INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION
Powai, Mumbai - 400076

Purchase Requisition No. 1000014138 (SRM / RFX No. 6100000325)

3D Printing System for Medical Applications

Requirement and Specifications

A. Printer hardware

1. No. of extruders : 2 or more
2. Build volume (X x Y x Z mm) : 300 x 220 x 300 mm or more
3. Layer resolution : 40 microns or less
4. X and Y axis step resolution : 10 microns or less
5. Z axis step resolution : 3 microns or less
6. Build speed : 15 mm3/s or more
7. Build plate type : Glass or aluminum
8. Minimum build temperature : 30° or less
9. Maximum build temperature : 110° or more
10. Print nozzle diameter : 1 mm or less
11. Minimum nozzle temperature : 150° or more
12. Maximum nozzle temperature : 250° or more
13. Maximum filament diameter : 3 mm or less
14. Operating sound : 60 dbA or less

B. Part Geometry and Quality

1. Build size (X x Y x Z mm) : 300 mm x 220 mm x 300 mm or more
2. Minimum Feature size : 0.2 mm or less
3. Printing accuracy : 0.005 mm or more
4. Material Support : ABS, PLA, PVA

C. Machine Calibration

1. Swappable Nozzles : snap fit nozzles for easy replacement or equivalent system

2. X, Y, Z axis calibration: Automatic software based calibration of device with no manual intervention

D. Power Requirements

1. Power Output : 550W or less

E. Physical Dimensions

1. Maximum Dimensions (X x Y x Z mm) : 500x600x800 mm

2. Maximum Weight : 40 Kg or less

F. Software requirements

1. Slicing Software to be provided

2. Support: Windows, Mac OS, Linux

3. Supported file types: STL

4. Printer File Support: G code or equivalent

G. Connectivity

1. Support: WIFI,LAN,USB

H. Warranty and Maintenance, commissioning, and accessories

1. The supplier should provide the machine calibration certificates for different parameters like accuracy, repeatability, etc.

2. The supplier should provide certificates related to conformity with health, safety and environmental protection standards for machines.

3. The supplier should provide feedback about the machine from other customers from government institutes.

4. The supplier should provide purchase orders (including total cost) from at least three central govt. institutes.

5. There should be a service contract between machine manufacturer and supplier for 5 years, if applicable.

6. The supplier should mention all the standard accessories supplied along with machine.

7. Working area of the machine should have safety enclosure with transparent windows.

8. Calibration of the machine after Installation.

9. Supplier has to provide required training to engineers after installation of the machine in the following areas: Machine operation, mechanical maintenance, etc.

10. Three sets of the following documents in English are to be supplied with the machine:

Operator manual, Programming manual, spare parts list, Maintenance manual, Preventive maintenance checklist, trouble shooting charts and guidelines, Documents of all the purchased items, etc.

11. Supplier should have installed similar configuration machines in at-least 05 locations in India and should provide their contact details.

12. The OEM should ensure continued supply of spares throughout the useful life of the machine but not less than 15 years.

13. Comprehensive (hardware and software) warranty for five years after commissioning.

14. If the system remains down (non-functional) for 15 days after filing of complaint the Warranty period to be extended for period between dates of reported problem and fixing.

15. Free upgrades of software for five years after commissioning.

16. Complete set of machining tools needs to be provided along with the machine.

17. The supplier should provide the sample benchmarking part as per the drawings given to them during technical evaluation and allowing us to monitor the process.

18. Complete installation of the overall system at the installation site.

19. Kits of spare parts – A kit of spare parts for maintenance of the machine for a period of 5 years operation should be quoted

H. Evidence to the following parameters should be submitted along with the technical bids-

1. Machining accuracy

2. Repeatability

3. Positional accuracy

4. Health safety