

Fisher-Klosterman Emtrol has supplied a variety of scrubbers for industry's most challenging applications for over 65 years. We are a global leader in the supply of scrubbers for high temperature, high pressure, and abrasive/corrosive environments. Our success is predicated on our unparalleled experience, engineering excellence, and commitment to quality control.

MS Super Scrubber

This compact design features a horizontal venturi section, an external recycle tank and an innovative cyclonic separator that allows efficient water droplet removal at a gas velocity almost twice that of traditional separator designs without the use of internal baffles or packings. Operating at a higher velocity translates into a smaller, more compact scrubbing system, saving valuable plant space.

- Compact cyclonic separator (velocity up to 2X traditional designs)
- Horizontal venturi section with a variety of liquid injection methods
- External recycle tank - easier to maintain
- Open pipe liquid injection - plug resistant
- Vertical venturi with various throat designs available
- Flooded elbow - abrasion resistant
- Traditional or MS Cyclonic Separator can be used.

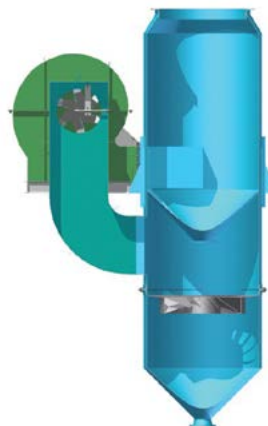
How it Works:

The dirty gas entering a scrubber is forced at high velocity through a venturi where it collides with scrubbing water. The tiny water droplets capture particles through impaction, interception, and diffusion. The dirty water is then removed in a cyclonic separator and discharged into a recycle tank. Some of the liquid is continuously purged to limit the solids concentration and allow recirculation back to the venturi section.

W30 / W40 – Dynamic Fan Scrubber

A unique scrubber that incorporates a wetted, self-cleaning fan, serving to collect particulate and provide the pressure for movement of gases through the system.

- Most compact design, minimum real estate
- Able to efficiently handle particles down to 1 micron in diameter
- Efficiency comparable to venturi scrubber operating between 15-20" W.G. pressure drop.
- Very low liquid to gas ratio, compared to other wet scrubbers
- Most economical choice given specific process conditions.
- Provides excellent efficiency for a range of dust loading



Available Features

- Vertical or horizontal gas entry
- Various throat and water injection designs
- Integral or external recirculation tanks
- Compact MS series or traditional cyclonic separator design
- High temperature quench section
- Combination particulate collection and gas absorption
- Separator design for high concentrations of dissolved solids
- Package systems complete with tanks, pumps, instrumentation, piping, fans, stack and controls
- Carbon steel, stainless, nickel alloys, or FRP construction
- High pressure design (ASME Code stamp available)
- Performance warranty

Engineering & Design Tools

Autodesk Inventor / AutoCad
 PVElite
 Abaqus FEA
 Autodesk Simulation Mechanical
 STAR-CCM+ CFD

Codes and Standards

ASME	PED
ASCE 7	SQL
IBC	China GB
NFPA 654	ASME BPE
3A Sanitary	

"Guaranteed Gas Cleaning Technologies"

VTS Venturi Scrubber

This reliable design utilizes open pipe liquid introduction, a vertical throat, and a flooded elbow inlet to the cyclonic separator. Open pipes will not plug like high pressure spray nozzles if large particulate enters the recycle system and are able to accommodate a high solids concentration, if required. Since a pool of liquid is present at the bottom, the flooded elbow prevents wear. The VTS Venturi Scrubber can handle the most difficult of scrubbing applications.



PS-Series Scrubber

Economical, compact venturi scrubber design for smaller gas flows (500 ACFM to 4,000 ACFM).

Some of the major advantages are:

- Ideal for various food applications
- Explosive dusts are present
- Plant space is limited
- Fan can be mounted directly on top of the scrubber

Difference By Design

The design of the scrubber must be carefully considered to ensure proper operation. At Fisher-Klosterman Emtról, we utilize numerous throat, water injection, and separator designs to ensure that the scrubber you install is best suited for your process requirements. Our throat design options include fixed or adjustable, single or multiple blades, and rod decks. Water can be injected via spray nozzles, open tangential entry pipes or splash plates, when required. Flooded elbow inlets can be provided to minimize abrasion. We offer our high velocity, compact MS Series Cyclonic Separator as well as a large diameter / cyclonic separator style collector for droplet removal.



Performance can be guaranteed based upon accurate operating conditions and aerodynamic particle size data. Fisher-Klosterman Emtról can meet the requirements of any application. Contact a Fisher-Klosterman Emtról engineer today to help you determine the best scrubber solution for your application.

Wet scrubbers are the ideal and economical air pollution control equipment choice when:

- Handling sticky particulate or wet gas streams
- Explosive dusts are present
- Gaseous pollutants must also be removed
- Plant space is limited
- Solids must be mixed with liquid

Industries Served:

- Chemical
- Food
- Pharmaceutical
- Paper Products
- Power Generation
- Gasification
- Fiberglass Insulation
- Roofing Materials
- Asphalt
- Mining
- Brick & Tile
- Steel

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