

PML NOSECONES FAQ

7/28/03

All PML nosecones (except as noted below) are 4.2:1 length/diameter ratio, with a true ogive shape. Sizes indicate the size tubing they fit, i.e. the ID of the tubing they fit.

- 1.1 & 1.5" diameter are solid urethane; both are conical shape.
- 2.15, 2.56, 3, 3.9 are plastic.
- 6, 7.5, 11.4 are fiberglass
- 11.4 is 3.5:1 L/D ratio. We also offer a Harpoon-missile-style 11.4" fiberglass nosecone.
- PML does not make custom nose cones.
- Some customers have asked about conical nose cones in larger than 1.1" (29mm) or 1.5" (38mm) diameter. A suggestion would be going to a craft store and buying a Styrofoam cone used in craft projects and fiberglassing over it. That might work out for you. Or, if you know a woodworker with a lathe, have them turn you one. Some rockets can benefit from some nose weight, so the weight of the wood would be good.
- We cannot tell you with certainty whether our tubing is compatible with that of another manufacturer. This also includes whether our couplers, nosecones, pistons, CPR parts, etc. will fit another manufacturer's tubing. With the variation in tubing from one manufacturer to another, we simply cannot tell you with certainty if our components will match well with non-PML tubing.

Nosecone Fits and Airframe Tubing

After cutting airframe tubing, it may be necessary to deburr the edges inside and out using 150 grit or finer sandpaper. This is especially true with QT, as the cutting process may "squeeze" the cut end ever so slightly, making it tight for inserting a nosecone or for inserting the piston. Deburring or chamfering the inside edge of a QT will eliminate those problems.

Plastic Nosecones (PNCs)

- HDPE (high-density polyethylene).
- Thicker wall than competitors; less flex, which reduces paint chipping/flakeoff.
- Double shock cord/chute eyelets, which make them much stronger. You may need to clear out flashing from manufacturing in the nosecone eyelets to pull the shock cord through; use an X-Acto knife. If you must open up the eyelet to allow the shock cord to pass through easier, do it toward the body of the nosecone, not toward the edges of the eyelet (that will weaken the eyelet). An easy way to pull through a shock cord strap is to put one corner through the eyelet and pull the strap through using pliers.
- Ridges on shoulder that can be easily sanded to achieve perfect fit; shoulder also provides better sealing, like piston rings in an engine.
- Polyethylene is notorious for being difficult for adhesives to adhere to. First of all, wash the OD in very hot, soapy water (and the ID for plastic boattails) and rinse. This will help remove any mold release compound from manufacturing. Secondly, sand all

surfaces to be bonded with 120 grit sandpaper; sand exceptionally vigorously inside boattails made of our plastic nosecones, since appearance doesn't matter here...getting a good bite on the epoxy does. Our Two-Part Expanding Foam (sold on the Adhesives page of the webstore) is perfect for this application.

- Urethane automotive topcoats over paint can increase resistance to paint chipping.
- Fill imperfections in plastic nose cones with Squadron Green or White putty, automotive spot putty, etc.
- Neither acetone nor MEK causes any problem on our plastic NCs (used in moderation and for short-term contact with the plastic, of course).
- If you need to add noseweight for CG/CP adjustments, we recommend sand held in place by our Two-Part Expanding Foam (sold on the Adhesives Page of the webstore).

Custom PNC

- “Custom PNC” means changes to standard PML PNCs; we do not make custom cones.
- **See our website at www.publicmissiles.com for current pricing on all custom work. The prices below are shown only to give you a general idea of the pricing range for such work.**
- Convert to boattail by cutting tip add \$4.00. Customer must provide motor tubing size (if base diameter is to be same as the motor tube) or base diameter.
- \$4.00 charge includes cutting shoulder. Customer must provide shoulder length.
- Slotting for 3" & 4" only: add \$3.50 per slot.

Intellicones

The PML Intellicone is intended to be used above a payload section to mount electronic equipment. The Intellicone is not intended to have a shock cord attached to it; the shock cord attaches to the payload section, to which the Intellicone is screwed, removably-riveted, or some other attachment scheme. The cable is used to retain the payload section into the Intellicone. Put the two ends of the cable into the cone, put in the payload tube with the cables going into the notches in the hole in the cone, then pull on the cable to wedge the payload tube into the Intellicone. See the Nosecones page of the webstore for a “click here” graphic showing more detail.

Fiberglass Nosecones (FNCs)

- White epoxy surface coat.
- 6”: two layers of fiberglass cloth; one layer 10oz., one 6oz.
- 7.5 and 11.4”: one layer 18oz., one 6oz.
- Molded in one piece, not two halves that are then joined. One piece is much stronger.
- All fiberglass cones use a U-bolt into a ½” thick ply bulkplate for ‘chute and shock strap attachment due to the size and weight of the cones.
- Scuff fiberglass cones with fine sandpaper to paint.
- Fill imperfections in fiberglass cones w/Bondo, automotive spot putty, etc.
- When using epoxy in a fiberglass cone to retain nose weight, do just a little at a time, allowing the epoxy to cool between batches. This will prevent the resin used in

manufacture of the cone from breaking down due to the heat of the setting epoxy. When you put a lot of quick set epoxy into the tip of the cone the heat generated during curing can exceed 200 degrees F. The resin the cone is made of begins to deteriorate at 170 degrees. Better yet, use a slow-setting (24-hour) epoxy, or our Two-Part Expanding Foam (sold on the Adhesives page of the webstore).

Custom FNC

- “Custom FNC” means changes to standard PML FNCs; we do not make custom cones.
- If more strength is required, an additional layer of 16 oz. fiberglass can be added to our FNC-6.0, 7.5, and 11.4 during fabrication for an additional charge of 30% of the standard price of the FNC. (Example: FNC-6.0 is \$84.95; $30\% \times \$84.95 = \25.49 ; an “extra strength” FNC-6.0 would be $\$84.95 + \$25.49 = \$110.44$. This is only an example. Always check the webstore for current FNC pricing).
- **See our website at www.publicmissiles.com for current pricing on all custom work. The prices below are shown only to give you a rough idea of the pricing range for such work.**
- Convert to boattail by cutting tip: add \$6.00 for 6”. Add \$10.00 for 7.5” and 11.4”.
- Slotting for 6” only, add \$6.00 per slot.
- Slotting for 7.5” and 11.4” is done and charged on a “per order” basis, meaning the charges are not standard. They will be quoted when the slotting job is specified.

Boattails

Boattails are long, ogive shaped components that are attached to the tail end of the rocket and serve to reduce drag (and can add a "retro look" to the rocket). PML boattails are made by modifying our existing line of nosecones. 2.1” through 3.9” boattails are made of plastic while our 6.0” and 7.5” boattails are fiberglass. Centering rings are included.

In most cases the tip of the nosecone is cut off at the point that will allow the motor mount tube to fit through the opening. In the larger 6.0 and 7.5" boattails, various motor mount sizes can be used with the appropriate centering ring placed in the opening at the base of the boattail. Unlike tailcones, the fins of the rocket are usually mounted through the boattail and to the motor mount tube.

PML boattails vary in the following areas:

- Number of slots (3, 4 or 6)
- Slot width
- Length of slots.

The above details are described for each boattail on the Nosecones page of the PML website. Also, slotting charges are not included in the pricing of the boattail since it varies (3, 4 or 6).

Tailcones

- All tailcones (except Mini-BBX) are 1.75” exposed length with 3/16” to 1/4” shoulder. See the Nosecones page of the website for Mini-BBX tailcone details.

