

दूरभाष :
TELEPHONE :
तार : बार्क-मुंबई, चेम्बूर,
TELEGRAMS : BARC-MUMBAI, CHEMBUR
टेलिफोन : ०११-६१०१७/०११-६१०२२ बार्क इन
TELEX : 011-61017/011 - 61022 BARC IN
फैक्स संख्या : ९१-२२ ५५६०७५०
FAX NUMBER : 91-22-5560750



सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

भाभा परमाणु अनुसंधान केंद्र

BHABHA ATOMIC RESEARCH CENTRE

मुंबई,
मुंबई-४०० ०८५,
TROMBAY,
MUMBAI-400 085.

Materials Processing & Corrosion Engineering Division

July 09, 2018

Dr. Supratik Roychowdhury,
Scientific Officer - G,
MP&CED.

Ref: BARC/MP&CED/M-FAB/SRC/2018/2040

**Sub. : Minor Fabrication: Setup for controlled surface rolling of stainless steel plate.
Due Date and Time: 1400 hrs on August 10, 2018.**

Dear Sirs,

You are requested to provide a quotation for the following minor fabrication work.

Sr.No.	Description of the job	Quantity
1.	Design, fabrication and commissioning of a setup for controlled surface rolling of stainless steel plates under load control mode. Detailed work specification is given in the annexure - I.	1 (One).

(Supratik Roychowdhury)

Indenting Officer

P.T.O.

Notes:

- (1) The quotation, **on your Letter Head**, should be sent in a sealed envelope by **registered speed post only**, to the following address:

Dr. Supratik Roychowdhury,
Materials Processing & Corrosion Engineering Division,
2nd Floor, Mod-Lab, D-Block,
Bhabha Atomic Research Centre,
Mumbai – 400 085.

Quotations sent by any other mode (hand delivery, courier, ordinary post, email etc.) will not be accepted.

- (2) **The reference no, due date and "Quotation, not to be opened before due date" should be clearly superscribed on top of this sealed envelope.** It should reach the undersigned within the due date given above. The quotations received after the due date will not be considered.
- (3) **It is to be noted that persons engaged in fabrication work at BARC complex would be required to obtain police clearance certificates for issue of requisite identity cards.** The responsibility of all the working personnel lies completely with the Fabricator/Contractor while they are working at MP&CED/BARC.
- (4) Time of completion of job: Within five months of release of work order.
- (5) Our engineers at fabricator's works shall visit for inspection. Necessary inspection facilities should be provided to our engineers during fabrication at fabricator's premises.
- (6) Indicate taxes, if extra.
- (7) The Letter Head should incorporate PAN No., TIN No. and other relevant Nos.
- (8) BARC will provide certificate for concessional GST rate. It shall, however, be the responsibility of the contractor also to ensure that they dispatch the goods only after getting exemption certificates from the indenter.
- (9) Income Tax at 2%, will be deducted from your bill.
- (10) Guarantee Certificate: Equipment fabricated/repared should be guaranteed, for materials and workmanship, for a period of one year from the completion date.
- (11) Indicate delivery terms.
- (12) Payment terms: Payment will be made after the work is completed and on the submission of advance stamped receipt, invoice bill and satisfactory work completion certificate from the user.
- (13) **CONFIDENTIALITY CLAUSE**
- (a) No party shall disclose any information to any third party concerning the matters under this contract. In particular, any information identical 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 consent.
- (b) **"Resistering 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.
- (c) **Prohibition against use of BARC'S name without permission for publicity purpose:**
The contractor, sub-contractor, consultant, adviser or the employees of a contractor will 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.

Thanking you.

Yours sincerely,

(Supratik Roychowdhury)

On and behalf of President of India

Annexure – I

Design, fabrication and commissioning of a setup for controlled surface rolling of stainless steel plates under load control mode as per the following specifications.

Scope of supply:

- i) The setup shall have a stainless-steel platform having surface finish as obtained after fine grinding (Roughness Average, R_a – 0.1-1.6 μm approximately) and should be free from surface defects. The platform should be of size not less than 500 x 500 x 12 mm (thickness) and the material should be austenitic stainless steel (type SS 304/316 etc.). The job (stainless steel plate) to be rolled will be clamped on to this platform. The clamping mechanism for the job should be adequate to clamp a stainless steel plate of dimensions 200 mm x 200 mm x 3-10 mm (thickness). The clamping arrangement should be capable to accommodate plates of different thicknesses in the range of 3-10 mm.
- ii) The width of the roller should be within 10-20 mm. The roller arrangement should apply load onto the stainless steel plate surface (job) in the range of 500-1000 kg approximately. The vertical movement of the roller, which will roll over the plate clamped on the platform, should be from 3-10 mm with load. The clamping should be tight enough to prevent any slipping of the job during rolling. The load may be applied by pneumatic or hydro pneumatic method. Supplier has to supply the complete system along with mini compressor necessary for application of load.
- iii) The X movement of the roller on the job should be motorized with speed control. The roller should have a manual Y movement also. After motorised rolling in X direction, the load will be released and the roller withdrawn from the job. The roller will then be shifted in the Y direction precisely using a Vernier. The roller will then be brought in contact with the job and user defined load will be applied. Motorised rolling in the X-direction will be started again. Roller should have sufficient X and Y movement capability so as to cover a major part of the surface of the job of dimensions 200 mm x 200 mm x 3-10 mm (thickness). All motion parameters should be programmable through touch panel HMI.
- iv) The vertical load should be controlled by electronic regulator and load cell feedback mechanism. It should be possible to do the rolling under user defined constant load control mode. The Z movement of the roller should be automatically controlled so as to keep the applied load on the job constant, during motorised X movement.
- v) The roller should move under load control mode so that the load applied on the work piece remains constant during the entire duration of rolling. There should be a display on HMI for the load as per the feedback from load cell. There should be a linear potentiometer which shall be calibrated for displaying the z-movement of the roller during rolling. The Z displacement should have at least 14 bit resolution.
- vi) There should be HMI controls, deflection recording and historic trending of the experiment data.
- vii) The roller surface should be hard (Hardness approximately 55-60 HRC) so that the surface of the work piece gets deformed and roller surface is not deformed during

rolling. **The roller contact material should be of a stainless alloy so that the surface of the stainless steel plate (job) is not contaminated.** There should be both side linear guiding arrangement to the roller and the roller should not be in cantilever. The guiding arrangement should be rigid enough so as to apply the user defined load onto the job.

- viii) The base on which the job is kept should be rigid so as to give adequate support during the rolling process under load. The stainless-steel job should be manually clamped on the base. The setup should be on a support (made of mild steel) of height similar to a working table and at a height convenient for working while standing.
- ix) Control panel should be supplied with entire internal wiring and external machine cabling and should be near to the setup.
- x) Necessary calibration certificate wherever applicable should be provided along with the supply.
- xi) Operation and maintenance manuals for the setup should be provided along with the setup.

Spares:

- i) Surface straining roller - 2 numbers
- ii) Pneumatic solenoid valve - 1 number
- iii) One each of all models of MCB, indication lamp bulbs and accessories of Electrical panel
- iv) Roller pins for roller support – 2 numbers

Acceptance criteria:

- i) The setup should be as per the technical drawing provided.
- ii) The setup should be able to apply load in the range of 500-1000 kg onto a plate of size 200 mm x 200 mm x 3 mm (thickness) at any location after clamping.
- iii) The setup should be able to roll a job of size 200 mm x 200 mm x 3 mm (thickness) at a constant load of 1000 kg in the motorised X-direction. After manual shifting of the roller in Y direction (precisely using a Vernier so as to maintain a overlap of approximately 0.1- 1.0 mm between the roll tracks) again motorised rolling at a constant load of 1000 kg in the X-direction should be done.

General terms and conditions:

- i) **All quotations should include a detailed technical drawing of the setup. Quotations received without a detailed technical drawing will be rejected.**
- ii) Companies submitting the quotations should provide details of earlier similar jobs successfully executed (purchase order copy of similar of higher value, contact details of purchaser). **Purchase order details should be of successfully executed jobs involving control and instrumentation.** This will be a criterion for technical evaluation and acceptance/rejection of quotation.
- iii) The quotations should include all the accessories, necessary for successful operation of the setup. The power requirements necessary for the setup should be included in the quotation. **Only the required power supply will be provided at the site of installation in BARC.**