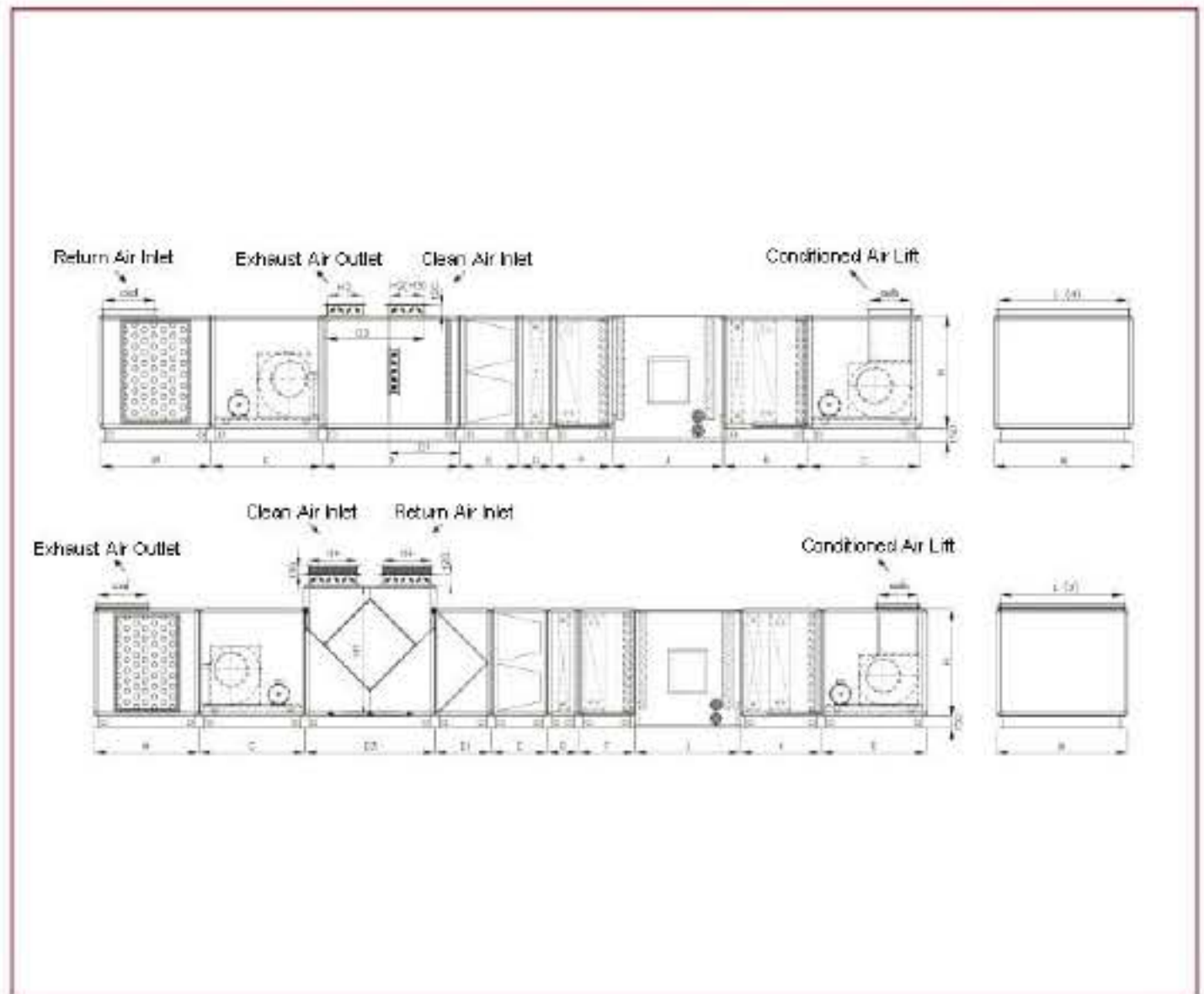




GKS
Modular
Air Handling Unit

MODULAR AIR HANDLING UNITS - GKS



GMC Air Handling Units are designed and manufactured proper to provide required climatization conditions, by means of immediate delivery. Our units can condition air with a range of 1500-9000 m³/h and provide any humidity and temperature value, required in environment.

TECHNICAL FEATURES

CODE	TYPE	SECTION (mm)		BATTERY AIR FLOW SECTION m ²	VELOCITY OF AIR PASSING FLOWING OVER BATTERY (m/sec)					
		H	W		2	2,5	3	3,25	3,5	4
GKS					Air Flow (m ³ /h)					
1	600	715	715	0.22	1567	1958	2350	2546	2743	3133
2	609	715	1020	0.37	2673	3341	4009	4343	4677	5345
3	699	715	1325	0.52	3779	4723	5668	6140	6612	7557
4	900	1020	1020	0.60	4343	5429	6515	7057	7600	8686
5	901	1020	1325	0.85	6140	7675	9210	9978	10745	12280
6	911	1020	1630	1.10	7907	9884	11861	12849	13838	15815
7	1206	1325	1630	1.52	10949	13686	16423	17791	19160	21897
8	1216	1325	1935	1.84	13271	16589	19907	21565	23224	26542
9	1609	1630	1935	2.36	16957	21197	25437	27556	29676	33915
10	1902	1935	1935	2.87	20644	25805	30966	33546	36127	41288
11	1922	1935	2240	3.40	24515	30643	36772	39836	42900	49029
12	2205	1935	2545	3.94	28385	35482	42578	46126	49674	56771
13	2252	2240	2545	4.51	32440	40550	48660	52716	56771	64881
14	2255	2545	2545	5.15	37083	46354	55624	60260	64895	74166
15	2500	2545	3155	6.57	47313	59141	70969	76883	82797	94625
16	2535	2545	3460	7.28	52428	65534	78641	85195	91748	104855

AIR HANDLING UNITS DIMENSION TABLE (mm)

TYPE GKS	Height	Recuperator Cell Height	Width	Ventilation Cell	Exhaust and Mixture Filter	Suction Filter Cell	Exhaust and Mixture Cell	Recuperator Cell	Bag Filter Cell	Service Cell	Cooler Cell	Heater Cell	Humidifier Cell	Cooler and Heater Cell	Silencer Cell	Damper Dimensions				Inlet - Outlet Flange Dimensions			
	H	H1	W	C	D	D1	D2	D3	E	E1	F	G	J	K	M	H2	H3	H4	L	a	b	c	d
600	715	1020	715	1000	1000	695	1000	1000	695	695	695	390	1305	1000	1000 1305	190	310	310	615	260	260	310	615
609	715	1020	1020	1000	1000	695	1000	1000	695	695	695	390	1305	1000	1000 1305	190	310	310	920	330	330	310	920
699	715	1020	1325	1000	1000	695	1000	1000	695	695	695	390	1305	1000	1000 1305	190	310	310	1225	360	360	310	1225
900	1020	1325	1020	1305	1305	1000	1000	1610	695	695	695	390	1305	1000	1000 1305 1610	310	550	615	920	400	400	550	920
901	1020	1325	1325	1305	1305	1000	1000	1610	695	695	695	390	1305	1000	1000 1305 1610	310	550	615	1225	470	470	550	1225
911	1020	1325	1630	1305	1305	1000	1000	1610	695	695	695	390	1305	1000	1305 1610 1905	310	550	615	1530	500	500	550	1530
1206	1325	1325	1630	1610	1610	1000	1305	1610	695	695	695	390	1305	1000	1305 1610 1905	425	615	615	1530	570	570	615	1530
1216	1325	1630	1935	1610	1610	1000	1305	1610	695	695	695	390	1305	1000	1305 1610 1905	425	615	615	1835	640	640	615	1835
1609	1630	1630	1935	1915	1610	1305	1610	1610	695	695	695	390	1305	1000	1305 1610 1905	490	920	615	1835	715	715	920	1835
1902	1935	1935	1935	1915	1915	1305	1610	1915	695	695	695	390	1305	1000	1305 1610 1905	615	920	765	1835	800	800	920	1835
1922	1935	1935	2240	2220	1915	1305	1610	1915	695	695	695	390	1305	1000	1305 1610 1905	615	920	765	2140	900	900	920	2140
2205	1935	1935	2545	2525	1915	1305	1610	1915	695	695	695	390	1305	1000	1305 1610 1905	615	920	765	2445	1000	1000	920	2445
2252	2240	-	2545	2525	2220	1610	1915	---	695	695	695	390	1305	1000	1305 1610 1905	760	1225	---	2445	1000	1000	1225	2445
2255	2545	-	2545	2525	2220	1610	1915	---	695	695	695	390	1305	1000	1305 1610 1905	760	1225	---	2445	1130	1130	1225	2445
2500	2545	-	3155	2830	2220	1610	1915	---	695	695	695	390	1305	1000	1305 1610 1905	760	1225	---	3055	1130	1130	1225	3055
2535	2545	-	3460	2830	2220	1610	1915	---	695	695	695	390	1305	1000	1305 1610 1905	760	1225	---	3360	1265	1265	1225	3360



CELL DIMENSION TABLE OF AIR HANDLING UNITS WITH HEAT RECOVERY (mm)

TYPE GKS	Unit Height	Cell Height	Width	Ventilator	Suction Filter	Recuperator	Heat Coil	Steam Humidifier	Cooler	Heater	Humidifier	Cooler and Heater	Bag Filter	Silencer Cell	Damper		Outlet Flange		Inlet Flange	
	(H)	(h)	(W)	(C)	(D1)	(R)	(S)	(N)	(F)	(G)	(J)	(K)	(E)	(M)	(H3)	(L)	(a)	(b)	(c)	(d)
600	1430	715	715	1000	695	1000	695	390	695	390	1305	1000	695	1000 1305	310	615	260	260	310	615
609	1430	715	1020	1000	695	1000	695	390	695	390	1305	1000	695	1000 1305	310	920	330	330	310	920
699	1430	715	1325	1000	695	1000	695	390	695	390	1305	1000	695	1000 1305	310	1225	360	360	310	1225
900	2040	1020	1020	1305	695	1305	695	390	695	390	1305	1000	695	1000 1305 1610	550	920	400	400	550	920
901	2040	1020	1325	1305	695	1305	695	390	695	390	1305	1000	695	1000 1305 1610	550	1225	470	470	550	1225
911	2040	1020	1630	1305	695	1305	695	390	695	390	1305	1000	695	1305 1610 1905	550	1530	500	500	550	1530
1206	2650	1325	1630	1610	695	1305	695	390	695	390	1305	1000	695	1305 1610 1905	615	1530	570	570	615	1530
1216	2650	1325	1935	1610	695	1610	695	390	695	390	1305	1000	695	1305 1610 1905	615	1835	640	640	615	1835
1609	3260	1630	1935	1915	695	1610	695	390	695	390	1305	1000	695	1305 1610 1905	920	1835	715	715	920	1835
1902	3870	1935	1935	1915	695	1610	695	390	695	390	1305	1000	695	1305 1610 1905	920	1835	800	800	920	1835
1922	3870	1935	2240	2220	695	1915	695	390	695	390	1305	1000	695	1305 1610 1905	920	2140	900	900	920	2140
2205	3870	1935	2545	2525	695	1915	1000	390	695	390	1305	1000	695	1305 1610 1905	920	2445	1000	1000	920	2445
2252	4480	2240	2545	2525	695	1915	1000	390	695	390	1305	1000	695	1305 1610 1905	1225	2445	1000	1000	1225	2445
2255	5090	2545	2545	2525	695	1915	1000	390	695	390	1305	1000	695	1305 1610 1905	1225	2445	1130	1130	1225	2445
2500	5090	2545	3155	2830	695	2525	1000	390	695	390	1305	1000	695	1305 1610 1905	1225	3055	1130	1130	1225	3055
2535	5090	2545	3460	2830	695	2525	1000	390	695	390	1305	1000	695	1305 1610 1905	1225	3360	1265	1265	1225	3360

1 – BODY

Air Handling Unit is CE certified and tested according to EN 1751:1988, DIN 1946 Section4: 2008, DIN EN ISO 5167 Standards.

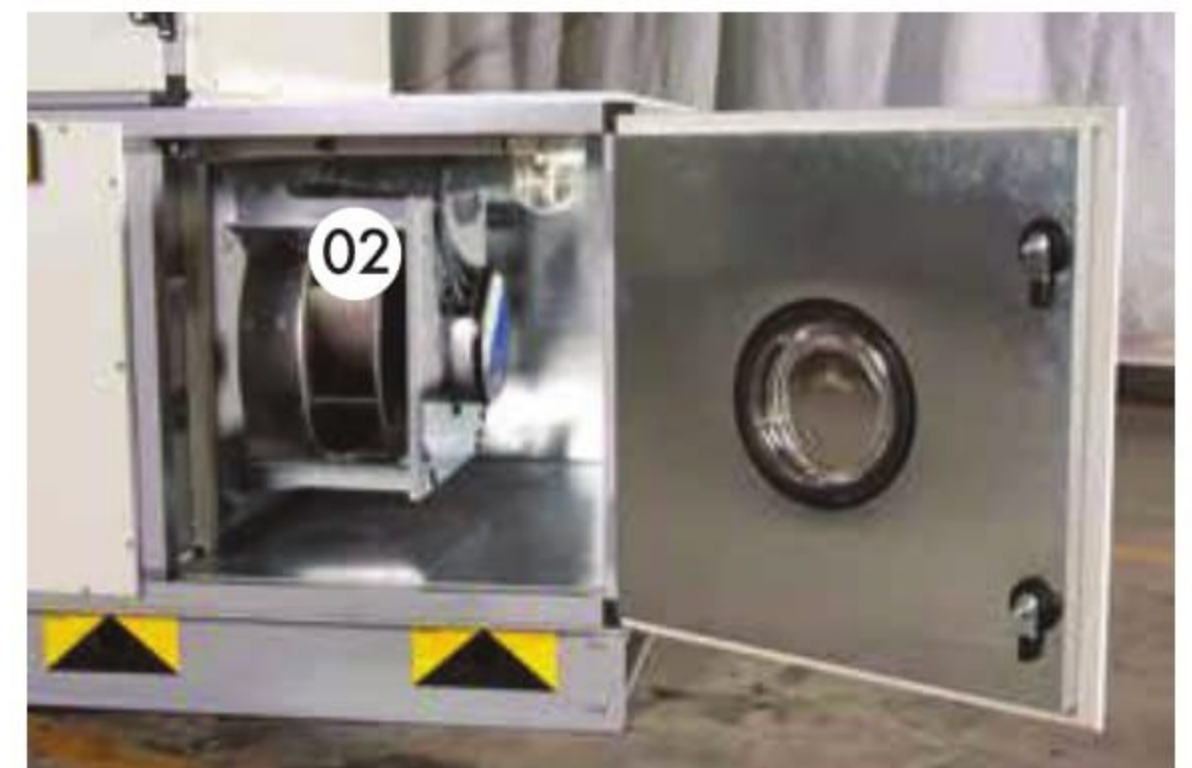
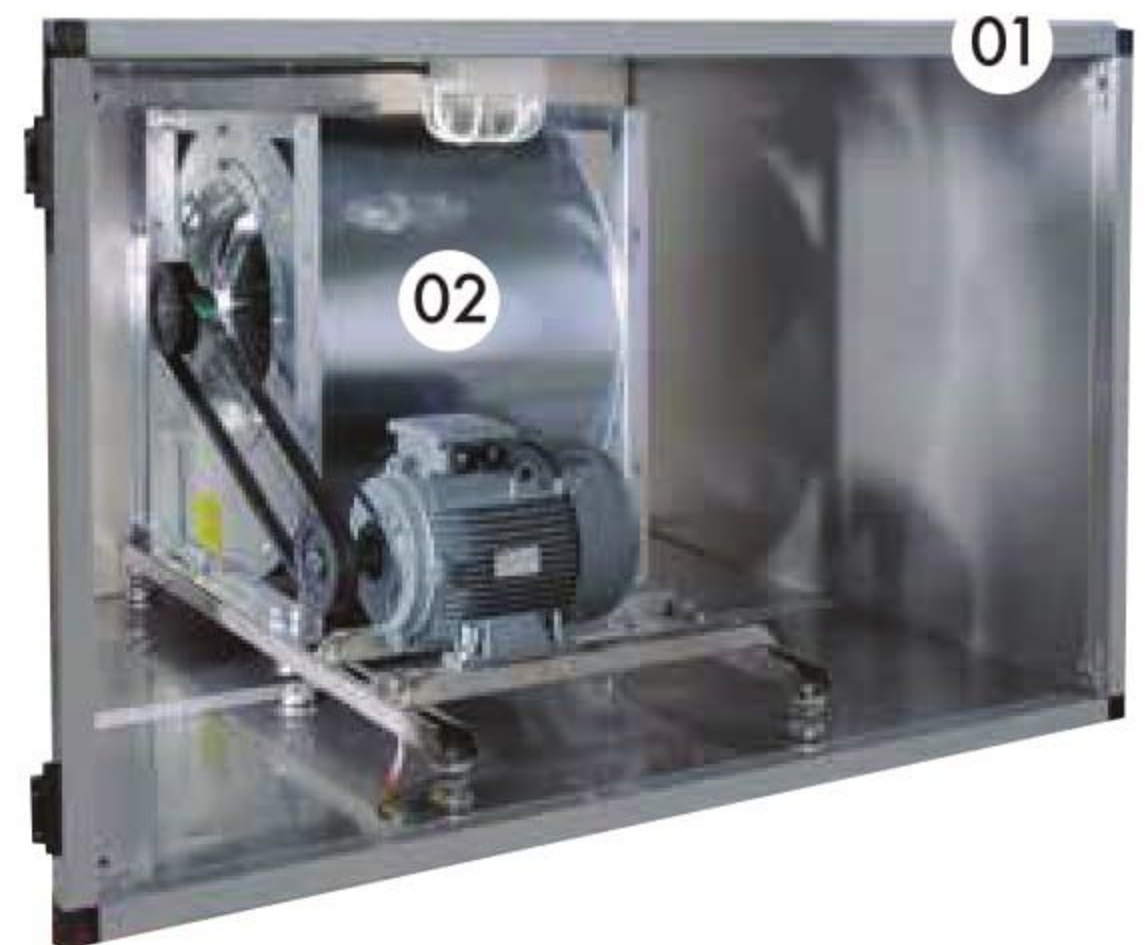
- Refer to EN 1886, maximum deflection for Body Mechanical endurance, D1(M) for positive and negative pressure, Maximum Leakage for -400Pa : L2, +700Pa: L2, Filter By-Pass Leakage:F9, Thermal Conductivity Range: T3, Thermal Bridge: TB3 class.
- Body Panels' inner and outer sheets are made of hot-dip galvanized steel, outer sheet is painted by polyester based RAL 9002 powder coating.
- All panels and doors are with double walls, thickness of outer sheets are minimum 1mm, inner sheets are minimum 0,8mm.
- Inner surfaces of whole body are completely smooth, clear, proper for washing and cleaning process, none of the components are connected with welding.
- Rockwool of 50mm thickness is used as insulation material between inner and outer sheets.
- Montage and dismantling of panels of the air handling units are completely done from the outside.
- Unit's cell connections are done by means of outer fasteners.
- Indecipherable, dampproof and waterproof, durable information labels are placed on unit cassette including air handling unit's technical information and also placed on each cell to define the cells.
- In case the unit is despatched to site in multi-cell, information labels, showing which cell belongs to which unit and cell fasteners are placed on the unit, in order to connect cells easily.

2 – FAN – ASPIRATOR CELLS

Forward curved or recurvate, double suction, high productivity centrifugal fans and plug fans are used in fan cells. These fans are made of galvanized steel, static and dynamical balances of the fans are equalized. Fan models are selected according to air flow, pressure and productivity curves.

Especially on centrifugal and plug fan selection, 60%-80% productivity zones are considered, and avoiding high tip speed is taken into consideration. Fan bearing system is determined according to prolong ball-bearing life.

Regarding fan type selection, it is recommended to use recurvate rare bladed fan, in case total pressure is over 1000 Pa. Fan and motor rotations are selected matching each other, motor-fan set ready for belt tension adjustment, placed on a base and connected to main body frame with rubber wedges, which absorbs vibration. Power taken from motor is transmitted to fan by belt and pulley system. Pulleys are equipped with clamping collar allowing easy montage, dismantling and replacement. Electric motors are IP55, IE2-IE3-IE4, 380V- 50Hz. Motor is selected 15-20% more than fan shaft power. Fan outlet is connected to cell by a flexible connection in order to cut vibration to body or to duct. Fan suction and exhaust outlets locations can be changed. Plug fans are coupled with motor directly and required rotation can be arranged according to the pressure by motor drivers.



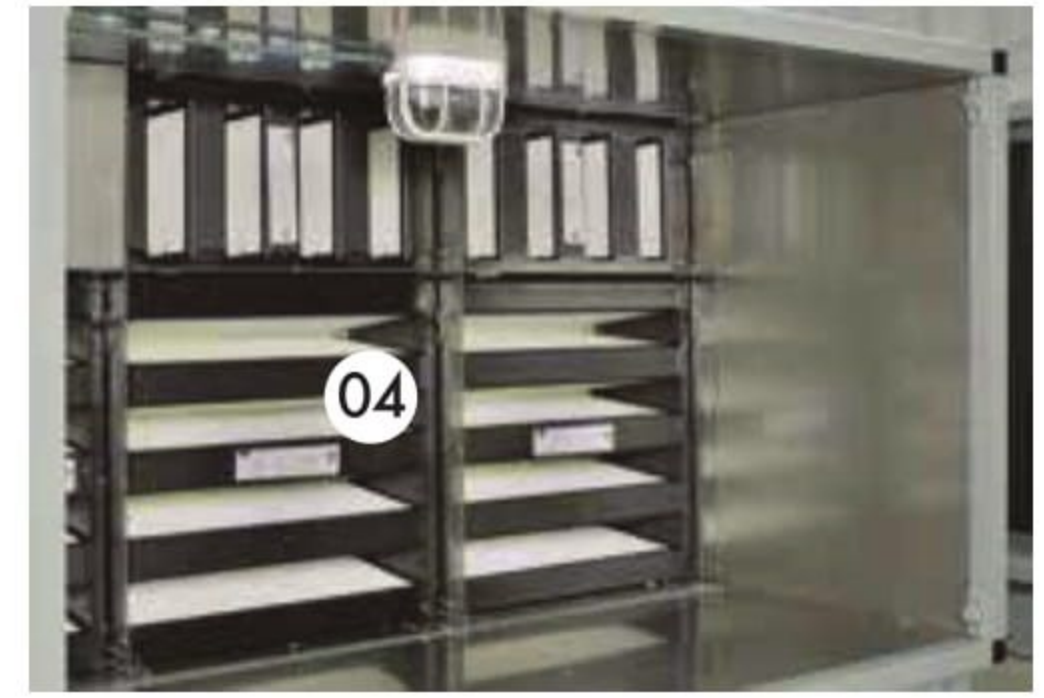
3 – EXHAUST, MIXTURE FILTER and SUCTION FILTER CELL

Cell is composed of 3 dampers and G2-G4 washable cassette filters. By means of exhaust damper over this cell, some air is exhausted from the site and same quantity of fresh air is taken in by other damper. Inner air is mixed with the fresh air, conditioned regularly and blow to site. Air rates adjustment, can be made by damper motors or manually in this cell. Dampers are aluminum aerodynamic bladed, and have bearing at both sides. Damper blades are equipped with rubber joints in order to provide exact sealing. G4 class pre-filter is placed in galvanized cassettes. Filter is secured by perforated sheet at both surfaces and filter cassette moves on cradle, easily replaceable and cleanable.



4- FILTER CELL

F5-F9 class filters, having (90%-99%) productivity, can be selected regarding to dust holding capacity. Placed in easy replaceable cassettes and frames . Entirely covers whole cell section.



5 – HEAT RECOVERY CELL

Works with 100% fresh air. The sorption rotor in the air handling unit provides energy save four seasons by both sensible and latent heat transfer, supplying dehumidifying needs at summer conditions and dampening needs at winter conditions. Productivity is around 70%-85% range. Heat coils just making sensible heat transfer or plate type cross transition applications are also available.



6- HEATING – COOLING CELL

Types of heating and cooling batteries, placed in the cell, are determined according to kind of fluid used in the system. Battery types are: Cold- hot- superheated water, vapour, direct expansion or electrical heater. Standard batteries are composed of copper pipes and aluminum blades. The most important feature of these batteries is, aluminum blades are blown-up and passed over to copper pipes. So, high thermal conductivity is provided by this way. Cell section is determined according to the velocity of the air passing over battery. Average air velocity is supposed as 2,5 – 3 m/sec. A stainless epoxy painted and insulated pan is used in cooling batteries for collecting and discharging of condensing water. Aluminum or PVC drift eliminators are used.in cells, having air velocity over 3m/sec.



7 – HUMIDIFICATION CELL

This cell is used in case of requirement of humidification of the air. Air, passing through the unit, is saturated of humidity by pulverizing water and essential project conditions are provided. There is a leak-proof water basin under the cells. Water is pulverized by sending to sprinklers in the cell, by means of a pump. There are aluminum air baffles at air inlet. These air baffles distributes the air homogenously.

There are PVC drift eliminators at outlet of the cell in order to avoid water carry over. Steam Humidifying cells contents a steam producing generator and can be located in an empty cell in case of requirement.



8- SILENCER CELL

Can be placed at inlet and outlet of the unit, optionally. Silencer cells are composed of off-stages having high sound absorption ability. Off-stages are made of galvanized steel panels having rockwool insulation and perforated steel sheet in. Dimension of the off-stage is designed according to sound absorption values.



NOTES





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