

**KLIMAK
AIR HANDLING
UNITS.**

TABLE OF CONTENTS.

04	OUR PROJECTS
26	PROJECT LIST
34	OUR PRODUCTS
36	AHU OVERVIEW
42	CASING
45	STANDARD MODULES AND SECTIONS
72	HYGIENIC FEATURES
74	CUSTOMIZATION
76	SOFTWARE SELECTION
80	PARTNERSHIP
84	CONTACT US

OUR PROJECTS



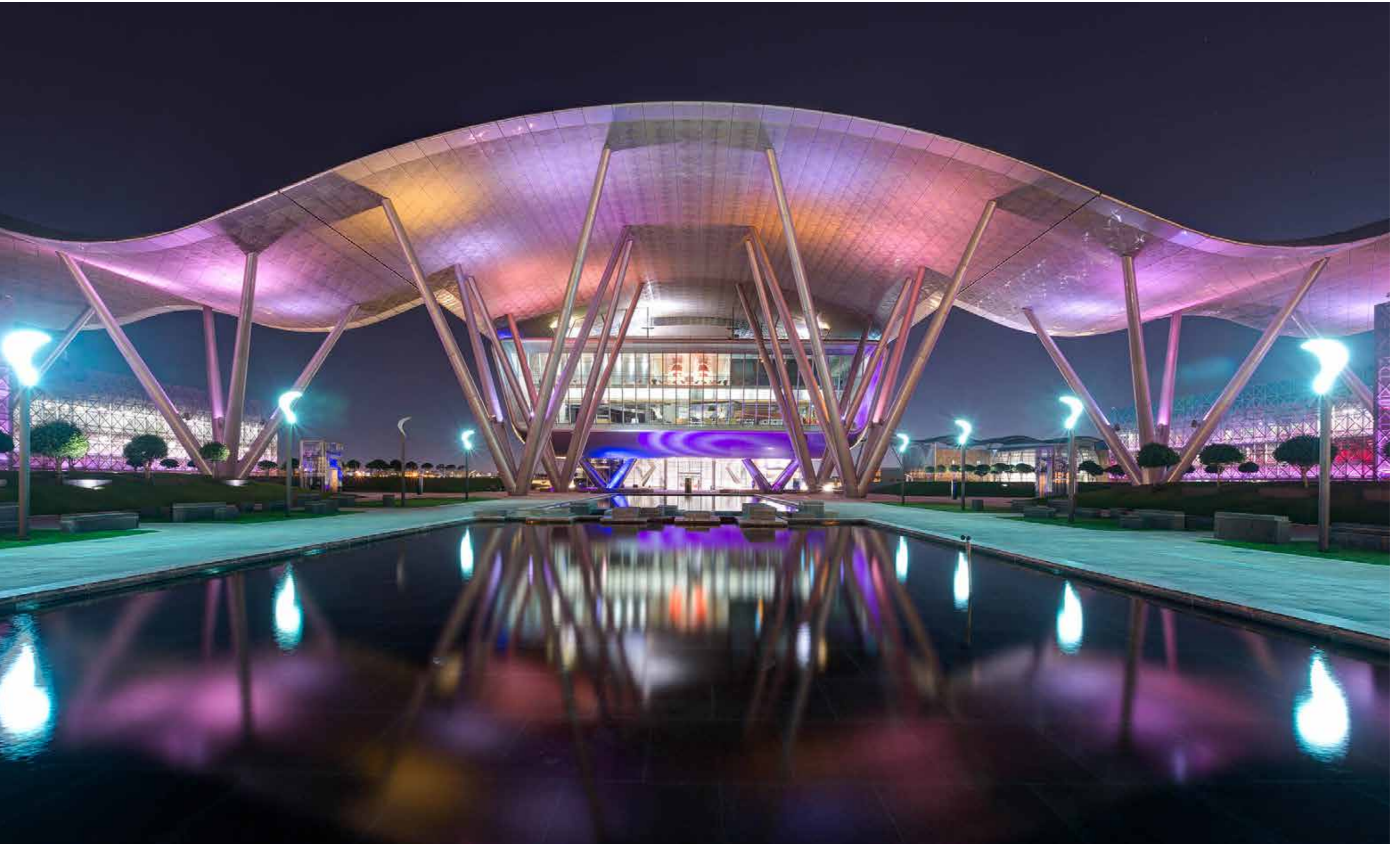


















MIDDLE EAST

UNITED ARAB EMIRATES

DLC - Head Quarter	175
American University - Sharjah	144
Burj Dubai	144
Ferrari World Abu Dhabi	126
Emirates Hangar	106
Mall of the Emirates	91
Manar Mall at Ras Al Khaima	90
Old Town Commercial Island	85
Knowledge Village	77
Dubai Internet City	71
Emirates Towers - Offices	62
Abu Dhabi Trade Centre	61
Shk. Zayed Central Hospital - Abu Dhabi	58
Marina Mall Abu Dhabi	57
Semi Luxury Apartments for Rashid	54
Hospital Marina Mall - Abu Dhabi / Plug Ins	50
Abu Dhabi International Airport - Etihad	46
Mall of the Emirates - Hotel	46
Dubai International Airport	45
Yas Island Welcome Pavilion	44
Flower Centre	38
Technical School	36
Al Mass Tower	33
ENEL Power	30
Rest House Motor Service Station	30
Commercial Bank of Dubai	29
Polyclinic at Al Ain	29
Shk. Saif Villa	28
Media City	27
Ajman Hospital – Ajman	25
Emirates Towers - Podium	23
Vegetable & Fish Market at Al Ain	23
Zayed Cricket stadium	22
Emirates Towers - Hotel	21
Wafi Hotel and Mall	21
Downtown Jebel Ali	20
Jumeirah Island	20
Sharjah University – Meeting Hall	20
Al Ghurair Development	16
Aweer Power Station	16
Zabeel Palace Kitchen	15
Bustan Rotana Hotel – Dubai	14

Hatta Community Hospital	14
Hatta Hospital	14
Proposed New Stables	13
7WX – Dubai Marina (468,000 m3/hr)	12
Al Aryam Tower	12
Abu Dhabi Air Traffic - ATCC	10
Metropolitan Beach Tower Cinema	10
Supermarket @ Al Ghurair	9
Etihad Car Park	8
HH Sheikh Zayed Villa -Abu Dhabi	7
Al Jimi Tower	6
Dubai Polyfilm	6
Snow Dome	6
Other Projects in UAE	62

GRAND TOTAL 2357

BAHRAIN

Bahrain City Centre	96
BAPCO	51
Le Meridien	21
Housing Bank Mall at Sanabis	19
Majlis at Rowdah	17
Mannai Residence	15
Pool Pavilion	15
Al Alawi Complex	11
Gulf Hotel	9
HIDD & SEEF Pumping Station	9
GPIC	8
Other Bahrain Projects	18

GRAND TOTAL 289

LEBANON

Byblos Bank	23
Lebanese Broadcasting Corporation	7
AISHTI	4

GRAND TOTAL 34

YEMEN

Al Tawara Hospital	4
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GRAND TOTAL 4



QATAR

Barwa Financial District	654	QAFCO	41	Arab Bank	16	Al Jazeera Satellite - Space Channel	6
Sidra Medical Research Centre	380	Al Bida Plaza	40	Qatar Islamic Bank	16	Emiri Diwan Office	6
Royal Plaza	340	Toyota Showroom	40	Commercial Complex	14	Hypermarket	6
New Doha International Airport	288	Ministry of Foreign Affairs	34	Jaidah Villa for Mr. Ali	14	Igloos	6
Junior School	184	QAFAC	33	Midmac Office Bldg.	14	Mumtaaza Co.	6
The Villaggio	172	Central Plant CP3 & CP6	32	Villa for Mr. Omar Al Mana	14	QASCO	6
Waqood Tower	163	Qatar University - Women's College	31	Al Jazeera Children Channel	13	Ras Laffan & Mesaieed Substation	6
Elementary Schools	115	Shopping Mall at D' Ring Road	131	Dukhan Field Gas	13	Substation at Umm Bab & Dukhan	6
Cultural Village	106	Al Wajbah Complex	30	Medical Commission	13	Other Projects in Qatar	113
Dolphin Tower	100	Landmark	29	Millennium Hotel	13	Villa for Mr. Jaidah	9
Al Hodaifi Tower	87	National Command Centre	29	QAPCO	13	Al Kaharayeen Villa	8
Barwa Commercial Avenue	84	Cancer Hospital	27	Women's Sport Club	13	Ammunition Stores at Qatar Emiri Naval Force	8
Hamad Hospital	83	Marriott Gulf Hotel	25	Aquatic Complex	12	Doha North Super	8
Science and Technologies Park at Qatar Foundation	82	Al Saad Sports Club	24	Mecon Office	12	Falcon Space Channel	8
Al Udeid	79	Bridge Arts & Science College at Qatar Foundation	24	Qatar Motorcycle Grand Prix	12	Museum/Aquarium	8
Khalifa Stadium	79	British Bank	24	Qatar Shipping Co.	12	Salam Plaza	8
Texas A&M College at Qatar Foundation	75	Doha International Airport	24	Acolid Building	10	Villa for Shk. Mohammed bin Hamad	8
City Centre	71	Refinery & Administration Bldg.	24	Swimming Pool - H.H. Shk. Hamad & Shk. Abdulaziz	10	New NCC Bldg.	7
Schools	70	Commercial Bank Plaza	23	Technical Record Centre for Qatar Petroleum	10	Office Building Grand Hamad Avenue	7
Ministry of Interior	67	QFIS	20	Banque Paribas	9	Al Jazeera Satellite - Space Channel	6
Defence HQ	56	New Training Centre at Dukan	19	Qatar Islamic Museum	9	Emiri Diwan Office	6
Indoor Stadium	56	Rumaillah Hospital	19	Villa for Mr. Jaidah	9	Hypermarket	6
Al Bidda Tower	48	Sheraton Gulf Hotel	19	Al Kaharayeen Villa	8	Igloos	6
QP Central Office Building	46	Central Plant CP2 & 4 at Qatar Foundation	18	Ammunition Stores at Qatar Emiri Naval Force	8	Mumtaaza Co.	6
Jaidah Hotel	45	Darwish Tower	18	Doha North Super	8	QASCO	6
Akis Primary School	44	Palace of H.H. the Emir	18	Falcon Space Channel	8	Ras Laffan & Mesaieed Substation	6
Beach Resort & Villas	44	Qatar Flour Mills (KDS)	18	Museum/Aquarium	8	Substation at Umm Bab & Dukhan	6
Emadi Centre	43	Tennis & Squash Courts	18	Salam Plaza	8	Other Projects in Qatar	113
North Camp 12 Defence Base	42	Ras Abu Fontas Power Station	17	Villa for Shk. Mohammed bin Hamad	8		
University of Qatar - Phase III	42	Al Sulaithi Office Tower	16	New NCC Bldg.	7		
Al Wusayl Shooting Range	41	AM House	16	Office Building Grand Hamad Avenue	7		
						GRAND TOTAL	5069

ASIA

INDIA

Bharat Diamond Bourse - Bombay	196
HI-TEC Hyderabad	116
Techtran Mushroom - Hyderabad	45
Wipro - Keonics City - Bangalore	42
Verifone - Bangalore	39
American Embassy School - New Delhi	33
Bhushan Steels - Calcutta	21
Gaetec - Hyderabad	17
GWALIOR	17
Tata Cummins - Jamshedpur	16
CMC Hospital - Vellore	12
Warner Lambert - Bangalore	12
AXES Technologies	11
Cybertech - Bombay	10
Fort House - Bombay	8
Wipro - Bangalore	8
Other Projects in India	9

GRAND TOTAL 612

IRAN

South Pars	55
EPC Petro Chemicals	15
Arak Butachlor	13
Esfahan Petrochemical Complex	5
Ghenshm Oil Industry	3

GRAND TOTAL 91

BRUNEI

Bumi Jaya Motors	2
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GRAND TOTAL 2

RUSSIA

Hotel	30
Textile Unit - Siberia	1
Paint Factory - Moscow	1

GRAND TOTAL 32

HONGKONG & CHINA

Various Projects	85
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GRAND TOTAL 32

SINGAPORE

Glaxco Laboratories - Foster Wheeler	40
Sembawang (OTEC)	7
Mandai	3
Henden Special Forces Camp	2

GRAND TOTAL 52

JAPAN

Poultry Processing Factories	52
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GRAND TOTAL 52

SRI LANKA

Walls Ice Cream Factory - Ceylon	8
Taj Exotica Hotel	1

GRAND TOTAL 9

PAKISTAN

Packages Limited Lahore	6
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GRAND TOTAL 6

AFRICA

BOTSWANA	
Mahalapye Hospital	85
A.S.A.	10
Police Training College	9
GRAND TOTAL	104
MAURITIUS	
State Commercial Bank	28
Balaclava Resort & Hotel	19
MED. Point Hospital	2
GRAND TOTAL	49
LIBYA	
Western Mountain	6
GRAND TOTAL	6

USA	
Hospital Project	13
Food Processing Factory	3
GRAND TOTAL	13



UNITED KINGDOM	
ACM - UK	9
LLOYDS BANK	8
Trinity College of Music	6
Euxton Hall Hospital	6
Fitness Centre	4
Ashtead Hospital	4
Guys Hospital	3
The Merchant Centre	3
West Midlands & Duchy Hospital	2
Evans Medical (John Brown)	2
West Smithfield	2
Sharwood House	2
Fitzwilliam Hospital	2
Trans Euro Warehouse	1
Golden Lane	1
Dunhill	1
Basil Street Hotel	1
Curzon Street	1
MKW Snodland	1
32 St. Mary At Hill	1
Queens Wood Golf Club	1
Renacres Hall Hospital	1
Kelso Place	1
25 St. James Place	1
Brighton University Theatre	1
Priory Place	1
Buckingham Palace	1
GRAND TOTAL	69
SWEDEN	
Up John - Pharmacia	13
GRAND TOTAL	13
CYPRUS	
Larnaca Theatre	2
Ayios Andreas	2
4 Star Hotel	7
GRAND TOTAL	11
TURKEY	
FIAT Factory	1
GRAND TOTAL	1

KLIMAK S.R.L.

KLIMAK S.R.L.

OUR PRODUCTS



A good indoor climate is vital...

Fresh air is a natural resource that is available around us. However, we must remain economical with this essential resource and efficient in utilizing it smartly. This is done through maintaining a responsible balance between the designing of good ventilation systems and considering energy consumption and well thought out material usage and production methods.

SAFID/Klimak have an extensive range of Air Handling Units, with the ability to customize the units as per requirements and applied environments. Our AHUs are installed in a variety of locations - including homes, hotels, airports, healthcare facilities, laboratories, sports and commercial centers, educational institutions and more.



OFFICES

Office buildings generally require good ventilation during the day as well as heat and cooling recovery and reconditioning of supply air depending on external conditions. As a rule, offices develop an excess of heat produced by people, lighting, solar radiation, computer equipment, etc. In many cases there is a need to cool the air and prevent uncomfortable high temperatures. In an office environment, there is also considerable need to reduce the noise generated by the ventilation system.



INDUSTRY

Industrial premises will often have high airflows if the work carried out there generates high levels of air pollution. If the pollutants are also aggressive, there may be requirements that affect the choice of material used. We offer products for different environmental classes that can cope with tough environments. Filtration of processed air can be adapted to suit specific demands.

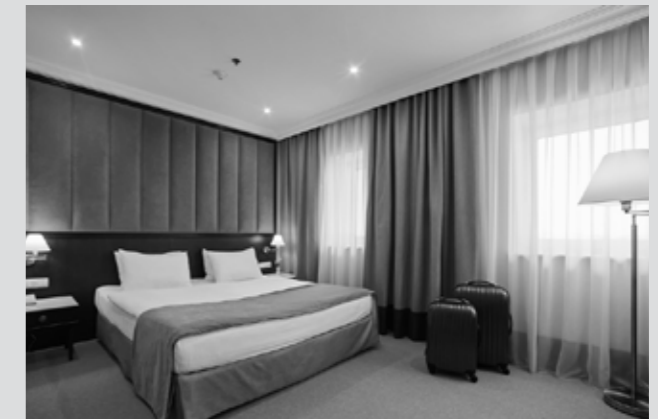
EDUCATIONAL INSTITUTIONS

A school environment means a lot of people present at certain times of the day, i.e. generally there are relatively large variations. This means that it should be possible to use demand control for the ventilation system. Normally, with heat and/or cool recovery is warranted. There will also be short periods during the year when heating may be required and at all times the demand for low noise levels is always high.



HOTELS

The requirements for conditioning in hotels are characterized by demands relating to fire protection, demand control and low noise levels. The choice of air handling unit will probably be affected by these demands. What is important here is good functions for speed control and quiet operation. In addition to quiet air handling units with demand control, we can also supply dampers for fire protection.



SHOPS

As a rule, the number of people in a shop changes constantly throughout the day, making a control on-demand ventilation system the sensible option. Recirculating air with heat recovery can be one optimized solution for these types of premises. When there are few people present an increased amount of return air can be mixed into the system. As the number of people present increases, the amount of return air is reduced and replaced with fresh outdoor air. If heating is required, the premises can be warmed up by using 100% recirculating air.



HEALTHCARE PREMISES

Healthcare premises can encompass numerous activities, everything from operating theatres to wards. The activity determines the requirements. Operating theatres will have stringent demands for cleanliness and ventilation. Wards require low noise levels. If several areas are served by the same system, the unit must have demand control and possibly even subsystems. Our customized air handling units can satisfy all requirements relating to healthcare premises, whether these have to do with air cleanliness, noise levels or demand control.



FLEXIBILITY

Our AHU selection is based on design requirements by clients to give complete application flexibility.

CUSTOM BUILT

SAFID-Klimak's design team, with around four decades of experience, understands the need for high quality Air Handling Units, custom designed and custom built for aggressive ambient conditions. It's expertise is in the design and manufacture of AHUs for various demanding applications including hospitals, airports and commercial centres, providing long term reliability and continuous operation.

RIGIDITY

Double skin panels are fixed to an anodized Aluminum alloy framework with stainless steel screws forming a rigid casing enclosing various air treatment sections such as mixing, filtration, heating, cooling, humidification, supply fan, extract fan, etc.



FEATURES

AIR TIGHTNESS

Air tight ceiling is insured through a neoprene gasket between the panel and the frame depending on the application and the operating environment.

EASY MAINTENANCE

SAFID-Klimak ensures that its equipment is relatively maintenance free and should the need arise the unit is:

- Easily accessible through its access doors and hatches.
- The panels can be easily removed and assembled back for complete maintenance.

SAFID-Klimak has an established policy of deputing technicians with first-hand knowledge if required.

SAFID- Klimak prides itself as a company to ensure satisfactory operation of their equipment, even beyond the contractual obligations.

EASY TO CLEAN

The U shape profile prevents accumulation of dirt, dust and germs, and is easy to clean.

The checkered plate provides a non-slippery ground during cleaning.



U Shape Profile



The drawing shows that the locking profiles can be removed to dismantle the panel and enable easy access.

Removable Panels

PANELS

Panel Thickness

Double skin insulated panels 50mm thick

Insulation Type

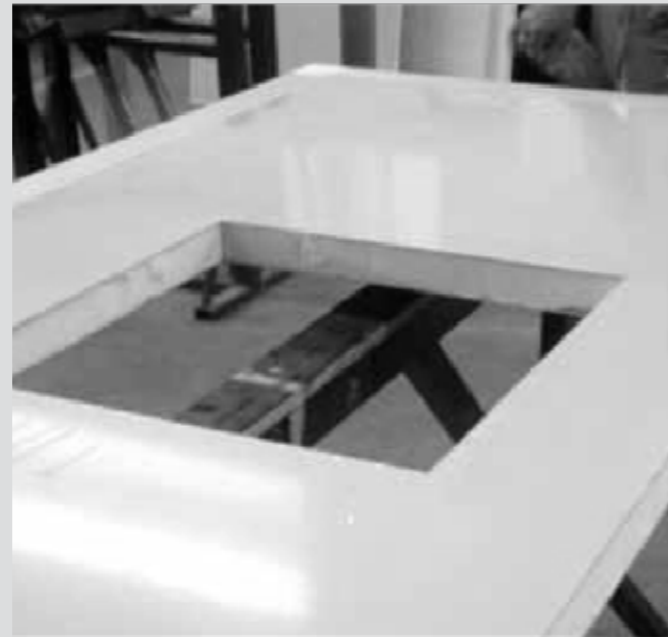
Insulation can be fiber glass or polyurethane, depending on requirements

Density

PU: 50kg/m³

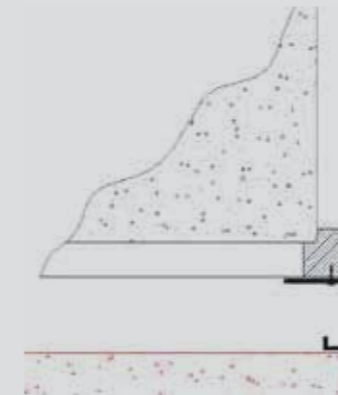
FG: 120kg/m³

These panels are pre-painted and covered with protective foil. Together with the thermal break profiles provide an efficient thermal insulation for the unit making it more efficient, green by saving energy and provide sound attenuation to the surrounding.



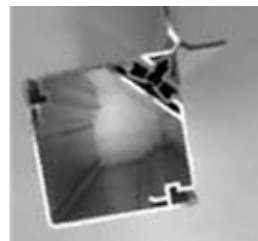
BASE FRAME AND FLOOR RE-ENFORCEMENT: SUPPORTING FRAME

Units are supplied with powder coated base frame with 3.5mm galvanized steel thickness. The base frame extends under the perimeter of the complete monoblock unit, and under the perimeter of each section, when supplied in multiple sections.

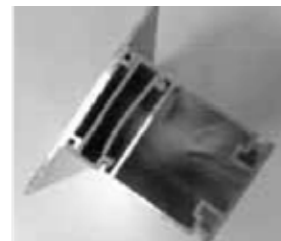


PROFILES

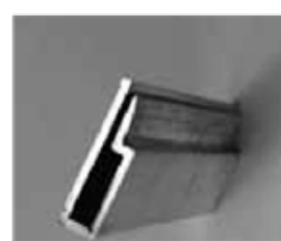
Profiles with thermal break ensure better performance and less energy loss. The new locking mechanism enables fast mounting and dismantling of panels.



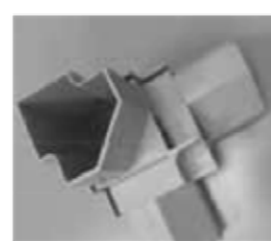
Corner Profile
(sp. 50/58 with thermal break)



Omega Profile
(sp. 50/58 with thermal break)



Panel Block Profile



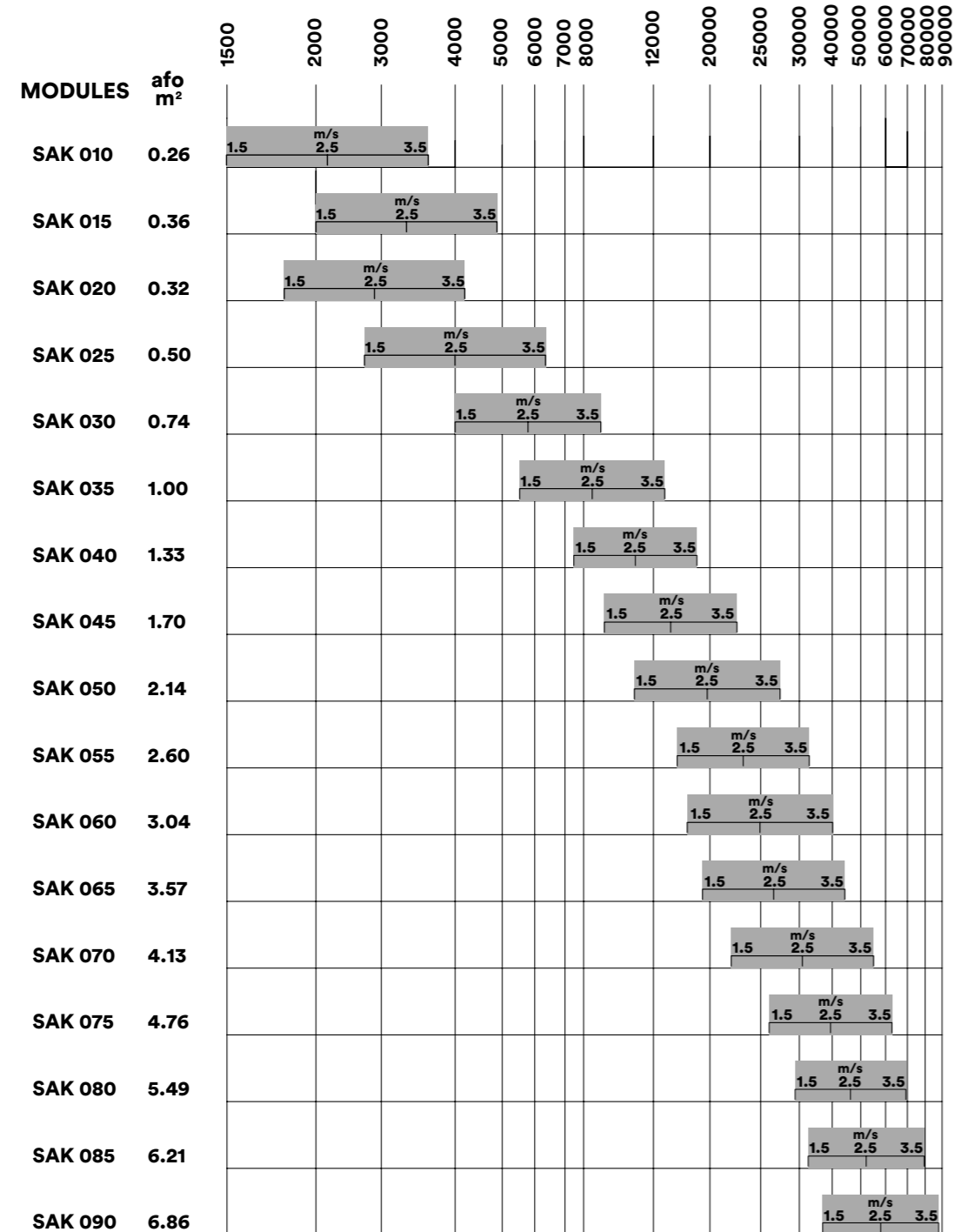
Nylon Corner Piece

ACCESS DOORS AND HATCHES

Double skin access doors are provided either fully removable or with hinges made of nylon, to aid in the inspection, cleaning or maintenance of the components in various sections such as filters, fans, motors, coils, etc.



AIR HANDLING UNIT SELECTION



Selection Diagram Air Flow Rate in m³ per hour
Air Velocity more than 2.5m/s requires droplet eliminator (for cooling)



AIR HANDLING UNIT

CERTIFIED AHU

- AHRI 430: SAFID - Klimak AHUs are AHRI (ARI) 430 Certified
- AHRI 410: SAFID - Klimak Coils are AHRI (ARI) 410 Certified
- ETL: SAFID - Klimak AHUs are ETL Listed for standard ANSI/UL 1995
- EN 1886: Mechanical Performance with T2 - TB2 Ratings
- EN 13053: Rating and Performance of AHU Components and Sections
- H 6021: Certified Hygienic Units for Hygienic Applications
- Certified ISO 9001 for Design and Production of AHUs and FCUs



MIXING BOX SECTION

Control Dampers (VA)

Volume control dampers are mounted according to requirements but are designed in accordance to ASHREA standards

Dampers are constructed with opposed or parallel airfoil blades, made of aluminium alloy extrusions and are assembled in aluminium alloy framework.

Dampers are sized for 6.0 m/sec velocity.

Optional: Ultra low leakage/low leakage dampers.

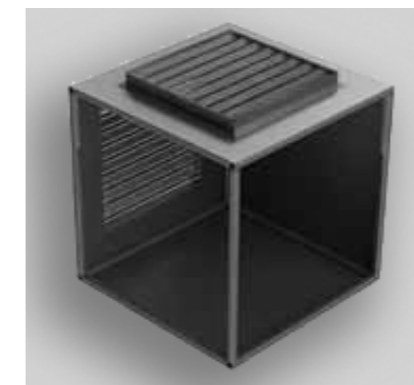
MIXING BOX DATA TABLE

Modules	Unit Dimension	Length	Optimized Damper Section						Weight kg
			Size mm		Pressure Drop Pa		PU	FiberGlass	
			W	H	Front Entry	Top Entry			
SAK 010	1130 x 530	980	600	225	12	13	117	131	
SAK 015	1430 x 530	980	800	225	12	14	139	156	
SAK 020	830 x 830	980	500	325	12	13	115	130	
SAK 025	1130 x 830	980	600	325	16	11	140	157	
SAK 030	1130 x 1130	980	750	425	19	15	162	183	
SAK 035	1430 x 1130	980	1050	425	14	16	189	213	
SAK 040	1430 x 1430	830	1050	525	15	16	190	215	
SAK 045	1730 x 1430	830	1400	525	15	17	217	245	
SAK 050	1730 x 1730	1130	1400	679	14	17	299	339	
SAK 055	2030 x 1730	1130	1600	725	14	18	334	377	
SAK 060	2030 x 2030	1130	1650	775	17	19	365	413	
SAK 065	2330 x 2030	1130	1950	775	17	20	401	454	
SAK 070	2330 x 2330	1430	1950	975	14	18	512	580	
SAK 075	2630 x 2330	1430	2150	1025	14	19	556	630	
SAK 080	2630 x 2630	1430	2250	1025	17	20	596	676	
SAK 085	2930 x 2630	1580	2400	1125	15	19	687	779	
SAK 090	2930 x 2930	1580	2500	1175	17	20	732	831	

AIR HANDLING UNIT

MIXING BOX DATA TABLE

Modules	Unit Dimension	Length	FULL DAMPER SECTION						Weight kg
			Size mm		Pressure Drop Pa		PU	FiberGlass	
			W	H	Front Entry	Top Entry			
SAK 010	1130 x 530	980	1130	530	4	13	120	134	
SAK 015	1430 x 530	980	1430	530	4	14	143	159	
SAK 020	830 x 830	980	830	830	4	12	119	133	
SAK 025	1130 x 830	980	1130	830	4	11	144	161	
SAK 030	1130 x 1130	980	1130	1130	4	14	168	189	
SAK 035	1430 x 1130	980	1430	1130	4	15	196	221	
SAK 040	1430 x 1430	830	1430	1430	4	15	200	224	
SAK 045	1730 x 1430	830	1730	1430	4	16	228	256	
SAK 050	1730 x 1730	1130	1730	1730	4	16	312	352	
SAK 055	2030 x 1730	1130	2030	1730	4	17	348	392	
SAK 060	2030 x 2030	1130	2030	2030	4	17	383	431	
SAK 065	2330 x 2030	1130	2330	2030	4	17	421	474	
SAK 070	2330 x 2330	1430	2330	2330	4	17	534	602	
SAK 075	2630 x 2330	1430	2630	2330	4	18	580	654	
SAK 080	2630 x 2630	1430	2630	2630	4	18	625	705	
SAK 085	2930 x 2630	1580	2930	2630	4	18	719	811	
SAK 090	2930 x 2930	1580	2930	2930	4	18	768	866	



AIR HANDLING UNIT

MIXING BOX DATA TABLE

Modules	Unit Dimension	Length	HALF DAMPER SECTION						Weight kg
			Size mm		Pressure Drop Pa		PU	FiberGlass	
			W	H	Front Entry	Top Entry			
SAK 010	1130 × 530	980	1130	380	4	13	118	132	
SAK 015	1430 × 530	980	1430	380	4	14	140	157	
SAK 020	830 × 830	980	830	530	4	12	116	131	
SAK 025	1130 × 830	980	1130	530	4	11	140	158	
SAK 030	1130 × 1130	980	1130	680	5	14	164	185	
SAK 035	1430 × 1130	980	1430	680	5	15	190	214	
SAK 040	1430 × 1430	830	1430	830	5	15	192	216	
SAK 045	1730 × 1430	830	1730	830	5	16	218	246	
SAK 050	1730 × 1730	1130	1730	980	5	16	300	340	
SAK 055	2030 × 1730	1130	2030	980	6	17	334	377	
SAK 060	2030 × 2030	1130	2030	1130	6	17	366	414	
SAK 065	2330 × 2030	1130	2330	1130	6	17	401	454	
SAK 070	2330 × 2330	1430	2330	1280	6	17	512	580	
SAK 075	2630 × 2330	1430	2630	1280	6	18	554	628	
SAK 080	2630 × 2630	1430	2630	1430	6	18	595	675	
SAK 085	2930 × 2630	1580	2930	1430	6	18	684	776	
SAK 090	2930 × 2930	1580	2930	1580	6	18	731	830	

FILTERS SECTIONS

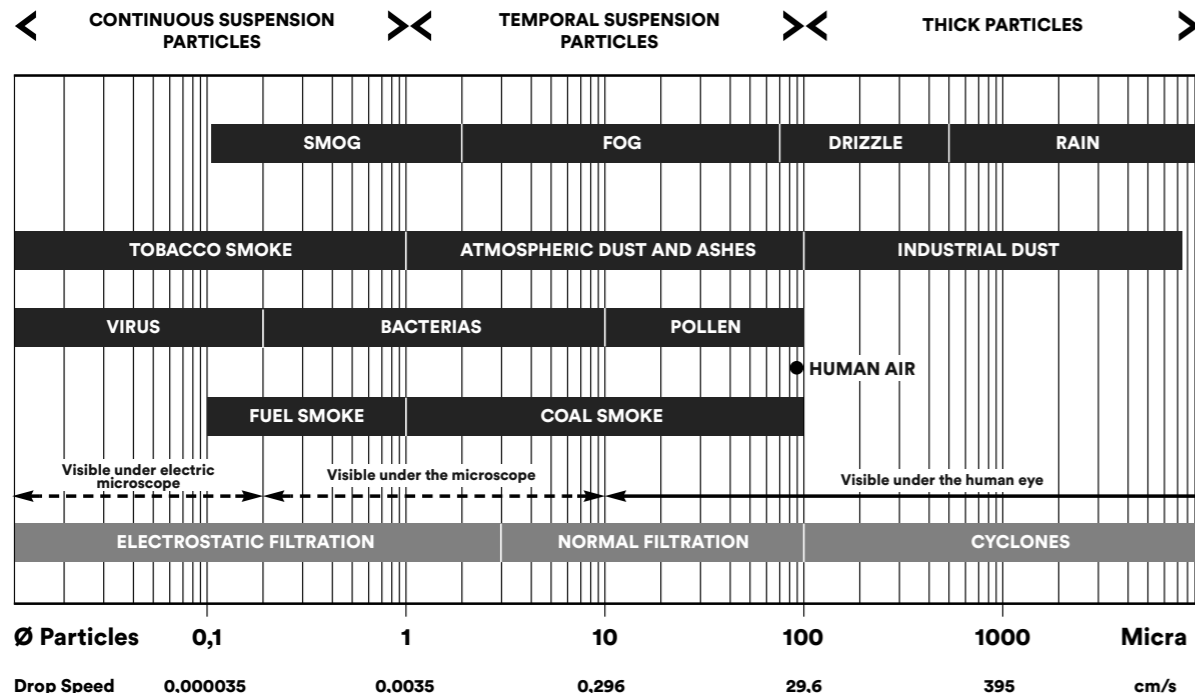
Two main types of filters: Sliding Filter and Universal Frame Filter.
Different range of filters available depending on requirements and application, from synthetic panels, bag filters, HEPA filters etc.



FILTERS DATA TABLE

	Unit Dimension	Sliding Frame	Universal Frame	Filter Configurations		Number of Filters		Weight kg	
				Filter H	Filter W	592×592	295×295	PU	FiberGlass
SAK 010	1130 × 530	380	-	0.5	1.5	0	1	41.6	46.2
SAK 015	1430 × 530	380	-	0.5	2.0	0	2	47.9	53.3
SAK 020	830 × 830	380	-	1.0	1.0	1	0	38.2	42.8
SAK 025	1130 × 830	380	-	1.0	1.5	1	1	45.6	51.0
SAK 030	1130 × 1130	380	-	1.5	1.5	1	2	51.0	57.2
SAK 035	1430 × 1130	380	-	1.5	2.0	2	2	58.5	65.6
SAK 040	1430 × 1430	-	830	2.0	2.0	4	0	155.7	173.0
SAK 045	1730 × 1430	-	830	2.0	2.5	4	2	176.2	195.3
SAK 050	1730 × 1730	-	830	2.5	2.5	4	4	188.2	209.1
SAK 055	2030 × 1730	-	830	2.5	3.0	6	3	207.2	229.9
SAK 060	2030 × 2030	-	830	3.0	3.0	9	0	217.0	241.5
SAK 065	2330 × 2030	-	830	3.0	3.5	9	3	237.1	263.5
SAK 070	2330 × 2330	-	830	3.5	3.5	9	6	248.4	276.6
SAK 075	2630 × 2330	-	830	3.5	4.0	12	4	267.1	297.1
SAK 080	2630 × 2630	-	830	4.0	4.0	16	0	276.3	308.1
SAK 085	2930 × 2630	-	830	4.0	4.5	16	4	296.1	329.7
SAK 090	2930 × 2930	-	830	4.5	4.5	16	8	307.0	342.5

CHARACTERISTICS OF THE MAIN ATMOSPHERIC POLLUTANTS



EFFICIENCY TABLE

CLASSIFICATION	ARRESTANCE OR DUST SPOT	US	EUROPEAN UNION		PARTICLE SIZE	APPLICATION		
	EFFICIENCY	ASHRAE 52.2	EN779 CLASS					
PRE FILTER G CLASS	AFI < 65%	MERV 1	G1	Am < 65%	≥ 10.0 μm	Gross filter Domestic and Commercial		
	AFI 65% - 70%	MERV 2	G2	65% ≤ Am < 80%				
	AFI 70% - 75%	MERV 3						
	AFI 75% - 80%	MERV 4	G3	80% ≤ Am < 90%	Within 3.0μm - 10.0μm	Commercial Industrial Paint Shop		
	AFI 80% - 85%	MERV 5						
	AFI 85% - 90%	MERV 6						
MEDIUM FILTER F CLASS	NBS 25% - 30%	MERV 7	G4	90% ≤ Am	Within 1.0μm - 3.0μm	IAQ Concerned Commercial and Industrial, Medical		
	NBS 30% - 35%	MERV 8						
	NBS 40% - 45%	MERV 9	F5	40% ≤ Em < 60%				
	NBS 50% - 55%	MERV 10						
	NBS 60% - 65%	MERV 11	F6	60% ≤ Em < 80%				
	NBS 70% - 75%	MERV 12						
	NBS 80% - 85%	MERV 13	F7	80% ≤ Em < 90%				
	NBS 90% - 95%	MERV 14						
	NBS > 95%	MERV 15	F9	95% ≤ Em			Within 0.3μm - 1.0μm	IAQ Concerned Commercial and Industrial, Medical, Food, etc.
		MERV 16						

CLASSIFICATION	MEAN FRACTIONAL EFFICIENCY	TEST RP-CC001.3	EUROPEAN UNION EN1822 CLASS		PARTICLE SIZE	APPLICATION
HEPA FILTER H CLASS	≥ 95% at 0.3μm	n/a	H10	≥ 85% at MPPS	≥ 0.3μm	All Types of Cleanrooms
	≥ 98% at 0.3μm		H11	≥ 95% at MPPS		
	≥ 99.97% at 0.3μm	TYPE A	H12	≥ 99.5% at MPPS		
	≥ 99.99% at 0.3μm		H13	≥ 99.95% at MPPS		
	≥ 99.995% at 0.3μm		H14	≥ 99.995% at MPPS		
≥ 99.999% at 0.3μm	TYPE D					
ULPA FILTER U CLASS	≥ 99.9995% at 0.12μm	TYPE F	U15	≥ 99.9995% at MPPS	≥ 0.12μm	Super Cleanrooms
	≥ 99.99995% at 0.12μm		U16	≥ 99.99995% at MPPS		
	≥ 99.999995% at 0.12μm		U17	≥ 99.999995% at MPPS		



COILS SECTION

Coils are AHRI (ARI) 410 certified.

Cooling/heating coils are computer selected to obtain specified heat exchange capacities.

The coils range from 1 to 12 rows and of 1/2' and 5/8" ø pipes, with aluminum or copper fins coated to provide an efficient heat transfer and a long lifetime.



COILS OPTIONS

- Chilled Water Coils
- Hot Water Coils
- Direct Expansion (DX) Coils

DROPLET ELIMINATOR

It is recommended to install moisture eliminators after the cooling coil (with face velocity above 2.6 m/sec) to avoid moisture carryover. Eliminator blades are made of polypropylene and are assembled within a heavy gauge polyester coated galvanized steel frame.

OPTIONAL: Eliminator blades made of polyester coated steel.



Coil Data Table

Modules	Unit Size		Coil Size	No. of Rows	Length of Coil Section	Air Flow Range				Pressure drop (Pa)		Heating Capacity (kW)		Pressure drop (Pa)		Cooling (kW)		Coil Weight	Section Weight with-out Coil (kg)						
	WxH (mm)	WxH (mm)				mm	Low (m³/h)	High (m³/h)	Low (cfm)	High (cfm)	Min	Max	Min	Max	Min	Max	Min		Max	kg	PU	FG			
SAK 010	1130 x 530	835 x 318	980	1R	1520	2540	895	1495	14	35	10.91	15.74	-	-	-	-	16	101	125						
				2R	1520	2540	895	1495	27	69	18	26.7	-	-	-	-	20								
				3R	1520	2540	895	1495	38	95	22.76	34.5	-	-	-	-	23								
				4R	1520	2540	895	1495	-	-	-	-	57	144	11.5	16.32	26								
				5R	1520	2540	895	1495	-	-	-	-	69	173	13.01	19.61	29								
				6R	1520	2540	895	1495	-	-	-	-	90	227	23.25	35.63	33								
				7R	1520	2540	895	1495	-	-	-	-	104	263	25	38.99	36								
				8R	1520	2540	895	1495	-	-	-	-	117	332	34.06	79.65	39								
				10R	1520	2540	895	1495	-	-	-	-	147	415	36	85.3	46								
				12R	1520	2540	895	1495	-	-	-	-	176	498	36.52	88.6	52								
				SAK 015	1430 x 530	1135 x 318	980	1R	2070	3453	1218	2032	14	35	14.4	20.72	-			-	-	-	18	119	147
								2R	2070	3453	1218	2032	27	69	24.92	35.21	-			-	-	-	22		
3R	2070	3453	1218					2032	38	95	29.78	44.87	-	-	-	-	26								
4R	2070	3453	1218					2032	-	-	-	-	58	144	15.8	20.61	31								
5R	2070	3453	1218					2032	-	-	-	-	69	173	16.5	25.2	35								
6R	2070	3453	1218					2032	-	-	-	-	90	227	32.71	49.29	39								
7R	2070	3453	1218					2032	-	-	-	-	107	302	34.85	98	44								
8R	2070	3453	1218					2032	-	-	-	-	132	332	69.1	110.5	48								
10R	2070	3453	1218					2032	-	-	-	-	165	415	72.24	117.22	56								
12R	2070	3453	1218					2032	-	-	-	-	198	498	73.92	121	52								
SAK 020	830 x 830	535 x 603	980					1R	1820	3000	1071	1766	14	33	11.97	17.1	-	-	-	-	17	98	122		
								2R	1820	3000	1071	1766	26	65	21.86	30.06	-	-	-	-	21				
				3R	1820	3000	1071	1766	37	90	27.57	41.5	-	-	-	-	25								
				4R	1820	3000	1071	1766	-	-	-	-	56	137	13.6	18.59	28								
				5R	1820	3000	1071	1766	-	-	-	-	67	164	14.91	22.12	32								
				6R	1820	3000	1071	1766	-	-	-	-	87	215	28.05	40.94	36								
				7R	1820	3000	1071	1766	-	-	-	-	101	249	30.06	46.2	40								
				8R	1820	3000	1071	1766	-	-	-	-	128	314	60.6	93.14	44								
				10R	1820	3000	1071	1766	-	-	-	-	160	393	63.42	98.07	51								
				12R	1820	3000	1071	1766	-	-	-	-	192	471	65	103.9	59								
				SAK 025	1130 x 830	835 x 603	980	1R	2840	3900	1672	2295	14	24	19.43	24.81	-	-	-	-	19			116	144
								2R	2840	3900	1672	2295	26	47	32.92	42.62	-	-	-	-	25				
3R	2840	3900	1672					2295	37	65	42.9	56.22	-	-	-	-	30								
4R	2840	3900	1672					2295	-	-	-	-	56	98	20.08	25.86	36								
5R	2840	3900	1672					2295	-	-	-	-	67	118	23.71	30.91	41								
6R	2840	3900	1672					2295	-	-	-	-	87	155	42.82	56.3	47								
7R	2840	3900	1672					2295	-	-	-	-	101	179	45.73	62.19	53								
8R	2840	3900	1672					2295	-	-	-	-	128	226	95.15	124.72	58								
10R	2840	3900	1672					2295	-	-	-	-	160	283	98.24	132.5	69								
12R	2840	3900	1672					2295	-	-	-	-	192	339	100.33	136.85	80								

Coil Data Table

Modules	Unit Size	Coil Size	No. of Rows	Length of Coil Section	Air Flow Range				Pressure drop (Pa)		Heating Capacity (kW)		Pressure drop (Pa)		Cooling (kW)		Coil Weight	Section Weight with-out Coil (kg)		
					Low (m ³ /h)	High (m ³ /h)	Low (cfm)	High (cfm)	Min	Max	Min	Max	Min	Max	Min	Max		kg	PU	FG
SAK 030	1130 x 1130	835 x 889	1R	980	4180	6982	2460	4109	14	34	29.29	42.31	-	-	-	-	22	130	163	
					4180	6982	2460	4109	26	67	50.56	75.24	-	-	-	-	30			
					4180	6982	2460	4109	37	92	63.72	96.89	-	-	-	-	38			
					4180	6982	2460	4109	-	-	-	-	55	140	30.61	41.95	45			
					4180	6982	2460	4109	-	-	-	-	67	168	35.88	51.05	54			
					4180	6982	2460	4109	-	-	-	-	87	219	64.81	98.4	62			
					4180	6982	2460	4109	-	-	-	-	101	255	68.36	107.53	69			
					4180	6982	2460	4109	-	-	-	-	127	321	137.2	218.2	77			
					4180	6982	2460	4109	-	-	-	-	159	401	143.2	233.5	93			
					4180	6982	2460	4109	-	-	-	-	191	481	149.3	242.5	108			
					5690	9490	3349	5586	14	34	40.82	47.23	-	-	-	-	25			
					5690	9490	3349	5586	26	67	66.8	89.9	-	-	-	-	36			
5690	9490	3349	5586	37	92	84.5	126.43	-	-	-	-	46								
5690	9490	3349	5586	-	-	-	-	56	140	41.07	54.6	56								
5690	9490	3349	5586	-	-	-	-	67	168	49.01	73.13	66								
5690	9490	3349	5586	-	-	-	-	87	219	90.09	131.63	77								
5690	9490	3349	5586	-	-	-	-	101	255	95.94	143.8	87								
5690	9490	3349	5586	-	-	-	-	128	321	190.11	304.3	97								
5690	9490	3349	5586	-	-	-	-	160	401	198.7	322.61	118								
5690	9490	3349	5586	-	-	-	-	192	481	203.3	333	138								
SAK 035	1430 x 1130	1135 x 889	1R	980	5690	9490	3349	5586	14	34	40.82	47.23	-	-	-	25	148	184		
					5690	9490	3349	5586	26	67	66.8	89.9	-	-	-	-				36
					5690	9490	3349	5586	37	92	84.5	126.43	-	-	-	-				46
					5690	9490	3349	5586	-	-	-	-	56	140	41.07	54.6				56
					5690	9490	3349	5586	-	-	-	-	67	168	49.01	73.13				66
					5690	9490	3349	5586	-	-	-	-	87	219	90.09	131.63				77
					5690	9490	3349	5586	-	-	-	-	101	255	95.94	143.8				87
					5690	9490	3349	5586	-	-	-	-	128	321	190.11	304.3				97
					5690	9490	3349	5586	-	-	-	-	160	401	198.7	322.61				118
					5690	9490	3349	5586	-	-	-	-	192	481	203.3	333				138
					7410	12000	4361	7063	13	31	51.81	56.47	-	-	-	-				29
					7410	12000	4361	7063	26	61	83.35	121.03	-	-	-	-				43
7410	12000	4361	7063	35	84	109.83	163.03	-	-	-	-	56								
7410	12000	4361	7063	-	-	-	-	54	128	56.73	70.86	69								
7410	12000	4361	7063	-	-	-	-	65	154	60.12	88	83								
7410	12000	4361	7063	-	-	-	-	84	201	117.31	172.21	96								
7410	12000	4361	7063	-	-	-	-	98	233	124.93	179.41	109								
7410	12000	4361	7063	-	-	-	-	123	294	247.51	386.3	122								
7410	12000	4361	7063	-	-	-	-	154	368	258.72	409	149								
7410	12000	4361	7063	-	-	-	-	185	441	264.71	421.94	176								
SAK 040	1430 x 1430	1109 x 1207	1R	980	9410	15500	5539	9123	13	32	63.13	90.52	-	-	-	33	162	203		
					9410	15500	5539	9123	26	63	110.05	160.41	-	-	-	-				50
					9410	15500	5539	9123	35	87	137.7	213.13	-	-	-	-				66
					9410	15500	5539	9123	-	-	-	-	54	132	69.15	97.91				83
					9410	15500	5539	9123	-	-	-	-	64	158	78.9	118.3				99
					9410	15500	5539	9123	-	-	-	-	84	207	146.53	214				116
					9410	15500	5539	9123	-	-	-	-	98	240	154.55	220				132
					9410	15500	5539	9123	-	-	-	-	123	303	318.11	506				149
					9410	15500	5539	9123	-	-	-	-	154	379	330.93	533				182
					9410	15500	5539	9123	-	-	-	-	185	455	337.73	548				215
					9410	15500	5539	9123	13	32	63.13	90.52	-	-	-	-				33
					9410	15500	5539	9123	26	63	110.05	160.41	-	-	-	-				50
9410	15500	5539	9123	35	87	137.7	213.13	-	-	-	-	66								
9410	15500	5539	9123	-	-	-	-	54	132	69.15	97.91	83								
9410	15500	5539	9123	-	-	-	-	64	158	78.9	118.3	99								
9410	15500	5539	9123	-	-	-	-	84	207	146.53	214	116								
9410	15500	5539	9123	-	-	-	-	98	240	154.55	220	132								
9410	15500	5539	9123	-	-	-	-	123	303	318.11	506	149								
9410	15500	5539	9123	-	-	-	-	154	379	330.93	533	182								
9410	15500	5539	9123	-	-	-	-	185	455	337.73	548	215								
SAK 045	1730 x 1430	1409 x 1207	1R	980	9410	15500	5539	9123	13	32	63.13	90.52	-	-	-	33	180	225		
					9410	15500	5539	9123	26	63	110.05	160.41	-	-	-	-				50
					9410	15500	5539	9123	35	87	137.7	213.13	-	-	-	-				66
					9410	15500	5539	9123	-	-	-	-	54	132	69.15	97.91				83
					9410	15500	5539	9123	-	-	-	-	64	158	78.9	118.3				99
					9410	15500	5539	9123	-	-	-	-	84	207	146.53	214				116
					9410	15500	5539	9123	-	-	-	-	98	240	154.55	220				132
					9410	15500	5539	9123	-	-	-	-	123	303	318.11	506				149
					9410	15500	5539	9123	-	-	-	-	154	379	330.93	533				182
					9410	15500	5539	9123	-	-	-	-	185	455	337.73	548				215
					9410	15500	5539	9123	13	32	63.13	90.52	-	-	-	-				33
					9410	15500	5539	9123	26	63	110.05	160.41	-	-	-	-				50
9410	15500	5539	9123	35	87	137.7	213.13	-	-	-	-	66								
9410	15500	5539	9123	-	-	-	-	54	132	69.15	97.91	83								
9410	15500	5539	9123	-	-	-	-	64	158	78.9	118.3	99								
9410	15500	5539	9123	-	-	-	-	84	207	146.53	214	116								
9410	15500	5539	9123	-	-	-	-	98	240	154.55	220	132								
9410	15500	5539	9123	-	-	-	-	123	303	318.11	506	149								
9410	15500	5539	9123	-	-	-	-	154	379	330.93	533	182								
9410	15500	5539	9123	-	-	-	-	185	455	337.73	548	215								

Coil Data Table

Modules	Unit Size	Coil Size	No. of Rows	Length of Coil Section	Air Flow Range				Pressure drop (Pa)		Heating Capacity (kW)		Pressure drop (Pa)		Cooling (kW)		Coil Weight	Section Weight with-out Coil (kg)		
					Low (m ³ /h)	High (m ³ /h)	Low (cfm)	High (cfm)	Min	Max	Min	Max	Min	Max	Min	Max		kg	PU	FG
SAK 050	1730 x 1730	1409 x 1524	1R	980	11650	19000	6857	11883	13	31	81.98	117.37	-	-	-	-	39	194	244	
					11650	19000	6857	11883	25	60	141.52	193.43	-	-	-	-	59			
					11650	19000	6857	11883	34	82	175.71	263.2	-	-	-	-	79			
					11650	19000	6857	11883	-	-	-	-	52	125	88.94	121.2	100			
					11650	19000	6857	11883	-	-	-	-	62	150	98.86	146.2	120			
					11650	19000	6857	11883	-	-	-	-	81	196	188.3	275.75	141			
					11650	19000	6857	11883	-	-	-	-	94	228	197.8	280	162			
					11650	19000	6857	11883	-	-	-	-	119	287	394.21	621.7	182			
					11650	19000	6857	11883	-	-	-	-	149	359	410	654.34	223			
					11650	19000	6857	11883	-	-	-	-	179	431	418.3	672.52	264			
					14130	23550	8317	13861	13	32	101	147	-	-	-	-	43			
					14130	23550	831													

Coil Data Table

Modules	Unit Size		Coil Size	No. of Rows	Length of Coil Section	Air Flow Range				Pressure drop (Pa)		Heating Capacity (kW)		Pressure drop (Pa)		Cooling (kW)		Coil Weight	Section Weight with-out Coil (kg)						
	WxH (mm)	WxH (mm)				mm	Low (m³/h)	High (m³/h)	Low (cfm)	High (cfm)	Min	Max	Min	Max	Min	Max	Min		Max	kg	PU	FG			
SAK 070	2330 x 2330	1975 x 2096	980	5R	1R	22890	38000	13473	22366	13	33	160.71	232.1	-	-	-	-	58	258	325					
					2R	22890	38000	13473	22366	26	64	272	403.2	-	-	-	-	97							
					3R	22890	38000	13473	22366	35	88	350	530.8	-	-	-	-	135							
					4R	22890	38000	13473	22366	-	-	-	-	54	134	172.5	254.7	173							
	5R	22890	38000	13473	22366	-	-	-	-	64	161	200.6	263	211											
	6R	22890	38000	13473	22366	-	-	-	-	84	210	367.5	512	249											
	7R	22890	38000	13473	22366	-	-	-	-	98	244	385.8	551	287											
	8R	1130	22890	38000	13473	22366	-	-	-	-	123	307	783.5	1258	325										
	10R	22890	38000	13473	22366	-	-	-	-	154	384	811	1318	402											
	12R	22890	38000	13473	22366	-	-	-	-	185	461	826	1351	478											
	SAK 075	2630 x 2330	2275 x 2096	980	5R	1R	26350	43900	15509	25839	13	33	186.7	270.5	-	-	-	-				64	276	347	
						2R	26350	43900	15509	25839	26	64	315.7	469.6	-	-	-	-				108			
3R						26350	43900	15509	25839	35	89	405	617	-	-	-	-	152							
4R						26350	43900	15509	25839	-	-	-	-	54	134	202.4	300.1	195							
5R		26350	43900	15509	25839	-	-	-	-	64	161	234	311	239											
6R		26350	43900	15509	25839	-	-	-	-	84	211	418	586.3	282											
7R		26350	43900	15509	25839	-	-	-	-	98	245	448	646	326											
8R		1130	26350	43900	15509	25839	-	-	-	-	123	309	906	1461	369										
10R		26350	43900	15509	25839	-	-	-	-	154	386	936	1528	456											
12R		26350	43900	15509	25839	-	-	-	-	185	463	952	1564	543											



Coil Data Table

Modules	Unit Size		Coil Size	No. of Rows	Length of Coil Section	Air Flow Range				Pressure drop (Pa)		Heating Capacity (kW)		Pressure drop (Pa)		Cooling (kW)		Coil Weight	Section Weight with-out Coil (kg)						
	WxH (mm)	WxH (mm)				mm	Low (m³/h)	High (m³/h)	Low (cfm)	High (cfm)	Min	Max	Min	Max	Min	Max	Min		Max	kg	PU	FG			
SAK 080	2630 x 2630	2275 x 2413	980	5R	1R	29980	49900	17646	29370	13	32	218.4	317.01	-	-	-	-	72	290	365					
					2R	29980	49900	17646	29370	25	63	359.84	535.9	-	-	-	-	122							
					3R	29980	49900	17646	29370	35	87	461.53	703	-	-	-	-	171							
					4R	29980	49900	17646	29370	-	-	-	-	53	131	231	312.5	221							
	5R	29980	49900	17646	29370	-	-	-	-	63	158	267	405	271											
	6R	29980	49900	17646	29370	-	-	-	-	84	206	476.3	720	321											
	7R	29980	49900	17646	29370	-	-	-	-	96	239	507.52	736	371											
	8R	1130	29980	49900	17646	29370	-	-	-	-	121	302	1031	1662	421										
	10R	29980	49900	17646	29370	-	-	-	-	151	377	1065	1738	521											
	12R	29980	49900	17646	29370	-	-	-	-	181	453	1083	1778	620											
	SAK 085	2930 x 2630	2575 x 2413	980	5R	1R	33920	56500	19965	33255	13	32	248.8	362	-	-	-	-				78	308	387	
						2R	33920	56500	19965	33255	25	63	409.8	611	-	-	-	-				135			
3R						33920	56500	19965	33255	35	87	524.41	800	-	-	-	-	191							
4R						33920	56500	19965	33255	-	-	-	-	52	131	265	320	247							
5R		33920	56500	19965	33255	-	-	-	-	63	158	305	410	302											
6R		33920	56500	19965	33255	-	-	-	-	82	206	544	830	359											
7R		33920	56500	19965	33255	-	-	-	-	96	240	556	843	415											
8R		1130	33920	56500	19965	33255	-	-	-	-	121	302	1170	1888	471										
10R		33920	56500	19965	33255	-	-	-	-	151	377	1207	1926	583											
12R		33920	56500	19965	33255	-	-	-	-	181	453	1227	1926	696											
SAK 090		2930 x 2930	2575 x 2667	980	5R	1R	38060	63450	22401	37345	13	33	278.36	403.75	-	-	-	-	85	322	406				
						2R	38060	63450	22401	37345	26	64	459	683	-	-	-	-	147						
	3R					38060	63450	22401	37345	36	89	587.34	895	-	-	-	-	208							
	4R					38060	63450	22401	37345	-	-	-	-	54	135	296.5	404	270							
	5R	38060	63450	22401	37345	-	-	-	-	65	162	335	508	332											
	6R	38060	63450	22401	37345	-	-	-	-	85	212	610	930	394											
	7R	38060	63450	22401	37345	-	-	-	-	95	246	636	945	456											
	8R	1130	38060	63450	22401	37345	-	-	-	-	124	311	1312	2118	517										
	10R	38060	63450	22401	37345	-	-	-	-	155	388	1354	2128	641											
	12R	38060	63450	22401	37345	-	-	-	-	186	466	1376	2128	765											

FANS AND MOTORS SECTION

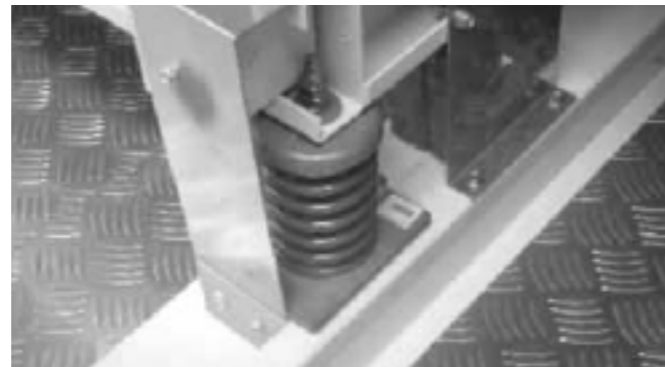
- The Fan Motor assembly constitutes of electric motors which run Nicotra fans known for their reliability and corrosion resistance and long lifetime.

- Our fans are centrifugal fans, belt driven or direct driven with backward or forward blades. We can also use plug fans depending on application.

- The assembly is mounted on vibration isolators either rubber silent blocks or springs with pad, to minimize vibration transmission into the structure.

VIBRATION ISOLATORS

- Rubber Silent Blocks
- Springs with Pads



FAN MOTOR DESIGN DATA

Modules	W x H mm	Horizontal Fan Orientation		Approximate Weight kg		Vertical Fan Orientation		Weight kg				
		Sizes of Fans	Length mm	PU	FG	Sizes of Fans	Length mm	PU	FG			
SAK 010	1130 x 530	240/140	830	114	138	240/140	830	114	138			
		10/8				10/8						
		7/7				7/7						
SAK 015	1430 x 530	12/6	830	135	164	12/6	830	135	164			
		10/8				10/8						
		9/7				9/7						
SAK 020	830 x 830	160	980	127	155	160	830	113	138			
		180				180						
		200				200				1130	120	149
		225				225				1280	135	168
		250				250				1130	135	168
SAK 025	1130 x 830	160	980	153	187	160	830	136	167			
		180				180						
		200				200				1130	143	178
		225				225				1280	161	200
		250				250				1130	161	200
SAK 030	1130 x 1130	280	1130	196	242	280	1130	196	242			
		315				315				1280	205	256
		355				355				1430	225	282
		400				400				1580	246	307
		450				450				1580	246	307
SAK 035	1430 x 1130	280	1130	159	213	280	1130	201	227			
		315				315				1280	216	242
		355				355				1430	241	256
		400				400				1580	266	281
		450				450				1580	266	281
SAK 040	1430 x 1430	500	1580	329	410	500	1580	329	410			
		560				560				1730	340	427

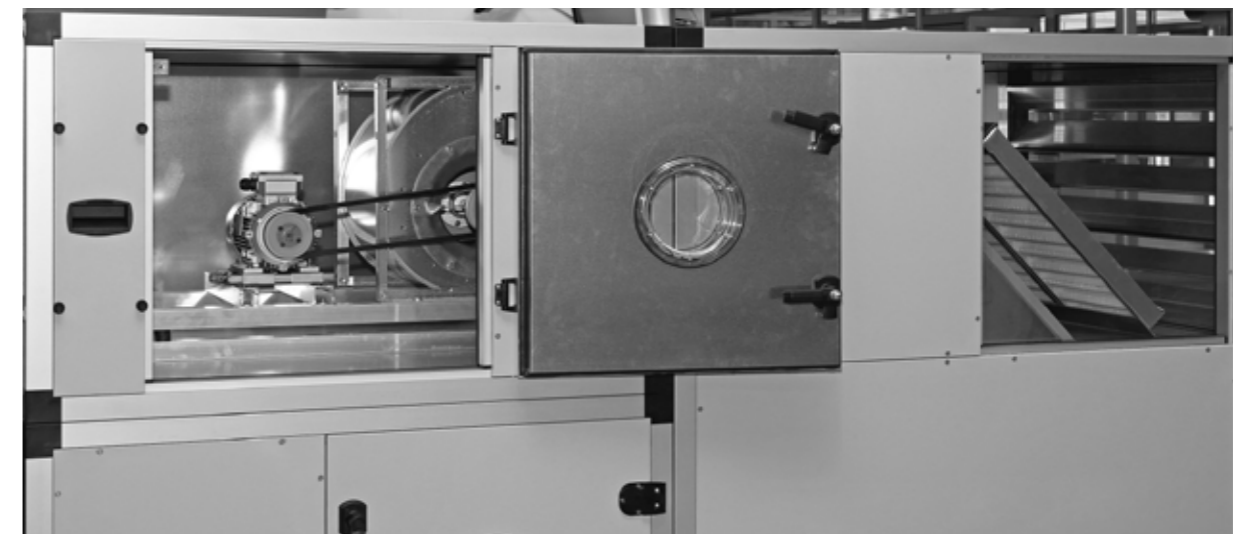
FAN MOTOR DESIGN DATA

Modules	W x H mm	Horizontal Fan Orientation	Section Length	Approximate Weight kg		Vertical Fan Orientation	Section Length	Weight kg	
		Sizes of Fans	Length mm	PU	FG	Sizes of Fans	Length mm	PU	FG
SAK 045	1730 x 1430	500	1580	370	461	500	1580	370	461
		560	1730	381	478	560	1730	381	478
SAK 050	1730 x 1730	630	1730	436	545	630	1730	436	520
		710	1880	438	569	710	1880	438	541
		2030	468	609	2030	468	579		
		800	2180	498	649	800	2180	498	617
SAK 055	2030 x 1730	630	1730	482	602	630	1730	482	602
		710	1880	494	623	710	1880	494	623
		2030	527	664	2030	527	664		
		800	2180	559	704	800	2180	559	704
SAK 060	2030 x 2030	800	2030	592	742	800	2030	592	709
		2180	592	769	2180	592	733		
		900	2330	627	816	900	2330	627	778
SAK 065	2330 x 2030	800	2030	645	808	800	2180	645	854
		900	2330	697	879	900	2480	697	924
SAK 070	2330 x 2330	800	2030	692	808	800	2180	692	918
		900	2330	748	879	900	2480	772	994
SAK 075	2630 x 2330	800	2030	748	939	800	2030	748	939
		900	2180	764	966	900	2180	764	966
		1000	2330	806	1019	1000	2330	806	1019
		1000	2480	848	1072	1000	2480	848	1072
SAK 080	2630 x 2630	All mid and large size fans	up to 2480	According to selection		All mid and large size fans	up to 2630	According to selection	
SAK 085	2930 x 2630	All mid and large size fans	up to 2480	According to selection		All mid and large size fans	up to 2630	According to selection	
SAK 090	2930 x 2930	All mid and large size fans	up to 2480	According to selection		All mid and large size fans	up to 2630	According to selection	



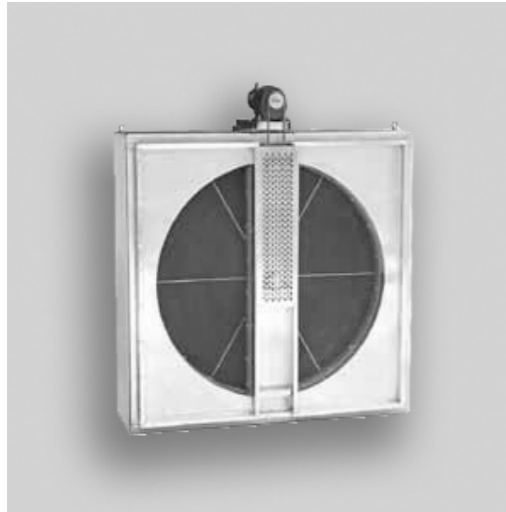
MOTOR PARAMETERS AND EFFICIENCY

MOTOR RANGE	TYPE		kW	2 POLE	4 POLE
	kW	HP		Frame Size	50 HZ / 60 HZ
0.55	0.75	71	0.75	80.7 / 87.0	82.52 / 85.5
0.75	1	71	1.1	82.7 / 84.0	84.1 / 86.5
1.1	1.5	80	1.5	84.2 / 85.5	85.3 / 86.5
1.5	2	80	2.2	85.9 / 86.5	86.7 / 89.5
2.2	3	90S	3	87.1 / -	87.7 / -
3	4	90L	3.7	- / 88.5	- / 89.5
3.7	5	100L	4	88.1 / -	88.6 / -
5.5	7.5	112m	5.5	89.2 / 89.5	89.6 / 91.7
7.5	10	132S	7.5	90.1 / 90.2	90.4 / 91.7
9.2	12.5	132m	11	91.2 / 90.0	91.4 / 92.4
11	15	132m	15	91.9 / 91.0	92.1 / 93.0
15	20	160m	18.5	92.4 / 91.7	92.6 / 93.6
18.5	25	160m	22	92.7 / 91.7	93.0 / 93.6
22	30	160L	30	93.3 / 92.4	93.6 / 94.1
30	40	200m	37	93.7 / 93.0	93.9 / 94.5
37	50	200L	45	94.0 / 93.6	94.2 / 95.0
45	60	225S/m	55	94.3 / 93.6	94.6 / 94.4
55	75	225S/m	75	94.7 / 94.1	95.0 / 95.4



ADDITIONAL SECTIONS

Heat Recovery



Types:

- Heat Wheel
 - Plate Exchanger
 - Run-around Coils
- } with Stainless Steel (SS) Drain Pan

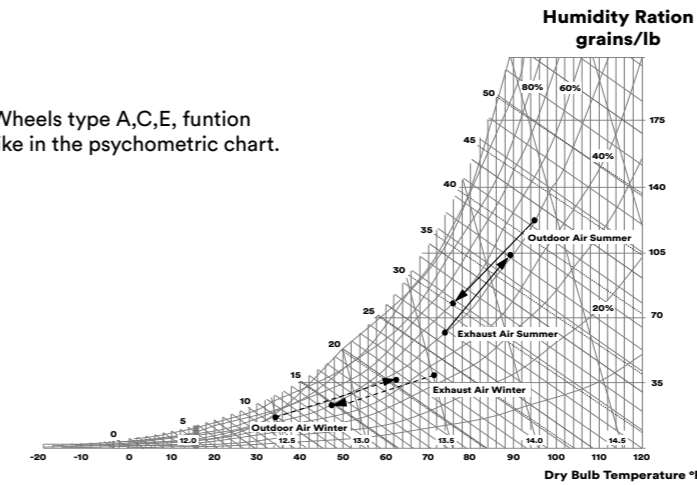
HEAT RECOVERY WHEEL TABLE

	Wheel Dimension	Wheel Diameter	Wheel Length	Total Section Length	Wheel Weight (kg)			Air Flow	
					Standard Foil Spacing	Wider Foil Spacing	Standard Foil Spacing Industrial Version	Min.	Max
	W x H mm x mm	D mm	Length mm	Length mm				Flow m³/h	
SD	960 x 960	600	400	410	95	90	-	800	1500
SD	1100 x 1100	800	400	410	130	125	-	1000	2000
SD	1200 x 1200	950	400	410	145	140	200	1500	3800
SD	1400 x 1400	1100	400	410	165	160	240	2100	5000
SD	1500 x 1500	1200	400	410	210	195	270	2900	6800
SD	1600 x 1600	1350	400	410	215	200	290	3500	8500
SD	1700 x 1700	1500	400	410	265	245	350	4250	10000
SD	1900 x 1900	1700	400	410	305	275	365	5700	13000
SD	2100 x 2100	1900	400	410	360	335	500	7000	16500
SD	2200 x 2200	2000	400	410	415	355	550	9000	21000
SD	2400 x 2400	2150	400	410	430	395	600	10500	25000
SD	2640 x 2640	2400	400	410	530	480	740	12000	27000
DD	2900 x 2900	2650	430	560	870	770	970	14000	35000
DD	3100 x 3100	2900	430	560	970	870	1100	18000	40000
DD	3400 x 3400	3200	430	560	1200	1050	1350	21000	50000
DD	3660 x 3660	3460	430	560	1300	1120	1450	27000	60000
DD	4000 x 4000	3800	430	560	1500	1350	1700	34000	71000
DD	4500 x 4500	4200	430	560	1800	1600	2000	40000	80000
DD	4900 x 4900	4600	470	560	2900	2700	3500	55000	110000
DD	5400 x 5400	5000	470	560	3500	3200	3800	65000	145000

— SD - Single Deck — DD = Double Deck

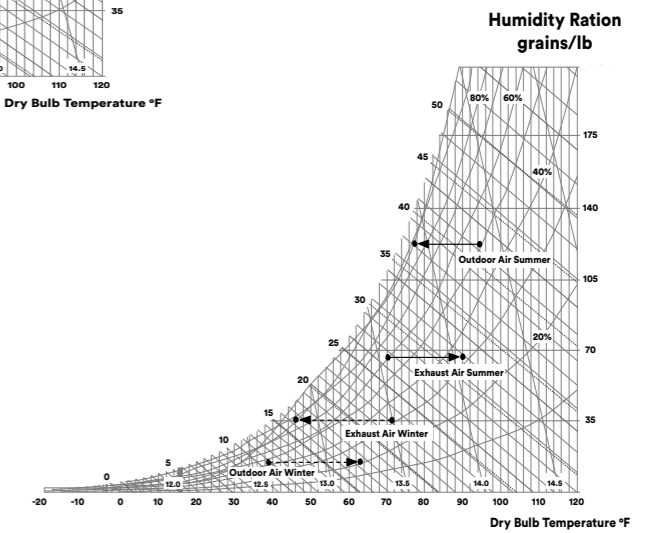
AIR HANDLING UNIT

Wheels type A,C,E, function like in the psychometric chart.



Humidity Ratio grains/lb

Wheels type B,D,F, function like in the psychometric chart.



Humidity Ratio grains/lb

Types of Wheels

A: Non-hygroscopic aluminum wheel for recovering principally sensible heat.

D: Edge-reinforced hygroscopic aluminum wheel for recovering sensible and latent heat.

B: Hygroscopic aluminum wheel for recovering sensible and latent heat.

E: Epoxy-treated aluminum wheel for recovering principally sensible heat.

C: Edge-reinforced non-hygroscopic aluminum wheel for recovering principally sensible heat.

F: Hygroscopic composite material wheel with high corrosion resistance for recovering sensible and latent heat.

QUICK SELECTION TABLE FOR HEAT RECOVERY WHEELS

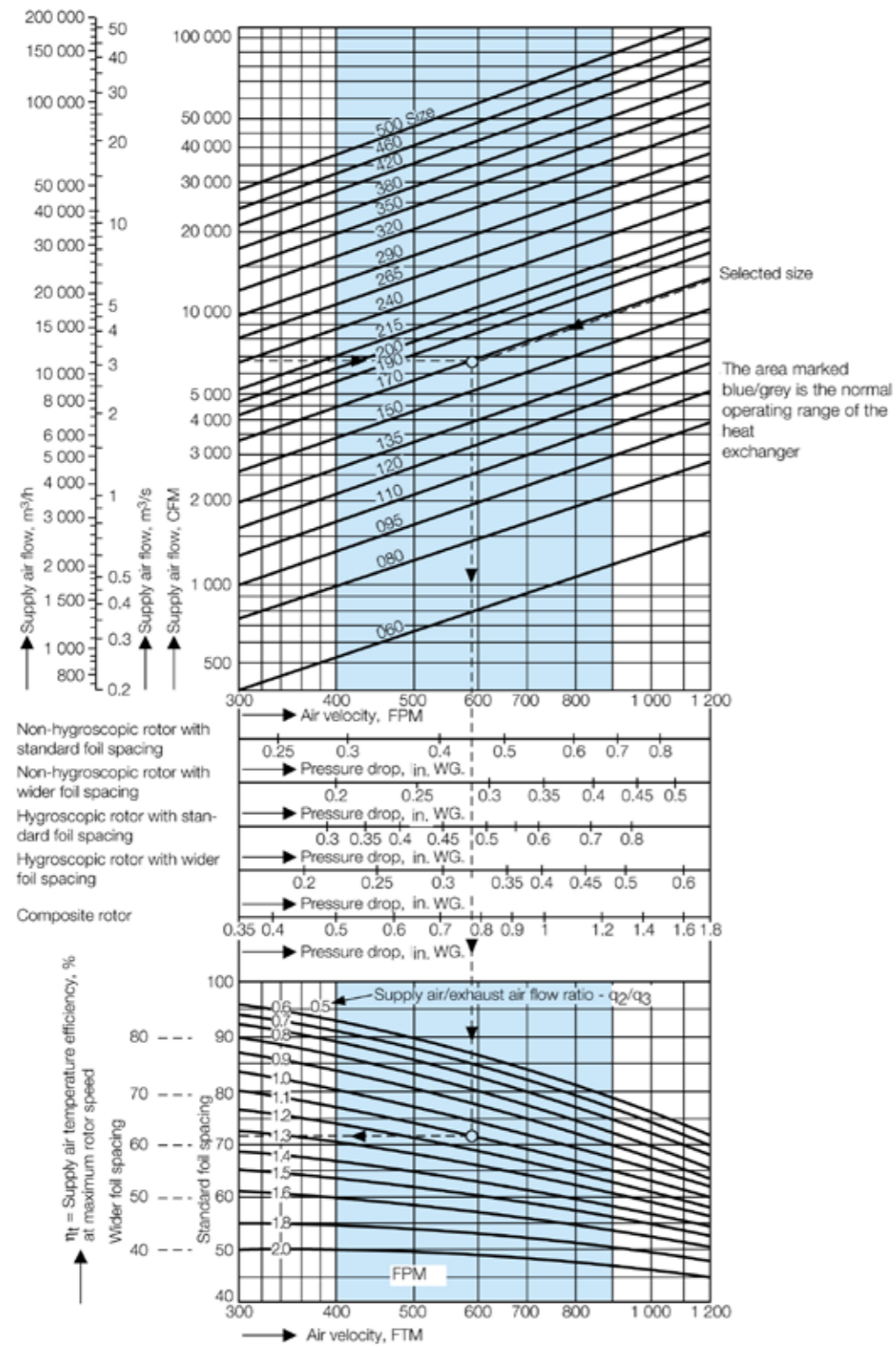
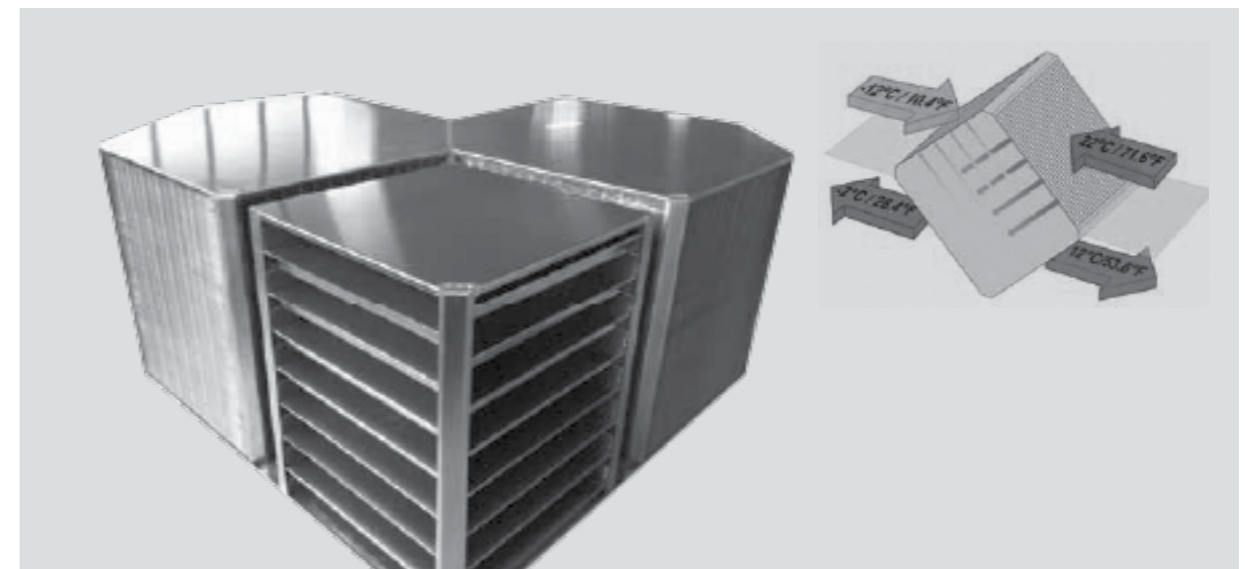


PLATE RECOVERY

Height mm	Width mm	Flow m ³ /h	Efficiency %	Pressure Drop Pa	Length of Section mm
200	700	1500	50 to 65	200 to 250	560
300	940	3700			710
400	1240	7200			860
500	1340	8600			1010
600	1440	9800			1160
700	2000	17000			1310
800	2000	20000			1460
1400	2000	30000			2210
1600	2000	35000			2510
705	2460	20000			50 to 65
805	2460	25000	1460		
905	2460	27500	1610		
1005	2500	34000	1760		
1205	2500	43000	1910		
1410	2500	44000	2210		
1610	2500	50000	2510		
1810	2500	57500	2510		
2010	2500	62000	2510		
2410	2500	71000	2510		



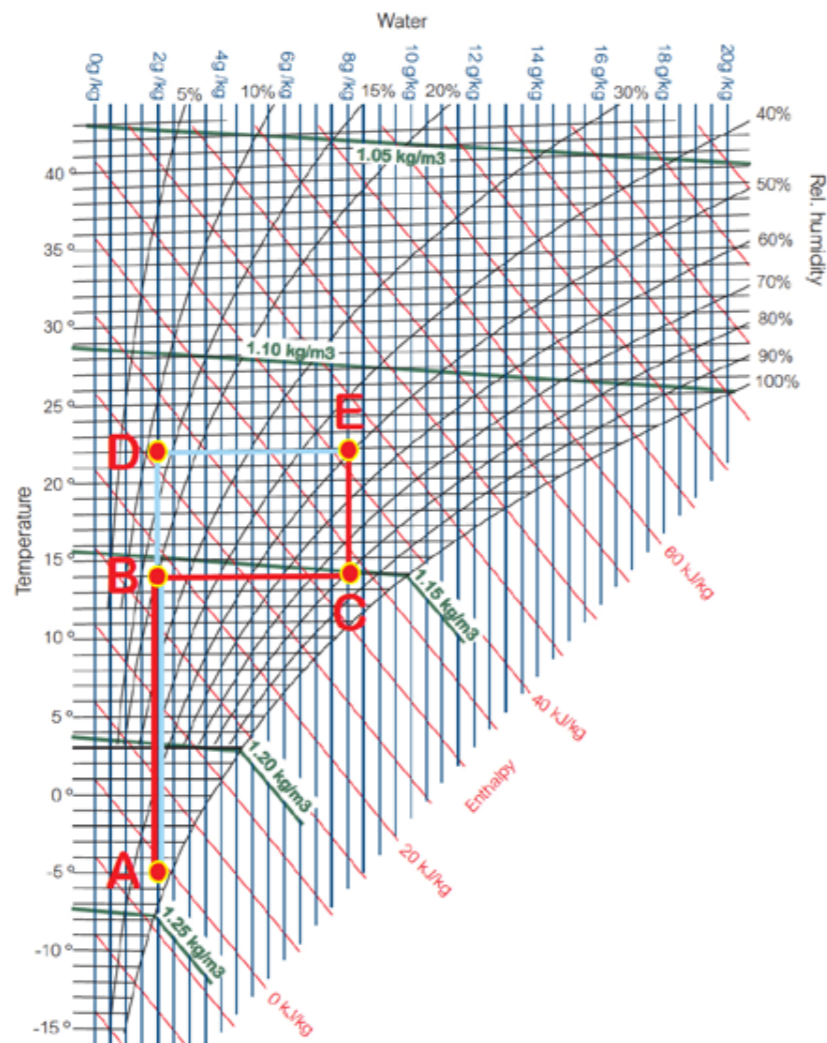
HUMIDIFIERS

Following are types of humidifiers

- Wet deck complete with recirculation pump
- Spray coil
- Self generated steam package
- Alternatively, blank sections can be supplied to incorporate steam distributor/injector with steam from an external source.

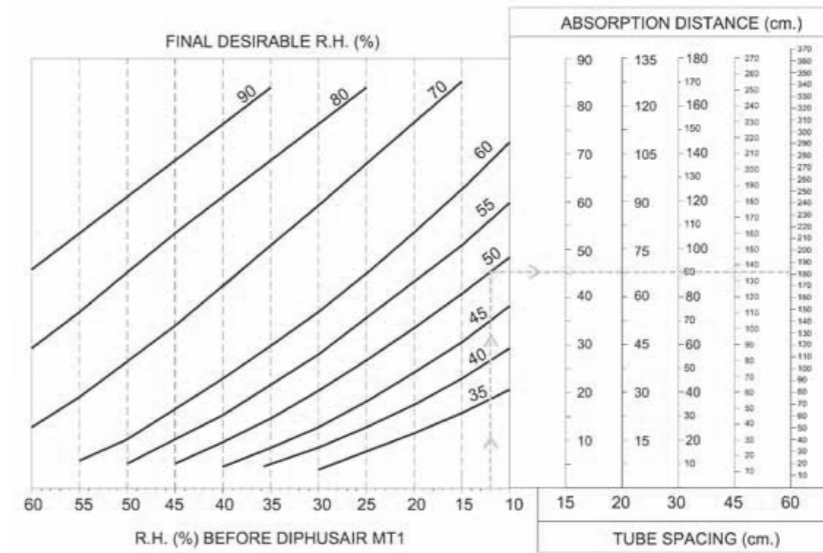
Design Capacity		
Supply Pipe / Header / Dispersion Tubes		
Supply	ø 25 mm	≤ 18
	ø 40 mm	18 < C ≤ 40
Header	ø 40 mm	≤ 45
	ø 50 mm	46 < C ≤ 115
	ø 76 mm	116 < C ≤ 225
Dispersion	ø 25 mm	≤ 4
	ø 40 mm	4 < C ≤ 16
	ø 50 mm	16 < C ≤ 32

kg/hr.

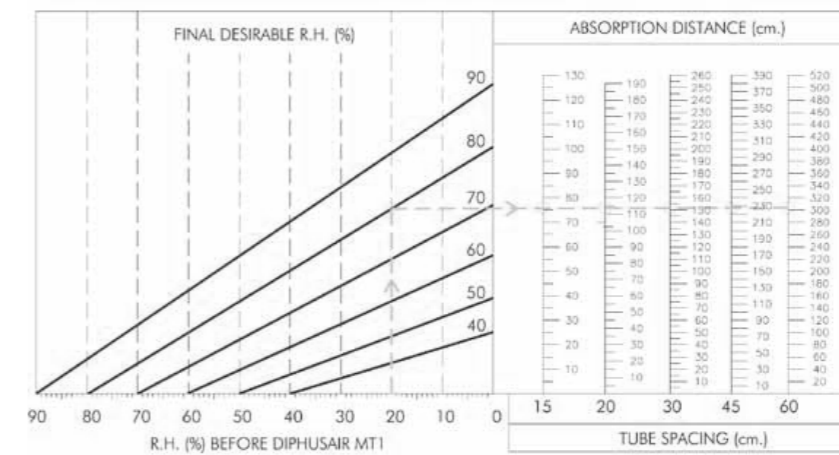


AIR HANDLING UNIT

ABSORPTION (*) NON-WETTING DISTANCES FOR 22°C



ABSORPTION (*) NON-WETTING DISTANCES FOR 14°C



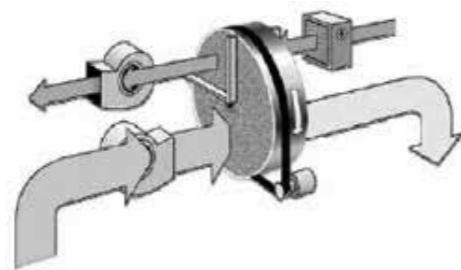
(*) Absorption empirical data applicable to air velocity up to 8 m/s. (Not applicable when filters are placed downstream from the DIPHUSAIR MT1, consult us in this case.)

DEHUMIDIFIERS

We have two main types of dehumidification wheels

- High Performance SILICA Gel Dessicant Wheel
- Specialty Molecular Sieve Dessicant

	Flow Rate 75/25	Flow Rate 50/50	Wheel Diameter	Wheel Depth	W x H mm	Cassette Depth	Approx- imate Weight	Drive
						Length (mm)	kg	Hp
Units up to Height 1130	340	255	250	200	533 x 533	292	41	1/80
	850	595	370	200	610 x 610	305	50	1/80
	1189	850	440	200	660 x 660	305	54	1/80
	1699	1274	550	200	736 x 736	305	68	1/80
	3398	2549	770	200	914 x 914	305	100	1/80
	5947	4248	965	200	1092 x 1092	330	132	1/80
	7646	5097	1070	200	1219 x 1219	330	1497	1/80
Units up to Height 2630	10194	6796	1220	200	1371 x 1371	330	186	1/40
	14442	10194	1525	200	1752 x 1752	356	358	1/40
	18689	12743	1730	200	1955 x 1955	394	463	1/6
	23786	16990	1940	200	2160 x 2160	394	621	1/6
	30582	21238	2190	200	2438 x 2438	432	785	1/6
	38228	27184	2438	200	2692 x 2692	432	907	1/6
Double Deck	47572	33980	2743	200	3100 x 3100	464	1243	1/6
	59465	42475	3050	200	3403 x 3403	464	1537	1/6

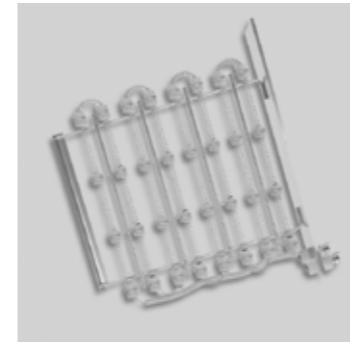


NOTE

Dehumidification wheels can have either 25% reactivation area and 75% process area or 50% reactivation area and 50% process area.

Electric Heaters

We have three main types of Electric Heaters:



Open Coil Heater



Tubular Heater



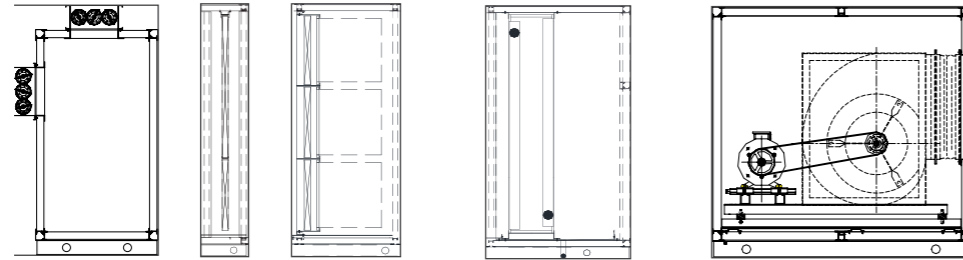
Finned Tubular Heater

Modules	External Unit Size		Internal Unit Size		Length mm	Airflow (m³/h) @ Velocity (m/s)			Air Temp. (ΔT °C)		Min. kW @ (ΔT = 5°C)			Min. kW @ (ΔT = 15°C)		
	W mm	H mm	W mm	H mm		V= 1.5	V= 2.5	V= 3.5	T min.	T max.	V= 1.5	V= 2.5	V= 3.5	V= 1.5	V= 2.5	V= 3.5
SAK 010	1130	530	835	318	380	1432	2387	3342	5	15	1	2	3	4	7	9
SAK 015	1430	530	1135	318	380	1947	3245	4543	5	15	2	3	4	5	9	13
SAK 020	830	830	535	603	380	1744	2906	4069	5	15	2	3	4	5	8	11
SAK 025	1130	830	835	603	380	2722	4536	6351	5	15	3	4	6	8	13	18
SAK 030	1130	1130	835	889	380	4011	6685	9359	5	15	4	6	9	11	19	26
SAK 035	1430	1130	1135	889	380	5452	9087	12721	5	15	5	8	12	15	25	36
SAK 040	1430	1430	1110	1207	380	7234	12056	16878	5	15	7	11	16	20	34	47
SAK 045	1730	1430	1410	1207	380	9189	15315	21441	5	15	9	14	20	26	43	60
SAK 050	1730	1730	1410	1524	380	11607	19346	27084	5	15	11	18	25	32	54	76
SAK 055	2030	1730	1710	1524	380	14078	23463	32848	5	15	13	22	31	39	66	92
SAK 060	2030	2030	1710	1778	380	16424	27373	38323	5	15	15	25	36	46	76	107
SAK 065	2330	2030	2010	1778	380	19306	32177	45047	5	15	18	30	42	54	90	126
SAK 070	2330	2330	1975	2096	380	22364	37273	52183	5	15	21	35	49	62	104	146
SAK 075	2630	2330	2275	2096	380	25761	42935	60108	5	15	24	40	56	72	120	168
SAK 080	2630	2630	2275	2413	380	29664	49440	69216	5	15	28	46	64	83	138	193
SAK 085	2930	2630	2575	2413	380	33575	55959	78342	5	15	31	52	73	94	156	219
SAK 090	2930	2930	2575	2667	380	37109	61849	86589	5	15	35	58	81	104	173	242

NOTE

Materials: 80% Nickel and 20% Chromium (high resistance alloy).
Element function at maximum 55 watts per square inch.

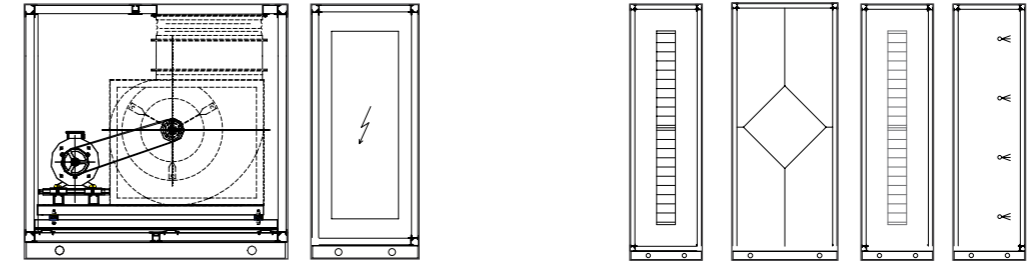
MODULES DIMENSIONS AND SECTIONS



Modules	Unit Dimension	Mixing Box Length	Filter Section Length		Coil Section Length		Fan Motor Section Length			
	WxH		Sliding Frame	Universal Frame	(1-5) Rows	(6-12) Rows	Horizontal Fan Orientation			
	mm x mm	Lmb mm	Lf mm	Lf mm	Lc mm	Lc mm	Lfm1 mm	Lfm2 mm	Lfm3 mm	Lfm4 mm
SAK 010	1130 x 530	680	380	-	980	1130	680	830	-	-
SAK 015	1430 x 530	680	380	-	980	1130	680	830	-	-
SAK 020	830 x 830	680	380	-	980	1130	830	980	1130	-
SAK 025	1130 x 830	680	380	-	980	1130	830	980	1130	-
SAK 030	1130 x 1130	680	380	-	980	1130	1130	1280	1430	1580
SAK 035	1430 x 1130	680	380	-	980	1130	1130	1280	1430	1580
SAK 040	1430 x 1430	830	-	830	980	1130	1430	1580	1730	1880
SAK 045	1730 x 1430	830	-	830	980	1130	1430	1580	1730	1880
SAK 050	1730 x 1730	1130	-	830	980	1130	2030	2180	-	-
SAK 055	2030 x 1730	1130	-	830	980	1130	2030	2180	-	-
SAK 060	2030 x 2030	1130	-	830	980	1130	2330	2480	2630	-
SAK 065	2330 x 2030	1130	-	830	980	1130	2330	2480	2630	-
SAK 070	2330 x 2330	1430	-	830	980	1130	2330	2480	2630	-
SAK 075	2630 x 2330	1430	-	830	980	1130	2330	2480	2630	-
SAK 080	2630 x 2630	1430	-	830	980	1130	2330	2480	2630	-
SAK 085	2930 x 2630	1580	-	830	980	1130	2330	2480	2630	-
SAK 090	2930 x 2930	1580	-	830	980	1130	2330	2480	2630	-

- Lmb - Mixing Box Section Length
- Lf - Filter Section Length
- Lc - Coil Section Length
- Lfm - Fan Motor Section Length

AIR HANDLING UNIT



Fan Motor Section Length				Heater Section	Double Deck	Heat Recovery Wheel	Plate Recovery	Dehumidifier	Humidifier		
Vertical Fan Orientation											
Lfm1 mm	Lfm2 mm	Lfm3 mm	Lfm4 mm	Lh mm	Hdd mm	Lrw mm	LPrw mm	Ldh mm	Lhu mm		
680	830	-	-	380	1160	-	-	710	SD	410	410
680	830	-	-	380	1160	-	-	860	SD	410	410
830	980	1130	-	380	1760	-	-	1010	SD	410	410
830	980	1130	-	380	1760	-	-	1160	SD	410	410
1130	1280	1430	1580	380	2360	410	-	1310	SD	410	410
1130	1280	1430	1580	380	2360	410	-	1460	SD	410	410
1430	1580	1730	1880	380	2960	410	-	1460	SD	410	410
1430	1580	1730	1880	380	2960	410	-	1460	SD	410	410
1880	2030	2180	-	380	3560	410	560	1460	SD	410	410
1880	2030	2180	-	380	3560	410	560	1460	SD	410	410
2180	2330	-	-	380	4160	410	560	1610	SD	410	410
2180	2330	-	-	380	4160	410	560	1760	SD	410	410
2480	2630	-	-	380	4760	410	560	1910	SD	560	410
2480	2630	-	-	380	4760	410	560	2210	SD	560	410
2480	2630	-	-	380	5360	410	560	2510	DD	560	410
2480	2630	-	-	380	5360	410	560	2510	DD	560	410
2480	2630	-	-	380	5960	410	560	2510	DD	560	410

- SD - Single Deck
- DD - Double Deck
- Lfm - Fan Motor Section Length
- Lh - Heater Section Length
- Hdd - Double Deck Height including 100mm base frame height
- Lrw - Heat Recovery Wheel Section Length
- LPrw - Plate Recovery Section Length
- Ldh - Dehumidifier Section Length
- Lhu - Humidifier Section Length

HYGEINIC FEATURES

Extra features for Hygienic applications, like hospitals, operation rooms, laboratories, pharmacies and cleanrooms, etc.

These include

- Stainless Steel Structure
- Stainless Steel Curved Edges
- Ultra-Violet Lamps
- HEPA and ULPA Filters



Note: Our hygienic units are hygienically certified!



HEPA and ULPA filters

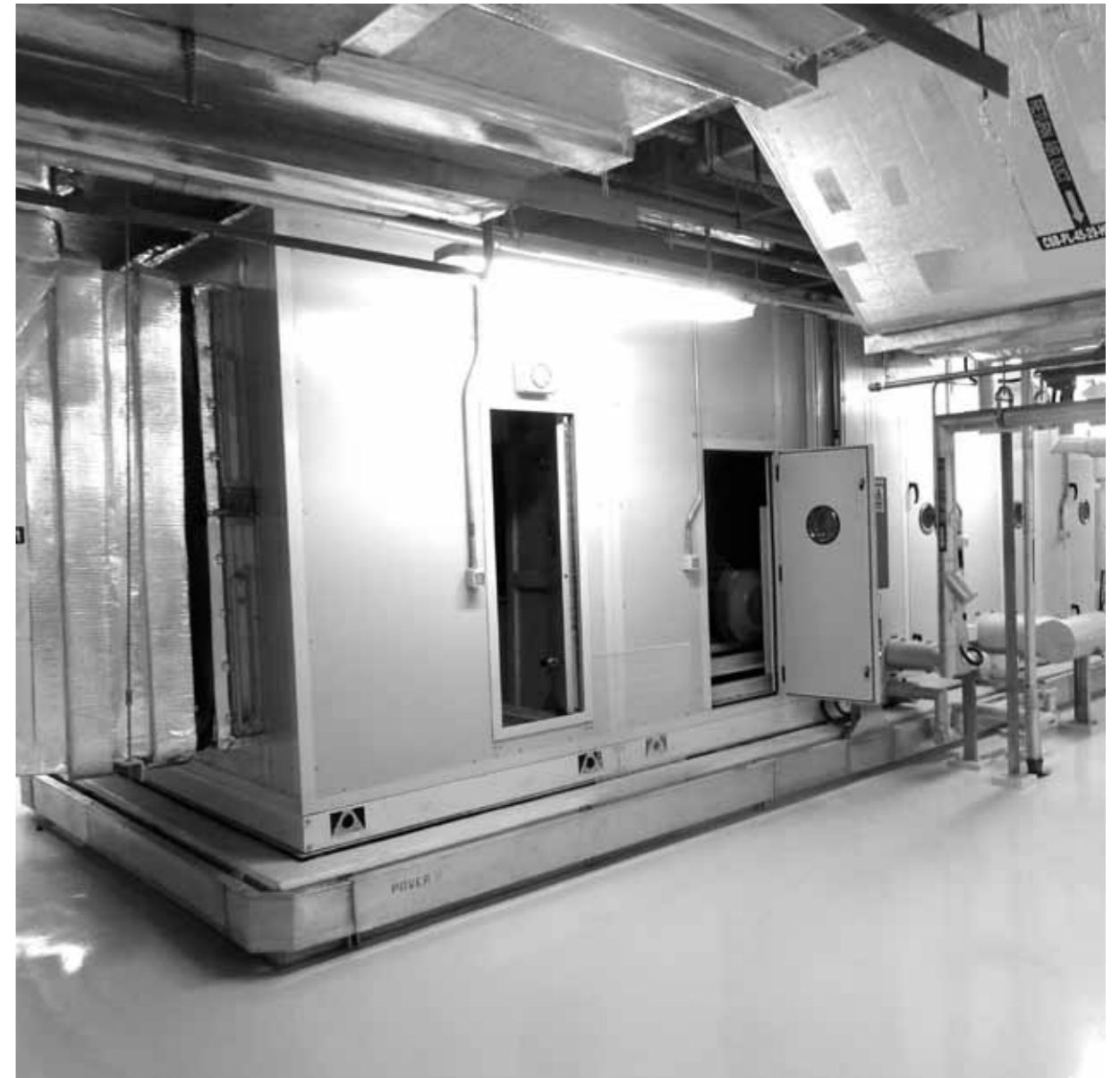


Ultra Violet Lamps



Stainless Steel Curved Edges

AIR HANDLING UNIT



Hygienic Unit applied in Sidra Hospital Project in Qatar.



CUSTOMIZATION

**WE MAKE IT BETTER IF POSSIBLE ...
AND IT'S ALWAYS POSSIBLE**

We can build any unit with any dimensions and components due to our ability to custom design at factory using selection software and expertise to meet project specifications and practical constraints.

```
mirror_mod = modifier_ob.  
mirror_object  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
#selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_ob))  
mirror_ob.select = 0  
= bpy.context.selected_objects  
data.objects[one.name].select  
  
print("please select exactly  
OPERATOR CLASSES -----  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```

OUR SOFTWARE

SAFID-KLIMAK selection software is a powerful tool developed to allow an optimized selection for standard and custom units, made to suit project requirements.

The software is EUROVENT Certified.



FEATURES

- Inline, double deck, side by side and U shape units
- Template unit creation for quick selection
- User definable component defaults
- Unique 3D visualization
- Easy to use drag and drop for positioning components
- Dampers, inlets and outlets can be resized and moved
- Automatic sectioning depending on profile length
- Join/split a section at any location
- All sections can be resized
- Manual components can be added into the existing selection
- Symbol insertion for special/non-standard components
- Manual panel override for non-standard designs
- Multilingual / multi units (metric/imperial)
- Project management system
- The software calculates performance, weight, length and air pressure for each component
- EU standard version of software design meets EUROVENT certification requirements

TECHNICAL SPECIFICATION SHEET

PROJECT DETAILS

Date/Rev date	Project no	Project Reference	Unit Reference
Customer	Unit Quantity	Unit Model	Flow (Supply/Exhaust)

UNIT CONSTRUCTION

Panel Thickness/Insulation	Panel External Sheet	Panel External Sheet	Frame Work/Coating
Panel Frame	Heat Location	Roof Type	Wind Design
Leaking Strength Class	Leakage Class	Thermal Insulation Class	Thermal Bridging Class

001 DAMPER/FLEX.COMB./DOUVER

Flow	Model	Air vol.	Stemper	Spigot connection	Lights	Actuator
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002 ACCESSORIES

003 FILTERS

Stage #	Air Volume	Class	Type	Model	Media	Qty Size 1	Qty Size 2	Length mm
1	1000	F7	Panel	Panel	Panel	1	1	100
2	1000	F7	Panel	Panel	Panel	1	1	100

004 HINGED ACCESS DOOR

Dimensions	Type
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005 CENTRAL FAN SUPPLY FAN

Fan Model	Configuration	Motor	Drive Type
Model <td>Whirl Type</td> <td>Frame Size</td> <td>Fan Pulley</td>	Whirl Type	Frame Size	Fan Pulley
Volume Flow	Supply	Supply	Fan Bank
Vol. Static	Fan Speed	Motor Speed / Efficiency	Motor Pulley
Vol. Total	Pressure	Static Efficiency	PLC
Vol. Total	Pressure	Static Efficiency	VSD

006 HINGED ACCESS DOOR

Dimensions	Type
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007 PLENUM

Dimensions	Type
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008 COIL

Flow	Q/F	Model	Rows	Fin Spacing	Face Area				
Air side	DB	WB	WB	DB	Total Load	Sensible Load	Latent Load	Face velocity	Pressure Drop
Water	Temp	Water Flow	Water P.D.	Glycol Type	Glycol Percentage	Connection Size			
Circuits	Fin Material	Tube Material	Tube Weight	Tube Weight	Case Material				

009 REMOVABLE PANEL

Dimensions	Type
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010 REMOVABLE PANEL

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011 REMOVABLE PANEL

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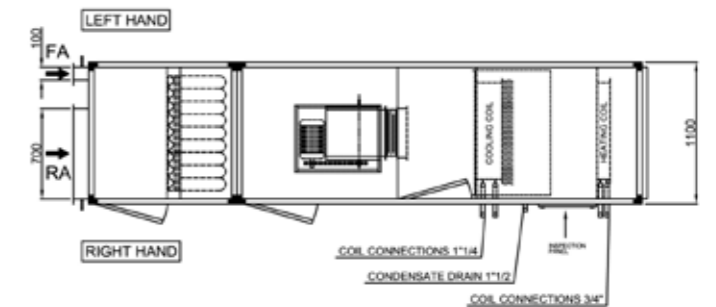
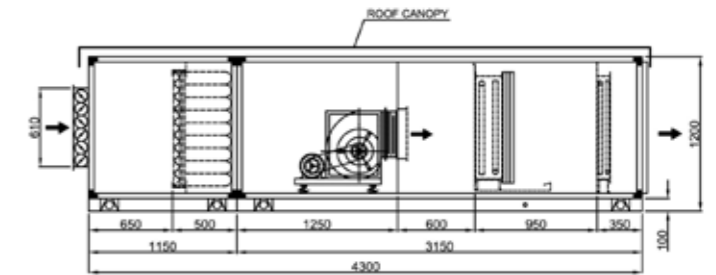
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099 REMOVABLE PANEL

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100 REMOVABLE PANEL

Dimensions	Type
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OUTPUTS

- Scaled, dimensioned AutoCAD GA drawings (DWG)
- Cabinetry BOM
- Panel cutting list
- Weight breakdown sheet for insertion into customer drawings
- Performance/Technical specification
- Scope of Supply (PDF)
- Fan curves (PDF)
- Psychrometric charts
- Sketch (PDF) (DWG)

MAKE YOUR OWN SELECTION

- We provide our clients with free licenses to enable them in selecting AHUs that meet their requirements and project specifications.



THE PARTNERSHIP





SAFID, was established in 1979 as a joint venture company between the Rahbani Group and the NOKIA Company of Finland.

Today, SAFID has diversified its portfolio and is manufacturing world class dampers, louvers, air terminals, attenuators, duct, etc. This is all backed by more than 40 years of experience along with a state-of-the-art acoustic and aerodynamic laboratory lead by our active R&D Department.

SAFID has always maintained its policy to design and produce products that can be locally adapted and compatible with the requirements of the area, and would definitely add value to the project owners, contractors, and overall project performance.



Klimak's design team with around four decades of experience, understands the need for high quality Air Handling Unit.

The company is known in the industry for its consistency of quality and for their dedication to continuously improving the manufacturing standards of AHUs and FCUs. Klimak has supplied over **ten thousand** Double Skinned AHUs and FCUs for prestigious projects in various countries in Asia, Africa and Europe. The company's record of on-time delivery of the equipment has resulted in several repeat orders from satisfied clients.

It's team is proud of their unequalled record for performance, exceeding the expectations of the project developers and the consultants for many of their Land Mark Projects.

1979

The establishment of SAFID.

1999

SAFID signed a license agreement with the recognized duct manufacturer LINDAB.

2003

SAFID launched its own R&D Lab (the largest and most advanced in the region)

2005

SAFID expanded its Riyadh facility.

2006

SAFID expanded its manufacturing facilities to Jeddah, Qatar and the UAE

2014 PARTNERSHIP

2010

Expansion to 5500m²

2008

Expansion to 3500m²

2003

Moved production to Piazzola S/Brenta (Padova) - 2500m²

1994

Moved production in Curtarolo (Padova) - 1500m² workshop

1989

Founded in 1989, first established in San Giorgio in Bosco (Padova) - 500m² workshop

CONTACT US

KINGDOM OF SAUDI ARABIA **RIYADH**



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