



Aerosol Removal Systems

HEAF: High Efficiency
Aerosol Filtration

CHEAF: Cleanable
High Efficiency Aerosol
Filtration System

Take control of aerosol emissions.



Sticky, oily, and soluble aerosol emissions present in exhaust gas streams have traditionally posed a removal challenge for a wide variety of industrial plants and facilities. Today, Verantis makes it easy to solve that problem with filtration equipment capable of achieving removal efficiencies greater than 99.99% in all types of industrial applications.

Verantis High Efficiency Aerosol Filtration (HEAF) and Cleanable High Efficiency Aerosol Filtration (CHEAF) systems use fiberglass or polyester filter media to draw gas through and separate Aerosol particulate matter from the gas stream.

The systems rely on three different collection mechanisms for their outstanding removal performance:

1. Filtration for large insoluble particulate matter and undissolved large soluble particulate matter
2. Impaction for particulate between 0.3 and 3 microns
3. Brownian Motion for particulate matter below 0.3 microns

HEAF and CHEAF systems are ideal for a variety of different applications and industries including the plasticizer, asphalt saturator, and food processing industries. Verantis has successfully installed these solutions in facilities around the world, and our consultants have the expertise to recommend the right type of HEAF or CHEAF equipment for your requirements.

**High Efficiency
Aerosol Filtration
(HEAF) Systems:**
An effective alternative
to traditional air pollution
control equipment.

HEAF systems are a smart choice in a variety of applications where the nature of the particulate makes it difficult, if not impossible, to capture and remove. They are ideal for collecting sticky, liquid particulate that can plug baghouses as well as particulate that's too small for wet scrubbing systems to efficiently collect.

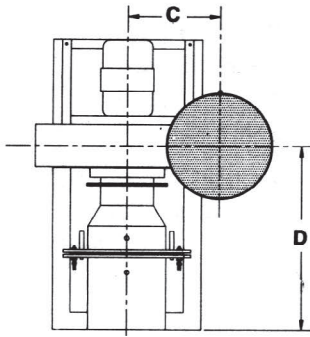
HEAF systems can also be used in applications where particulate cannot be easily removed from collection plates in an electrostatic precipitator due to high conductivity or high water content. They are equally effective for particulate with an improper resistivity to carry an electrostatic charge.

Finally, HEAF systems provide a cost-effective option to fume or vent gas incineration for reducing sticky aerosol in VOC laden gas streams.

MINI-HEAF

An affordable, manually-operated option designed for intermittent emissions and gas flows between 0 and 5,000 ACFM.

Plan View



End View

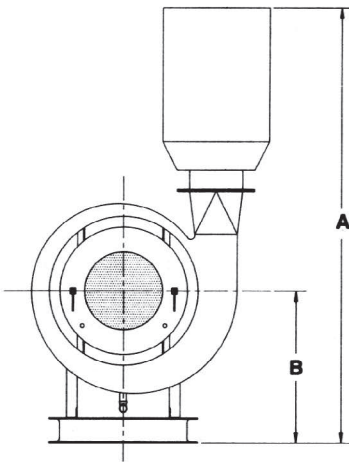
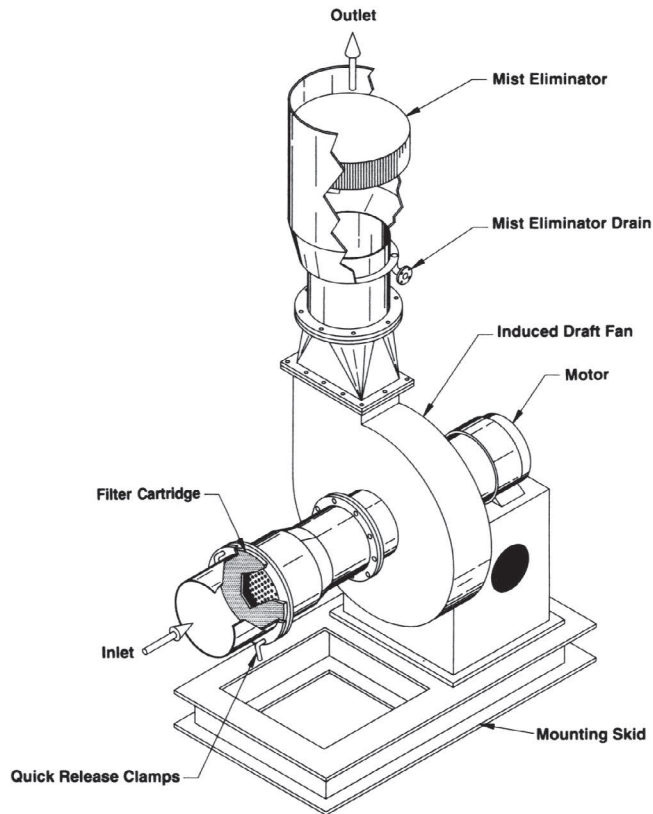
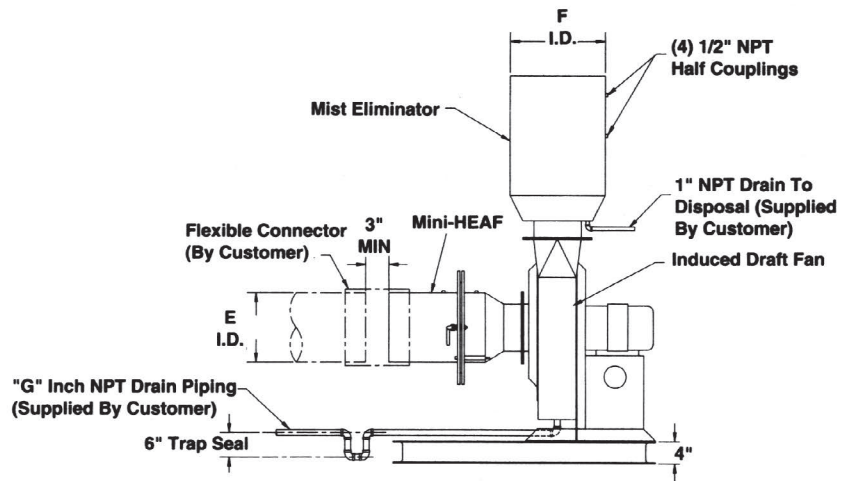


Figure 1. Mini-HEAF



Elevation View

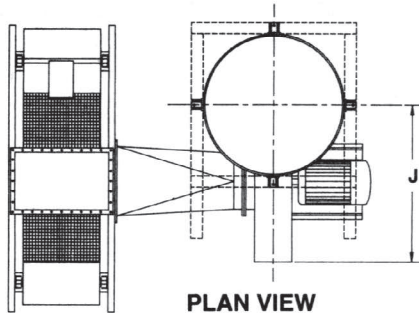


MODEL	DIMENSION							WEIGHT (lb.)
	A	B	C	D	E	F	G	
I-03	77 ¹⁵ / ₁₆ "	30"	20 ⁷ / ₈ "	22"	5 ³ / ₄ "	10 ³ / ₄ "	1"	910
II-05	80 ¹⁵ / ₁₆ "	30"	20 ⁷ / ₈ "	22"	7 ¹ / ₂ "	13 ³ / ₄ "	1"	910
III-08	88 ⁵ / ₁₆ "	30"	20 ⁷ / ₈ "	22"	9 ¹ / ₄ "	7 ¹ / ₂ "	1"	910
IV-10	93 ⁵ / ₁₆ "	30"	20 ⁷ / ₈ "	23"	10 ¹ / ₂ "	9 ¹ / ₂ "	1"	930
V-15	98 ¹³ / ₁₆ "	30"	20 ⁷ / ₈ "	23 ⁹ / ₁₆ "	12 ³ / ₄ "	24"	2"	1010
VI-20	105 ¹³ / ₁₆ "	30"	20 ⁷ / ₈ "	32 ⁹ / ₁₆ "	14 ³ / ₄ "	27 ¹ / ₂ "	2"	1060
VII-30	110 ³ / ₁₆ "	30"	20 ⁷ / ₈ "	34 ³ / ₈ "	18"	33 ³ / ₄ "	2"	1270
VIII-40	110 ⁷ / ₁₆ "	30"	20 ⁷ / ₈ "	36 ³ / ₈ "	20 ³ / ₄ "	39"	2"	1330
IX-50	130 ³ / ₁₆ "	33"	23 ³ / ₁₆ "	36 ⁷ / ₈ "	23 ¹ / ₄ "	43 ¹ / ₂ "	2"	1560

FLAT-BED HEAF

A lower-cost, fully-automatic unit for gas flows from 500 to 15,000 ACFM.

Plan View



Elevation View

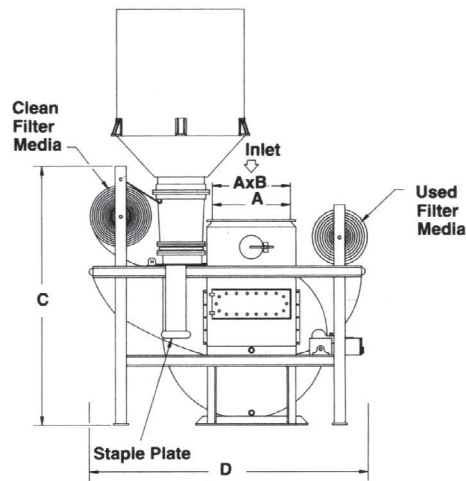
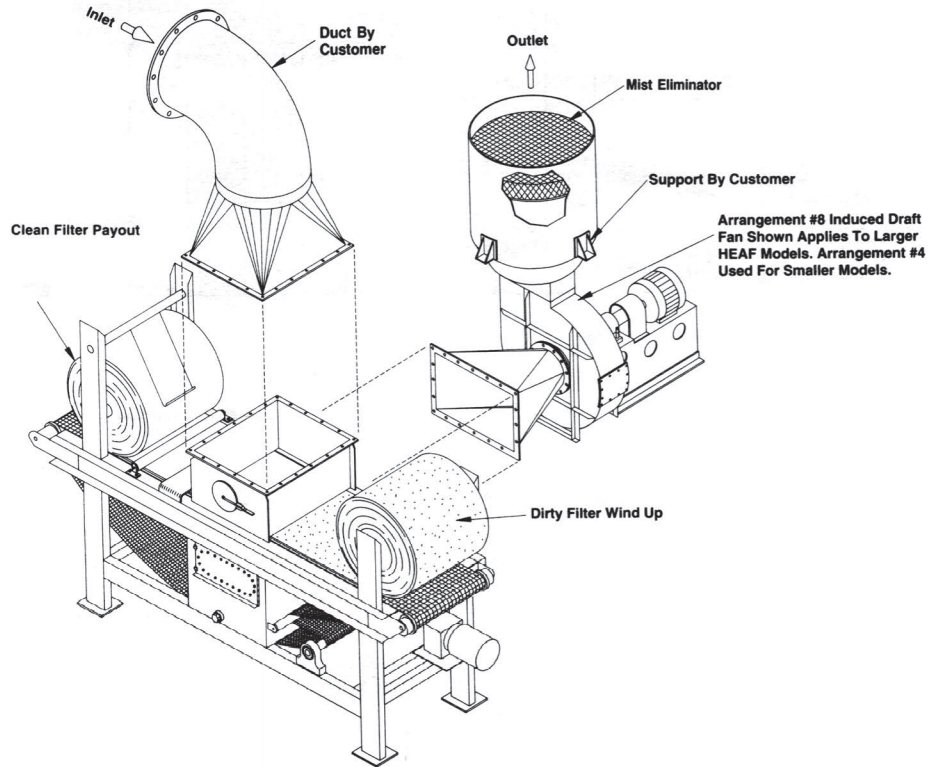
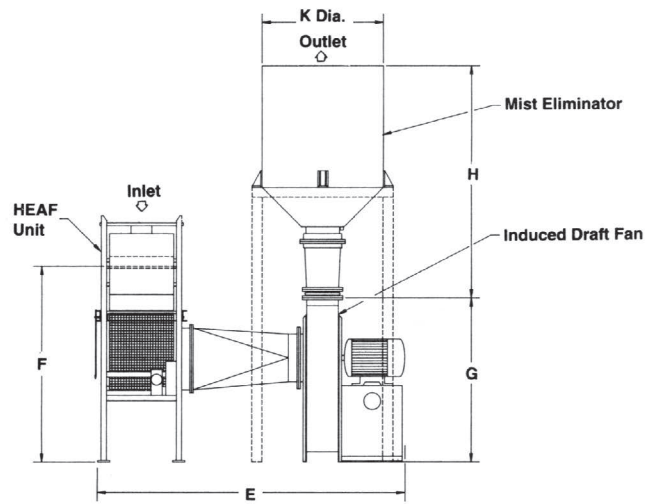


Figure 2. Flat-Bed HEAF



End View

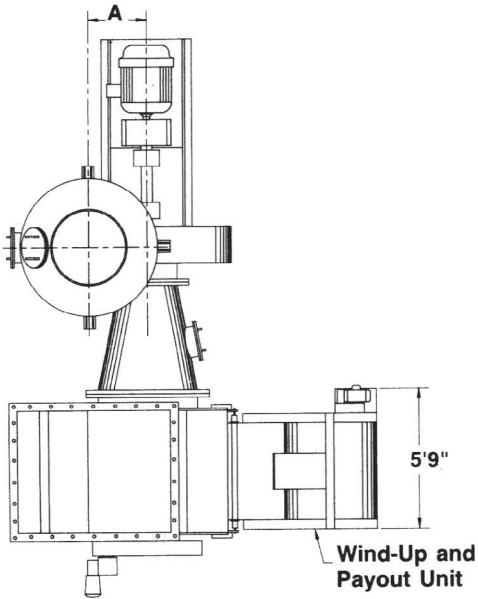


MODEL	INLET CFM RANGE X 1000	DIMENSION										EST. WEIGHT (lb.)	H.P.
		A	B	C	D	E	F	G	H	J	K		
M-1.5-10	0.5-1	16"	24"	7' 2"	8' 7"	6' 7"	4' 10"	3' 10"	3' 3"	3' 5"	20"	1720	10
M-1.5-20	1-2	16"	24"	7' 2"	8' 7"	6' 10"	4' 10"	3' 10"	3' 11"	3' 5"	28"	1890	20
M-2.0-30	2-3	27"	30"	7' 2"	9' 6"	9' 2"	4' 10"	3' 10"	4' 5"	3' 5"	34"	2240	25
M-2.0-40	3-4	27"	30"	7' 2"	9' 6"	9' 2"	4' 10"	3' 10"	4' 11"	3' 5"	39"	2595	40
M-2.0-50	4-5	27"	30"	7' 2"	9' 6"	9' 2"	4' 10"	3' 10"	5' 3"	3' 10"	44"	2850	40
M-3.0-70	5-7	29"	42"	7' 2"	9' 8"	12' 2"	4' 10"	3' 6"	6' 1"	2' 9"	53"	3600	60
M-3.0-90	7-9	29"	42"	7' 2"	9' 8"	12' 2"	4' 10"	3' 6"	6' 8"	3' 2"	60"	3995	75
M-4.0-100	9-10	33"	54"	7' 5"	10' 5"	18' 10"	5' 2"	7' 1"	7' 11"	8' 7"	66"	7290	75
M-4.0-120	10-12	33"	54"	7' 5"	10' 5"	18' 10"	5' 2"	7' 1"	8' 5"	8' 7"	72"	7650	100
M-4.0-150	12-15	33"	54"	7' 5"	10' 5"	18' 10"	5' 2"	7' 1"	8' 10"	8' 7"	78"	8195	125

ROTARY DRUM (DF) HEAF

A fully-automatic unit available in four different configurations for processing large gas flows from 9,000 to 100,000 ACFM.

Plan View



Elevation View

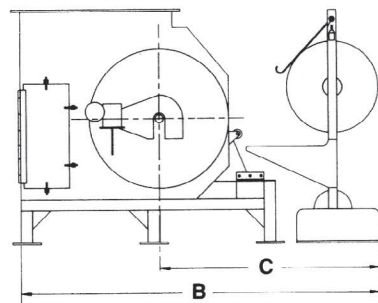
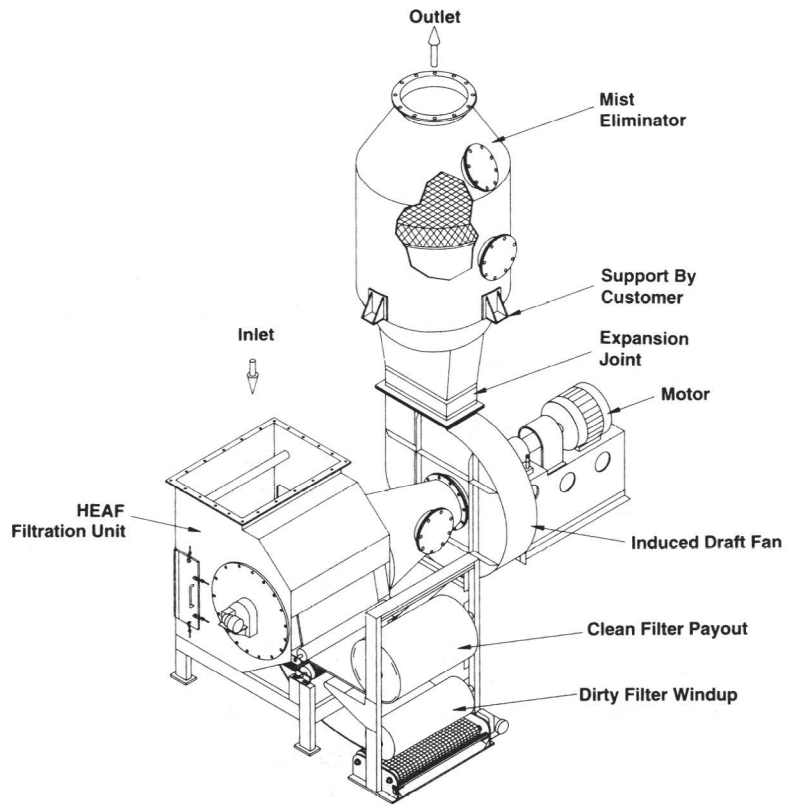
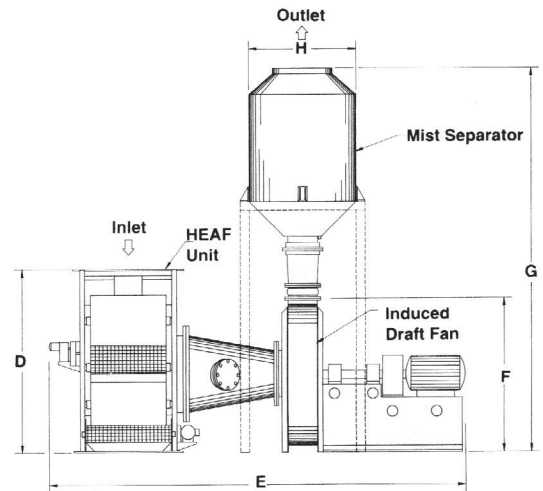


Figure 3. Rotary Drum HEAF



Side Elevation View



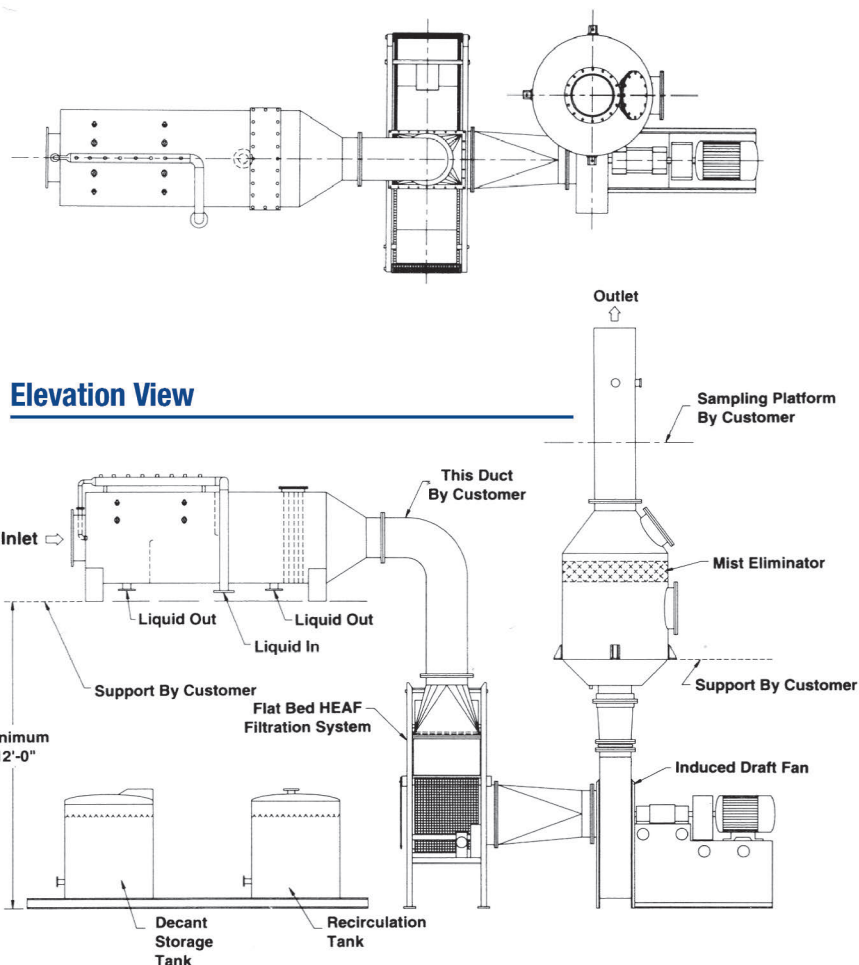
MODEL NO. DF	INLET CFM RANGE (1000s)	DIMENSION								EST. SHP. WT. (lb.)
		A	B	C	D	E	F	G	H	
33-I	9-13	1' 11"	10' 10"	6' 10"	7' 4"	17' 2"	6' 6"	17' 0"	5' 6"	6,500
33-II	13-17	2' 0"	10' 10"	6' 10"	7' 4"	20' 7"	6' 8"	20' 5"	7' 6"	9,900
33-III	17-22.5	1' 8"	10' 10"	6' 10"	7' 4"	19' 4"	6' 7"	22' 11"	8' 6"	9,900
44-IV	22.5-30	1' 9"	11' 9"	7' 4"	8' 9"	24' 1"	7' 4"	24' 9"	10' 0"	17,100
44-V	30-41	1' 9"	11' 9"	7' 4"	8' 9"	24' 0"	7' 6"	26' 11"	11' 0"	18,900
54-VI	41-52	4' 1"	13' 9"	7' 11"	9' 5"	26' 7"	10' 6"	28' 2"	12' 6"	35,000
64-VII	52-56	4' 1"	15' 0"	9' 2"	10' 5"	30' 8"	10' 6"	29' 4"	13' 0"	36,400
64-VIII	56-62	4' 1"	15' 0"	9' 2"	10' 5"	30' 8"	10' 6"	31' 9"	13' 4"	36,800
84-IX	62-100	4' 4"	16' 3"	10' 4"	14' 1"	37' 3"	11' 2"	40' 0"	16' 10"	42,900

COOLING CHAMBERS

Verantis offers a complete line of evaporative cooling chambers capable of reducing exhaust temperatures from any industrial process. The cooling chambers condense organic matter into liquid droplets that can be effectively filtered by HEAF equipment.



Figure 4. Evaporative Gas Cooler Plan view



VERANTIS COOLING CHAMBERS

MODEL #	MAXIMUM STANDARD GAS FLOW	OVERALL LENGTH OR HEIGHT*	VESSEL DIAMETER	INLET DIAMETER	OUTLET DIAMETER	SHIPPING WEIGHT (lb.)
CC-1	480 ACFM	132"	10"	5½"	5"	350
CC-2	690 ACFM	132"	12"	6½"	6"	415
CC-3	950 ACFM	132"	14"	8"	7"	370
CC-4	1,240 ACFM	132"	16"	9"	8"	555
CC-5	1,560 ACFM	132"	18"	10"	9"	625
CC-6	1,740 ACFM	132"	20"	10"	10"	695
CC-7	3,480 ACFM	162½"	28"	14"	14"	1,195
CC-8	6,260 ACFM	209¾"	36"	20"	18"	1,980
CC-9	6,960 ACFM	217¾"	38"	22"	20"	2,170
CC-10	8,700 ACFM	228"	50"	24"	24"	2,990
CC-11	17,400 ACFM	302"	66"	32"	32"	5,230
CC-12	26,100 ACFM	313"	80"	40"	38"	6,570
CC-13	34,800 ACFM	336¾"	92"	46"	42"	11,900
CC-14	43,500 ACFM	347"	102"	52"	48"	13,580
CC-15	52,200 ACFM	355½"	110"	56"	54"	15,010
CC-16	60,900 ACFM	362½"	118"	62"	60"	16,415
CC-17	69,600 ACFM	373"	126"	66"	60"	18,035

* Straight through flow design only. Contact Factory for 90° angle units. All Dimensions are approximate — do not use for construction.

Cleanable High Efficiency Aerosol Filtration (CHEAF) Systems: Continuously cleaned filter for a longer filter life.

Like HEAF units, CHEAF systems are a low-cost, efficient alternative to high-energy scrubbers or Brownian Motion controlled mist eliminators. They effectively collect hard-to-control aerosol emissions and offer the added advantage of a continuously cleaned filter media. The systems use a liquid spray to wash soluble submicron aerosol particulate from the filter media, thus extending the filter life.

CHEAF systems are ideal for collecting a wide range of submicron, water-soluble particles and aerosols, including:

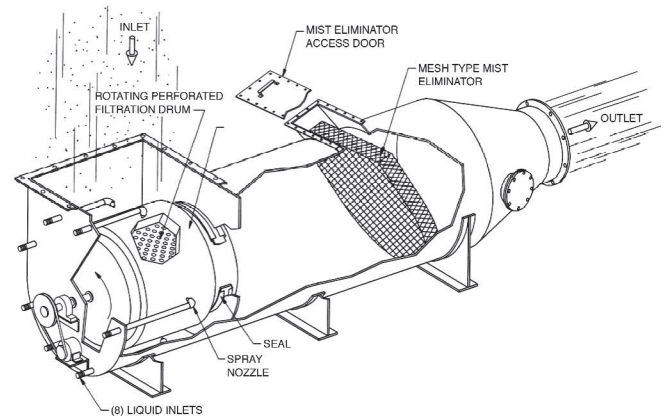
- Ammonium nitrate
- Urea prill tower emissions
- Soda and borosilicate glass furnace emissions
- Phosphoric acid mists and phosphorus pentoxide fumes
- Emissions from inorganic chemical calciners and dryers
- Food product spray dryers
- Galvanizing fumes
- Sulfuric acid mists

CHEAF systems also collect insoluble particulate matter with a mean diameter of less than 1.0 microns, making them excellent control devices for metallurgical fumes.

Verantis offers three different CHEAF systems and can work with you to implement the best solution for your needs.

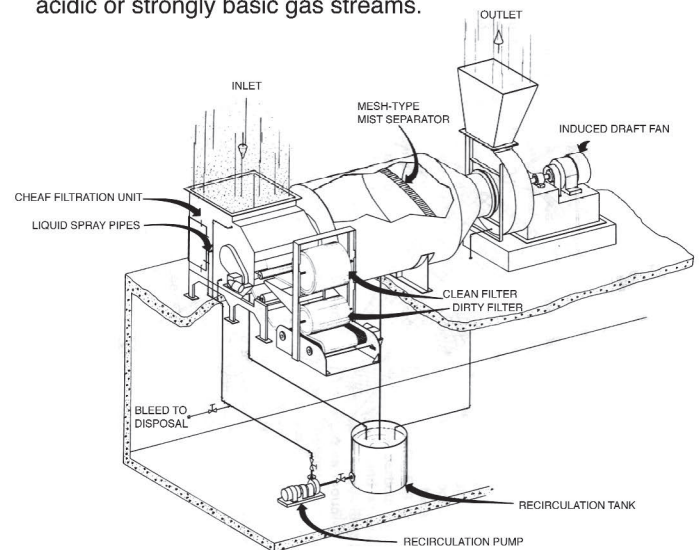
CONTINUOUSLY CLEANED CHEAF:

Ideal for non-acidic gas streams containing insoluble particulate matter as well as liquid particulate or water soluble emissions in acid gas streams



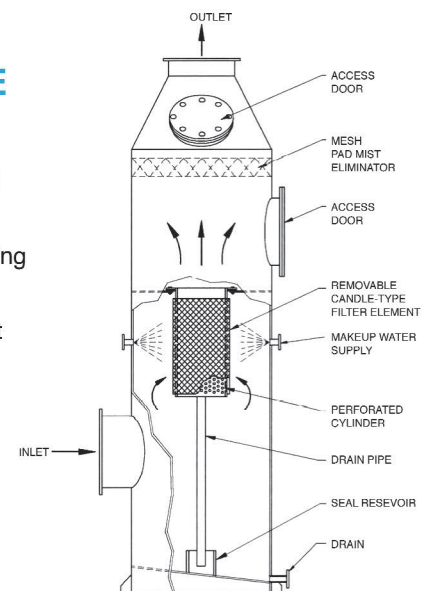
RENEWABLE MEDIA CHEAF:

Designed for emissions where both water soluble and water insoluble particulate matter are encountered in acidic or strongly basic gas streams.



FIXED OR CANDLE-TYPE CHEAF:

Designed for liquid aerosol control applications requiring Brownian Motion or candle-type mist eliminators.





Contact Verantis

Contact Verantis for more information about HEAF and CHEAF systems that can effectively and efficiently collect and control hard-to-remove aerosol emissions.



Please visit our website at www.verantis.com