



Government of India
Bhabha Atomic Research Centre
Atomic Fuels Division
Technical Services Section

Ref: AFD / TSS / 2019 /85463

May 6, 2019

Tender Enquiry

Sub: Works Contract for “Design, Fabrication, Supply, Testing, Installation and Commissioning of metal machining Head with working Table, as per specifications at AFD”.

Sealed quotations are invited for & on behalf of the President of India for Design, Fabrication, Supply, Testing, Installation and Commissioning of metal machining Head with working Table, as per specifications at AFD. The general description, scope of work and salient terms & conditions are as given hereunder.

1. General Description

A metal machining Head with working Table, is to be designed to remove the undesirable stock from the various shapes & sizes of the work pieces. Vendor's scope of work includes Design, Fabrication, Supply, Testing, Installation and Commissioning at site on the turn-key basis. All materials, consumables, labour etc shall be in the vendor's scope of work.

The functional requirements and salient desired features of the metal machining Head are given hereunder. However, vendor shall have to carry out the detailed design & calculations in accordance with the standards design practices in vogue. The vendor shall prepare his own fabrication drawings and get them approved from the purchaser before commencing the work execution.

Further, vendor shall have to produce documentary evidences to substantiate his capability for design of such machines, at the time of site visit.

2. Scope of Work & Technical Specifications

The scope of work consists of following,

- 2.1 Design of metal machining Head with working Table
- 2.2 Design of control systems
- 2.3 Fabrication of the system
- 2.4 Assembly of all mechanisms /components
- 2.5 Testing & Trials at the vendor's works
- 2.6 Final commissioning at the purchaser's works

2.1 Metal machining Head with working Table

The metal machining Head shall be designed to remove undesirable materials. This machine shall work on the principle of metal removal by relative motion between a sharp edged tool & work piece, and shall have the capability to produce angular speeds from 50 to 900 rpm and translational speeds from 2 to 20 mm/sec.

Further, above speed ranges should be available in the eight finite steps, conforming to the relevant geometric progression series (GP Series). Depending upon the requirements of the machining operation being performed, the relative speeds will be selected manually by the operator. An appropriately rated electrical prime mover shall be incorporated into the machine, to supply the required mechanical power and for generating the relative motions among the constituent mechanisms.

Work piece sizes will vary from $\varnothing 10$ to $\varnothing 250$ mm & 10 to 1000mm in diameters & lengths, respectively.

The machining head must have the appropriate mechanisms to generate (cut) helical grooves (Pitch: 1 to 6mm), at the inside / outside surfaces of the work pieces.

The machine should be sturdy, precise and reliable. Typical damping materials must be incorporated into the machine structure to minimize the vibrations. Appropriate Factors of Safety, as mandated in the relevant structural design codes, may be taken on the yield point strengths of the constituent materials. .

2.2 Control System

Appropriate controls shall be designed & supplied to meet the functional requirements in accordance with the industrial ergonomic requirements. The desired controls are through operator's hand. The control panel should have provisions of ON / OFF switches, MCBs, visual display of parameters, salient control features, emergency STOP etc. Industrial grade powder coated sheet metal cabinet boxes are to be used.

3. Fabrication

- 3.1 All fabrication shall be as per ASME Section VIII Div. 1
- 3.2 All welding shall be by SMAW / TIG welding only. Welding procedure and welders shall be qualified as per ASME SECTION IX Prior to production welding.
- 3.3 Prior to actual production, the fabrication drawings and welding procedures shall be approved by the purchaser.

4 Inspection & Quality Control

Vendor shall submit the detailed fabrication procedure before commencing the work execution. This shall include:

- 4.1 Fabrication and inspection stages and testing methods in sequence listing all details.
- 4.2 Procedures for welding and stress relieving.
- 4.3 Weld sequencing and identification.
- 4.4 Identification of witness and hold points in the manufacturing plan.
- 4.5 Detailed fabrication drawing indicating weld configuration, location, weld joint identification etc shall be submitted prior to taking up the production.
- 4.6 Purchaser's representative shall have complete access to the works and vendor shall provide all necessary instruments, tools and documents etc. to conduct the checks.
- 4.7 Time schedule: The firm shall submit time schedule for the following for timely completion of the order.
 - 4.7.1 Fabrication drawings/ Fabrication schedule.
 - 4.7.2 Quality assurance plan & stage-wise inspection schedule.
 - 4.7.3 Welding schedule and Welder's qualification.

5. QAP (Quality Assurance Plan)

Vendor shall submit a documented procedure for Quality Assurance Plan and get it approved from the purchaser.

6. Welding requirements

- 6.1 Welding procedures and welder shall be qualified as per ASME section IX proper to production weld.
- 6.2 Tungsten electrodes shall be conforming to ASME section-II, part-C, SFA 5.12, EW-Th2.
- 6.3 DP test shall be carried out by on all weld joints to check surface imperfections.

7. General Technical Requirements

- 7.1 Vendor shall prepare its own fabrication drawings as per actual site conditions and should get it approved from concerned authority before commencement of work.
- 7.2 All fabrication work shall be carried out as per approved drawings only.
- 7.3 All materials supply is in the scope vendor. Vendor shall use all relevant IS standard material for this work. Material testing reports (Chemical, Mechanical etc.) from govt. approved labs should be submitted for approval. Material identification and stamping shall be witnessed by departmental representative.
- 7.4 Vendor shall have to pass weld qualification and only qualified welders shall perform this work.
- 7.5 In case of any technical doubts, vendor should contact concerned authority for clarifications.
- 7.6 Burrs, sharp edges, projections etc. caused due to cutting, welding etc shall be removed to maintain smooth surface. Vendor shall maintain best quality workmanship.
- 7.7 Vendors shall have to give minimum one year guarantee for workmanship, materials and satisfactory performance of the entire machining system.

8. Final acceptance criterions

Physical verification of all items and satisfactory performance trials at site, as per the technical specifications.

9. Vendors having knowledge and experiences of preparing above mentioned documentations, BARC procedures, standard welding procedures, safety procedures, material testing and inspection facilities, calibrated equipments etc. shall be preferred for the work contract.

10. Terms & Conditions

- 10.1 The work completion period is THREE months from the date of work order.
- 10.2 Taxes, if any, shall be specified separately. As the work is intended for R&D work, hence, the necessary GST concession certificate (for GST@5%) will be given by the purchaser.
- 10.3 The offer should also contain the work completion period.
- 10.4 GST payable has to be shown separately in your offer i.e., Basic cost. Rs. XXXXX + GST Rs. YYYYY = Total cost Rs. ZZZZZ. The installation & commissioning charges (if any) may also be specified.
- 10.5 Any delay which is attributable to the vendor is liable for penalty @ ½ % per week (max. 5%) to be imposed on the vendor.
- 10.6 In case of delay in work completion, vendor may send request letter to concerned authority for extension in work completion period with proper justification for delay. Concerned authority may /may not give extension with /without the penalty depending upon the justification for delay.

- 10.7 Income tax as applicable, will be deducted from the Vendors bill.
- 10.8 Vendor should furnish their PAN no. & copy of GST Registration Certificate.
- 10.9 100% payment will be arranged after satisfactory completion of work at AFD and on submission of:
- a) Bills in triplicate b) Advanced stamped receipt c) Delivery Challan, d) Guarantee Certificate
- 10.10 Min. two workers & one supervisor shall be present at site during the erection & commissioning of the system. The supervisor shall be experienced enough for safety (fire & personal) to oversee the site activities.
- 10.11 The upkeep of area is the responsibility of vendor. Any unwanted or extra materials shall be kept at designated area which will be shown by departmental supervisor. For elevated jobs proper Safety Belts shall be used by all workers.
- 10.12 Vendor shall obtain police verification certificate (PVC) for all his employees including his supervisors and workers engaged in the work.
- 10.13 Vendor shall obtain Medical Fitness certificates for all his workers involved in this work.

11. Confidentiality clause

- 11.1 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 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.
- 11.2 "Restricted information" categories under Section 18 of the Atomic Energy Act 1962 and "Official Secrets" under Section 5 of the Official Secrets Act 1923. :-
- 11.3 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
- 11.4 Prohibition against use of BARC's name without permission for publicity purposes. :-The contractor of 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, T.V. or Internet without the prior written approval of BARC.

12. Site Visit

- 12.1 The vendor shall have to visit the site to comprehend the scope of work. The same will be arranged by the undersigned. The site can be visited from 14/05/2019 to 15/05/2019 between 10.00 hrs to 14.00 hrs on working days only. However, for site visit, prior intimation of at least two working days is necessary for arranging the entry permits.

12.2 Vendors must have the previous experience in Design of machining systems along with the quality assurance plan. The vendor shall have to provide documentary evidence for the same while requesting for the site visit. The quotations submitted without site visit and documentary evidences of relevant experience shall not be considered under any circumstances.

12.3 Vendor shall have to carry valid Photo identity card (Driving license, passport, Aadhaar card) while visiting this premises. Failing to bring valid identity cards, vendors will not get access into our premises. Further, entry permits will not be arranged for next dates if vendors unable to visit the site on permitted dates for any reasons. Contractor should not carry any type of electronic items such as mobile, pen drive, camera etc with him/her at the time of visit.

12.4 For preparing entry permit, you can contact the undersigned on Ph. No. 25594908 or e-mail to hsharma@barc.gov.in giving complete details of Firm, name of visitors, occupation/designation, identity proof, PVC details, probable date of visit etc.

13. Quotations are to be on the letter head / quotation format which should consists of GST registration number registered with local authority, PAN of the firm etc. Quotations that are received in computer generated form will be considered as invalid & rejected.

14. Sealed quotations must be forwarded by Registered Post or Speed Post ONLY. Quotations forwarded through any other routes will not be considered.

15. Sealed quotations should be super scribed on the envelope with the reference number of this letter, and should be addressed to and reached by 22/05/2019 (16.00 hrs) to:

Shri Hariom Sharma
TO/D, Technical Services Section,
Atomic Fuels Division
Bhabha Atomic Research Centre,
Trombay, Mumbai-400085

(Hariom Sharma)
TO/D, TSS, AFD

(Surendra Kumar)
SO/H, TSS, AFD
(for & on behalf of The President of India)