

CYCLESORB®-HP

Installation and Operation Instructions



Description

Calgon Carbon's CYCLESORB-HP is a compact, all stainless steel, portable, liquid treatment unit that contains all the essential elements of a full scale carbon adsorption system. Containing 2,000 pounds of granular activated carbon, the CYCLESORB-HP can treat up to 60 gpm for removing dissolved organic contaminants. When treatment is complete, the CYCLESORB-HP becomes a convenient shipping container, which can be returned to Calgon Carbon for safe reactivation of the spent carbon.

The CYCLESORB-HP is ideal for many low flow or short duration treatment projects, including

- Small wastewater or process streams
- Groundwater contaminated by leaking underground storage tanks
- Wastewater stored in tanks or lagoons
- Chemical spills
- Storage tank or pipeline washing
- Off-spec product batches
- Dechlorination or decolorization
- Pump tests
- Feasibility or pilot plant studies

Features / Benefits

- **Flexibility:** The CYCLESORB-HP treats the liquid downflow through a fixed bed of granular activated carbon, and can handle varying flows and on-off operating conditions. The units can be arranged in parallel to treat higher flows, or can be connected in series to optimize carbon usage.

- **Durability:** The CYCLESORB-HP adsorber is constructed of Type 316L stainless steel, and has no interior coating or lining that may be eroded by carbon movement or damaged during handling. The vessel support and fork channels are constructed of Type 304 stainless steel. The vessel is ASME U-stamped.
- **Corrosion Resistance:** All vessel internal and exterior piping is constructed of Type 316L stainless steel. Other materials are EPDM gaskets, BUNA-N valve seats, graphite rupture disk.
- **Operating Pressure:** The CYCLESORB-HP is hydrostatic pressure tested at 75 psig before shipment and is provided with a rupture disk to assure that this pressure is not exceeded.
- **Granular Activated Carbon:** The CYCLESORB-HP unit can be provided with any of Calgon Carbon's extensive product line of granular activated carbon. A Calgon Carbon Technical Sales Representative can assist in selecting the most cost effective carbon for specific applications.

Specifications	CYCLESORB-HP
Granular activated carbon per unit	2,000 lb. (908 kg)
Maximum operating pressure (150°F)	75 psig
Pressure relief (graphite rupture disk)	75 psig
Vacuum rating	Designed for vacuum service
Temperature rating	150°F (65°C)
Wetted parts materials	Type 316L stainless steel, EPDM Rubber, BUNA-N, Kynar, Graphite
Connections	2" Kamlock (inlet/outlet) 1/2" FNPT (sample/drain) 2" Kamlock (vent) 3" FNPT (carbon discharge)
Support	Stainless steel
Dimensions	60" dia. x 93" height (1,524 mm dia. x 2,362 mm height)
Lifting	Fork lift truck or crane (4 lugs provided)
Weights	Empty: 2,000 lb. (907 kg) With dry carbon (ship): 4,000 lb. (1,814 kg) With wet, drained carbon (return): 6,000 lb. (2,722 kg) Operating: 8,365 lb. (3,794 kg)

Safety Message

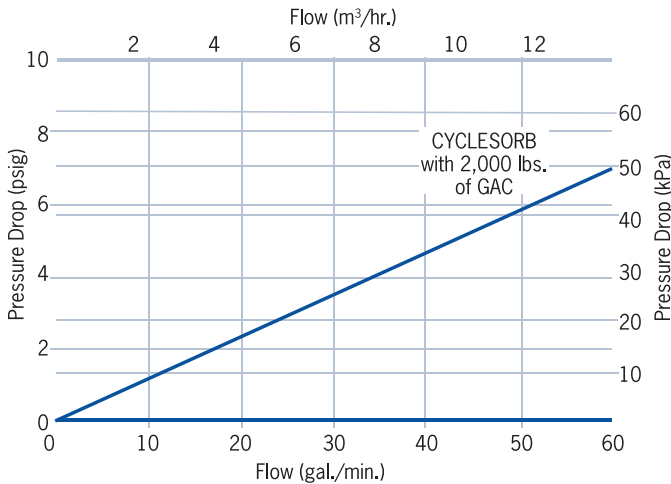
Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

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DS-CYCLESORBHP15-EIN-E1

Pressure Drop Curve

Cyclesorb with 2,000 lbs. of GAC



Precautionary Statement

Do not strike vessel or subject it to impact, as such practices will damage the structural integrity of the unit. The rupture disk must not be plugged or restricted, as the system must be able to relieve overpressurization to prevent component failure or vessel rupture. Due to potential for corrosive failure, do not use in the presence of chlorides or other halogenated waste streams without consulting Calgon Carbon Corporation.

Return for Reactivation

The CYCLESORB-HP unit serves as a safe and convenient shipping container to return the spent carbon to Calgon Carbon for reactivation. Spent carbon reactivation is an integral component of the Service Agreement, where Calgon Carbon provides a unit with fresh carbon to replace the unit being returned. If the unit is purchased, Calgon Carbon is still able to offer exchange services incorporating most of the return and refill elements of the CYCLESORB-HP Service.

Prior to return of the CYCLESORB-HP, the spent carbon must undergo carbon acceptance testing. The CYCLESORB-HP is provided with a carbon acceptance canister and instructions for carbon acceptance testing. After this test is complete, carbon acceptance documentation is provided to allow return of the initial and subsequent CYCLESORB-HP units used in the same service.

When treatment is complete, the CYCLESORB-HP adsorber is drained of liquid, capped, and shipped back to a Calgon Carbon reactivation facility. Calgon Carbon also offers other services such as Transportation Assistance and On-Site Exchange Service. A Technical Sales Representative will be able to review the many options available for purchase, service, return, and carbon exchange.

At the reactivation facility, the spent carbon is thermally reactivated and the adsorbed organic contaminants are destroyed. The CYCLESORB-HP units are cleaned, inspected, maintained and returned to inventory. CYCLESORB-HP units are then taken from ready inventory, filled with the specified carbon and provided to the next service customer for replacement or start of treatment.

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