राष्ट्रीय गतिशील दिव्यांगजन संस्थान
National Institute for Locomotor Disabilities (Divyangjan)
(दिव्यांगजन सशक्तिकरण विभाग, सामाजिक न्याय एवं अधिकारिता मंत्रालय, भारत सरकार)
(Department of Empowerment of PwDs (Divyangjan), Ministry of Social Justice and Empowerment, Govt. of India)
बी.टी .रोड बनहुगली,कोलकाता-700090 / B.T. Road, Bon-Hooghly, Kolkata-700090
Phone: 2531-0279, 2531-0610/Tele Fax: 2531-8379/E-mail: mail@nioh.in /web: www.nild.nic.in

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NOTIFICATION FOR PROCUREMENT OF 3D PRINTER & SCANNER MACHINE AT NILD KOLKATA

This Institute intends to procure 3D Printer & Scanner Machine for Fabrication of Prosthetic Socket & Orthotic at NILD Kolkata through tender in GeM. Details of technical specification of 3D Printer & Scanner Machine is attached below. The interested manufacturers/Authorized agents/Dealers of 3D Printer & Scanner Machine are hereby requested to go through the specification and give your valuable comments on the same if any within 7days.

Thanking you.

Yours Sincere,

Officer In-charge
Material Management

Contact details

1. **Purchase officer-9836829673**
2. **System Administrator-6290323598**
   E-mail ID-mail@nioh.in/po@nioh.in

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आज़ादी का अमृत महोत्सव

Technical Specifications for A 3D-Scanning & Printing Machine f or Fabrication of Prosthetic Socket & Orthotic at NILD, Kolkata.

SL NO.	NAME OF THE ITEM	Technical Specification	Qty
01	3D Printer For Prosthetic & orthotic use	• Enclosure Size – Minimum 800 x 900 x 1800 [mm] • Build space – Minimum 300 x 300 x 600 [mm] • Printer type – FDM/FFF Type • Gantry Movement – Core XY/Cartesian • Extruder Type- Single/Dual • Minimum Layer Height- 0.1mm • Head speed – Minimum100 [mm/s] • Chamber climate control – Equipped with air conditioning/ cooling fan control • Chamber insulation – yes • Filament Compatibility- Printer must be able to print Polymer/ plastic material like PLA, ABS, PETG, TPU, Nylon and more. • Compatible with 3rd party filaments- yes • The number of filament spool stored – Minimum 02 • Display-LCD Touch Screen • File Format Compatibility- STL • Software- Slicing/Printing Software which is compactable with modeling software supplied. • Connectivity-USB, SD Card, Wi-Fi, and others • Detection sensors – Filament run out sensor – Filament automatic replacement/supply – Camera monitoring • Power Backup – UPS function for short-term outage only ***The printer should able to print Prosthetic Socket & orthotic part to be fitted to Divyangjan*** ***At least 75 to 100 prosthetics sockets or orthotic devices were fabricated using the printer during last one year.***	**01**
2.	3D Scanners for Prosthetic & orthotic use	To be able to Scan Body part accurately with color, texture and geometry • Handheld 3D Scanner • Scan Mode – Structured Light Scan • Point Distance – Minimum 10– 30 [µm] • Light Source – Infrared VCSEL structured light • Scanning Range- 0.2- 2m • 3D accuracy- Upto 0.1 mm • Object size- Minimum 5 cm • Full-color scanning-Yes, with both texture and geometry • Output formats- All common formats, including STL, OBJ, and PLY • Software – Scanning/Preprocessing software • At least 75 to 100 prosthetics sockets or orthotic devices were fabricated using the scanner during last one year.	

3.	UPS for 3D-Printer	• Wattage – Minimum 1500 [W] • VA rating – Minimum 3000 [VA] • Output waveform – Sine wave • Voltage – 230 [V] • Output nominal voltage – 230 [V] default • Back up- minimum two hours	
4.	Filament for prosthetic & orthotic use	• Filament must able to print Prosthetic and orthotic part which may be able to withstand load, and shear stress. It should able to allow adjustment on heating. • Able to perform machining activities on printed part like polishing, grinding, drilling etc. • Non-toxic& skin Friendly material • Diameter – Minimum 1.75 [mm] • Material – Polymer Engineering plastic to satisfy the specification • Shrinkage rate - ~Maximum1[%] Test Conditions – Post printing able to pass Testing of minimum 150 Kg • At least 75 to 100 sockets using this filament have been delivered during last one year. • No deterioration in socket/ Printed part strength in an environment with ultraviolet light, high temperature and humidity in the weather resistance test	
5.	Filament Incubator	• Temperature range – Room temperature Minimum +5 – 80 [˚C] • Convective system – Natural convection air jacket • Temperature adjustment range – Room temperature Minimum +5 – 80 [˚C] • Temperature control system – PID control, SSR output • Safety device – Independent excessive temperature rise prevention device (operation temperature digital settings available), overcurrent breaker, burnout mechanism (heater is OFF when sensor is disconnected) • Heater capacity – Minimum 300 [W] • Temperature sensor – Platinum resistance thermometer • Excessive rise prevention sensor • Chamber capacity – Minimum 135 [L] • Capacity to store minimum 4 spools of filament	
6.	Socket Strength Tester	• Load Capacity – Minimum1000 [N] (100 [kgf]) • Display range – Minimum0.1 – 1000.0 [N] (10 [gf] – 100.00 [kgf])	
7.	Socket Strength Tester Stand	• Weight – Minimum 28 [kg] • Load capacity – Minimum max 1000 [N] (100 [kgf]) • Test speed – Minimum 5 – 100 [mm/min] • Stroke – Minimum 400 [mm] • Motorized stand	
8	Laptop	• Windows Operating System- 11 (most updated version recommended) • CPU- Intel or AMD with AVX2 instructions • SSD capacity – min 01TB • System Memory (RAM)min 32 GB (DDR5 recommended) • Graphics Card (NVIDIA): NVIDIA RTX 40 series or higher, min 6GB VRAM • CPU Release Year: 2022 or newer	02 Nos.

9	Modeling Software for digital modification of prosthetic & Orthotic Parts	• Type – Freeform modeling software/ CAD software which should be able to design prosthetic socket & Orthotic devices as per design. • Compactable with Scanner & printer supplied • Tools- Brush tools, mesh manipulation, and others • Compatible File Formats- STL, OBJ, PLY, and others • Must provide licenses for minimum 05 years with all updates for at least 05 users. • Highlights 1 – Suitable for Prosthetic and orthotic modeling • Highlights 2 – The produced file should be compatible with the 3D printer	