

MODULAR AIR HANDLING UNIT

Your imagination is our pleasure to build



Content

Introduction	2
Nomenclature	3
Determine piping side of AHU	4
Quick Selection base on air flow	5
Selection Table - General Data	6
Air Flow with Coil Face Velocity	8
Filter Usage	10
Coil Manufacturing	11
General Accessories	12
Categorization of filter classes and particle sizes	13
Type of Filter	14
Type of Blower	15
Optional Accessories	16
Project Reference	19



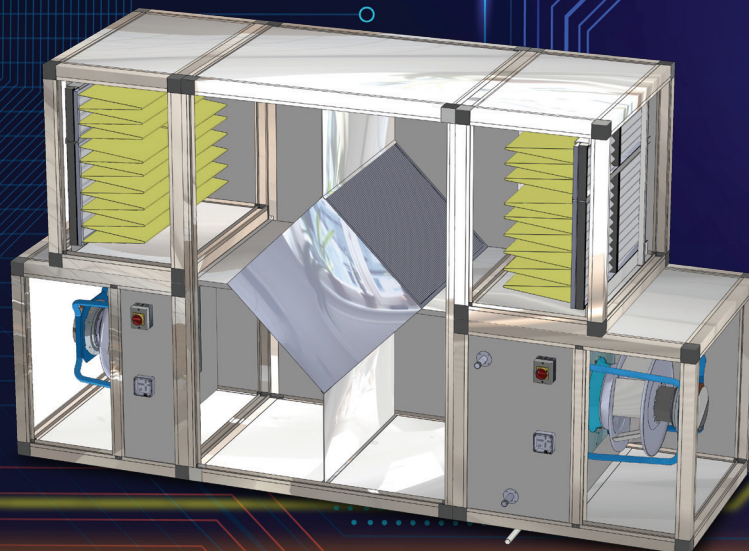
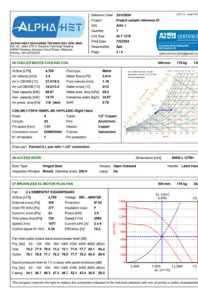
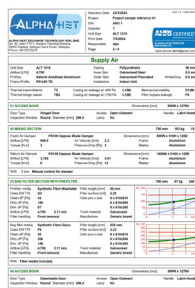
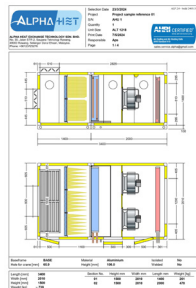
Introduction

Alpha modular air handling unit is designed specially to meet customer needs and requirements.

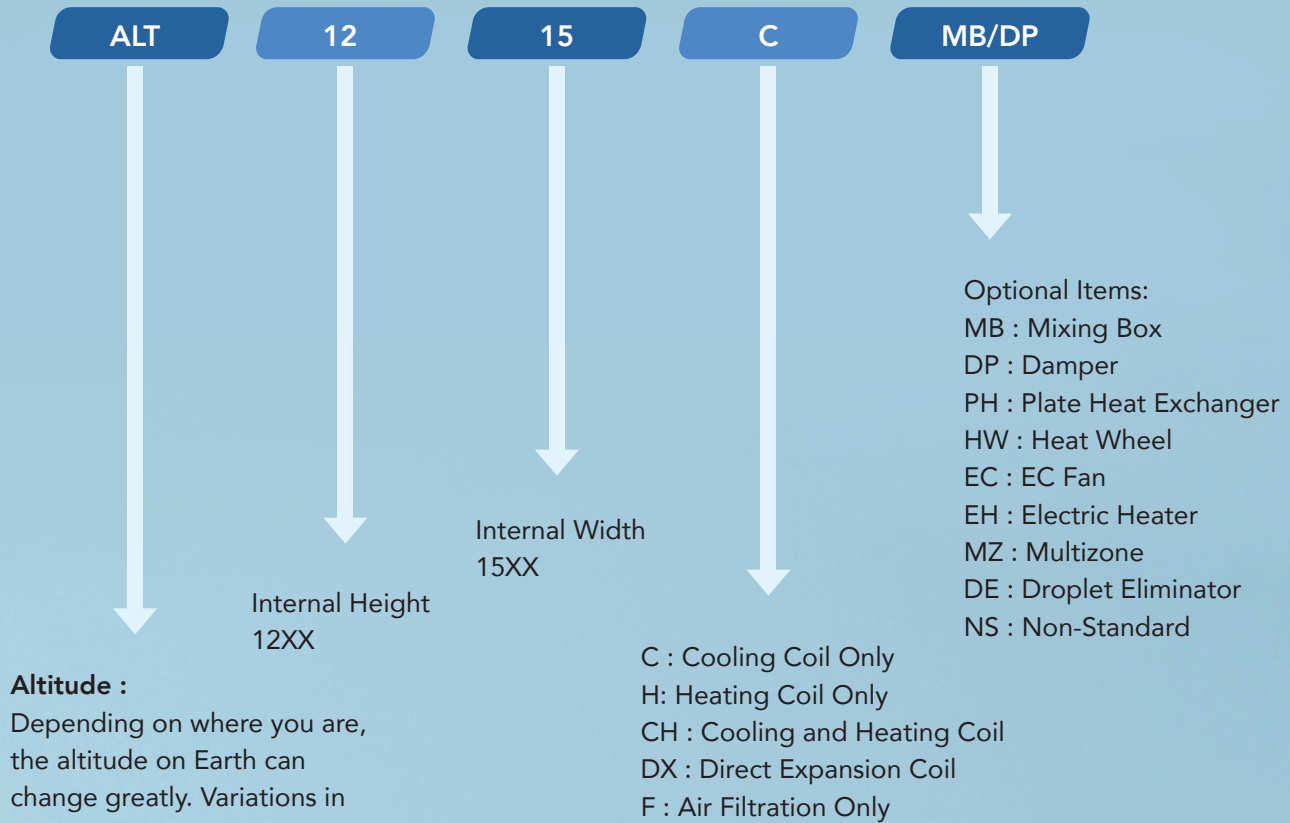
The range cover from 2200 m³/h to 86000 m³/h (2200 cfm to 51100 cfm), and customisable in every aspect and components. Alpha air handling unit is designed to meet high technology processes demand in commercial and industries applications.

Alpha air handling unit is designed in modular system with double skin sandwich panel. The manufacturing system enable a wide range of size selection and configuration to meet various application and advanced filtration option to bring clean air and comfort to variety of space.

The design and manufacturing of Alpha air handling unit is supported by various professional certification. The blower and Fan is AMCA certified and the coil are certified by AHRI. Thus, it guarantees the rating and performance of the product, giving confident to the consultant and end user.



Nomenclature



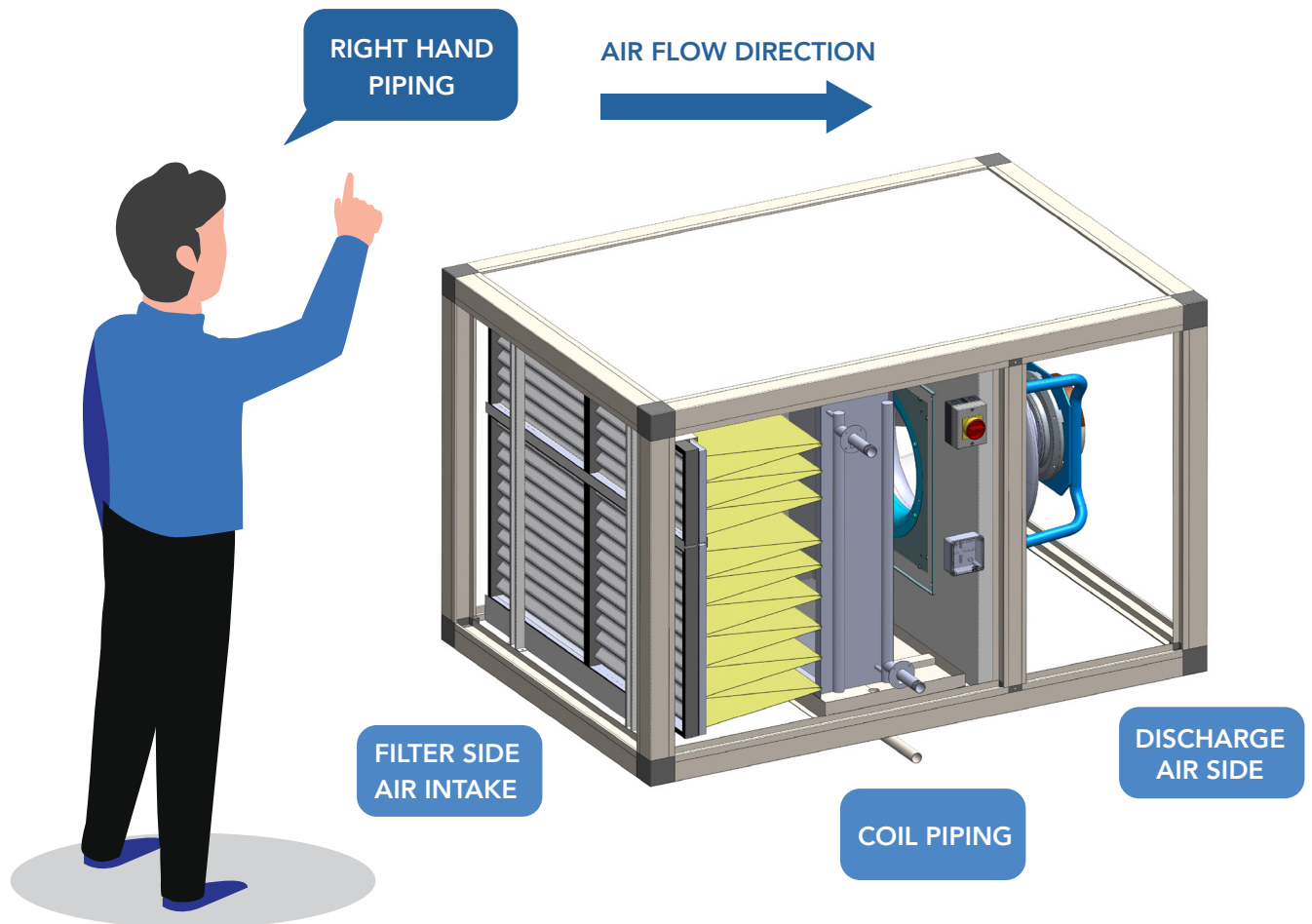
Example Model :

ALT1215C/EC/DP/PH

AHU with internal height 12XX, internal width 15XX and cooling coil only.

Comes with optional item EC Fan, with damper and Plate Heat Exchanger.

Determine piping side of AHU



Facing the filter, follow the direction of air flow, the Coilpiping at right hand side indicate **RIGHT HAND PIPING TYPE**, otherwise, left hand.

Quick Selection Base on Air Flow

The Selection chart can be used to select the suitable AHU model and size base on air flow information on hand.

Example: air flow 8000m³/h, can select model ALT 1209, ALT0912

ALT	Module (H)	06	09	12	15	18	21	24
Module (W)	mm	790	1095	1400	1705	2010	2315	2620
06	790	2,294	3,441					
09	1095	3,863	5,794	7,940	10,086			
12	1400	5,432	8,147	11,165	14,182			
15	1705	7,000	10,500	14,390	18,279	21,779		
18	2010	8,569	12,854	17,614	22,375	26,659	31,420	35,704
21	2315		15,207	20,839	26,471	31,540	37,172	42,241
24	2620			23,535	29,896	35,620	41,981	47,706
27	2925				33,992	40,501	47,733	54,242
30	3230					45,382	53,486	60,779
33	3535						59,238	67,316
36	3840						64,990	73,852
39	4145						70,742	80,389
42	4450						76,494	86,925

Notes:

1. Air flow shown in above table is in m³/h.
2. Air flow shown in above table is based on 2.5 m/s coil face velocity.
3. Available panel thickness : 25mm, 50mm, 65mm.
4. For unit dimension (both length and width) that over 2200mm, will split into multiple sections.
5. Standard unit base height is 100mm.
6. Special request on unit base is available.(, hot dipped, C-Channel)

Selection table - General Data

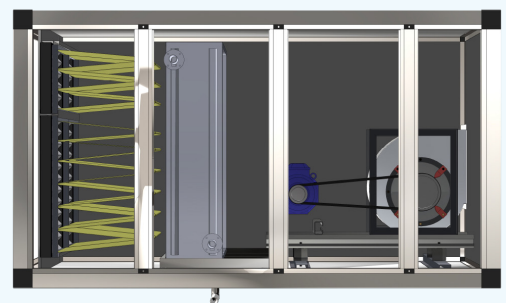
ALT	Chilled Water AHU - 1/2" Coil										
	External Dimension		Air Flow	Header Conn. Size	Cooling Capacity	Water Flow Rate	Air PD	Water PD	ESP	TPD	Motor Power
	H (mm)	W (mm)	m³/h		kW	m³/h	Pa	Pa	Pa	Pa	kW
0606	790	790	2,294	DN25	6.07	1.05	76	0.76	300	626	0.75
0609	790	1,095	3,863	DN25	10.97	1.89	76	2.45	300	626	1.5
0612	790	1,400	5,432	DN32	21.74	3.74	133	5.36	300	683	2.2
0615	790	1,705	7,000	DN32	31.71	5.46	132	12.10	300	682	3
0618	790	2,010	8,569	DN32	41.25	7.10	132	20.20	500	882	4
0906	1,095	790	3,441	DN25	9.16	1.58	77	1.43	300	627	1.5
0909	1,095	1,095	5,794	DN25	16.27	2.80	76	4.20	300	626	2.2
0912	1,095	1,400	8,147	DN32	32.47	5.59	132	6.41	500	882	4
0915	1,095	1,705	10,500	DN32	47.46	8.17	132	11.50	500	882	5.5
0918	1,095	2,010	12,854	DN50	61.81	10.64	132	18.60	500	882	5.5
0921	1,095	2,315	15,207	DN50	75.77	13.04	132	30.30	500	882	7.5
1209	1,400	1,095	7,940	DN32	22.15	3.82	76	2.29	300	626	4
1212	1,400	1,400	11,165	DN40	44.39	7.64	133	5.83	500	883	5.5
1215	1,400	1,705	14,390	DN50	64.97	11.18	132	10.10	500	882	7.5
1218	1,400	2,010	17,614	DN50	84.65	14.57	132	18.70	500	882	7.5
1221	1,400	2,315	20,839	DN50	103.80	17.87	132	30.30	500	882	11
1224	1,400	2,620	23,535	DN65	119.71	20.61	132	40.90	500	882	11
1509	1,705	1,095	10,086	DN32	28.02	4.83	76	3.23	500	826	5.5
1512	1,705	1,400	14,182	DN40	56.30	9.69	133	7.07	500	883	7.5
1515	1,705	1,705	18,279	DN50	82.48	14.20	132	10.50	500	882	11
1518	1,705	2,010	22,375	DN50	107.49	18.50	132	19.20	500	882	11
1521	1,705	2,315	26,471	DN65	131.82	22.69	132	28.50	500	882	11
1524	1,705	2,620	29,896	DN65	152.02	26.17	132	40.40	500	882	15
1527	1,705	2,925	33,992	DN65	176.32	30.35	132	58.30	500	882	15
1815	2,010	1,705	21,779	DN50	98.23	16.91	132	11.10	500	882	11
1818	2,010	2,010	26,659	DN65	128.04	22.04	132	17.40	500	882	11
1821	2,010	2,315	31,540	DN65	157.04	27.03	132	28.50	500	882	15
1824	2,010	2,620	35,620	DN65	181.10	31.18	132	40.30	500	882	15
1827	2,010	2,925	40,501	DN80	210.05	36.16	132	57.40	500	882	18.5
1830	2,010	3,230	45,382	DN80	239.07	41.15	132	79.20	750	1,132	22

Selection table - General Data

ALT	Chilled Water AHU - 1/2" Coil										
	External Dimension		Air Flow	Header Conn. Size	Cooling Capacity	Water Flow Rate	Air PD	Water PD	ESP	TPD	Motor Power
	H (mm)	W (mm)	m³/h		kW	m³/h	Pa	Pa	Pa	Pa	kW
2118	2,315	2,010	31,420	DN65	150.88	25.97	132	17.50	750	1,132	18.5
2121	2,315	2,315	37,172	DN65	185.07	31.86	132	28.50	750	1,132	18.5
2124	2,315	2,620	41,981	DN80	213.42	36.74	132	39.50	750	1,132	22
2127	2,315	2,925	47,733	DN80	247.53	42.61	132	57.00	500	882	18.5
2130	2,315	3,230	53,486	DN80	281.72	48.50	132	78.80	500	882	22
2133	2,315	3,535	59,238	DN80	296.07	50.97	132	30.40	500	882	22
2136	2,315	3,840	64,990	DN100	330.12	56.83	132	39.50	500	882	30
2139	2,315	4,145	70,742	DN100	364.22	62.70	132	50.50	750	1,132	37
2142	2,315	4,450	76,494	DN100	398.46	68.59	132	63.20	750	1,132	37
2418	2,620	2,010	35,704	DN65	171.43	29.51	132	17.60	750	1,132	18.5
2421	2,620	2,315	42,241	DN80	210.29	36.20	132	27.80	750	1,132	22
2424	2,620	2,620	47,706	DN80	242.51	41.75	132	39.40	750	1,132	22
2427	2,620	2,925	54,242	DN80	281.26	48.42	132	56.90	750	1,132	30
2430	2,620	3,230	60,779	DN100	320.11	55.10	132	78.20	750	1,132	30
2433	2,620	3,535	67,316	DN100	337.00	58.01	132	30.60	750	1,132	37
2436	2,620	3,840	73,852	DN100	375.68	64.67	132	40.10	750	1,132	37
2439	2,620	4,145	80,389	DN100	414.44	71.34	132	51.30	750	1,132	37
2442	2,620	4,450	86,925	DN100	453.33	78.04	132	64.30	750	1,132	45

Notes:

1. Cooling capacity based on 1/2" coil with 4 rows and 10 FPI
2. Entering coil temperature based on 27.0°C DB and 19.5°C WB
3. Above data based on coil face velocity 2.5 m/s
4. Chilled water in/out temperature, 7/12°C
5. Header size is based on steel header with BSPT male threaded
6. Copper header and brass connector are available upon request
7. Internal static pressure based on G4 + F8 Filter + Coil
8. ESP could be different according to site condition
9. Coils are AHRI Standard 410 certified



Air Flow with Coil Face Velocity

ALT	External Dimension		Chilled Water AHU - 1/2" Coil						DX AHU - 3/8" Coil					
			Air Flow (m³/h)						Air Flow (m³/h)					
			Coil Face Velocity (m/s)						Coil Face Velocity (m/s)					
	H (mm)	W (mm)	2.0	2.2	2.5	2.8	3.0	3.2	2.0	2.2	2.5	2.8	3.0	3.2
0606	790	790	1,835	2,019	2,294	2,569	2,753	2,936	1,794	1,974	2,243	2,512	2,692	2,871
0609	790	1,095	3,090	3,399	3,863	4,326	4,635	4,944	3,022	3,324	3,777	4,230	4,532	4,834
0612	790	1,400	4,345	4,780	5,432	6,083	6,518	6,952	4,249	4,674	5,311	5,948	6,373	6,798
0615	790	1,705	5,600	6,160	7,000	7,840	8,400	8,960	5,476	6,023	6,845	7,666	8,214	8,761
0618	790	2,010	6,855	7,541	8,569	9,597	10,283	10,968	6,703	7,373	8,379	9,384	10,054	10,725
0906	1,095	790	2,753	3,028	3,441	3,854	4,129	4,404	2,773	3,051	3,466	3,882	4,160	4,437
0909	1,095	1,095	4,635	5,099	5,794	6,489	6,953	7,417	4,670	5,137	5,837	6,538	7,004	7,471
0912	1,095	1,400	6,518	7,170	8,147	9,125	9,777	10,429	6,566	7,223	8,208	9,193	9,849	10,506
0915	1,095	1,705	8,400	9,240	10,500	11,761	12,601	13,441	8,463	9,309	10,578	11,848	12,694	13,540
0918	1,095	2,010	10,283	11,311	12,854	14,396	15,424	16,453	10,359	11,395	12,949	14,503	15,539	16,574
0921	1,095	2,315	12,165	13,382	15,207	17,032	18,248	19,465	12,256	13,481	15,319	17,158	18,383	19,609
1209	1,400	1,095	6,352	6,987	7,940	8,893	9,528	10,163	6,318	6,950	7,897	8,845	9,477	10,108
1212	1,400	1,400	8,932	9,825	11,165	12,505	13,398	14,291	8,884	9,772	11,104	12,437	13,325	14,214
1215	1,400	1,705	11,512	12,663	14,390	16,116	17,267	18,419	11,449	12,594	14,312	16,029	17,174	18,319
1218	1,400	2,010	14,091	15,500	17,614	19,728	21,137	22,546	14,015	15,417	17,519	19,621	21,023	22,424
1221	1,400	2,315	16,671	18,338	20,839	23,340	25,007	26,674	16,581	18,239	20,726	23,213	24,871	26,530
1224	1,400	2,620	18,828	20,711	23,535	26,359	28,242	30,125	18,726	20,599	23,408	26,217	28,089	29,962
1509	1,705	1,095	8,069	8,876	10,086	11,296	12,103	12,910	7,966	8,762	9,957	11,152	11,949	12,745
1512	1,705	1,400	11,346	12,480	14,182	15,884	17,019	18,153	11,201	12,321	14,001	15,681	16,802	17,922
1515	1,705	1,705	14,623	16,085	18,279	20,472	21,934	23,397	14,436	15,880	18,045	20,211	21,654	23,098
1518	1,705	2,010	17,900	19,690	22,375	25,060	26,850	28,640	17,671	19,438	22,089	24,740	26,507	28,274
1521	1,705	2,315	21,177	23,294	26,471	29,648	31,765	33,883	20,906	22,997	26,133	29,269	31,360	33,450
1524	1,705	2,620	23,917	26,308	29,896	33,483	35,875	38,267	23,611	25,972	29,514	33,056	35,417	37,778
1527	1,705	2,925	27,194	29,913	33,992	38,071	40,790	43,510	26,846	29,531	33,558	37,585	40,270	42,954
1815	2,010	1,705	17,423	19,165	21,779	24,392	26,134	27,877	17,423	19,165	21,779	24,392	26,134	27,877
1818	2,010	2,010	21,327	23,460	26,659	29,858	31,991	34,124	21,327	23,460	26,659	29,858	31,991	34,124
1821	2,010	2,315	25,232	27,755	31,540	35,325	37,848	40,371	25,232	27,755	31,540	35,325	37,848	40,371
1824	2,010	2,620	28,496	31,346	35,620	39,895	42,745	45,594	28,496	31,346	35,620	39,895	42,745	45,594
1827	2,010	2,925	32,401	35,641	40,501	45,361	48,601	51,841	32,401	35,641	40,501	45,361	48,601	51,841
1830	2,010	3,230	36,305	39,936	45,382	50,827	54,458	58,089	36,305	39,936	45,382	50,827	54,458	58,089

Air Flow with Coil Face Velocity

ALT	External Dimension		Chilled Water AHU - 1/2" Coil							DX AHU - 3/8" Coil					
			Air Flow (m³/h)							Air Flow (m³/h)					
			Coil Face Velocity (m/s)							Coil Face Velocity (m/s)					
	H (mm)	W (mm)	2.0	2.2	2.5	2.8	3.0	3.2		2.0	2.2	2.5	2.8	3.0	3.2
2118	2,315	2,010	25,136	27,650	31,420	35,190	37,704	40,217	24,984	27,482	31,229	34,977	37,475	39,974	
2121	2,315	2,315	29,738	32,711	37,172	41,633	44,606	47,580	29,557	32,513	36,947	41,380	44,336	47,292	
2124	2,315	2,620	33,585	36,943	41,981	47,019	50,377	53,736	33,381	36,720	41,727	46,734	50,072	53,410	
2127	2,315	2,925	38,187	42,005	47,733	53,461	57,280	61,099	37,955	41,751	47,444	53,137	56,933	60,728	
2130	2,315	3,230	42,788	47,067	53,486	59,904	64,183	68,461	42,529	46,782	53,161	59,541	63,794	68,047	
2133	2,315	3,535	47,390	52,129	59,238	66,346	71,085	75,824	47,103	51,813	58,879	65,944	70,654	75,365	
2136	2,315	3,840	51,992	57,191	64,990	72,789	77,988	83,187	51,677	56,844	64,596	72,347	77,515	82,683	
2139	2,315	4,145	56,594	62,253	70,742	79,231	84,890	90,550	56,251	61,876	70,313	78,751	84,376	90,001	
2142	2,315	4,450	61,195	67,315	76,494	85,673	91,793	97,912	60,824	66,907	76,030	85,154	91,237	97,319	
2418	2,620	2,010	28,564	31,420	35,704	39,989	42,845	45,702	28,640	31,504	35,800	40,096	42,960	45,824	
2421	2,620	2,315	33,793	37,172	42,241	47,310	50,689	54,068	33,883	37,271	42,354	47,436	50,824	54,213	
2424	2,620	2,620	38,165	41,981	47,706	53,431	57,247	61,064	38,267	42,093	47,833	53,573	57,400	61,226	
2427	2,620	2,925	43,394	47,733	54,242	60,752	65,091	69,430	43,510	47,861	54,387	60,914	65,265	69,616	
2430	2,620	3,230	48,623	53,486	60,779	68,072	72,935	77,797	48,753	53,628	60,941	68,254	73,129	78,005	
2433	2,620	3,535	53,852	59,238	67,316	75,393	80,779	86,164	53,996	59,396	67,495	75,594	80,994	86,394	
2436	2,620	3,840	59,082	64,990	73,852	82,714	88,622	94,531	59,239	65,163	74,049	82,935	88,859	94,783	
2439	2,620	4,145	64,311	70,742	80,389	90,035	96,466	102,897	64,482	70,931	80,603	90,275	96,724	103,172	
2442	2,620	4,450	69,540	76,494	86,925	97,356	104,310	111,264	69,726	76,698	87,157	97,616	104,588	111,561	

Notes:

1. Above data is based on 50mm PU panel
2. For unit with coil face velocity above 2.5 m/s, it's advisable to add in droplet eliminator

Filter Usage

Filter	Module (H)	06	09	12	15	18	21	24
Module (W)	Sizes	790	1095	1400	1705	2010	2315	2620
06	24x24	1	1					
	24x20	0	0					
	24x12	0	1					
09	24x24	1	1	2	2			
	24x20	0	0	0	0			
	24x12	1	2	2	3			
12	24x24	2	2	4	4			
	24x20	0	0	0	0			
	24x12	0	2	0	2			
15	24x24	2	2	4	4	6		
	24x20	0	0	0	0	0		
	24x12	1	3	2	4	3		
18	24x24	3	3	6	6	9	9	12
	24x20	0	0	0	0	0	0	0
	24x12	0	3	0	3	0	3	0
21	24x24		3	6	6	9	9	12
	24x20		0	0	0	0	0	0
	24x12		4	2	5	3	6	4
24	24x24			8	8	12	12	16
	24x20			0	0	0	0	0
	24x12			0	4	0	4	0
27	24x24				8	12	12	16
	24x20				0	0	0	0
	24x12				6	3	7	4
30	24x24					15	15	20
	24x20					0	0	0
	24x12					0	5	0
33	24x24						15	20
	24x20						0	0
	24x12						8	4
36	24x24						18	24
	24x20						0	0
	24x12						6	0
39	24x24						18	24
	24x20						0	0
	24x12						9	4
42	24x24						21	28
	24x20						0	0
	24x12						7	0

Notes:

1. Nominal dimension of full size filter is 24" x 24"
2. Nominal dimension of half size filter is 24" x 12"
3. Nominal dimension of medium size filter is 20" x 24"
4. Primary Washable Filter has option of G2, G3 and G4
5. Secondary Pocket Filter has option of M5, M6, F7, F8 and F9
6. Secondary Mini-Pleated Filter has option of M6, F7, F8 and F9 (for short length unit)
7. High Efficiency Particulate Air Filter (HEPA) has option of H13 and H14
8. Filter handling has option of Front Removal or Side Removal

Coil Manufacturing



Copper Pipe Aluminium Finned Type Heat Exchanger

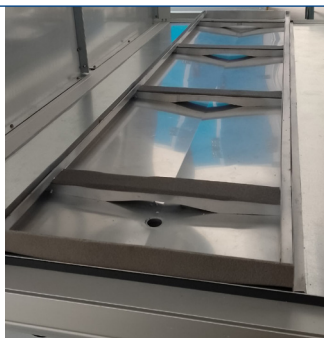
- Coils are AHRI Certified
- In-house coil assembly to ensure better quality
- Leak test with Nitrogen pressure 450 psi(CWC), 700 psi(DX)
- Frame material comes with option of GI, Aluminium, SS304 and SS316
- Header material comes with option of steel header with threaded, steel header with welded flange, copper header with free end or copper header with brass male connector
- Coil fin protection with option of Aeris, Epoxy, or Heresite treatment
- 1/2" Chilled Water Coil
- 3/8" Direct Expansion Coil

General Accessories



Polycarbonate Double Porthole

Door has optional with porthole



Drain Pan

Drain Pan with material option of Powder Coated Galvanized Steel, SUS304 and SUS316



Polyurethane PU Panel

PU Panel sheet metal with option of GI, PPGI, SUS304 and SUS316
PU Panel thickness with option of 25mm, 50mm and 65mm



LED Lighting

Bulkhead lighting



Pressure Differential Gauge

Pressure Differential gauge measures the difference between before and after the filter media

Categorization of filter classes and particle sizes

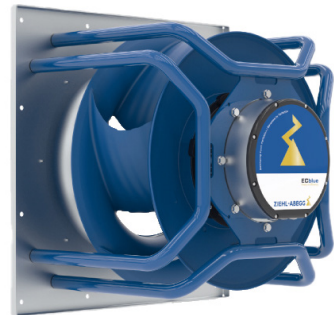
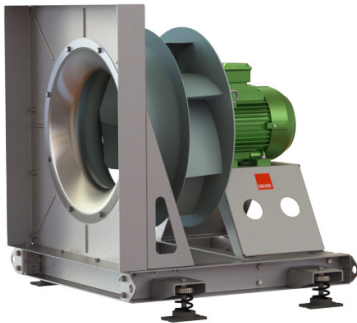
Particle Size	Examples	Filter Class	Typical Applications
Coarse dust, particle size > 10 µm	- insects - textile fibres and hairs - sand - fly ash - spores, pollen - cement dust	G 1	- simple applications (e.g. insect screens for compact machinery)
		G 2	
		G 3	- pre-filters and circulation filters for civil defense shelters
		G 4	- exhaust filters for spray painting booths, kitchens, etc. - inlet air filters for air conditioners and compact machines (e.g. window air conditioners, ventilators) - pre-filters for Filter Classes M6 to F8
Fine dust, particle size 1 - 10 µm	- pollen - spores - cement dust - fly ash - bacteria and germs on host particles	M 5	- outside-air inlet filters for rooms with low purity requirements (e.g. factories, warehouse facilities, garages)
		M 5	- pre-filters and circulation filters in central ventilation stations
		M 6	- final filters for air conditioning of sales rooms, department stores, offices and certain production plants
		F 7	- pre-filters for Filter Classes F9 to E11
Suspended particulates, particle size < 1 µm	- oil fumes and agglomerated soot - tobacco smoke - metallic-oxide smoke	F 7	- final filters for air conditioning of offices, production plants, control centres, hospitals, EDP centres
		F 8	
		F 9	- pre-filters for filter classes E11 to H13 and activated carbon
	- germs, bacteria, viruses - tobacco smoke - metallic-oxide smoke	E 10	- final filters for rooms with high and highest purity requirements (e.g. for laboratories, for foods processing, pharmaceutical, fine mechanical, optical or electronics plants or medical facilities)
		E 11	
		E 12	
		E 11	- final filters for clean rooms, Classes 100,000 or 10,000
	- oil fumes and soot in nascent state - radioactive suspended particulates	E 12	- final filters for clean rooms, Classes 10,000 or 100
		H 13	- final filters in civil defense shelters - exhaust air filters in nuclear plants
	- aerosols	H 14 U 15 U 16	- final filters for clean rooms, Classes 10 or 1

Types of Filter



Continuous operating temperature: Max. 93°C	Continuous operating temperature: Max. 60°C	Continuous operating temperature: Max. 80°C
Operating relative humidity: ≤100 (%RH)	Operating relative humidity: ≤100 (%RH)	Operating relative humidity: ≤100 (%RH)
Frame Material: Extruded aluminium/ galvanised steel / stainless steel	Material: Aluminium / galvanised steel	Material: Galvanised steel / aluminium / stainless steel / plywood
Thickness: 8mm, 10mm, 12mm, 21mm, 23mm, 46mm, 96mm	Thickness: 20mm, 21mm, 26mm, 46mm, 47mm	Thickness: 80mm, 95mm, 150mm, 220mm, 292mm Header: Non-header/ single header (thickness: 20mm)
Material: Polyester fiber	Material: Melt-blown synthetic fiber	Material: Fiberglass
Washable G2, G3, G4	M5, M6, F7, F8, F9	H13, H14

Types of Blower



Optional Accessories



Aluminium Damper for mixing air section
(with/without Motorized Control).

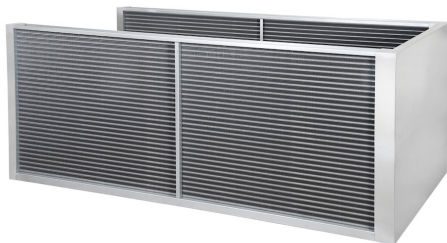


The cross-flow heat exchangers are
used in ventilation and cooling
systems where heat needs to be
shifted from one airflow to another.



Heat Recovery wheel rotates between the
air streams and transfers energy between
fresh air and exhaust air.

Optional Accessories



Wrap around dehumidifier heat pipes are passive devices intended for use in air conditioning equipment to enhance dehumidification, reduce load on A/C equipment, and reduce or eliminate reheat.



Steam-based humidification systems are capable of compensating for reduced or fluctuating relative humidity (RH) levels at any time of the year, regardless of climate. This way, environments can be protected against adverse health, comfort, and productivity-damaging issues.



UV Light is a UV disinfection system, UV light can sanitize the air that crosses its path. With adequate exposure, the light can kill airborne bacteria, mold, fungi and some gases without restricting airflow. It also increase efficiency of AHU to save power, reduce coil replacement frequency and maintenance expenditure.

Optional Accessories



Electric heaters are used for sensible or reheating purpose to control the temperature and humidity respectively. The electric heaters with different capacities can be provided with different watt density as per the requirement.

The heater can be provided in 3 phase or single phase as per the specification.s



Inverter is energy saving technology that eliminates wasted operation in air conditioners by efficiently controlling motor speed.

Project Reference



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