

**Indian Institute of Technology, Kanpur**  
**National Wind Tunnel Facility**

Enquiry No. NWTF/IITK/2016-17/03A\_Revised

Date: July 05, 2016

**Closing Date: July 15, 2016**

Sealed Quotations are invited on the following address from the reputed Vendors/Fabricators for the fabrication of scale down model of airship model. To get details on the airship model and for any other queries, please contact to **Dr. Chaturi Singh** at [chaturi@iitk.ac.in](mailto:chaturi@iitk.ac.in)

Prospective Vendors/fabricators are requested to send their quotations in a sealed envelope within closing date. The quotations should contain the detailed model fabrication methodology and include the details of the machine bed size, specification to be followed for model fabrication.

**Terms and Conditions**

1. Wind Tunnel Model has to be fabricated and assembled in all respects with required inspections.
2. The schedule to be followed from the date of receipt of PO must be clearly defined. NWTF reserves the right to negotiate the proposed schedule.
3. Acceptable Tolerances:

**Overall**

- a. Model length: +/- 0.3mm
- b. Profile of model: +/-0.1 mm
- c. Fins and Flaps angle maintenance: +/- 0.1°

Note: Model Part wise Acceptable Tolerance detail is listed in the attached table at page 2 of this document.

4. Surface finish has to meet the following requirements:
  - a. All Aluminum components to be anodized.
  - b. Surface roughness of metallic parts: within 10 microns
5. Model will be accepted only after demonstration of its dimensional accuracy, surface finish and overall integrity as per the specification and inspection report.
6. A report has to be submitted on the dimensional accuracy and overall integrity of the fabricated model based on inspection.
7. Inspection is to be in two stages.
  - a) Inspection of the complete shell model after integration at supplier's site forms the first stage.
  - b) Integration of model at IIT Kanpur and overall dimensions accuracy.The model received by NWTF at the test site will also need to be assembled, inspected and certified by the vendor.
8. Validity of the quotation should be at least 30 days.
9. 50% payment will be released after completion of model fabrication and submission of the model and inspection plan documents. The remaining 50% will be released after assembly of model at IIT and acceptance of the complete model and preliminary test runs are completed in the NWTF tunnel.

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Table: Model Part wise Acceptable Tolerances

| S.No. | Name of Part                                | Material  | QTY   | Size of model part                              | Acceptable tolerance                   |
|-------|---|---|-------|---|--|
| 1     | Nose Part/First Part                        | Woven fiber Reinforced Plastic<br><b>or Nylon or Aluminum Alloy</b> | 1     | Approx length=750 mm<br>max Dia = 375mm         | Length wise +/-0.3 mm                  |
| 2     | Middle part/second part                     | Woven fiber Reinforced Plastic<br><b>or Nylon or Aluminum Alloy</b> | 1     | Approx length= 300 mm<br>max Dia = 375mm        |  |
| 3     | Tail part/Third Part                        | Woven fiber Reinforced Plastic<br><b>or Nylon or Aluminum Alloy</b> | 1     | length=430 mm<br>max Dia = 375mm                |  |
| 4     | Balance Holding Assembly                    | Aluminum Alloy 6061   | 1     | length=430 mm<br>max Dia = 375mm                | Length wise +/-0.3 mm                  |
| 5     | Fins for + configuration                    | Rapid Prototyping/CNC   | 4     | length=131 mm<br>breadth= 63 mm<br>width=7 mm   | Length wise +/-0.3 mm<br><br>+/-0.2 mm |
| 6     | Fins for y configuration                    | Rapid Prototyping/CNC   | 3     | length=160 mm<br>breadth= 150mm<br>width=36 mm  |  |
| 7     | Flaps for + configuration                   | Rapid Prototyping/CNC   | 4     | length=133 mm<br>breadth= 192 mm<br>width=36 mm | +/-0.2 mm                              |
| 8     | Flaps for y configuration                   | Rapid Prototyping/CNC   | 3     | length=144 mm<br>breadth= 72mm<br>width=9mm     | +/-0.2 mm                              |
| 9     | Front adapter for balance                   | Aluminum Alloy 6061   | 1     | length=76 mm<br>Dia= 50mm                       | +/-0.5 mm                              |
| 10    | Rear Adapter for balance                    | Aluminum Alloy 6061   | 1     | length=176 mm<br>Dia= 50mm                      | +/-0.5 mm                              |
| 11    | Motor holding Rings for + Fin configuration | Aluminum Alloy 6061   | 1 Set | length=77 mm<br>Dia= 159mm                      | +/-0.3 mm                              |
| 12    | Motor holding Rings for Y Fin configuration | Aluminum Alloy 6061   | 1 Set | length=77 mm<br>Dia= 159mm                      | +/-0.3 mm                              |
| 13    | Motor Fixing adapter                        | Aluminum Alloy 6061   | 7     | length=56 mm<br>breadth= 50 mm                  | +/-0.5 mm                              |
| 14    | Torque sensor top Adapter                   | Aluminum Alloy 6061   | 7     | length=25mm<br>Dia= 20mm                        | +/-0.2mm                               |
| 15    | Torque sensor rear Adapter                  | Aluminum Alloy 6061   | 7     | length=25 mm<br>Dia= 20 mm                      | +/-0.2 mm                              |
| 16    | Sting                                       | MS  | 1     | length=790 mm<br>Dia= 30 mm                     | +/-0.5 mm                              |