

**MK 10 and MK 7**

**FLOATING LAGOON BAFFLE**

**SPECIFICATIONS**

**By**

**SLICKBAR PRODUCTS  
CORPORATION**

# **MK 10 AND MK 7 FLOATING LAGOON BAFFLE SPECIFICATIONS**

## **SECTION A - GENERAL INFORMATION**

### **A1. PURPOSE**

A floating lagoon baffle is designed and installed to control and/or direct the flow of water in a lagoon, settling basin or other body of quiescent water. A baffle can also be used to divide the basin into cells, thereby preventing short circuiting and assuring progressive treatment of the water.

### **A2. GENERAL DESCRIPTION**

The baffle shall consist of flotation components, elastomeric coated skirt tension member(s) (where required) and bottom edge ballast. Necessary connecting and anchoring hardware attached to the baffle shall be provided. The baffle shall be fully assembled. Field installation shall only require connection of the individual sections. Supply and installation of the anchoring system are not included as part of these specifications.

Please refer to Slickbar's published "Floating Lagoon Baffle Design Philosophy and Terminology" for information pertaining to calculation of forces from wind and current and for definitions.

### **A3. MAINTAINABILITY**

The manufacturer shall maintain a stock of replacement/repair parts for a period of not less than five years for user support.

The manufacturer shall have had at least fifteen years' experience in the design and manufacture of floating lagoon baffles.

### **A4. DRAWINGS AND INSTRUCTIONS**

Drawings of the assembled baffle shall be submitted by the manufacturer to the engineer for approval prior to manufacture. Complete specifications and material descriptions of all components shall be supplied.

The manufacturer shall provide the installation contractor with installation drawings and instructions to enable the contractor to install the baffle in the proper location. An "Installation, Maintenance and Repair Instruction Manual"

shall be provided to the contractor/owner. Repair Kits shall be made available to the contractor/owner.

**A5. DELIVERY**

The floating lagoon baffle shall be shipped to the job site by the manufacturer in sturdy containers on four-way entry pallets acceptable for motor freight transport. Containers shall be marked with the section number as identified on the installation drawings.

**A6. FIELD SERVICE**

The manufacturer shall provide the services of a qualified field representative to supervise the installation and repair of the baffle if required by the owner.

**A7. MANUFACTURER**

The manufacturer of this floating lagoon baffle shall be:

**Slickbar Products Corporation  
18 Beach Street  
Seymour, Connecticut 06483**

**Telephone: (203)888-7700  
FAX: (203)888-7720**

or an approved equal.

**SECTION B - COMPONENT SPECIFICATIONS**

**B1. FLOTATION**

Flotation shall consist of molded closed cell, polyethylene foam of 6 lbs./cubic foot density. The floats shall be molded in two halves, and bolted through the fabric skirt with stainless steel nuts and bolts. The individual floats are to be not less than 48 inches long (Mk 10) or 24 inches long (Mk 7) with a space between them to provide a hinge for folding for ease of shipment. The foam used for molding the floats shall contain UV inhibitors and anti-oxidants to assure long life. The color of the floats shall be yellow for high visibility. The outside skin of the float shall be densified and of the same material as the internal closed cell foam. The float shall be resilient and capable of being compressed without permanent deformity. The upper edge of the baffle shall extend 5 inches above the water surface (Mk 10) or 8 inches above the water surface (Mk 7) for those installations where there is surface scum and other high floating debris.

**B2. SKIRT**

The lagoon baffle skirt shall consist of a polymer coated, polyester filament yarn fabric with a weight of 7.5 oz. per sq. yd. There shall not be less than 7 mil thickness of polymer coating over the base fabric. The coated fabric shall be of good appearance and free of defects such as holes, tears, delaminations, blisters, and any other defects that may affect its serviceability. The polyester fabric shall be non-wicking (wicking of the water by the substrate yarns can cause delamination of the elastomer coating). The coated fabric weight shall be 30 oz./sq.yd. For those baffles requiring widths greater than the coated fabric available from the coated fabric supplier, 2 inch wide heat sealed seams shall be used to obtain the desired design width. The strength of the seam shall be as great or greater than the parent material in shear strength. The coated fabric shall possess good UV and ozone resistance when exposed to the atmosphere for long periods. The manufacturer shall offer to the end user a pro-rated, ten year warranty when the baffle is exposed to acceptable fluids.

Additional specifications are as follows:

|                             |                                      |  |
|-----------------------------|--------------------------------------|--|
| - Coated Weight             | 30 $\pm$ 2 oz./sq. yd.               | ASTM D-751                                 |
| - Tear (tongue)             | 70/50 lbs.                           | ASTM D-751                                 |
| - Tensile (grab)            | 550/500 lbs.                         | ASTM D-751                                 |
| - Low Temperature           | -30°F, 4 hours<br>1/2" mandrel       | ASTM D-2136                                |
| - Hydrostatic<br>Resistance | 500 psi (min.)                       | ASTM D-751<br>Method A                     |
| - Weathering<br>Resistance  | 8000 hours<br>No appreciable changes | Carbon Arc<br>Atlas<br>Weather-o-<br>meter |
| - Adhesion of<br>Coating    | 10 lbs./in.                          | ASTM D-751<br>Para B dielectric seam       |

**B3. BOTTOM BALLAST**

The baffle shall be maintained in position by attaching not less than 1.5 lbs./ft. of lead ballast weights to the bottom edge of the skirt. The ballast weights shall be applied in self-riveting, male/female pairs. Dissimilar metals are not permitted for attachment of these ballast weights. Ballast weights shall be of such design that additional weights can readily be added in the field in the event that additional weight is required in certain locations. Additional separate weights may be attached (see Paragraph B6 on Page 6).

**B4. TENSION MEMBERS**

On baffles longer than approximately 150 feet (length) by 5 feet (depth) or have an area larger than 800 square feet, one non-metallic synthetic paralay cable (tension member) shall be provided (Mk 10-1 or Mk 7-1). Baffles longer than approximately 200 feet by 10 feet (area larger than 2000 sq.ft.) shall be furnished with two such tension members (Mk 10-2 or Mk 7-2). Tension member(s) shall be constructed of a core of high tenacity, parallel, low elongating, continuous filament polyester fibers contained within an outer braided jacket. The outer jacket shall have a urethane coating that chemically bonds the pigmented urethane to the cover fibers. The tension member shall exhibit excellent resistance to hydrocarbons, acids, alkalis, and solvents. It shall be impervious to rot, mildew and degradation associated with marine organisms. Materials used in its construction shall not be affected by continuous immersion in fresh or salt water. The tension member end shall be terminated around a heavy duty stainless steel thimble with two hydraulically crimped, seamless, Type 316 stainless steel oval sleeves.

The breaking strength of each tension member shall be approximately 10,000 lbs. and the pullout/breaking strength of the termination shall be not less than 75% of breaking strength. Total elongation shall not exceed 4.5% at 30% of assembled breaking strength.

If only one tension member is required, it shall be enclosed in a heat sealed fabric pocket located at the top edge of the skirt, above the flotation (Mk 10-1 or Mk 7-1). If required, a second tension member will be enclosed in a heat sealed fabric pocket located below the flotation (Mk 10-2 or Mk 7-2).

The tension member(s) shall be attached to the intermediate section connectors with suitable hardware. The links connecting tension members across baffle section joints must be of sufficient strength to withstand the breaking strength of the tension members without visible signs of deformity. The bridle type side anchor connections at the intermediate connectors (where required) shall be attached to the tension member termination. All hardware associated with the tension members shall be stainless steel.

**B5. CONNECTORS**

Formed stainless steel plate end connectors, not less than 12 inches in depth, shall be installed at each end of the baffle.

**For Mk 10 or Mk 7:** An end tension wire consisting of ¼ inch stainless steel wire rope, extending a minimum of 5 feet from the connector, shall be attached to the center of the end connector for baffle tensioning and attachment to the customer's shore anchor (Reference Drawing 20A3208).

**B5. CONNECTORS** (continued)

**For Mk-10-1 or Mk 7-1:** The synthetic tension member shall terminate on a ¼ inch stainless steel wire rope extending a minimum of 5 feet beyond the end connector for attachment to the customer's shore anchor. An end tension wire consisting of ¼ inch stainless steel wire rope, extending a minimum of 5 feet beyond the connector, shall be attached to the center of the end connector for independent baffle fabric tensioning and attachment to the customer's shore anchor (Reference Drawing 20A3191 Appended).

**For Mk 10-2 or Mk 7-2:** An end bridle fabricated from synthetic paralay cable and dimensioned to balance the loads in the tension members, while keeping the end connector vertical, shall be attached to the end connectors. An end tension wire consisting of ¼ inch stainless steel wire rope, extending a minimum of 3 feet beyond the bridle, shall be attached to the fast eye of the bridle for baffle tensioning and attachment to the customer's shore anchor. The baffle's synthetic tension members shall be attached to the connector to adequately transfer their tension loads to the bridle (Reference Drawing 20A3162 Appended).

Stainless steel hardware shall be used to attach the end connector plates to the baffle skirt material.

Tension forces from the baffle to the customer's shore anchor posts must be essentially horizontal. If the bases of the shore anchor posts can not be placed within 6 inches (vertical dimension) of the normal water level, then eyed screw or plate anchors must be placed there; and the tension member wire extensions must be led through the eyes of these anchors and thence to the base of the anchor posts.

When multiple baffle section lengths are required, high strength stainless steel plate section connectors shall be provided between sections to a depth of not less than 12 inches. All hardware on the section connectors shall be stainless steel. The skirt connection below the section connectors shall be overlapping type with stainless steel nuts and bolts and stainless steel grommets in the skirt material on 6 inch centers.

**B6. SIDE ANCHOR POINTS**

Where required by the manufacturer or engineer, support for the upper portion of the baffle against current or wind loading normal to the baffle shall be furnished by the manufacturer in the form of 5 foot long, ¼ inch stainless steel or paralay rope bridles, attached at the section connectors or between float logs at stainless steel plate reinforcements with a depth of not less than 12 inches. All hardware on the bridle connections shall be stainless steel.

**B7. LACE LINE ASSEMBLIES**

Where the lagoon water level may drop more than a foot below normal operating level and high winds occur at the site (in excess of 30 mph), Lace Line Assy's may be required to protect the baffle from overstress.

**B6. SIDE ANCHOR POINTS (continued)**

Attachment points for external ballast giving support for the lower portion of the baffle against current loading normal to the baffle shall be furnished by the manufacturer in the form of stainless steel eyes, mounted on either side of the baffle skirt on reinforced plates, bolted back-to-back through the skirt, located as required along the lower edge of the baffle.

**B7. SECTION LENGTHS**

The baffle section lengths shall be as determined by the engineer in consultation with the manufacturer. Nominally they should not exceed 200 feet (length) by 5 feet (depth) or 100 feet by 10 feet for ease of handling and installation.

**B8. "FLOW-THROUGH" WINDOWS**

"Flow-through" windows shall be provided at locations determined by the engineer. The windows shall be reinforced on all edges with a 2 inch wide "frame" of skirt fabric, double heat sealed to the skirt. The window size shall be determined by the engineer. (Maximum water velocity through the windows at maximum flow conditions should not exceed 3 feet/minute.)

**B9. END TAPERS**

The baffle shall be manufactured so as to fit the slopes of the lagoon by tapering the ends of the baffle in a nominally straight line. The engineer will specify the waterline length at maximum expected water level of the lagoon, and the slope steepness or rise and run of the slope. The manufacturer will design the baffle to fit the specified length and slope at maximum water depth with nominal slack to prevent over-stress, and will not be penalized for nominal manufacturing tolerance and over-depth dimensions to suit fabric widths.

**B10. ITEMS NOT NORMALLY FURNISHED BY THE BAFFLE MANUFACTURER**

Shore anchor posts (and eyed screw anchors, if required) to locate the baffle's position, tension wires longer than 5 feet, anchor wires extending beyond the side anchor bridles, anchor buoys and weights, and ballast chain anchor wires and weights are furnished by others unless specified in the contract.

Drawing #20A3169 refers to typical shore anchors, the final design of which must be approved by the engineer with knowledge of relevant earth load bearing properties.

Drawing #20B3104A refers to typical side anchors, the final design of which must be approved by the engineer with knowledge of relevant lagoon liner and bottom characteristics.

Drawing #20B3749 refers to typical Lace Line Assemblies, the final design of which must be approved by the engineer with knowledge of relevant lagoon level fluctuations and local weather conditions.



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