" व्हील हेड ट्रैवर्स प्रकार के साथ सीएनसी हैवी ड्यूटी रोल ग्राइंडिंग मशीन का निर्माण, असेंबलिंग और इंस्टॉलेशन "

के लिए

(सीपीपीपी के ई-प्रोक्योरमेंट पोर्टल के माध्यम से
ऑनलाइन बोली आमंत्रित हैं)

निविदा संख्या: IIT(BHU)/COE/MTD/2025-26/TD/006, **दिनांक:** 25.02.2026

जमा करने की अंतिम तिथि: 21.03.2026, (03:00 PM)
निविदा खुलने की तिथि: 23.03.2026, (03:00 PM)

मशीन टूल्स डिजाइन पर उत्कृष्टता केंद्र
भारतीय प्रौद्योगिकी संस्थान
(काशी हिंदू विश्वविद्यालय) वाराणसी
वाराणसी - 221005, उत्तर प्रदेश, भारत

ई-मेल: **coordinator.coemtd@itbhu.ac.in**

Online Bids

(Through E-Procurement Portal of CPPP)

are invited

for

Fabrication, Assembling and Installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type

Tender No.: IIT(BHU)/COE/MTD/2025-26/TD/006, **Dated: 25.02.2026**

Last Date of Submission: 21.03.2026, (03:00 PM)
Tender Opening Date: 23.03.2026, (03:00 PM)

Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU), Varanasi
Varanasi - 221005, Uttar Pradesh, India

E-mail: coordinator.coemtd@itbhu.ac.in

भारतीय प्रौद्योगिकी संस्थान (काशी हिंदू विश्वविद्यालय), वाराणसी - 221005

मशीन टूल्स डिजाइन पर उत्कृष्टता केंद्र,

भारतीय प्रौद्योगिकी संस्थान (बीएचयू) वाराणसी,वाराणसी- 221005, उत्तर प्रदेश, भारत

विज्ञापित निविदा जांच दस्तावेज
(निविदा आमंत्रण सूचना)

आईआईटी (बीएचयू) वाराणसी निम्नलिखित वस्तुओं के लिए निर्माताओं (या उनके 'अधिकृत' डीलरों जिन्हें इस निविदा आमंत्रण सूचना के प्रत्युत्तर में कोटेशन देने के लिए अधिकृत किया गया है) से ऑनलाइन निविदाएं आमंत्रित करता है।

क्रम संख्या	निविदा संख्या एवं अंतिम तिथि	वस्तु का विशिष्टता एवं मात्रा	जमा की जाने वाली अग्रिम धनराशि
1.	**निविदा संख्या:** IIT(BHU)/COE/MTD/2025-26/TD/006, **दिनांक:** 25.02.2026 **निविदा जमा करने की अंतिम तिथि: 21.03.2026, (03:00 PM)**	**सीएनसी हैवी ड्यूटी रोल ग्राइंडिंग मशीन का निर्माण, असेंबलिंग और इंस्टॉलेशन व्हील हेड ट्रैवर्स प्रकार के साथ** **मात्रा: 01** **अनुलग्नक-I के अनुसार विशिष्टताएँ**	**रु. 30,00,000/**

निविदा दस्तावेज़ केंद्रीय सार्वजनिक खरीद पोर्टल **(Central Public Procurement Portal)** **http://eprocure.gov.in/eprocure/app** से डाउनलोड किए जा सकते हैं।

निविदाकर्ता सीपीपी पोर्टल (CPP Portal) पर निविदा दस्तावेज़ों को एक्सेस कर सकते हैं। उपयुक्त निविदा का चयन करें, सभी आवश्यक जानकारी भरें और पूर्ण रूप से भरे हुए निविदा दस्तावेज़ को निर्धारित कार्यक्रमानुसार उक्त वेबसाइट **http://eprocure.gov.in/eprocure/app** पर ऑनलाइन जमा करें।

वे इच्छुक निविदाकर्ता जो ई-प्रोक्योरमेंट पोर्टल पर अभी तक पंजीकृत/नामांकित नहीं हैं, उन्हें वेबसाइट **http://eprocure.gov.in/eprocure/app** के माध्यम से भाग लेने से पूर्व पंजीकरण/नामांकन कर लेना चाहिए। पोर्टल पर नामांकन निःशुल्क है।

निविदाकर्ताओं को सलाह दी जाती है कि वे "ऑनलाइन निविदा जमा करने के लिए दिशा-निर्देश" अनुभाग में दिए गए निर्देशों को ध्यानपूर्वक पढ़ें।

कोई भी मैनुअल (हस्तलिखित या ऑफ़लाइन) निविदा स्वीकार नहीं की जाएगी। सभी कोटेशन (तकनीकी एवं वित्तीय दोनों) ई-प्रोक्योरमेंट पोर्टल के माध्यम से ही जमा की जानी चाहिए।

निविदा **समन्वयक, मशीन टूल्स डिज़ाइन पर उत्कृष्टता केंद्र, भारतीय प्रौद्योगिकी संस्थान (बीएचयू), वाराणसी - 221005**, उत्तर प्रदेश, भारत के नाम संबोधित होनी चाहिए और इसे महत्वपूर्ण तिथियों की तालिका (Critical Date Sheet) में उल्लिखित अंतिम तिथि से पहले या अंतिम तिथि तक ऑनलाइन जमा किया जाना चाहिए।

संस्थान ऑनलाइन निविदाएं जमा करने में होने वाली किसी भी देरी के लिए उत्तरदायी नहीं होगा। संस्थान को किसी भी निविदा को स्वीकार या अस्वीकार करने तथा बिना कोई कारण बताए निविदा को रद्द करने का पूर्ण अधिकार प्राप्त है। इस संबंध में किसी भी प्रकार का पत्राचार स्वीकार नहीं किया जाएगा।

समन्वयक
मशीन टूल्स डिज़ाइन पर उत्कृष्टता केंद्र
आईआईटी (बीएचयू) वाराणसी
वाराणसी - 221005, उत्तर प्रदेश, भारत

INDIAN INSTITUTE OF TECHNOLOGY (BHU) VARANASI
Varanasi - 221005, Uttar Pradesh, India

Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU) Varanasi, Varanasi - 221005, Uttar Pradesh, India

Advertised Tender Enquiry Documents

(NOTICE INVITING TENDER)

IIT (BHU) Varanasi invites online tender from manufacturers (or their 'authorized' dealers that they have been authorized to quote in response to this NIT) of the following items are invited:

S. No.	Tender No. and Last Date	Specifications & Quantity of the item	Earnest Money Deposit to be submitted
1.	**Tender No.:** IIT(BHU)/COE/MTD/2025-26/TD/006, Dated: 25.02.2026 **Last Date of Bid Submission: 21.03.2026, (03:00 PM)**	**Fabrication, Assembling and Installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type** **Quantity:** 01 Unit **Specifications as per Annexure-I**	**Rs. 30,00,000/**

Tender Documents may be downloaded from Central Public Procurement Portal https://eprocure.gov.in/eprocure/app .Tenderers can access tender documents on the CPP Portal. Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://eprocure.gov.in/eprocure/app as per the schedule given in the next page.

Aspiring Bidders who have not enrolled/ registered in e-procurement should enroll/ register before participating through the website https://eprocure.gov.in/eprocure/app. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at 'Instructions for online Bid Submission'.

No manual bids will be accepted. All quotations (both Technical and Financial should be submitted in the e-procurement portal).

The tender should be addressed to **Coordinator, Centre of Excellence on Machine Tools Design, Indian Institute of Technology (BHU), Varanasi - 221005, Uttar Pradesh, India** and should be submitted online on or before the last Date of Submission as mentioned in critical data sheet.

The Institute shall not be responsible for any delay in submitting online Bids. The Institute reserves the right to accept or reject any bid, cancel the Tender without assigning any reason thereof. No correspondence in this regard will be entertained.

Coordinator
Centre of Excellence on Machine Tools Design,
IIT(BHU), Varanasi
Varanasi - 221005, Uttar Pradesh, India

मशीन टूल्स डिजाइन पर उत्कृष्टता केंद्र
भारतीय प्रौद्योगिकी संस्थान (बीएचयू) वाराणसी, वाराणसी- 221005, उत्तर प्रदेश, भारत

निविदा दस्तावेज

सीएनसी हैवी ड्यूटी रोल ग्राइंडिंग मशीन का निर्माण, असेंबलिंग और इंस्टॉलेशन व्हील हेड ट्रैवर्स प्रकार के साथ

महत्वपूर्ण डाटा शीट

संगठन का नाम	**भारतीय प्रौद्योगिकी संस्थान (बीएचयू) वाराणसी**
टेंडर	**खुली निविदा**
निविदा प्रकार / अनुबंध का प्रकार (कार्य / आपूर्ति / नीलामी / सेवा / क्रय / पैनल गठन / विक्रय)	**आपूर्ति**
मूल निविदा जारी / प्रकाशित करने की तिथि	**27.02.2026 (05:00 PM)**
दस्तावेज़ डाउनलोड प्रारंभ तिथि	**27.02.2026 (05:00 PM)**
पूर्व-बोली बैठक की तिथि (***यदि कोई प्रश्न हों तो उन्हें विचारार्थ पूर्व-बोली बैठक की तिथि से पहले*** **coordinator.coemtd@itbhu.ac.in** ***पर ईमेल द्वारा भेजना अनिवार्य है) ।***	**09.03.2026 at 10:00 AM**
संशोधन (यदि कोई हो)	**---**
निविदा अपलोड करने की अंतिम तिथि और समय	**21.03.2026, (03:00 PM)**
तकनीकी निविदा खोलने की तिथि और समय	**23.03.2026, (03:00 PM)**
निविदा प्रोसेसिंग शुल्क (जीएसटी सहित, यदि लागू हो)	**रु. 23,600/-** (निविदा प्रसंस्करण शुल्क के लिए) (**निविदा प्रसंस्करण शुल्क / ईएमडी**, निम्नलिखित विवरण के अनुसार आरटीजीएस/एनईएफटी के माध्यम से भुगतान किया जाना है:) खाते का नाम: रजिस्ट्रार, आईआईटी (बीएचयू) बैंक का नाम: भारतीय स्टेट बैंक शाखा का नाम: आईटी, बी.एच.यू., वाराणसी खाता संख्या: 32778803937 आईएफएससी: SBIN0011445 **भुगतान का प्रमाण तकनीकी बोली के साथ संलग्न चाहिए।**
जमानत राशि (ईएमडी)	**रु. 30,00,000/-**
कवर की संख्या (1/2/3/4)	**02**
बोली की वैधता अवधि (दिनों में)	**180** दिन (निविदा खुलने की अंतिम तिथि से)
पत्राचार हेतु पता	**समन्वयक, मशीन टूल्स डिज़ाइन पर उत्कृष्टता केंद्र** **आईआईटी (बीएचयू), वाराणसी** **वाराणसी - 221005, उत्तर प्रदेश, भारत**
ई-मेल पता	**coordinator.coemtd@itbhu.ac.in**

INDIAN INSTITUTE OF TECHNOLOGY (BHU) VARANASI
Varanasi - 221005, Uttar Pradesh, India

Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU) Varanasi, Varanasi - 221005, Uttar Pradesh, India

TENDER DOCUMENT FOR
Fabrication, Assembling and Installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type

CRITICAL DATA SHEET

Name of Organization	**Indian Institute of Technology (BHU) Varanasi**
Tender	**Open Tender**
Type/ Form of Contract (Work/ Supply/ Auction/ Service/ Buy/ Empanelment/ Sell)	**Supply**
Date of Issue/Publishing Original Tender	**27.02.2026 (05:00 PM)**
Document Download Start Date	**27.02.2026 (05:00 PM)**
Pre-Bid Meeting Date* (*Queries, if any, to be discussed, must be emailed to coordinator.coemtd@itbhu.ac.in, before the date of Pre-Bid meeting for consideration.)	**09.03.2026 at 10:00 AM**
Corrigendum, if any	**---**
Last Date and Time for Uploading of Bids	**21.03.2026, (03:00 PM)**
Date and Time of Opening of Technical Bids	**23.03.2026, (03:00 PM)**
Tender Processing Fee (including GST as applicable)	**Rs. 23,600/- (For Tender Processing Fee)** (**Tender Processing Fee/EMD,** to be paid through RTGS/NEFT as per the following details:) Name of Account: Registrar, IIT(BHU) Name of the Bank: State Bank of India Name of Branch: IT, BHU, Varanasi Account No.: 32778803937 IFSC: SBIN0011445 **The proof of payment must be enclosed with Technical Bid.**
EMD (Earnest Money Deposit)	**Rs. 30,00,000/**
No. of Covers (1/2/3/4)	**02**
Bid Validity Days	**180 Days** (From last date of opening of the tender)
Address for Communication	**Coordinator** **Centre of Excellence on Machine Tools Design** **IIT(BHU), Varanasi** **Varanasi - 221005, Uttar Pradesh, India**
E-mail Address	**coordinator.coemtd@itbhu.ac.in**

INDIAN INSTITUTE OF TECHNOLOGY (BHU) VARANASI
Varanasi - 221005, Uttar Pradesh, India

Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU) Varanasi, Varanasi - 221005, Uttar Pradesh, India

TENDER DOCUMENT FOR
Fabrication, Assembling and Installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type

INVITATION FOR BIDS

Online bids are invited from eligible bidders for the following:

S. No.	Tender No. and Last Date	Specifications & Quantity of the item	Earnest Money Deposit to be submitted
1.	**Tender No.:** IIT(BHU)/COE/MTD/2025-26/TD/006, Dated: 25.02.2026 **Last Date of Bid Submission: 21.03.2026, (03:00 PM)**	**Fabrication, Assembling and Installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type** **Quantity: 01 Unit** **Specifications as per Annexure-I**	**Rs. 30,00,000/-**

1. Interested eligible Bidders may obtain further information from IIT (BHU), Varanasi website: www.iitbhu.ac.in/iitnotifications/purchase_enquiries/ or from Central Public Procurement Portal (CPPP) https://eprocure.gov.in/eprocure/app .

2. Intending bidders are advised to visit IIT (BHU), website www.iitbhu.ac.in/iitnotifications/purchase_enquiries/ and CPPP website https://eprocure.gov.in/eprocure/app regularly till closing date of BID submission of tender for any corrigendum/ addendum/ amendment.

3. Tender Processing Fee is to be deposited electronically by RTGS/NEFT in the account of Registrar, IIT (BHU) in the Bank details mentioned above. Bidders are required to submit the scan copy of payment receipt details of Tender processing fees payment at the time of Bid Preparation.

4. This Tender Document contains the following:
    1. Instructions for Online Bid Submission
    2. Instruction to Bidders
    3. General conditions of contract (GCC)
    4. Special Condition of Contracts
    5. Checklist for Bid/Tender submission
    6. Declaration Certificate
    7. Technical specifications for the complete project (Annexure 1)
    8. Compliance Sheet

SECTION 1: INSTRUCTION FOR ONLINE BID SUBMISSION

As per the directives of Department of Expenditure, this tender document has been published on the Central Public Procurement Portal (http://eprocure.gov.in/eprocure/app). The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More useful information for submitting online bids on the CPP Portal may be obtained at: http://eprocure.gov.in/eprocure/app.

1. Registration

1. Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (http://eprocure.gov.in/eprocure/app) by clicking on the link "Click here to Enroll". Enrolment on the CPP Portal is free of charge.

2. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.

3. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.

4. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g., Sify/ TCS/ nCode/ eMudhra, etc.), with their profile.

5. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.

6. Bidder then logs in to the site through the secured log-in by entering their user ID/ password and the password of the DSC/ eToken.

2. Searching for Tender Documents

1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.

2. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.

3. The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

3. Preparation of Bids

1. Bidder should take into account any corrigendum published on the tender document before submitting their bids.

2. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content

of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

3. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF formats. Bid documents may be scanned with 100 dpi with black and white option.

4. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g., PAN card copy, annual reports, auditor certificates, etc.) has been provided to the bidders. Bidders can use "My Space" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

4. Submission of Bids

1. Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e., on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

2. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.

3. Bidder has to select the payment option as "on-line" to pay the tender processing fee as applicable and enter details of the instrument. Whenever Tender processing fees is sought, bidders need to pay the tender processing fee on-line through RTGS.

4. A standard BoQ format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BoQ file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

5. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

6. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128-bit encryption technology. Data storage encryption of sensitive fields is done.

7. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

8. Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

9. Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.

5. Assistance to Bidders

1. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

2. Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

6. General Instructions to the Bidders

1. The tenders will be received online through portal https://eprocure.gov.in/eprocure/app. In the Technical Bids, the bidders are required to upload all the documents in **.pdf format**.

2. Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/ e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through https://eprocure.gov.in/eprocure/app. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://eprocure.gov.in/eprocure/app under the link "Information about DSC".

3. Tenderer are advised to follow the instructions provided in the 'Instructions to the Tenderer for the e-submission of the bids online through the Central Public Procurement Portal for e Procurement at https://eprocure.gov.in/eprocure/app .

SECTION 2: INSTRUCTIONS TO BIDDERS

A. Introduction

1. Scope of Work

IIT(BHU), Varanasi invites online bids from the manufacturers/suppliers on behalf of The Director, IIT (BHU) for supply of Equipment as per the technical specifications given in Annexure-I and as per terms and conditions of this tender document. Suppliers should assure complete commissioning of the system including installation and application training for efficient utilization of **Fabrication, Assembling and Installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type.**

2. Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its bid, and "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

B. The Bidding Documents

3. Tender Processing Fees

The Tender Processing fees (**Rs. 23,600/-**) should be submitted ONLINE as per the details mentioned above. Further, the proof of payment must be uploaded with Technical Bid. The exemption will be applicable as per Govt. of India norms.

4. Content of Bidding Documents

4.1 The goods required, bidding procedures and contract terms are prescribed in the bidding documents. In addition to Invitation of Bids, the bidding documents include:

(a) Instructions for Online Bid Submission
(b) Instruction to Bidders (ITB)
(c) General Conditions of Contract (GCC)
(d) Special Conditions of Contract (SCC)
(e) Schedule of Requirements
(f) Tender Form (Technical Bid)
(g) Tender Form (Financial Bid)

4.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its bid.

5. Amendment of Bidding Documents

5.1 At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by amendment.

5.2 All prospective bidders who have received the bidding documents will be notified of the amendment in writing, which will be binding on them.

5.3 In order to allow prospective bidders reasonable time within which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. Preparation of Bids

6. Language of Bid

The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in English language.

7. Documents Comprising the Bid

7.1 Techno commercial un-priced bid and priced bid: The bids are to be submitted in two parts i.e.

Techno commercial un-priced bid and priced bid.

(a) Techno commercial un-priced bid along with Bid Securing Declaration Form (EMD) as shown in invitation to bids shall be submitted through CPP Portal. If the proof of Bid Securing Declaration Form as EMD is not received along with the technical bid, such bid will not be considered. The samples (if required) of all the items shown in the schedule of requirements of each tender should also accompany the techno commercial un-priced bid in a separate cover.

(b) Priced bid.

7.2 Techno commercial un-priced bid: The techno commercial un-priced bid prepared by the bidder shall be provided in the following Model Response Format:

Model Response Format

(a) Standing of each Bidder Manufacturer/Dealer and past experience in supply of the material (certificates to be enclosed), proof of manufacturing Unit/Dealership along with all the documents required for proving the credentials regarding the fulfilment of essential pre-bid criteria.
(b) List of other Govt. Departments, Public Sector units and Central Autonomous Bodies for which the bidder is supplying material or having the similar type of contracts and a certificate regarding the satisfactory performance of the contract (In the Annexure III format).
(c) Copy of the audited balance sheet of the vendor for the previous financial year indicating the turnover in supply of the relevant materials/service.
(d) Details of Permanent Account Number and latest income tax clearance certificate.
(e) Details of GST No. along with a copy of certificate to be attached.
(f) Submission of samples if required, for all items indicated in the schedule of requirements. The make of items proposed to be supplied should be indicated in the format of the schedule of requirements and submitted along with the techno commercial un-priced bid without indicating the pricing components.
(g) Willingness to execute all orders which are placed to meet emergency requirement on priority basis. The Bidder shall note that standards for workmanship, material and equipment, and references to brand names designated by the Purchaser in the schedule of requirements are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in his bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

7.3 Price Bid: The price bid shall comprise the techno commercial bid along with the price component indicating the Unit prices for each and every item indicated in schedule of requirements (Annexure 1).

(i) The prices quoted must be net per unit as shown in the Schedule and must include all charges for delivery at F.O.R. IIT (BHU) Varanasi/HMT MTL Ajmer and should be mentioned clearly.
(ii) The rate must be stated for each item separately both in words and figures. If there is a discrepancy between the price quoted in word and figures the higher price quoted will be treated as final.
(iii) Quoted prices should be firm and inclusive of taxes/duties, freight and forwarding charges, handling charges, loading and unloading charges, and insurance charges etc. However, the prices must be reflected clearly in BoQ format by mentioning basic rate, GST, Freight charges, Any other Taxes/Duties/Levies and exemptions thereon as applicable to IITs.
(iv) The prices once accepted by the Institute shall remain valid till the successful execution of the order and till supplies is fully effected and accepted or 12 months from the date of acceptance of tender whichever is later. The Institute shall not entertain any increase in the rates during the period. However, in the event there is a reduction or increase in Government levy/duties/taxes.
(v) during the period of execution of the order, the rates shall be suitably adjusted with effect from the date notifying the said reduction or increase in the Government levy/taxes/duty, if any.

8. Bid Prices

8.1 The Bidder shall indicate on the Schedule of requirements (BoQ), the unit prices of the goods it proposes to supply under the Contract and enclose it with the priced bid.

8.2 Prices indicated on the Price Schedule shall be entered separately in the following manner:

(i) The prices quoted must be net per unit as shown in the schedule of requirements and must include all charges for delivery at the designated stores.

(ii) Any Indian duties, GST and other taxes which will be payable on the goods, if this Contract is awarded.

8.3 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account.

9. Bid Currencies

Prices shall be quoted in Indian Rupees Only.

10. Period of Validity of Bids

10.1 Bids shall remain valid for **180** days after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

10.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. A Bidder granting the request will not be required nor permitted to modify the bid.

10.3 Bid evaluation will be based on the bid prices without taking into consideration the above modifications.

D. Submission of Bids

11. The tender has to be submitted **ONLINE** before the due date. The offers received after the due date and time will not be considered. **No manual bids will be considered**.

12. Deadline for Submission of Bids

12.1 Bids must be received by the Purchaser **ONLINE** not later than the time and date specified in the Invitation for Bids.

12.2 The Purchaser may, at his discretion, extend this deadline for submission of bids by amending the bid documents in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

13. Late/Delayed Bids

The offers received after the due date and time will not be considered.

14. Modifications and Withdrawal of Bids

14.1 The Bidder may modify or withdraw its bid after the ONLINE bid's submission, as per the provision of CPP Portal.

14.2 No bid may be modified subsequent to the deadline for submission of bids. No documents will be accepted in support of essential pre-bid criteria after the last date of submission of bids.

14.3 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiry of the period of bid validity specified by the Bidder on the bid form.

E. Bid Opening and Evaluation of Bids

15. Opening of Techno commercial un-priced Bids

The purchaser will open all techno commercial un-priced bids in the first instance.

16. Clarification of Bids

16.1 During evaluation of the bids, the purchaser may, at its discretion, ask the Bidder for clarification of its bid. The request for clarification and the response shall be in writing and no change in price or substance of the bid shall be sought, offered or permitted.

16.2 No Bidder shall contact the purchaser on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Institute, it should be done in writing.

16.3 Any effort by a Bidder to influence the purchaser in its decisions on bid evaluation, bid comparison or contract award decisions may result in rejection of the Bidder's bid.

17. Evaluation of Techno commercial un-priced Bid

17.1 Prior to the detailed technical evaluation, the purchaser will determine the substantial responsiveness of each bid. A substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviations and meets all the essential pre-bid criteria. If any bidder does not meet the essential pre-bid criteria as laid down in the Instruction to Bidders, then his bid will be summarily rejected. No documents will be accepted in support of essential pre-bid criteria after the last date of submission of bids.

17.2 The purchaser will reject a bid determined as not substantially responsive.

17.3 The bidders may be called for discussion and may be allowed to modify their technical bids to suit the organization's requirement. The idea is to arrive at a threshold level of acceptability above which all the bidders shall be treated on par. Those whose technical specifications do not reach the threshold level of acceptability shall be rejected as technically unsuitable. The price bids of the bidders who finally emerge as technically acceptable shall be opened, evaluated and the contract awarded to the lowest evaluated bidder.

17.4 The bidders short-listed by the purchaser based on meeting the essential pre-bid criteria and detailed evaluation regarding satisfying the technical criteria laid down in this tender document may be called for detailed discussions with a team selected for the purpose, at a specified date, time and venue, if needed.

18. Opening of Priced Bids

18.1 The Purchaser will open the Priced Bids of only those bidders who meet the essential pre-bid criteria and whose techno commercial un-priced bids have been found to be substantially responsive.

18.2 The priced Bids of the technically qualified bidders shall be opened by the tender committee.

19. Evaluation and Comparison of priced Bids

19.1 Arithmetical errors will be rectified on the following basis: If there is a discrepancy between words and figures, whichever is the higher of the two shall be taken as bid price. If the Vendor does not accept the correction of errors, its bid will be rejected

19.2 Bidders shall state their bid price for the payment schedule outlined in the Clause 14 of General Conditions of Contract. Bids will be evaluated on the basis of this base price. Bidders are, however, permitted to state an alternative payment schedule and indicate the reduction in bid price they wish to offer for such alternative payment schedule. The purchaser may consider the alternative payment schedule offered by the selected Bidder but it may not be binding on the purchaser.

19.3 The purchaser, at its option may ask some more bidders to match the rates of the lowest bidder for creating parallel suppliers.

19.4 The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: Indian Rupees

19.5 The source of exchange rate shall be: Reserve Bank of India/Any other authentic source.

19.6 The date for the exchange rate shall be: **Last day for submission of Bids**.

20. Purchasers right to accept any bid and to reject any bid or all bids

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Purchaser's action.

21. Award Criteria

a. IIT (BHU) shall award the contract to the technically qualified eligible BIDDER whose bid has been determined as the lowest evaluated commercial bid.

b. If more than one BIDDER happens to quote the same lowest price, IIT(BHU) Varanasi reserves the right to award the contract to more than one BIDDER or any BIDDER.

22. Notification of Award

Prior to the expiration of the period validity, the purchaser will notify the successful Bidder in writing by letter or by fax, to be confirmed in writing by speed post or hand delivered letter, that its bid has been accepted.

23. Factors Affecting the Award of Supply

23.1 The bidder should have its own Contract support facilities. The support facilities should be fully owned and managed by the bidder.

23.2 Conformity with the Request for Bid/Tender required and conditions.

23.3 The assessment based on the response to Model Response Outline.

23.4 The assessment of the capability of the bidder to meet the terms and conditions.

23.5 The bidders must have executed similar orders, for which the bidder is quoting, for Govt./Semi-Govt./Autonomous Organizations.

23.6 The cost and the discount offered, if any.

24. Fall clause

24.1 The price quoted by the supplier should not be higher than the maximum retail price, if any, for the stores and the same shall not be higher than the price usually charged by the supplier for stores of the same nature, class or description to any other purchaser.

24.2 The price charged for the stores supplied under the contract by the supplier shall in no event exceed the lowest price at which the supplier sells the stores of identical description to any other person during the period till performance of all supply orders placed during the currency of the contract is completed. If at any time during the period the supplier reduces the sale price of such stores or sells such stores to any other person including his dealers at a price lower than the price chargeable under the contract, he shall forthwith notify such reduction or sale to the purchaser and the price payable under the contract for these items of stores supplied after the date of coming into force of such reduction or sale shall stand correspondingly reduced.

24.3 If it is discovered that the supplier has contravened the above conditions, then without prejudice to any other action which might be taken against him, it shall be lawful for the purchaser to (a) revise the price at any stage so as to bring it in conformity with sub-clause(i) above, or (b) to terminate the contract and purchase the items of stores at the risk and cost of the supplier and in that event the provisions of Clause 28 of General Conditions of Contract shall, as far as possible, be applicable or recover the loss.

SECTION 3: GENERAL CONDITION OF CONTRACTS

1. Definitions

In this Contract, the following terms shall be interpreted as indicated:

(a) "The order" means the agreement entered between the Purchaser and the Supplier including all the attachments and appendices and all documents incorporated as per notification of award.

(b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.

(c) "The Goods" means all the items, which the Supplier is required to supply to the Purchaser under the Contract.

(d) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services training and other obligations of the Supplier covered under the Contract.

(e) "GCC" means the General Conditions of Contract contained in this section.

(f) "The Purchaser" means the organization purchasing the Goods i.e., IIT (BHU) VARANASI.

(g) "The Purchaser's country" is India.

(h) "The Supplier" means the individual or firm supplying the Goods and Services under this Contract.

(i) "Day" means calendar day.

2. Application

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3. Standards

The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned Institution.

4. Use of Contract Documents and Information

4.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

4.2 The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information except for purposes of performing the Contract.

4.3 Any document, other than the Contract itself, shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so, required by the Purchaser.

5. Patent Rights

The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

6. Submission of the Bids

6.1 All bids complete in all respect must be submitted online on or before the Bid Closing date and time as mentioned on Critical Data Sheet. Tenders received without Bid Securing Declaration Form as earnest money etc. shall be rejected.

6.2 The Tender document for this supply is available on the website of IIT (BHU) Varanasi (www.iitbhu.ac.in/iitnotifications/purchase_enquiries/) or from Central Public Procurement Portal (CPPP) https://eprocure.gov.in/eprocure/app.

6.3 Interested bidders may submit their bid through the Central Public Procurement Portal (CPPP) https://eprocure.gov.in/eprocure/app.

7. Inspections and Tests

7.1 The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser.

7.2 The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and/or at the Goods destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data shall be furnished to the inspectors at no charge to the Purchaser.

7.3 Any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.

7.4 The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.

7.5 Nothing in GCC Clause 7 shall in any way release the Supplier from any warranty or other obligations under this Contract.

8. Consequences of rejection

If in the event the stores are rejected by the purchaser at the destination and the supplier fails to make satisfactory supplies within the stipulated period of delivery, the purchaser will be at liberty to:

(a) Allow the supplier to resubmit the stores in replacement of those rejected, within a specified time without any extra cost to the purchaser.
(b) Reject the material, which shall be final and binding on the contractor.
(c) Procure the rejected materials of comparable quality from the open market/Govt. stores and the supplier shall be liable to pay the difference in price over the RC prices or get the amount adjusted from the outstanding bills of the supplier, if any.

9. Packing

9.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, in any subsequent instructions ordered by the Purchaser.

10. Delivery and Documents

10.1 The Supplier shall make delivery of the Goods within **16 months** from the placement of purchase order in pursuance of the notification of award. The purchase order would be placed after assessing the requirements on quarterly basis. However, the supplier shall also arrange to execute all orders on priority basis which would be placed to meet any emergent requirements.

10.2 In case the purchaser decides to conclude parallel rate contracts, then the requirements would be split on different firms on equitable basis as per the discretion of the purchaser.

10.3 The delivery of Stores shall be affected at the premises of the Institute free of all delivery charges and within the stipulated time and as may be elucidated in the confirmed order, accompanied by a delivery challan. No extension of time for delivery of Stores shall normally be accorded.

The supplier shall mail the following documents to the purchaser with a copy to the insurance company:

1. 3 Copies of the Supplier Invoice showing contract number, goods' description, quantity, unit price, total amount, etc.
2. Installation Certificate.
3. Insurance Certificate if applicable.
4. Manufacturer's/Supplier's Warranty Certificate.
5. Inspection Certificate issued by the nominated inspection agency, if any.
6. Supplier's Factory Inspection Report.
7. Certificate of Origin (if possible, by the beneficiary).

The above documents should be received by the Purchaser before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

Time and Date of Delivery - Essence of the Contract: The time for and the date of delivery of the stores stipulated shall be deemed to be of the essence of the contract and delivery must be completed not later than the date(s) specified.

11. Insurance

The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. The insurance shall be obtained by the suppliers in an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destinations) on "all risks" basis including war risks and strikes.

12. Transportation

Where the Supplier is required under the Contract to transport the Goods within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the contract Price.

13. Warranty

13.1 The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship or from any act or omission of the Supplier that may develop under normal use of the supplied Goods in the conditions prevailing in India.

13.2 This warranty shall remain valid for at least **24 months** (or as specified) after the Goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, unless specified otherwise.

13.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

13.4 Upon receipt of such notice, the Supplier shall with all reasonable speed, repair or replace the defective Goods or parts thereof, without any extra cost to the Purchaser.

13.5 If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

14. Payment

14.1 The payment shall be made **100% after Supply, Installation and Commissioning as well submission of satisfactory PBG @ 5%)**

Or

100% Advance Payment against 110% of total order value as Bank Guarantee (BG)

Or

The payment will be made in phase wise as mentioned in the below table:

Phase	Payment to be released	Task	Readiness	Document necessary for the release of the payment
1	30% of total BOQ	Delivery of machine final layout, foundation drawings, electrical BOM, Control post layout, finalization of the part and assembly drawings,.	4 months from PO	a. Phase completion report duly signed by technical committee. b. Proof of the submission of bank guarantee of 20 % of total BOQ (this will be returned to the bidder after successful completion of phase 5 but not later than 16 months from PO if the delay in installation and commissioning is not attributable to the bidder). c. Proof of the submission of performance bank guarantee of 5 % of total BOQ (this will be returned after the warranty and the AMC period). d. Signed document issued by the CoEMTD (IIT (BHU) Varanasi & HMT MTL) to the bidder confirming that the designated site for machine installation has been formally handed over.
2	20% of total BOQ	Readiness of electrical panels including CNC package, grinding spindle, steadies, measuring system, All manufacturing BOP items	7 months from PO	a. Phase completion report duly signed by technical committee.
3	10% of total BOQ	Completion of assembly at bidder's place	9 months from PO	a. Phase completion reports duly signed by technical committee.
4	20% of total BOQ	Completion of trials at bidder's place and acceptance	12 months from PO	a. Pre-installation and inspection as mentioned in Annexure I. b. Phase completion reports duly signed by technical committee.
5	20% of total BOQ	Completion of final installation and commissioning at consignee location and final acceptance	16 months from PO	a. Testing and Validation at the customer site as mentioned in Annexure I. b. Performance Guarantees Confirmation report as mentioned in Annexure I. c. Installation and Training report. d. Phase completion reports duly signed by technical committee.

14.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to GCC Clause 10, and upon fulfilment of other obligations stipulated in the contract.

15. Prices

Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in his bid. The bidder must mention the applicable taxes/duty and exemptions thereon, if any, as per the Government of India norms. The Institute will provide requisite certificate, if any, required by the bidder as per the applicable Govt. of India norms.

16. Change Orders

16.1 The Purchaser may at any time, by written order given to the Supplier, make changes within the general scope of the Contract in any one or more of the following:

(a) Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
(b) The method of shipping or packing;
(c) The place of delivery; and/or
(d) The services to be provided by the Supplier.

16.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

17. Contract Amendments

Subject to GCC Clause 16, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

18. Assignment

The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

19. Subcontracts

The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

20. Delays in the Supplier's Performance

20.1 Delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser as per GCC clause 10.

20.2 If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier’s notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier’s time for performance with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract.

20.3 Except as provided under GCC Clause 23, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to GCC Clause 21, unless an extension of time is agreed upon pursuant to GCC Clause 20.2 without the application of liquidated damages.

21. Penalty

Subject to GCC Clause 23, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to 1% per week and the maximum deduction is 10% of the contract price of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 22.

22. Termination for Default

22.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

(a) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the purchase order, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 20;

(b) If the Supplier fails to perform any other obligation(s) under the Contract;

(c) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

'For the purpose of this Clause:

"Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

"Fraudulent practice: a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;"

22.2 In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 22.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

23. Force Majeure

23.1 Notwithstanding the provisions of GCC Clauses 20 & 21, the Supplier shall not be liable for imposition of liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

23.2 For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

23.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

24. Termination for Insolvency

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

25. Termination for Convenience

25.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

25.2 The Goods that are complete and ready for shipment within 30 days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices.

26. Resolution of Disputes

26.1 The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

26.2 If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms as specified below. These mechanisms may include, but are not limited to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and national or international arbitration.

26.3 In case of Dispute or difference arising between the Purchaser and a supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996 as amended from time to time.

27. Governing Language

The contract shall be written in English language. Subject to GCC Clause 28, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

28. Applicable Law

28.1 The contract shall be governed by the Law of Contract for the time being in force.

28.2 Irrespective of the place of delivery, the place of performance or place of payment under the contract, the contract shall be deemed to have been made at the place from which the acceptance of tender has been issued.

28.3 Jurisdiction of Courts: The courts of the place from where the acceptance of tender has been issued shall alone have jurisdiction to decide any dispute arising out of or in respect of this contract.

28.4 One-month notice will be given by either party for termination of Contract during the tenure of Contract for breach of Clause or otherwise.

29. Taxes and Duties

Suppliers shall be entirely responsible for all taxes, duties, license fees, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser.

30. Performance Security

Successful bidder has to furnish **05%** of the order value as a performance security in the shape of Fixed Deposit Receipt / Bank Guarantee in favour of the Registrar, Indian Institute of Technology (BHU) Varanasi valid for a period of 60 days beyond the end of all warranty period / obligations and AMC period **(i.e. 26 Month)**. Fixed Deposit Receipt / Bank Guarantee should be issued from a schedule bank in India.

31. Supplier Integrity

The Supplier is responsible for and obliged to conduct all contracted activities in accordance with the Contract using state of the art methods and economic principles and exercising all means available to achieve the performance specified in the contract.

The Institute Reserves the Right to:

1. Increase or decrease the quantity of the item(s) as per requirement and GOI Norms only, however, provided within the ceiling of the category in which the original order was placed i.e., if it is within 2.5 Lakh category than should not exceed the 2.5 lakh limit and so on.
2. Reject the quotation in absence of not furnishing the documentary evidence in respect of Trade Tax Registration (G.S.T), Income Tax and Trade Tax clearance certificates together with the performance of supplies in various branches/institutions.
3. Reject the quotation in the event of non-furnishing the authentic documentary evidence in respect of Testing reports / Performance report of the concerned Govt. Organization / Institutions about the products being manufactured and marketed. The performance test of the product can be conducted at Institute level also for which charge will have to be borne by the suppliers.

4. Reject the supplies already made, if not found up to the mark. Thorough checking may be adopted to test the correctness of the supply. In such an event, further action may call to conform or discard the supply.
5. To reject any addition/alteration in respect of local dealerships intimated by the principals after consideration of the case by the committee appointed by the Institute for the purpose.
6. Cancel this Tender at any point of time without assigning any reason thereof.
7. The Institute also reserves the right to reject the bid of any participated bidder.
8. The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:
   a. If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the purchase order, or within any extension thereof granted by the Purchaser.
   b. If the Supplier fails to perform any other obligation(s) under the Contract.
   c. If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
9. To reject any or all the offers without assigning any reasons thereof.
10. All disputes are subject to ***"Varanasi Jurisdiction"*** only.
11. The decisions of the Institute in all respect shall be final and binding on all.
12. The Institute reserves the right to ask the successful bidder to produce all the original documents submitted along with the bids for verification at any point of time. During the verification of the document, if it is found that the bidder has concealed/falsified/fabricated any information, the bid and/or purchase order will be cancelled and performance security will be forfeited and action including blacklisting will be taken against the bidder as per norms of the Institute.
13. Please ensure that your offer is complete in all respect as no further clarifications shall be sought from you and reaches us within the last date mentioned above. **The Institute shall not be responsible for any delay etc.**

Coordinator
Centre of Excellence on Machine Tools Design
IIT (BHU) Varanasi
Varanasi - 221005, Uttar Pradesh, India

SECTION 4: SPECIAL CONDITIONS OF CONTRACT

1. Essential Pre-Bid Criteria

1. Bidders should be the manufacturer (OEM)/authorized dealer or Upgrader. In case the bid is submitted by the Authorized dealer, the currently valid Authorization letter for participating in this Tender (by clearly mentioning the Reference of this Tender) issued by the OEM must be uploaded. The Letter of authorization shall remain valid during execution of supply and installation.
2. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and provide an uninterrupted supply of spares and accessories for at least ten years after warranty. List of service engineers along with their contact numbers and office addresses to be submitted. Any technical problem that arises during the warranty period needs to be attended to within a maximum of 48 hours. In case the OEM withdraws its authorization from bidder, the above service will continue to be provided by the OEM.
3. OEM of the offered product should have CNC Roll Grinder manufacturing/modernizing experience of at least 10 years having successfully completed projects of Roll Grinders capable of handling at least 800 mm roll DIA, minimum roll length of 5000 mm and minimum workpiece weight of 12 Ton. Bidder should have the experience of manufacturing, installation and commissioning CNC automation system, inline automatic roll measuring system, steady rests, hydrostatic grinding spindles, parts of headstock and tailstock assemblies like spindle shafts, quills, centers, pulleys for heavy duty (at least 12-ton roll capacity) CNC Roll Grinding machines. Bidder should also have the experience of proving the machine and establishing ground rolls as per required geometry on a CNC Roll Grinder with inline automatic roll measuring system. Supporting documents (Such as Certificate of incorporation, MSME registration certificate) to be supplied with tender documents.
4. OEM must follow ISO / equivalent certified manufacturing process and QAP (Quality Assurance Plan). Copy of valid ISO / equivalent certificate to be provided.
5. An affidavit on a Non-Judicial Stamp Paper of Rs. 100/- issued on/after the date of publish of this Tender to be submitted by the bidder, that the bidder has never been black-listed by any IITs/NITs/Govt. Offices/PSUs/Govt. Funded Universities/Govt. Funded Autonomous Bodies/Govt. Bodies must be uploaded along with the technical Bid under cover 1, failing which the Bid shall be rejected. The original shall be submitted before the award of bid by the lowest evaluated successful bidder. This affidavit must be issued on or after issuance of this tender. Failing which the Bid shall be rejected.
6. Certified Financial Statement of Bidder from a CA such as Balance Sheet and Profit & Loss account of last three financial years clearly indicating the annual turnover. Net worth of the firm shall be positive. The annual financial turnover of bidder must not be less than 30 Cr. during Last 3 financial years.
7. The bidder shall submit at least reference PO copies with successful commissioning certificates of minimum 02 roll grinders capable of handling at least 800 mm roll dia. and total roll length of 5000 mm with workpiece ~12 Ton. The complete scope of work that has been performed along with project completion document for each machine with total contract value confirming that they have supplied/modernized similar CNC Roll Grinders to reputed organizations like IITs/NITs/PSUs/DRDO/CSIR labs/Govt. Institutes/Autonomous Body in India in last 05 years should be provided. The bidder shall furnish contact details of the end-users of the above machines. Failing which the Bid shall be rejected.
8. The bidder has to give a LIVE VIDEO demonstration of their manufactured/modernized roll grinding machine of at least 800 mm roll DIA, minimum roll length of 5000 mm and minimum workpiece weight of 12 Ton during the technical evaluation process (most probably within one week of opening of technical bid). The institute will inform the date and time through a separate email to all the participating bidders. This will be a part of technical evaluation. The bidder needs to upload an undertaking (Annexure VIII) in this regard that they will provide the demonstration as and when required by the Institute.
9. Manufacturer comprehensive warranty for 1-years and 1-years of annual maintenance contract after the warranty period.

10. Preference will be given to Class-I local suppliers in the tender. Total % of the local content for the product being quoted and Details of the location at which the Local Value Addition is made should be clearly mentioned in the letter head of the OEM.
11. Adherence to all the technical specifications is compulsory.
12. Certificate as per Annexure V, VI, VII, VIII, on the letterhead of the company must be uploaded.
13. Only those bidders who will quote rates of all the items will be consider for evaluation. Lowest bidder will be decided on overall L1 basis. Purchasers reserve the right to reject any incomplete or incompetent bid.
14. The bidder has to submit an integrity pact as per Annexure IX, if the quoted value in financial Bid is more than Rs. 01 Crore, which is to mandatorily be executed on a Non-Judicial Stamp Paper of Rs. 100/- duly signed by the Bidder.
15. The bidder has to submit an NDA as per Annexure X on a Non-Judicial Stamp Paper of Rs. 100/- duly signed by the Bidder.
16. The bidder has to submit an undertaking on company letterhead that they will complete the task mentioned in phase 4 under payment terms i.e.; 'Completion of trials at bidder's place and acceptance' by March 2027 if PO will be released by April, 2026.

NOTE: THE BID OF THOSE BIDDERS WHO FAILS TO COMPLY THE ABOVE ESSENTIAL CRITERIA WILL NOT BE CONSIDERED FOR TECHNICAL EVALUATION.

2. Documents Comprising the Bid

The tender/Bid shall be submitted online in two parts: Technical Bid and Commercial Bid.

I. Technical Bid

The following documents are to be scanned and uploaded as part of the Technical Bid as per the tender document:

(a) Scanned copy of Tender Forms (Techno Commercial Un-Priced Bid), Declaration, Bidder's Information Form, and Tender Acceptance Letter.
(b) Scanned copy of proof for submission of Tender Document Fee/ Earnest Money Deposit/Exemption Certificate, if any etc.
(c) Scanned copy of written confirmation authorizing the signatory of the Bid to commit the Bidder.
(d) Scanned copy of quoted product brochure.
(e) Scanned copy of completely filled Annexure III with supporting documents
(f) Scanned copy of Technical Bid and essential Pre-bid Details, if any.
    i. Scanned copy of documentary evidence establishing the Bidder's qualifications to perform the contract if its bid is accepted and the Bidder's eligibility to bid.
    ii. Scanned copy of documentary evidence, that the Goods and Related Services to be supplied by the Bidder are of eligible origin and conform to the Bidding Documents.
(g) Scanned copy of Checklist, compliance of Essential pre-bid criteria and Technical Compliance Sheet (Annexure II) and any other document required as per the tender.

II. Commercial Bid

The commercial bid comprises of:

(a) Scanned copy of Tender Form (Price Bid)
(b) Price bid in the form of .xls format and to be uploaded in .xls and signed .pdf format.

The Price bid format is provided as .xls format along with this Tender Document at https://eprocure.gov.in/eprocure/app. Bidders are advised to download this .xls format and quote their offer/rates in the prescribed column.

In addition to the above requirements, bids submitted by a Joint Venture, shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement, there to.

The Bidder shall furnish in the Tender Forms information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

3. Installation & Demonstration

The supplier is required to done the installation and demonstration of the equipment within one week of the arrival of materials at the IIT (BHU) site of installation, otherwise the penalty clause will be the same as per the supply of materials.

In case of any mis-happening/damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. IIT (BHU) will not be liable to any type of losses in any form.

4. Application Specialist

The Tenderer should mention in the Techno-Commercial bid the availability and names of Application Specialist and Service Engineers in the nearest regional office.

5. Spares

The Supplier is required to provide state availability of spares for ten years, if required.

6. Training of Personnel

The supplier shall be required to undertake to provide the technical training to the personnel involved in the use of the equipment at the Institute premises, immediately after completing the installation of the equipment for a minimum period of one week at the supplier's cost.

7. User List

The bidder must provide the list of users where they have deployed similar nature of equipment's in last 03 years in prescribed format of Annexure III.

8. Manuals/Documents

One set of hard copy and one set of soft copy in English (preferred as following).

i. Operating manual
ii. Servicing & Maintenance manual
iii. Spare parts list with source of supply and prices
iv. Pre-installation requirements.

9. Services

Vendor must submit Factory Acceptance Test procedure supported with relevant printed literature and certificates.

10. The Tender document should also indicate what kind of service/maintenance is required for the system. Whether this service has to be carried out by a company engineer or it can be carried by trained service personnel within India. The frequency of visit and the charges should be mentioned.

11. The Tender should be enclosed with proper certifications like **Authorization Certificate** and **Proprietary Certificate (**in case of Proprietary items).

12. Pre-installation site preparation/inspection requirements to be indicated and specified along with the bid.

13. Bid should include F.O.R. IIT (BHU) Varanasi/HMT MTL Ajmer prices. The Institute will provide requisite certificate, if any, required by the bidder as per the applicable Govt. of India norms.

14. The vendor to provide compliance statement with respect to each technical specification in the tender document duly supported by the manufacturer's literature. Any other claim will not be accepted and may lead to rejection of the bid.

15. Printed literature in support of compliance to the prescribed specifications is to be submitted.

16. Compliance report needs to be submitted as a part of the technical bid.

17. Exemption is allowed from payment of Tender processing fees/EMD as per Government of India norms against submission of currently valid certificate specifically for the item(s) proposed to be procured through this Tender.

18. Defective Equipment: If any of the equipment supplied by the Tenderer is found to be substandard, refurbished, un-merchantable or not in accordance with the description/specification or otherwise faulty, the committee will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment have already been made. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 30 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges. In case supplier fails to replace above item as per above terms & conditions, IIT (BHU) may consider "Banning" the supplier.

IMPORTANT NOTE

1. Non-compliance of tender terms, non-uploading of required documents, lack of clarity of the specifications, contradiction between bidder specifications and supporting literature etc. may lead to rejection of the bid.
2. In the tender, either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.
3. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.

SECTION 5: CHECKLIST FOR BID/TENDER UPLOADING

(The following check-list must be filled in and uploaded with the bid documents)

S. No.	Particulars Techno Commercial Unpriced Bid (Cover 1)	Yes/No
1	Have you uploaded the techno commercial unpriced bid form duly filled in appropriately?	
2	Have you uploaded a copy of the last three financial years audited balance sheet and P & L Account of your firm?	
3	Have you attached the details of the income tax clearance certificate, proof of manufacturing unit/ dealership letter/ general order suppliers and copy of GST registration certificate?	
4	The bidder shall submit at least reference PO copies with successful commissioning certificates of minimum 02 roll grinders capable of handling at least 800 mm roll dia. and total roll length of 5000 mm with workpiece ~12 Ton. The complete scope of work that has been performed along with project completion document for each machine with total contract value confirming that they have supplied/modernized similar CNC Roll Grinders to reputed organizations like IITs/NITs/PSUs/DRDO/CSIR labs/Govt. Institutes/Autonomous Body in India in last 05 years should be provided. The bidder shall furnish contact details of the end-users of the above machines. Failing which the Bid shall be rejected.	
5	Have you submitted DD/transferred online Tender Processing Fee asked for and EMD separately and uploaded their proof of submission?	
6	Have you submitted samples of all items indicated in the respective schedule of requirements at the address of tender inviting authority within due date?	
7	Have you enclosed the schedule of requirement indicating the make offered without indicating the pricing components along with the techno commercial unpriced bid?	
8	Have you uploaded the bids both techno commercial unpriced and priced bid separately for the tender?	
9	Have you enclosed the statement of deviations from financial terms and conditions, if any?	
10	Have you submitted the Technical Compliance Sheet?	
11	Have you attached the compliance of Essential Pre-Bid criteria?	
12	Have you attached Manufacturer's Authorization certificate for this Tender?	
13	Have you attached a letter on the letter head that bidder has never been black-listed along with the technical Bid under cover 1?	
14	Have you attached the Declaration on the letter pad of Bidder?	
15	Have you attached the signed Tender acceptance letter?	
16	Have you attached a signed copy of Annexure VIII that a LIVE VIDEO demonstration of the machine will be arranged to the committee?	
17	Have you attached the integrity pact as per Annexure IX	
Price Bid (Cover 2)		
1	Have you signed and uploaded the priced bid form?	
2	Have you uploaded the schedule of requirements duly priced i.e., BOQ and its pdf version?	

NOTE: ***While arranging the Tender Documents, check list should be placed on TOP.***

COMPLIANCE SHEET OF ESSENTIAL PRE-BID CRITERIA

#	Essential Pre-Bid Criteria	Compliance
1	Bidders should be the manufacturer (OEM)/authorized dealer or Upgrader. In case the bid is submitted by the Authorized dealer, the currently valid Authorization letter for participating in this Tender (by clearly mentioning the Reference of this Tender) issued by the OEM must be uploaded. The Letter of authorization shall remain valid during execution of supply and installation.	
2	An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and provide an uninterrupted supply of spares and accessories for at least ten years after warranty. List of service engineers along with their contact numbers and office addresses to be submitted. Any technical problem that arises during the warranty period needs to be attended to within a maximum of 48 hours. In case the OEM withdraws its authorization from bidder, the above service will continue to be provided by the OEM.	
3	OEM of the offered product should have CNC Roll Grinder manufacturing/modernizing experience of at least 10 years having successfully completed projects of Roll Grinders capable of handling at least 800 mm roll DIA, minimum roll length of 5000 mm and minimum workpiece weight of 12 Ton. Bidder should have the experience of manufacturing, installation and commissioning CNC automation system, inline automatic roll measuring system, steady rests, hydrostatic grinding spindles, parts of headstock and tailstock assemblies like spindle shafts, quills, centers, pulleys for heavy duty (at least 12-ton roll capacity) CNC Roll Grinding machines. Bidder should also have the experience of proving the machine and establishing ground rolls as per required geometry on a CNC Roll Grinder with inline automatic roll measuring system. Supporting documents (Such as Certificate of incorporation, MSME registration certificate) to be supplied with tender documents.	
4	OEM must follow ISO / equivalent certified manufacturing process and QAP (Quality Assurance Plan). Copy of valid ISO / equivalent certificate to be provided.	
5	An affidavit on a Non-Judicial Stamp Paper of Rs. 100/- issued on/after the date of publish of this Tender to be submitted by the bidder, that the bidder has never been black-listed by any IITs/NITs/Govt. Offices/PSUs/Govt. Funded Universities/Govt. Funded Autonomous Bodies/Govt. Bodies must be uploaded along with the technical Bid under cover 1, failing which the Bid shall be rejected. The original shall be submitted before the award of bid by the lowest evaluated successful bidder. This affidavit must be issued on or after issuance of this tender. Failing which the Bid shall be rejected.	
6	Certified Financial Statement of Bidder from a CA such as Balance Sheet and Profit & Loss account of last three financial years clearly indicating the annual turnover. Net worth of the firm shall be positive. The annual financial turnover of bidder must not be less than 30 Cr. during Last 3 financial years.	
7	The bidder shall submit at least reference PO copies with successful commissioning certificates of minimum 02 roll grinders capable of handling at least 800 mm roll dia. and total roll length of 5000 mm with workpiece ~12 Ton. The complete scope of work that has been performed along with project completion document for each machine with total contract value confirming that they have supplied/modernized similar CNC Roll Grinders to reputed organizations like IITs/NITs/PSUs/DRDO/CSIR labs/Govt. Institutes/Autonomous Body in India in last 05 years should be provided. The bidder shall furnish contact details of the end-users of the above machines. Failing which the Bid shall be rejected.	
8	The bidder has to give a LIVE VIDEO demonstration of their manufactured/modernized roll grinding machine of at least 800 mm roll DIA,	

	minimum roll length of 5000 mm and minimum workpiece weight of 12 Ton during the technical evaluation process (most probably within one week of opening of technical bid). The institute will inform the date and time through a separate email to all the participating bidders. This will be a part of technical evaluation. The bidder needs to upload an undertaking (Annexure VIII) in this regard that they will provide the demonstration as and when required by the Institute.	
9	Manufacturer comprehensive warranty for 1-years and 1-years of annual maintenance contract after the warranty period.	
10	Preference will be given to Class-I local suppliers in the tender. Total % of the local content for the product being quoted and Details of the location at which the Local Value Addition is made should be clearly mentioned in the letter head of the OEM.	
11	Adherence to all the technical specifications is compulsory.	
12	Certificate as per Annexure V, VI, VII, VIII on the letterhead of the company must be uploaded.	
13	Only those bidders who will quote rates of all the items will be consider for evaluation. Lowest bidder will be decided on overall L1 basis. Purchasers reserve the right to reject any incomplete or incompetent bid.	
14	The bidder has to submit an integrity pact as per Annexure IX, if the quoted value in financial Bid is more than Rs. 01 Crore, which is to mandatorily be executed on a Non-Judicial Stamp Paper of Rs. 100/- duly signed by the Bidder.	
15	The bidder has to submit an NDA as per Annexure X on a Non-Judicial Stamp Paper of Rs. 100/- duly signed by the Bidder.	
16	The bidder has to submit an undertaking on company letterhead that they will complete the task mentioned in phase 4 under payment terms i.e.; 'Completion of trials at bidder's place and acceptance' by March 2027 if PO will be released by April, 2026.	

All documents in support of above essential pre-bid criteria shall be scanned and uploaded under cover 1.

Signature of the Authorized Person

Date: ----------

Full Name ----------

Place: ----------

Company Address with Seal

SECTION 6: DECLARATION

(On the letter head of the firm submitting the bid)

1. I, ---------- Son /Daughter of Shri---------- ---------- Proprietor/ Partner/ CEO /MD/ Director/ Authorized Signatory of M/s. ---------- am competent to sign this declaration and execute this tender document.

2. I have carefully read and understood all the terms and conditions of the tender and hereby convey my acceptance of the same.

3. The information/ documents furnished along with the above application are true and authentic to the best of my knowledge and belief.

4. I/ we/ am are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of my tender at any stage besides liabilities towards prosecution under appropriate law.

5. Each page of the tender document and papers submitted by my Company is authenticated, sealed and signed, and I take full responsibility for the entire documents submitted.

6. This is certified that our organization has been authorized (Copy attached) by the OEM to participate in Tender. We further certified that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, OEM has agreed to support on regular basis with technology /product updates and extend support for the warranty.

7. The prices quoted in the price bids are subsidized due to academic discount given to IIT (BHU) Varanasi.

8. We, further specifically certify that our organization has not been Black Listed/De Listed or put to any Holiday by any Institutional Agency/Govt. Department/Public Sector Undertaking in the last three years.

Signature of the Authorized Person

Date: ----------

Full Name ----------

Place: ----------

Company Address with Seal

SECTION 7: TENDER FORM

(Techno commercial un-priced Bid)
(On the letter head of the firm submitting the bid)

Tender No. …….

To,
Coordinator
Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU) Varanasi
Varanasi-221005, Uttar Pradesh, India

Dear Sir,

1. I/We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders;
2. I/We meet the eligibility requirements and have no conflict of interest;

3. I/We have not been suspended nor declared ineligible in India;

4. I/We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods: ***[insert a brief description of the Goods and Related Services]***

5. I/We offer to supply the items as listed in the schedule to this tender hereto/portion thereof as you may specify in the acceptance of Tender at the price given in the said Schedule and agree to hold this offer open for a period of ……. days from the date of opening of the tender.

6. I/we shall be bound by a communication of acceptance issued by you.

7. I/We have understood the Instruction to bidders and Conditions of Contract in the form as enclosed with the invitation to the tender and have thoroughly examined the specifications quoted in the Schedule hereto and am/are fully aware of the nature of the goods required and my/our offer is to supply the goods strictly in accordance with the specifications and requirements.

8. A proof of payment of Rs……. (Rupees……..…….only) as Tender Processing Fee in the aforementioned account of Registrar, IIT (BHU).

9. The following have been added to form part of this tender.
   (a) Schedule of requirements, quoting the make only duly signed and stamped. (without indicating price)
   (b) Income Tax clearance certificate.
   (c) Copy of last audited balance sheet.
   (d) Copy of Valid GST registration certificate.
   (e) Copy of similar relevant major purchase orders executed during last three years in IITs/NITs/IISc/DRDO/Central Govt. Organization,
   (f) Proof of manufacturing Unit, dealership certificate/general order suppliers.
   (g) Statement of deviations from financial terms & conditions, if any.
   (h) Any other enclosure. (Please give details)

10. We undertake to execute all orders which have been placed to meet emergent requirements on priority basis.

11. Certified that the bidder is:

(a) A sole proprietorship firm and the person signing the bid document is the sole proprietor/constituted attorney of the sole proprietor,

Or

(a) A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney.

Or

(b) A company and the person signing the document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions should invariable be duly attested by the person authorized to sign the bid document).

12. We do hereby undertake that, until a formal notification of award, this bid, together with your written acceptance thereof shall constitute a binding contract between us.

13. If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents.

14. We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process, other than alternative bids submitted.

15. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption.

Name of the Bidder* **……**

Name of the person duly authorized to sign the Bid on behalf of the Bidder** **……**

Title of the person signing the Bid **……**

Signature of the person named above **……**

Date signed **……** day of **……**

* In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder
** Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.

Yours faithfully,

(Signature of bidder)

Dated this day of **……**

Address: **……**

Telephone No.: **……**

FAX **……**

E-mail **……**

Company seal

(Priced Bid)
(On the letter head of the firm submitting the bid)

Tender No. …….

To,
Coordinator
Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU) Varanasi
Varanasi-221005, Uttar Pradesh, India

Dear Sir,

Having examined the bidding documents and having submitted the techno commercial unpriced bid for the same, we, the undersigned, hereby submit the priced bid for supply of goods and services as per the schedule of requirements and in conformity with the said bidding documents.

1. We hereby offer to supply the Goods/Services at the prices and rates mentioned in the enclosed schedule of requirement.

2. We do hereby undertake that, in the event of acceptance of our bid, the supply of Goods/Services shall be made as stipulated in the schedule of requirement and that we shall perform all the incidental services.

3. The prices quoted are inclusive of all charges net F.O.R IIT (BHU) Varanasi/ HMT MTL Ajmer. We enclose herewith the complete Price Bid as required by you. This includes:
   (a) Price Schedule (Bill of Quantity - BOQ) in .pdf format and .xls format
   (b) Statement of deviations from financial terms and conditions, if any.

4. We agree to abide by our offer for a period of 180 days from the date fixed for opening of the bid documents and that we shall remain bound by a communication of acceptance within that time.

5. We have carefully read and understood the terms and conditions of the bid document and we do hereby undertake to supply as per these terms and conditions. The Financial Deviations are only those mentioned in the statement of deviations from financial terms and conditions.

6. We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: **[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]**

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate "none."

7. We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

8. We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Certified that the bidder is:

A sole proprietorship firm and the person signing the bid document is the sole proprietor/ constituted attorney of sole proprietor,

Or

A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney,

Or

A company and the person signing the bid document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions should invariably be duly attested by the person authorized to sign the bid document.)

We do hereby undertake that, until a formal notification of award, this bid, together with your written acceptance thereof, shall constitute a binding contract between us.

Dated this day of **…….**

Signature of Bidder **…….**

Details of enclosures **……**

Full Address: **……**

……...

Telephone No. **……..**

Mobile No. **……**

Fax No. **…….**

E-mail: **……..**

Company Seal

BIDDER INFORMATION FORM

Date:
ADVT. No.:

1. Bidder's Name:
2. In case of JV, legal name of each member: *[insert legal name of each member in JV]*
3. Bidder's actual or intended country of registration:
4. Bidder's year of registration:
5. Bidder's Address in country of registration:
6. Bidder's Authorized Representative Information Name: Address: Telephone/Fax: Email: Address:
7. Attached are copies of original documents of *[check the box(es) of the attached original documents]* ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above. ☐ In case of JV, letter of intent to form JV or JV agreement. ☐ In case of Government-owned enterprise or institution, documents establishing: • Legal and financial autonomy • Operation under commercial law • Establishing that the Bidder is not dependent agency of the Purchaser Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

TENDER ACCEPTANCE LETTER

(To be given on Company Letter Head)

Date:

To,
Coordinator
Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU) Varanasi
Varanasi-221005, Uttar Pradesh, India

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No. ……

Name of Tender/ Work: …….

……

Dear Sir,

1. I/We have downloaded/ obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely: ……. as per your advertisement, given in the above-mentioned website(s).

2. I/We hereby certify that I/We have read the entire terms and conditions of the tender documents from Page No. ……. to …… (including all documents like section(s), schedules(s) etc.), which form part of the contract agreement and I/we shall abide hereby by the terms/conditions/ clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organization too have also been taken into consideration, while submitting this acceptance letter.

4. I/We hereby unconditionally accept the tender conditions of above-mentioned tender document(s)/ corrigendum(s) in its totality/entirety.

5. In case any provisions of this tender are found violated, then your department/ organization shall without prejudice to any other right or remedy be at liberty to reject this tender.

Yours faithfully,

(Signature of the Bidder, with Official Seal)

FORMAT FOR PERFORMANCE BANK GUARANTEE (PBG)/ PERFORMANCE SECURITY

(To be typed on non-judicial stamp paper of the value of Indian Rupees of One Hundred)

[To Be Established Through Any of the Nationalized Commercial Banks (Whether situated at Varanasi or Outstation) with A Clause to Enforce the Same on Their Local Branch at Varanasi]

To,
The Registrar
Indian Institute of Technology (BHU) Varanasi
Varanasi – 221005, Uttar Pradesh, India

LETTER OF GUARANTEE

WHEREAS Indian Institute of Technology (BHU), Varanasi (Buyer) has invited tender vide Tender No..... dated..... for purchase of ..... AND WHEREAS the said tender document requires that eligible successful bidder (seller)..... wishing to supply the equipment / machinery, etc. in response thereto shall establish an irrevocable Performance Bank Guarantee in favour of "The Registrar, Indian Institute of Technology (BHU) Varanasi" in the form of Bank Guarantee for Rs. ..... (**5% of the contract value**) and the Performance Bank Guarantee shall remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the seller, including warranty obligations from the date of issue of Performance Bank Guarantee and the eligible successful bidder (the seller) shall submit the same within 14 (Fourteen) days from the date of Award of Contract.

NOW THIS BANK HEREBY GUARANTEES that in the event of the said bidder (seller) fails to abide by any of the conditions referred to in tender document / Award of Contract / performance of the equipment / machinery, etc. this Bank shall pay to Indian Institute of Technology (BHU), Varanasi on demand and without protest or demur Rs. ..... (Rupees.....).

This Bank further agrees that the decision of Indian Institute of Technology (BHU) Varanasi (Buyer) as to whether the said bidder (Seller) has committed a breach of any of the conditions referred in tender document / Award of Contract shall be final and binding.

We, ... (Name of the Bank & branch) hereby further agree that the Guarantee herein contained shall not be affected by any change in the constitution of the bidder (Seller) and/ or Indian Institute of Technology (BHU), Varanasi (Buyer). **Not with standing anything contained herein:**

1. Our liability under this Bank Guarantee shall not exceed Rs. .....……. (Indian Rupees ..... only).
2. This Bank Guarantee shall be valid up to ..... (date) and
3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if IIT (BHU), Varanasi serve upon us a written claim or demand on or before .....(date). This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office at ..... situated at ..... (Address of local branch).

Yours truly,

Signature and seal of the guarantor:

Name of Bank:

Address:

Date:

SECTION-8

ANNEXURE-I

TECHNICAL SPECIFICATIONS

Fabrication, Assembling and Installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type

Description

The requirement of this tender is to fabrication, assembling, and installation of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse type. The mechanical design of the CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type will be provided by CoEMTD (IIT (BHU), VARANASI & HMT MTL) and fabrication, assembling and installation needs to be carried out by the Bidder as per the design of CoEMTD (IIT BHU VARANASI & HMT MTL). The Bidder and CoEMTD (IIT BHU VARANASI & HMT MTL) can jointly review the design, fabrication, assembling and installation & development of machine to ensure that final performance guarantees can achieved as per tender technical specifications.

Quantity: 01 (one) No.

Detailed Technical Specifications

Major Machine Parameters / Specifications:

S. No.	Description	Unit	Value
1.1 Job Accommodation			
	Max swing over table (to accommodate steady rest)	mm	1500
	Max distance between centers	mm	5000
	Max grinding length	mm	5000
	Min grinding length	mm	1000
	Max job weight between centers (with steady rest)	Kg	12000
	Max job diameter between centers	mm	900
	Min job diameter between centers	mm	100
	Taper correction	deg	+/-1° (suitable mechanical/automatic arrangement)
1.2 WORK HEAD			
	Speed (infinitely variable)	RPM	4-100
	Centre type	MT	6 /7 or (suitable to the job weight)
1.3 WHEEL HEAD			
	New wheel size (Dia x Bore x Width) - of suitable grade as per application	mm	900x305x100
	Worn out wheel Diameter	mm	550
	Minimum width of wheel	mm	50
	Max. Peripheral speed (constant)	m/sec	33 or more
	Wheel speed Range (infinitely variable)	RPM	750-1000
1.4 Wheel Head Longitudinal Travel (Z-AXIS)			
	Total travel	mm	6000 (Min.)
	Z Axis speed range	mm/min	0-6000
	Min. Programmable Resolution	mm	0.001
1.5 INFEED SLIDE (X-AXIS)			
	Total travel of infeed slide	mm	600 (Min.)
	X-Axis Feed rate range	mm/min	0-6000
	Minimum programmable resolution	mm	0.001
1.6 TAIL STOCK			
	Centre type	MT	6 / 7 or (suitable to the job weight)
	Max. quill movement (hydraulic movement only)	mm	110 or more

1.7 ELECTRICAL MOTORS		
Wheel head	Kw	Approx. 65 (suitable digital AC servomotor for roll grinding application)
Work head	Nm	Approx. 100 (suitable digital AC servomotor for roll grinding application)
1.8 CAMBER		
Maximum Camber on work piece (Convex/Concave) for length upto 5000 mm	mm	+1 (Convex) -1 (Concave)

#	Details	Technical Details
1.	General Overview/ Scope of supply	• The scope of supply shall include manufacture, assembly supply, Foundation ,installation & commissioning on turn key basis, testing and prove out of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type, which includes equipments such as Headstock, Steady Rest, Tailstock, Wheel carriage, Front bed, Infeed, Cross slide, Wheel carriage Rear bed, Hydraulic system, Lubrication system, Coolant System, CNC Automation System, Automatic Inline Roll measurement System, Wheel balancing System (static and dynamic), Hydrostatic Grinding Spindle, Crowning axis profile generating mechanism using Camber etc. • The detailed design of machine including mechanical part drawings and mechanical assembly drawings, and other critical data related to the fabrication will be provided by CoEMTD (IIT BHU VARANSI & HMT MTL). CNC System Interface, Machine Software development, In-line Automatic Measurement System integration and CNC PLC/Part program development and prove out is in the scope of the bidder. • The Bidder and CoEMTD can jointly review the design, manufacture, fabricate, assembly, Foundation and Installation & Commissioning, development of the Machine to ensure that final performance guarantees can achieved as per tender technical specifications. **The scope of work of bidder also includes the following:** • purchase of miscellaneous components/items by the bidder such as sensors, electrical connections, critical joints of various subsystems, tools for machine development, trolleys, nuts, bolts, subsystems/components (not listed below) that may be required at latter stage necessary for successful assembling and working of the CNC heavy duty roll grinding machine with wheel head traverse type equipment.
2.	Turnkey Contracts	• Design of foundation as well as flooring of sufficient thickness, suiting local soil & weather conditions at the site to achieve required accuracy in the scope of bidder. • Complete civil work required for the installation of the machine are in the scope of the bidder. • All civil work namely, construction of machine foundationof sufficient thickness suiting local soil & weather conditions, jib crane foundation, earth pit construction for machine shall be completed by the bidder, construction of Electrical Control Room, grouting material required for beds grouting, minor civil work that maybe required during actual installation& commissioning are under the scope of the bidder. • The bidder needs to provide the complete foundation drawings, specifications for the spring and the inertia blocks etc. • Advise consignee in time regarding schedule for requirement of clear site for construction of foundation and other infrastructure, resources & facilities required.

		• Provision of all tools and equipment, technical and unskilled manpower, material handling accessories/ equipment and material for installation and commissioning is the scope of the bidder. • Unloading of the machine on receipt and its movement to the site of installation including the provision of road mobile crane is also in the scope of the bidder. • The bidder should ensure the proper earthing for the machine and its peripherals/accessories and preparation of suitable Earthing Pit at consignee place/works is in the scope of bidder. • Machine floor plan to be provided by the bidder. **The below and not limited to, are also the scope of the bidder** • Construction of machine foundation (with drawings). • Grouting material required for Beds grouting. • All steel works around the machine (Safety railings, chequered plates etc. with drawings). • Arranging trained assistance during lifting of Inertia Block and Electrical Panels placement is in the scope of the bidder • Cleaning agents, cotton waste, marking cloth etc. that may be required from time to time during installation in the scope of bidder. • Initial fill consumables like oil, grease, coolant is the scope of bidder. • A concrete inertia block for placing the machine. Internal structure of the inertia block is in scope of bidder. • Inertia block to be mounted on springs. Springs for the inertia block. Machine to be mounted on fixators and clamped to the inertia block through anchor bolts. • Utilities like water, gas cutting, welding which may be required from time to time during installation (this needs to be provided by customer/consignee at final location).
1.9	Steady rest	• Steady rest with adjustable lower and side pad • Load bearing capacity: according to 12-ton work roll • Soft loader for steady rest support • Neckrest lubrication oil system to prevent heating during roll rotation
2.0	Crowning / Cambering axis	• Maximum Camber on work piece (Convex/Concave) for length up to 5000 mm: +1 mm (convex), -1mm (concave) • A separate electronic crowing/cambering axis which allows sub-micron movement for fine profile creation and correction is required. Separate crowning/cambering/profile generation to meet required camber +/- 1 mm in the length of 5000mm • Crowning axis is to be driven by a ball screw and a high precision gearbox to eliminates backlash and smooth changeover of curves.
2.1	Performance Guarantees	• Accuracy parameters (on radius): o Parallelism, cylindricity 0.002 mm/m o Runout 0.003 mm o Profile +/-0.003 mm/m for crown height of 0.1 mm on radius o Surface finish Ra = 0.05-0.3 µm • All values on radius and over and above roll neck errors • Cambering accuracy +/- 0.001 mm/m • Machine Stock removal capacity for ICDP rolls (Min.): 35Kg/Hour All values valid when measured with automatic inline roll measurement system
2.2	Machine Accessories in the scope of bidder	• Automatic Dynamic Wheel Balancing. • Static Wheel Balancing Stand. • Roll Neck Lubrication. • Operational Accessories. • Maintenance Accessories (wheel Arbor and wheel change devices).

		• Heavy Duty Springs for Inertia Block Support. • Levelling Fixators. • Jib Crane of suitable capacity (1 Ton) for Wheel Loading/Unloading. • One trial Component suitable for trials. • Wheel Flange (Arbor): 2 numbers • 3 Set of Wheels for Grinding Trials • Stoppers for Headstock and Tailstock • Operating Manuals • Maintenance Manuals • Consumables for one year • Spare parts required for normal running of machine for 2 years • All Tooling and Fixtures • In line Automatic Roll Measurement system • Soft Loader for Steady Rest • Machine lamp • Tower light • Set of carriers for job rotation • Maintenance tools kit (including Electrical, Electronics & Mechanical kit)
Basic Design Characteristics of Machine:		
1.	Front/Work Bed	The front/ work bed shall be rugged single piece casting of close-grained alloy cast iron like Meehanite. The machine bed shall be suitably stress relieved and normalized before machining as per IS: 14529 – 2000/ High grade Pearlitic Cast Iron as per Gr. FG-300 as per IS:210 or equivalent JIS standard or ISO standard. The bed shall incorporate suitable design features for high rigidity, high vibration damping capacity and dimensional stability over entire period of life. It should provide full and rigid support for Headstock, Neck/ Steady Rest, Tailstock etc. The details of bed material, chemical composition, method of stress relieving and physical characteristics should be clearly indicated in the offer.
		The design of the front bed should be such as to provide easy access to operator for loading and unloading of job, inline automatic roll measurement system and grinding wheel changing functions.
		Front/Work Bed should have provision for coolant disposal and wet dust disposal along with coolant. • Work Bed has the following provisions – • Guideways finished with scraping. These surfaces are used by Steadies and Tailstock for positioning. They are also used as reference surface to clamp Steadies and Tailstock in position • Rack arrangement for movement of Steadies and Tailstock
2.	Wheel Carriage Bed	The Carriage bed shall be rugged single piece casting of close-grained alloy cast iron like Meehanite. The machine bed shall be suitably stress relieved and normalized before machining as per IS: 14529 – 2000/ High grade Pearlitic Cast Iron as per Gr. FG-300 as per IS:210 or equivalent JIS standard or ISO standard. The bed shall incorporate suitable design features for high rigidity, high vibration damping capacity and dimensional stability over entire period of life. It should provide full and rigid support for Grinding Wheel Head, Crowning axis etc. The details of bed material, chemical composition, method of stress relieving and physical characteristics should be clearly indicated in the offer.
		There are provisions for draining of oil. Guideways are protected by stainless steel telescopic covers on both sides of carriage.
		The design of the bed should be such as providing easy access to operator for operating of machine. Further suitable operator platform to be provided.

3.	Wheel Carriage and Carriage (Z) axis	• The guideways shall be integral to the carriage body and shall consist of precision Flat and Vee guideways or Hydrostatic guideways to ensure high job grinding accuracy, rigidity & required applications during Roll grinding. The guideways shall be hand-scraped to achieve proper alignment and surface contact. • The carriage movement shall be either through a precision rack and pinion drive system driven by suitable capacity of digital AC servo motor or linear motor arrangement. • In the case of rack and pinion drive, hardened and precision-ground racks of superior quality shall be used along with matching pinions. Systems shall be incorporated to eliminate backlash during traversal across the roll surface. The system shall be driven by suitable capacity of digital AC servo motor through servo planetary gearboxes with a master-slave mechanism for effective backlash elimination or linear motor arrangement.
		A hydrostatic forced lubrication system or any other suitable lubrication system required for achieving grinding accuracy to meet Roll grinding application and application shall be provided to maintain a continuous oil film between the carriage sliding surfaces and the bed guideways, thereby ensuring smooth, stable, and vibration-free movement.
4.	Infeed (X) Axis	• The Infeed Axis shall control the grinding wheel movement towards and away from the Roll. The guideways shall be integral to the carriage body and shall consist of precision Flat and Vee guideways or Hydrostatic guideways to ensure high grinding accuracy, rigidity & required applications during Roll grinding. The guideways shall be hand-scraped to achieve proper alignment and surface contact.
		• The slide underside shall be lined with anti-friction material to prevent stick-slip movement and to ensure smooth operation. The X-axis shall be equipped with a hydrostatic forced lubrication system to maintain a continuous oil film between the sliding surfaces and guideways, thereby ensuring smooth and vibration-free movement or Hydrostatic guideways to ensure high job grinding accuracy, rigidity & required applications during Roll grinding • The axis movement shall be through a high-precision ground ball screw with linear scale driven by suitable capacity of digital AC servo motor coupled with a planetary gearbox for accurate positioning or linear motor arrangement.
		Linear scale to be provided on X axis.
5.	Crowning axis / Cambering Axis for profile generation	Fine profile creation and correction is to be done by the crowning axis. Crowning axis shall be a proven design which allows sub-micron movement.
		Maximum Camber on work piece (Convex/Concave) for length up to 5000 mm: +1 mm (convex), -1mm (concave)
		A separate electronic crowing/ profile generation using suitable mechanism to attain required camber. Cambering axis which allows sub-micron movement for fine profile creation and correction is required.
		Crowning axis is to be driven by a ball screw and a high precision gearbox to eliminates backlash and smooth changeover of curves with suitable digital AC servo motors.
6.	Wheel Head	The wheel head shall move on suitable guideways which shall be pressure lubricated with filtered oil. Suitable protection against failure of supply of pressurized oil shall exist for the carriage.
		Wheel Head spindle shall be of hydrostatic type and shall be designed to provide rotational accuracy and stiffness for proper grinding output. Actual hardness and material specification of wheel spindle in the offer.

		Automatic Dynamic wheel balancer of suitable capacity is to be provided for Grinding Wheel Head along with machine.
		In case of power failure, the wheel head shall go back automatically to create positive gap between wheel and roll. The arrangement to be explained in the offer for safety interlocks in case of power failure.
7.	Tail Stock / Foot Stock	The tail stock shall be of robust construction and carry suitable dead center.
		Suitable arrangements for easy and quick clamping of the tail stock on the bed shall be available.
		Tailstock itself should move manually or motorized suitable to the application on the workpiece bed with rack and pinion arrangement.
		Tailstock cross movement to be provided for initial alignment of roll / Taper correction on rolls.
		Tail stock movement shall be hydraulically controlled and force exerted by the tail stock should be adequate to support work piece.
		Sufficient clearance shall be maintained between head stock and tail stock centers for loading and unloading of components.
		Tailstock sleeve shall be protected suitably from dirt and grinding particles. Removal of tail stock center should be easy arrangement to be provided & shall be explained in the offer.
8.	Work Head / Head Stock	The machine shall be provided with a dead spindle work head / headstock.
		The work head shall be equipped for grinding of components between centers.
		Headstock housing shall consist of the pulley and belt transmission system to carry rotation from headstock motor to the faceplate.
		The transmission is to be designed for giving enough torque to rotate the rolls up to 12 Ton ground on the machine when they are supported on steadies.
		The work head spindle shall be sturdy enough to carry heavy loads of rolls. Actual hardness and material specification of work head spindle shall be indicated in the offer.
		Suitable provision/mechanism shall be provided to quickly stop the work piece rotation.
9.	Dressing unit	The machine shall be provided with CNC controlled dressing unit.
		The dressing device shall be mounted either on longitudinal slide or on the tail stock along with diamond inserts.
		The dresser should be capable of dressing the grinding wheel of grade & diameter quoted with the machine. Diameter range of grinding wheel for external grinding that can be dressed shall be indicated.
10.	Steady Rest / Neck Rest	Machine shall be equipped with steady rests for grinding the rolls.
		One set (02 nos.) of steadies for rolls shall be part of machine.
		Steady rests shall have provision for adjustment in horizontal and vertical directions. Horizontal movement (towards roll) is to be done by a digital AC servomotor. Vertical adjustment is to be done manually.
		Lubrication system is to be individually provided for two steadies.
11.	Coolant System	The machine should be provided with independent self-contained high-capacity coolant arrangement (Minimum 4000 L tank capacity or more suitable for application) for supplying coolant oil to the grinding zone while grinding is being done.
		The coolant pump shall be as per IS: 2161-1962. The filter shall be of reusable type and indigenously available. If reusable filter cannot be offered the filter cartridge shall be readily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare. Details of the coolant system shall be indicated in the offer.
		The capacity of the coolant flow should be of the suitable capacity. Actual value of flow rate should be indicated. The coolant flow should be adjustable.

		The unit will consist of magnetic separators with paper band filters of suitable capacity for removal of sludge and sludge trolley. There should be provision for automatic feeding of filter paper roll. The machine shall be provided with suitable and properly designed guarding arrangements to ensure complete containment of coolant during operation, preventing any spillage or splash onto the shop floor or towards the operator. The guarding shall include adequate enclosure panels, sealing provisions, and proper drainage systems to avoid coolant leakage, floor slippage hazards, and operator exposure. The supplier shall ensure that the design effectively manages coolant flow under all operating conditions.
12.	Lubrication System	The machine shall be provided with an automatic lubricating system for ensuring delivery of adequate quantity of lubricant to areas requiring continuous lubrication. Suitable arrangements must be provided for indication of failure of the lubricating system.
		Complete lubrication system should include the following: o Headstock lubrication: Auto grease system o Tailstock lubrication: Way oil o Steady rest lubrication: Way oil o Front bed lubrication: Way oil o Wheel carriage bed lubrication: Hydraulic oil for hydrostatic lubrication o Wheel carriage: Coolant o Soft loader: Hydraulic and grease The oil and lubrication grades need to be finalized jointly by Bidder in coordination with CoEMTD (IITBHU & HMT MTL)
		The system shall be provided with interlocks to prevent machine operating/starting in the event of the failure lubrication system.
		Reusable filters capable of filtering chips, dust particles etc. shall be provided. Indicators for showing clogged condition of filters shall be available. The filters shall be indigenously available. If reusable filter cannot be offered the filter cartridge shall be readily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare.
		Lubrication and filter cleaning charts shall be displayed on a metal plate at a conspicuous location on the machine indicating: • Specific location of points on the machine to be oiled lubricated/greased. • Periodicity of lubrication of these points. • Filter to be cleaned. • Periodicity of cleaning filters. • Periodicity of replenishing lubricating oil for the centralized system. Any other similar relevant information.
		Points where manual lubrication is needed shall be separately indicated. Frequency of lubrication shall be also clearly mentioned.
		Lubricating oils used in the machine shall be available in India. Successful tenderer will be required to indicate brand names of approved oils manufactured by various Indian Oil Companies.
		First fill of lubricating oils used in the machine shall be provided with the machine. Details of lubricating system provided shall be indicated.
13.	Pneumatic System	A suitable air compressor unit shall be provided along with the machine. The pneumatic system of the machine should be designed accordingly. An alarm shall be provided for low air pressure.
		Suitable filter/moisture trap shall be provided by the contractor in the system of pneumatic air intake. The filter shall be reusable type and indigenously available. If reusable filter cannot be offered, the filter cartridge shall be easily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare.

		Air pressure regulator, if necessary, shall be provided by the tenderer.
		The make of pneumatic control equipment shall be of reputed make. The makes shall be SMC/Festo.
14.	Hydraulic System	Hydraulic circuits must be equipped with the following safety and inspection equipments: • Pressure gauges at all places where pressure has to be set up or inspected. • Safety valves for hydraulic circuit if relief valve does not fulfill this function. • Equipment for checking of temperature in the circuit or in the pump wherever necessary. • Arrangement to show if the filters (including those in the pump set) are choked and need cleaning. The filters shall be of reusable type and indigenously available. If reusable filter cannot be offered, the filter cartridge shall be readily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare. • Alarm for low oil level
		The sump aggregate shall have the following: • Oil level sight gauges or any other equipment showing the minimum and maximum oil levels in sump. • A drain plug at the lowest portion of the tank. It shall be possible to drain the oil from the tank without disconnecting any pipes or other fittings.
		The temperature of oil in hydraulic circuits shall not exceed 60 °C in any case. Suitable arrangements shall be incorporated to ensure that the oil is not overheated under local weather conditions at continuous normal working of the machine.
		Facilities for bleeding of air in case of air lock shall be provided.
		The hydraulic reservoir, pump and allied equipment shall be suitably segregated from the machine in order to remove major sources of heat.
		Hydraulic oils used on the machine shall be available in India. Successful tenderer will be required to indicate brand names of approved oils supplied by various Indian Oil Companies.
		First fill of hydraulic oils used on the machine shall be provided with the machine.
15.	CNC System	The machine shall be equipped with a microprocessor based computer numerical control system preferably of Siemens/Fanuc make of latest model (along with all required digital AC Servo motors/Linear Motors, Drives required for machine application) capable of programmed control machine functions like displacement of slide to desired positions at pre-selected speeds, clamping of slides on reaching the programmed position, start or stop rotation of spindle ; select desired spindle speeds; select desired feed rates for slides; start and stop flow of cutting fluid, etc.
		The basic CNC system shall (suitable for application prove out of all axes required for CNC Roll Grinding Machine). Simultaneous control over two axes i.e. x & z axes shall be available. The standard features of CNC system shall be described in detail in the offer. These should include but not be limited to the following features
		The system shall be capable of linear as well as circular interpolation so as to be able to generate any profile by grinding operation.
		It shall be possible to operate the machine automatically through memory and/or MDI.
		The size of CNC memory shall be in accordance with the ISO Standards with the facility of automatic code recognition.

		Provision for TFT/LED type display (min. 19” inches) character display shall be available. Values displayed on TFT/LCD/TOUCH SCREEN shall be continuously updated. The display shall include pertinent data of the control system like the command data, current position, various alarm signals, self diagnostic results etc.
		Graphic display/ Simulation of finished parts and working area in 3-D representation shall be provided.
		Facility for storage and editing of part programme and sub-programmes in the memory. Facility to search, delete and correct stored words/blocks shall also exist. Facility for program backup in flash card/pen drive is required.
		The system resolution in metric mode shall be of the order of 0.001 mm and in the inch mode it shall be 0.0001 inch. It shall be possible to programme in metric as well as inch dimensions.
		The system shall have capability for absolute as well as incremental programming.
		Facility for macro-programming multiple repetitive cycles shall be available, so as to generate a series of cutting paths with a simple command.
		The feed rates shall be programmable as mm per minute, inch per minute, mm per revolution, inch per revolution and constant surface speed in feet per minute or metre per minute.
		It shall be possible to select and programme spindle speeds through the system.
		Facility of decimal point programming should be available.
		The controls shall have the facility of GRINDING WHEEL WEAR compensation.
		The offered system should include canned cyclesfor ROLL GRINDING considered necessary for the part programs of components. Details of these canned cycles must be furnished along with the offer.
		It shall be possible to program and store parameter limits in order to prevent collision of moving parts due to erroneous programming.
		Facility of self diagnosis of the machine and the controls system faults and display of self diagnostic results shall exist.
		Facility for manually controlling machine axis movement shall be available through electronic hand wheel.
		The system shall have provision for a buffer storage so that machine waiting time is avoided while the next programmed instruction is being read into the control system.
		Adequate means to ensure that the instructions stored in the memory do not get obliterated in the event of power failure, shall be available.
		CNC user memory for program and data should be adequate for storing complete program of Components.
		The CNC system shall be capable of displaying LADDER diagram for diagnostic purpose.
		The system shall be provided with position monitoring device for safety zone operation as a safety measure when the machine is in working condition.
		There shall be provision for display of alarm pertaining to a particular area, which is faulty.
		The CNC system cabinet/operator’s control panel shall be air conditioned to ensure the required dust and moisture free, temperature controlled environment. The air-conditioning unit should be able to function satisfactorily at any incoming supply voltage within the range of 415 Volts 10%.
		The micro processor unit should be suitable for satisfactory operation at any in-coming supply voltage within the range of 415 Volts 10%. A suitable in-built voltage stabilizer and ultra isolation transformer should be provided to

		ensure trouble-free performance. (Refer clause 2.13 of the Technical Specification).
		The part programs for grinding operation shall be provided with the machine
		The proposed CNC system scope may include, but not be limited to, the following: • CNC controller, AC servo drives, linear motors/digital AC servo motors (as per application requirement), spindle system, and feedback devices. • All required hardware, software, CNC options, and licenses. • Communication interfaces, cables, connectors, and accessories • PLC development, ladder logic, and complete system configuration. • Custom HMI screen development, machine data, and parameter configuration. • Part program support and application-specific logic. • Interfacing with in-line automatic monitoring system, steady rests, and other auxiliaries. • Installation, commissioning, and application prove-out support • Software development for camber control including hardware (if any). • In-line monitoring system software, CNC options, and additional hardware, if required • Axis configuration, motion requirements, functionality, and interfacing required for proven machine configuration. • CNC system shall comply with Industry 4.0 requirements. Complete machine backup including operating system, software toolbox package, HMI project files and related software, related manual softcopy etc. shall be provided in hard disk.
16.	Control desk / panel	• LCD/ TFT (flat 19" or better) touch operator panel, and a PC keyboard to be mounted on the Carriage or on floor as a Control Panel with Microsoft Windows based operating system. • Operator control on the carriage/near the wheel should include - selection knob for axes, buttons for manual mode, joy stick and an electronic hand wheel for precision positioning of the axes with a safety switch • Operator control on headstock and tailstock - These controls should include movement of headstock/tailstock, quill movement, headstock rotation etc.
17.	Electrical Cabinet	All controls need to be housed in an IP55 electrical cabinet
18.	Inline Automatic Roll Measuring Caliper System	• Parameters to be measured: Profile, Crown, Taper/roundness/runout. Profile and taper errors to be compensated • Measurable diameter (max): 1000 mm • Measurable diameter (min): 100 mm • Measurable resolution: 0.001 mm • Measuring report: to be stored in an MS SQL server and print facility • Measuring: stand-alone in manual mode or as a sequence in automatic cycle • The mounting of the Measuring heads should be moving DOWN during measurement and moving UP during standby. Movement to be done by digital AC servomotors • Measuring system to be equipped with suitable protection against collision with roll or other machine elements • Measuring arms and the movement mechanisms to be mounted on the new support and it should be driven by Servo system and need to be integrated with main machine drive system • All required electrical interface hardware and cables to be provided • Calibrating rod to be provided on tailstock

		• Measuring system software needs to be integrated with the grinding software Measurement possibilities - o Measurement of shape (profile error) o Diameter measurement o Measurement of roundness and eccentricity o Measurement of roll taper o Measurement of misalignment (in the direction of wheel feed) of the roll Reporting of roll measurement results in printed format
19.	Operation Software	• The Machine operation should be completely guided by interactive human machine interface • The screen should have dynamic changes in grinding parameters, jumping between sequences along with monitoring functions. • Generated grinding programs to be stored in memory upto 1000 grinding and roll programs. • Grinding Programs: normal grinding, short stroking, current grinding, end taper grinding, measuring and inspection. • Roll Profile and Grinding Programs o Sine convex and concave o Cylindrical o CVC o Radius Crown o Parabola o Taper o IMR 1000R (for steel Cold Rolling Mills) o User Defined o In addition, new curves to be added Operation of the machine should allow for enough flexibility to control the flow of grinding like o Free sequencing of steps o Jumping between steps in cycle o Grinding Pass interruption and grinding cycle interruption at the end of pass Retract wheel during grinding and resume etc.
20.	Noise Level	Noise level of the machine shall not exceed 85 db(A) when measured at a distance of one meter from the machine and at a height of 1.5 meter from ground level
21.	Maximum Power Consumption	The maximum power consumption in idle running condition at all working speeds shall be limited to 30% of the rated output
22.	Maximum Power Utilization	The machine should be tested to prove that full rated power can be utilized without vibration
23.	General Electric Specification	The provision of this General Specification shall apply, wherever relevant. All equipments and material shall comply with appropriate Indian Standards (latest), International Standards or National Standards of the country of origin provided the latter are equivalent to or better than the former. The tenderer shall indicate the Standards applicable. The following standards are applicable in particular. (Corresponding International Standards like ASA, NEMA, BSS, DIN etc. may also be quoted). • IS: 325-1979 (latest): Three phase induction motors (corresponding to IEC pub-34-1) (Latest). • IS:1248 (Latest): Direct acting indicating analogue electrical measuring instruments and their accessories (corresponding to IEC pub-51)(Latest). • IS: 1231-1974 (Latest): Dimensions of three phase induction motors (corresponding to IEC Pub- 72-1) (Latest).

- IS:1271-1985 (Latest): Classification of insulation material for electrical machinery & apparatus in relation to their thermal stability in service (corresponding to IEC-Pub-85) (Latest).
- IS: 6875 (Latest): Push Buttons and related control switches corresponding to IEC Pub/73) (Latest).
- IS: 375-1963 (Latest): Marking and arrangement of switch gear, bus bars,main connection & auxiliary wiring.
- IS: 996-1979 (Latest): Single phase small AC and universal electrical motors.
- IS:1356 (Latest): Electrical equipment of machine tools.
- IS:2516 (Latest): Circuit breakers (corresponding to IEC Pub-56) (Latest)

Unless specified in the main specification, the AC motors and starters shall be of the following type. Tenderer is, however, free to give alternative proposal along with justification, if in his view alternative proposal in warranted by site conditions. Type of motor type of starter.

Type of Motor	Type of Starter
Any type of AC motor starting current of which does not exceed 75 amps.	Direct online.
AC squirrel cage, induction motors, starting current of which is above 75 amps. if started direct online	Star delta or Auto transformer type.
AC slipring type motor	Resistance type air/fan Cooled
AC synchronous or synchronous induction motor.	Suitable makers standard.
DC motor	Resistance type/Thyristor type.

The control gear for AC/DC motors shall incorporate the following protection devices as concomitant accessories.

- No Voltage Protection - No voltage protection shall be provided so that machine will not start up again by itself when, following an interruption, the supply is restored.
- Short Circuit Protection - To protect against short circuits due to insulation failure of faulty connections HRC fuses shall be provided for each motor. The rating of the fuse shall be such as to take care of the over current due to motor starting.
- Overload Protection - To prevent motors from overloading, overload protection shall be provided separately for each motor. Three phase motors shall be protected by overload tripping devices on each phase.
- Single Phasing Protection - A separate current sensitive delayed action single phasing preventor shall be provided for each motor separately. Overload protection shall not be treated as single phasing preventor.
- Control equipment shall be mounted in separate drip proof enclosures. Control enclosures and compartments are to be so designed as to give adequate protection against ingress of dust, oil, coolants or chips. All control devices like contractors etc. shall be front mounted on a rigidly fabricated metal panel for ease of operation. All other electrical shall be installed so that they are readily accessible when the doors and covers are opened. Hinged covers shall be interlocked with the machine tool control to prevent operation of the machine when cover is open.

<table>
<tr><td></td><td></td><td>Control equipment shall be mounted in separate drip proof enclosures. Control enclosures and compartments are to be so designed as to give adequate protection against ingress of dust, oil, coolants or chips. All control devices like contractors etc. shall be front mounted on a rigidly fabricated metal panel for ease of operation. All other electrical should be installed so that they are readily accessible when the doors and covers are opened. Hinged covers shall be interlocked with the machine tool control to prevent operation of the machine when cover is open.</td></tr>
<tr><td></td><td></td><td>The motor shall be totally enclosed with or without fan cooled frame. Screen protected drip proof type motor may be provided if it is mounted inside protective enclosures.</td></tr>
<tr><td></td><td></td><td>The electrical equipments shall comply with the requirement of Indian Electricity Act and Rules (latest).</td></tr>
<tr><td></td><td></td><td>All instruments shall be of the Industrial Grade “A” (IS-1248) switch board type the range of the instrument shall be such that the maximum load expected in the circuit shall produce a deflection of 60% to 80% of the full scale.</td></tr>
<tr><td></td><td></td><td>The supplier shall furnish 3 sets of complete electrical and electronic wiring diagrams in full details to enable the maintenance staff to locate faults in the circuits, 3 sets of part catalogues, maintenance manuals operating instructions with details of coils and windings, used in the equipment to facilitate repairs and maintenance should also be supplied.</td></tr>
<tr><td></td><td></td><td>For main motor class minimum “F” Class insulation shall be provided. If any other class of insulation is proposed, detailed justification for providing different class of insulation shall be given.</td></tr>
<tr><td></td><td></td><td>Motors shall be designed to withstand frequent starts, stops and reversals as demanded in the operation of the machine.</td></tr>
<tr><td></td><td></td><td>Two earthing terminals shall be provided on all electric motors including the control gear.</td></tr>
<tr><td>24.</td><td>Power Supply</td><td>The machine shall be suitable for operation on 415 volts 3 phase 50 cycles AC 3 wire or 4 wire system with neutral solidity earthed. The supply voltage may be very up to +10%-20%. The frequency may vary up to + 3%. However, full rated power of the motor shall be available at the lower voltage. Firm should confirm satisfactory performance of the machine at incoming power supply in the range 415V+10%-20% and 50HZ+3% frequency or should provide voltage stabilizer of required capacity.
<table>
<tr><td colspan="3">The voltage stabilizer (of Suitable Capacity in the scope of supply of bidder), if required, shall conform to</td></tr>
<tr><td>i)</td><td>Input Voltage</td><td>320 to 460 volts 3 phase 4 wire supply.</td></tr>
<tr><td>ii)</td><td>Output Voltage</td><td>415 volts</td></tr>
<tr><td>iii)</td><td>Regulation</td><td>+ 1% from No load to Full load.</td></tr>
<tr><td>iv)</td><td>Rate of correction</td><td>20 volts per second per phase.</td></tr>
<tr><td>v)</td><td>Wave from distortion</td><td>NIL</td></tr>
<tr><td>vi)</td><td>Efficiency</td><td>Not less than 97%.</td></tr>
<tr><td>vii)</td><td>Winding and class of insulation</td><td>Copper wire wound with “B” class of insulation or better.</td></tr>
</table>
In case of machines equipped with NC, SS, CNC, Thyristor controlled devices and other sophisticated electronic gadgets including microprocessors etc. which are susceptible to power line spikes and surges, a suitable voltage stabilizer and ultra isolation transformer of adequate capacity to cover for the entire electrical load of the machine shall be offered as a concomitant accessory conforming to Specification for voltage stabilizer as mentioned in clause 2.13.2 above and isolation transformer (of suitable capacity in scope of supply of bidder) to the parameters mentioned below.
<table>
<tr><td>i)</td><td>Transformer ratio</td><td>1:1</td></tr>
</table></td></tr>
</table>

		ii)	Winding	Copper wire wound with "F" class insulation or better.	
		iii)	Protection	To arrest spikes and surges to the order of 3 KV for 200-400 microseconds duration.	
		iv)	Common mode rejection ratio	120 dB	
		v)	Isolation	Capacitance 005 Pf: resistance greater than 1000 Mega Ohms.	
		Voltage stabilizer of adequate capacity to cover for the entire electrical load of the machine shall be equipped with a protective relay to trip to trip the AC power supply to the machine instantaneously with audio and visual indication to the operator. Settings of the protective relay for low and high voltage shall be 320 volts and 460 volts respectively.			
		UPS system (including battery bank, battery chargers etc.) will be provided in case of power fail then UPS system take full load immediately to ensure uninterrupted to critical loads.			
25.	Atmospheric Conditions	The ambient temperature at the site at which the machine will be installed may vary from -0ºC to +50ºC over the year. The relative humidity may be as high as 98%. The atmosphere is expected to be dusty. The machines offered shall be suitably tropicalized to work under these atmospheric conditions without any adverse effect on their performance.			
		The temperature rise shall not reach such a value that there is a risk of injury to any insulating material or adjacent parts.			
		The drive should be capable of operating at any one of the speed required independent of the load in accordance with the requirements of the machine.			
26.	Safety Controls	The machine shall incorporate safety devices to provide protection to the operator and machine against all possible operational and machinery failures.			
		Suitable interlocks shall be provided to prevent machine operations in the event of: • Faulty sequence of operation. • Fluctuation in supply voltage. • Resumption of power supply after power failure. • Non-positioning of safety guards. • Failure of hydraulic system (where applicable) • Failure of lubricating system (In case of automatic including drop in pressure lubrication)			
		A fault or damage in the control circuit or interruption re-establishment after an interruption of fluctuation in whatever manner in the power supply to the machinery must not lead to dangerous situations in particular.			
		The machinery must not start unexpectedly.			
		The machinery must not be prevented from stopping if command has already been given.			
		No moving part of the machinery or piece held by the machinery shall fall or be ejected.			
		The machine shall be fitted with an emergency stop device to enable actual or impending danger to be averted. This device must be:- • Conveniently located. • Clearly identifiable. • Stop the machine as quickly as possible without causing additional hazards. • The emergency stop must remain engaged. It should be possible to disengage it only by appropriate operation. Disengaging the control must not restart the machinery but only permit restarting.			
		Safety features shall also include.			

		• Safety device against overload for all mechanical and electric items to the extent possible. • Safety stops against over-running of slides. • A power-fail retraction feature shall be provided to ensure automatic withdrawal of the grinding wheel in the event of power failure, thereby preventing potential damage to the Roll, safeguarding the machine, and enhancing overall operational safety to avoid any potential accidents. • In addition to the power-fail retraction feature, a dedicated emergency retract push button shall be provided to enable immediate manual withdrawal of the grinding wheel upon detection of any abnormality by the operator during Auto Cycle, thereby minimizing the risk of damage to the roll and preventing potential accidents.
		Guard and protection devices shall protect exposed persons against risks related to moving transmission parts (such as pulleys, belts, gears, rack and pinion, shafts etc.) and moving parts directly involved in the process to the extent possible. This shall meet the following requirements: • Be of robust construction • Not give rise to any additional risk • Not be easy to by pass or render non-operational • Be located at an adequate distance from danger zone • Cause minimum obstruction to the view of the production process. • Rigidly connected and not prone to rattling • Enable essential work to be carried out without the guard or protection device having to be dismantled
		A load meter shall be provided to indicate the load on the machine. The meter shall have a suitable mark to indicate the maximum load the machine can take. Full details of the above and other safety features indicating how each one functions must be explained in the offer.
27.	Lighting	Integral lighting is suitable for the operations concerned where its lack is likely to cause a risk despite ambient lighting of normal intensity shall be provided.
		The manufacturer must ensure that there is no area of shadow likely to cause nuisance, that there is no irritating dazzle and that there are no dangerous stroboscopic effects due to lighting provided by the manufacturer.
		Integral parts requiring frequent inspection and adjustment and maintenance areas must be provided with appropriate lighting.
		The machine lighting should be of low voltage so as to prevent any hazard to the operator.
28.	Machine Maintainability	The machine shall be so designed as to require minimum possible maintenance and to give trouble-free service.
		All assemblies/parts of the machine shall be easily accessible for maintenance.
		The machine shall not require major dis-assembly for checking and replacement of a particular part, especially for parts requiring periodical checkup and replacement
		The manufacturer must provide means of access e.g. stairs, ladders, cat walks etc. to allow access to safety to all areas used for production, adjustments and maintenance operations.
29.	Wear Compensation Adjustment	The original built in accuracy of the machine shall be capable of being maintained conveniently and economically by suitable adjustments for taking up wear on slides, bearings and load screws. The system of adjustments incorporated shall be explained in the offer.
30.	Inspection and Testing at	The machine shall be inspected and tested during different stages of its manufacture starting from raw material till the completion of machine, by the CoEMTD IIT BHU VARANASI & HMT MTL at the manufacturer works.

	Manufacturer's Works:	The bidder must submit the exhaustive QAP incorporating the tests as followed by them. However, the consignee or his authorized representative is free to institute any further checks also, if he so desires and shall be in no way binding on the consignee. Successful bidder to get the QAP approved after issue of LOA from the CoEMTD IIT BHU & HMT MTL before start of manufacturing of machine. Expenses incurred for deputation of technical team (at all stages till completion of the project) for their travelling, lodging & boarding, local conveyance to be borne by the Bidder.
		Pre-installation and inspection at the bidder site: • Machine build quality as per Roll Grinder alignment chart to be recorded and made available to customer for reference. • CoEMTD (IIT BHU VARANASI & HMT MTL) would like to witness and inspect during recording • Roll Grinding should be performed at least two grinding cycles. Grinding to only establish machine functionality. Final prove-out at location/Consignee on proper foundation
		Manufacturers must have suitable facilities at their works for carrying out various performance tests on the sub-assembly/ assembly/machine. The tenderer shall clearly confirm that all facilities exist and shall be made available to the inspecting authority
		A Sample Inspection Chart (Should be as per Indian / International standard for Roll Grinding Test Chart) for inspecting the equipment shall be supplied along with the bid. The inspection chart should indicate all the tests that are carried out during the machine manufacture and also the tests to be offered to inspecting agency. The standard to which this inspection chart conforms should be clearly indicated. Against each test, acceptable limit/ range of values shall be indicated
31.	Training:	Free training by the firm shall be imparted in operation and maintenance of the machine. The training to be imparted shall cover operation, troubleshooting and repair of all mechanical, hydraulic, electrical & electronics equipment's (CNC Control & AC Drives) and CNC/PLC part programming. This training shall be provided to 8 persons nominated by CoEMTD (IIT BHU VARANASI & HMT MTL) for a period of one week free of cost at the manufacturer's premises. One week training will also be provided to 4 person free of cost from CoEMTD (IIT BHU VARANASI & HMT MTL) in design and construction of the machine
		Subsequently, technical experts from the manufacturer will fully and adequately provide training to operators and maintenance staff nominated by the CoEMTD (IIT BHU VARANASI & HMT MTL) at the time of commissioning of the machine at consignee place.
		The supplier will be responsible for co-coordinating with the CoEMTD (IIT BHU VARANASI & HMT MTL). The travel plans of trainees to ensure that the training is imparted on the machine at its assembly and testing stage. The bidder shall also submit training schedule along with the offer
		Additionally, Siemens/Fanuc maintenance training should be made available at Siemens/Fanuc training centers by the bidder
32.	Installation, Commissioning and Proving Tests (On Turnkey Basis)	Joint Check – The contractor or his agent would be required to carry out a joint check at consignee's end, along with the consignee, before unpacking is done, to avoid subsequent complaints regarding short shipment/transit damages. It is necessary that this joint receipt inspection be done immediately on receipt of the machine by consignee & bidder's representative to avoid commissioning delays due to shortages/transit damages.
		The supplier shall demonstrate machine performance and prove out the claimed capability for successful commissioning at the consignee's works. The supplier shall arrange the raw material for prove out at consignee end

		within 30 days of dry run of the machine (installation, power connection, auxiliary connections like air, water etc).
		If an assembly/sub-assembly requires to be taken back to the manufacturer's premises for repair/replacement either before commissioning or during warranty, the manufacturer or his agent would be required to submit BG of suitable amount. In case the entire machine has to be taken back, a Bank Guarantee for the cost of the machine would have to be submitted. The bank guarantee should be of adequate value so as to cover the cost of the assembly/sub-assembly/paid up cost of the machine
		Turnkey Contracts: The supplier shall arrange certification by a RCC consultant who should be a charted Engineer registered with the institute of engineers, that: a. The design of machine foundation & b. Construction of foundation c. Supply and installation of inertia blocks and spring sets for machine base requirement. • Is in accordance with the latest version of the relevant part of the Indian standard for code of practice for design & construction of machine foundation as specified in IS 2974. The original certificate issued by the consultant for certification of both the design & construction of the foundation and a copy of his registration certificate from the Institution of Engineers shall be submitted by the supplier to the consignee. • The supplier shall stand a warranty for the foundation along with machine, He shall arrange to rectify any defects (e.g. sinking or cracking) occurring during the warranty period in the foundation. He shall also be responsible for uprooting and reinstalling the machine if so, required for carrying out the repairs to the foundation. The warranty period would be extendable by the time period for which the machine remains out of commission due to the defect in the foundation or a period of one year, whichever is more.
		Installation Tests at the consignee site: Values to be achieved are (over radius and over and above roll neck errors) – • Cylindricity or straightness – Tolerance zone of distance between two lines drawn on the surface of the roll in the axial direction (0.002 mm/m) • Taper – Difference in the radius of circle drawn in the tailstock end and headstock end (2.5 microns/m) • Crown – Tolerance zone of distance between two lines drawn from the theoretical crown on the surface of the roll in the axial direction (0.003 mm/m over a height of 0.1 mm on radius) • Roundness – Tolerance zone of distance between two concentric circles drawn from the roll center on the surface of the roll in the direction perpendicular to the roll axis (0.003 mm) Ground Roll should be free of marks and imperfections which are not acceptable to the mill
33.	Service Facility in India and Technical support	The tenderer will clearly spell out in the offer the facilities available with him or his agent for providing adequate after-sales service in India during warranty. The complete details such as organization for after sales service, availability of technically competent engineers and warehousing facilities for spares should be clearly indicated. Bidders not offering complete servicing/repair facilities in India to ensure quick response to maintenance/ servicing calls are not likely to be considered.
		After the warranty period, if any, the manufacturer or his agent shall agree to provide service supports for trouble shooting and obtaining spare parts. The manufacturer shall be obliged to provide spare parts required by the

<table>
<tr><td></td><td></td><td>Purchasers for a period of 20 years from the date of delivery of the machine at the ultimate destination to safeguard against obsolescence.</td></tr>
<tr><td></td><td></td><td>Tenderer who are OEM, shall undertake to supply spare parts for a period of expected life of machine. Other tenderers shall submit undertaking from OEM for supply of spare parts for a period of expected life of the machine.</td></tr>
<tr><td></td><td></td><td>During warranty period, the supplier or his authorized agent shall attend for break down as soon as possible, but in no case later than 48 hours of receipt of intimation of the breakdown.</td></tr>
<tr><td rowspan="2">34.</td><td rowspan="2">Bought Out items</td><td>The bidder shall furnish along with the offer a list of all critical items/ sub-assemblies which are bought out by the bidder and proposed to be used, along with the manufacturer’s name, brand model etc. The successful bidder may be required to produce invoices to ensure genuineness of such products / verification by the Inspecting agency.</td></tr>
<tr><td>The bidder should clearly indicate that in case of components / sub-assemblies taken from reputed companies such as Vickers, Rexroth, RITTAL, THK, and Shenburger etc., the parent company has already entered into contract with their Indian units/affiliates for undertakings repairs/after sales service during warranty and post warranty.
<table>
<tr><th>#</th><th>Sub-assembly</th><th>Preferred Make</th></tr>
<tr><td>1.</td><td>Belts</td><td>Fenner/ Gates/ Mitsubishi/ Opti</td></tr>
<tr><td>2.</td><td>Bearing</td><td>Skf/ Fag/ Nsk/ Ntn/Rhp/ Timken</td></tr>
<tr><td>3.</td><td>CNC System (CNC/axis drives and motors)</td><td>Latest Siemens/Fanuc</td></tr>
<tr><td>4.</td><td>Ballscrews for X axis/ C axis –</td><td>THK/INA/Tsubaki/Rexroth/SteinmeyerStar/Gamfior/ Schenburger/Shuton.</td></tr>
<tr><td>5.</td><td>Gearbox for Z axis and Rack & Pinion</td><td>Redex/Gudel/Aplha</td></tr>
<tr><td>6.</td><td>Telescopic cover</td><td>Kableschlepp/ Sur Hennig/ Scute/ Eisen</td></tr>
<tr><td>7.</td><td>Cables</td><td>Lapp/ Finolex/Igus</td></tr>
<tr><td>8.</td><td>Power supply 24V</td><td>Siemens/ Phoenix</td></tr>
<tr><td>9.</td><td>Switchgears</td><td>Siemens/ Telemecanique</td></tr>
<tr><td>10.</td><td>Panel Cooler</td><td>Rittal/Warner Finley/Kelvin</td></tr>
<tr><td>11.</td><td>VFD</td><td>ABB/Telemecanique/ Siemens/ Mitsubishi/ Allen Bradley</td></tr>
<tr><td>12.</td><td>Terminals</td><td>Elmex/ Phoenix</td></tr>
<tr><td>13.</td><td>Servo drives</td><td>Siemens/ Fanuc</td></tr>
<tr><td>14.</td><td>Electric Motors</td><td>ABB/ Siemens/ Crompton Greaves/ Bharat Bijli</td></tr>
<tr><td>15.</td><td>Linear Scale/Encoders/Probes</td><td>Heidenhein</td></tr>
<tr><td>16.</td><td>Hydraulic system (power pack/ fittings/ pump etc.)</td><td>Eaton/ Hydac/ Parker Rexroth/ Yuken/ Vickers</td></tr>
<tr><td>17.</td><td>Hydraulic cylinder</td><td>Veljan/ Yuken/ Eaton/ Hanchen/ Jacobs</td></tr>
</table></td></tr>
</table>

		18.	O -Ring/ Oil seal/ wipers/ V rings	Simrit/ Parker/ Gmn/ Skf
		19.	Pneumatic Cylinder	Veljan/ Festo/ Smc
		20.	Pneumatic Hose	Festo/ Smc/ Aeroflex
		21.	Lubrication System	Cenlub/Dropco/Vogel/ Rexroth
		22.	Cooling/ Filtration System	Udly/ Renuka/ Span/Losma/ Trivantas
		23.	Voltage Stabilizer	Neel/Servomax/Consul/Aplab/Unity/Neel kanth
		24.	Ultra isolation transformer	Neel/Servomax/Consul/Aplab/Unity/Neel kanth
		25.	Pannel AC for electrical cabinet and control post	Warner Finely/ Rittal/ Advance Cooling
		26.	Electrical cabinet	RITTAL/ Siemens Or Of Other Reputed Make With IP55 Protection Level
		27.	Flexible Coupling	Miki Pulley/ Mayer/ Smartflex/ Ringfeeder
		28.	Limit switches	Omron/ EuchnerTeknic
		29.	Autodynamic wheel balancer	Marpos/ Sbs/ Elaso/ MPM
		30.	Chiller unit	Advance Cooling/ Warner Finley
		31.	Compressor Unit	Elgi/Atlas/Copco/Ingersoll Rand
		32.	Contactors/Relays/ Mcbs/Overload Relays/Isolation Switch	Siemens/Abb/Scheinder/Allen Bradely/Omron
		33.	Proximity Switches/ Reed Switches/ Push Buttons	Siemens/Scheinder/Ballluf/Sick/Turck/Allen Bradley/Teckniq
35.	Machine Documentation	• Complete digital back up - 2 sets • Operating manual - 2 sets • PLC programming listing - 2 sets • Machine data listing - 2 sets • Electrical diagrams in English - 2 sets • Mechanical manual - 2 sets • Measuring System manual - 2 sets • Machine Documentation to be provided in English • All Mechanical Assembly drawings in 2D format in tracings on respective sheet size i.e. A0, A1, A2, A3 & A4 as well as in 3D solidworks/Solidedge Format • All Toolings and Fixture drawings used in manufacturing of machines in 2D format in tracings on respective sheet size i.e. A0, A1, A2, A3 & A4 as well as in 3D solidworks/Solidedge Format • All Lubrication, Hydraulic, Pneumatic and Coolant piping diagrams, Circuit diagrams etc. 2D format in tracings on respective sheet size i.e. A0 / A1 sheet size • All electrical circuit diagram in hard tarcing as well as in Soft copy. Further CAD Format drawing of Electrical circuit diagram. • All Complete machine assembly in 3D slodworks/Solidedge with all parts in Hard disk.		

		• All major sub assembly drawings in 2D format in tracings on respective sheet size i.e. A0 / A1/ A2 sheet size
36.	Warranty	Equipment and workmanship to be covered by a warranty of 12 months from the date of successful installation and commissioning at the consignee site. • Warranty should cover manufacturing/design defects
		The machine shall be designed for a life of 20 years with regular maintenance and all the structural members of the machine and the foundation shall be guaranteed for 5 years against cracks breakages and etc. During the course of normal operations. Tenderer would submit suitable undertaking.
37.	Preventive Maintenance	Firm has to execute comprehensive preventive maintenance schedule in 1st year of warranty period. Consignee will not pay any cost for this preventive maintenance schedule.
		Since the machine will be under comprehensive preventive maintenance during warranty period of two (02) years , it is the sole responsibility of bidders to stock such spares as required for smoother execution of PMC during warranty in order to achieve response time in compliance to machine availability as per stipulated requirements
38.	AMC	Firm should provide Comprehensive AMC of 1 years after expiration of warranty period to be included in the scope of the bidder.
39.	Non-Disclosure Agreement (NDA) For Design	The design inputs will be shared with the bidder after signing NDA with CoEMTD (IIT BHU Varanasi & HMT MTL) • System automation should be as per the machine requirement • CoEMTD (IIT BHU Varanasi & HMT MTL) should be involved and informed prior to any subcontracting purchases/fabrication

The work distribution will be as per the table shown below:

Table 1: Work distribution between CoEMTD (IIT BHU Varanasi & HMT MTL) and Bidder.

Name of items	Design and Specifications	Fabrication	Required off the shell items such as PLC, miscellaneous items as mentioned in scope of work
Mechanical Design of Front Bed (Front Bed, Head Stock, Tail Stock and Steady rest)	CoEMTD (IIT BHU Varanasi & HMT MTL)	Bidder	Bidder in consultation with CoEMTD (IIT BHU Varanasi & HMT MTL)
Mechanical Design of Wheel Carriage Bed (Wheel Carriage, Wheel Carriage Bed)	CoEMTD (IIT BHU Varanasi & HMT MTL)	Bidder	
Hydrostatic guideways on the Wheel Carriage Bed (X and Z axis)	CoEMTD (IIT BHU Varanasi & HMT MTL)	Bidder	
Inline Automatic Roll Measuring Caliper System	Bidder		
Machine Control System	Bidder		
Operation Software	Bidder		

Other Terms

1. Price of the facility should be quoted in Indian currency.
2. Price should be quoted F.O.R IIT(BHU) Varanasi/ HMT MTL Ajmer.
3. Custom Clearance will be the responsibility of the supplier.
4. Indian agency commission: Should be clearly stated in the financial bid in Indian currency.

5. Penalty: A penalty of 1% of the order value will be applied for late delivery of the goods for each week thereof subject to a maximum of 5%.
6. Bank Guarantee (BG): Successful bidder must furnish bank guarantee of 20 % of the order value in the shape of in favour of the Registrar, Indian Institute of Technology (BHU) Varanasi (this will be returned to the bidder after successful completion of phase 5 but not later than 16 months from PO if the delay in installation and commissioning is not attributable to the bidder). Also, the successful bidder also has to furnish 05% of the order value as a performance bank guarantee favour of the Registrar, Indian Institute of Technology (BHU) Varanasi valid for a period of 60 days beyond the end of all warranty period/obligations and AMC.
7. Payment: The payment terms shall be made in phases as per the following scheme:

Phase	Payment to be released	Task	Readiness	Document necessary for the release of the payment
1	30% of total BOQ	Delivery of machine final layout, foundation drawings, electrical BOM, Control post layout, finalization of the part and assembly drawings,.	4 months from PO	e. Phase completion report duly signed by technical committee. f. Proof of the submission of bank guarantee of 20 % of total BOQ (this will be returned to the bidder after successful completion of phase 5 but not later than 16 months from PO if the delay in installation and commissioning is not attributable to the bidder). g. Proof of the submission of performance bank guarantee of 5 % of total BOQ (this will be returned after the warranty and the AMC period). h. Signed document issued by the CoEMTD (IIT (BHU) Varanasi & HMT MTL) to the bidder confirming that the designated site for machine installation has been formally handed over.
2	20% of total BOQ	Readiness of electrical panels including CNC package, grinding spindle, steadies, measuring system, All manufacturing BOP items	7 months from PO	b. Phase completion report duly signed by technical committee.
3	10% of total BOQ	Completion of assembly at bidder's place	9 months from PO	b. Phase completion reports duly signed by technical committee.
4	20% of total BOQ	Completion of trials at bidder's placeand acceptance	12 months from PO	c. Pre-installation and inspection as mentioned in Annexure I. d. Phase completion reports duly signed by technical committee.
5	20% of total BOQ	Completion of final installation and commissioning at consignee location and final acceptance	16 months from PO	e. Testing and Validation at the customer site as mentioned in Annexure I. f. Performance Guarantees Confirmation report as mentioned in Annexure I. g. Installation and Training report. h. Phase completion reports duly signed by technical committee.

8. User List: Provide users for last 3 years with contact person name, address, phone, and email IDs.
9. Manuals/Documents: 1 set of hard copy and 1 set of soft copy in English (preferred as following).
    i. Operating manuals
    ii. Maintenance manual
    iii. Servicing manual
    iv. Programming manual
    v. Manuals of bought out items incorporated in the system
    vi. Details of any custom-made ICs & components & their sources
10. The bidder must be authorized by the respective OEM to supply, install and maintain the system. The Tender should be enclosed with proper certifications like Authorization Certificate and Proprietary Certificate, in case of Proprietary items.
11. Pre-installation site preparation/inspection requirements to be indicated and specified along with the bid.
12. Warranty period should be 1 year and should begin from the date of installation. Annual Maintenance Contract Charges should be clearly mentioned after warranty period. 1 year comprehensive warranty and 1 Years comprehensive AMC.
13. Submit Electronic copy of the technical specifications and bids.
14. The vendor to provide compliance statement with respect to each technical specification in the tender document duly supported by the manufacturer's literature. Any other claim will not be accepted and may lead to rejection of the bid.
15. Printed literature in support of compliance to the prescribed specifications is to be submitted.
16. Compliance report needs to be submitted as a part of the technical bid.
17. In case during shipment period newer versions of software/hardware is available with vendor in lieu of the existing one for which Letter of Credit was opened, then improved version should be made available without any extra cost.
18. Institute reserves the right to visit installation in India of similar capabilities the details with to regard to such installation should be given as a part of technical bid.
19. Technical evaluation by the Institute may include demonstration to verify functionalities and capabilities of the system quoted.
20. The final intellectual property (IP) right of the machine to be fabricated i.e. Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type machine will remain with CoEMTD. IP belongs to respective parties as per division of work

Note: Please treat all the details mentioned above are Draft of Technical Specifications and Commercial Specifications for proposed CNC Heavy Duty Roll Grinding Machine with Traverse Type Wheel Head of Qty. 01 No

Coordinator
Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU) Varanasi
Varanasi-221005, Uttar Pradesh, India

ANNEXURE-II

TECHNICAL COMPLIANCE STATEMENT

(To be submitted by bidder duly filled)

S. No.	Description	Unit	Value	YES/NO
1.1 Job Accommodation				
Max swing over table (to accommodate steady rest)		mm	1500	
Max distance between centers		mm	5000	
Max grinding length		mm	5000	
Min grinding length		mm	1000	
Max job weight between centers (with steady rest)		Kg	12000	
Max job diameter between centers		mm	900	
Min job diameter between centers		mm	100	
Taper correction		deg	+/-1° (suitable mechanical/automatic arrangement)	
1.2 WORK HEAD				
Speed (infinitely variable)		RPM	4-100	
Centre type		MT	6 /7 or (suitable to the job weight)	
1.3 WHEEL HEAD				
New wheel size (Dia x Bore x Width) - of suitable grade as per application		mm	900x305x100	
Worn out wheel Diameter		mm	550	
Minimum width of wheel		mm	50	
Max. Peripheral speed (constant)		m/sec	33 or more	
Wheel speed Range (infinitely variable)		RPM	750-1000	
1.4 Wheel Head Longitudinal Travel (Z-AXIS)				
Total travel		mm	6000 (Min.)	
Z Axis speed range		mm/min	0-6000	
Min. Programmable Resolution		mm	0.001	
1.5 INFEED SLIDE (X-AXIS)				
Total travel of infeed slide		mm	600 (Min.)	
X-Axis Feed rate range		mm/min	0-6000	
Minimum programmable resolution		mm	0.001	
1.6 TAIL STOCK				
Centre type		MT	6 / 7 or (suitable to the job weight)	
Max. quill movement (hydraulic movement only)		mm	110 or more	
1.7 ELECTRICAL MOTORS				
Wheel head		Kw	Approx. 65 (suitable digital AC servomotor for roll grinding application)	
Work head		Nm	Approx. 100 (suitable digital AC servomotor for roll grinding application)	
1.8 CAMBER				
Maximum Camber on work piece (Convex/Concave) for length upto 5000 mm		mm	+1 (Convex) -1 (Concave)	

#	Details	Technical Details	YES/ NO
1.	General Overview/ Scope of supply	• The scope of supply shall include manufacture, assembly supply, Foundation ,installation & commissioning on turn key basis, testing and prove out of CNC Heavy Duty Roll Grinding Machine with Wheel Head Traverse Type, which includes equipments such as Headstock, Steady Rest, Tailstock, Wheel carriage, Front bed, Infeed, Cross slide, Wheel carriage Rear bed, Hydraulic system, Lubrication system, Coolant System, CNC Automation System, Automatic Inline Roll measurement System, Wheel balancing System (static and dynamic), Hydrostatic Grinding Spindle, Crowning axis profile generating mechanism using Camber etc. • The detailed design of machine including mechanical part drawings and mechanical assembly drawings, and other critical data related to the fabrication will be provided by CoEMTD (IIT BHU VARANSI & HMT MTL). CNC System Interface, Machine Software development, In-line Automatic Measurement System integration and CNC PLC/Part program development and prove out is in the scope of the bidder. • The Bidder and CoEMTD can jointly review the design, manufacture, fabricate, assembly, Foundation and Installation & Commissioning, development of the Machine to ensure that final performance guarantees can achieved as per tender technical specifications. **The scope of work of bidder also includes the following:** • purchase of miscellaneous components/items by the bidder such as sensors, electrical connections, critical joints of various subsystems, tools for machine development, trolleys, nuts, bolts, subsystems/components (not listed below) that may be required at latter stage necessary for successful assembling and working of the CNC heavy duty roll grinding machine with wheel head traverse type equipment.	
2.	Turnkey Contracts	• Design of foundation as well as flooring of sufficient thickness, suiting local soil & weather conditions at the site to achieve required accuracy in the scope of bidder. • Complete civil work required for the installation of the machine are in the scope of the bidder. • All civil work namely, construction of machine foundationof sufficient thickness suiting local soil & weather conditions, jib crane foundation, earth pit construction for machine shall be completed by the bidder, construction of Electrical Control Room, grouting material required for beds grouting, minor civil work that maybe required during actual installation& commissioning are under the scope of the bidder. • The bidder needs to provide the complete foundation drawings, specifications for the spring and the inertia blocks etc. • Advise consignee in time regarding schedule for requirement of clear site for construction of foundation and other infrastructure, resources & facilities required. • Provision of all tools and equipment, technical and unskilled manpower, material handling accessories/ equipment and material for installation and commissioning is the scope of the bidder. • Unloading of the machine on receipt and its movement to the site of installation including the provision of road mobile crane is also in the scope of the bidder.	

		• The bidder should ensure the proper earthing for the machine and its peripherals/accessories and preparation of suitable Earthing Pit at consignee place/works is in the scope of bidder. • Machine floor plan to be provided by the bidder. **The below and not limited to, are also the scope of the bidder** • Construction of machine foundation (with drawings). • Grouting material required for Beds grouting. • All steel works around the machine (Safety railings, chequered plates etc. with drawings). • Arranging trained assistance during lifting of Inertia Block and Electrical Panels placement is in the scope of the bidder • Cleaning agents, cotton waste, marking cloth etc. that may be required from time to time during installation in the scope of bidder. • Initial fill consumables like oil, grease, coolant is the scope of bidder. • A concrete inertia block for placing the machine. Internal structure of the inertia block is in scope of bidder. • Inertia block to be mounted on springs. Springs for the inertia block. Machine to be mounted on fixators and clamped to the inertia block through anchor bolts. • Utilities like water, gas cutting, welding which may be required from time to time during installation (this needs to be provided by customer/consignee at final location).	
1.9	Steady rest	• Steady rest with adjustable lower and side pad • Load bearing capacity: according to 12-ton work roll • Soft loader for steady rest support • Neckrest lubrication oil system to prevent heating during roll rotation	
2.0	Crowning / Cambering axis	• Maximum Camber on work piece (Convex/Concave) for length up to 5000 mm: +1 mm (convex), -1mm (concave) • A separate electronic crowing/cambering axis which allows sub-micron movement for fine profile creation and correction is required. Separate crowning/cambering/profile generation to meet required camber +/- 1 mm in the length of 5000mm • Crowning axis is to be driven by a ball screw and a high precision gearbox to eliminates backlash and smooth changeover of curves.	
2.1	Performance Guarantees	• Accuracy parameters (on radius): o Parallelism, cylindricity 0.002 mm/m o Runout 0.003 mm o Profile +/-0.003 mm/m for crown height of 0.1 mm on radius o Surface finish Ra = 0.05-0.3 µm • All values on radius and over and above roll neck errors • Cambering accuracy +/- 0.001 mm/m • Machine Stock removal capacity for ICDP rolls (Min.): 35Kg/Hour All values valid when measured with automatic inline roll measurement system	
2.2	Machine Accessories in the scope of bidder	• Automatic Dynamic Wheel Balancing. • Static Wheel Balancing Stand. • Roll Neck Lubrication. • Operational Accessories. • Maintenance Accessories (wheel Arbor and wheel change devices). • Heavy Duty Springs for Inertia Block Support. • Levelling Fixators.	

		• Jib Crane of suitable capacity (1 Ton) for Wheel Loading/Unloading. • One trial Component suitable for trials. • Wheel Flange (Arbor): 2 numbers • 3 Set of Wheels for Grinding Trials • Stoppers for Headstock and Tailstock • Operating Manuals • Maintenance Manuals • Consumables for one year • Spare parts required for normal running of machine for 2 years • All Tooling and Fixtures • In line Automatic Roll Measurement system • Soft Loader for Steady Rest • Machine lamp • Tower light • Set of carriers for job rotation • Maintenance tools kit (including Electrical, Electronics & Mechanical kit)	
Basic Design Characteristics of Machine:			
1.	Front/Work Bed	The front/ work bed shall be rugged single piece casting of close-grained alloy cast iron like Meehanite. The machine bed shall be suitably stress relieved and normalized before machining as per IS: 14529 – 2000/ High grade Pearlitic Cast Iron as per Gr. FG-300 as per IS:210 or equivalent JIS standard or ISO standard. The bed shall incorporate suitable design features for high rigidity, high vibration damping capacity and dimensional stability over entire period of life. It should provide full and rigid support for Headstock, Neck/ Steady Rest, Tailstock etc. The details of bed material, chemical composition, method of stress relieving and physical characteristics should be clearly indicated in the offer.	
		The design of the front bed should be such as to provide easy access to operator for loading and unloading of job, inline automatic roll measurement system and grinding wheel changing functions.	
		Front/Work Bed should have provision for coolant disposal and wet dust disposal along with coolant. • Work Bed has the following provisions – • Guideways finished with scraping. These surfaces are used by Steadies and Tailstock for positioning. They are also used as reference surface to clamp Steadies and Tailstock in position • Rack arrangement for movement of Steadies and Tailstock	
2.	Wheel Carriage Bed	The Carriage bed shall be rugged single piece casting of close-grained alloy cast iron like Meehanite. The machine bed shall be suitably stress relieved and normalized before machining as per IS: 14529 – 2000/ High grade Pearlitic Cast Iron as per Gr. FG-300 as per IS:210 or equivalent JIS standard or ISO standard. The bed shall incorporate suitable design features for high rigidity, high vibration damping capacity and dimensional stability over entire period of life. It should provide full and rigid support for Grinding Wheel Head, Crowning axis etc. The details of bed material, chemical composition, method of stress relieving and physical characteristics should be clearly indicated in the offer.	
		There are provisions for draining of oil. Guideways are protected by stainless steel telescopic covers on both sides of carriage.	

		The design of the bed should be such as providing easy access to operator for operating of machine. Further suitable operator platform to be provided.	
3.	Wheel Carriage and Carriage (Z) axis	• The guideways shall be integral to the carriage body and shall consist of precision Flat and Vee guideways or Hydrostatic guideways to ensure high job grinding accuracy, rigidity & required applications during Roll grinding. The guideways shall be hand-scraped to achieve proper alignment and surface contact. • The carriage movement shall be either through a precision rack and pinion drive system driven by suitable capacity of digital AC servo motor or linear motor arrangement. • In the case of rack and pinion drive, hardened and precision-ground racks of superior quality shall be used along with matching pinions. Systems shall be incorporated to eliminate backlash during traversal across the roll surface. The system shall be driven by suitable capacity of digital AC servo motor through servo planetary gearboxes with a master-slave mechanism for effective backlash elimination or linear motor arrangement.	
		A hydrostatic forced lubrication system or any other suitable lubrication system required for achieving grinding accuracy to meet Roll grinding application and application shall be provided to maintain a continuous oil film between the carriage sliding surfaces and the bed guideways, thereby ensuring smooth, stable, and vibration-free movement.	
4.	Infeed (X) Axis	• The Infeed Axis shall control the grinding wheel movement towards and away from the Roll. The guideways shall be integral to the carriage body and shall consist of precision Flat and Vee guideways or Hydrostatic guideways to ensure high grinding accuracy, rigidity & required applications during Roll grinding. The guideways shall be hand-scraped to achieve proper alignment and surface contact.	
		• The slide underside shall be lined with anti-friction material to prevent stick-slip movement and to ensure smooth operation. The X-axis shall be equipped with a hydrostatic forced lubrication system to maintain a continuous oil film between the sliding surfaces and guideways, thereby ensuring smooth and vibration-free movement or Hydrostatic guideways to ensure high job grinding accuracy, rigidity & required applications during Roll grinding • The axis movement shall be through a high-precision ground ball screw with linear scale driven by suitable capacity of digital AC servo motor coupled with a planetary gearbox for accurate positioning or linear motor arrangement.	
		Linear scale to be provided on X axis.	
5.	Crowning axis / Cambering Axis for profile generation	Fine profile creation and correction is to be done by the crowning axis. Crowning axis shall be a proven design which allows sub-micron movement.	
		Maximum Camber on work piece (Convex/Concave) for length up to 5000 mm: +1 mm (convex), -1mm (concave)	
		A separate electronic crowing/ profile generation using suitable mechanism to attain required camber. Cambering axis which allows sub-micron movement for fine profile creation and correction is required.	
		Crowning axis is to be driven by a ball screw and a high precision gearbox to eliminates backlash and smooth changeover of curves with suitable digital AC servo motors.	

6.	Wheel Head	The wheel head shall move on suitable guideways which shall be pressure lubricated with filtered oil. Suitable protection against failure of supply of pressurized oil shall exist for the carriage.	
		Wheel Head spindle shall be of hydrostatic type and shall be designed to provide rotational accuracy and stiffness for proper grinding output. Actual hardness and material specification of wheel spindle in the offer. Automatic Dynamic wheel balancer of suitable capacity is to be provided for Grinding Wheel Head along with machine.	
		In case of power failure, the wheel head shall go back automatically to create positive gap between wheel and roll. The arrangement to be explained in the offer for safety interlocks in case of power failure.	
7.	Tail Stock / Foot Stock	The tail stock shall be of robust construction and carry suitable dead center.	
		Suitable arrangements for easy and quick clamping of the tail stock on the bed shall be available.	
		Tailstock itself should move manually or motorized suitable to the application on the workpiece bed with rack and pinion arrangement.	
		Tailstock cross movement to be provided for initial alignment of roll / Taper correction on rolls.	
		Tail stock movement shall be hydraulically controlled and force exerted by the tail stock should be adequate to support work piece.	
		Sufficient clearance shall be maintained between head stock and tail stock centers for loading and unloading of components.	
		Tailstock sleeve shall be protected suitably from dirt and grinding particles. Removal of tail stock center should be easy arrangement to be provided & shall be explained in the offer.	
8.	Work Head / Head Stock	The machine shall be provided with a dead spindle work head / headstock.	
		The work head shall be equipped for grinding of components between centers.	
		Headstock housing shall consist of the pulley and belt transmission system to carry rotation from headstock motor to the faceplate.	
		The transmission is to be designed for giving enough torque to rotate the rolls up to 12 Ton ground on the machine when they are supported on steadies.	
		The work head spindle shall be sturdy enough to carry heavy loads of rolls. Actual hardness and material specification of work head spindle shall be indicated in the offer.	
		Suitable provision/mechanism shall be provided to quickly stop the work piece rotation.	
9.	Dressing unit	The machine shall be provided with CNC controlled dressing unit.	
		The dressing device shall be mounted either on longitudinal slide or on the tail stock along with diamond inserts.	
		The dresser should be capable of dressing the grinding wheel of grade & diameter quoted with the machine. Diameter range of grinding wheel for external grinding that can be dressed shall be indicated.	
10.	Steady Rest / Neck Rest	Machine shall be equipped with steady rests for grinding the rolls.	
		One set (02 nos.) of steadies for rolls shall be part of machine.	
		Steady rests shall have provision for adjustment in horizontal and vertical directions. Horizontal movement (towards roll) is to be done by a digital AC servomotor. Vertical adjustment is to be done manually.	
		Lubrication system is to be individually provided for two steadies.	

11.	Coolant System	The machine should be provided with independent self-contained high-capacity coolant arrangement (Minimum 4000 L tank capacity or more suitable for application) for supplying coolant oil to the grinding zone while grinding is being done.	
		The coolant pump shall be as per IS: 2161-1962. The filter shall be of reusable type and indigenously available. If reusable filter cannot be offered the filter cartridge shall be readily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare. Details of the coolant system shall be indicated in the offer.	
		The capacity of the coolant flow should be of the suitable capacity. Actual value of flow rate should be indicated. The coolant flow should be adjustable.	
		The unit will consist of magnetic separators with paper band filters of suitable capacity for removal of sludge and sludge trolley. There should be provision for automatic feeding of filter paper roll. The machine shall be provided with suitable and properly designed guarding arrangements to ensure complete containment of coolant during operation, preventing any spillage or splash onto the shop floor or towards the operator. The guarding shall include adequate enclosure panels, sealing provisions, and proper drainage systems to avoid coolant leakage, floor slippage hazards, and operator exposure. The supplier shall ensure that the design effectively manages coolant flow under all operating conditions.	
12.	Lubrication System	The machine shall be provided with an automatic lubricating system for ensuring delivery of adequate quantity of lubricant to areas requiring continuous lubrication. Suitable arrangements must be provided for indication of failure of the lubricating system.	
		Complete lubrication system should include the following: o Headstock lubrication: Auto grease system o Tailstock lubrication: Way oil o Steady rest lubrication: Way oil o Front bed lubrication: Way oil o Wheel carriage bed lubrication: Hydraulic oil for hydrostatic lubrication o Wheel carriage: Coolant o Soft loader: Hydraulic and grease The oil and lubrication grades need to be finalized jointly by Bidder in coordination with CoEMTD (IITBHU & HMT MTL)	
		The system shall be provided with interlocks to prevent machine operating/starting in the event of the failure lubrication system.	
		Reusable filters capable of filtering chips, dust particles etc. shall be provided. Indicators for showing clogged condition of filters shall be available. The filters shall be indigenously available. If reusable filter cannot be offered the filter cartridge shall be readily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare.	
		Lubrication and filter cleaning charts shall be displayed on a metal plate at a conspicuous location on the machine indicating: • Specific location of points on the machine to be oiled lubricated/greased. • Periodicity of lubrication of these points. • Filter to be cleaned. • Periodicity of cleaning filters.	

		• Periodicity of replenishing lubricating oil for the centralized system. Any other similar relevant information.	
		Points where manual lubrication is needed shall be separately indicated. Frequency of lubrication shall be also clearly mentioned.	
		Lubricating oils used in the machine shall be available in India. Successful tenderer will be required to indicate brand names of approved oils manufactured by various Indian Oil Companies.	
		First fill of lubricating oils used in the machine shall be provided with the machine. Details of lubricating system provided shall be indicated.	
13.	Pneumatic System	A suitable air compressor unit shall be provided along with the machine. The pneumatic system of the machine should be designed accordingly. An alarm shall be provided for low air pressure.	
		Suitable filter/moisture trap shall be provided by the contractor in the system of pneumatic air intake. The filter shall be reusable type and indigenously available. If reusable filter cannot be offered, the filter cartridge shall be easily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare.	
		Air pressure regulator, if necessary, shall be provided by the tenderer.	
		The make of pneumatic control equipment shall be of reputed make. The makes shall be SMC/Festo.	
14.	Hydraulic System	Hydraulic circuits must be equipped with the following safety and inspection equipments: • Pressure gauges at all places where pressure has to be set up or inspected. • Safety valves for hydraulic circuit if relief valve does not fulfill this function. • Equipment for checking of temperature in the circuit or in the pump wherever necessary. • Arrangement to show if the filters (including those in the pump set) are choked and need cleaning. The filters shall be of reusable type and indigenously available. If reusable filter cannot be offered, the filter cartridge shall be readily available in India. Source of supply shall be indicated. Adequate no. of filters for 2 years working on double shift basis shall be offered as spare. • Alarm for low oil level	
		The sump aggregate shall have the following: • Oil level sight gauges or any other equipment showing the minimum and maximum oil levels in sump. • A drain plug at the lowest portion of the tank. It shall be possible to drain the oil from the tank without disconnecting any pipes or other fittings.	
		The temperature of oil in hydraulic circuits shall not exceed 60 °C in any case. Suitable arrangements shall be incorporated to ensure that the oil is not overheated under local weather conditions at continuous normal working of the machine.	
		Facilities for bleeding of air in case of air lock shall be provided.	
		The hydraulic reservoir, pump and allied equipment shall be suitably segregated from the machine in order to remove major sources of heat.	
		Hydraulic oils used on the machine shall be available in India. Successful tenderer will be required to indicate brand names of approved oils supplied by various Indian Oil Companies.	

		First fill of hydraulic oils used on the machine shall be provided with the machine.	
15.	CNC System	The machine shall be equipped with a microprocessor based computer numerical control system preferably of Siemens/Fanuc make of latest model (along with all required digital AC Servo motors/Linear Motors, Drives required for machine application) capable of programmed control machine functions like displacement of slide to desired positions at pre-selected speeds, clamping of slides on reaching the programmed position, start or stop rotation of spindle ; select desired spindle speeds; select desired feed rates for slides; start and stop flow of cutting fluid, etc.	
		The basic CNC system shall (suitable for application prove out of all axes required for CNC Roll Grinding Machine). Simultaneous control over two axes i.e. x & z axes shall be available. The standard features of CNC system shall be described in detail in the offer. These should include but not be limited to the following features	
		The system shall be capable of linear as well as circular interpolation so as to be able to generate any profile by grinding operation.	
		It shall be possible to operate the machine automatically through memory and/or MDI.	
		The size of CNC memory shall be in accordance with the ISO Standards with the facility of automatic code recognition.	
		Provision for TFT/LED type display (min. 19" inches) character display shall be available. Values displayed on TFT/LCD/TOUCH SCREEN shall be continuously updated. The display shall include pertinent data of the control system like the command data, current position, various alarm signals, self diagnostic results etc.	
		Graphic display/ Simulation of finished parts and working area in 3-D representation shall be provided.	
		Facility for storage and editing of part programme and sub-programmes in the memory. Facility to search, delete and correct stored words/blocks shall also exist. Facility for program backup in flash card/pen drive is required.	
		The system resolution in metric mode shall be of the order of 0.001 mm and in the inch mode it shall be 0.0001 inch. It shall be possible to programme in metric as well as inch dimensions.	
		The system shall have capability for absolute as well as incremental programming.	
		Facility for macro-programming multiple repetitive cycles shall be available, so as to generate a series of cutting paths with a simple command.	
		The feed rates shall be programmable as mm per minute, inch per minute, mm per revolution, inch per revolution and constant surface speed in feet per minute or metre per minute.	
		It shall be possible to select and programme spindle speeds through the system.	
		Facility of decimal point programming should be available.	
		The controls shall have the facility of GRINDING WHEEL WEAR compensation.	
		The offered system should include canned cyclesfor ROLL GRINDING considered necessary for the part programs of components. Details of these canned cycles must be furnished along with the offer.	
		It shall be possible to program and store parameter limits in order to prevent collision of moving parts due to erroneous programming.	

		Facility of self diagnosis of the machine and the controls system faults and display of self diagnostic results shall exist.	
		Facility for manually controlling machine axis movement shall be available through electronic hand wheel.	
		The system shall have provision for a buffer storage so that machine waiting time is avoided while the next programmed instruction is being read into the control system.	
		Adequate means to ensure that the instructions stored in the memory do not get obliterated in the event of power failure, shall be available.	
		CNC user memory for program and data should be adequate for storing complete program of Components.	
		The CNC system shall be capable of displaying LADDER diagram for diagnostic purpose.	
		The system shall be provided with position monitoring device for safety zone operation as a safety measure when the machine is in working condition.	
		There shall be provision for display of alarm pertaining to a particular area, which is faulty.	
		The CNC system cabinet/operator's control panel shall be air conditioned to ensure the required dust and moisture free, temperature controlled environment. The air-conditioning unit should be able to function satisfactorily at any incoming supply voltage within the range of 415 Volts 10%.	
		The micro processor unit should be suitable for satisfactory operation at any in-coming supply voltage within the range of 415 Volts 10%. A suitable in-built voltage stabilizer and ultra isolation transformer should be provided to ensure trouble-free performance. (Refer clause 2.13 of the Technical Specification).	
		The part programs for grinding operation shall be provided with the machine	
		The proposed CNC system scope may include, but not be limited to, the following: • CNC controller, AC servo drives, linear motors/digital AC servo motors (as per application requirement), spindle system, and feedback devices. • All required hardware, software, CNC options, and licenses. • Communication interfaces, cables, connectors, and accessories • PLC development, ladder logic, and complete system configuration. • Custom HMI screen development, machine data, and parameter configuration. • Part program support and application-specific logic. • Interfacing with in-line automatic monitoring system, steady rests, and other auxiliaries. • Installation, commissioning, and application prove-out support • Software development for camber control including hardware (if any). • In-line monitoring system software, CNC options, and additional hardware, if required • Axis configuration, motion requirements, functionality, and interfacing required for proven machine configuration. • CNC system shall comply with Industry 4.0 requirements.	

		Complete machine backup including operating system, software toolbox package, HMI project files and related software, related manual softcopy etc. shall be provided in hard disk.	
16.	Control desk / panel	• LCD/ TFT (flat 19" or better) touch operator panel, and a PC keyboard to be mounted on the Carriage or on floor as a Control Panel with Microsoft Windows based operating system. • Operator control on the carriage/near the wheel should include - selection knob for axes, buttons for manual mode, joy stick and an electronic hand wheel for precision positioning of the axes with a safety switch • Operator control on headstock and tailstock - These controls should include movement of headstock/tailstock, quill movement, headstock rotation etc.	
17.	Electrical Cabinet	All controls need to be housed in an IP55 electrical cabinet	
18.	Inline Automatic Roll Measuring Caliper System	• Parameters to be measured: Profile, Crown, Taper/roundness/runout. Profile and taper errors to be compensated • Measurable diameter (max): 1000 mm • Measurable diameter (min): 100 mm • Measurable resolution: 0.001 mm • Measuring report: to be stored in an MS SQL server and print facility • Measuring: stand-alone in manual mode or as a sequence in automatic cycle • The mounting of the Measuring heads should be moving DOWN during measurement and moving UP during standby. Movement to be done by digital AC servomotors • Measuring system to be equipped with suitable protection against collision with roll or other machine elements • Measuring arms and the movement mechanisms to be mounted on the new support and it should be driven by Servo system and need to be integrated with main machine drive system • All required electrical interface hardware and cables to be provided • Calibrating rod to be provided on tailstock • Measuring system software needs to be integrated with the grinding software Measurement possibilities - o Measurement of shape (profile error) o Diameter measurement o Measurement of roundness and eccentricity o Measurement of roll taper o Measurement of misalignment (in the direction of wheel feed) of the roll Reporting of roll measurement results in printed format	
19.	Operation Software	• The Machine operation should be completely guided by interactive human machine interface • The screen should have dynamic changes in grinding parameters, jumping between sequences along with monitoring functions. • Generated grinding programs to be stored in memory upto 1000 grinding and roll programs. • Grinding Programs: normal grinding, short stroking, current grinding, end taper grinding, measuring and inspection. • Roll Profile and Grinding Programs o Sine convex and concave o Cylindrical	

		○ CVC ○ Radius Crown ○ Parabola ○ Taper ○ IMR 1000R (for steel Cold Rolling Mills) ○ User Defined ○ In addition, new curves to be added Operation of the machine should allow for enough flexibility to control the flow of grinding like ○ Free sequencing of steps ○ Jumping between steps in cycle ○ Grinding Pass interruption and grinding cycle interruption at the end of pass Retract wheel during grinding and resume etc.	
20.	Noise Level	Noise level of the machine shall not exceed 85 db(A) when measured at a distance of one meter from the machine and at a height of 1.5 meter from ground level	
21.	Maximum Power Consumption	The maximum power consumption in idle running condition at all working speeds shall be limited to 30% of the rated output	
22.	Maximum Power Utilization	The machine should be tested to prove that full rated power can be utilized without vibration	
23.	General Electric Specification	The provision of this General Specification shall apply, wherever relevant. All equipments and material shall comply with appropriate Indian Standards (latest), International Standards or National Standards of the country of origin provided the latter are equivalent to or better than the former. The tenderer shall indicate the Standards applicable. The following standards are applicable in particular. (Corresponding International Standards like ASA, NEMA, BSS, DIN etc. may also be quoted). • IS: 325-1979 (latest): Three phase induction motors (corresponding to IEC pub-34-1) (Latest). • IS:1248 (Latest): Direct acting indicating analogue electrical measuring instruments and their accessories (corresponding to IEC pub-51)(Latest). • IS: 1231-1974 (Latest): Dimensions of three phase induction motors (corresponding to IEC Pub- 72-1) (Latest). • IS:1271-1985 (Latest): Classification of insulation material for electrical machinery & apparatus in relation to their thermal stability in service (corresponding to IEC-Pub-85) (Latest). • IS: 6875 (Latest): Push Buttons and related control switches corresponding to IEC Pub/73) (Latest). • IS: 375-1963 (Latest): Marking and arrangement of switch gear, bus bars,main connection & auxiliary wiring. • IS: 996-1979 (Latest): Single phase small AC and universal electrical motors. • IS:1356 (Latest): Electrical equipment of machine tools. • IS:2516 (Latest): Circuit breakers (corresponding to IEC Pub-56) (Latest)	
		Unless specified in the main specification, the AC motors and starters shall be of the following type. Tenderer is, however, free to give alternative proposal along with justification, if in his view alternative proposal in warranted by site conditions. Type of motor type of starter. Type of Motor | Type of Starter	

			Any type of AC motor starting current of which does not exceed 75 amps.	Direct online.	
			AC squirrel cage, induction motors, starting current of which is above 75 amps. if started direct online	Star delta or Auto transformer type.	
			AC slipring type motor	Resistance type air/fan Cooled	
			AC synchronous or synchronous induction motor.	Suitable makers standard.	
			DC motor	Resistance type/Thyristor type.	
		The control gear for AC/DC motors shall incorporate the following protection devices as concomitant accessories. • No Voltage Protection - No voltage protection shall be provided so that machine will not start up again by itself when, following an interruption, the supply is restored. • Short Circuit Protection - To protect against short circuits due to insulation failure of faulty connections HRC fuses shall be provided for each motor. The rating of the fuse shall be such as to take care of the over current due to motor starting. • Overload Protection - To prevent motors from overloading, overload protection shall be provided separately for each motor. Three phase motors shall be protected by overload tripping devices on each phase. • Single Phasing Protection - A separate current sensitive delayed action single phasing preventor shall be provided for each motor separately. Overload protection shall not be treated as single phasing preventor. • Control equipment shall be mounted in separate drip proof enclosures. Control enclosures and compartments are to be so designed as to give adequate protection against ingress of dust, oil, coolants or chips. All control devices like contractors etc. shall be front mounted on a rigidly fabricated metal panel for ease of operation. All other electrical shall be installed so that they are readily accessible when the doors and covers are opened. Hinged covers shall be interlocked with the machine tool control to prevent operation of the machine when cover is open.		
		Control equipment shall be mounted in separate drip proof enclosures. Control enclosures and compartments are to be so designed as to give adequate protection against ingress of dust, oil, coolants or chips. All control devices like contractors etc. shall be front mounted on a rigidly fabricated metal panel for ease of operation. All other electrical should be installed so that they are readily accessible when the doors and covers are opened. Hinged covers shall be interlocked with the machine tool control to prevent operation of the machine when cover is open.			
		The motor shall be totally enclosed with or without fan cooled frame. Screen protected drip proof type motor may be provided if it is mounted inside protective enclosures.			
		The electrical equipments shall comply with the requirement of Indian Electricity Act and Rules (latest).			

<table>
<tr><td></td><td></td><td>All instruments shall be of the Industrial Grade “A” (IS-1248) switch board type the range of the instrument shall be such that the maximum load expected in the circuit shall produce a deflection of 60% to 80% of the full scale.</td><td></td></tr>
<tr><td></td><td></td><td>The supplier shall furnish 3 sets of complete electrical and electronic wiring diagrams in full details to enable the maintenance staff to locate faults in the circuits, 3 sets of part catalogues, maintenance manuals operating instructions with details of coils and windings, used in the equipment to facilitate repairs and maintenance should also be supplied.</td><td></td></tr>
<tr><td></td><td></td><td>For main motor class minimum “F” Class insulation shall be provided. If any other class of insulation is proposed, detailed justification for providing different class of insulation shall be given.</td><td></td></tr>
<tr><td></td><td></td><td>Motors shall be designed to withstand frequent starts, stops and reversals as demanded in the operation of the machine.</td><td></td></tr>
<tr><td></td><td></td><td>Two earthing terminals shall be provided on all electric motors including the control gear.</td><td></td></tr>
<tr><td>24.</td><td>Power Supply</td><td>The machine shall be suitable for operation on 415 volts 3 phase 50 cycles AC 3 wire or 4 wire system with neutral solidity earthed. The supply voltage may be very up to +10%-20%. The frequency may vary up to + 3%. However, full rated power of the motor shall be available at the lower voltage. Firm should confirm satisfactory performance of the machine at incoming power supply in the range 415V+10%-20% and 50HZ+3% frequency or should provide voltage stabilizer of required capacity.
<table>
<tr><td colspan="3">The voltage stabilizer (of Suitable Capacity in the scope of supply of bidder), if required, shall conform to</td></tr>
<tr><td>i)</td><td>Input Voltage</td><td>320 to 460 volts 3 phase 4 wire supply.</td></tr>
<tr><td>ii)</td><td>Output Voltage</td><td>415 volts</td></tr>
<tr><td>iii)</td><td>Regulation</td><td>+ 1% from No load to Full load.</td></tr>
<tr><td>iv)</td><td>Rate of correction</td><td>20 volts per second per phase.</td></tr>
<tr><td>v)</td><td>Wave from distortion</td><td>NIL</td></tr>
<tr><td>vi)</td><td>Efficiency</td><td>Not less than 97%.</td></tr>
<tr><td>vii)</td><td>Winding and class of insulation</td><td>Copper wire wound with “B” class of insulation or better.</td></tr>
</table>
In case of machines equipped with NC, SS, CNC, Thyristor controlled devices and other sophisticated electronic gadgets including microprocessors etc. which are susceptible to power line spikes and surges, a suitable voltage stabilizer and ultra isolation transformer of adequate capacity to cover for the entire electrical load of the machine shall be offered as a concomitant accessory conforming to Specification for voltage stabilizer as mentioned in clause 2.13.2 above and isolation transformer (of suitable capacity in scope of supply of bidder) to the parameters mentioned below.
<table>
<tr><td>i)</td><td>Transformer ratio</td><td>1:1</td></tr>
<tr><td>ii)</td><td>Winding</td><td>Copper wire wound with “F” class insulation or better.</td></tr>
<tr><td>iii)</td><td>Protection</td><td>To arrest spikes and surges to the order of 3 KV for 200-400 microseconds duration.</td></tr>
<tr><td>iv)</td><td>Common mode rejection ratio</td><td>120 dB</td></tr>
<tr><td>v)</td><td>Isolation</td><td>Capacitance 005 Pf: resistance greater than 1000 Mega Ohms.</td></tr>
</table></td><td></td></tr>
</table>

		Voltage stabilizer of adequate capacity to cover for the entire electrical load of the machine shall be equipped with a protective relay to trip to trip the AC power supply to the machine instantaneously with audio and visual indication to the operator. Settings of the protective relay for low and high voltage shall be 320 volts and 460 volts respectively.	
		UPS system (including battery bank, battery chargers etc.) will be provided in case of power fail then UPS system take full load immediately to ensure uninterrupted to critical loads.	
25.	Atmospheric Conditions	The ambient temperature at the site at which the machine will be installed may vary from -0ºC to +50ºC over the year. The relative humidity may be as high as 98%. The atmosphere is expected to be dusty. The machines offered shall be suitably tropicalized to work under these atmospheric conditions without any adverse effect on their performance.	
		The temperature rise shall not reach such a value that there is a risk of injury to any insulating material or adjacent parts.	
		The drive should be capable of operating at any one of the speed required independent of the load in accordance with the requirements of the machine.	
26.	Safety Controls	The machine shall incorporate safety devices to provide protection to the operator and machine against all possible operational and machinery failures.	
		Suitable interlocks shall be provided to prevent machine operations in the event of: • Faulty sequence of operation. • Fluctuation in supply voltage. • Resumption of power supply after power failure. • Non-positioning of safety guards. • Failure of hydraulic system (where applicable) • Failure of lubricating system (In case of automatic including drop in pressure lubrication)	
		A fault or damage in the control circuit or interruption re-establishment after an interruption of fluctuation in whatever manner in the power supply to the machinery must not lead to dangerous situations in particular.	
		The machinery must not start unexpectedly.	
		The machinery must not be prevented from stopping if command has already been given.	
		No moving part of the machinery or piece held by the machinery shall fall or be ejected.	
		The machine shall be fitted with an emergency stop device to enable actual or impending danger to be averted. This device must be:- • Conveniently located. • Clearly identifiable. • Stop the machine as quickly as possible without causing additional hazards. • The emergency stop must remain engaged. It should be possible to disengage it only by appropriate operation. Disengaging the control must not restart the machinery but only permit restarting.	
		Safety features shall also include. • Safety device against overload for all mechanical and electric items to the extent possible. • Safety stops against over-running of slides.	

		• A power-fail retraction feature shall be provided to ensure automatic withdrawal of the grinding wheel in the event of power failure, thereby preventing potential damage to the Roll, safeguarding the machine, and enhancing overall operational safety to avoid any potential accidents. • In addition to the power-fail retraction feature, a dedicated emergency retract push button shall be provided to enable immediate manual withdrawal of the grinding wheel upon detection of any abnormality by the operator during Auto Cycle, thereby minimizing the risk of damage to the roll and preventing potential accidents.	
		Guard and protection devices shall protect exposed persons against risks related to moving transmission parts (such as pulleys, belts, gears, rack and pinion, shafts etc.) and moving parts directly involved in the process to the extent possible. This shall meet the following requirements: • Be of robust construction • Not give rise to any additional risk • Not be easy to by pass or render non-operational • Be located at an adequate distance from danger zone • Cause minimum obstruction to the view of the production process. • Rigidly connected and not prone to rattling • Enable essential work to be carried out without the guard or protection device having to be dismantled	
		A load meter shall be provided to indicate the load on the machine. The meter shall have a suitable mark to indicate the maximum load the machine can take. Full details of the above and other safety features indicating how each one functions must be explained in the offer.	
27.	Lighting	Integral lighting is suitable for the operations concerned where its lack is likely to cause a risk despite ambient lighting of normal intensity shall be provided.	
		The manufacturer must ensure that there is no area of shadow likely to cause nuisance, that there is no irritating dazzle and that there are no dangerous stroboscopic effects due to lighting provided by the manufacturer.	
		Integral parts requiring frequent inspection and adjustment and maintenance areas must be provided with appropriate lighting.	
		The machine lighting should be of low voltage so as to prevent any hazard to the operator.	
28.	Machine Maintainability	The machine shall be so designed as to require minimum possible maintenance and to give trouble-free service.	
		All assemblies/parts of the machine shall be easily accessible for maintenance.	
		The machine shall not require major dis-assembly for checking and replacement of a particular part, especially for parts requiring periodical checkup and replacement	
		The manufacturer must provide means of access e.g. stairs, ladders, cat walks etc. to allow access to safety to all areas used for production, adjustments and maintenance operations.	
29.	Wear Compensation Adjustment	The original built in accuracy of the machine shall be capable of being maintained conveniently and economically by suitable adjustments for taking up wear on slides, bearings and load screws. The system of adjustments incorporated shall be explained in the offer.	

30.	Inspection and Testing at Manufacturer's Works:	The machine shall be inspected and tested during different stages of its manufacture starting from raw material till the completion of machine, by the CoEMTD IIT BHU VARANASI & HMT MTL at the manufacturer works. The bidder must submit the exhaustive QAP incorporating the tests as followed by them. However, the consignee or his authorized representative is free to institute any further checks also, if he so desires and shall be in no way binding on the consignee. Successful bidder to get the QAP approved after issue of LOA from the CoEMTD IIT BHU & HMT MTL before start of manufacturing of machine. Expenses incurred for deputation of technical team (at all stages till completion of the project) for their travelling, lodging & boarding, local conveyance to be borne by the Bidder.	
		Pre-installation and inspection at the bidder site: • Machine build quality as per Roll Grinder alignment chart to be recorded and made available to customer for reference. • CoEMTD (IIT BHU VARANASI & HMT MTL) would like to witness and inspect during recording • Roll Grinding should be performed at least two grinding cycles. Grinding to only establish machine functionality. Final prove-out at location/Consignee on proper foundation	
		Manufacturers must have suitable facilities at their works for carrying out various performance tests on the sub-assembly/ assembly/machine. The tenderer shall clearly confirm that all facilities exist and shall be made available to the inspecting authority	
		A Sample Inspection Chart (Should be as per Indian / International standard for Roll Grinding Test Chart) for inspecting the equipment shall be supplied along with the bid. The inspection chart should indicate all the tests that are carried out during the machine manufacture and also the tests to be offered to inspecting agency. The standard to which this inspection chart conforms should be clearly indicated. Against each test, acceptable limit/ range of values shall be indicated	
31.	Training	Free training by the firm shall be imparted in operation and maintenance of the machine. The training to be imparted shall cover operation, troubleshooting and repair of all mechanical, hydraulic, electrical & electronics equipment's (CNC Control & AC Drives) and CNC/PLC part programming. This training shall be provided to 8 persons nominated by CoEMTD (IIT BHU VARANASI & HMT MTL) for a period of one week free of cost at the manufacturer's premises. One week training will also be provided to 4 person free of cost from CoEMTD (IIT BHU VARANASI & HMT MTL) in design and construction of the machine	
		Subsequently, technical experts from the manufacturer will fully and adequately provide training to operators and maintenance staff nominated by the CoEMTD (IIT BHU VARANASI & HMT MTL) at the time of commissioning of the machine at consignee place.	
		The supplier will be responsible for co-coordinating with the CoEMTD (IIT BHU VARANASI & HMT MTL). The travel plans of trainees to ensure that the training is imparted on the machine at its assembly and testing stage. The bidder shall also submit training schedule along with the offer	
		Additionally, Siemens/Fanuc maintenance training should be made available at Siemens/Fanuc training centres by the bidder	
32.	Installation, Commissioning	Joint Check – The contractor or his agent would be required to carry out a joint check at consignee's end, along with the consignee, before	

	and Proving Tests (On Turnkey Basis)	unpacking is done, to avoid subsequent complaints regarding short shipment/transit damages. It is necessary that this joint receipt inspection be done immediately on receipt of the machine by consignee & bidder's representative to avoid commissioning delays due to shortages/transit damages.	
		The supplier shall demonstrate machine performance and prove out the claimed capability for successful commissioning at the consignee's works. The supplier shall arrange the raw material for prove out at consignee end within 30 days of dry run of the machine (installation, power connection, auxiliary connections like air, water etc).	
		If an assembly/sub-assembly requires to be taken back to the manufacturer's premises for repair/replacement either before commissioning or during warranty, the manufacturer or his agent would be required to submit BG of suitable amount. In case the entire machine has to be taken back, a Bank Guarantee for the cost of the machine would have to be submitted. The bank guarantee should be of adequate value so as to cover the cost of the assembly/sub-assembly/paid up cost of the machine	
		Turnkey Contracts: The supplier shall arrange certification by a RCC consultant who should be a charted Engineer registered with the institute of engineers, that: a. The design of machine foundation & b. Construction of foundation c. Supply and installation of inertia blocks and spring sets for machine base requirement. • Is in accordance with the latest version of the relevant part of the Indian standard for code of practice for design & construction of machine foundation as specified in IS 2974. The original certificate issued by the consultant for certification of both the design & construction of the foundation and a copy of his registration certificate from the Institution of Engineers shall be submitted by the supplier to the consignee. • The supplier shall stand a warranty for the foundation along with machine, He shall arrange to rectify any defects (e.g. sinking or cracking) occurring during the warranty period in the foundation. He shall also be responsible for uprooting and reinstalling the machine if so, required for carrying out the repairs to the foundation. The warranty period would be extendable by the time period for which the machine remains out of commission due to the defect in the foundation or a period of one year, whichever is more.	
		Installation Tests at the consignee site: Values to be achieved are (over radius and over and above roll neck errors) – • Cylindricity or straightness – Tolerance zone of distance between two lines drawn on the surface of the roll in the axial direction (0.002 mm/m) • Taper – Difference in the radius of circle drawn in the tailstock end and headstock end (2.5 microns/m) • Crown – Tolerance zone of distance between two lines drawn from the theoretical crown on the surface of the roll in the axial direction (0.003 mm/m over a height of 0.1 mm on radius)	

<table>
<tr><td></td><td></td><td colspan="3">• Roundness – Tolerance zone of distance between two concentric circles drawn from the roll center on the surface of the roll in the direction perpendicular to the roll axis (0.003 mm)
Ground Roll should be free of marks and imperfections which are not acceptable to the mill</td><td></td></tr>
<tr><td rowspan="4">33.</td><td rowspan="4">Service Facility in India and Technical support</td><td colspan="3">The tenderer will clearly spell out in the offer the facilities available with him or his agent for providing adequate after-sales service in India during warranty. The complete details such as organization for after sales service, availability of technically competent engineers and warehousing facilities for spares should be clearly indicated. Bidders not offering complete servicing/repair facilities in India to ensure quick response to maintenance/ servicing calls are not likely to be considered.</td><td></td></tr>
<tr><td colspan="3">After the warranty period, if any, the manufacturer or his agent shall agree to provide service supports for trouble shooting and obtaining spare parts. The manufacturer shall be obliged to provide spare parts required by the Purchasers for a period of 20 years from the date of delivery of the machine at the ultimate destination to safeguard against obsolescence.</td><td></td></tr>
<tr><td colspan="3">Tenderer who are OEM, shall undertake to supply spare parts for a period of expected life of machine. Other tenderers shall submit undertaking from OEM for supply of spare parts for a period of expected life of the machine.</td><td></td></tr>
<tr><td colspan="3">During warranty period, the supplier or his authorized agent shall attend for break down as soon as possible, but in no case later than 48 hours of receipt of intimation of the breakdown.</td><td></td></tr>
<tr><td rowspan="2">34.</td><td rowspan="2">Bought Out items</td><td colspan="3">The bidder shall furnish along with the offer a list of all critical items/ sub-assemblies which are bought out by the bidder and proposed to be used, along with the manufacturer’s name, brand model etc. The successful bidder may be required to produce invoices to ensure genuineness of such products / verification by the Inspecting agency.</td><td></td></tr>
<tr><td colspan="3">The bidder should clearly indicate that in case of components / sub-assemblies taken from reputed companies such as Vickers, Rexroth, RITTAL, THK, and Shenburger etc., the parent company has already entered into contract with their Indian units/affiliates for undertakings repairs/after sales service during warranty and post warranty.

<table>
<tr><td>#</td><td>Sub-assembly</td><td>Preferred Make</td></tr>
<tr><td>1.</td><td>Belts</td><td>Fenner/ Gates/ Mitsubishi/ Opti</td></tr>
<tr><td>2.</td><td>Bearing</td><td>Skf/ Fag/ Nsk/ Ntn/Rhp/ Timken</td></tr>
<tr><td>3.</td><td>CNC System (CNC/axis drives and motors)</td><td>Latest Siemens/Fanuc</td></tr>
<tr><td>4.</td><td>Ballscrews for X axis/ C axis –</td><td>THK/INA/Tsubaki/Rexroth/SteinmeyerStar/Gamfior/ Schenburger/Shuton.</td></tr>
<tr><td>5.</td><td>Gearbox for Z axis and Rack & Pinion</td><td>Redex/Gudel/Aplha</td></tr>
<tr><td>6.</td><td>Telescopic cover</td><td>Kableschlepp/ Sur Hennig/ Scute/ Eisen</td></tr>
<tr><td>7.</td><td>Cables</td><td>Lapp/ Finolex/Igus</td></tr>
<tr><td>8.</td><td>Power supply 24V</td><td>Siemens/ Phoenix</td></tr>
</table></td><td></td></tr>
</table>

		9.	Switchgears	Siemens/ Telemecanique	
		10.	Panel Cooler	Rittal/Warner Finley/Kelvin	
		11.	VFD	ABB/Telemecanique/ Siemens/ Mitsubishi/ Allen Bradley	
		12.	Terminals	Elmex/ Phoenix	
		13.	Servo drives	Siemens/ Fanuc	
		14.	Electric Motors	ABB/ Siemens/ Crompton Greaves/ Bharat Bijli	
		15.	Linear Scale/Encoders/Probes	Heidenhein	
		16.	Hydraulic system (power pack/ fittings/ pump etc.)	Eaton/ Hydac/ Parker Rexroth/ Yuken/ Vickers	
		17.	Hydraulic cylinder	Veljan/ Yuken/ Eaton/ Hanchen/ Jacobs	
		18.	O -Ring/ Oil seal/ wipers/ V rings	Simrit/ Parker/ Gmn/ Skf	
		19.	Pneumatic Cylinder	Veljan/ Festo/ Smc	
		20.	Pneumatic Hose	Festo/ Smc/ Aeroflex	
		21.	Lubrication System	Cenlub/Dropco/Vogel/ Rexroth	
		22.	Cooling/ Filtration System	Udly/ Renuka/ Span/Losma/ Trivantas	
		23.	Voltage Stabilizer	Neel/Servomax/Consul/Aplab/Unity/Neelkanth	
		24.	Ultra isolation transformer	Neel/Servomax/Consul/Aplab/Unity/Neelkanth	
		25.	Pannel AC for electrical cabinet and control post	Warner Finely/ Rittal/ Advance Cooling	
		26.	Electrical cabinet	RITTAL/ Siemens Or Of Other Reputed Make With IP55 Protection Level	
		27.	Flexible Coupling	Miki Pulley/ Mayer/ Smartflex/ Ringfeeder	
		28.	Limit switches	Omron/ EuchnerTeknic	
		29.	Autodynamic wheel balancer	Marpos/ Sbs/ Elaso/ MPM	
		30.	Chiller unit	Advance Cooling/ Warner Finley	
		31.	Compressor Unit	Elgi/Atlas/Copco/Ingersoll Rand	
		32.	Contactors/Relays/ Mcbs/Overload Relays/Isolation Switch	Siemens/Abb/Scheinder/Allen Bradely/Omron	
		33.	Proximity Switches/ Reed Switches/ Push Buttons	Siemens/Scheinder/Ballluf/Sick/Turck/Allen Bradley/Teckniq	

35.	Machine Documentation	• Complete digital back up - 2 sets • Operating manual - 2 sets • PLC programming listing - 2 sets • Machine data listing - 2 sets • Electrical diagrams in English - 2 sets • Mechanical manual - 2 sets • Measuring System manual - 2 sets • Machine Documentation to be provided in English • All Mechanical Assembly drawings in 2D format in tracings on respective sheet size i.e. A0, A1, A2, A3 & A4 as well as in 3D solidworks/Solidedge Format • All Toolings and Fixture drawings used in manufacturing of machines in 2D format in tracings on respective sheet size i.e. A0, A1, A2, A3 & A4 as well as in 3D solidworks/Solidedge Format • All Lubrication, Hydraulic, Pneumatic and Coolant piping diagrams, Circuit diagrams etc. 2D format in tracings on respective sheet size i.e. A0 / A1 sheet size • All electrical circuit diagram in hard tarcing as well as in Soft copy. Further CAD Format drawing of Electrical circuit diagram. • All Complete machine assembly in 3D slodworks/Solidedge with all parts in Hard disk. • All major sub assembly drawings in 2D format in tracings on respective sheet size i.e. A0 / A1/ A2 sheet size	
36.	Warranty	Equipment and workmanship to be covered by a warranty of 12 months from the date of successful installation and commissioning at the consignee site. • Warranty should cover manufacturing/design defects	
		The machine shall be designed for a life of 20 years with regular maintenance and all the structural members of the machine and the foundation shall be guaranteed for 5 years against cracks breakages and etc. During the course of normal operations. Tenderer would submit suitable undertaking.	
37.	Preventive Maintenance	Firm has to execute comprehensive preventive maintenance schedule in 1st year of warranty period. Consignee will not pay any cost for this preventive maintenance schedule.	
		Since the machine will be under comprehensive preventive maintenance during warranty period of two (02) years , it is the sole responsibility of bidders to stock such spares as required for smoother execution of PMC during warranty in order to achieve response time in compliance to machine availability as per stipulated requirements	
38.	AMC	Firm should provide Comprehensive AMC of 1 years after expiration of warranty period to be included in the scope of the bidder.	
39.	Non-Disclosure Agreement (NDA) For Design	The design inputs will be shared with the bidder after signing NDA with CoEMTD (IIT BHU Varanasi & HMT MTL) • System automation should be as per the machine requirement • CoEMTD (IIT BHU Varanasi & HMT MTL) should be involved and informed prior to any subcontracting purchases/fabrication	

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Signature of the Authorized Official with Seal

ANNEXURE-III

SECTION-9

PREVIOUS SIMILAR ORDER EXECUTED

Please quote best minimum prices applicable for a premier Educational and Research Institution. The party must give details of purchase orders identical or similar equipment supplied to any IITs/NITs/Govt. Office/PSU/University/Autonomous Body as per below Format in last Three years (to be enclosed in Price Bid / Commercial Bid) along with the final price paid and details are mandatory.

Name of the Firm _____

Order placed by (Full address of Purchaser)	Order No. and Date	Description and quantity of ordered equipment	Value of Order	Date of completion of delivery as per contract	Remarks indicating reasons for late delivery, if any and justification for price difference of their supply order & those quoted to us	Has the Equipment being installed satisfactorily (Attach a Certificate from the Purchaser/ Consigner)	Contact Person along with Telephone No., Fax No. and e-mail address.

(Kindly enclose the scan copy of aforementioned purchase orders)

Details of Technical Expert

Name of application specialist / Service Engineer who have the technical competency to handle and support the quoted product during the warranty period.		
Name of the organization	**Name of Contact Person**	**Contact No.**

Place: ……..

Date: ……

Signature and Seal of the Manufacturer/ Bidder

BID SUBMISSION

Online Bid Submission

The Online bids (complete in all respect) must be uploaded online in **two covers** as explained below:

Cover - 1			
S. No.	**Document**	**Content**	**File Type**
1	Technical Bid	Technical Compliance Sheet, Bidder information form	.pdf
2		Organization Declaration Sheet, Compliance sheets for Essential Pre-Bid Criteria	.pdf
3		Checklist, Tender Acceptance, Tender Form, Annexure I, etc.	.pdf
4		List of organizations/clients where similar products have been supplied (in last three years) along with their contact number(s). (Annexure III)	.pdf
5		Technical supporting documents in support of all claims made at Annexure I	.pdf
6		EMD and Tender fee submission proof	.pdf
7		Brochure of quoted product and other documents, if any	.pdf
8		Other Documents, if any which are not covered above	.pdf
Cover - 2			
S. No.	**Document**	**Content**	**File Type**
1	Price Bid	Duly filled and signed Tender Form (Price Bid)	.pdf
2		Duly signed BOQ	.pdf
3		BOQ in .xls Format	.xls/ .xlsx

ANNEXURE-V

ORIGINAL EQUIPMENT MANUFACTURER (OEM)

Manufacturing Authorization Form (MAF)

(On Letter Head of Manufacturer)

Tender No.: ……

To,
Coordinator
Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU), Varanasi
Varanasi-221005, Uttar Pradesh, India

Dear Sir,

We manufacturer of original equipment at ……. (address of factory) do hereby authorize M/s ……. (Name and address of Agent) to submit a bid, negotiate and receive the order format against your tender enquiry. M/s. …….. is authorized to bid and conclude the contract in regard to this business. We hereby extend our full guarantee and warranty as per clause …… of the terms and conditions NIQ for the goods and services offered by the above firm.

Yours Faithfully,

(Name)
(Name & Seal of Manufactures)

Note:

1. Items of indigenous nature or quoted in INR, more than 1 authorized representative may participate in the same tender and submit their bids on behalf of their OEM/Principal/Manufacturer if the OEM permits more than one authorized bidder in such case as per their policy.
2. In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer.
3. The letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to bind the manufacturer. The same should be included by the bidder in its techno-commercial unpriced bid.

ANNEXURE-VI

DECLARATION

(***To be submitted on the letterhead of Company)***

To,
Coordinator
Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU), Varanasi
Varanasi-221005, Uttar Pradesh, India

We certify as under:
We have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries, and solemnly certify that we fulfill all requirements in this regard and are eligible to be considered.

We certify that:
(a) We are not from such a country or, if from such a country, we are registered with the Competent Authority (copy enclosed);

and

(b) We shall not subcontract any work to a contractor from such countries unless such contractor is registered with the Competent Authority.

Yours faithfully,

(Signature of the Bidder, with Official Seal)

ANNEXURE-VII

DECLARATION OF LOCAL CONTENT

To,
Coordinator
Centre of Excellence on Machine Tools Design
Indian Institute of Technology (BHU), Varanasi
Varanasi-221005, Uttar Pradesh, India

Subject: Declaration of Local Content

Tender Reference No: ……
Name of Tender/ Work: …….
……
1. Country of Origin of Goods being offered: ……
2. We hereby declare that items offered has ……. % local content
3. Details of the Location at which the Local Value Addition is made ……...
4. Details of Local Content

"Local Content" means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of the imported content in the item (including all customs duties) as a proportion of the total value, in percent.

Bidders offering Imported products will fall under the category of Nonlocal Suppliers. They cannot claim themselves as Class-I or Class-II Local Suppliers by claiming the services such as Transportation, Insurance, Installation, Commissioning, Training and After Sale Service Support like AMC/ CMC etc. as Local Value Addition.

We are solely responsible for the abovementioned declaration. False declaration will be in breach of Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law.

Yours faithfully,

(Signature of the bidder, with Official Seal)

Note: It is mandatory for bidders to quote items having local content minimum 20%. Refer revised Public Procurement (Preference to Make in India), Order 2017, No. P-45021/2/2017-PP (B.E-II) dated 16.09.2020 issued by DPIIT, Ministry of Commerce and Industry, Govt. of India.

ANNEXURE-VIII

UNDERTAKING FOR LIVE VIDEO DEMONSTRATION

To,
Coordinator
Centre of Excellence on Machine Tools Design,
Indian Institute of Technology (BHU), Varanasi
Varanasi-221005, Uttar Pradesh, India

We, M/s …….. do hereby confirms that the LIVE VIDEO demonstration for the quoted product …… ……..…. will be given by our company as and when asked by the purchase committee, IIT (BHU) during the technical evaluation process.

Yours faithfully,

(Signature of the Bidder, with Official Seal)

ANNEXURE-IX

PRE-CONTRACT INTEGRITY PACT

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on _____ day of the month of _____ 2025, between, on one hand, the President of India, acting through Shri _____, designation of the officer, Ministry/Department, Government of India (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/S _____ represented by Shri _____, Chief Executive Officer (hereinafter called the "BIDDER/Seller" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to procure (name of the Stores/ Equipment/ Item) and the BIDDER/Seller is willing to offer/has offered the stores and

WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER is a Ministry/ Department of the Government of India/PSU performing its functions on behalf of the President of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/ prejudiced dealings prior to, during and subsequent to the currency of the contract entered into with a view to:-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERs to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereby agree to enter into this Integrity Pact and agree as follows:

Commitments of the BUYER

1.1. The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

1.2. The BUYER will, during the pre-contract stage, treat all BIDDERs alike, and will provide to all BIDDERs the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERs.

1.3. All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

Commitments of BIDDERs

3. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:

3.1. The Bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the Buyer, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the Contract.

3.2. The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.

3.3.* BIDDERs shall disclose the name and address of agents and representatives and Indian BIDDERs shall disclose their foreign principals or associates.

3.4.* BIDDERs shall disclose the payments to be made by them to agents/ brokers or any other intermediary, in connection with this bid/contract.

3.5.* The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/integrator/authorized government sponsored export entity of the stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

3.6. The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

3.7. The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

3.8. The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

3.9. The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

3.10. The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.

3.11. The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

3.12. If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.

The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act, 1956.

3.13. The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

4. Previous Transgression

4.1. The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.

4.2. The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Earnest Money (Security Deposit)

5.1 While submitting commercial bid, the BIDDER shall deposit an amount _____ as specified in the RFP as Earnest Money/Security Deposit, with the BUYER through any of the following instruments:

(i) Bank Draft or a Pay Order in favour of _____

(ii) A confirmed guarantee by an Indian Nationalized Bank, promising payment of the guaranteed sum to the BUYER on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the BUYER shall be treated as conclusive proof of payment.

(iii) Any other mode or through any other instrument, as stated in RFP.

5.2 The Earnest Money / Security Deposit shall be valid up-to a period of five years or the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the BUYER, including warranty period, whichever is later.

5.3 In case of the successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.4 No interest shall be payable by the BUYER to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

6. Sanctions for Violations

6.1. Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:

(i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.

(ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefor.

(iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

(iv) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.

(vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

(vii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.

(viii) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

(ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.

(x) Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.2 The BUYER will be entitled to take all or any of the actions mentioned at para 6.1 (i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal Code, 1860, or Prevention of Corruption Act, 1988, or any other statute enacted for prevention of corruption.

6.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

7. Fall Clause

7.1. The BIDDER undertakes that it has not supplied/is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry / Department of the Government of India or PSU and if it is found at any stage that similar product/systems or sub system was supplied by the BIDDER to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER, if the contract has already been concluded.

8. Independent Monitors

8.1. There shall be Independent Monitors (hereinafter referred to as Monitors) appointed by the BUYER for this Pact in consultation with the Central Vigilance Commission.

Shri Rajiv Kumar Srivastava, IFoS (Retd.)	Email: rksifs@gmail.com
Shri Rajiva Ranjan Verma, IPS (Retd.)	Email: rajivaranjanin@yahoo.co.in

8.2. The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

8.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.

8.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.

8.6. The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.

8.7. The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.

8.8. The Monitor will submit a written report to the Foreign Secretary, Ministry of External Affairs, within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

9. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

10. Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER

11. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

12. Validity

12.1. The validity of this Integrity Pact shall be from the date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

12.2. Should one or several provisions of this Pact turn out to be invalid, the remainder of this pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

13. The parties hereby sign this Integrity Pact at _____ on _____

BUYER	BIDDER
Name of the Officer	CHIEF EXECUTIVE OFFICER
Designation	
Department/Ministry/PSU	
Witness	Witness
1. _____	1. _____
2. _____	2. _____

* Provision of these clauses would need to be amended/ deleted in line with the policy of the BUYER in regard to involvement of Indian agents of foreign suppliers.

NON-DISCLOSURE AGREEMENT

This Non-Disclosure Agreement ("Agreement") is made and entered into on this _____ day of _____, 2025, by and between:

1. Centre of Excellence on Machine Tools Design (CoEMTD), Indian Institute of Technology (BHU) Varanasi, 221005, Uttar Pradesh, India. The project is between IIT(BHU) Varanasi, HMT Machine Tools Ltd., and Ministry of Heavy Industries, Govt. of India. (Hereinafter referred to as the "Client")

AND

2. _____, a company/individual having its registered office at _____. (Hereinafter referred to as the "Bidder")

WHEREAS:

A. The Client has issued a tender bearing number IIT(BHU)/COE/MTD/2025-26/TD/002, dated 07.07.25, for the Twin Disc Tribometer with Non-Contact Measurement (hereinafter referred to as the "Project").

B. In connection with the Project, the Client may disclose certain confidential technical and non-technical information to the Bidder to enable evaluation, design, and development efforts related to the said Project.

C. The Bidder agrees to receive and maintain the confidentiality of such information as per the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, the parties agree as follows:

1. Definition of Confidential Information
For the purposes of this Agreement, "Confidential Information" shall mean all technical, commercial, financial, business, or strategic information, whether oral, written, electronic, or otherwise, disclosed by the Client to the Bidder in connection with the Project. This includes, but is not limited to, specifications, drawings, reports, plans, calculations, data, samples, models, software, source code, and communication content.

2. Obligations of the Bidder
The Bidder agrees to:
a) Maintain the confidentiality of all Confidential Information and not disclose it to any third party without prior written consent of the Client.
b) Use the Confidential Information solely for the purpose of the Project and not for any other purpose, commercial or otherwise.
c) Limit access to the Confidential Information only to its employees, agents, or subcontractors on a need-to-know basis and ensure that such persons are bound by confidentiality obligations no less stringent than those contained in this Agreement.
d) Take all reasonable precautions to protect the Confidential Information from unauthorized disclosure or use.

3. Exclusions from Confidential Information
The obligations of confidentiality shall not apply to any information which:

a) Is or becomes publicly available through no fault of the Bidder;
b) Was known to the Bidder prior to disclosure by the Client, as evidenced by written records;
c) Is rightfully received from a third party without restriction and without breach of this Agreement;
d) Is independently developed by the Bidder without use of the Client's Confidential Information.

4. Ownership of Information
All Confidential Information remains the property of the Client. Nothing in this Agreement shall be construed as granting the Bidder any rights, by license or otherwise, to use or exploit the Confidential Information except as expressly provided herein.

5. Term and Return of Information
This Agreement shall remain in force for a period of five (5) years from the date of signing. Upon request or upon completion of the Project or disqualification from the bidding process, the Bidder shall promptly return or destroy all Confidential Information, including any copies or derivatives thereof, and certify such return or destruction in writing.

6. Remedies
The Bidder acknowledges that any unauthorized disclosure or use of the Confidential Information may cause irreparable harm to the Client, and the Client shall be entitled to seek injunctive or equitable relief in addition to any other remedies available at law or in equity.

7. Governing Law and Jurisdiction
This Agreement shall be governed by and construed in accordance with the laws of India. The courts at Varanasi, Uttar Pradesh shall have exclusive jurisdiction over all disputes arising under or in connection with this Agreement.

8. Entire Agreement
This Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements or understandings, whether written or oral, relating to such subject matter.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

Agreed and executed on behalf of Bidder:	**Agreed and executed on behalf of Client:**
Signature: _____	Signature: _____
Name: _____	Name: _____
Designation: _____	Designation: _____
Organization: _____	Organization: _____
Date: _____	Date: _____
Seal:	Seal:
Witness 1	Witness 1
Signature: _____	Signature: _____

Name: _____	Name: _____
Witness 2 Signature: _____ Name: _____	Witness 2 Signature: _____ Name: _____