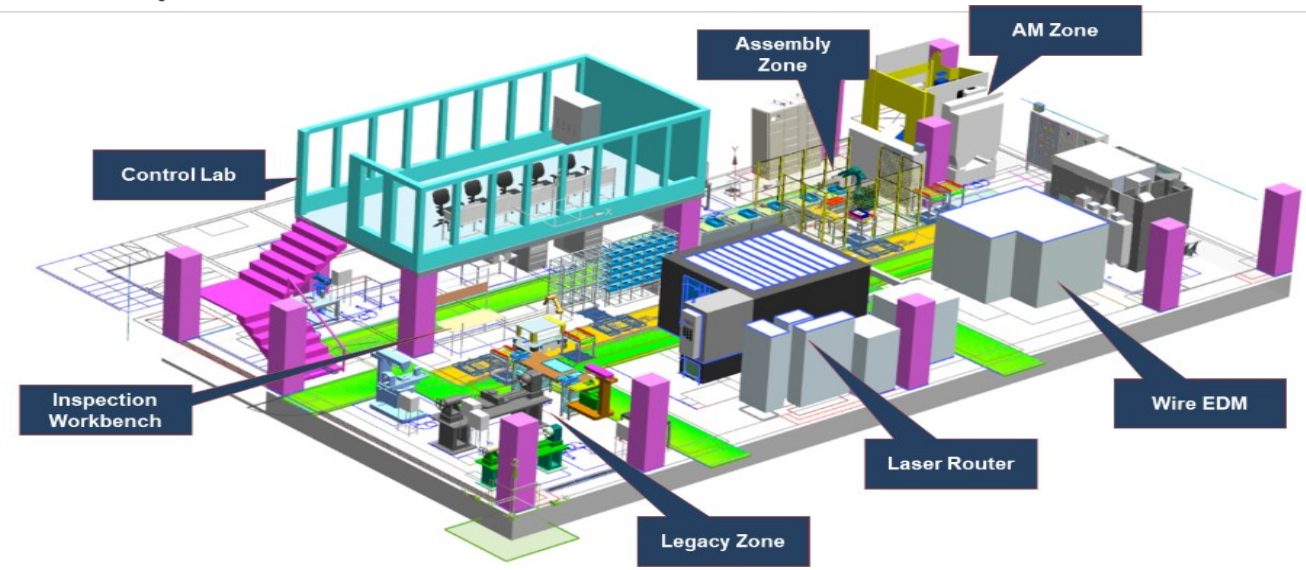




Smart Factory@IISc

Services offered (Machine-As-A-Service)

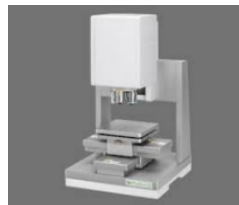
- ➡ Laser Cutting-Metal & Non-Metal
- ➡ Conventional Machining
- ➡ 3 Axis & 5 Axis CNC Machining
- ➡ Ultra-high Precision Machining- Wire EDM
- ➡ 3D Printing -Metal Additive Manufacturing
- ➡ 3d Printing -FDM
- ➡ Profilometer-Stylus and Optical Based
- ➡ CNC Turning Centre



To avail Smart Factory services: Kindly share your requirements to smartfactoryteam@iisc.ac.in & bharathg1@iisc.ac.in. and submit your workorder at our CPDM office. Alternatively, you may reach to Smart factory and discuss about your needs and we will guide you for further steps for job execution. We have a transparent and modular pricing for our services which will be shared after studying your requirements



Digitalised Legacy Machines



Profilometer Stylus & Optical



FDM Printer



Wire EDM



Metal AM



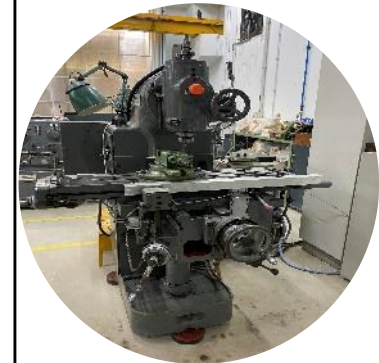
Metal Laser Router

SMART FACTORY@IISc

Conventional Machining

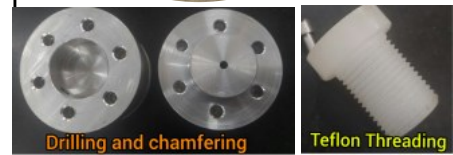


- ✓ Turning
 - ✓ Facing
 - ✓ Taper turning
 - ✓ Thread cutting
 - ✓ Chamfering
 - ✓ knurling
 - ✓ Boring
 - ✓ Reaming
 - ✓ Milling
- ✓ Slot & Keyway cutting, drilling can be performed



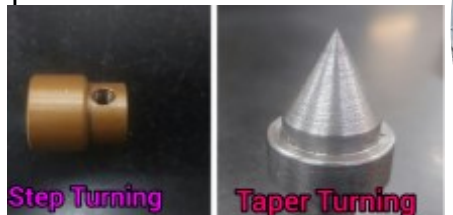
Great Precision with 20 microns accuracy. Good surface roughness and better finish.

Machining Jobs:
Nuts, bolts, piston, ram, pump part, Motor parts, barrels, Shaft and holes, etc.



Drilling and chamfering

Teflon Threading



Step Turning

Taper Turning



Services Offered

CNC Machining: Milling Centre



Capable of milling parts of 500x460x450mm size and a weight of up to 100 kg using highly precise and highly efficient.

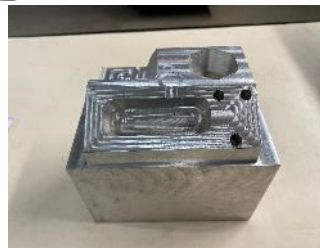
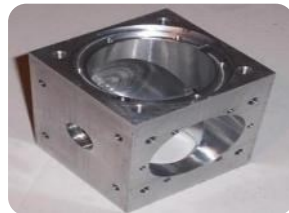


The direct drives in X-, Y- and Z-axis allow to reach high performances in rapid motion speeds (30 m/min).

Machining accuracy upto 10 micrometer



Operation such as 2d & 3d profile, Manufacture of planar milled profiles, drillings and threaded holes in-line with an axis. Undercut features are possible with the use of T-slot cutters and Dovetail milling cutters.



Services Offered

Laser Cutting-Metal



A fiber laser cutting machine with a high-powered fiber laser to accurately and precisely cut various metals. It can provide cutting speed to 40m / min and rapid speed of 180/min.

Operation like 2D profile can be cut ,Great Precision in the cutting profile.

Material and cutting thickness:

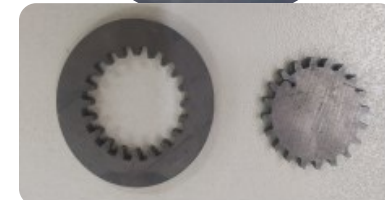
Aluminum - Max. 3mm thickness

Mild steel - Max. 12mm thickness

Stainless steel – Max. 6mm thickness

Copper - max 3mm thickness

Brass – Max. 3mm thickness



SMART FACTORY@IISc

Ultra-high Precision Machining

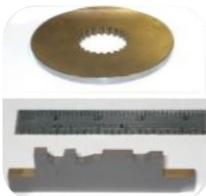
Desired shape is obtained in metal by using electrical discharges. Any conductive material such as steel, titanium, aluminium, brass, alloys and superalloys.

Wire Electrical Discharge Machine



Maximum dimensions of the workpiece: 600 x 300 x 300 mm
Maximum weight of the workpiece: 15 kg
Wire diameter 0.25 mm
Accuracy 10 micrometer

Mold and die manufacturing processes, particularly for extrusion dies and blanking punches. EDM can be used in everything from prototypes to full production runs, and is most often used to manufacture metal components and tools



Metal Additive Manufacturing

Additive manufacturing of single & multi material components by DED process. Repair technology to rebuild damaged areas of components, dies and mold. Powder particle size from 45-micron to 105 micron



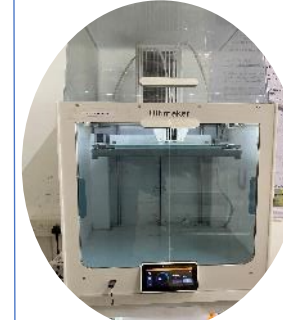
Direct Energy Deposition

Build volume: 250*250*250mm
Ambient and inner atmosphere to print various metals as per requirement.
Capable of fabricating fully dense, metallurgical bond features to the damaged parts with layer thickness ranging in micron level.
Materials: titanium, stainless steel, Inconel, nickel alloys aluminum, copper, and several steel alloys



Services Offered

3d Prototype Printing



Fused Deposition Modeling(FDM)

Composite-ready dual extrusion
Build vol. 330 x 240 x 300 mm (13 x 9.4 x 11.8 inches)
Print technology
Fused Deposition Modeling (FDM)
Layer resolution
0.4 mm nozzle: 200 - 20 micron
Material: PLA, PVA, PC, ABS, TPU, etc.



Laser Cutting: Non-Metals



CO2 Laser

Working area 1016 x 610 mm (40 x 24 inch)
Accuracy +/- 0.015 mm (0.0006 in), over the whole working area
Material : Acrylics, Plastic sheets, Leather, Paper, Plastics Textiles Wood.
Max. cutting Thickness



Contact Details:

Centre for Product Design and Manufacturing (CPDM)
IISc campus, Bangalore-560012
Email ID: smartfactoryteam@iisc.ac.in & bharathg1@iisc.ac.in
Ph. No. : 080-22933759