

# PROTECT™ MX-500-V

Vapor Phase Adsorber

## Description

The Protect MX-500-V adsorber is an economical portable drum designed for low flow applications. The vessel operates at pressures up to 7 psi, flow rates up to 450 cfm, and temperatures as high as 150°F. The Protect MX-500-V unit holds 450 pounds of activated carbon with an estimated shipping weight of 580 pounds.

## Features/Benefits

- 16 gauge carbon steel construction
- Internal epoxy phenolic lining and external baked enamel coating
- Upper and lower open-air plenum area for efficient carbon usage
- 4" threaded influent/effluent connections
- 3/4" threaded plug on lid for optional carbon saturation indicator
- 1/2" threaded drain plug

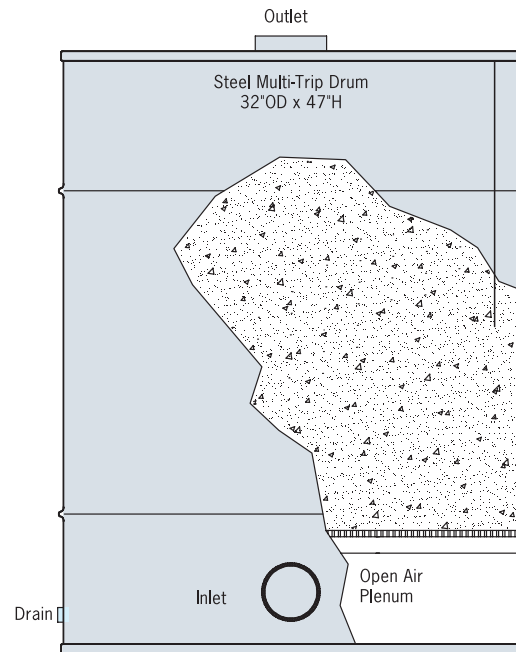
## Specifications

### PROTECT™ MX-500-V

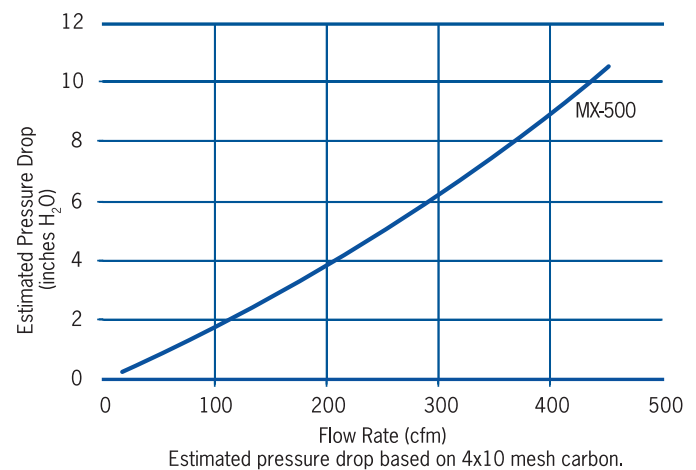
Canister	Sturdy 16 gauge carbon steel canister
Pressure	Recommended 7 psig maximum operating pressure (shop hydrotested in excess of recommended pressure)
Vacuum	Not rated for vacuum (not recommended to be operated under vacuum conditions)
Temperature	Recommended 150°F maximum
Internal coating	Epoxy phenolic
External Coating	Enamel
Inlet (bottom side)	4" FPT coupling (shipped with plug)
Inlet distributor	Stainless steel screen bed support on slotted steel plate
Vent / sample port	3/4" FPT plug
Outlet (top head)	4" FPT coupling (shipped with plug)
Drain	1/2" FPT threaded plug
Access Port	open top drum lid with clamping ring
Dimensions	32" OD X 47" H (approx)
Carbon amount	15 cu ft or 450 lbs.
Weights	130 lbs. (empty); 580 lbs. (with carbon fill)

## Available Options

- Multi-drum skid-mounted systems
- Pressure gauge/sample port assemblies
- Variety of hose connection assemblies.



## Pressure Drop Curve



## 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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## Installation

The PROTECT MX500V vapor phase carbon adsorber canister is shipped ready for installation with the dry activated carbon fill installed in the unit. The canister is self supporting and should be set on a level accessible area as near as possible to the emission source. Standard installation does not utilize any anchoring devices. Installation is simple requiring a flexible hose, duct or pipe to connect the vent or emission source to the 4 inch FPT bottom inlet of the canister.

The PROTECT MX500V adsorber canister treated air discharge is a 4 inch FPT connection on the top of the vessel and can be left open or equipped with flexible hose, duct or pipe to direct the treated air to a desired discharge point. If the canister is located outside and to be vented directly, then a U-shaped outlet pipe or rain hat (such as a pipe tee) is recommended to be installed to prevent precipitation from entering the unit.

The recommended air flow for the PROTECT MX500V adsorber canister is listed in the table. If higher flows are anticipated, then either a larger canister should be utilized or two or more PROTECT MX500V adsorber canisters should be placed in parallel operation.

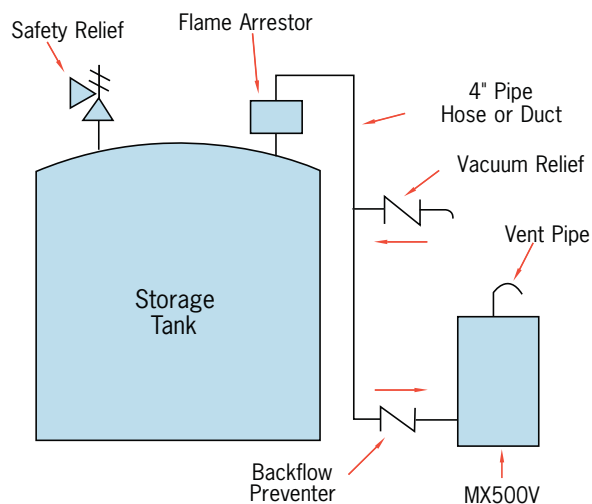
The recommended maximum static pressure and vacuum capabilities are also listed. These ratings should not be exceeded, as the canister could be irreparably damaged.

The PROTECT MX500V adsorber canister can be used to treat vents directly from storage tank or other process vessels. The motive force for the air or vapor can be produced by either a blower or by using the positive pressure inside the tank or process vessel. In many cases, the pressure or surge of pressure within the tank or vessel is sufficient to overcome the pressure drop across the canister, thus eliminating the need for a blower. Please consult the pressure drop data in this bulletin for more information.

When a PROTECT MX500V adsorber canister is used to control vapors from organic solvent storage tanks, refer to the typical installation drawing in the bulletin and the following recommended precautions:

- A safety relief valve must be provided on the storage tank. This protects the storage tank should the canister become plugged or blocked in any fashion. Such a vent would open in an emergency situation, thereby relieving pressure within the storage tank.
- Under appropriate conditions, a flame arrestor and/or backflow preventer must be installed as shown in the typical installation drawing. This prevents backflow of air through the canister when the storage tank is being emptied.
- High organic compound concentration in the vented air or vapor – defined as being greater than 0.5 to 1.0 volume% - may cause an elevated heat of adsorption in the carbon bed. This effect can be dissipated by pre-wetting the carbon to provide a heat sink, adding dilution air to the vented air or vapor to reduce the concentration, or by adding water spray to the vented air or vapor to provide an ongoing heat sink.

## Typical MX500V Installation at Storage Tank



If a PROTECT MX500V adsorber canister are used to control organic compound emissions from air-strippers, soil venting or other high moisture content air or vapor streams, then it is recommended that the humidity in the air stream be reduced to under 50%. High humidity may cause water vapor to condense within the carbon pores, filling the pores with water and preventing the air or vapor with organic contamination from accessing the internal surface of the activated carbon where adsorption takes place. Therefore, lower humidity will optimize the adsorptive capacity of the activated carbon. Also, for applications that may carry condensed water, it is recommended to install a drain or condensate trap on the inlet duct or piping.

## Calgon Carbon Air Purification Systems

The PROTECT MX500V adsorber canister is designed for a variety of air or vapor applications at low air flows. Calgon Carbon Corporation offers a wide range of carbon adsorption systems and services for a range of air or vapor flow rates and carbon usages to meet specific applications.

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