

# Equipment Bulletin

## DUAL MODULE CARBON ADSORPTION SYSTEM

### Description

The Calgon Carbon Dual Module is an adsorption system designed for the removal of dissolved organic contaminants from liquids using granular activated carbon (GAC). The pre-piped, skid mounted configuration is designed for on-site treatment where the need is periodic or where a permanent system would be uneconomical.

The Dual Module system is delivered as two pre-piped adsorbers on a skid. Installation, piping connections and start-up are supervised by Calgon Carbon personnel. The Dual Module is ideal for emergency response situations and usually can be dispatched to a site within 24-48 hours. Start-up can begin within hours of the arrival of the unit at the site.

When the carbon becomes exhausted, the Dual Module is designed for fresh carbon replacement utilizing Calgon Carbon's closed loop carbon exchange service. Using special designed trailers, spent carbon is removed from the adsorbers and returned to Calgon Carbon for reactivation. The trailers also recharge the adsorbers with fresh carbon, minimizing downtime.

### Features and Benefits

- ◆ **Versatility**  
The Dual Module utilizing activated carbon adsorption is effective for removing a wide spectrum of organic compounds, in high or low concentrations, and a wide range of flows.
- ◆ **Rapid Response**  
Dual Modules are pre-piped and "ready to go" on short notice, as quickly as 24-48 hours, to respond to your needs, even on an emergency basis.
- ◆ **Cost Effective**  
Calgon Carbon provides the equipment, activated carbon, and supervision for only as long as needed, avoiding permanent system purchases costs and ongoing maintenance.
- ◆ **Environmental Compliance**  
Carbon adsorption is a proven and flexible technology for treating contaminated groundwater, spills or lagoon wastewater, eliminating the threat to plant and animal life or potable water supplies, and meeting discharge requirements.

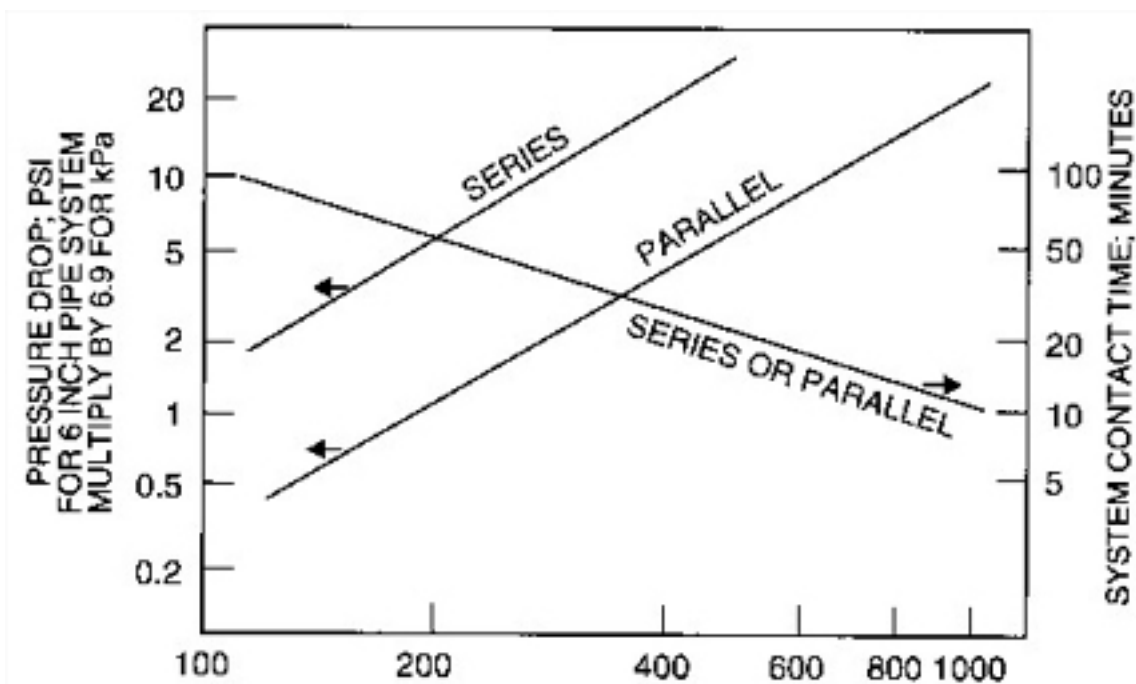
### System Specifications

- ◆ **Carbon Adsorbers**
  - Carbon steel ASME code pressure vessels.
  - Internal vinyl-ester lining (nominal 35 mil) for potable water and most liquid applications.
  - Polypropylene (PPL) underdrain and slotted nozzles for water collection.
- ◆ **Standard Adsorption System Piping**
  - Schedule 40 3" or 4" PPL lined carbon steel process piping.
  - Tetrafluorethylene (TFE) lined plug valves for process piping.
  - PPL lined steel pipe for GAC discharge.
  - TFE lined plug valves for GAC fill and discharge.
- ◆ **System External Coating**
  - Epoxy mastic or polyurethane paint system.



Visit our website at [www.calgoncarbon.com](http://www.calgoncarbon.com), or call 1-800-4-CARBON to learn more about our complete range of products and services, and local contact information.

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### Operating Conditions

Carbon per adsorber	20,000 lbs. (9080 kg)
Pressure rating	75 psig (517 kPa)
Pressure relief	Graphite rupture disk (75 psig)
Vacuum rating	14 psig
Temperature rating	150°F maximum (65°C)
Carbon transfer	Air pressure slurry transfer
Utility air, for carbon transfer	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

### Dimensions and Field Connections

Adsorber vessel diameter	10 ft (3050 mm)
Process pipe	3 in. or 4 in.
Process pipe connection	125# ANSI flange
Utility water connection	2.0 in. threaded connection
Utility air connection	1.5 in threaded connection
Carbon hose connection	4 in. Kamlock type
Vent connection	3 in. flange
Adsorber maintenance access	20 in. round flanged man-way
Adsorber shipping weight	40,000 lbs. (empty) (18,160 kg)
System operating weight	160,000 lbs. (72,529 kg)

### System Dimensions

Length	21 ft.
Width	12 ft.
Height (on support)	15 ft.



Calgon Carbon Corporation  
P.O. Box 717  
Pittsburgh, Pa 15230

Chemviron Carbon  
Zoning Industriel C  
B-7181 Feluy, Belgium



The Dual Module is specifically designed for medium or large flow applications. Calgon Carbon Corporation offers a wide range of carbon adsorption systems and services for smaller flows and carbon usages to meet specific applications.

### Caution

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.



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### 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.



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