

**Specification for FRP Carbon Scrubber Vessels
Vertical Airflow, Single Horizontal Bed
FV Series Drum style or skid mounted
(Typical)**

2.01 GENERAL

- A. Fiberglass Reinforced Plastic Carbon Adsorption Scrubber Vessel, manufactured by Spunstrand Inc.® or pre-approved equal, and shall be used to scrub foul and VOC laden air, up to ____ PPM continuous H²S, and other VOC's and identified environmental conditions as described in related specification sections.

2.02 Performance: Activated carbon absorber systems shall be designed as follows:

Air Flow (cfm)	50-9,000 cfm
Facial Velocity (fpm)	50 - 75 fpm
Vessel Dimensions	12"Ø -144"Ø
Bed Type	Single
Media Depth	12" -36"

2.03 Materials

A. FRP VESSEL

1. Type: Filament wound vessel rated at design pressures indicated in the drawings. Minimum wall thickness shall be ____".
2. Grade: Type 1, Grade 2 RTRP vinylester, Class E per ASTM D2310, and ASTM D3299.
3. The vessel shall be designed for not less than 21 inches water column pressure and 7 inches water column vacuum. Chop hoop or contact molded construction shall not be allowed.
4. A minimum structural safety factor of 5 to 1 shall be used in the design of vessel.
5. Maximum deflection of rectangular vessels under deadload and operating conditions shall not exceed 1 percent of the width of the longest side.
6. The Type A resin used shall be Hetron 922 selected to meet the exposures and temperatures of the air to be exhausted. Fillers other than those added for flame retardance when required, shall **not** be allowed, and should not exceed 5% by weight.
7. Corrosion liner: Inner surface shall contain a 10 mil thick minimum "C" veil saturated with vinylester resin. The surface veil shall be overlapped a minimum of 1", followed by one layer of 1.5 oz chopped strand mat. Total liner thickness shall be a minimum of 50 mils and consisting of approximately 90% resin and 10% glass content by weight.
8. Structural layer shall be filament wound Hetron 922 premium grade vinylester resin and 250 yield strand roving as required for the specific working pressure, bedding conditions, and design conditions. Glass content shall be 55% to 65% glass by weight.
9. Exterior of vessel shall contain sufficient resin to insure a relatively smooth surface free from exposed glass fibers or sharp projections, and shall contain an ultra violet inhibiting agent.
10. Standard lengths shall be in accordance with the manufacturer's published product data sheets. Wall thickness of the vessel furnished shall not at any point be less than 87.5% of the nominal wall thickness specified when measured in accordance with ASTM D 3567 **Standard Method of Determining Dimensions of Reinforced Thermosetting Resin Pipe and Fittings**. Visual defects in accordance with ASTM D2563.