



VIRTUAL POLYMER COMPOUNDS, LLC

10478 Ridge Road • Medina, New York 14103

Phone: 585-735-9668 • Toll Free: 888-290-9522

Fax: 585-735-9965 • www.virtualpolymercompounds.com

Administrative Office: One John James Audubon Pkwy • Amherst, NY 14228

Specifications Palmer Bowlus Flume

Note to User: These specifications are provided to aid the Engineer in the design and complete specification of a Palmer Bowlus Flume. Proper selection and use of any primary measuring device requires the services of a Professional Engineer. These documents are not to be used in lieu of the services of a design professional.

Product: *(Insert Size)* Fiberglass Palmer Bowlus Flume

Project: *(Insert Project Name)*

Manufactured By: Virtual Polymer Compounds, LLC

SPECIFICATION SECTION 11304 FIBERGLASS PALMER BOWLUS FLUME

PART ONE: GENERAL INFORMATION

- 1.01 Furnish *(insert quantity)* fiberglass composite Palmer Bowlus Flume(s) with a *(insert size)* inch throat section width. The Flume is designed for a maximum flow of *(insert flow)* MGD at a head of *(insert maximum head)* inches.
- 1.02 Specification section that may relate to this work:
- A. Section 03300 - Cast In Place Concrete
 - B. Section 13122 - Pre-Engineered Fiberglass Buildings
 - C. Section 13411 - Water Monitoring Equipment
- 1.03 References and related standards
- A. ANSI/AWWA F101 - Contacted molded, Fiberglass-Reinforced Plastic Wash Water Troughs
 - B. ASTM D 256 - Standard Test Method for Determining Pendulum Impact Resistance of Notched Specimens of Plastic.
 - C. ASTM D 638 - Standard Test Method for Determining Tensile Properties of Plastic
 - D. ASTM D 790 - Standard Test Method for Determining Flexural Properties of Plastic
 - E. ASTM D 2583 - Standard Test Method for Determining the Surface Hardness of Plastic using a Barcol Instrument.
 - F. ASTM D 648 - Standard Test Method for Determining the Distortion of Plastic under controlled Exposure to Elevated Temperatures
- 1.04 Submittals
- A. Submit under the provisions of Section 01300.
 - B. Product data to include
 - 1. Type, Product Name and Resin Manufacture
 - 2. Test results of fiberglass laminate used.
 - C. Shop Drawing showing all critical dimensions of Flume
 - D. Shop Drawing showing location and plan of all Flume options

E. Complete off loading, storage and installation instructions.

1.05 Delivery, Off Loading and Storage

- A. Off load flume according to manufacture's instructions
- B. Inspect Flume completely and report any damage during shipping
- C. Store Flume indoors and protect from construction traffic and damage.

PART TWO: PRODUCT

2.01 Products

- A. Provide product manufactured by Virtual Polymer Compounds, LLC of 10478 Ridge Road, Medina NY 14103; Tel. (585)735-9668.
- B. Request for substitution will be considered only if submitted and approved in advance of bid date. Substitution request must include evidence that the product meets all standards submitted herein; that the manufacturer has ten years of experience fabricating the product; there is a complete quality assurance program in place such as ISO 9001.
- C. Substitution not submitted in and approved bid date will not be considered.

2.02 Material of Construction

- A. Gel Coat; All exposed surfaces will be smooth with a 20 mil polyester based gel coat. Color of the gel coat will be white of beige.
- B. Structural laminate will be nominal ¼" thick. It will be composite of 30% by weight chopped strand glass fiber mat and high grade polyester resin.
(Flumes can be fabricated from high grade vinyl ester chemical resident resins selected to meet special industrial application. Typically in this application gel coat is omitted. Contact Manufacturer for more information.)
- C. The resin will meet the following standards:
 - 1. Tensile Strength ASTM D 638 14000 psi
 - 2. Flexural Strength ASTM D 790 25,0000 psi
 - 3. Flexural Modulus ASTM D 790 1000000 psi
 - 4. Impact, Notched ASTM D 256 10 ft-lbs/1
 - 5. Barcol Hardness ASTM D 2583 40
 - 6. High Temperature Limit 150 F
 - 7. Chemical Resistance ANSI/AWWA F10 Type II

2.03 Method of Construction; Single piece contact molded fiberglass reinforced plastic construction side mounted angles.

2.04 Metallic mounting hardware is to be 18-8 grade stainless steel.

2.05 The Flume is to include the following standard option(s): *(Include only those required and adjust line numbering accordingly)*

- A. Provide Palmer Bowlus Flume with Integral Approach Section
- B. Provide Insert type Palmer Bowlus Flume with Approach Section, anchor clips or end flanges.
- C. Provide Cut Back type Palmer Bowlus Flume with special cut sections as shown on Project Drawings.

- D. Provide Fiberglass Ultrasonic Transducer Mounting Bracket and pre drill flange for installation. Include required hardware for installation.
- E. Fabricate with integral Staff Gauge graduated feet and tenth of a foot
- F. Fiberglass Inlet End connection with *(insert size)* inch fiberglass pipe stubs
- G. Fiberglass Outlet End connection with *(insert size)* inch fiberglass pipe stubs
- H. Provide Integral fiberglass stilling well *(insert size of 8,10,12)* inch ID.
- I. Provide fixed Stainless Steel Bubble Tube
- J. Provide fixed Stainless Steel Sampler Tube
- K. Fabricate with integral pH Probe Mounting Cavity
- L. Fabricate with integral Pressure Transducer Cavity
- M. Provide neoprene rubber pipe couplers that will couple *(insert size)* inch ID fiberglass pipe to *(Insert size and type of existing piping)*

PART THREE - EXECUTION

- 3.01 Carefully remove Flume from original crating only at the time of installation. Examine the unit completely and report any damage to the unit prior to installation.
- 3.02 Verify that the dimensions of the open channel designated for installation are correct and suitable for Flume installation. Report any anticipated problems at once.
- 3.03 Installation:
 - A. Install according to installation instructions provided by the manufacturer.
 - B. Ensure the Flume is set plum, true and level.
 - C. Properly brace Flume prior to grouting in place.
 - D. Set Flume at the specified elevation.
 - E. Fasten Flume to existing re bar or wall fasteners using the clips provided and No. 10 PVC Coated Tie Wire.
 - F. Place non-shrink grout along bottom and sides of Flume. Ensure that all void are filled and all air displaced. Install grout in lifts of a depth to ensure no floating or wall deflections. At no time should a lift exceed 1/3 the total depth to be grouted.
- 3.04 After installation, clean Flume gel coat surface in accordance with manufacturer's instruction. Remove all installation and shipping debris from site.

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