

PECO Model 10

Installation and Operating Instructions

VERTICAL CARBON ADSORBER



A. GENERAL DATA

The Model 10 vertical carbon adsorber vessel is designed for hydrocarbon removal from a liquid stream by use of activated carbon canisters. It is available in all major design codes and certifications from 14" through 84" diameter sizes. **The initial cartridges will be shipped separately outside the vessel and will need to be installed prior to startup.**

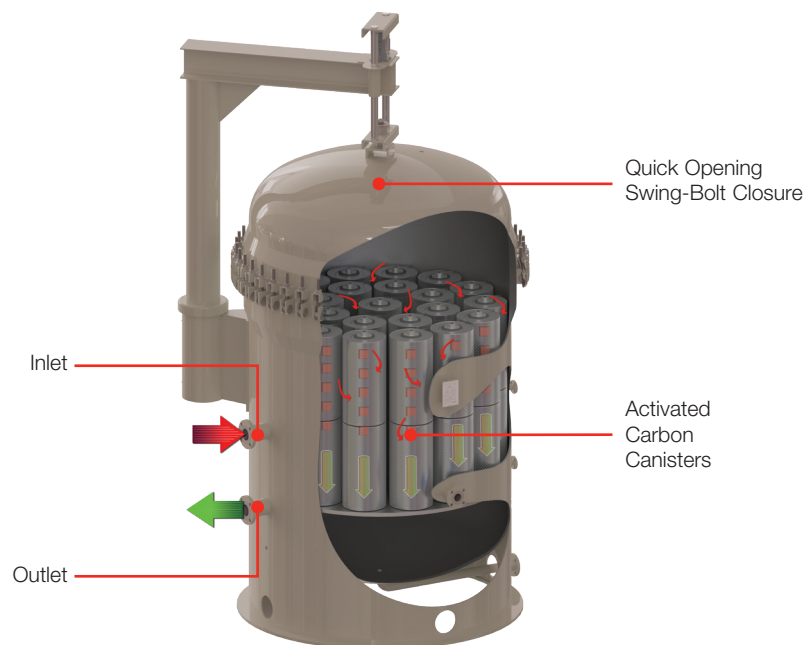
The vessel is a single stage design with perforated riser posts welded into a cartridge support plate that the replaceable activated carbon canisters install on. These canisters are typically stacked. A quick-opening closure is provided on the vessel in order to changeout cartridges.

The cartridges in the vessel will become dirty or "spent" as they adsorb hydrocarbons. As this happens the color


of the process fluid at the outlet will become less purified looking. The vessel should be serviced once the canisters have reached the designated adsorption level. At that point the vessel should be taken off-line and the spent canisters should be replaced with clean canisters according to the procedure below.

Installation and operation should be undertaken in accordance with all plant safety procedures and standard operating procedures of the end user by authorized personnel only. If any difficulties are experienced during installation or in operation, consult Parker directly at (940) 325-2575 or your authorized, local Parker representative/distributor for assistance.

B. GENERAL ARRANGEMENT / FLOW



C. INSTALLATION INSTRUCTIONS

1. Position the carbon vessel on a flat surface and ensure there is adequate space above the closure to allow room to install/remove canisters and for venting.
2. Connect inlet and outlet connections of filter vessel to piping of equal diameter. Check the vessel drawing to identify the location of each. It is recommended that the vessel be installed with by-pass and block valves to permit continued operation during canister changes.
 **Check to ensure that all blind flange bolting is properly torqued. Flange bolting is torqued at the factory, however may relax or loosen during shipment to the installation site.**
3. Close inlet and outlet connection valves.
4. Open the vent valve.
5. The blow-down connection should be valved and piped to a pit, tank, or blow-down system.
6. Open the vessel closure (**according to closure manufacturer's procedures**) and inspect the inside of the vessel. Verify the internals have not been damaged and that the gasket for the closure is in place.
7. Canister installation: The carbon canisters will have a gasket on each end of the canister. Grab the wire bail handle on the top end of the canister and slide the canister over the perforated riser post. Repeat if necessary, for double stacked designs. Then install the washer and wingnut on top to secure the canisters and create a positive seal.
9. Inspect the closure gasket to make sure it is new and in good condition. Make sure it is seated in the closure groove correctly.

D. OPERATING INSTRUCTIONS

1. Once the vessel is full of fluid and no leaks are found, open the inlet valve all the way.
2. Slowly open the outlet connection valve and begin flow through the vessel. Flow should be set based on recommended flow rate provided during sizing.
3. Slowly open the vent valve to check for trapped gas once again. If gas continues to build up in the top of the vessel, an automatic vent valve should be installed.
4. Monitor performance of the carbon periodically.
5. In normal service, cartridge change-out should be a scheduled maintenance job approximately twice a year. However, change-out could be more frequent depending on the contaminant levels in the process fluid.

10. Close the closure (**according to closure manufacturer's procedures**).
11. Prior to filling the vessel with process fluid, verify that the operating pressure and temperature are within the design limits of the vessel. The design conditions can be found on the carbon vessel nameplate.
12. Review and follow all operating company safety procedures for filter operation.
13. Follow all operating company safety and lockout/tag-out procedures.
14. Verify that inlet and outlet connection valves are closed and that vent valve is open.
15. **Slowly and partially** open the inlet connection valve and introduce the process fluid stream into the vessel. Allow fluid to purge air from the vessel through the vent valve. Displaced gas may be hazardous depending on the liquid so take proper care when venting.
16. The vessel is full once the process fluid comes out of the vent valve. Close vent valve.
17. Check for leaks. Should a leak occur, close inlet valve immediately and determine cause of leak.



Make sure to fully drain and depressurize the vessel prior to attempting to fix the leak.

E. MAINTENANCE INSTRUCTIONS – CHANGING SPENT CARTRIDGES

1. Review all operating company safety procedures prior to cartridge replacement operations.
2. Follow all operating company safety and lockout/tag-out procedures.
3. Open vessel bypass valve (if available) and then isolate the vessel by closing the inlet and outlet connection valves.
4. Bleed off the pressure by opening the Vessel drain valve, followed by the blow-down connection or vent valve.

 **Ensure that the filter vessel is drained and pressure is at atmospheric pressure prior to proceeding.**


6. Open the closure (**according to closure manufacturer's procedures**).

7. Remove dirty (spent) canisters.

 **Dispose of spent canisters in accordance with plant procedures and applicable laws and regulations for disposal in your area.**

8. Inspect and clean the Vessel as needed. Make sure all debris is cleaned from the canister sealing surfaces. Make sure no canister gasket seals have been left in Vessel during canister removal. If any Vessel damage is found notify Parker immediately. Do not operate Vessel until damage is fixed.

9. Install the new canisters. Grab the wire bail handle on the top end of the canister and slide the canister over the perforated riser post. Repeat if necessary, for double stacked designs. Then install the washer and wingnut on top to secure the canisters and create a positive seal.

 **The use of original OEM canisters is highly recommended to ensure the best overall performance of the filter. Replacement cartridges can be ordered through your local Parker distributor. The canister Item Number and Model Description can be found in the Manufacturer's Data Book supplied with your vessel.**

10. Install a new closure gasket.

 **Installation of a new closure gasket during each cartridge change is highly recommended.**

The use of original closure manufacturer's gasket is highly recommended to ensure the best overall performance of the filter. Replacement gaskets can be ordered through your local Parker distributor. The closure gasket Item Number and Model Description can be found in the Manufacturer's Data Book supplied with your vessel and also on the Vessel nameplate.

11. Close the closure (**according to closure manufacturer's procedures**).

12. Make sure vent valve is open.

13. Make sure inlet and outlet valve are closed.

14. **Slowly and partially** open the inlet connection valve and introduce the process fluid stream into the vessel. Allow fluid to purge air from the Vessel through the vent valve. Displaced gas may be hazardous depending on the liquid so take proper care when venting.

15. The vessel is full once the process fluid comes out of the vent valve. Close vent valve.

16. Check for leaks. Should leak occur, close inlet valve immediately and determine cause of leak.

 **Make sure to fully drain and depressurize the vessel prior to attempting to fix the leak.**

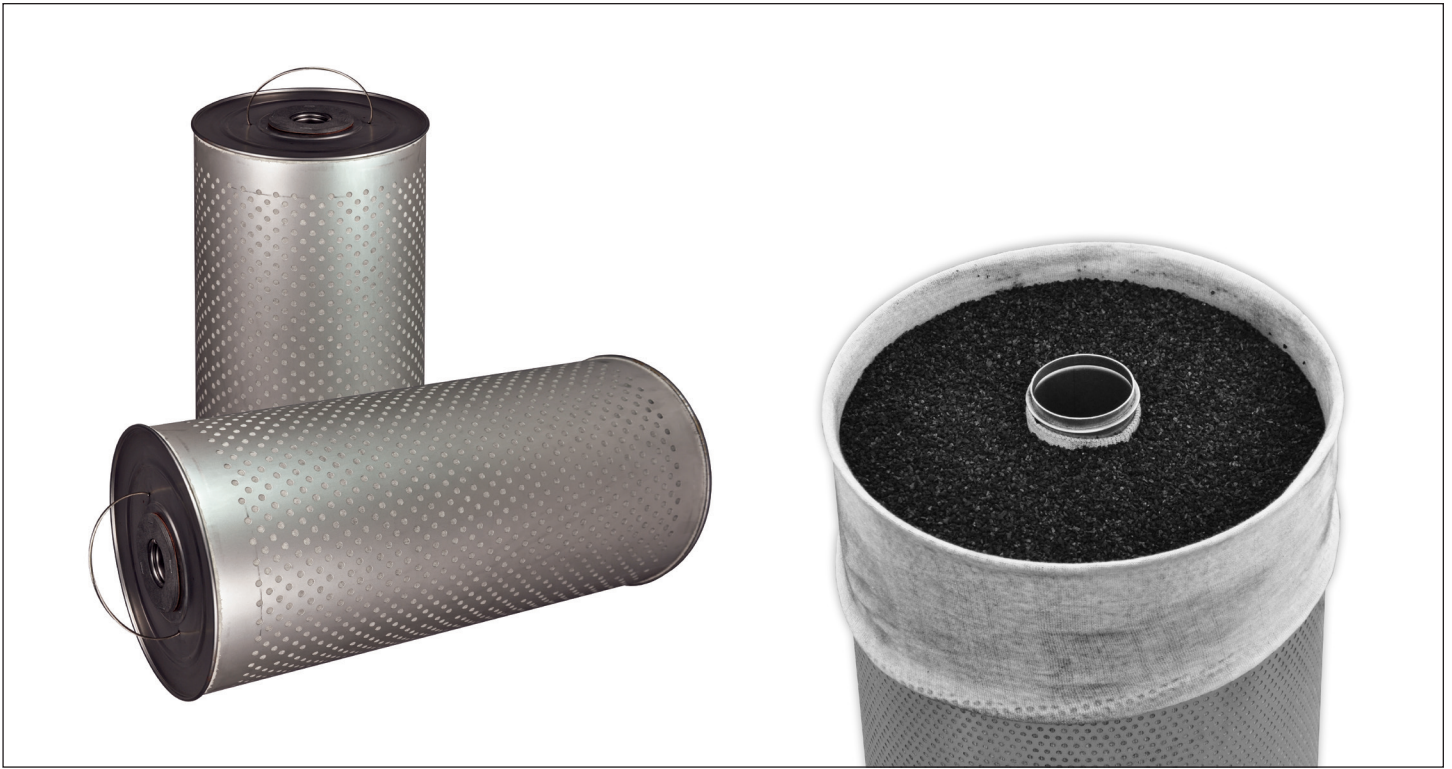
17. Once the vessel is full of fluid and no leaks are found, open the inlet valve all the way.

18. Slowly open the outlet connection valve and begin flow through Vessel. Flow should be set based on recommended flow rate provided during sizing.

19. Slowly open the vent valve to check for trapped gas once again. If gas continues to build up in the top of the vessel, an automatic vent valve should be installed.

F. SUMMARY DATA

Note: The following information is provided as a minimum guideline. Due to the variety of models that can be used in Vessel, it is strongly suggested to refer to the specific cartridge data sheet for further detailed pressure information. To prevent damage, never exceed the maximum allowable differential pressure of the cartridge support plate in the Vessel.



CarboMax™ Canisters