

3.1.5	There shall be no change in the performance of the machine either on switching on the machine or after continuous running.
3.1.6	There shall be no resonant vibrations throughout the working range of the machine at all load levels.
3.2	SAFETY CONTROLS
3.2.1	The machine shall incorporate safety devices to provide protection to the operator and machine against all possible operational and machinery failures.
3.2.2	Suitable interlock shall be provided to prevent machine operations in the event of:
3.2.2.1	Faulty sequence of operation.
3.2.2.2	Fluctuation in supply voltage.
3.2.2.3	Resumption of power supply after power failure.
3.2.2.4	Non-positioning of safety guards.
3.2.2.5	Failure of hydraulic system (where applicable)
3.2.2.6	Failure of lubricating system (In case of automatic including drop in pressure lubrication)
3.2.3	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.
3.2.3.1	The machinery must not start unexpectedly.
3.2.3.2	The machinery must not be prevented from stopping if command has already been given.
3.2.3.3	No moving part of the machinery or piece held by the machinery shall fall or be ejected.
3.2.3.4	The protection devices must remain effective.
3.2.4	The machine shall be fitted with an emergency stop device to enable actual or impending danger to be averted. This device must be:-
3.2.4.1	Conveniently located.
3.2.4.2	Clearly identifiable.
3.2.4.3	Stop the machine as quickly as possible without causing additional hazards.
3.2.4.4	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.
3.2.5	Safety features shall also include.
3.2.5.1	Safety device against overload for all mechanical and electric items to the extent possible.
3.2.5.2	Safety stops against over-running of slides.


 SSE/M&P


 SSE/PM


 Dy. CME/Plant


 AWM-II


 SSE/MTS


 SSE/BG CRS

3.2.6	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:-
3.2.6.1	Be of robust construction
3.2.6.2	Not give rise to any additional risk
3.2.6.3	Not be easy to by pass or render non-operational
3.2.6.4	Be located at an adequate distance from danger zone
3.2.6.5	Cause minimum obstruction to the view of the production process.
3.2.6.6	Rigidly connected and not prone to rattling
3.2.6.7	Enable essential work to be carried out without the guard or protection device having to be dismantled
3.2.7	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.
3.3	OPERATIONAL CONTROLS
3.3.1	The operation of the machine shall be by push buttons or levers. The basic rules for the direction of operation of controls and the corresponding direction of movements of the machine tools shall be as per IS:2987-1985.
3.3.2	The control devices shall be
3.3.2.1	Clearly visible and identifiable.
3.3.2.2	Ergonomically positioned for safe operation without hesitating or loss of time, and without ambiguity.
3.4	LIGHTING
3.4.1	Integral lighting suitable for the operations concerned where its lack is likely to cause a risk despite ambient lighting of normal intensity shall be provided.
3.4.2	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.
3.4.3	Integral parts requiring frequent inspection and adjustment and maintenance areas must be provided with appropriate lighting.
3.4.4	The machine lighting should be of low voltage so as to prevent any hazard to the operator.
3.5	MACHINE MAINTAINABILITY
3.5.1	The machine shall be so designed as to require minimum possible maintenance and to give trouble free service.
3.5.2	All assemblies/parts of the machine shall be easily accessible for maintenance.
3.5.3	The machine shall not require major dis-assembly for checking and replacement of a particular part, especially for parts requiring periodical check up and replacement.

SSE/M&P

SSE/PM

Dy. CME/Plant

AWM-II

SSE/MTS

SSE/BG CRS

उप मुख्य यांत्रिक इंजीनियर (प्लान्ट)
Dy. Chief Mech. Engineer (Plant)

पू०३०२० याँ० कारखाना, इज्जतनगर
Dy. Chief Mech. Engineer (Plant)

3.5.4	The manufacturer must provide means of access e.g. stairs, ladders, cat walks etc. to allow access safety to all areas used for production, adjustments and maintenance operations.
3.6	WEAR COMPENSATION ADJUSTMENT
3.6.1	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.
3.7	COOLANT SYSTEM (WHERE APPLICABLE)
3.7.1	Suitable coolant system with pump, motor, tank, filter etc. shall be provided. 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.
3.7.2	The supply of coolant shall be in ample volume. Provision to re-circulate the coolant shall be available. A chip and coolant tray shall be provided. The volume of coolant flow shall be indicated. It shall be adjustable.
3.7.3	An enclosure shall be provided to prevent the coolant from splashing outside the machining zone. Details of enclosure shall be provided. Specific requirements of coolant system for grinding machines etc. shall be clearly indicated.
3.8	LUBRICATION SYSTEM (WHERE APPLICABLE)
3.8.1	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.
3.8.2	The system shall be provided with interlock to prevent machine operating/starting in the event of the failure lubrication system.
3.8.3	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.
3.8.4	Lubrication and filter cleaning chart shall be displayed on a metal plate at a conspicuous location on the machine indicating :-
(a)	Specific location of points on the machine to be oiled lubricated/greased.
(b)	Periodicity of lubrication of these points.
(c)	Filter to be cleaned.
(d)	Periodicity of cleaning filters.
(e)	Periodicity of replenishing lubricating oil for the centralized system.
(f)	Any other similar relevant information.


SSE/M&P


SSE/PM


Dy. CME/Plant


AWM-II


SSE/MTS


SSE/BG CRS

उप मुख्य यंत्रिक इंजीनियर (प्लान्ट)
Dy. Chief Mech. Engineer (Plant)
पू०उ०रे० यौ० कारखाना, इज्जतनगर
NE Rly Mech. Workshop

3.8.5	Points where manual lubrication is needed shall be separately indicated. Frequency of lubrication shall be also clearly mentioned.
3.8.6	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.
3.8.7	First fill of lubricating oils used in the machine shall be provided with the machine. Details of lubricating system provided shall be indicated.
3.9	PNEUMATIC SYSTEM (WHERE APPLICABLE)
3.9.1	The compressed air supply will be provided by the customer at the machine within pressure range of 4.5-7.5 kg/cm ² and a moisture content or 1000 ppm. The pneumatic system of the machine should be designed accordingly. An alarm shall be provided for low air pressure.
3.9.2	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.
3.9.3	Air pressure regulator, if necessary, shall be provided by the tenderer.
3.9.4	The make of pneumatic control equipment shall be of reputed make. The makes shall be indicated.
3.10.	HYDRAULIC SYSTEM (WHERE APPLICABLE)
3.10.1	Hydraulic circuit must be equipped with the following safety and inspection equipment's:
(a)	Pressure gauges at all places, where pressure has to be set up or inspected.
(b)	Safety valves for hydraulic circuit if relief valve does not fulfill this function.
(c)	Equipment for checking of temperature in the circuit or in the pump wherever necessary.
(d)	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.
(e)	Alarm for low oil level.
3.10.2	The sump aggregate shall have the following:
(a)	Oil level sight gauges or any other equipment showing the minimum and maximum oil levels in sump.
(b)	A drain plug at the lowest portion of the tank.
(c)	It shall be possible to drain the oil from the tank without disconnecting any pipes or other fittings.
3.10.3	The temperature of oil in hydraulic circuits shall not exceed 60 degrees C in any case. Suitable arrangement shall be incorporated to ensure that the oil is not overheated under local weather

SSE/M&P

SSE/PM

Dy. CME/Plant

AWM-II

SSE/MTS

SSE/BG CRS

उप मुख्य यांत्रिक इंजीनियर (प्लान्ट)
 Dy. Chief Mech. Engineer (Plant)
 पृ. 30/10 यौ. कारखाना, इज्जतनगर
 A F Riv. Mech. W/Shop, Izatnagar

	conditions at continuous normal working of the machine.
3.10.4	Facilities for bleeding of air in case of air lock shall be provided.
3.10.5	The hydraulic reservoir, pump and allied equipment shall be suitably segregated from the machine in order to remove major source of heat.
3.10.6	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.
3.10.7	First fill of hydraulic oils used on the machine shall be provided with the machine.

4.0 TECHNICAL LITERATURE:

- 4.1 One copy of the printed illustrative catalogue showing features of the machine and its elements must be enclosed with the bid.
- 4.2 The technical literature shall be provided for the complete machine, including imported and indigenously purchased components / sub- assemblies. The successful tenderer will have to furnish 4 (four) copies each of the following manuals directly to the consignee along with the machine. Out of these 04 sets, the bidder shall be required to submit one set of all documents in best available condition one month prior to the training for the machine. One set of technical literature should cover the following details:
- Operational & Maintenance manual of the machine.
 - Operational & Maintenance manual of the servo controlled voltage stabilizer.
 - Operational & Maintenance manual of the ultra-isolation transformer.
 - Instruction & Maintenance manual for Hydraulic Oil Cooling Unit.
 - User manual for Tool changer system (if provided).
 - Technical & Maintenance manual for Hydraulic System
 - Technical & Maintenance manual for Lubrication System.
 - Operator Guide for CNC Control System (if provided).
 - Programming Guide for CNC Control System (if provided).
 - Diagnostic & Trouble shooting Guide for CNC Control System (if provided).
 - Start-up Guide for CNC Control System (if provided).
 - Machine Software Listing (if provided).
 - Soft and hard copies of PLC Program in ladder form with cross reference listing and PLC project file.
 - Drawings of tooling & fixtures, hard copies in A-2 size as well as soft copy in PDF format.
 - Wiring diagram, in which length of wires must be mentioned, hard copies in A-3 size as well as soft copy in PDF format.
 - Mechanical drawings (spindle assembly, table assembly, column assembly), hard copies in A-1 size as well as soft copy in PDF format.
 - Spare part manual including part lists no., hard copies in A-4 size as well as in PDF format.
 - Lay out drawings in A-1 size, which clearly shows the position of all type of electrical components in machine.

Note: All manual and literature should be in English/Hindi.


SSE/M&P


SSE/PM


Dy. CME/Plant


AWM-II


SSE/MTS


SSE/BG CRS

उप मुख्य बांत्रिक इंजीनियर (प्लान्ट)
Dy. Chief Mech. Engineer (Plant)

5.0 Spares

- 5.1 Since the machine will be under comprehensive preventive maintenance during warranty period of two (02) years and under CAMC for five (05) years after the warranty period, it is the sole responsibility of bidders to stock such spares as required for smoother execution of Preventive Maintenance Schedule during warranty and CAMC in order to achieve response time in compliance to machine availability as per stipulated requirements.

6.0 CONSUMABLES (If applicable)

- 6.1 The list of consumable spares shall be furnished and quoted along with their unit rate.
 6.2 Consumables shall be supplied along with the machine or as per agreed time table, if ordered.

7.0 SPECIAL FEATURES:

- 7.1 Special features incorporated in the machine, if any, shall be indicated separately in the bid clearly indicating the advantages.

8.0 DEVIATIONS:

- 8.1 The tenderer shall certify that the offered machine fully meets the specification. Various design features incorporated in the machine to fulfill different technical performance requirements shall be fully explained in the offer. However, minor deviations from these specifications which do not affect or in any way interfere with the stipulated performance standards or would result in improved safety/ reliability or would reduce recurring maintenance/operating cost of the machine, can be considered for acceptance. The tenderer in such eventuality shall clearly indicate the details of these deviations and their implications as per the following format:
 8.2 All Deviations shall be clearly indicated in the deviation statement as per the format of submission of technical bid Annexure-A, given in Section III of this specification.

9.0 INSPECTION AND TESTING AT MANUFACTURER'S WORKS:

- 9.1 The machine shall be inspected and tested during different stages of its manufacture starting from raw material till the completion of machine, by the purchaser or his authorized representative at the supplier's or his sub-supplier's works as per the **Quality Assurance Program given in Annexure – 'H' of Section III**. The bidder must submit the exhaustive QAP incorporating the tests as given in Annexure - H along with other tests /stage inspection as followed by them.
 9.2 A load and functional test like no load test and maximum Horse Power test must be carried out at the manufacturer's works. Rigidity of the machine shall be demonstrated to the satisfaction of appointed inspector or inspecting agency.
 9.3 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.

SSE/M&P

SSE/PM

Dy. CME/Plant

AWM-II

SSE/MTS

SSE/BG CRS

उप मुख्य बांत्रिक इंजीनियर (प्लान्ट)
 Dy. Chief Mech. Engineer (Plant)

पू०उ०रे० यौ० कारखाना, इज्जतनगर

M.E. Pk. Mech. W/Shop, Iztanagar

- 9.4 A Sample Inspection 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.
- 9.5 The complete machine shall be inspected at manufacturer's premises as per approved GA drawing. Inspecting authority shall not carry out the final inspection in case GA Drawing is not approved by the consignee.
10. **TRAINING:**
- 10.1 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.
- 10.2 Subsequently, technical experts from the manufacturer will fully and adequately provide training to operators and maintenance staff nominated by the consignee at the time of commissioning of the machine.

Note: All training should be imparted in English/Hindi only.

11. FOUNDATION & RELATED DRAWINGS

11.1 SUBMISSION OF GA, FOUNDATION & RELATED DRAWINGS FOR APPROVAL:

- 11.1.1 For each machine, the supplier shall first submit 01 copy of foundation drawings with details of construction of foundations, complete layout of machine elements like bed, hydraulic tank, coolant tank, electrical panel, Servo Controlled Voltage Stabilizer etc. and other related diagrams (Mechanical, Hydraulic, Electrical & Electronics) along with machine weight, overall dimensions, electrical load with length of 3 phase, 415 V AC electric power cable for approval as per time schedule specified in Section-I to consignee for approval and to enable the consignee for making necessary arrangements for Installation & Commissioning of Machine on receipt. After getting approval from consignee, the supplier shall supply directly to consignee 6 copies of approved GA foundation drawings and related diagrams for each machine as per time schedule specified in Section-I from the date of approval of GA drawing for information only. This information should be furnished on the pattern indicated in detail in the following IS Specifications (Latest) or relevant international standards.

- IS: 2974 (Pt.I Para 4.1) for reciprocating type machine.
- IS: 2974 (Pt.III Para 3.1) for rotary type machine (medium & high frequency).
- IS: 2974 (Pt.IV para 4.1) for rotary type machines of low frequency.
- IS: 2974 (Pt.V para 3.1) for impact type machines other than hammers

11.2 APPROVAL OF GA DRAWING

To be governed by Time Schedule in clause 7 of Section-I and following stipulations.

SSE/M&P

SSE/PM

Dy. CME/Plant

AWM-II

SSE/MTS

SSE/BG CRS

- 11.2.1 General Arrangement Drawings will be sent by the 'Contractor' to the Consignee as per Time Schedule given in Clause 7 of Section I of technical specification. The 'Contractor' should ensure that drawings sent to consignee are complete in all respects as specified in technical specification.
- 11.2.2 **Delays in submission of drawings by Contractor will be added to the delay in supply of machine** in case submission of GA drawing is delayed beyond stipulated time as per time schedule and LD will be levied as per clause 1.23 of Section – I of NER Bid Documents uploaded with tender documents. Thus the number of days' delay in submission of GA drawing plus the number of days' delay in supply of machine together will be taken as the delay in supply of machine, for the purpose of calculations of LD as per clause 1.23 of Section – I of NER Bid Documents. However, if the contractor supplies the machine before original delivery period as per delivery schedule chart, the number of days by which machine has been supplied earlier than original delivery period that many days will be subtracted from the delay in submission of GA drawings and LD will be levied accordingly. Delays in approval of the drawings by consignee will not be on account of Contractor, except as detailed below.
- 11.2.3 In case Consignee finds some deficiencies in the Drawings and returns the same for rectification to the 'Contractor', the contractor must return the rectified drawings within 30 days from the date of issue of letter by Consignee. This period will not be counted towards LD calculation. The consignee shall ensure that all deficiencies in the Drawings shall be pointed for clarifications to the firm together at one time only instead of piecemeal multiple reference.
- 11.2.4 A repeat back reference(s) by Consignee to Contractor pointing out further defects/deficiencies in the Drawings, will be considered a delay on account of the contractor, except for special circumstances like change in location, review of arrangement etc. Thus, Contractors must take utmost care in ensuring completeness as per requirements of the Consignee.
- 11.2.5 If an order has been placed on the firm, the firm will have to advise the consignee well in advance regarding requirement of road permit and assistance required from the consignee, if any, so that delay on this account is avoided. Firm should also visit the site before dispatch of machine to assess the condition of path to be used for movement of trailer.
- 11.3 DISPATCH OF THE MACHINE FROM MANUFACTURER WORKS:**
- 11.3.1 The supplier should normally dispatch the machine only after the foundation is ready for installation and commissioning of the machine on arrival.
- 11.3.2 In case proving of component at manufacturer works, the supplier should request for the same as soon as possible after receiving contract keeping allowance of transit time etc. and approximately 60 days for consignee to handover the parts after receipt of the request accompanied by appropriate and valid bid guarantee. In the event of consignee certifying the non-availability of prove out components, such components will be deemed to be proved out at manufacturer works. However, the firm will prove out these components at consignee subject to the availability.
- 12.0 INSTALLATION, COMMISSIONING AND PROVING TESTS: (ON TURNKEY BASIS)**
- 12.1 **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

SSE/M&P

SSE/PM

Dy. CME/Plant

AWM-II

SSE/MTS

SSE/BG CRS

उप मुख्य यंत्रिक इंजीनियर (प्लान्ट)
 Dy. Chief Mech. Engineer (Plant)
 पूंउरेंच यंत्रिक कार्यशाला, इलाहाबाद
 Dy. Piv. Mech. W/Shop Izatnagar

inspection be done immediately on receipt of the machine by consignee & bidder's representative to avoid commissioning delays due to shortages/transit damages. After receipt of the machine as above a Joint Receipt Inspection note (JRI) as per Annexure-C of Section-III shall be prepared by the consignee and the firms representative indicating the tentative time schedule for various activities of installation and commissioning. For Indian manufacturers, JRI note shall accompany the bill for 80% payment.

12.2 RESPONSIBILITIES OF CONSIGNEE AND BIDDER

12.2.1 The consignee shall be responsible for-

- Provision of a clear covered (except where shed is in the scope of contract) site for construction of foundation as per the schedule to ensure its readiness before arrival of machine at site.
- In case where construction of shed is also in the scope of contractor the consignee shall ensure site is encroachment and encumbrance free.
- Electricity, water and compressed air for installation and commissioning of machine shall be provided free of cost within one week of arrival of machine at site.
- Wherever a road mobile crane has to be arranged by the supplier for material handling, a clear approach for it up to the site has to be provided.
- Clear covered space for storage of material/equipment required for working/ construction of foundation and installation of the machine etc.
- The consignee shall arrange the raw material for prove out at their end within 15 days of the dry run of the machine (installation, power connection, auxiliary connection like air, water connection) failing which such components will be deemed to have been proved out. The components supplied by the consignee in time will be required to be proved out as per time schedule chart.
- The inspection of foundation, structures etc. and installation of the machine shall be done by authorized representative of consignee.

12.2.2 The bidder shall be responsible for-

- Design & Construction of foundation, flooring of sufficient thickness, civil works (in line with scope of supply) suiting local soil conditions at the site in compliance with clause 12.8 given below, based on Clause 3700 (3701 to 3704) of COFMOW Bid Document Part-I.
- Advise consignee in time regarding schedule for requirement of clear site for construction of foundation and other infrastructure, resources & facilities required.
- Construction of foundation as well as flooring (if required) of sufficient thickness suiting local soil conditions, for machine shall be completed by the bidder at the site provided by the consignee before receipt of the machine at their premises.
- Provision of all tools and equipment, technical and unskilled manpower, material handling accessories/ equipment and material for installation and commissioning.
- Unloading of the machine on receipt (both imported and indigenous machine) and its movement to the site of installation including provision of road mobile crane.
- The bidder should ensure the proper earthing for the machine and its peripherals/accessories.
- The bidder shall be responsible for meeting all the criteria set by State Pollution Control Board and Central Pollution Control Board, wherever applicable, with respect to air, water, noise, land

SSE/M&P

Saurabh
SSE/PM

Dy. SME/Plant (Plamt)
Dy. Chief Mech. Engineer (Plamt)
पूजारे यां कारखाना, इज्जतनगर
N.E. Riv. Mech. W/Shop. Izatnagar

AWM-II
page 9 of 10

SSE/MTS

SSE/BG CRS

etc. The bidder shall be responsible for obtaining clearance/certificate for installation/commissioning /operation of the machine/system supplied. The consignee will provide the administrative help for establishment of communication with the Pollution Control Board.

12.3 Consignee will provide only 415 V+10%/-20%, 3 phase 50 Hz+3% AC supply at a single point (mains). All types of cables, connections, circuit breakers etc. required for connecting power supply point to different parts of the machine/control cabinets, shall be the responsibility of the bidder. Requirement of grounding/ earthing with required material shall also be incorporated by the bidder during construction of foundation.

12.4 Electrical work like laying of power/electrical cables & earthing wires from mains to machine control panel (up to 20 meters) as well as within the machine, with supply of all materials shall also be carried out by the supplier.

12.5 **Commissioning and proving out:** The supplier shall demonstrate machine performance and prove out the claimed capability for successful commissioning at the consignee's works as per clause 2.6 of Section-I within time schedule given in Clause 7 of Section I of Technical Specification. The M&P shall be deemed to be "commissioned" at consignee premises on the date when it is tested and meets with the specified capabilities/functions according to the technical specifications. In addition to above, in case of tooled-up M&P, the M&P shall be deemed to be "Commissioned" at consignee premises on the date when "prove out" components specified as per the relevant clause of technical specification have been successfully proved out meeting the productivity requirements of Technical specification. The consignee shall arrange the raw material for prove out at their end within 15 days of dry run of the machine (installation, power connection, auxiliary connections like air, water etc.) failing which such components will be deemed proved out. The components supplied by consignee in time will be required to be proved out as per time schedule chart. Any delay in providing the "raw material or any other input" for proving out shall not be logged on supplier's account.

A Joint Commissioning Note (JCN) to this effect shall be made as per the format at Annexure-D of Section-III. After issue of JCN the performance shall be watched for a period of one month, after which the PTC shall be issued.

12.6 **Penalty on delay in commissioning:** The machine shall be commissioned and proved out during the time period as indicated in delivery schedule chart given in clause 7 of Section I of Technical Specification, failing which penalty will be levied on firm as per clause "" of NER Bid documents uploaded with tender and re-iterated hereunder.

"The time allowed for commissioning of machine shall be deemed to be the essence of the contract. In case of delay in commissioning of the machine on the Part of the contractor, the purchaser shall be entitled to recover from the Contractor shall be liable to pay liquidated damages at the rate of 2% of the total contract value for each month or part thereof for which commissioning is delayed, provided the amount of liquidated damages under the provision of this clause shall not exceed 10% of the total contract value. Failure to install/commission the machine within stipulated time after intimation from the consignee will be taken as breach of contract and purchaser will be at liberty to forfeit the Security Money furnished by the supplier without any prejudice to other rights under the contract"

12.7 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

SSE/M&P

SSE/PM

Dy. CME/Plant

AWM-II

SSE/MTS

SSE/BG CRS

उप मुख्य यंत्रिक इंजीनियर (प्लान्ट)

Dy. Chief Mech. Engineer

पू०उ०रे० यौ० कारखाना, इज्जतनगर

N.F. Rly Mech. W/Shop. Izatnagar