

FAN SEPARATOR

Fan / Separator H₂SO₄ (Sulfuric Acid) is Designed to Remove Fume and Other Contaminants from the Air Stream.

FAN / SEPARATOR SPECIFICATIONS

Various materials of construction may be used to resist corrosive contaminants and scrubbing liquor that come into contact with the unit. Tri-Mer Corporation holds the U.S. Patent #3,616,604 for and has been manufacturing Fan/ Separator Units since 1966.

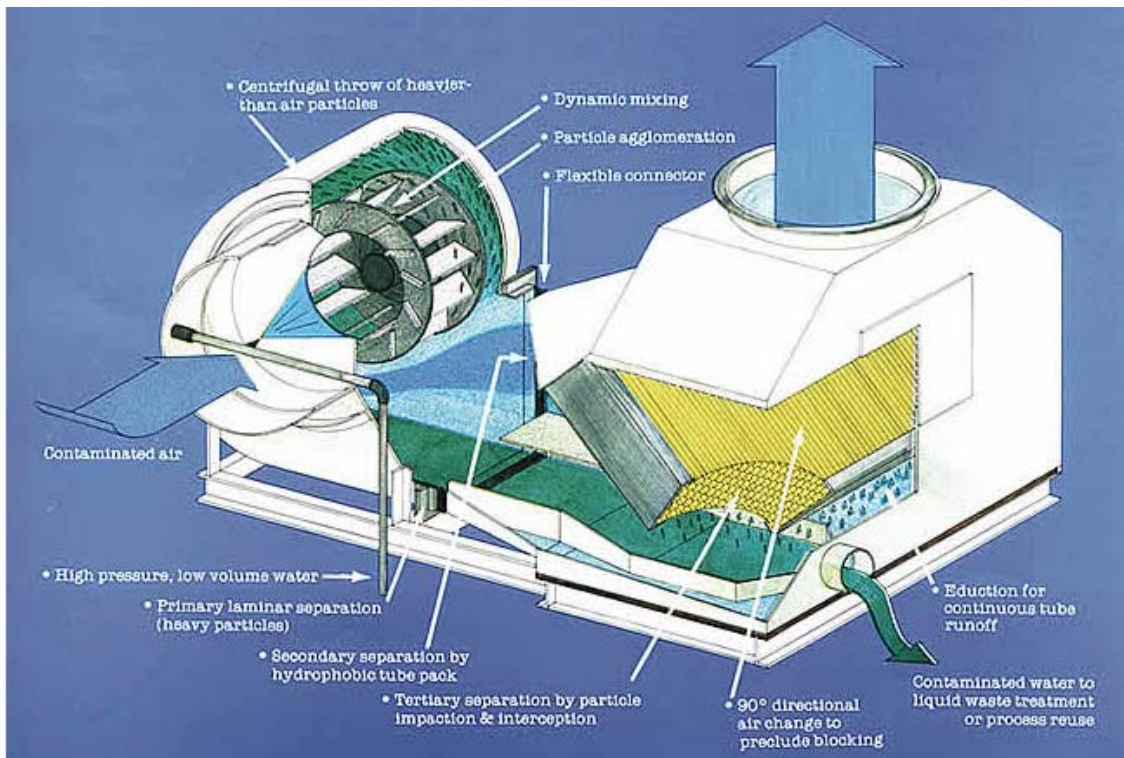
Our Fan/Separator Units can be fabricated from PVC, Polypropylene, Fiberglass Overlaid PVC, 316 Stainless Steel, 304 Stainless Steel and Mild Steel. All units are Factory Tested. Units are available from 50 to 100,000 cfm.

Every Fan / Separator unit is constructed of the most state of the art fabrication techniques using fusion, extrusion welding, and seamless corners wherever possible. Bolted access doors are provided for inspection of the interior and removal of the filter elements. Gasket made from closed cell PVC foam is provided. Hardware is 316 S.S. maximum bolt torque 10#.

OPERATING CONFIGURATION

The scrubbing liquor wets the contaminant as it enters the fan and allows it to be centrifugally spun out on the fan scroll through a process on dynamic mixing. The centrifugal action, using the fan wheel as part of the scrubbing process, will eliminate approximately 55 percent of all contaminants in the air stream. Scrubber to be of two-stage design with dynamic scrubbing as the first stage and the second stage to be an impingement process.

The impingement process causes the air to change direction as it passes across the rigid packing media. The packing media also acts as a mist eliminator section. The packing media is supplied in framed packs and is suitable for 99 percent removal efficiency of 20 micron and larger water droplets under continuous a duty load. The scrubber contains a Venturi evacuation drain for continuous removal of scrubbing liquor. The Fan / Separator is a dry sump system and will contain only residual liquid passing through the scrubber during any phase of operation.



1) INTENT

This Specification defines the design requirements, the quality and types of workmanship and materials, and the performance standards and guarantees for equipment, materials and services supplied by Tri-Mer Corporation.

2) SCOPE

The vendor (Tri-Mer Corporation) shall furnish Fan / Separator Units complete with auxiliaries and options described herein. Each system shall include but is not limited to the following:

- The Fan Separator and internals necessary to provide adequate liquid-process stream contact in order to achieve performance.
- Mist eliminator to achieve entrained liquid separation.
- Flanged connections for all external water fill, water makeup and drain piping as required and optioned.
- Controls if optioned, to automatically feed water, and monitor pressure.
- Complete shop coating of required areas with Epoxy or other resistant paint for external surfaces.

3) SEPARATOR DESIGN REQUIREMENTS

- Fan / Separator Units shall be of low energy type. Internals shall be designed to prevent the buildup of solids.
- Fan / Separator Units shall be manufactured of PVC, Polypropylene, Stainless steel or Mild steel. Vendor shall evaluate materials and select the most appropriate material for this service.
- Scrubber to be complete with Fan and Separator section designed and manufactured together as an integral-operating machine.
- Separator Section shall be provided with clear view-ports designed for accessibility and inspection of equipment during operational phase.
- Inspection ports shall be placed in proper positions to facilitate the ease of operation and inspection.
- Flanged pipe connections shall be provided for the introduction of water as well as drainage.
- Contaminants shall enter the eye of the fan where they are treated with a fog mist of scrubbing liquor.
- The fan and motor shall be designed for a static pressure capability of the specified pressure drop through the Fan / Separator plus external pressures for the customers ductwork losses.
- The sound levels generated by the Vendor furnished equipment during normal operation shall not exceed 85 dBA-weighted, slow response, under free field condition, at a horizontal distance of 10 feet from the surface of sound generation.
- Vendor shall provide electric motor and drives for each unit. Vendor shall be responsible for the selection of the motor characteristics and the motor mounting.
- All electrical equipment provided by the vendor shall be supplied in NEMA rated enclosures.
- All equipment manufactured by Tri-Mer Corporation is warranted under the standard Tri-Mer Corporation one-year warranty. All purchased components are warranted under the respective manufacturer warranty.

4) STANDARD SUPPLIED COMPONENTS

Standard Purchased components furnished on the Tri-Mer Corporation Whirl/Wet Dust Collectors are as follows:

- Dwyer Magnehelic differential pressure gage for monitoring pressure across filter pack.
- ASCO or equal electrically actuated solenoid valve for inlet spray.
- Schedule 80 PVC plumbing.
- Hayward or equal valves.
- Vinyl tubing with traps for differential pressure connections.
- Fan section with standard EPACT 460/3/60 TEFC Motor.

5) COMPONENTS SUPPLIED BY END USER

- Tie downs, guy wires, anchor bolts and foundations.
- Field assembly.
- Field wiring.

- Fresh water and drain piping to supplied 150# flanges.
 - Mating flanges to customer connections, hardware and gaskets.
 - Connecting duct from process. (See Options).
 - Heat tracing and insulation.
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6) OPTIONS

- **Electrical Control Panel:** An electrical control panel with NEMA rated enclosure and fused main disconnect switch. Designed for 460 volt / 3-phase - 60 hertz electrical supply. Internal components of the control panel are pre-wired and terminal blocks are provided for connection of external control components to be done by contractor. A motor starter to operate the exhaust fan with pushbutton controls mounted on the front of the enclosure. Power lines to the motor must be furnished and installed by the installation contractor. Electrical devices are designed and built in accordance with the National Electric Code (NEC). No other codes, standards, or specifications are followed unless a specific agreement has been obtained in writing.
- **Duct:** Tri-Mer Corporation offers design and manufacture of duct systems in PVC, Polypropylene and FRP.
- **Re-circulation Tank:** A remote tank with level control and pump, provided for circulation of scrubbing liquor.
- **pH Control System:** Control of re-circulation tank pH level. pH Control System consists of pH probe, Controller, and electric or pneumatic metering pump.
- **PLC Interface:**

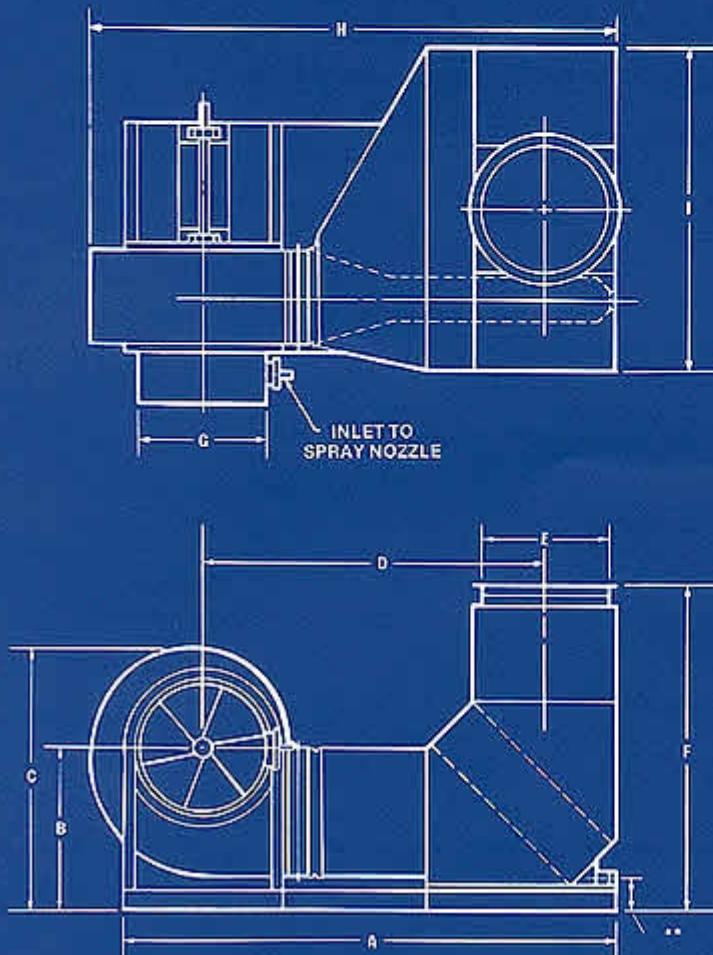
A programmable logic controller (PLC) shall mediate control of system functions. The programmable controller shall be mounted within the control panel enclosure.

The programmable Logic Controller (PLC) shall be Allen Bradley or equal.

Model No.	Capacity C.F.M.	Motor H.P.	A	B	C	D	E	F	G	H	I	Minimum CFM Required	Drain Size	Total Weight
F-S-1	50- 250	1/8	2'-8 1/2"	1'	1'-4 3/4"	2'-1"	6"	1'-6 3/4"	6"	2'-10 1/2"	1'-6"	1/2	1"	160
F-S-1	250- 500	1	3'-1 1/2"	1'-1 1/4"	1'-6 3/4"	2'-3"	8"	2'-1 1/4"	9"	3'-4"	1'-9 1/2"	1/2	2"	180
F-S-3	500- 1,000	1 1/2	4'-2"	1'-4 1/2"	2'-1 1/4"	3'-3"	11"	2'-9 1/2"	11"	4'-5 1/2"	2'-4 1/2"	1/2	2"	260
F-S-3	1,000- 1,700	2	4'-2 1/2"	1'-7 1/8"	2'-5 1/4"	2'-11 1/2"	1'-1"	3'-1"	1'-1"	4'-6"	3'-0"	1/2	2 1/2"	425
F-S-1	1,700- 2,500	3	5'-5"	1'-10 1/4"	2'-10 1/4"	3'-10 1/4"	1'-4"	3'-7 1/2"	1'-4"	5'-8 1/2"	3'-0"	1 1/2	3"	615
F-S-2	2,300- 3,600	5	6'-2"	2'-2"	3'-5"	4'-3"	1'-7"	4'-3"	1'-7"	6'-6 1/2"	3'-9 1/2"	2	4"	770
F-S-3	3,400- 5,700	5	7'-5 1/2"	2'-6 1/2"	4'-1 1/4"	5'-2"	2'-0"	4'-7 1/2"	2'-0"	7'-11"	4'-0"	3	4"	1,025
F-S-4	5,200- 6,900	7 1/2	8'-7"	2'-8 1/2"	4'-4 1/2"	6'-0"	2'-2"	5'-4"	2'-2"	9'-1 1/2"	5'-5"	4	6"	1,190
F-S-5	6,000- 8,300	7 1/2	8'-10"	2'-10 1/4"	4'-8 1/2"	6'-2 1/2"	2'-4"	4'-11"	2'-4"	9'-6 1/2"	5'-10"	5	6"	1,605
F-S-6	8,000- 10,300	15	9'-7"	3'-2 1/2"	5'-3"	6'-7"	2'-8"	6'-2"	2'-8"	10'-3"	5'-3"	6	6"	1,875
F-S-7	10,000- 12,500	15	10'-2 1/2"	3'-5 1/2"	5'-8 1/2"	6'-10 1/4"	2'-11"	6'-4"	2'-11"	10'-11 1/2"	6'-9"	8	6"	2,088
F-S-8	12,000- 15,300	15	11'-9"	3'-9 1/2"	6'-3 1/2"	8'-0"	3'-3"	7'-0"	3'-3"	12'-6"	6'-9"	9	6"	2,290
F-S-9	15,000- 18,600	20	12'-6"	4'-1 1/2"	6'-10 1/2"	8'-4"	3'-8"	6'-2"	3'-8"	13'-4 1/2"	6'-9"	12	6"	2,930
F-S-10	18,000- 22,700	20	15'-9 1/2"	4'-6"	7'-6 1/2"	10'-3"	4'-0"	6'-11"	4'-0"	16'-9 1/2"	6'-9"	14	6"	3,470
F-S-11	22,000- 27,500	25	16'-11 1/2"	4'-10 1/2"	8'-3 1/2"	11'-2"	4'-5"	8'-0"	4'-5"	17'-10 1/2"	6'-9"	17	6"	4,120
F-S-12	27,500- 37,000	40	20'-4"	5'-6 1/2"	9'-3 1/2"	13'-11"	5'-0"	8'-11"	5'-0"	21'-7 1/2"	8'-0"	20	6"	4,630
F-S-14	37,000- 45,000	50	20'-11"	6'-1 1/2"	10'-1 1/2"	14'-4"	5'-4"	10'-0"	5'-4"	22'-3"	9'-0"	24	6"	5,100
F-S-15	45,000- 60,000	75	24'-2"	6'-1 1/2"	10'-1"	16'-6 1/2"	5'-4"	11'-2 1/2"	5'-4"	25'-7"	9"	30	6"	6,600
F-S-16	60,000- 80,000	100	31'-8 1/2"	6'-7 1/2"	11'-2 1/2"	20'-5 1/2"	5'-8"	11'-2 1/2"	5'-8"	31'-9 1/2"	9'-4 1/2"	40	6"	8,300
F-S-17	80,000-100,000	125	33'-7"	7'-2 1/2"	11'-11 1/2"	20'-9 1/4"	6'-2"	11'-2 1/2"	6'-2"	33'-6 1/2"	11'-4 1/2"	50	6"	9,000

For double pack models check with manufacturer for dimensional data

Dimensions of the TRI-MER FAN / SEPARATOR



The TRI-MER FAN / SEPARATOR offers a compact rectangular shape designed for simple, quick installation.

The fan and separator sections are mated specifically to each other. Undersized fans are NOT found on fan/separators.

Fan outlet velocity is controlled so that air crossing the polypropylene filter pack never exceeds 500 FPM for a given size unit.

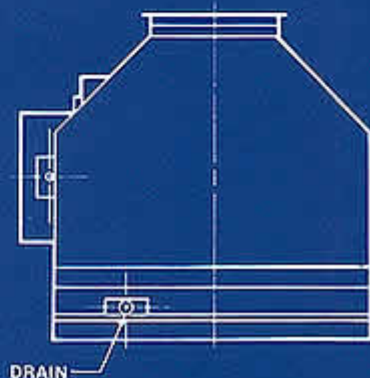
The resulting low humidity factor in the exhaust stack makes return air possible in many applications.

Standard materials of construction:

PVC, Polypropylene

Available optional materials of construction:

Fiberglass overlaid PVC, 316 stainless steel, 304 stainless steel and mild steel



** Dimension varies with size of unit.