

**Government of India  
Bhabha Atomic Research Centre  
Multidisciplinary Research Group  
Applied Physics Division**

30/03/2022

Ref: APD/CB/MF/22/AC/412

Sub:- "Design, development, fabrication, safe delivery and installation of compact housing unit for operation and maintenance of high voltage, high current switching modules and devices" as per given drawings and specifications

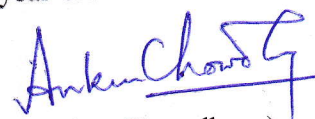
**Due Date: 8<sup>th</sup> APRIL, 2022**

Dear Sirs,

1. Quotations are invited for the minor fabrication job, as per the enclosed specifications and drawings.
2. Bidder shall quote for fabrication of these components with material.
3. Bidder shall take out an insurance policy in favor of BARC for any free issue material supplied.
4. Taxes shall be quoted separately. Form H shall be provided where necessary.
5. The quotations must send their bid through speed post and must reach Head, Applied Physics Division on or before the due date referred.
6. The bidders must quote in a two part tendering system, which means that they will mention the technical specifications and financial terms in separate sealed envelopes, clearly mentioning which is which. These two separate envelopes viz. technical and financial will be enclosed in a bigger sealed envelope super scribed with the above reference number and due date.
7. The address on the envelope should read:

The Head,  
Applied Physics Division, PURNIMA LABS,  
Bhabha Atomic Research Centre  
Trombay, Mumbai - 400 085.  
Attn: Mr. Ankur Chowdhury

8. The fabrication work shall be subject to inspection by our representative. The finished components shall not be dispatched prior to approval by our representative at the bidder's works. Necessary inspection facilities should be provided to our engineers during fabrication at bidder's premises.
9. The bidder shall deliver the finished components after approval by our representative, within 45 days from the date of the firm purchase order issued to the bidder. The finished components shall be delivered by the bidder at **Applied Physics Division, Purnima Laboratory, (Near Plutonium Plant), Bhabha Atomic Research Centre, Trombay, Mumbai-400 085.**
10. Head, Applied Physics Division, BARC, reserves the right to accept/reject any or all quotations without assigning any reason.
11. Payment will be made by cheque only after satisfactory completion of work on production of bill, delivery challan and advance stamped receipt. It may be noted that IT @ 2% and surcharge on tax at 15% shall be deducted from your bills.
12. Job will be guaranteed against material and manufacturing defects for 1 year from the date of supply.

  
(Mr. Ankur Chowdhury)

For and on behalf of  
Head, Applied Physics Division

# **SPECIFICATIONS**

This job involves the design, development, fabrication, safe delivery and installation of Compact Housing Units for operation and maintenance of High Voltage, high current switching modules and devices. These modules will be used for controlling the operation of systems that generate very high levels of electromagnetic noise with voltages of the order of 15,000 volts and pulsed currents of the order of 200 kilo-amperes.

The fabricator needs to be well versed in the design and development of housing enclosures for devices that generate high voltages of the order of 5,000 volts or above and pulsed currents of the order of 500 A for the control of high voltage, high current systems.

The following jobs are in the scope of the fabricator concerning the design, development and installation of compact housing units:

1. Design and development of compact housing unit with scope for easy translation, 360 degree rotation and easy accessibility of control points with adequate isolation for handling high voltages of the order of 5000 volts. Technical drawings for the unit, as developed by the fabricator, must be approved by the divisional representative before proceeding for fabrication of the job. The fabricator is required to visit the site for obtaining measurements regarding the installation of the enclosure. A tentative layout of the unit is provided in Fig. 1.
2. Design and development of control module (19" instrumentation module housing) for a) input isolation of DC power supply and b) transmission of TTL-logic control pulses from the enclosure to the remotely located control room. Design of the control module must be approved by the divisional representative before proceeding for fabrication of the job.

<b>Switching module 1</b>
<b>Switching module 2</b>
<b>Switching module 3</b>
<b>Switching module 4</b>
<b>Switching module 5</b>
<b>Control Module</b>
<b>DC Power Supply unit</b>

**Fig. 1: Tentative Layout of compact housing unit along with constituent components.**

### **Housing Unit specifications:**

- [1] Weight bearing capacity: 500 kg (using 4 nos. of 360 degree rotatable PU swivel wheels). Weight withstand test to be carried out at fabricator's site.
- [2] Firing Units (5 nos.) with provisions for their simultaneous as well as staggered operation.
- [3] Firing unit output: 2 kV, 200 A signal
- [4] Connections between firing units to be made using RG 58-U coaxial cables with BNC connectors.
- [5] Provisions for easy insertion and removal of any constituent unit.

### **Control Module specifications:**

- [1] DC input:  $\leq 24$  V, 200 mA
- [2] DC output: 24 V, 1 A
- [3] Input-output isolation: 5 kV
- [4] Control features: Power supply enable, mode enable, high voltage enable as well as trigger.