

Metal 3D Printing

(EOS, Germany) facility available at
Central Tool Room & Training Centre, Bhubaneswar

Additive Manufacturing :-

Additive Manufacturing is the process by which digital 3D CAD data is used to build up a component in layers by depositing material. Though it is sometimes referred to as "3D printing", Additive manufacturing also implies a professional production technique which is clearly distinguished from conventional methods of material removal. Instead of milling a workpiece from solid block, for example, Additive Manufacturing builds up components layer by layer using materials which are available in fine powder form. A range of different metals, plastics and composite materials may be used.

Functional Principle :-

The system starts by applying a thin layer of the powder material to the building platform. A powerful laser beam then fuses the powder at exactly the points defined by the computer-generated component design data. The platform is then lowered and another layer of powder is applied. Once again the material is fused so as to bond with the layer below at the predefined points. The process goes on, until the part is fully built.

Benefits :-

- ❖ Freedom of design: Whatever can be designed can be manufactured. This makes it possible to make complex geometries which were not possible on conventional manufacturing. Also, make a single part for multiple part assemblies.
- ❖ Tool less production: Make small batch production possible without a tool. This allows functional prototypes before rolling a product on mass scale manufacturing.
- ❖ Cost advantages: In certain cases, the additive manufacturing process saves the manufacturer a lot of time and material, reducing the per product cost.
- ❖ Saving time: The speed at which a part can be made (in hours) helps product design or maintenance possible within hours instead of days or weeks.
- ❖ It's Green: Direct metal laser sintering (DMLS) saves energy, eliminates waste & reduces emissions.



Direct Metal Laser Sintering

Application Industries:

Medical Instruments & applications,
Aerospace, Automotive, Tooling, Surgical
Implants, Industrial Commercial etc.





EOSINT M280 Specifications :

Build Area	- 250 x 250 x 325 mm
Laser Power	- 400W
Laser Type	- Yv - fibre Laser, 400W
Power Consumption	- 5.5 kW
Software	- EOS RP TOOLS, EOSTATE, MAGICS RP(Materialise)

Materials Used :

Maraging Steel	- MS1
Stainless Steel	- 316L
Titanium Alloy	- Ti6AL4V
Aluminium Alloys	- AlSiMg
Inconel	- IN718

CTTC as an industrial manufacturing, Design & Training Centre allows the fast and flexible production of high end parts based on 3D CAD data at a repeatable industry level of quality. As a disruptive technology it paves the way for a paradigm shift in product design and manufacturing. It accelerates product development, optimizes part structures and enables functional integration. As such, it creates significant competitive advantages for its customers by saving money & eliminating 80% of your material waste, cut your manufacturing time by 70% with the world class metal additive manufacturing support by EOS, Germany.

For further detail contact :-

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