

(1)	(2)	(3)	(4)	(5)		(6)
Item NO	Description with Specs. Etc.	Unit	Qty	Price Per Unit FOB or C&F Basis		Delivery Date
				In Figures	In Words	
1.	<u>Pulverizer / Hammer Mill Type Machine</u> Specifications & Other Conditions attached as per Annexure-"A"	No	01			

TECHNICAL KNOW HOW

The supplier must provide the following literatures/drawings/manuals. Literature manuals should be in simple and clear English language.

1. Installation prerequisites will be provided immediately on conclusion of contract. These include foundation drawings, power and service requirements clearly giving cabling and piping layouts.
2. Installation/commissioning manuals, to include complete data and procedure for initialization of the machine. The initialization data should additionally be provided on a USB disc.
3. Operator instruction manuals.
4. Maintenance service manual, to be included comprehensive diagnostic information. The following details/drawing must be included in the maintenance manual.
 - a) Detailed procedures regarding the self diagnostic features of the machine.
 - b) Constructional drawings necessary for operation/maintenance of the machine.
 - c) Electrical/Electronics schematic and wiring diagrams including component layout and circuit diagrams of PCBs with interlinking wiring diagrams.
 - d) Pneumatic and hydraulic control diagrams.
 - e) Flow charts and procedures for trouble shooting. Wave forms at various test points should be given to aid trouble shooting.
 - f) Complete specifications of all sensors and fuzes.
 - g) Adjustment instructions and procedures for all the potentiometers.
 - h) All EPROM/PLC programmes to be provided on paper and on a USB disc.

MACHINE SPECS.

The machine should incorporate self diagnostic features. Diagnostic programs having inter-active dialogue with the operator should be provided on a USB disc.

Any special equipment required such a PLC/EPROM Programmers may be quoted. Price to be indicated separately.

SPARES PARTS

Recommended spare parts for two years maintenance are to be quoted separately. List of all the required items may also be given. Prices of all PCBs, programmed eproms, all custom built ICs may be provided item-wise. Final list of requisite spares will be prepared by POFs.

TRAINING

Supplier will undertake to train the purchaser's personnel for operation/trouble shooting and maintenance of the machine on site and its elements down to the level of PCBs. The following information will be submitted along with the offer.

- Training cost.
- Duration, number of trainees and disciplines in which training will be imparted.

SPECIFICATION**NOMENCLATURE : Pulverizer / Hammer Mill Type Machine**

1. Average capacity of each machine : 40 kg / hour
- 1.1 The Pulverizer suitable for pulverizing of heat sensitive materials (KNO₃) inbuilt with dust collector & mesh sieve as per following specification:
 - Rated Capacity : 40 Kg/hr
 - Granules of feed material : < 10mm
 - Product size / output : passing through 200 mesh
- 1.2. Material of the cutter : Stainless steel

2. SCOPE OF SUPPLY.**Hardware (Mechanical & Electrical)**

The following hardware should be included in the supply.

- 2.1 All the elect motors should be intrinsically safe, explosion proof, flame proof and conform to IP (IP-65) rating in explosive area.
- 2.2 Pulverizer machine complete in all aspects including safety equipment and essential accessories.
- 2.3 Erection material such as steel structure for supporting of machinery.
- 2.4 Cables required for electrical installation.
- 2.5 Start / Stop control station for all motors (with ampere meters) and pumps etc along with perforated cable trays for power & instrumentation and mounting accessories.
- 2.6 Consumable required during installation of the machinery.
- 2.7 Civil construction work will be executed by the purchaser as per design and materials specifications provided by the supplier.
- 2.8 The pulverizing machine should be provided with the magnetic separator to remove any metallic impurity.
- 2.9 Inbuilt dust collecting system must be included.

3. ERECTION INSTALLATION & TRIAL RUN OF MACHINERY.

- 3.1 The purchaser personnel's under the working supervision of the supplier's engineer & technicians shall install the machinery.
- 3.2 The machinery will be commissioned and trial production will be carried out by seller's engineers. Purchaser shall provide the required number of operators & technicians for the installation, commissioning & trial run.
- 3.3 The supplier has to indicate the total man-weeks of his engineers / technicians required for the installation, commissioning and trial run of the machinery. Terms and condition are to be stated clearly. All expenses including boarding, lodging, traveling & daily allowances of the supplier's engineers / technicians are to be borne by the supplier, however local transport shall be arranged by the purchaser.
- 3.4 The supplier shall provide the time schedule for completion of the installation, commissioning and trial run.
- 3.5 It shall be guaranteed that spares shall be available for at least 10 years after successful installation of pulverizer machine.

4. DOCUMENTATION.

The supplier will be required to furnish relative technical data (4 copies each in English language) including the following:

- 4.1 Detailed civil engineers design indicating foundation holes, static and dynamic load etc. Also layout showing safety installation, electrical installation, utilities, humidification and temperature controlling system etc.
- 4.2 Detailed drawings & specifications of the machinery.
- 4.3 Detailed erection drawings.
- 4.4 Specifications of materials not included in the supplies but necessary for integration of the offered machinery.

- 4.5 Maintenance and services manuals of the machinery.
- 4.6 Safety and labour protection instructions.
- 4.7 Comprehensive operating manual of pulverizer machine & related equipment.
- 4.8 P & I drawing.
- 4.9 Detailed electrical & instruments connecting diagrams.

5. **CLIMATIC CONDITIONS.**

- Temperature Range = -3 °C in winter to 45 °C in summer
- Atmospheric relative humidity = 30 to 90 %
- Average annual rain fall = 450 mm
- Altitude above sea level = 790 meter
- Earthquake value = 7.5 Richter scale

6. **AVAILABLE UTILITIES.**

- Following utilities are available at site:
- phase electricity, 400 ±5 % volts, 50Hz
- Single phase. Electricity 220 ±5 % volts, 50Hz.
- Raw water (with 2bar pressure)
- Steam up to 25 bars (Saturated Steam)
- Compressed air up to 6 bar (G) at battery limits
- Instrument Air (with 4bar pressure).

7. **TECHNICAL SUPPORT.**

The supplier shall confirm that after installation of the pulverizer machine, there shall be continuing technical support as and when required by the purchaser. In addition, the purchaser shall be kept informed regarding latest advancement in the related technology for further improvement in the process for a period of 15 years, commencing from the date of installation of pulverizer machine.

WARRANTY / GUARANTEE.

- 8.1 The machine and accessories shall be accepted on supplier's warranty / guarantee with regard to quality and quantity subject to these being technically checked / tested where necessary and accounted for on arrival at consignee's warehouse in the presence of supplier's rep. (if desired by supplier) at their cost. The supplier shall render warranty / guarantee certificate in duplicate to the purchaser on the enclosed proforma (Annex-C) as soon as stores have been dispatched / delivered. The warranty / guarantee shall be binding on the supplier for a period of 24 months reckoning from the date of commissioning of machine.
- 8.2 In case the stores on checking / test after receipt at consignee's warehouse are found not conforming strictly to the relevant specification and other particulars or found broken during transit, the supplier shall immediately replace the rejected / broken stores by acceptable store, free of cost and without any obligation to the purchaser. During Pre-shipment inspection (PSI) rejected / broken stores shall be replaced before dispatch.
- 8.3 The supplier shall warrant the good quality of all equipment supplied against all defects or failures due to faulty design, material, or workmanship.
- 8.4 The supplier shall also provide guarantee for meeting the requisite quality and quantity of the products. Quantitative guarantee regarding plant capacities shall be based on 120 working hours. In case of any deficiency in terms of quality and quantity of products, all related expenditures shall be borne by the supplier.