

## Technical corrigendum

### Final Specifications of Gantry type CNC Plasma Cutting Machine

**Brief description of the equipment:**

CNC plasma cutting machine having high speed positive bilateral longitudinal drives gantry to provide accurate and repeatable cutting. The gantries are to be fitted with hardened and ground rails, which makes it highly durable and enables consistent performance over many years. The machine to be incorporated with state-of-the-art technology in cutting (plasma and oxy-fuel), electronics and softwares. The equipment is intended for cutting and high definition plasma marking of carbon steels, stainless steels and aluminum alloy plates.

**Technical Specifications:**

<b>1</b>	<b>CNC Cutting Machine Gantry with Rail of sufficient length with rigid H beams and fixing/levelling components, Complete Drive system including servo motors, double side rack and pinion transmission for gantry, torch lifter with automatic height adjustment with suitable sensor.</b>
Work width	1500 mm – 2000 mm
Total width	< 3600 mm
Work length	3000 mm – 3050 mm
Total length	≤ 5000 mm
Max. Machine Positioning Speed	≥15000 mm/min
Rail Height (top of rail)	≥500 mm
Drive:	Longitudinal ≥15 m/min Transverse ≥15 m/min
Available Process Tools :	High definition Plasma system for cutting and marking with automatic gas selection and mixing facility, oxy-fuel cutting
Torch Lifting	Height: ≥150 mm Speed: ≥15 mm/s
<b>Cutting Accuracy:</b>	
Cutting Accuracy (Reference Standard to be followed by Vendor)	DIN EN ISO 9013-2002(E)
<b>2</b>	<b>CNC Controller Touch Screen with inbuilt software for on-screen nesting with compatible operating system (Windows), USB, Keyboard (for input) , Air Conditioner for Machine Control Unit (MCU)</b>
<b>CNC Controller:</b>	Reputed make controller like Hypertherm , Messer , FANUC, ESAB, Eckelmann, Victor Thermal Dynamics that must be mentioned in final bid with latest hardware and software i.e. compatible with Window 10
Nesting:	DXF-graphics -NC programs. DIN/EIA input format.
<b>3</b>	<b>Plasma System – Power Supply with compatible system.</b>
<b>Make</b>	Hypertherm/ ESAB/ Lincoln/ Miller/ Kjellberg/Victor Thermal Dynamics that must be mentioned in final bid.
Input power supply	3 Phase, 415±10% V, 50 Hz

Output Current	Minimum 170 A (100 % duty cycle)
Open circuit Volt:	≥425 V
Power Factor	≥ 0.90
Fire Protection	IP23S/ IP20
<b>4</b>	<b>1 x Plasma Tool Station, Plasma torch etc with compatible system</b>
Tool Configuration	1 Plasma cutting torch, Marker
Max. Cutting thickness	25 mm (~1 inch)
Cutting Media	Air and any cutting media as per high definition plasma cutting
Automatic height adjustment	Suitable height adjustment for high definition plasma
<b>5</b>	<b>1 x Oxyfuel Tool Station along with compatible system having automatic gas console. Gas consumption and height adjustment to be controlled automatically by controller and suitable sensor.</b>
<b>Make</b>	<b>ESAB/ Messer/ Tanaka/ Harris/Victor Thermal Dynamics/GCE that must be mentioned in final bid</b>
Tool Configuration	1 oxy-fuel torch, Straight line Bevel Cutting up to 45 degree angle
Automatic height adjustment	Suitable automatic height adjustment
Max. Cutting Thickness	100 mm (~4 inches) from edge.
Fuel Gases	Acetylene, propane, natural gas, mixed fuel gases
<b>6</b>	<b>Cable Track Chain on X and Y axes</b>
<b>7</b>	<b>Accessories</b>
Gas manifolds	Minimum 3 cylinders for oxygen, 2 cylinders for acetylene, and 1 cylinder each for any other gas required, along with required valves, regulator, hoses and any other accessories required. Maximum distance of machine to manifold to be 10 m.
Air Compressor with Drier and Filter	Better of (i) and (ii) below: (i) Minimum 7 Bar Line Pressure and Minimum 25 CFM (ii) as suitable for the supplied system
Servo Stabilizer	Suitable Servo Stabilizer (minimum 25 KVA)
Cutting bed	A basic cutting table to be supplied for putting plates of machine capacity
UPS	Suitable UPS for controller
Consumables and spares for plasma cutting	<u>For 30 AMPS, O2/Air :</u> Electrode– 10 Nos., Nozzle – 10 Nos., Shield – 5 Nos., Swirl ring – 5 Nos., Nozzle retaining cap – 5 Nos., Shield cap – 5 Nos., Water Tube – 5 Nos. <u>For 80 AMPS, O2/Air:</u> Electrode– 10 Nos., Nozzle – 10 Nos., Shield – 5 Nos., Swirl ring – 5 Nos., Nozzle retaining cap – 5 Nos., Shield cap – 5 Nos., Water Tube – 5 Nos. <u>For 130 AMPS, O2/Air:</u>

	Electrode– 10 Nos., Nozzle – 10 Nos., Shield – 5 Nos., Swirl ring – 5 Nos., Nozzle retaining cap – 5 Nos., Shield cap – 5 Nos., Water Tube – 5 Nos.
Consumables and spares for oxy-fuel cutting	Nozzles – 10 Nos.

- 8** **General Operating Condition**  
Temperature – Up to 50 Degree C  
Relative Humidity - 20 % to 90%
- 9** **Safety Features**  
Collision safety, Protection against Overload. Emergency stop, Provision for safety from electric shock for operator and fire. Safety for Power Failure must be for full machine, including plasma source, along with operator. This should also include alarm system, if any, to protect the machine.
- 10.** **Warranty**  
1 year Warranty comprehensive for whole system + 2 year Non-Comprehensive AMC (AMC price to be used for comparison). Comprehensive warranty will cover cost of spare part also in case of any damage. Further, during Non- comprehensive AMC the vendor would be responsible for maintenance and spare part will be in CSIR-NML scope of supply.
- 11** **Installation and Commissioning**  
Installation and commissioning is required at CSIR-NML premises. Required civil work will be carried out by the Vendor. The vendor will provide a detailed water table design to CSIR-NML, the fabrication of water table will be in CSIR-NML scope of supply, if required.
- 12** **Training**  
Training is required for operating personnel at CSIR-NML premises. All cost to be under vendor's scope.
- 13** **Compliance statement**  
Vendors need to provide an item-wise compliance statement duly supported by its content in the offer.

**CSIR- NML Scope:**

- To provide leveled floor for installation of the machine.
- 3 phase electric power (415 V, 50 Hz) and water at single point at installation site.
- Earthing pit required, if any, will be in CSIR-NML's scope (to be indicated in technical bid)

**Eligibility Criteria:**

- The bid should be submitted only by OEMs or their authorized agent. OEM means a manufacturer having its own make controller or plasma cutting source, at the least.
- The OEM must have supplied such machines in CSIR laboratories/ DRDO/Railways/public sector/ **reputed private companies in India**. They must provide documentary proof of supply of at **least 5 such machines** or higher capacity machines in last three years, along with performance certificate from their customers.
- The OEM or bidder must have a service establishment in Eastern region to attend the machines, as and when required.