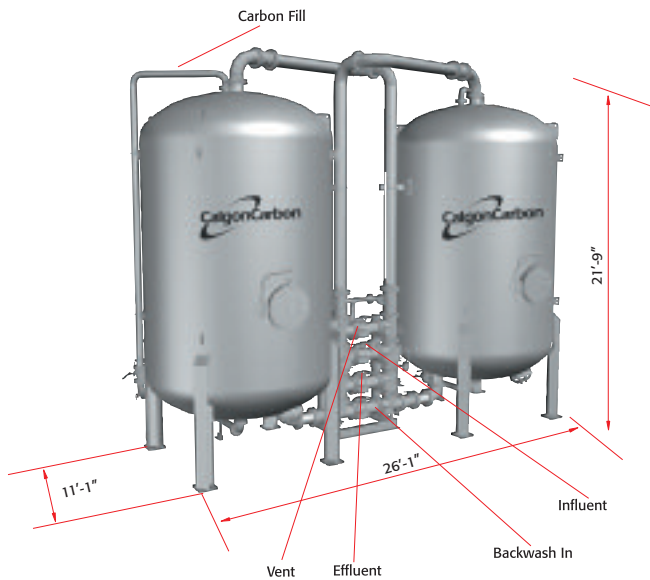


# MODEL 10

## Modular Carbon Adsorption System



### Description

The Calgon Carbon MODEL 10 is an adsorption system designed for the removal of dissolved organic contaminants from liquids using granular activated carbon. The modular design concept allows the selection of options, additional accessories or alternate materials to best meet the requirements of the site and treatment application.

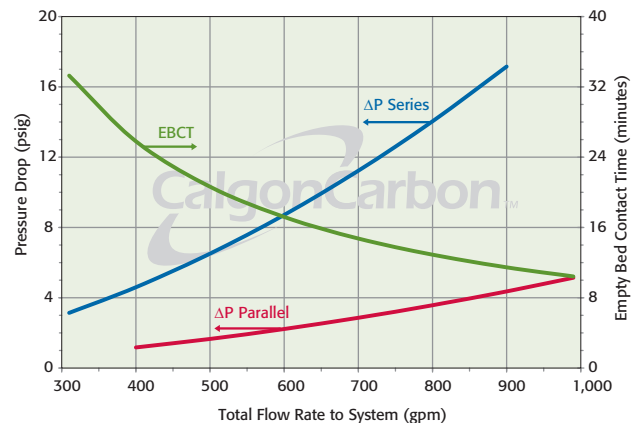
The MODEL 10 system is delivered as two adsorbers and a separate compact center piping network and interconnecting piping requiring minimal space and field assembly. The pre-engineered MODEL 10 design assures that adsorption system functions can be performed with the system as provided. The design has 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 10 accommodates operation of the adsorbers in parallel or series (with either adsorber placed in first stage). The piping can also isolate either adsorber from the flow. This permits carbon exchange or backwash operations to be performed on one adsorber without interrupting treatment. All valves and accessories are located at low elevations for ease of operation and maintenance.

The unique internal cone under-drain design provides for the efficient collection of treated water and the distribution of backwash water. The internal cone also insures efficient and complete discharge of spent carbon from the adsorber.

The MODEL 10 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; typically returned to Calgon Carbon for reactivation avoiding the need for the site to arrange for disposal.

**Model 10 System with 20,000 lbs. 8x30 Mesh GAC per Vessel 8" Sch. 40 Pipe, 60°F**



### Carbon Adsorbers

Carbon steel ASME code pressure vessels

Internal vinyl ester lining (35 - 45 mil) where GAC contacts steel for potable water and most liquid applications

Polypropylene slotted nozzles for water collection and backwash distribution

### Standard Adsorption System Piping

Schedule 40 carbon steel process piping with cast iron fittings

Cast iron butterfly valves for process piping

Full bore stainless steel ball valves for GAC fill and discharge

PPL lined steel pipe for GAC discharge

Pressure gages to measure pressure drop across system and each adsorber

Rupture discs open to each vessel for pressure relief

### System External Coating

High solids epoxy paint system

### Available Options

System skid, shipped separately, upon which system components can be assembled

In-bed water sample collection probes

# MODEL 10

## Modular Carbon Adsorption System



### Dimensions and Field Conditions

Adsorber Vessel Diameter	10' (3,050 mm)
Process and Backwash Pipe	6" or 8"
Process Pipe Connection	125# ANSI flange
Utility Water Connection	3/4" hose connection
Utility Air Connection	3/4" hose connection
Carbon Hose Connection	4" Kamlock type
Backwash Connections	6" or 8" flange
Drain/Vent Connection	6" or 8" flange
Adsorber Maintenance Access	20" round flanged man-way, 14" x 18" man-way below cone
Adsorber Shipping Weight	16,500 lbs. empty (7,500 kg)
System Operating Weight	215,000 lbs. (97,520 kg)

### Operating Conditions

Carbon per Adsorber	20,000 lbs. (9,080 kg)
Pressure Rating	125 psig (862 kPa) @ 140°F
Pressure Relief	Graphite rupture disk 125 psig (80% operating ratio)
Temperature Rating	140°F maximum (60°C)
Backwash Rate	Typical 1,200 gpm (25% expansion)
Carbon Transfer	Air pressure 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

### Safety Message

Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low oxygen spaces should be followed, including all applicable Federal and State requirements.



Making Water and Air Safer and Cleaner

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