Closed loop glycol and amine systems pick up solids, oils, dissolved hydrocarbons and well inhibitors from the natural gas stream, fouling the fluids and causing a loss in operating efficiency. Sludge buildup, foaming and fluid discoloration are indications that fouling has occurred. This can mean loss of glycol to the gas stream or total shutdown of the dehydration or sweetening process. A cartridge type fiber filter will remove the solid contaminants, but a charcoal bed is required to remove oils, dissolved hydrocarbons, well inhibitors and degradation compounds from the glycol or amine systems.

The Nowata Filtration activated carbon canister type adsorber is designed to remove entrained hydrocarbons from glycol and amine streams which eliminates fouling and maintains operating efficiency.

Canister type carbon cartridges are the most convenient type of activated carbon adsorbers for flow rates up to 20 gallons per minute. The canister makes charcoal replacement much easier and cleaner than loose charcoal beds. Canisters keep the operator from handling the messy bulk charcoal. Contaminated spent charcoal is difficult to dispose of unless it is contained in a canister.
General Notes:

(1) Maximum allowable non-shock pressure.

(2) Recommended maximum flow rate of glycol or amine. For charcoal to operate properly, the velocity of the fluid through the media should be relatively low. Flow ratings are based on dwell time in the carbon rather than velocity induced pressure drop across the canister. Oversizing the filter will provide more efficient removal of contaminant.
# High Flow Charcoal Adsorbers

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Due to our continuing program of product improvement, specifications are for reference only and subject to change without notice.

## Dimensional Notes:

Dimensions Shown in Inches:
- **A**: Overall Height
- **B**: Vessel Diameter
- **C**: Height to Inlet Centerline
- **D**: Height to Outlet Centerline
- **E**: Height to Dirty Chamber Drain
- **G**: Inlet and Outlet Connection Size
- **H**: Internal Pipe Thread Dirty Chamber Drain Size
- **J**: Internal Pipe Thread Drain Size
- **K**: Internal Pipe Thread Vent Size
- **M**: Internal Pipe Thread Standard
- **N**: Mounting Hole Quantity and Diameter
- **P**: Mounting Hole Spacing
- **Q**: Mounting Hole Circle Diameter
- **R**: C4 Mounting Hole Spacing
- **S**: Closure Bolt Quantity and Size

Note: Two Drains on the Model C4.
Note: Two Vents on the Model C4.

## Model Numbers:
- C6
- C10
- C14
Standard Construction for Glycol / Amine Filtration

“C” Series High Flow
The Nowata High Flow rate “C” Series Charcoal Adsorbers are designed for low pressure charcoal treatment of glycol and amine in natural gas dehydrators and sweeteners. These units feature welded carbon steel construction with plated internal canister supports and retainers. The top closure uses bolts which are permanently attached to the vessel wall and swing away from the top during canister removal. The closure seal is a Buna O-Ring. Standard inlet and outlet connections are 1” or 2” internal pipe thread, corresponding to the vessel size and number of canisters. All units are equipped with internal pipe thread vessel drain and vent. See the Dimension Information for the exact number of canisters each model holds, connection size, connection location and flow ratings.

“C” Series Optional Construction

Materials of Construction
The Nowata “C” Series housings are constructed of all carbon steel with plated carbon steel internals. Post weld heat treatment (stress relieving) is available on special order for sour service. Epoxy lined carbon steel and stainless steel construction available on special order.

Seal Material
The Standard Buna O-Ring seal will operate to 250°F. Viton and Ethylene Propylene seals are available for special service. For best hydrocarbon removal efficiency, the operating temperature should be held below 120°F.

Connections
Inlet and outlet connections are available in sizes other than standard to fit customer requirements. Internal pipe thread drain and vent connections are provided as standard. ANSI flanges, external pipe thread, or non-standard sizes are available by special order. Special purpose connections such as relief valve fittings and pressure taps are available to meet a customer's specific requirements. Non-standard connection location, unusual mounting heights or dimensions are also available.

Special Pressure Ratings
The standard four canister housing is rated for a working pressure of 150 psi. Standard pressure rating of the larger housings is 100 psi. All “C” Series housings are designed with 1/32” corrosion allowance as standard. Special pressures and greater corrosion allowances are readily available. Contact the factory for a quotation to meet your specific requirements.

Accessories
Several items are available to monitor or control filter operation. Differential pressure is not an indication that the carbon needs to be replaced. Therefore, Nowata does not recommend differential pressure gauges for charcoal vessels. A pressure gauge, located in the vent connection, is an important safety device used to protect the operator from inadvertently opening the vessel closure under pressure. A vent valve should be installed to remove air trapped during canister replacement.

ASME Code Construction
The “C” Series filters are designed in accordance with the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers. When required, each unit can be stamped with the “U” symbol, denoting fabrication and testing performed by specific procedures. “U” symbol vessels are registered with the National Board of Boiler and Pressure Vessel Inspectors.

Charcoal Canister Design
The all steel charcoal canister is 11” O.D. x 22” long. The granulated charcoal is held in place by a fabric outer sleeve just inside the perforated steel shell. The charcoal will not migrate downstream due to a micro screen inner seal and perforated rigid metal core. Each cartridge has gasket end seals and lifting handles on the top for ease of replacement. The canister contains 34 pounds of granulated charcoal. Charcoal adsorbers operate most efficiently when the operating temperature is less than 120°F. Operation at a temperature greater than 220°F is not recommended. The Nowata Model 11NC22 replacement canisters are shipped in individual cardboard boxes which can be used for handling and disposal of spent canisters. The Nowata 11NC22 is a replacement for competitive activated charcoal elements that are 11” O.D. x 22” long.

Filters for Other Applications
Nowata Filtration offers several housing series for different applications. Filters with operating pressures from 150 to 6000 psi are available. Standard particle filters are available with 1 to 920 cartridges. 1 and 2 canister charcoal adsorbers are available in addition to the 4 through 14 canister models offered in this brochure. Contact the factory for information on our high and low pressure particle filters and low flow rate adsorbers. Higher pressure ratings, sizes and custom designs are also available.