

CSIR-CENTRAL SCIENTIFIC INSTRUMENTS ORGANISATION
SECTOR-30, CHANDIGARH-160 020

No. CSIO/3(81)/2014-Pur

August 31. 2016

Tender No. CSIO/3(81)/2016-Pur

Procurement of 3D Metal Printer- revised specification after Pre-bid Meeting held on 30th August, 2016.

The revised specifications after Pre-bid Conference held on 30.08.2016 are enclosed. All the prospective bidders are requested to submit their quote as per revised specifications. Other terms & conditions of our Tender Notice will remain the same.


Controller of Stores & Purchase

MIS :- for uploading on website.

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Revised: 3D Metal Printer Specifications	
Sl. No.	Specification
1	Energy Source: Laser Source 400W OR Electron Beam source 3000W or better
2	Process/Technology: Direct Metal Laser Sintering/Melting/ Electron Beam Melting/ powder bed based system
3	Environment:
	a) Laser Powered system to operate in both nitrogen & argon gas, with either in-built Nitrogen generator or if not inbuilt, nitrogen generator is to be supplied by manufacturer of the machine
	OR
	b) Electron Beam Powered system to be able to operate in vacuum, Helium
4	Build Envelop: 250X250X250 mm or more
5	Editable/Variable Layer Thickness range: 20-150 µm or better
6	Beam Focus Diameter/Beam Diameter: 100µm or less
7	Inbuilt Camera for powder bed/Layer verification
8	Automated/Effective/ without manual intervention self-cleaning and recirculating filter system
9	Platform heating module/capability for laser based systems (to be quoted as optional item)
10	Accurate movement of Z-axis/build platform must have closed loop control
11	Machine must be capable of continuously monitoring: Position of Z-axis, Laser/Electron Beam power, scanner position, humidity, temperature, pressure
12	The software must be capable of :
	a) Automatic repair of layer data errors e.g. overlaps, double contours, inverted triangles/Polygon
	b) Breakdown of solid part data into separate data sets for skin/shell and core
13	Materials: In a single Machine, all of the following material options for printing to be available
	a) Ti6Al4V/Ti64: mechanical and chemical specifications as per ASTM F1472 or equivalent standard for surgical implantation with base alloy composition remaining same
	b) Ti6Al4V ELI/Ti64 ELI: mechanical and chemical specifications of as per ASTM F136 or equivalent standard for surgical implantation with base alloy composition remaining same
	c) CoCr Mo: mechanical and chemical specifications of as per ASTM F75 or equivalent standard for surgical implantation with base alloy composition remaining same
	d) Stainless steel 316L: mechanical and chemical specifications of as per ASTM F138 or or equivalent standard for surgical implantation with base alloy composition remaining same
	e) Nickel Alloy HX: composition as per UNS N06002 or equivalent standard
	f) Nickel Based Alloy IN625: chemical composition corresponding as per AMS 5599G or equivalent standard
	g) Nickel Based Alloy IN718: chemical composition as per AMS 5662 or equivalent standard
	h) AlSi10Mg

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i) MaragingSteel	
14	Datasheet for each material specified in pt. 13 to be provided for material as well as printed part
	a) The datasheet to have information about physical and chemical properties such as material composition, density of built part
	b) Mechanical properties of built part i.e. tensile strength, yield strength, elongation at break, minimum wall thickness, hardness value, surface roughness(achieved after shot-peening)
15	Mill test certificate to be provided for each material specified in pt. 13 for powder material as well as for built part
16	Software with Parameter editing capability for materials
	a) Ti alloy, Maraging steel, AlSi10Mg
	b) Other material parameter editing to be quoted separately as optional item
17	Essential accessories to be supplied with machine
	a) Chiller/cooling unit if required
	b) Cleaning kit for optics& other sub system, (for laser based systems)
	c) Recoater assembly/blades (if used in system)
	d) Powder Handling system(Conveying, sieving, lifting) if required
	e) Liquid filled vacuum cleaner/wet separator for (laser based systems)
18	Consumables:
	a) 30 Kg Ti64/Ti6Al4V ELI Powder or the minimum quantity required for successful operation of machine if it is more than 30 Kg
	b) 30 Kg AlSi10Mg Powder or the minimum quantity required for successful operation of machine if it is more than 30 Kg
	c) platform for Ti powder & AlSi10Mg powder: 4 nos.(for laser based systems only)
	d) Filters for 15,000 hours of operation
19	Guarantee/Warranty: The complete machine and all other standard /optional accessories /attachment must be guaranteed for free repairs and replacement for a period of 36 months from the date of installation and commissioning. Software update to be provided freely for a period of 36 months from the date of installation.
20	Usage of 3rd party material options in the system will not void warranty of machine: Certificate by manufacturer to be provided
21	The quoted price of raw material i.e metal powders to remain fixed for 3 yrs
22	Training:
	a) Training on operations and programing at our location for minimum 5 days
	b) Training for Lattice structure for medical implants: 3Days
23	Handholding/Application Support:
	a) Handholding/Application support for 3 Years at our site minimum 24 times/Year for Application/Technical Knowledge Sharing
	b) OEM to have dedicated Application Engineer for Metal Machine based in India with application certification from OEM. Supporting documents regarding Engineer certification to be submitted

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	c) OEM to have dedicated certified Service Engineer for the Metal Machine based in India with service certification from OEM. Supporting documents regarding Engineer certification to be submitted
24	Principal/OEM will supply all the required spares and raw material mentioned at Sl. No. 13 for 10 years after the warranty period
25	List of accessories/equipment required for post processing of built parts to be provided along with specifications and recommended suppliers
26	Delivery, Installation & Commissioning: The complete installation and commissioning must be carried out by the supplier at the our site
27	Documentation to be provided with machine :
	a) Operation Manual
	b) Software Instruction Manual
	c) Maintenance , Troubleshooting and Safety Guidelines.
	d) Handling of accessories Guidelines
	e) Drawings of build platforms for local production/procurement (for laser based systems only: optional)