



राष्ट्रीय उन्नत विनिर्माण प्रौद्योगिकी संस्थान  
(पूर्व नेशनल इंस्टीट्यूट ऑफ फाउंड्री एंड फोर्ज टेक्नोलॉजी)  
हटिया, राँची - 834 003 (झारखण्ड)

**National Institute of Advanced Manufacturing Technology**  
(Formerly National Institute of Foundry and Forge Technology)  
Hatia, Ranchi – 834 003 (Jharkhand)

Ref. No.: NIAMT/S&P/136/2022-23

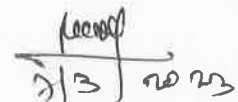
Dated: 07.03.2023

**Revised Technical Specifications after pre-bid meeting for purchase of Cold Rolling Mill-  
(Fabricated).**

Prebid meeting held on 02.03.2023 the following modifications have been made in technical specification given in the Notice Inviting Tender for purchase of Cold Rolling Mill (Fabricated) vide reference no. **NIAMT/S&P/136/2022-23**, dated **20.02.2023**, with the approval of Competitive Authority.

| Particulars   | Technical Specifications Before Pre-Bid Meeting | Revised Technical Specifications After Pre-Bid Meeting |
|---|---|--|
| <b>1. Main requirement</b>  |   |  |
| <b>Roll peripheral speed</b>  | 3-30 MPM (Variable)                             | 3 (Min)- 10 -30 (Max) MPM (Variable)                   |
| <b>2. Rolling mill should be consist of the following major parts/sub-assemblies/accessories:</b> |   |  |
| <b>Roll: - Working Roll Size</b>  | 200mm Barrel Length and 125 mm diameter         | 200 – 300 mm Barrel Length and 100 -125 mm diameter    |
| <b>Roll: - Back up Roll Size</b>  | 300 diameter and 190 mm barrel length           | 300 diameter and 190 -300 mm barrel length             |

**Note: - The final specification for submission of bid attached in Annexure- 1**

  
**Asst. Registrar (S&P)**



## राष्ट्रीय उन्नत विनिर्माण प्रौद्योगिकी संस्थान

(पूर्व नेशनल इंस्टीट्यूट ऑफ फाउंड्री एंड फोर्ज टेक्नोलॉजी)

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Annexure - 1

### Final specification after Prebid meeting for purchase of Cold Rolling Mill (Fabricated).

#### 1. Main requirement:

|                       |  |
|-----------------------|--|
| Rolling mill type     | 4HI COLD ROLLING MILL  |
| Material to be rolled | Ferrous alloy (Iron, steel), Non-ferrous (Al, Mg, Cu alloy and Ti alloy) |
| Material strength     | 800 MPa (at ambient temperature)   |
| Input width           | 150 mm max   |
| Input thickness       | 8 mm (Max)   |
| Output thickness      | 0.5 mm (in multiple passes)  |
| Reduction per pass    | Min. 15% reduction per pass  |
| Roll peripheral speed | 3 (Min)- 10 -30 (Max) MPM (Variable)                                     |
| Roll separating force | 150 T  |

#### 2. Rolling mill should be consist of the following major parts/sub-assemblies/accessories:

|                     |   |
|---------------------|---|
| Rolling mill stands | To accommodate rolls with bearing supporting chocks, either in 4-high configuration. Stand Section dimension: 135 mm and width 220  |
| Chokes              | Made from EN-8 machined on CNC machine for precision fitting Allowances   |
| Rolls               | <b>Working rolls:</b><br>Size: 200 – 300 mm Barrel Length and 100 -125 mm diameter<br>Material: D2 or better<br>Hardness: 60/62 HRC at barrel or better<br>Surface-finish: 0.5 microns CLA or better<br><b>Back up rolls:</b><br>Roll size: 300 diameter and 190 -300 mm barrel length<br>Material: D3, Tool steel or better<br>Hardness: 55 HRC or better<br>Surface-finish: 0.5 microns CLA or better |
| Reduction Gear Box  | Self-made or Reputed company made helical gear box<br>Gear material: 20Mn5Cr material or better<br>Input shaft diameter: 60 mm or better<br>Output shaft diameter: 80 mm or better  |
| Pinion Gear Box     | Self-made or reputed company made Helical Gear Harden Ground<br>Gear material: 20Mn5Cr material or better<br>Input and output shaft diameter: 80mm  |
| Driven              | Work Roll Drive   |

|                        |   |
|------------------------|---|
| <b>Electric Motors</b> | Main Rolling motor: 20HP AC IE2 950 RPM (Reputed company made like: ABB, Crompton, Kirloskar, Siemens, Bharat Bijlee, Hevels etc.)  |
| <b>Universal Joint</b> | Reputed company made<br>Cardan Shaft, cross holder, coupling for milling<br>Interface with pinion and gear box  |
| <b>Bearing</b>         | Make: SKF/FAG/ZKL/NBC/GEM<br>Main roll bearing: Double row spherical roller, 1set each and 8 nos for both rolls<br>Deflector bearing: Double row ball bearing<br>For screw down: Tapper roller and thrust bearing<br>Pinion gear box: Taper roller bearing  |
| <b>Guide plate</b>     | Attached with rolling mill stands for easy material pass  |
| <b>Screw Down</b>      | Manual with high Reduction ratio to get least count of roll movement to 0.01mm<br>2 nos worm Gear and shaft made of 20Mn5Cr material or better<br>Planetary gear boxes made of EN8 material or better<br>Dial indicator   |
| <b>Control panel</b>   | A separate operating desk shall be provided near the mill for operator this will be incorporated with all the functions at one single station.<br>Drive Make (Reputed company made like: YASKAWA, ABB, Crompton, Kirloskar, Siemens, Hevels etc.))<br>VFD (VARIABLE FREQUENCY DRIVE) High end 25 HP<br>Included software for tension control, synchronization with 20 HP motor<br><b>Feature:</b><br>Incorporate with PLC for speed control, Reverse – Forward and automatic<br>Master brake resistor and instant stop for any reason,<br>Main control panel with all the function on/off, reverse/forward, speed variation, roll movement, upward – downward and emergency stop switch |

**3. A detailed design of various parts/sub-assemblies/accessories need to be provided by the vendor.**

- Rolling mill stand should be complete with appropriate mill housing, roll neck chocks, roll drafting arrangement, roll neck bearing assembly etc.
- Mill housing should be made of appropriate materials to with stand rolling stresses.
- All bearing should be antifriction bearing with grease lubrication.
- Top roll assembly should have the facility to traverse up/down in the mill using down screw.
- Roll drive motor should have variable speed controller.
- Roll drive motor should have in built oil lubrication.

**4. Requirement on operating control station**

The operator control station should have the following controls and indication:

- Motor start/Stop push buttons
- Rolling speed increase/decrease push buttons
- Roll gap increase/decrease push buttons
- Emergency Switch
- Motor speed indicator
- Rolling load indicator

## **5. Spares and Consumables**

The vendor should provide a list of spares and consumable which might be needed for smooth operation of the rolling mill. The price quoted for these items will not be taken into account for the price consideration.

## **6. Warranty**

Comprehensive warranty for one year and additional two provides in optional.

## **7. Training**

Intensive training of NIAMT personal need to be provided by the vendor during acceptance test at NIAMT. A tentative time frame of installation, commissioning and training programme at NIAMT premises should be furnished.

## **8. NIAMT scope of supply**

- i. NIAMT will provide space with a covered shed along with power connection of required capacity.
- ii. Vendors scope of work
- iii. Unpacking, placement, installation and commissioning of the equipment.
- iv. Foundation and other civil work for erection and commissioning. Detailed drawings related to the foundation, erection, if any, are to be provided by the vendor.
- v. Supplier has to furnish pre-installment requirements along with necessary GA drawings well before supply, preferably along with the order acceptance.
- vi. Complete documentation/manuals providing operation, maintenance and troubleshooting of the main machine and all bought – out component parts as well as the accessories such as data acquisition system, controllers, measuring system etc. should be furnished. All documents are to be supplied in English.
- vii. Vendor needs to provide the foundation drawing.

## **9. Other General Requirements**

- i. The vendor should supply the list of organizations where they have supplied such equipment. In addition, they have to provide at least 2 customer satisfaction report along with order copy for equipment supplied (Preferably government organization in India).
- ii. All mechanical and electrical components should be delivered by OEM only and not by other parties.
- iii. After successful installation of equipment, vendor should provide test run of the supplied/installed equipment for cross checking of the technical parameters and acceptance of the equipment.

  
Asst. Registrar (S&P)