

Technical Specification for Tender No. 2024-25/02 Released Government E - Marketing (GeM Portal)

1. E-Waste Recycling Plant

Sl. No.	Specification	Range / Value
1	Make	Bidder to Specify
2	Model	Bidder to Specify
3	Purpose	Recycling of waste circuit boards, CCL,waste computer mother boards, waste cell phone motherboards, waste TV boards & PCB scrap etc. and wires/cables.
4	Capacity	40-50 Kgs/hr
5	Dismantling table	<p>To dismantle of all kind of e-wastes and segregate the materials manually</p> <ul style="list-style-type: none"> • 4' X 8' X 2' top one piece 4 seater table or Better • Frame & sections : MS with powder coating • Table top: Minimum 2 mm thick Stainless Steel with smooth finish or Better • GI Dust suction canopy attached to table body • GI Suction canopy to have a flange for connecting to the Dust collection system • Necessary dismantling tools
6	Dust collection system for Dismantling table	<p>For suctioning the dust from the dismantling table</p> <ul style="list-style-type: none"> • MS with powder coating Build, Not less than 3 mm thickness. • Suction blower: 1.5 HP, 500 CFM or better • Necessary dust filter plus collection bag • Manual dust collection and bag cleaning • Manual cleaning system • Equipped with 1.5 HP, 3 phase Squirrel cage AC induction motor or Better
7	Depopulator	<p>To dismantle the electronic components from waste circuit boards, CCL,waste computer mother boards, waste cell phone motherboards, waste TV boards and PCB scrap etc.</p> <ul style="list-style-type: none"> • Electrical heating System or better • Rotary furnace or better • Heating chamber size : 3 ft x 4 ft or Better • Fitted with a vibrating discharge tray • Minimum 2 inch heat insulation • Integrated Temperature controller with temperature sensor • Equipped with 1 HP, 3 phase Squirrel cage AC induction motor or Better • Discharge mechanism • MS build, with heat resistant powder coating

8	Venturi Scrubber for depopulation machine	<p>For scrubbing the toxic gases and removing the carbon from the depopulator fumes Scrubbing chamber: 400 mm dia x 2800 mm height or Better Blower with 800 CFM, 15 psi pressure or Better 3 phase 2 HP, 2 pole AC induction motor or Better Water pump with 1 HP Ac induction motor or Better Gate valve, nozzle, casing etc. Eliminator Material: SS304, Build external & Strainer-MS powder coated or Better Necessary plumbing accessories</p>
9	Smoke Stack	<p>To let the cleaned exhaust air out in the atmosphere safely outside direct human contact.</p> <ul style="list-style-type: none"> • Height: Minimum 15 mtrs • Build in multiple sections with MS powder coated • Necessary foundation strong enough to support the stack • Guy wires on 3 sides for supporting the stack along with Guy anchors • Bird protection • Inspection port • Lightning arrestor
10	Shredding Unit	<p>To Shred all types of scrap Printed Circuit Boards with or without components</p> <ul style="list-style-type: none"> • Min capacity : 40-50 Kg per hour • Cutting chamber : 400 x 450 mm with High efficiency gearbox or better • Twin Shafts with cutting blades of 15 mm thickness or better • High carbon case hardened Steel blades or better • Complete feed and discharge system fitted on the shredder • Cut Size less than 50 mm or Better • Belt-Pulley drive • 3 Ph/12.5 HP Squirrel cage AC induction motor or better • Automated reverse-forward anti-jamming system with a star-delta starter • MS build with powder coating
11	Intermediate Conveyor Belt	<p>Inclined Conveyor for conveying the output of shredder to the pulveriser</p> <ul style="list-style-type: none"> • Length: 5 ft - 6 ft • Wide: 400-500 mm • Inclined conveyor with Sidewalls • Supporting rollers: Hardened Steel with Rust proof • Belt : Material- Rubber canvas, minimum 3 ply with retainers or Better • Top end of conveyor aligned to the feeding point of the pulveriser • Bottom end of the conveyor aligned at the discharge point of the shredder • MS build at least 2 mm thickness, with powder coating

12	Overband Magnetic Separator	<p>To remove the ferrous material from non-ferrous material</p> <ul style="list-style-type: none"> • Magnet: 3000 gauss Permanent Magnet or better • Self cleaning PVC Belt assembly • Supporting rollers: Hardened Steel with Rust proof • 3 Ph/0.5 HP Squirrel Cage AC induction motor with suitable gear box or Better • MS Build with Powder coating
13	Pulveriser	<p>To Grind the Shredded PCB into under 2 mm size</p> <ul style="list-style-type: none"> • Min capacity : 40-50 Kg per hour • Minimum Grinding chamber size: 200 x 400 mm • Minimum 12 hammers mounted on high speed rotating shaft • Flippable hammers for 2 side use • High carbon hardened Steel sieve with 1.5-2.0 mm perforations, min thickness 3 mm • Belt-pulley drive • Safety feed hopper • Wear resistant grinding media parts • Heat & wear resistant choppers • High efficiency design & High speed bearings • Necessary pipeline with conveying blower • 3 Ph/12.5 HP Squirrel cage AC induction motor or Better • MS build with powder coating
14	Cyclone Separator	<p>To separate majority of the dust from the pulverised material</p> <ul style="list-style-type: none"> • Ability to handle 1000 CFM air flow or Better • Top mounted 360 degree rotatable scroll • Flanges for all 3 inlets/outlets • Connecting pipe with flanges for connecting to the Pulveriser's blower • Connecting pipe with flanges for connecting to the main dust collector • Provision for mounting a discharge control valve, motor and gear box • Suitable stand made with minimum 40 x 40 mm, 5 mm thickness angle section • Chain Sprocket Drive or Better • 3 Ph/1.5 HP gearbox Motor or Better • MS Build with Powder coating

15	Rotary Discharge control valve	<p>To lock dust filled air inside the cyclone and provide a controlled material discharge</p> <ul style="list-style-type: none"> • Ability to pass 40 -50 kg per hour of grinded PCBs • universal flange • Chain-Sprocket Drive • suitable gear box • 3 Ph/1.5 HP squirrel cage AC induction motor or Better • MS Build with Powder coating
16	Main Dust Collector	<p>To collect the hazardous dust generated during pulverizing for safe disposal</p> <ul style="list-style-type: none"> • Dual input system or better • 6 dust filter bags fitted on removable steel rod cage or better • Automated Pulse Jet bag cleaning system • Min 2 solenoid valves • Pressure gauge mounted on air pressure cylinder. • Ability to sustain air flows of upto 1000 CFM • Manually operated 2 x flow control valves with position locking system, one for each input • Manually operated dust discharge outlet • Necessary steel pipeline for each input • MS Build with Not less than 3 mm thickness & Powder coating
17	Compressor and Pulse Jet system for dust collectors	<p>For enabling automated cleaning of the dust filter bags</p> <ul style="list-style-type: none"> • Solenoid valve controller with adjustable pulse frequency and duration • Single cylinder, single piston compressor engine • Compressor Work pressure 6-10 bar • Min Tank capacity 60 litres, • Tank build with min thickness 3 mm • Min work tank pressure capacity 120 psi • 3 Ph/1.5 HP squirrel cage AC induction motor • MS Build with Not less than 3 mm thickness & Powder coating
18	Automated Size Separator	<p>To create uniform sized batches and make the material ready for metal-non metal separation</p> <ul style="list-style-type: none"> • Minimum Diameter:600 mm • Size separator with 3 outputs • Max output size of 2 mm divided in 2 reasonably sized output fractions • 2 decks of separating SS screens (3 outputs) • Separate discharge for particle size greater than 2 mm • PVC Collection bin with top lid & Fabric discharge bellows • 3 Ph/1.0 HP motor or Better • MS Build with Powder coating

19	Metal Separator Assembly	<p>To separate the metal and non metal from the pulverised circuit boards</p> <ul style="list-style-type: none"> • Fluidized Vibrating bed with Air as levitating medium • Designed for coarse and fine fraction from size separator • Removable separation decks, one each for coarse and fine fractions. • 2 HP blower for air supply @ min 5000 CFM • 3 HP blower for dust suction @ min 5000 CFM • Air control damper • Deck vibration system • Suction canopy mounted above the vibro deck
20	Cable stripper with Multi slot cutting	<p>To remove the external insulation and extract the internal metal conductor from wires</p> <ul style="list-style-type: none"> • Min 10 slots to support stripping of cables from 0.5 mm to 30 mm core size • SS Cutters, one each for each slot, mounted on a common shaft • 1 HP 3 phase squirrel cage AC induction motor • suitable Gear box • 1 HP 3 phase squirrel cage AC induction motor • Speed 15 metres per min or more • Inbuilt DOL starter

Common Features / terms for all equipment

- All Motors, Switches, starters, Switch Gears, Instrumentation, Sensor, VFD, Cable & Wires are must be popular branded & from reputed manufacturer;
- Roller Material: Steel -Hardened, Grinded Steel and coated or better;
- Blades: Steel -Hardened, Grinded Steel and coated or better;
- Frame & Sections: MS with Powder coated or better;
- Finishing: Smooth finish with Powder coating / Painting or better;
- Necessary accessories must be listed and quoted;
- All the equipment should carry a quality mark such as ISI or CE (Conformité Européenne) as applicable;
- All belt/chain drives must have a safety cover;
- All machines quoted must be complete in all respects including suitable electrical starters;
- Hazardous Substance Management: As PCBs contain hazardous substances such as lead, mercury, cadmium etc., it is essential to ensure that the equipment provided by the supplier is capable of preventing the release of these toxins into the environment;
- Regulatory and Compliance Adherence: The equipment must comply with all Regulatory and Compliance requirements as stipulated by the local authorities and under the Prevailing State Laws;
- All machines must have a minimum 2 years warranty from the date of commissioning;
- User manuals must be provided for all machines;
- Minimum Five days of training and demonstration to be provided during the installation of the equipment.