

# H<sup>+</sup>/OH<sup>-</sup>-CONTROL

Acid / Alkaline / Odor Gas Scrubber



ISO9001&14001



OHSAS18001



S E M I S 2

**ACTIVE**

www.ATEI8.com

The spirits of "Innovation", "Integrity & Credit" and "Service" are our team members' focus on providing our customers professional services in environmental projects. We pursue the respect of natural environment, and execute effectively the energy economization & waste reduction operation, in order to reduce the pollution and impact to the environment.

#### SYSTEM DESCRIPTION

ACTIVE manufacture high-efficiency, low pressure-drop scrubbers and utilize random packings, mist eliminators and liquid distribution systems to remove odor-causing, corrosive and toxic gases through oxidation and absorption.

Scrubbers are designed to control nuisance emissions typically associated with wastewater treatment, sludge handling, waste treatment, and many other such processes.

Standard system materials:

- ❑ Fiberglass-reinforced plastic (FRP)
- ❑ Fire-retardant fiberglass-reinforced plastic
- ❑ HDPE, PP, PVC, CPVC
- ❑ 304/316 Stainless

#### PRINCIPLES OF OPERATION

The principle of scrubber is adding chemical into recirculation water and spray that into scrubber air stream for neutralization.

The neutralizing process will repeat till the conductivity raising. The recirculation water needs to replace and re-adjust the usage of chemical for continuous processing.

#### ACTIVE SCRUBBER SYSTEM

##### ❑ HORIZONTAL SCRUBBER

ACTIVE horizontal scrubbers offer combined flexibility for efficient removal of gas, liquid and solid contaminants from exhaust air streams. Contaminated air moves horizontally through a packed bed and is irrigated by the scrubbing liquid which flows vertically down through the packing. The horizontal scrubber design is characterized by low pressure drop. ACTIVE horizontal scrubbers are available in 60 to 2270 CMM

##### ❑ VERTICAL SCRUBBER

ACTIVE vertical Scrubbers have been pre-engineered to remove corrosive gases and liquid particulates from air streams containing either a single pollutant or a combination of pollutant.

All vertical scrubbers have been designed to achieve high collection efficiencies with maximum corrosion resistance and minimum maintenance. Vertical models provide low initial cost since design, engineering and drafting costs are reduced. ACTIVE vertical scrubbers are available in 10 to 2160 CMM

##### ❑ INLET AND OUTLET

The inlet and outlet designs are critical to scrubbing efficiency. They can help eliminate channeling which occurs when the air stream and liquid flow separate paths through the packed bed and do not intermix, this greatly reduces scrubber efficiency. To prevent channeling, the scrubber inlet should give even air distribution across the entire packing area. In the outlet design, this gives a cost savings since no separate reducer is required to connect the ductwork.

##### ❑ PACKING

Different types of packing are suitable for ACTIVE packed bed scrubbers. ACTIVE continues to utilize various packing which demonstrate the ideal characteristics for each application in terms of pressure drop, process capacities, service & maintainability, surface area / unit volume, optimal velocity, corrosion resistance, even liquid / gas distribution, gas absorption efficiency, high flood point / low wetting point.

##### ❑ PACKING SUPPORT

Our packing support provides sufficient open area for upward gas movement and liquid drainage. Standard material of construction is FRP for rigidity, long life and strength.

##### ❑ LIQUID DISTRIBUTION SYSTEM

Liquid distribution system uniformly distributes the scrubbing liquid onto the packing material. Standard distributor consists is non-clog spray nozzles attached to a corrosion-resistant pipe ladder. Weir-trough distributors are available on request type, size and materials will be selected to provide optimum performance.

##### ❑ MIST ELIMINATOR

Mist eliminator is provided with each tower to remove entrained liquid drops from the air stream prior to exhaust. Standard is chevron type wave-form profile or random packing mist eliminator. Other types are available on request.

##### ❑ SUMP

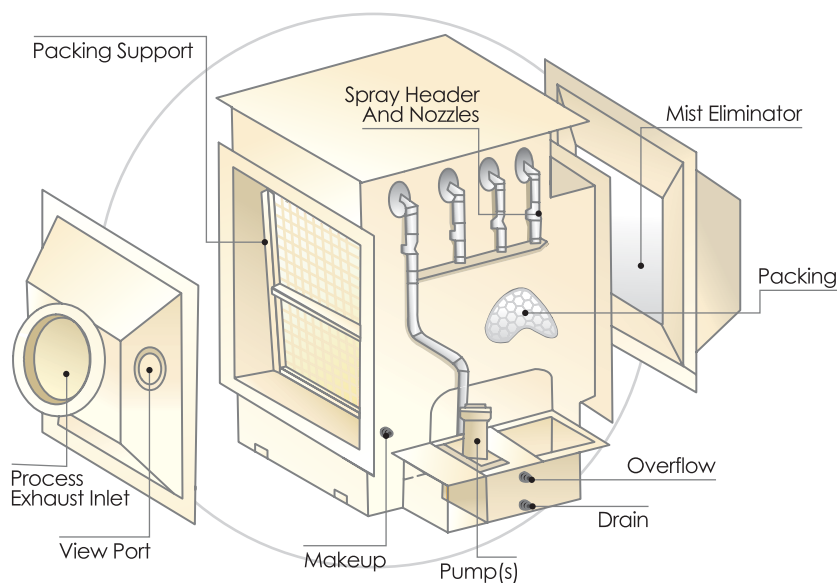
ACTIVE scrubbers usually contain an integral sump. This reduces the floor area required for the scrubber, as well as the scrubber's initial cost. The sump will normally provide a two or three minute supply of recirculating liquid. This assures good mixing and keeps the solution constantly agitated to hold insolubles in suspension. The suspended insolubles can then be carried out through the overflow piping. Usage of the lower scrubber shell as an integral sump gives a completely unitized, corrosion-resistant scrubber at minimum cost.

##### ❑ ACCESS DOOR

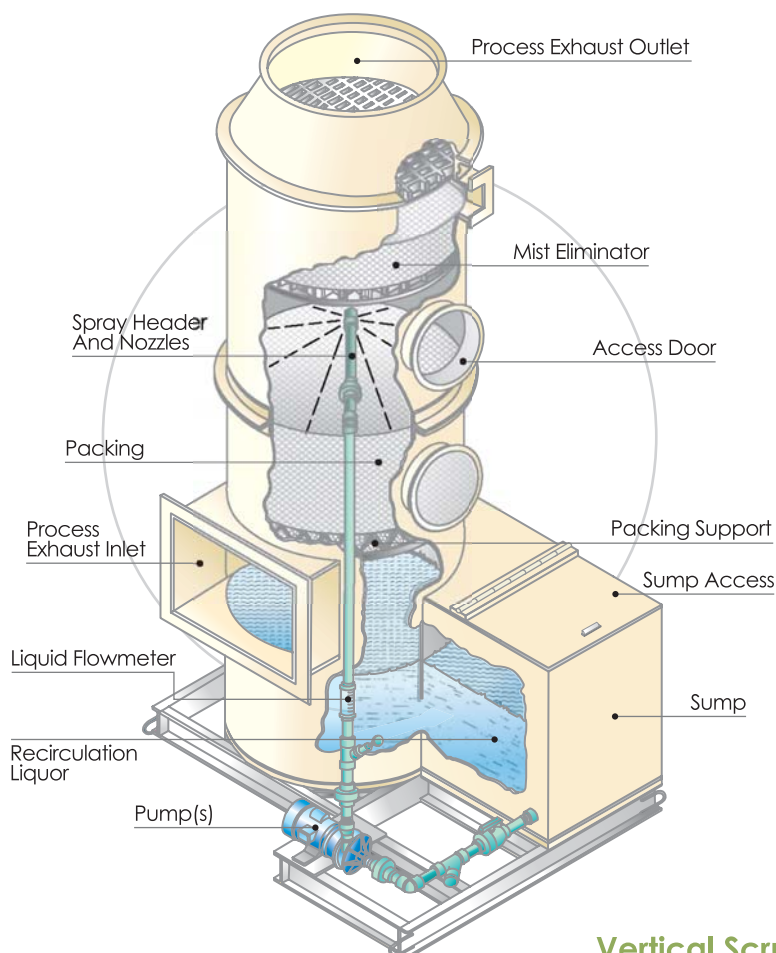
Suitable doors are provided for easy loading and removal of packing and inspection of scrubber internals.

##### ❑ AUTOMATIC CONTROL

ACTIVE electrical engineers design automatic controls to meet virtually any customer requirement, including interface with production processes. The control panel includes the fan motor starter, control relay, pH control, conductivity and flow meter of liquor (option), etc. The process fan VFD is option for customer.



**Horizontal Scrubber**



**Vertical Scrubber**

#### CHARACTERISTICS

- ❑ Unique scrubber system supplier with ISO9001&14001, OHSAS18001 certification
- ❑ Supply custom-design scrubber based on the characteristics and requirement of each acid/alk exhaust system. We also supply dual packed bed scrubber for complex exhaust system(ex.  $\text{NH}_3/\text{H}_2\text{S}$ ) and odors.
- ❑ Skid-mounted design
- ❑ Excellent design team provides assessment services of function, system pressure balance, seismic restraints( 0.5G ), operating cost,etc.
- ❑ Automatic system monitoring, easy operation like one-button start. Man-machine interface touch panel could completely monitor important operating parameters.
- ❑ Turnkey service for installation, start-up, regulation-compliance test ,operation and maintenance training.

#### OPTIONS

- ❑ Fire-retardant material for scrubber
- ❑ Chemical transport system
- ❑ Customer process pressure control
- ❑ Remote monitoring
- ❑ Human-machine interface
- ❑ Air flow monitoring
- ❑ Vibration isolation (G2.5)
- ❑ Structural support
- ❑ Control room
- ❑ Silencer
- ❑ FM sprinkler
- ❑ Utility hook up



# **I**NDUSTRIAL APPLICATIONS



Vertical Scrubber



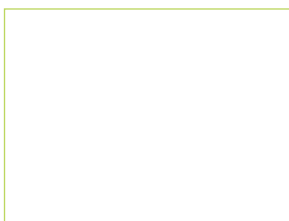
Horizontal Scrubber



Horizontal Scrubber



Control Panel



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PCB Manufacturing  
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Basic Metal  
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Incinerator

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