21	26	44	62	73	84	98	112	137	161	185
13	17	48	20	22	42	81	12	17	21	26	47	66	78	89	104	119	145	171	196
13	18	51	22	24	45	86	13	17	22	27	48	69	81	93	109	124	152	179	206
13	19	54	23	25	48	91	13	18	23	28	49	71	84	97	113	130	159	188	216
14	19	54	25	27	51	98	13	18	24	29	52	74	88	102	119	136	167	197	227
14	20	58	26	28	54	103	14	19	24	30	53	76	91	105	124	142	174	206	238
15	19	54	26	29	56	105	14	19	25	31	56	81	96	111	130	149	183	216	249
15	21	61	29	32	63	116	14	20	26	33	59	86	102	119	140	161	199	235	272
16	21	61	31	34	66	123	15	21	27	34	61	89	107	124	146	168	207	246	284
16	22	64	33	35	69	129	15	21	28	35	63	92	110	129	151	174	215	256	296
16	24	70	36	39	77	141	16	23	30	37	66	97	117	138	162	187	232	276	320
19	22	64	39	42	85	153	16	24	31	39	75	109	132	155	182	209	260	309	358
19	23	67	41	44	90	160	17	24	32	40	76	112	136	160	188	217	270	321	373
19	25	74	44	48	98	174	17	26	34	43	80	118	144	170	201	232	290	346	402
20	25	74	46	50	102	183	18	26	35	44	82	122	149	176	208	240	299	358	416
20	26	77	48	52	106	191	18	27	36	45	84	125	153	181	215	248	310	370	431
21	26	77	51	55	114	200	19	28	37	47	89	132	163	193	229	264	330	395	459
22	27	101	55	60	126	219	20	29	39	50	96	144	177	210	249	288	361	432	503
23	26	109	57	62	128	226	20	30	40	51	95	143	177	211	250	289	363	435	507
22	30	109	65	71	135	240	21	31	42	53	107	160	197	233	277	320	401	480	559
25	28	109	65	71	149	257	21	32	43	55	108	163	202	241	287	332	417	500	584
25	31	122	72	78	166	284	23	35	47	60	114	174	218	261	312	362	456	548	641
25	34	134	79	86	184	312	24	37	50	64	120	185	233	281	336	391	494	596	698
28	34	166	88	96	209	349	26	40	55	70	135	207	262	317	379	441	559	674	789
28	38	187	99	107	236	390	28	44	60	77	143	224	286	347	417	486	617	746	875
29	40	198	108	117	255	425	29	46	63	81	151	237	304	370	445	519	661	800	939
31	41	203	118	128	281	466	31	49	67	87	163	256	330	403	485	566	721	874	1024
32	45	224	134	145	317	528	33	53	74	95	175	280	362	445	536	627	801	973	1144
35	46	229	149	162	360	590	36	58	80	104	195	311	405	499	602	705	901	1095	1290
37	50	250	172	186	416	678	39	64	90	116	216	349	457	565	683	801	1027	1251	1474
38	55	276	194	211	485	766	43	72	101	131	241	393	519	645	782	918	1180	1440	1700
43	58	291	231	251	585	914	49	82	116	151	280	461	613	764	928	1091	1406	1718	2030
45	65	328	271	295	680	1073	54	93	131	171	311	518	694	869	1057	1246	1609	1970	2331

Selection software

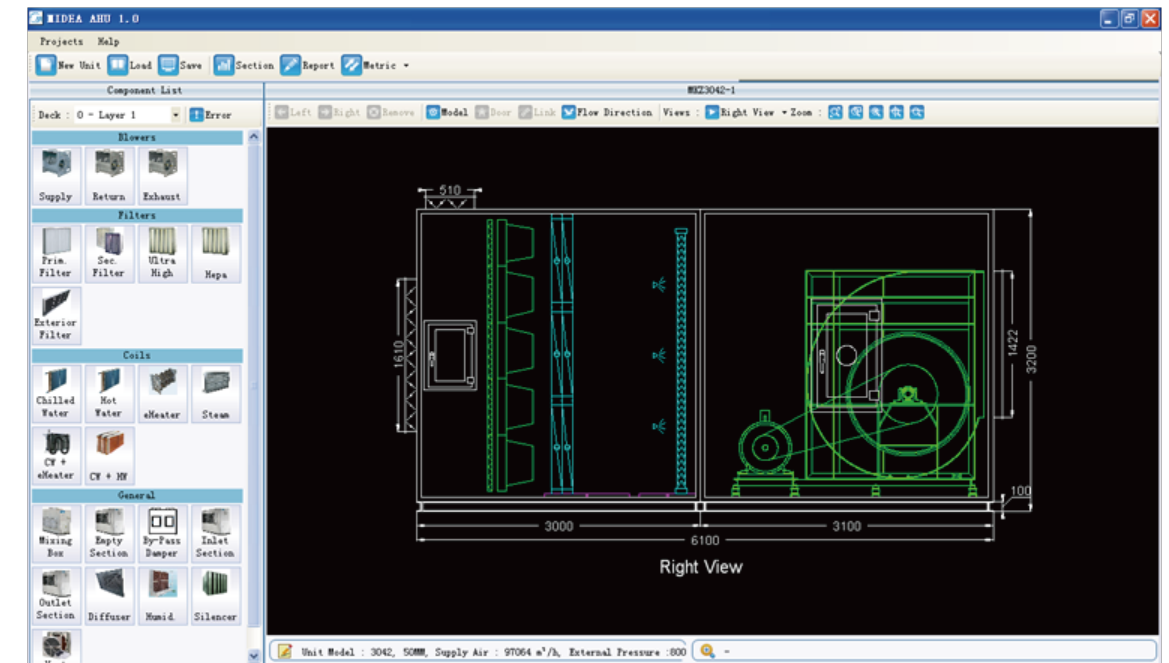
To help customers define their product requirements easily, a user-friendly software selection program is provided. The program leads the user through the selection process by pertinent input data for all components required. Component sections are selected by placing them on a configure screen. Once the unit layout is defined, the options and accessories are identified. The program gives immediate feedback about fan and coil selection, offering serial options based on the performance inputs. Once final component selections have been made, the program provides all output needed, including unit specification, dimension, weights, fan curves and so on.



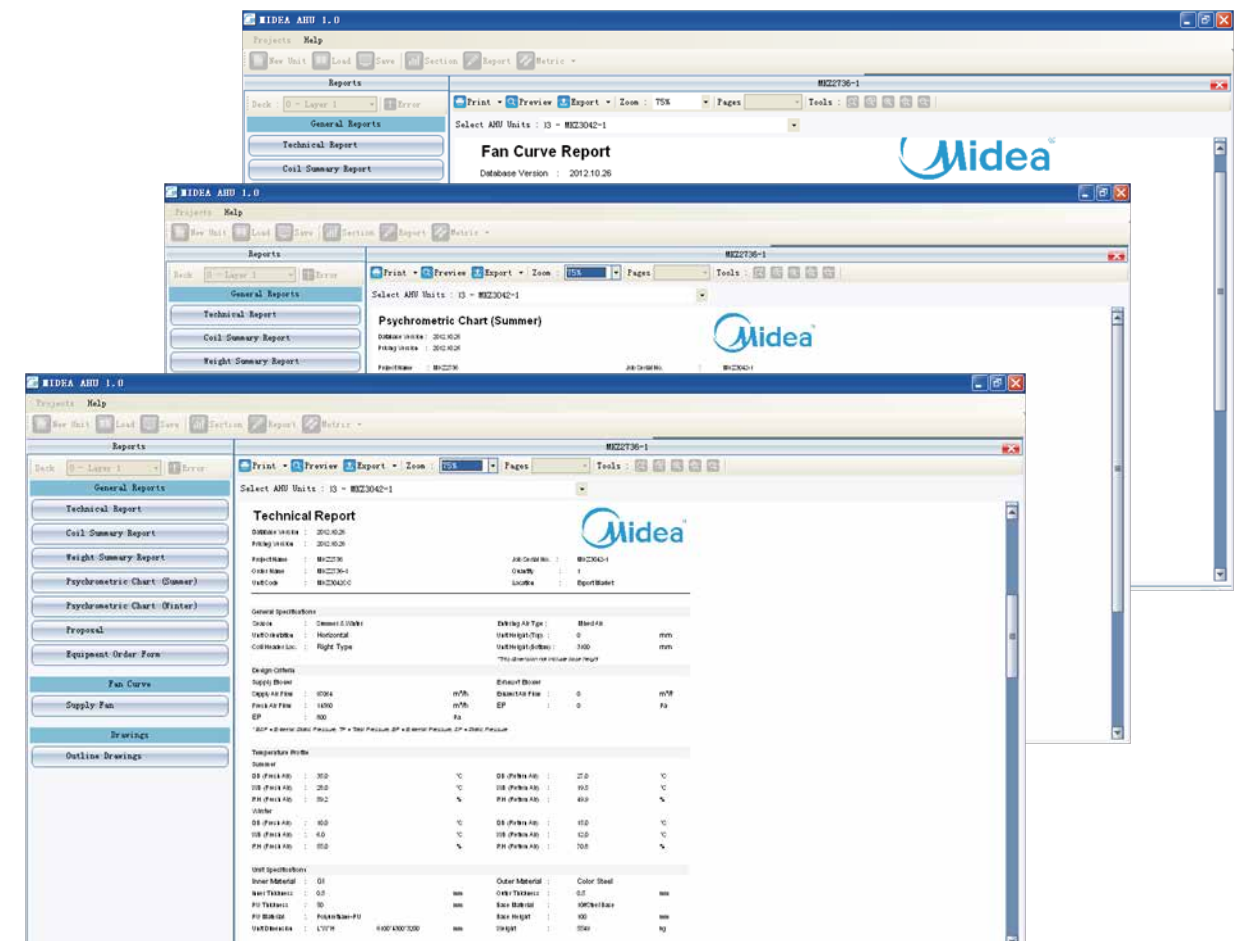
❖ Main interface



❖ Selection interface



❖ Report interface



Installation

❖ Transportation

Depending on size of the units, transportation mode may be different. Units can be shipped in full assembly if the size is small enough. Otherwise, they can be arranged to be shipped in the form of CKD (Complete Knock Down).

❖ Inspection and Acceptance

Before installation, check if all sections and components are in good condition. Inform the dealer immediately if found any defect.

❖ Placement of Unit

If unit needs to be placed outdoor, ensure the unit is free from dust, rain, snow and keep it away from animals to protect the exterior finishing of the unit. The unit cannot be exposed to hot sun or the insulated panels may be deformed or discolor. Do not stack units in storage.

❖ Lifting of Unit

Keep the unit level while moving or lifting to avoid damage. Hoist the unit through lifting holes provided. Ensure there is proper protection procedures adopted during lifting (for example, to put chipboard/plywood to isolate the lifting cable and the unit) to protect the surface of the unit.

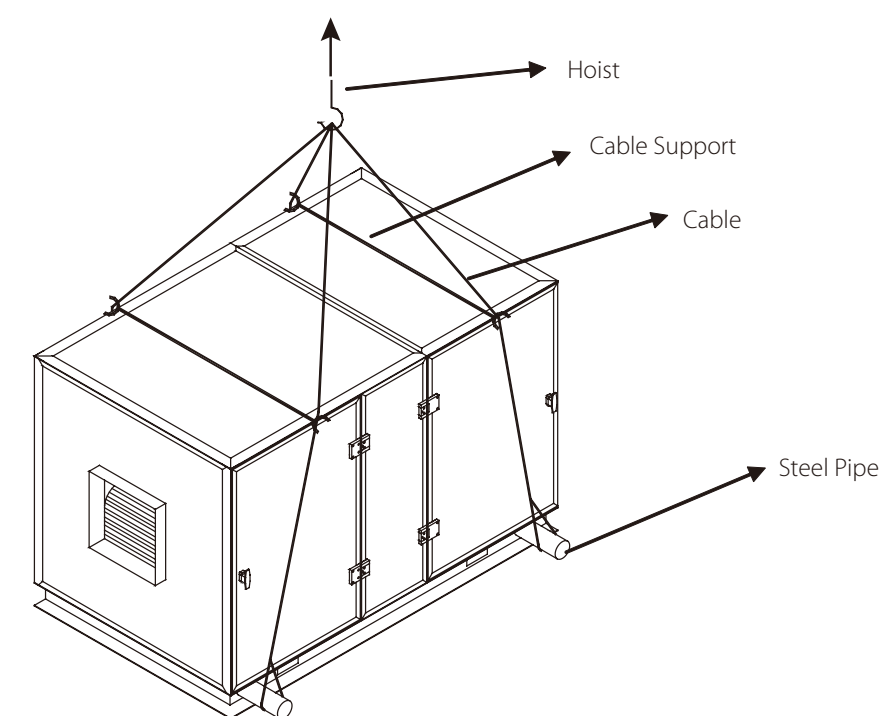
❖ Foundation

- 1) Leveling of the foundation will affect the installation and operation of the unit. If the foundation is not level, the following problems could happen:
 - a) Difficult to install
 - b) Air leakage at joints of panels and sections
 - c) Condensate water discharge problem
 - d) Fan installation problem It is recommended that the difference of level to be within $\pm 3\text{mm}$.
- 2) The foundation can be made of concrete or welded steel. Keep the steel surface smooth while welding. The height of foundation should not be less than 150mm. The water drainage is required for discharge of condensation water and for maintenance purposes.
- 3) Ensure that the foundation able to withstand the total weight of unit. Add shock absorber under the foundation if necessary.

❖ Unit Installation

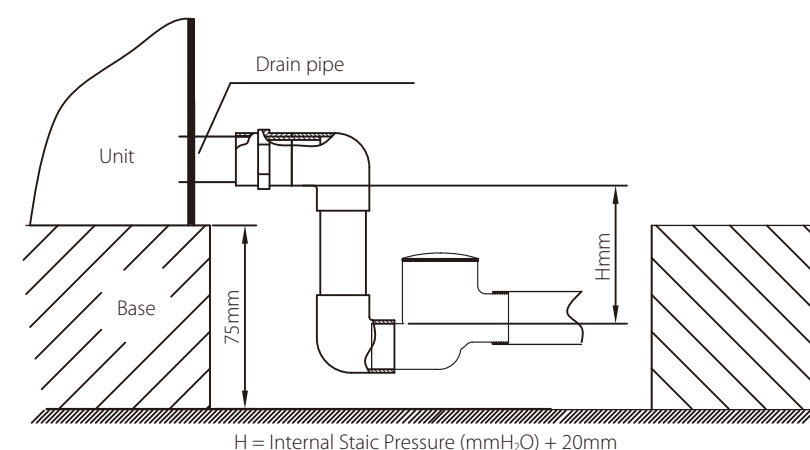
The installation must be done by certified installer. Take note of the following:

- 1) Strictly comply with the installation instructions provided.
- 2) Leave enough space for repair and maintenance.
- 3) Use flexible duct for section of duct connection between the unit and external air duct to avoid vibration transmission.
- 4) The panels must be fitted tightly. Rubber gasket must be compressed properly to avoid air leakage.
- 5) Air filter should be the last item to be installed.
- 6) Proper cleaning must be carried out to clean the interior of the unit to remove debris of installation before commissioning.



❖ Water Pipe Installation

1. Keep the water pipes clean and install filter at the inlet of water pump.
2. The condensate water pipes are positioned at the bottom of the unit. The U-trap needs to be installed (refer diagram below) to ensure condensing water can be discharged freely and to prevent in-flow of odor.
3. Use torque wrench when installing the water inlet/outlet pipes. The torque should be less than 250.8N·m (21kgf·m) to prevent heat exchanger from being damaged. Install valves at water supply and return pipes outside the unit (except the condensing water discharge pipes) for modulation of water volume and to isolate the unit during maintenance. All the water pipes outside the unit should be properly insulated.
4. If hot or chilled water is the media of the heat exchanger, the water inlet pipes are positioned at the bottom and water outlet pipes are positioned at the top. If the media is steam, the air inlets are positioned at the top and water outlet pipes are at the bottom.
5. All the water pipes must be sealed and ensure no leakage.
6. The standard chilled water temperature should not be lower than 5°C. Hot water temperature should not be higher than 80°C and 60°C is the recommended hot water temperature.



❖ Servicing and Maintenance

The following should be examined and replaced if necessary:

1. Coils should be cleaned frequently and periodically. After 2-3 years of operation, the internal wall of water pipes should be thoroughly cleaned and if condition permit, use soft water.
2. If the unit is not in operation during winter, all the water in the system must be released, otherwise the coil will crack.
3. Check the condition of filter periodically (recommend to check monthly). If the unit is equipped with Pressure Differential Gauge, filter must be cleaned or replaced if the predefined value is reached. Recommended value for different type of filters are as following:

Filter specifications Resistance value

Filter Type	Pre-filter		Secondary Filter	High Efficiency Filter	Sub-HEPA Filter	HEPA Filter
	G3	G4	F5 - F6	F7 - F8	F9 - F11	
Resistance Value (Pa)	100 - 200	150 - 250	250 - 300	300 - 400	400 - 450	400 - 600

4. The belt tension should be re-checked one week after commissioning. Subsequently, it should be examined once every 3 months.
5. The terminals for electrical wires should be re-tightened 3 days after commissioning.
6. Bearings for fan and motor must be examined periodically (recommended 3 months once). Abnormality of bearings can be determined through abnormal noise and vibration of fan, excessive usage of lubrication oil or through special bearing testing devices. Once the faulty bearings are identified, they should be replaced immediately.
7. It is recommended to check the rubber gasket, flexible ducts and connections monthly. Immediate replacement is necessary if it is found to be leak.

Reference Projects

Hotel & Restaurant »



Ramada Plaza (Five Star)

Country:	China
City:	Shunde
Total Capacity:	2,500 RT
Outdoor Unit:	Water-cooled screw chiller
Indoor Unit:	AHU & FCU
Completion Year:	2009
Total Floor Area:	50,000 m ²

Hilton Hotel in Foshan (Five Star)

Country:	China
City:	Foshan
Total Capacity:	3,700 RT
Outdoor Unit:	Centrifugal chiller & Water-cooled screw chiller
Indoor Unit:	AHU & FCU
Completion Year:	2013
Total Floor Area:	90,000 m ²



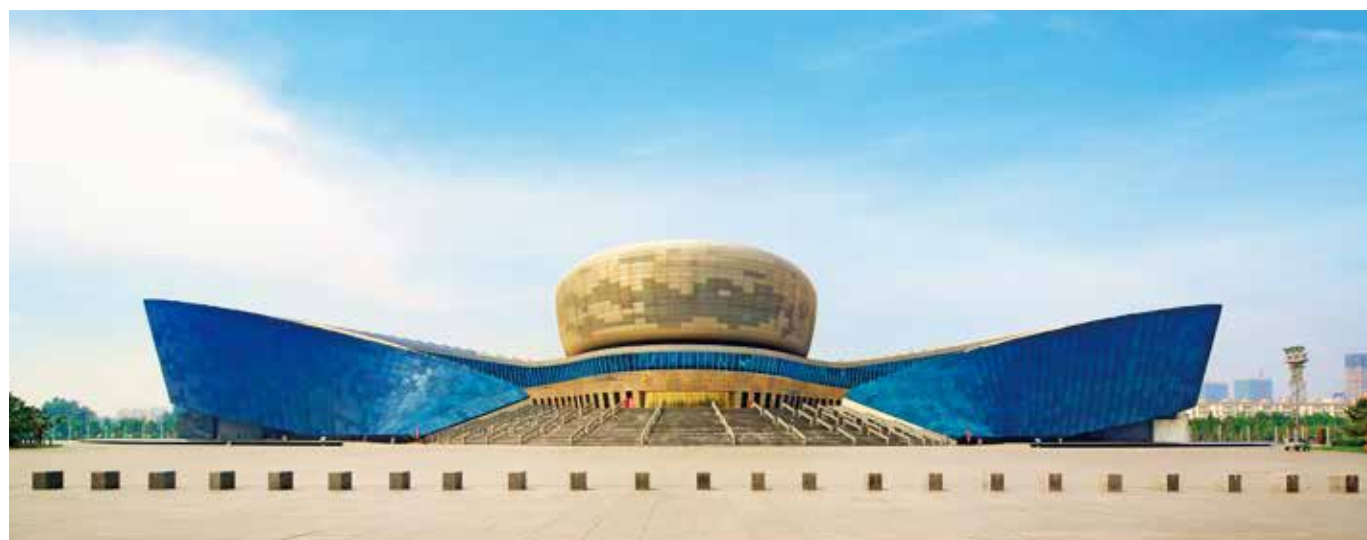
Transportation >>



Mozambique Capital Airport

Country: Mozambique
 City: Maputo
 Total Capacity: 4,000 RT
 Outdoor Unit: Air-cooled screw chiller
 Indoor Unit: FCU & AHU
 Completion Year: 2012

Culture facilities >>



Handan Cultural Arts Center

Country: China
 City: Handan
 Total Capacity: 2,200 RT
 Outdoor Unit: Centrifugal chiller & Water-cooled screw chiller
 Indoor Unit: AHU & FCU
 Completion Year: 2013
 Total Floor Area: 100,000 m²



Sports >>



The 27th Southeast Asian Games Stadium

Country: Myanmar
 City: Nay Pyi Taw
 Total Capacity: 5,040 HP
 Outdoor Unit: Water-cooled screw chiller (Heat Recovery)
 Indoor Unit: MAHU
 Completion Year: 2012
 Total Floor Area: 40,000 m²



Guangzhou Huadu Asian Games Stadium

Country: China
 City: Guangzhou
 Total Capacity: 3,650 kW
 Outdoor Unit: Water-cooled screw chiller
 Indoor Unit: AHU
 Completion Year: 2010
 Total Floor Area: 36,200 m²



Industry >>



GAC Motor Co.,Ltd.

Country: China
 City: Guangzhou
 Total Capacity: 3,560 HP
 Outdoor Unit: Centrifugal chiller & Water-cooled screw chiller
 Indoor Unit: AHU & FCU
 Completion Year: 2008
 Total Floor Area: 1180,000 m²