Ref: DRHR /APD/2020/ENQ/262     Date: 4/8/2020

Sub: Minor Fabrication - **Invitation of quotation for improvement of aesthetic and ergonomic aspects of a BARC developed CPAP device**

**Dear Sir,**

1. Quotations are invited for the minor fabrication job: Conceptualization, Fabrication and Supply of **aesthetically and ergonomically improved CPAP unit** developed at BARC as per enclosed specifications in Annexure - I.

2. The job involves the fabrication, demonstration and testing of the working system at supplier’s site and delivery of the system to DRHR New Building, BARC, Trombay, Mumbai.

3. Supplier shall fabricate the items with material. **(No Free issue material will be supplied by BARC.)**

4. Taxes and other charges, if any, shall be quoted separately. The above fabrication is required for R & D works; hence special GST rate of 5% is applicable. Certificate for the same shall be provided on request of the supplier.

5. The quotation must reach Head, DRHR, BARC by **15th September 2020** and must be sent by **speed post** in a sealed envelope superscribed with the **reference number & the due date given above**. Delivery by private courier is not acceptable.

6. The envelope shall be addressed to:

   **Head, DRHR,**
   **BARC, Trombay, Mumbai - 400 085.**
   **(Attn.: Amaren P Das, SO (G), DRHR)**

7. The fabrication and assembly work shall be subjected to inspection by our engineer. The finished unit shall not be dispatched prior to approval by our engineer at bidder’s premises. The unit shall be delivered by the bidder at **DRHR, BARC, Trombay, Mumbai - 400085.**

8. Head, DRHR, BARC reserves the right to accept / reject any or all quotations without assigning any reason.

9. Incomplete offer / offer received after the due date shall not be considered.

10. The bidder shall provide break-up cost for material, fabrication, other charges and taxes in the quotation.

11. Quotations should be preferably neatly typed and **corrections are not acceptable.**

12. Quotation must indicate the **delivery period** and the **validity of offer.**

13. Quotation received in computer-generated form shall not be acceptable. Quotation must be submitted in printed letterhead, mentioning clearly GST registration no., PAN No. & Service Tax Registration No. Submission of challan and Invoice shall also comply the same, in case, work order is placed.

14. Drawings must be returned along with the offer.
Detailed Specifications for Improvement of Aesthetic and Ergonomic aspects of a BARC developed CPAP device

Continuous Positive Air Pressure (CPAP) is a medical device used for treatment of sleep apnoea. The device consists of a pressurising unit, 22mm corrugated plastic tube and a face mask. The pressurising unit is commonly referred to as CPAP unit. The tubing and face mask is called the patient circuit. The CPAP device/unit will mean the pressurizing unit henceforth in this document. The pressurizing unit takes atmospheric air, filters it and discharges from its outlet at a higher pressure. The tube connects the CPAP unit to the face mask, which tightly sits on the patient’s face covering his nose and mouth. The discharge pressure of the CPAP unit is in the range of 5 to 30 cm of water column. The commercially available CPAP units sell at Rs 45,000 onwards. BARC under societal benefit and make in India programme, has developed a of CPAP device called DEAP with an objective to provide medical care at affordable price. The present working prototype takes care of the functional requirements and is at par with commercially available devices. In order to compete in the open market ergonomically and aesthetically designed units have better commercial potential. In view of this, proposals are invited from product design institutes for improving the ergonomics and aesthetics of the product. The technical knowhow in terms of functional requirement will be provided by BARC.

Scope of Work

The major objectives of aesthetic & ergonomic enhancement of CPAP unit is as follows

- **Ergonomic Design**: Ease to use, carry, store and maintain by the user.
- **Aesthetics (form/shape/overall looks and appeal)**: The product should not stand out from other home use gadgets.
- **Product Graphics**: Multi color and well marked buttons and ports indicating its usage etc.
- **Ease of Assembly and Maintenance**
- **Ergonomic enhancement on Human machine Interface (HMI)**
- **Design and graphics of the outer packing box**
- **Design of product brochure**
- **Any other relevant aspect**

**Phase 1: Design Research:**

- Based on the demonstration of the existing prototype unit, the vendor must generate insights on various aspects of product and related systems.
- This involves market survey of existing similar products.
- Identification of current intrinsic and extrinsic requirement of doctor, user and care taker.
• At the end of this phase the design team should share the outcome of the study through reports & presentations.

**Phase 2: Design Conceptualisation:**

• Based on customer needs & competition analysis data from phase1, design concepts should be generated.
• This phase should result in set of design concepts.
• Each concept should have details about the form, placements of components, user interface, indicative materials, colour, finishing etc.
• The vendor should shortlist few designs and gets it approved by the purchaser for further detailing and refinement.
• Aspects related to ergonomics, aesthetics, ease of use and maintenance should be discussed during Phase 2 and to be incorporated in final solution.
• Fabrication of at least 3 mock-ups of the shortlisted designs.

**Phase 3: Design detailing, Model making, Testing & Documentation:**

• Demonstration of the mock-ups to the user and approval of the final design by the user.
• Detailed engineering drawings should be developed.
• Working prototype to be developed with rapid prototyping.
• The working prototype should be made preferably from Fiber Reinforced Plastic (FRP), Nylon and/ or ABS as required using processes like CNC machining, 3D Printing and hand work.
• The prototype type must match the color and texture finalized in the 2nd phase.
• Delivery and handing over of the design.

**Deliverables:**

1. Market survey report (Hard and Soft copies)
2. Concept presentation
3. Three numbers of Mock up units
4. One prototype working unit
5. 3-D model in STL format
6. Design drawing
7. Details of fabrication process. If any CNC machining was done then relevant code
8. Product brochure

**Others Terms and Condition**

• Vendor should have sufficient experience & expertise in the aesthetic design & ergonomic enhancement of consumer products.
• One site visit, would be conducted before evaluation of offer.
• The purchaser will closely work with the vendor team to monitor & supervise the entire prototyping activity till a workable operational unit is built as per the approved designed model.
General Specifications

1. **Quality surveillance, inspection**
   1.1. All work covered shall be subject to quality surveillance / inspection by the purchaser or his authorized representative.
   1.2. No Insurance policy is required for the material as the job is to be done by supplier’s material.

2. **Delivery**
   2.1. The bidder shall finish the work after approval by our engineer within **6 months** from the date of firm Work order is issued to the bidder.
   2.2. Any delay which is attributable to the supplier is liable for penalty @ 0.5% per week (max.5%) to be imposed on supplier.
   2.3. In case any extension in delivery is to be granted to the supplier. The supplier should request for the extension before expiry of the work order. The same may be justified by the Division, whether extension granted is with or without levy of liquidated damages.

3. **Sub-Contract**
   3.1. The fabricator shall not sub-contract any or all the work without written consent from the purchaser. The fabricator shall be responsible to the purchaser for all work carried out the sub-contractor, of the fabricator, if allowed by the purchaser.

4. **Payment**
   4.1. Payment will be made only after satisfactory completion of work and against submission of original bill in triplicate and advance stamped receipt.

5. **Tax**
   5.1. Income Tax of 2% on the bill amount and surcharge on IT as applicable and education Cess @ 3% (on IT& SC) shall be deducted in payment.

6. **Confidentiality**
   6.1. No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as "Proprietary" in nature by disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party.
   6.2. This clause shall apply to sub-contractors, consultants, advisors or the employees engaged by a party with equal force.

   7.1. Any contravention of the above mentioned provisions by any contractor, sub-contractor, consultant, advisor or the employees of the contractor will invite penal consequences under the aforesaid legislation.

8. **Publication against use of BARC's name without permission for publicity purpose:**-
   8.1. The contractor or sub-contractor, consultant, advisor or the employees engaged by the contractor shall not use BARC’s name for any publicity purpose through any public media like Press, Radio, T.V. or Internet without the prior written approval of BARC.