



**Warminster Fiberglass**  
Water and Wastewater Treatment Products  
Keeping Americas' Water Clean

## **SECTION 11209 ALGAE COVERS (Sloping)**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES:**

A. Outward opening Algae Control Covers – Furnish all labor, materials, equipment and incidentals required and install algae control covers ready for operation as shown on the Drawings and as specified herein. Covers open toward the outer tank wall for full open area from the wall to the scum baffle for inspection and ease of cleaning the entire area.

#### **1.02 REFERENCES**

- A. **NSI/AWWA F101** - Contact Molded, Fiberglass Re-inforced Plastic Wash Troughs and Launderers, American Water Works Association.
- B. **ASTM D 258** - Standard Test Methods for determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- C. **ASTM D 570** - Standard Test Method for Water Absorption of Plastics.
- D. **ASTM D 618** - Standard Practice for conditioning Plastics and Electrical Insulating Materials for testing.
- E. **ASTM D 638** - Standard Test Method for Tensile Properties of Plastics.
- F. **ASTM D 648** – Standard Test Method for Deflection Temperature of Plastics under Flexural Load.
- G. **ASTM D 696** - Standard Test Method for Co-efficient of Linear Thermal Expansion of Plastics between -30 degrees and 30 degrees C.
- H. **ASTM D 790** - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- I. **ASTM D 2583** - Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

#### **1.03 SUBMITTALS**

- A. Submit under provisions of Section 01300.
- B. Product Data: Test results of fiberglass reinforced plastic laminate.

Warminster Fiberglass  
P.O. Box 188  
Southampton PA 18966-0188  
725 County Line Road  
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**C. Shop Drawings: Show:**

1. Critical dimensions, jointing and connections, Type 304 S.S. wedge anchors and fasteners.
2. Materials of construction.
3. Sizes, spacing, and locations of structural members, connections, attachments, openings and fasteners.

**D. Samples:** 8 x 8-inch sample of fiberglass reinforced plastic laminate.

**E. Certification** that covers are manufactured in complete compliance with the specifications and as shown on the plans.

#### **1.04 DELIVERY, STORAGE AND HANDLING**

- A.** Store products in a safe area and protect from construction traffic and damage.

#### **1.05 SYSTEM DESCRIPTION**

- A.** Outward opening algae control covers are designed to eliminate the growth of algae in Secondary Clarifiers. The covers prevent algae growth in the effluent troughs, on the weir plates and the space between the weir plates and scum baffles. The outward opening design allows full, unobstructed access for easy cleaning and inspection.

This system is maintenance free and requires inspection and cleaning on an annual basis. The covers have a molded-in flange that is anchored to the concrete wall and has a full-length piano hinge on the wall side for opening outward. Covers rest on stainless steel support brackets mounted on the weir wall.

Always specify outward opening covers, which provide full accessibility for cleaning and inspection.

#### **1.06 WARRANTY**

- A.** 1-Year standard. Extended Warranty optional.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURER**

- A.** Provide Outward Opening Algae Control Covers manufactured by Warminster Fiberglass Company; 725 County Line Road, Southampton PA 18966-0188; <http://www.warminsterfiberglass.com/> Telephone: 215-953-1260 - Fax: 215-357-7893.

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- B.** Manufacturers may only bid a product equal in all respects to the specification and as shown on the drawings, to be acceptable.
- C.** Algae Control/Laundry Covers opening inboard are not acceptable.
- D.** Eligible bidders must have 5-years experience fabricating Outward Opening Algae/Laundry Covers and provide a list of 5 installations they have fabricated with Outboard Opening Covers.
1. Formal written request certifying that products to be substituted will match specified products in terms of structural properties, dimensions, physical, appearance, quality level, and quantities, and that they will perform the same function in the same manner And will achieve the same result.
  2. Manufacture's and suppliers material data sheets, specifications, and performance data.
  3. A list of three or more projects in satisfactory services for not less than three years with enclosures identical to those being proposed for substitution. For each project, include name, address, and telephone number of the engineer, the contractor, and the plant manager.

## **2.02 PHYSICAL PROPERTIES**

**A.** Material: Fiberglass reinforced polyester resin composite, laminate having the following physical characteristics:

1. Color: White.
2. Tensile strength (ASTM D 638): Minimum 10,000 psi.
3. Flexural strength (ASTM D 790): 16,000 psi.
4. Flexural modulus (ASTM D 790): 900,000 psi.
5. Impact, Notched, Izod (ASTM D 256): 10.0 ft-lb/in.
6. Barcol hardness (resin-rich surface) (ASTM D 2583): 35 minimum, average.
7. Water absorption, (ASTM D 570): 0.2 percent at 24 hrs.
8. Heat distortion point: (ASTM D 648): 175 degrees F.
9. Coefficient of thermal expansion, average (ASTM D 696): 10.5 x 10.6 in/in/degree F.
10. Test coupons prepared in accordance with ASTM D 618.

**B.** Algae Cover Segments:

1. Nominal segment 6 feet.
2. Molded of fiberglass-reinforced polyester resin, 1-1/2" chopped strand roving composite laminate, minimum 1/4-inch wall thickness, with minimum 20 mil thick isophthalic gel coat each surface.
3. For circular tanks mold wall mounting flange circular 1/4-inch thick x 4" wide along top edge, factory drilled for anchor bolts. Mold face sloping 10" downward toward the tank center. For square or rectangular tanks, mold wall mounting flange straight.
4. Poltruded angle slitted to form the tank radius is unacceptable.
5. Mold integral reinforcing flange 1/4-inch x 2" wide along inboard bottom edge to resist sag and uplift.
6. For square or rectangular tanks, mold segments straight.

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7. For round tanks, mold segments curved to radius indicated on drawings.
8. Mold segments to overlap at ends.
9. A full length stainless steel piano hinge shall be attached to the wall mounting section of each segment.
10. Mold-in 2 – 3/8” x 3/4” solid aluminum bars radially in each segment to prevent sagging of covers.
11. Covers opening toward center of clarifier with cable to prevent cover from falling over are unacceptable.
12. Molded segments with 2” wide overlap at ends on every other piece and underlap on each center segment.
13. For safety, paint cover red “Do not walk or stand on cover”.

**C. Mounting Bracket:**

1. Provide two 1/4” x 2” wide stainless steel support brackets for each baffle segment to mount on weir wall.

**D. Silicone coat all field cut edges and drilled holes.**

**E. Fasteners 1/2-inch diameter Type 304 S.S. wedge anchor bolts and fasteners.**

**F. Stainless steel T-handle provided for opening covers.**

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

**A.** Verify that the dimensions are correct and project conditions are suitable for installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION**

**A.** Ensure that products are installed plumb and true, free of warp or twist, within tolerances specified by the manufacturer and as indicated in the contract documents.

**B.** Install Outward Opening Covers in accordance with approved shop drawings and in true and proper alignment. Insure the entire area is open for cleaning and inspection

**C.** Support Brackets: Install two S.S. brackets per baffle segment, equally spaced, anchor to substrates using 1/2 diameter Type 304 stainless steel wedge anchors.

**D.** Segments: Install to full extent indicated on drawings.

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### **3.03 ADJUST AND CLEAN**

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

*Note: Specifications are subject to change without notice.*

**END OF SECTION**

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