

**Government of India  
Bhabha Atomic Research Centre  
Metallic Fuels Division**

Ref: MFD/SR/2022/01/P-22747

Date: 05-01-2022

To,

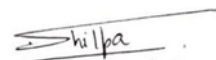
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Dear Sir,

We request you to submit your quotation for **“Design, Fabrication, supply, guarantee, installation, retrofitting and integration of screw down system for the existing two high reversible hot rolling mill as per Annexure-I.”**

Yours Faithfully,



(Shilpa Raj)  
Scientific Officer (C)

Encl.: Annexure-I (6 pages)

## ANNEXURE-I

### SCOPE:

“Design, Fabrication, supply, guarantee, installation, retrofitting and integration of screw down system for the existing two high reversible hot rolling mill as per Annexure-I.”

## 1. SCOPE OF SUPPLY

Fabrication, supply and retrofitting of a screw down system for two high reversible hot rolling mill in an existing system. The screw down system shall precisely regulate the upper roller movement in a position for changing the roller gap. During the movement the upper roller shall maintained a parallel configuration with the lower roller. The straightness of the upper lower during the movement shall be maintained under 1.2 mm tolerance level. This change is made during the pause between each rolling pass and hence the movement shall occur without the disengagement of the roller with the system. The system accuracy shall be tested with the two high reversible mill placed inside the BARC premises at SPF plant. The trials run shall be carried out on aluminium alloy sandwich plate.

The screw down mechanism control system shall be controlled by a programmable logic controller. And the control system of screw down system shall be fully integrated with the control system of the existing two high reversible roll mill drive. Therefore the fabrication of the system includes the retrofitting of the same in an existing machine located at SPF

### 1.1. COMPONENTS AND UNITS

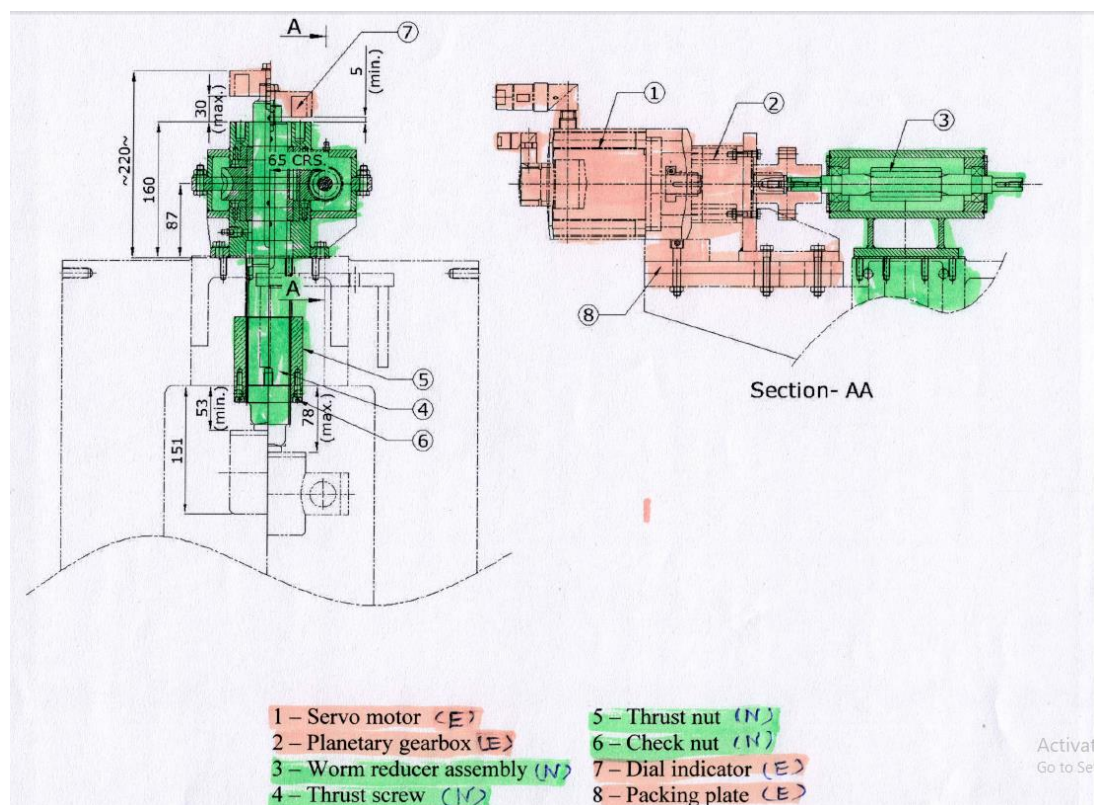


Figure 1: Components and units

E-Existing Item, N-New Supply

**1) Servo Motor (Existing)**

Power - 0.75kW, Speed - 2000rpm.

**2) Planetary Gearbox (Existing)**

Ratio 10: 1

**3) Worm Reducer Assembly**

Worm ratio - 20:1

Worm reducer assembly consist of steel fabricated housing. The worm shaft is mounted on roller bearings. Worm gear is mounted on keyed sleeve mounted on thrust screw.

**4) Thrust Screw**

Thrust screw is mounted inside the sleeve of worm reducer gearbox.

**5) Thrust Nut**

Thrust nut is housed inside the mill housing & screwed on the thrust screw.

**6) Check Nut**

Check nut is mounted on the thrust screw along with the thrust nut. The check nut is used to adjust the backlash between thrust screw and thrust nut. For setting the backlash the check nut is fully tightened with thrust nut, afterwards rotate the check nut reverse by  $1/8$  of  $360^\circ$  & lock it with the thrust nut using screws provided with the check nut. The backlash shall be adjusted whenever required during operation.

**7) Dial Indicator (Existing)**

Dial indicator is fitted at the top of thrust screw. Dial indicator has 200 divisions. Each division indicates up / down movement of thrust screw by 0.015mm.

**8) Packing Plate**

Packing plate is provided to align the worm shaft & planetary gearbox output shaft.

## **1.2. FLANGE COUPLING ALIGNMENT**

In order to minimize wear, vibration and coupling problem, it is a must that the accurate alignment between coupling hubs of connecting shafts is essentially achieved.

- Ensure correct gap between two coupling halves.
- Check angularity by checking clearance between coupling flanges at four outside positions. Difference between clearances measured at opposite positions should be less than 0.01mm. / 100mm of dia.

Next, check eccentricity by means of a dial indicator as shown in Figure 2. The reading should be within 0.10 mm. It is important to keep the dial indicator support rigid, otherwise the weight of dial indicator will cause deflection and consequently inaccurate readings will be obtained.

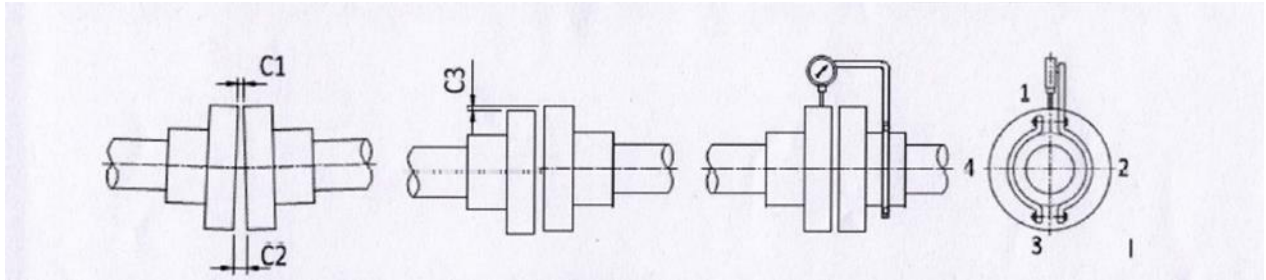


Figure 2

C1 & C2= 0.01mm/100mm Dia.      C3=0.05mm

Max. Residual Limit:

Up to 400rpm : 0.08mm (TIR)  
 400 to 1000rpm : 0.03 to 0.07mm (TIR)  
 1000 to 1500rpm : 0.03mm (TIR)  
 1500 to 3500rpm : 0.02mm (TIR)

### 1.3. LUBRICATION

GREASE LUBRICATION FOR WORM REDUCER GEARBOX & THRUST SCREW

Type: Portable Grease Lubrication

Grease level in the grease tank must be checked at every week. In case of lack of grease in tank, the grease must be added accordingly.

Grease types: EP2 or Equivalent

### 1.4. OPERATION DESCRIPTION

On operating the servo motor, the rotation transferred through planetary gearbox and worm reducer to the thrust screw to achieve up / down motion of thrust screw with respect to the mill pass line.

## 2. OTHER REQUIREMENTS:

1. All the points stated above under the title ANNEXURE-I should be addressed in the quotation
2. The indent includes the Onsite Supply of the product (as per the requirement by the indenting officer).
3. The workshop and all the equipment's used for the fabrication of the items in the indent shall be visited by the representative from BARC before the placement of the Work Order to the concerned vendor. If found unsuitable, the particular offer will not be accepted further for any evaluation.
4. Pre dispatched inspection of the fabricated jobs is required at the supplier site.
5. The items specified in the indent shall be offered in complete single package only and any offer in terms of part delivery will not be accepted.
6. The Quality control/Assurance for the fabrication of the hardware must be strictly adhered.

7. Bidder should send only a consolidated quote for fabrication of all the items mentioned in the tender. Only consolidated and no part bidding will be accepted for any further consideration.

### 3. DELIVERY DETAILS:

You shall send your offer in a sealed envelope through **Speed Post/Registered Post Only** indicating delivery period, price inclusive of taxes and other relevant information, to:

Shilpa Raj  
Scientific Officer (C)  
MFD/ NFG,  
RLG, Bhabha Atomic Research Centre  
Trombay, Mumbai- 400 0085

- Quotation shall reach us on **16/01/2022**, before **11:30 hrs.**
- Please send "REGRET" if not quoting.
- On top left corner of the envelope please indicate Quotation for **“Screw Down System For 2 High Reversible Hot Rolling Mill”**
- Overwriting, scratching etc. must be avoided in the quotation. Rewriting the whole figure shall carry out any alteration in the figure. The authorised person from the firm shall countersign such figure.
- **Please also indicate the GST applicable with the relevant HSN code**
- The scope also includes successful assembly of the spares in the existing machines at MFD, RLG. The contractor must also carry out necessary machining/welding as per requirement at user site for satisfactory assembly of the spares and trueness of the swaging machine.
- Any deviation from the above mentioned specifications must be approved by the user department before integrating with the machine.
- All the material used shall be of recent make & free from defects.
- The Work completion period mentioned in the quotation shall be strictly adhered to. If the contractor fails to complete the work before “work completion period” mentioned in the contract or secure extension work completion date before effecting work completion schedule of the supply against the contract, acceptance of such item by the purchaser will in no way prejudice the right of the purchaser to levy liquidated damage nor will it be entitled to the contractor for payment of statutory levies that comes into force after the expiry of the work completion date.
- Any delay on part of the contractor is liable to for penalty @ ½ % per week (max 10%) to be imposed to the contractor. Validity period of offer should be more than 30 days.
- Free and safe delivery shall be done within the 30 days of receiving the firm work order. Early delivery schedule will be given a consideration.
- Guarantee / Warranty of the material supplied for one year.
- For any Enquiry and clarifications on drawing you may contact the following persons Miss Shilpa Raj (25593929/02225593929).

### 4. TAXES:

- All applicable taxes should be clearly mentioned. Overwriting, scratching etc. must be avoided in the quotation. Rewriting the whole figure shall carry out any alteration in the figure. The authorized person from the firm shall countersign such figure.

## 5. INSPECTION AND TESTING:

The purchaser will have access at all reasonable times to all shops of the contractor and the sub-contractors where material is being fabricated and assembled and all reasonable facilities for such inspection shall be provided. Prior to the supply of system the manufacture has to get it approved from the purchaser.

## 6. PAYMENT TERMS:

Full payment will be made only after the satisfactory completion of Work.

- **Two copies of Invoice**, in the name of,  
Director,  
Nuclear Fuels Group,  
Bhabha Atomic Research Centre,  
Mumbai 400085.
- **Advance Stamp Receipt**
- **A copy of cancelled cheque**
- **Company's GSTIN No. & PAN No. should be furnished along with the bill.**
- **Company's copy of Sales Tax /Service Tax Registration Certificate has also to be furnished along with the bill.**
- **Company's copy of GST registration/ Certificate to the effect of GST payment has also to be furnished along with the bill.**
- **ITR Undertaking with acknowledgement for last two years.**
- **Option form for payment through ECS/RTGS with pre-stamped receipt.**
- **Guarantee / Warranty of the material supplied should be for one year.**
- Note: The Tax Invoice should specifically indicate the following:
  - GSTN
  - PAN
  - Location of Supply
  - Tax Component to be separately indicated in the invoice
  - Undertaking that the GST has been promptly deposited with the authorities

Please note that, income tax @ 2% and GST TDS@2%, will be deducted from your bill.

**No part payment or advance payment will be made.**

You may contact Miss Shilpa Raj (25593929) for any clarification.

## 7. DELAY CLAUSE:

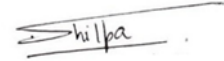
Any delay which is attributable to the contractor is liable for penalty @0.5% per week (max. 10%) to be imposed on the contractor.

## 8. 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. "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. 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 medial like press, radio, T.V. or Internet without the prior written approval of BARC.

**“Since the goods are to be supplied against the work order meant for research purpose of research organization under DAE, the necessary GST will be exempted to the party” & necessary exemption certificate will be supplied.**

A handwritten signature in black ink, appearing to read 'Shilpa', with a horizontal line drawn through it.

Shilpa Raj  
Scientific officer (C)  
(On behalf of the President of India)