Product Development Section

Tender Enquiry

On behalf of the President of India by Head, Product Development Section, Bhabha Atomic Research Centre, Trombay, Mumbai – 400 085, sealed bids on limited tender basis are hereby invited in two parts i.e. "Part 1 –Technical Bid" and "Part 2 – Price Bid" for the following work from eligible manufacturers on limited tender basis.

Tender number : BARC/PDS/2020/OPA-54665

Description of the work : Design, Manufacture, Pre-dispatch Inspection, Testing, Packing, Supply and warranty of
A) SS 316 L reaction vessel – 2 No.
B) MS boats and carrier – 1 set
C) Teflon gasket – 20 No.
and its accessories as per the specifications mentioned in the attached Annexure – 1

a) Sketch/Dwg. No
b)Specifications : As per Annexure-1

Due date & Time : 09/04/2020, 14:30 hrs

Mailing Address : Shri Prashant Patil
SA(E), Product Development Section
S-62, South Site, BARC, Trombay
Mumbai – 400 085

Person to contacted for any clarification : Shri. Prashant Patil, SA(E), PDS
Tel No. 2559 0651/4097/4802

Terms of Submission : Bidders should quote against this inquiry in two parts in two separate sealed envelopes

Part - 1 should consists of only technical details of the product without commercial values and Part - 2 should consists of commercial values along with taxes and other charges. Quotations without the fabrication drawing and details will be rejected without assigning any reason. Financial bid of those firms whose technical bids are qualified only will be opened. Part – 1 and Part – 2 should be sealed in separate envelopes and both the envelopes should be clearly mentioned. Then both the envelopes should be sealed in a single sealed envelope super scribing with i) Tender No. ii) Due Date & iii) Name of work by Indian post only.
**Terms and Conditions:**

1. Quotation are to be on printed Letter Head/Quotation Format Which should consist of
   a. GST number
   b. Tax component to be separately indicated in the invoice.
   c. PAN number
   d. CST registration number of the firm.

2. Please mention the delivery period, validity of offer and payment terms clearly in the offer.

3. BARC is a Central Govt. Institution and the materials fabricated through this tender inquiry will be utilized for R&D purpose, hence, GST concessional rate of 5% is admissible against the certificate issued by the competent authority.

4. Incomplete quotation will not be considered.

5. Price quoted shall be for **free delivery** up to our site at BARC, Trombay, Mumbai PIN-400 085.

6. The material supplied will be covered by guarantee for one year from the date of completion of the work order. Guarantee / Warranty certificate should be produced along with the bill.

7. **Delivery & Completion:** Within 3 months from the date of receipt of this order, delivery free of charge at PRAFPUL, South site, BARC, Trombay, Mumbai.
   Any delay which is attributable to the contractor is liable for penalty @½% per week (max. 5 %) to be imposed on the contractor.

8. **No FIM:** No Free Issue Material will be supplied for the fabrication job.

9. **Payment:** No advance is admissible. Payment will be released only after satisfactory completion of the work on submission of following documents:
   a. Satisfactory work completion certificate from our officer
   b. Invoice in triplicate
   c. Advance stamped receipt
   d. Guarantee certificate

10. **Income Tax:** IT @2% and GST on IT @2% will be deducted from your bill.

11. Officer-in-charge for this work will be **Shri. Prashant Patil, SA(E), PDS.** Any clarification regarding the above work can be obtained from him on Tel. 2559 0651/4097 or by email: papatil@barc.gov.in.

12. All other terms of general contract are also applicable.

13. Bidder’s technical details must have manufacturer’s own fabrication drawing along with their capability citing various machines, qualified & certified manpower required for fabrication of reaction vessel.
IMPORTANT: Following clauses are part of terms and conditions of this contract.

I. CONFIDENTIALITY

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 the 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.

This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by a party with equal force.

II. “RESTRICTED INFORMATION” CATEGORIES UNDER SECTION 18 OF THE ATOMIC ENERGY ACT, 1962 AND “OFFICIAL SECRETS” UNDER SECTION 5 OF THE OFFICIAL SECRETS ACT, 1923:-

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

III. Prohibition against use of BARC’s name without Permission for publicity purposes.

The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC’s name for any publicity purpose through any public media like Press, TV, Radio or Internet without the prior written approval of BARC.

ENCLOSURE:
1. TECH SPEC, ANNEXURE – 1

(Prashant Patil)
SA/E, PDS
RC & I Group, BARC
Technical specification of SS 316 L reaction vessel, boats, gaskets and carrier

Item A: Reaction vessel

Quantity = 2 No.

1. Rectangular shape reaction vessel with rectangular 'outer' and 'vessel' flanges and this reaction vessel will be sealed using Teflon gasket.

2. Rectangular shaped vessel should be made of SS316L sheet of thickness 3(±.0.2) mm. Dimension of the vessel (inner)= 300 mm (L) x 185 mm (W) x 185mm (H).

3. Outer and vessel flanges should be made of SS316 Lusing CNC with 10 mm thick plate. Flange dimensions should be 250 mm x 250 mm having 8 holes for M8 bolts as shown in schematic Figure - 3.

4. Vessel flange (32.5 mm height) should have a piece of collar with a milled square cut of 3 mm at the side of rectangular vessel. The height of the collar should be 10 mm where rectangular vessel will fit, so that vessel can be welded at the collar portion of the flange from inside and outside.
5. Outer flange should have a handle for its easy movement. Inner side of outer flange should have a 2 mm wide and 2 mm high groove (dimension 210 mm × 210 mm) for pressing of teflon gasket. Final machining on both the flanges including groove formation on outer flange for gasket pressing shall be carried out on CNC to achieve required flatness on both the flanges.

6. Both flanges should be tightened with the help of 8 number of M8 hardened steel nuts & bolts. Holes for nuts & bolts should have dia 8.5 mm (corner holes at a distance of 230 mm (centre to centre) as shown in Figure 2 & 3.

7. Two SS316 L pipe of 25 mm (OD) × 13 mm (ID) should be welded diagonally 241 mm (centre to centre) to the backside of the rectangular vessel for “gas-in” & “gas-out” with ½” male flare joints along with female end connectors. (Fig.2 & Fig.6).

8. A thermowell made of SS316L 6 mm OD tube should be fixed on the back side of the reaction vessel as shown in the Figure – 6. The tube should have one end closed inside the furnace and to be fitted on the vessel with arrangement of metallic compression joint.

9. End plugs made of SS 316 L should also be provided for these pipes (Figure -2). Pipes should be provided with appropriate flatness at 6 places (hexagon) near end connectors to support spanner fixing.

10. One close end inner pipe of 150 mm Length (6mm OD) made of SS 316 L should be welded at the top from inside the vessel along ‘gas in’ pipe for “gas-in” with 8 numbers of equidistant holes of φ=3-4 mm as shown in Figure-2
Item B: Carbon impregnated (25% by weight) Teflon Gasket

Quantity = 20 No.

Square frame Gasket should be made of carbon impregnated (25% by weight) solid teflon rod by machining Dimensions: Outer = 250 mm × 250 mm; Inner 190 mm × 190 mm; thickness = 4 mm. gaskets should have 8 number of holes having dia 8.5 mm for nuts& corner holes at a distance of 230 mm (center to center) as shown in Figure 2 & 3. This gasket should have high degree of flatness and suitable for gas tightness of the vessel.

Item C: MS Boats & its Carrier

Quantity = 1 set (One set should consist of 2 boats 1 carrier)

Two MS boats of thickness 3 mm should be fabricated with outer dimensions 185 mm (L) × 165 mm (W) × 30 mm (H) (Figure-8). Two tier MS boat carrier should be fabricated by using MS rods having dia 4 mm. Outer dimensions of the carrier should be 190 mm (L) × 175 (W) mm × 120 mm(H). Lower and upper shelves of carrier should also be fabricated using the similar rods with dimensions 190 mm (L) × 175 (W) mm so that each shelf can accommodate one MS boat. Three sides of each shelf should be provided with solid support of 30 mm Height keeping one side open for inserting MS boat into the carrier. Carrier should be provided with rectangular angles at the two vertical open end sides of the carrier. Small angle at the horizontal open end side of lower shelf of the carrier should also be provide as shown in Figure -7

Quality acceptance test & procedure

1. Fabrication drawing of the vessel has to be approved from the user before its actual fabrication. Hard & soft copied of the drawings made by the manufacturer should be submitted to user for the same.
2. SS316 L blocks and sheets procured for fabrication of the vessel should be forged and annealed. Original material test certificates should be provided for SS316 L blocks and sheets and have to be approved by the user before carrying out any fabrication job.
3. Pre-dispatch inspection of the fabrication job will be carried out at fabricator’s site before delivery. Before welding, parts of the vessel such as flanges, bend sheets, pipes, flare joints should be inspected & approved by the user. During pre-dispatch inspection, vessels should be dimensionally checked and leak tested at a pressure of at least 5 bar without any putty or additional material at
welding joints. Pipes should be closed using blank caps and vessel should be sealed using Teflon gasket at flange side.

4. Welding of the vessel should be carried out using GTAW by a qualified welder duly certified. All welding joints should have full penetration welding and fusion of filler material has to be ascertained at all joints and follow ASTM guidelines while welding. SS316 L filler rod should only be used while welding.

5. Dye penetration test on root & final welds shall be carried out by the manufacturer & report of the same shall be submitted for user’s review & approval. These testing reports should be submitted to user before delivery of the vessel.

6. Reaction vessels should be free from any burrs and sharp edges and mirror finished without exposing the welding joints.

7. The material shall be procured with MTC & further Chemical composition shall be carried out from NABL Lab & required test reports shall be submitted for approval prior to start of work.

8. All butt weld joints shall be 100% radiographed & test report of the same shall be submitted.

(Prashant Patil)
(SA/E, PDS, BARC)