

Request for quotation

Enquiry number: AE/MIS/2018-19/01

Enquiry date: 02/05/2018

Closing Date: 23/05/2018

Subject: *Purchase of High Vacuum System with Nozzle & Dump Tank for Shock/Expansion Tunnel*

Quotation for the items mentioned above is requested in a sealed envelope (Two bid system i.e. Technical & financial bid separately). The quotation should reach on or before May 23, 2018 to the address given below.

Technical Specification

VACUUM CHAMBER:

- Vacuum Chamber should be fabricated out of Non-Magnetic Steel AISI – 304L material. The dimension of the chamber is 1000mm dia and cylinder length of 1000mm (from front flange to back dish). The chamber should also include a conical portion connecting it with the model mounting chamber.
- Front side of the chamber should have welded solid plate with a central opening with a demountable flange to connect it to the model mounting chamber and front side must have conical construction.
- Backside of the chamber should have full opening hinged door with clamps to connect the dished door to the chamber to the backside flange.
- MS rigid structure to support the chamber.
- The ports must be provided for evacuation, Vacuum Sensors, Instrumentation feed through, Mechanical feed through etc.
- 2 Nos. of Ceramaseel feed through must also be supplied along with the unit.
- The chamber inside surface must be electro chemically polished for lower degassing rates.
- The chamber must be leak tested using Helium Mass Spectrometer Leak Detector to an individual leak rate of 10^{-9} std cc / sec.

MODEL MOUNTING CHAMBER:

Model mounting Chamber must be fabricated out of Stainless steel SS 304L having dimension 300mm(W) X 300mm(H) X 450mm(D). On either side of the chamber, circular flanges are to be welded. One end will seal with dump tank and other side will seal with nozzle cone. Bottom of the chamber should have trough of about 4" height along the length of the chamber in which a suitable facility should be provided to mount the model and 3 view port should be provided of 6" size two on sides and one on the top.

CONICAL NOZZLE:

Conical nozzle must be fabricated out of stainless steel SS 304L material having entry diameter of 85mm and exit diameter of 300mm, cone angle of 9° , with a nozzle length of 680mm with MS support structure provided. At one end is attached to the test section other end is attached to the shock tube.

VACUUM PUMPING SYSTEM:

The ultimate vacuum that can be achieved must be 5×10^{-6} mbar in clean, cold, empty degassed condition. This vacuum level should be achieved in stages (backing, roughing and high vacuum) by making use of necessary/required pumps. The required/necessary valves, vacuum pumping lines, vacuum measuring devices, control console and other essential components/devices should be provided.

OTHERS:**Terms and conditions:**

- The bidder should have experience in designing and installing high vacuum system for shock tunnel application. (Please mention if you have done earlier)
- Quotations should have a validity of minimum of 60 days.
- Warranty period should be clearly mentioned.
- The delivery period should be specifically stated.
- Property certificate should be provided if applicable.
- Permissible educational discount should be provided since the equipment will be used for research work of students.
- The equipment shall be used for research purpose only, therefore concessional GST of 5% should be charged. IIT Kanpur shall provide the GST Concessional Certificate at the time of placing the purchase order.

Address for the quotation:

Dr. Mohammed Ibrahim. S
Department of Aerospace Engineering
Indian Institute of Technology
Kanpur-208016, India
E-mail: ibrahim@iitk.ac.in
Phone: +91-512-2596345