



HFC
R-134a
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Hygienic Air Handling Unit



Enviromental
Respect



Specific Solution
for each project



Lowest cost
of ownership



Low Noise



Hygienic Air Handling Unit

There are many factors which affect air quality, comfort conditions and the efficient operation of Hygienic Air Handling Units such as: Mechanical Performance, Thermal Transmission through the Air Handling Unit Casing, Air leakage , Noise Transmission, Bacteria and Fungi Protection, Air Cleanliness and Filter Efficiency, Fan and Motor Efficiency, Fan and Motor Type , Dehumidification and Humidification.

Hygienic Air Handling Units for Pharmaceutical and Bio-Pharm HVAC systems made by **Arad Energy Ers** are equipped with the main following features which provides high confidence for the clients used these AHU's in their projects till now.

- Smooth Internal Surfaces
- Anti Bacterial Sealing Materials
- Stainless Steel Drain Pans
- High Efficiency and Anti Corrosion Coils
- High Efficiency Fans
- Tight Service Door System
- Anti Vibration Fan Chassis
- Low Noise Dynamic Elements
- Effective Filtration Philosophy

Arad Energy Ers tried to take care of all Hygiene and Performance issues in manufacturing of the AHU's for pharmaceutical production by design and construct of different elements in those machines described below.



Structure & Frame

Doubled-walled Hygienic Air Handling Units in modular construction for air conditioning, horizontal or vertical mounting, completely detachable structure of housing without welding & rivet joints is the benefit of **AEE** products in this area. Each module consists of a strong self-supporting frame construction & doubled wall which makes each module suitable for horizontal or vertical mounting. The supports are made of extruded & anodized aluminum profiles. Inside of the wall of the Air handling units is so smooth and glossy and easy to dismantling and if required it could be covered with plastic outside and stainless steel of aluminum inside.

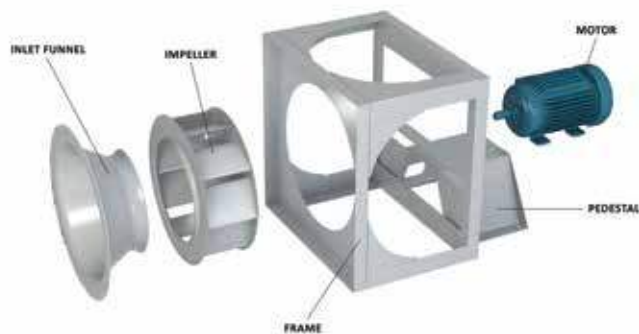
Service access doors are made in a similar construction as the panels with a strong locking handle and adjustable metal hinges to ensure an airtight door seal over the whole life span of the Air Handling Unit. All Air Handling Unit can be supplied of a galvanized steel sub-frame if requested. For large units there is an lifting eye for easy handling as standards. The individual units could be easily connected to each other by using the supplied sealing strip, connection brackets and screw.

Fans

High performance Plenum (Plug) fans with forward or backward curved blades by using direct drive connections are used in **AEE** AHU's. The rotors also are statically and dynamically balanced, low noise with at least 20,000 hours operating lifetime.

The fan and motor mounted on the base frame and the vibration damper under the frame prevent extra or unwanted vibration.

It could be single speed, two speed or steeples motor if requested.



Heating and Cooling coils

Quality heat exchangers with copper tubes and aluminum fins are used to provide maximum thermal transmission. Heating and cooling coils are made of galvanized steel and they were pressure tested to 30 bar.

The coil connection spigots are treated and an airtight rubber seal is provided where the pass through the Air handling Unit panel.

The heat exchangers can easily be withdraw from the AHU unit for servicing via service panel and the guide rail.

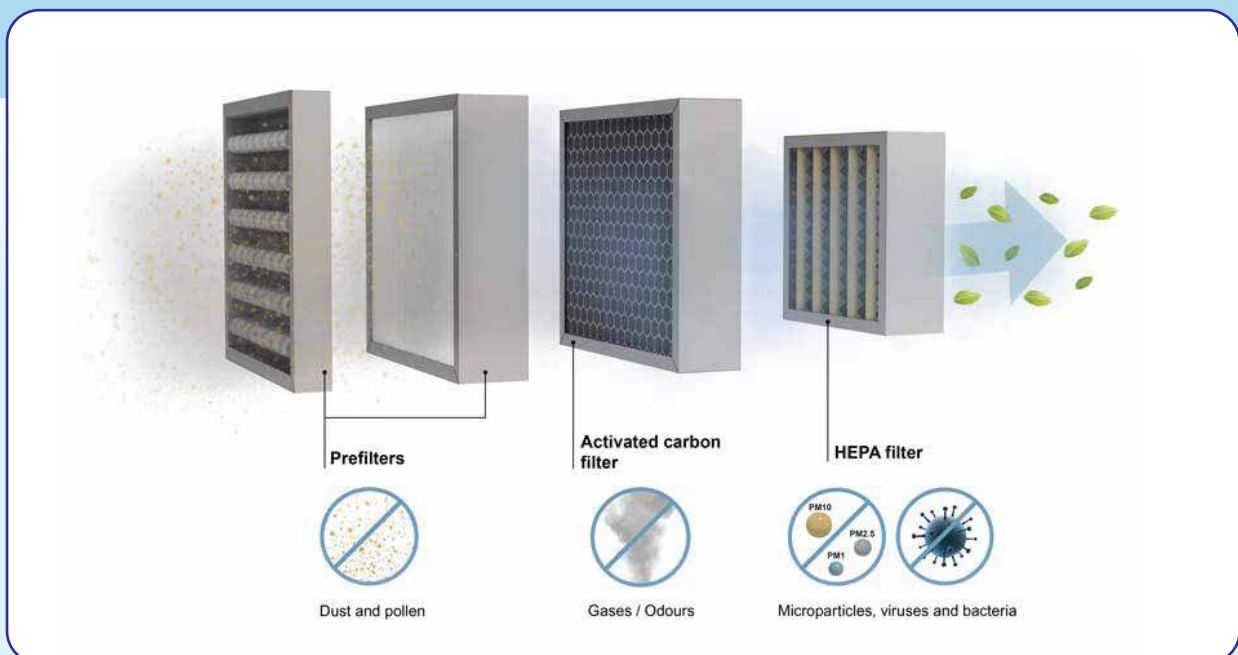
In cooling coils, In addition there is a condensate stainless steel drain pan and a 1inch spigot on the service side.

If required droplet eliminators with plastic separator blade will be fitted .



Filters

According to design, different types of filters with different efficiencies are using in **AEE** AHU's. to provide an increased surface area for high dust storing, particle capturing and separation capacity for easy maintenance, the filter cells can be withdrawn on the service side of AHU by the means of removable service panel or access door. High quality bag filters which have temperature resistance of up to 90 C, are self-supporting are also using. The bag filter are held in the place by galvanize steel frame. Installation of high flow HEPA filters also is possible in the last stage of AHU considering all required accessories like leakage free frame, integrity test points etc. Required test reports and certificates are available on client request.



Dampers

Opposite acting and aerodynamically shaped blades mounted in a anodized extruded aluminum profile frame with 30 mm flange with lip seal are used as dampers in **AEE AHU's**. The plastic gear wheels are housed in a hollow frame profile and are completely protected from dirt and dust that carried by the air stream provide long life performance and easy acting dampers for **AEE AHU's**.



Options

Several options are available on request:

- Dehumidifier section
- Heat exchanger for energy saving process
- Extra dampers for Air mixing
- Sound attenuator
- Diffusion section
- Humidifier
- Self-falling dampers
- Filter pressure test point
- Filter pressure gauges
- Inspection opening
- Maintenance switch for fan



Assurance of The Best Price

The high technical knowledge of the experienced designers and engineers of the company has made it possible to produce different products with the best fragments considering the standard of the world and optimized usage of time and materials. It has also made it possible to produce products with an appropriate price compared to similar products for our honorable customers.



Capability of Manufacturing Based on Consumer's Desired Dimension

Arad Energy Ers Company with the help of its professional and experienced designers, is ready to customize and produce the product based on consumers' needs.



Easy Cleaning Capability

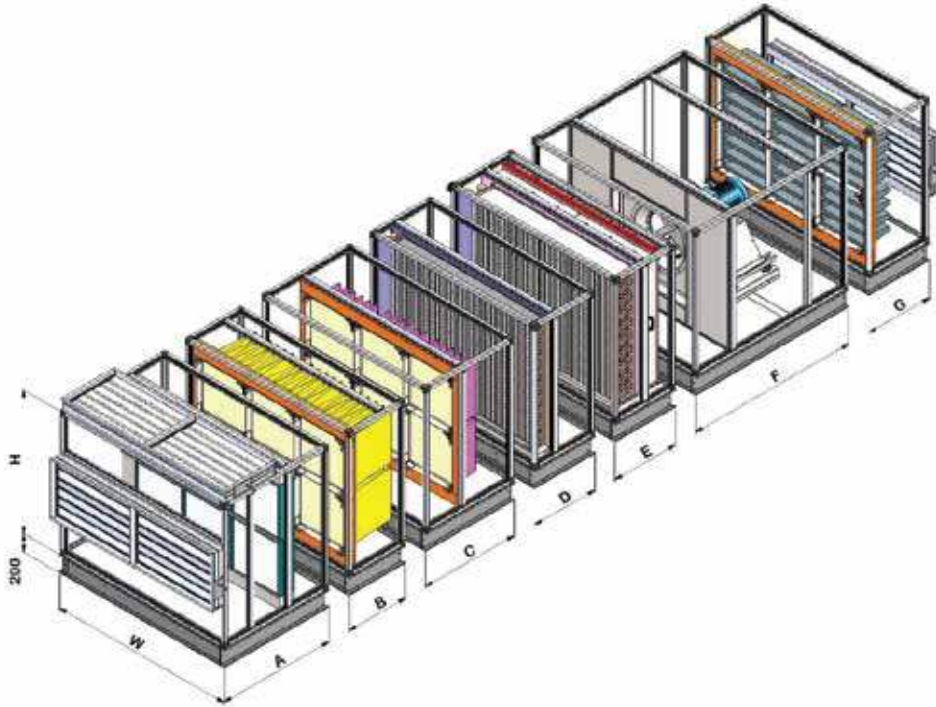
The body and internal surface of hygienic ventilation are made of stainless steel. In addition to this feature, the design of this device has another important features as all of different fragments and parts can be easily accessed, washed and cleaned.



Removing overhung particles in the air up to 99.99%

By using various filters which include different sorts of filters such as plated, bag, Hepa, Olpa and active carbon filter. This machine is able to filter hovering particles in ambient air up to 99.99%.

Hygienic Air Handling Unit



Hygienic Air Handling Unit Dimension

MODEL	L (mm)							W (mm)	H (mm)
	A	B	C	D	E	F	G		
AHU-AEE-1500-H	1000	700	850	600	600	1400	600	820	850
AHU-AEE-2000-H	1000	700	850	600	600	1400	600	920	950
AHU-AEE-2500-H	1050	700	900	700	700	1600	600	920	950
AHU-AEE-3000-H	1050	700	900	700	700	1700	600	1220	950
AHU-AEE-4000-H	1050	700	900	700	700	1800	600	1480	1000
AHU-AEE-5000-H	1200	700	900	700	700	1900	600	1480	1220
AHU-AEE-6000-H	1200	700	900	700	700	1900	600	1480	1220
AHU-AEE-8000-H	1300	700	900	700	700	2000	750	1480	1480
AHU-AEE-9000-H	1300	700	900	700	700	2000	750	1980	1220
AHU-AEE-10000-H	1300	700	900	700	700	2000	750	1980	1480
AHU-AEE-12000-H	1300	700	900	700	700	2000	750	1980	1570
AHU-AEE-14000-H	1300	700	900	700	700	2000	750	1980	1800
AHU-AEE-18000-H	1300	700	900	750	750	2000	900	1980	1980
AHU-AEE-20000-H	1300	700	900	750	750	2100	900	2350	1980
AHU-AEE-22000-H	1300	700	900	750	750	2100	1000	2350	1980

Hygienic Air Handling unit Specification													
NO	Model	Air flow (Cfm)	Cooling Coil				Heating coil				Fan		Filter
			Rows	Cooling capacity (Btu)	Air friction (in.wg)	Water pressure drop (ft.wg)	Rows	Heating capacity (Btu)	Air friction (in.wg)	Water pressure drop (ft.wg)	Model	Power (Hp)	
1	AHU-AEE-1.5(H)	1500	4	26924.4	0.33	0.41	2	75082	0.12	0.31	PFN315	2	G2 + G4 + F7 + F9 + H13
			6	34872	0.48	0.47							
2	AHU-AEE-2(H)	2000	4	36137	0.32	0.57	2	101715	0.12	0.7	PFN315	3	
			6	59189	0.47	0.87							
3	AHU-AEE-2.5(H)	2500	4	47874	0.37	0.48	2	125710	0.14	0.68	PFN315	3	
			6	74137	0.54	1.28							
4	AHU-AEE-3(H)	3000	4	61712	0.33	0.69	2	158001	0.13	0.54	PFN355	4	
			6	91812	0.49	1.59							
5	AHU-AEE-4(H)	4000	4	82518	0.37	1.09	2	211399	0.14	0.98	PFN450	5	
			6	127080	0.55	1.97							
6	AHU-AEE-5(H)	5000	4	123553	0.29	1.38	2	282419	0.11	1.08	PFN500	7.5	
			6	183540	0.42	2.34							
7	AHU-AEE-6(H)	6000	4	136068	0.32	1.32	2	333966	0.12	1.45	PFN500	10	
			6	221245	0.47	2.8							
8	AHU-AEE-8(H)	8000	4	202079	0.34	2.4	2	441172	0.13	1.1	PFN630	15	
			6	294046	0.5	2.6							
9	AHU-AEE-9(H)	9000	4	254809	0.32	2.13	2	507319	0.12	1.44	PFN630	15	
			6	357813	0.48	4.23							
10	AHU-AEE-10(H)	10000	4	278754	0.35	2.23	2	565971	0.13	1.75	PFN630	15	
			6	393199	0.51	4.48							
11	AHU-AEE-12(H)	12000	4	333554	0.35	2.4	2	678402	0.13	2.03	PFN710	20	
			6	471110	0.51	4.75							
12	AHU-AEE-14(H)	14000	4	388271	0.35	2.62	2	790828	0.13	2.38	PFN710	20	
			6	549453	0.51	4.31							
13	AHU-AEE-18(H)	18000	4	503394	0.36	2.52	2	1016842	0.14	1.98	PFN800	25	
			6	708646	0.53	5.2							
14	AHU-AEE-20(H)	20000	4	588155	0.34	3.21	2	1151313	0.13	2.3	PFN900	30	
			6	815696	0.5	6.93							
15	AHU-AEE-22(H)	22000	4	642075	0.35	3.37	2	1258598	0.13	2.3	PFN900	40	
			6	89335	0.52	7.3							

This data based on:

1. Coil features: 8 Fins/in and tube size 5/8", full circuit

2. Cooling standard condition:

I Entering air: Tdb = 80.6 °F, Twb= 68°F

II Leaving air: Tdb = 65.8 °F

III Entering fluid: T = 44 °F

3. Heating standard air condition

I Entering air: Tdb = 57.2 °F, Twb= 52°F

II Leaving air: Tdb = 105 °F

III Entering fluid: T = 180 °F

4. 70% of the air should be returned. (30% fresh air)

5. Fan static pressure: 5in.wg



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High quality parts



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