



# MONTANA FLUME SPECIFICATION

## SECTION 11205 MONTANA FLUMES

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Montana flumes.

#### 1.2 RELATED SECTIONS

#### 1.3 REFERENCES

- A. ASTM D 638 – Standard Test Method for Tensile Properties of Plastics.
- B. ASTM D 790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- C. ASTM D 2583 – Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
- D. United States Department of the Interior, Bureau of Reclamation, Water Measurement Manual.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Test results of representative fiberglass reinforced plastic laminate.
- C. Shop Drawings: Show:
  - 1. Critical dimensions, jointing and connections, fasteners and anchors.
  - 2. Materials of construction.
  - 3. Sizes, spacing, and location of structural members, connections, attachments, openings, and fasteners.
- D. Samples: 8-inch square sample of representative fiberglass reinforced plastic laminate.
- E. Manufacturer's installation instructions.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products indoors or in weather protected area until installation. Protect from construction traffic and damage.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURER

- A. The product shall be manufactured by TRACOM, Inc.; 6575-A Industrial Way, Alpharetta, Georgia 30004; Tel. (877) 435-8637, Fax (770) 664-6565, [www.tracomfrp.com](http://www.tracomfrp.com).
- B. Requests for substitution must be made in writing and received by the engineer's office a minimum of ten (10) business days before bid opening. Substitutions shall be made in accordance with the provisions of Section 01600.
- C. Substitutions: Manufacturers not pre-approved shall not be allowed.



- D. Warranty: Flumes shall be warranted to be free of defects in workmanship and materials for a period of two years from shipment.

## 2.2 MONTANA FLUMES

- A. Flume Type: Provide flumes of the following types:
  - 1. Size: \_\_\_\_\_ INCH.
- B. Construction:
  - 1. One-piece construction.
  - 2. Nested flumes of size and type where indicated (backfill by others) (**OPTIONAL – specify flume sizes**).
- C. Materials:
  - 1. Fiberglass reinforced plastic.
  - 2. Gloss inside surfaces, free of irregularities.
  - 3. Minimum 3/16 inch wall thickness.
  - 4. Minimum 30% glass by weight.
  - 5. Isophthalic polyester resin.
  - 6. Removable pultruded fiberglass bracing at top of flume with T-304 stainless steel hardware.
  - 7. 2 inch (minimum) top and end stiffening flanges.
  - 8. Molded-in stiffening ribs, maximum 12 inch center to center spacing.
  - 9. 15 mil Isophthalic U.V. resistant gel coat on all surfaces, white interior, grey exterior.
  - 10. Anchor clips drilled for 3/4 inch, pultruded fiberglass construction.
  - 11. Tensile strength (ASTM D 638): 14,000 PSI.
  - 12. Flexural strength (ASTM D 790): 27,000 PSI.
  - 13. Flexural modulus (ASTM D 790): 1,000,000 PSI.
  - 14. Barcol hardness (ASTM D 2583): 50.

## 2.3 OPTIONS (**select all that apply**)

- A. Stilling well:
  - 1. 2 inch coupling, for user-supplied stilling well.
  - 2. 8 inch diameter attached, with 2 inch opening.
  - 3. 8 inch diameter detached, with 2 inch coupling, interconnection tubing by others.
  - 4. 12 inch diameter attached, with 2 inch opening.
  - 5. 12 inch diameter detached, with 2 inch coupling, interconnection tubing by others.
- B. Laminated, high visibility staff gauge:
  - 1. Graduated in 1/10 foot and 1/100 foot increments.
  - 2. Graduated in 1/10 foot, 1/100 foot, and MGD increments (**3-72 inch sizes only**).
  - 3. Graduated in 2mm increments.
- C. Ultrasonic mounting bracket:
  - 1. Fixed position stainless steel.
  - 2. Horizontally and vertically adjustable stainless steel.
- D. Removable T-316 stainless steel bubble tube, for 1/8 inch O.D. bubble line.
- E. Removable T-316 stainless steel sample tube, for 3/8 inch O.D. sample line.
- F. End Connection:
  - 1. Inlet end adapter with:
    - i. \_\_\_\_\_ size inlet pipe stub with flexible PVC boot and stainless steel bands to connect to \_\_\_\_\_ size, \_\_\_\_\_ piping.
    - ii. \_\_\_\_\_ size, \_\_\_\_\_ inlet and ANSI 150 lb. flat-faced flange.
  - 2. Inlet wingwalls (**specify radius or flat 45 degree type**).
- G. Removable stainless steel probe carrier (**specify length and O.D. of probe**).
- H. Submerged probe / area velocity probe cavity (**specify length and O.D. of probe**).
- I. Removable open cell fiberglass grating over the flume.



- J. Removable flat fiberglass cover with T-304 stainless steel bolt hardware over the flume.
- K. Sectioned into \_\_\_\_\_ pieces to fit through 22-1/2 inch manhole opening, with T-304 stainless steel connection hardware, for field assembly (by others) **(3-12 inch sizes only)**.
- L. Chemical or temperature resistant service **(the standard flexible boots are PVC, ensure that either the chemical or temperature is compatible with PVC or that alternate end connects are provided)**:
  - 1. Gel coat only.
  - 2. Gel coat and resin (required for temperature service).
  - 3. Maximum temperature: \_\_\_\_\_ ° F.
  - 4. Chemical(s) and concentration(s): \_\_\_\_\_.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that the flume dimensions are correct and project conditions are suitable for installation. Do not proceed with installation until condition deficiencies have been corrected.

3.2 INSTALLATION

- A. Install products in accordance with engineer’s instructions, plans, blueprints, etc.
- B. Ensure that the product is installed plumb and that the upstream floor is level.
- C. Set the flume at the elevation indicated on the engineer’s drawings.
- D. Embed the flume in concrete; pour concrete in maximum 6 inch lifts; internally line and brace the flume as necessary to ensure bowing or distortion does not occur.
- E. For additional installation instructions refer to latest revision of document M-I.

3.3 ADJUST AND CLEAN

- A. Clean surfaces in accordance with the manufacturer’s instructions.
- B. Remove trash and debris, and leave the site in a clean condition.

END OF SECTION

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