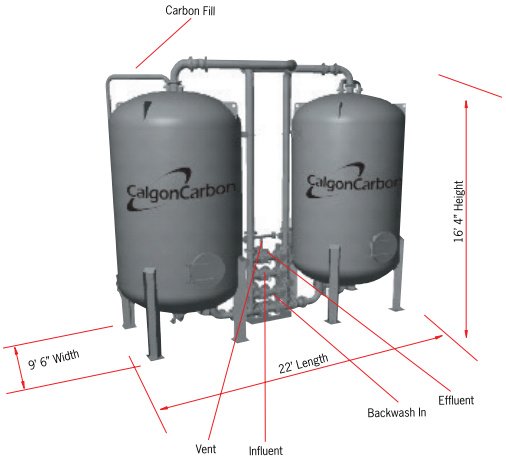
MODEL 8

Modular Carbon Adsorption System



Description

The Calgon Carbon Model 8 is an adsorption system designed for the removal of dissolved organic compounds from water or other liquids using granular activated carbon. The modular design concept allows for selection of options or alternate materials to best meet the requirements of the site and treatment application.

The Model 8 system is delivered as two adsorbers and a separate compact center piping network and interconnecting piping requiring minimal space and field assembly. The pre-engineered Model 8 design assures that adsorption system functions can be performed with the system as provided. The design has the benefit of Calgon Carbon's extensive expertise and has been proven in numerous applications. The engineering package can be provided quickly and the system expedited through Calgon Carbon's production capabilities.

The process piping network for the Model 8 offers operation of the two adsorbers in parallel or two-stage series flow, with either adsorber in the lead position. The piping can also isolate either adsorber for carbon exchange or backwash operations, while maintaining flow through the other adsorber. In addition, the Calgon Carbon underdrain design provides for efficient use of the carbon through uniform collection of water at the bottom of the bed, and even distribution of backwash water to minimize carbon bed disturbance.

The Model 8 system is designed for use with Calgon Carbon's closed loop carbon exchange service. Using specially designed carbon transport trailers, the spent carbon can be removed from the adsorber via a pressurized carbon-water slurry, and fresh carbon refilled in the same manner. This closed loop transfer is accomplished without exposure of personnel to either spent or fresh carbon. Calgon Carbon can also manage the disposition of the spent carbon. It is typically returned to Calgon Carbon for reactivation, avoiding the need for the site to arrange for disposal.

Carbon Adsorbers	MODEL 8
Carbon steel ASME code stamped pressure vessels	
Internal vinyl ester lining (25-35 mils) to protect carbon steel surfaces	
Suitable for potable water and most liquid applications	
Internal underdrain with stainless steel slotted septa for water collection and backwash distribution	
Standard Adsorption System Piping	
Schedule 40 carbon steel piping with cast iron fittings	
Cast iron or steel wafer butterfly valves in process piping	
Polypropylene lined steel pipe for resin discharge pipe	
Full bore stainless steel ball valves for carbon and discharge piping	
Pressure gages to measure pressure drop across system and each adsorber	
Rupture discs open to each vessel for emergency pressure relief	
System External Coating	
High solids epoxy paint system	
Typical System Options	
In-bed water sample collection probes	
System skid, shipped separately, upon which system components can be assembled	

Safety Message

Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

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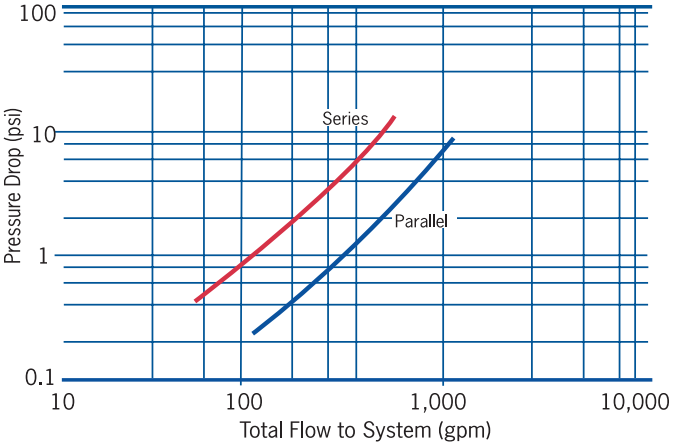
Dimensions and Field Conditions	MODEL 8
Adsorber Vessel Diameter	8' (2,440 mm)
Process and Backwash Piping	6" (4" option)
Influent/Effluent Connections	6" 125# ANSI flange
Backwash/Vent Connections	6" 125# ANSI flange
Utility Water Connection	3/4" hose connection
Utility Air Connection	3/4" hose connection
Carbon Hose Connections	4" Kamlock type
Adsorber Side Manway	20" round flanged with davit
Adsorber Shipping Weight	16,000 lbs empty (7,300 kg)
System Operating Weight	92,000 lbs (41,800 kg)

Operating Conditions	MODEL 8
Carbon per Adsorber	10,000 lbs (4,536 kg)
Pressure Rating	125 psig (862 kPa)
Temperature Rating	140°F maximum (60°C)
Pressure Relief	Graphite rupture disc
Backwash Rate	Typical 500 gpm (25% expansion)
Carbon Transfer	Air pressurized slurry transfer
Utility Air	100 scfm at 30 psig (reduce to 15 psig for trailer)
Utility Water	100 gpm at 30 psig
Freeze Protection	None provided; enclosure or protection recommended

Pressure Drop Curve

F300 Carbon, 55°F, 4" Steel Pipe



Calgon Carbon Systems and Services

The Model 8 system is designed for a variety of higher pressure water or process liquid applications at moderate flowrates. Calgon Carbon Corporation offers a wide range of carbon adsorption systems and services for a range of water or liquid flow rates and carbon usages to meet specific applications.

Calgon Carbon also provides additional services for support of water treatment systems, including supply of virgin and reactivated grades of granular activated carbon, or exchange of carbon in the treatment system, including disposal or reactivation of the spent activated carbon.

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