

CARBON ADSORBERS

Monroe Environmental® manufactures Dry Adsorbers for both physical and chemical adsorption of gas-phase pollutants. Adsorption involves the adhesion of pollutant gas molecules to porous solid surfaces that the contaminated air stream passes through. Physical adsorption relies on intermolecular forces while chemical adsorption involves the formation of chemical bonds.

Adsorption involves the adhesion of pollutant gas molecules to porous solid surfaces that the contaminated air stream passes through. Physical adsorption relies on intermolecular forces while chemical adsorption involves the formation of chemical bonds. Monroe's Carbon Adsorber is highly efficient for removal of oil vapors, H₂S and other odors, VOCs, and gas phase hydrocarbons.

Monroe offers complete in-house fabrication and engineering services for adsorbers employing several different adsorbent materials in regenerative or non-regenerative bulk-packed fixed bed designs and non-regenerative filter bed designs. Our staff of engineers and designers will evaluate each application individually and determine the optimum design parameters for each installation.

Ideally Suited for Removal of

- H₂S and other odors from wastewater treatment plant sources including headworks, digesters, and sludge dewatering operations
- Removal of VOCs, oil vapors, and gas phase hydrocarbons
- Recovery of solvents including alcohols, esters, ketones, aromatic compounds, and halogenated solvents

Industrial emissions from: degreasing, paint spraying, paper coating, plastic film coating, metal foil coating, rubber-coating, semiconductor manufacture, and printing



8,000 CFM Carbon Tray Adsorber for a recycling facility, shop assembled with stainless steel housing and differential pressure gauge

Overview of Adsorber Types

Deep Bed Adsorber: In horizontal or vertical configuration with a single deep bed or multiple beds in series within the adsorber vessel.

Carbon Tray Adsorber: Flow passes through several removable carbon trays in parallel. Each tray contains activated carbon pellets and may be removed and refilled when pellets are saturated.

Multiple Adsorber Vessel System: Two or more separate adsorber vessels allow for air flow to be directed through one or more vessels for adsorption of contaminants while the other vessel(s) are regenerated with steam, allowing for uninterrupted adsorption and regeneration.

Applications

- VOC removal and solvent recovery
- Industrial emissions from: degreasing, paint spraying, paper coating, plastic film coating, metal foil coating, rubber-coating, and printing
- Removal of H₂S and other odors from municipal wastewater treatment plant sources including headworks, digesters, and sludge dewatering operations

Design Features

- Wide range of adsorbents: carbon, zeolite, synthetic polymers
- Capacities to 50,000 CFM for a single unit
- Efficiencies to 99.9%
- Construction available in mild steel, stainless steel, PVC, FRP, and other materials
- Complete instrumentation and electrical controls available
- Corrosion resistant AMCA rated fan on the inlet or outlet side of the adsorber, if required



Deep Bed Carbon Adsorber with stainless steel housing

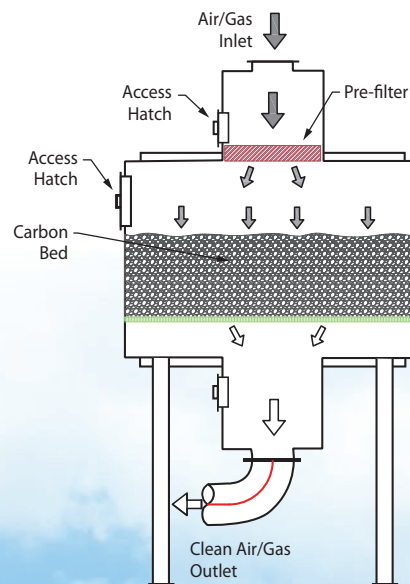
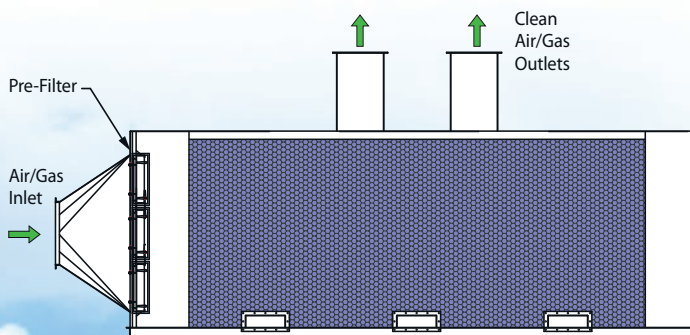


200 CFM Carbon Adsorber, FRP construction, with control panel for H₂S removal at a municipal lift station



(2) 15,000 CFM Deep Bed Carbon Adsorbers, mild steel construction with specialty exhaust stacks for odor control at a grease manufacturing facility

Monroe Dry Adsorption units provide highly efficient, continuous odor and pollutant removal with a minimal footprint.



Horizontal and vertical configurations of a Deep Bed Carbon Adsorber



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