

Void Tower Scrubbers

For wet scrubbing gas streams *Jan 04*



PRODUCT DESCRIPTION

For removal of gaseous and particulate pollutants from airstreams. Units include a series of liquid sprays in an unpacked tower. Manufactured to designs developed by Armatec based on actual installations.

WET SCRUBBING PRINCIPLES

The basic process involved in wet scrubbing is the contacting of a polluted gas stream with a scrubbing liquid to transfer sufficient of the pollutants into the liquid stream to allow discharge to atmosphere of the cleaned gas. The transfer of the pollutants from the gas stream into the liquid stream is by one or more of the following mechanisms:

- Absorption of pollutant vapours into scrubbing liquid
- Chemical reaction in scrubbing liquid.
- Condensation of odorous vapours
- Capture of particulates by inertial impaction.

The void tower scrubber can use all of the above mechanisms.

VOID TOWER SCRUBBERS

Void tower scrubbers are the original wet scrubber before packings were developed to enhance the scrubbing action. Thus scrubbing efficiencies are lower than packed towers of the same dimensions. However void tower scrubbers are still preferred for installations where solids deposition can occur and would foul a packed bed. Solids can only deposit on the vessel walls and this has minimal effect on scrubbing performance. This deposit can be subsequently cleaned in a very short time. Void tower scrubbers incorporate one or more spray nozzles spraying the scrubbing liquid into the void tower at different elevations.

FEATURES

- Spray nozzles produce relatively large liquid droplets which minimises mist carry-over.
- Pressure drop ranges from 50 to 100 mm WC.
- Larger entrained particles are collected by inertial impaction with liquid droplets.
- Are able to handle solids being deposited in the vessel without significantly affecting the void tower scrubber's performance.
- Gas and liquid flows can be counter-current for best performance or co-current if layout requires this.
- Units can be built of corrosion resistant FRP (fibreglass) for chemically aggressive environments or stainless steel for food grade applications.

USES

- Fertiliser den gas scrubbing
- Particulate collection in fertiliser applications
- Particulate collection from driers
- Conditioning of air stream for biofilter



Void tower scrubber at fertiliser works removing fluoride gases with sea water. View shows exit at top of tower and fan in the system.

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