AIR CHEM ENGINEERED SYSTEMS LLC

ACES Vertical Scrubbers

AIR CHEM ENGINEERED SYSTEMS, LLC (aka Air Chem Systems) has been designing and manufacturing an extensive line of fiberglass industrial air pollution control equipment since 1976. ACES scrubber systems operate in industries such as the electronic, metal finishing, plating, sewage treatment, and other industries that generate non-flammable, corrosive fumes and odors.

Phone: 714.238.9099
Email: info@airchemsystems.com
Web Site: www.airchemsystems.com


ACES V SERIES ~ VERTICAL SCRUBBER

AIR CHEM ENGINEERED SYSTEMS, LLC designs an extensive line of scrubbers in both the horizontal and vertical arrangements.

The ACES V Series of vertical scrubbers can be configured to take up less floor space than the horizontal series when used with an inline fan mounted on top of the scrubber or a centrifugal type fan mounted on an adjacent roof. The latter arrangement is the preferred arrangement as access to the fan for serviceability is much easier and there is less stress on the scrubber tower from fan vibration and weight.

This type of scrubber, with water only, functions as a fume scrubber to remove particulates, acid and caustic mist out of the influent air stream. With the addition of other reactive chemicals these scrubbers function as absorption scrubbers to neutralize other chemicals such as hydrochloric acid gasses, ammonia and odors.

Due to the theoretical unlimited packing depth capability, very high removal efficiencies can be achieved.

The ACES V Series Vertical Scrubber is also used in specialty chemical removal systems such as NOx, SOx and odor control. Due to the lower air velocity requirements necessary to increase dwell time for these systems, the scrubber model selected will have a maximum CFM of less than that indicated on Page 5.

STANDARD COMPONENTS

ACES vertical scrubbers are constructed of fiberglass reinforced plastic (FRP), including an interior lining of premium-grade, vinyl ester or epoxy resin for maximum corrosion resistance.

The ACES V Series Model Nos. V1.5 through V9.5 have an integral liquid reservoir and pump deck with in-tank CPVC pumps. Standard voltage requirements are 230/460/60/3.

The ACES V Series Model Nos. V10.0 through V12.0 are equipped with horizontal pumps. Standard voltage requirements are 230/460/60/3.
ACES V SERIES ~ VERTICAL SCRUBBER
STANDARD COMPONENTS (continued)

1. The recirculation manifold consists of standard in-tank CPVC pump or
pumps with standard voltage requirements (230/460-Volt, 60-Hertz, 3-
phase), a flowmeter and a throttling gate valve to control the liquid flow
rate. The distribution nozzles are of PVC or polypropylene, 120° full
cone, non-clogging type with access ports or removable spray lines for
serviceability. A pressure gauge is added where two or more pumps
are required to maintain a pump pressure balance.

2. The makeup water manifold is provided with an adjustable float valve to
maintain liquid level. The point of connection (P.O.C.) is a 1” PVC, plain
end (PE) fitting.

3. A blowdown manifold is installed in the makeup water manifold to
cause a continuous overflow condition to prevent saturation of the
recirculation liquid by the contaminants and chemical additives.

4. The 2” diameter drain and overflow P.O.C. are FRP threaded couplings
for field plumbing to waste treatment.

5. Level switch manifold is provided for pump shutdown at low liquid level.

6. Tie down or hold down lugs.

The scrubber is the primary chemical treatment component for your
ventilation system.

Components of an ACES Vertical Scrubber System consists of fans,
stacks, ductwork, hoods, etc. See additional ACES catalogs for these
optional components.
ACES V SERIES VERTICAL SCRUBBER
MODELS V1.0 THRU V3.5

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Notes
1. The model number indicates the tower diameter in feet (A) followed by the packing depth in feet (PD) required to achieve the removal efficiency desired.
2. All dry and operational weights are in pounds.
3. All inlets and outlets have duct flange dimensions.
4. The tower locations can be either on the right (as shown) or on the left side when viewed from the front.
5. ACES will custom fabricate if a standard scrubber does not fit your application. Please contact us for additional information.
6. All ACES scrubbers are fabricated with FRP tie-down lugs (not shown).

STANDARD EQUIPMENT
R = RECIRCULATION MANIFOLD
W = CITY WATERFILL / BLOWDOWN MANIFOLD

Page 4
### ACES V SERIES VERTICAL SCRUBBER MODELS V4.0 THRU V9.5

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**Notes**

1. The model number indicates the tower diameter in feet (A) followed by the packing depth (PD) in feet required to achieve the desired removal efficiency.
2. All dry and operational weights are in pounds.
3. The inlet can be located opposite the pump deck as shown or at right angles to the pump deck on either side.
4. ACES custom fabricates if a standard scrubber does not fit your application. Please contact us for additional information.
5. All scrubbers are fabricated with FRP tie down brackets (not shown).
**ACES V SERIES VERTICAL SCRUBBER**
*MODELS V10.0 THRU V12.0*

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**Notes**
1. The model number indicates the tower diameter in feet (A) followed by the Packing Depth (PD) in feet required to achieve the removal efficiency desired.
2. All dry and operational weights are in pounds.
3. The inlet can be located opposite to the pump deck as shown or at right angles to the pump deck on either side.
4. ACES will custom fabricate if a standard scrubber does not fit your application. Please contact us for additional information.
5. All scrubbers are fabricated with FRP tie-down brackets (not shown on drawings).

**STANDARD EQUIPMENT**

- **R = RECIRCULATION MANIFOLD**
- **W = CITY WATERFILL / BLOWDOWN MANIFOLD**

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**PLAN VIEW**

**ELEVATION VIEW**
ACES V SERIES VERTICAL SCRUBBER
OPTIONAL COMPONENTS

All ACES scrubbers can be equipped with these optional components.

• **Stand-by Pumps:** Offered as back-up water flow in the event of pump failure.

• **pH, ORP, Conductivity Systems:** Sensor, controller, and pH sensor manifold are used to sample recirculation liquid at the bottom of the packing.

• **Magnehelic Gauge:** Measures the pressure differential across the packing and on the demister to detect fouling of the packing.

• **Pressure Gauges:** Measures pump outlet pressure. It is included if two or more pumps are required to maintain flow and the second pump is not a stand-by pump.

• **Control Panel:** A NEMA-4X plastic control panel with starters, controls, on/off switches, alarms, and alternate mounting location for pH/ORP controller and Magnehelic gauges.

• **Flanged Connections:** Offered in lieu of plain end sockets, PVC or threaded FRP point of connections (POC).

• **Additional Packing Access Manways or Ports:** Convenient especially in larger units to aid in the removal of the packing and demister media.
Air Chem Engineered Systems, LLC
Quality Fiberglass Air Pollution Control and Industrial Equipment since 1976
(aka Air Chem Systems)

2841 EAST LA PALMA AVENUE
ANAHEIM, CALIFORNIA 92806 USA
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Email: info@airchemsystems.com
Web Site: www.airchemsystems.com