

# Dual Express Carbon Adsorption System



CALGON CARBON CORPORATION

## Description

Calgon Carbon's Dual Express is a carbon adsorption system specifically designed to provide a rapid solution to a temporary problem. For emergency situations where quick response is critical, it can be dispatched to a customer's site within hours of notification and operation can begin immediately after set-up. Calgon Carbon personnel are available to supervise system start-up.

The Dual Express is a skid-mounted backwashable system delivered as two pre-piped adsorbers with a separate inter-connecting pipe module. It is available pre-filled with activated carbon that, once exhausted, can be returned to Calgon Carbon for reactivation as part of a closed loop carbon exchange service.

The Dual Express is ideal for periodic or temporary use where a permanent system would not be economical, including:

- Emergency wastewater treatment
- Cooling or process water purification
- Acid decolorization
- Alcohol purification
- Amine purification

## System Dimensions

Absorber vessel diameter	8' (244 cm)
Length	16' 10" (513 cm)
Width	9' 10" (300 cm)
Height (on supports)	20' 4" (620 cm)
Adsorber shipping weight (filled with dry carbon)	29,000 lbs. (13,154 kg)
System operating weight	160,000 lbs. (72,575 kg)

## Features

Immediate Availability	The Dual Express system is pre-piped and ready for shipment immediately without obtaining any special transportation permits.
Rapid Installation	The Dual Express can be set up for operation and put on stream quickly.
Versatile Design	The Dual Express is designed to handle a wide range of flows and contaminants.
Closed Loop	Spent carbon may be returned to Calgon Carbon for thermal reactivation, eliminating the customer's disposal concerns.
Cost Effective	Customer's avoid incurring permanent capital expenses or maintenance costs because the Dual Express can be used as long as needed and then returned to Calgon Carbon.

## System Specifications

### Carbon Adsorbers

- Carbon steel 75 psig ASME code stamped pressure vessels
- Internal vinyl-ester lining (nominal 35-45 mil) for potable water and most industrial applications
- Polypropylene (PPL) underdrain and slotted nozzles for water collection
- Adsorbers maintenance access: 20 in. round manway
- Seismic zone: 4

### Standard Adsorption System Piping

- 6" PPL lined carbon steel process piping, 3" PPL lined carbon steel carbon fill/discharge piping
- Tetrafluoroethylene (TFE) lined butterfly valves for process piping
- 316 stainless steel ball valves for GAC fill and discharge

### System External Coating

- Epoxy mastic paint system

## Field Connections

Process pipe	6"
Process pipe connection	125# ANSI flange
Utility water connection	1 1/2" Kamlock connection
Utility air connection	3/4" Kamlock connection
Carbon hose connection	4" Kamlock type
Vent connection	3" flange

## Benefits



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## Operating Conditions

Operating mode	Series or parallel
Flow rate	50-600 gpm
Carbon per adsorber	20,000 lbs. (9,072 kg)
Pressure rating	75 psig (517 kPA)
Pressure relief	Graphite rupture disk (71.25 psig burst pressure)
Vacuum rating	12.9 psig
Temperature rating	140° F maximum (60° 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

## 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.

## Spent Carbon Acceptance

Prior to return of either the Dual Express adsorber or the spent carbon to Calgon Carbon, the spent carbon must undergo acceptance testing. The Dual Express is provided with a carbon acceptance canister and instructions for carbon acceptance testing.



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