Introduction to Additive Manufacturing and Standard Terminology

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What is Additive Manufacturing

Additive manufacturing (AM) is defined by ASTM as: The "process of joining materials to make objects from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing methodologies, such as traditional machining. Synonyms: additive fabrication, additive processes, additive techniques, additive layer manufacturing, layer manufacturing and freeform fabrication

Advantages

- Virtually No machine setup or Tooling needed
- Creates composite materials
- Is a freeform fabrication method of manufacturing

What is Rapid Prototyping

- Additive manufacturing of a design, often iterative, for form, fit, or functional testing, or combination thereof
- Term may be incorrectly used in place of Additive Manufacturing

Advantages

- Provides a one-off original part for true form, fit or functional testing or a combination thereof

3DP - 3D Printing

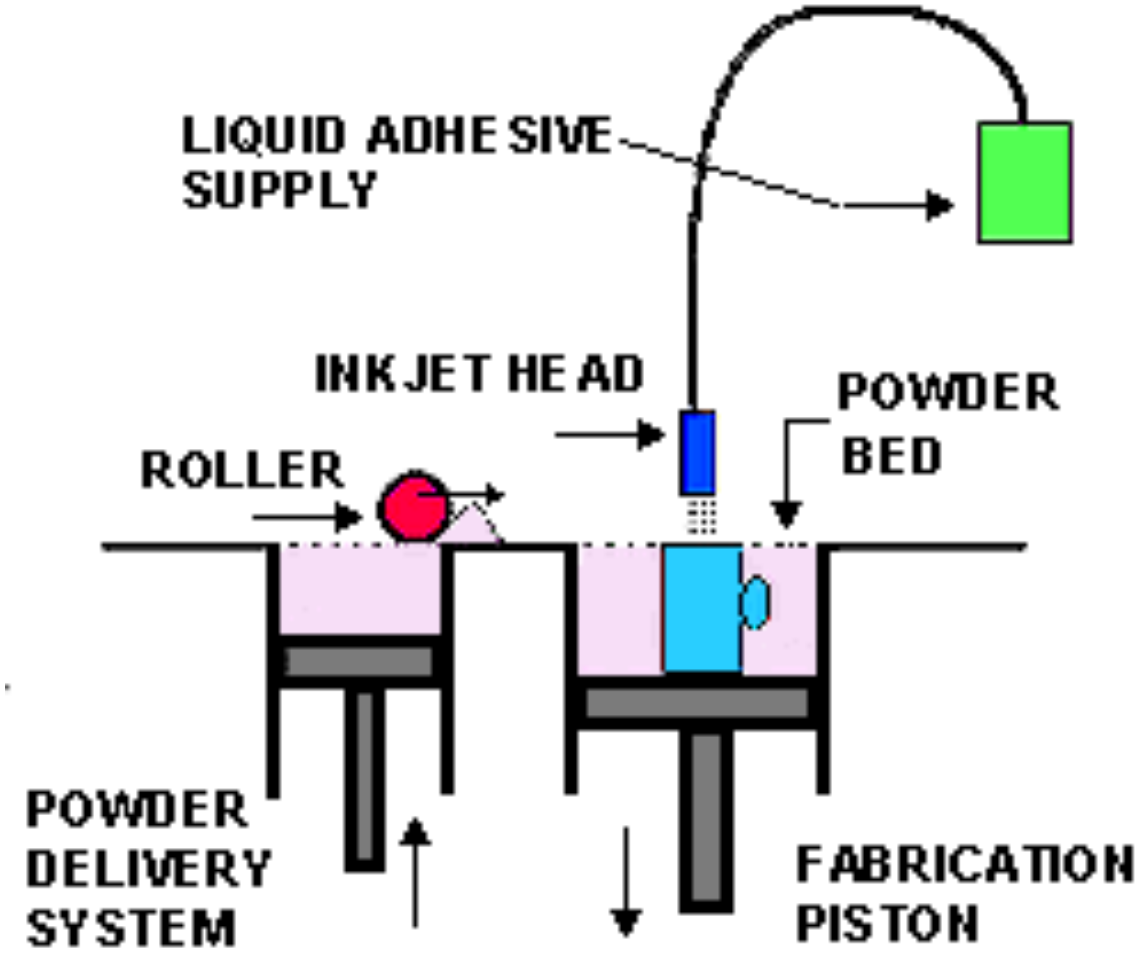


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SLA – Stereolithography Apparatus

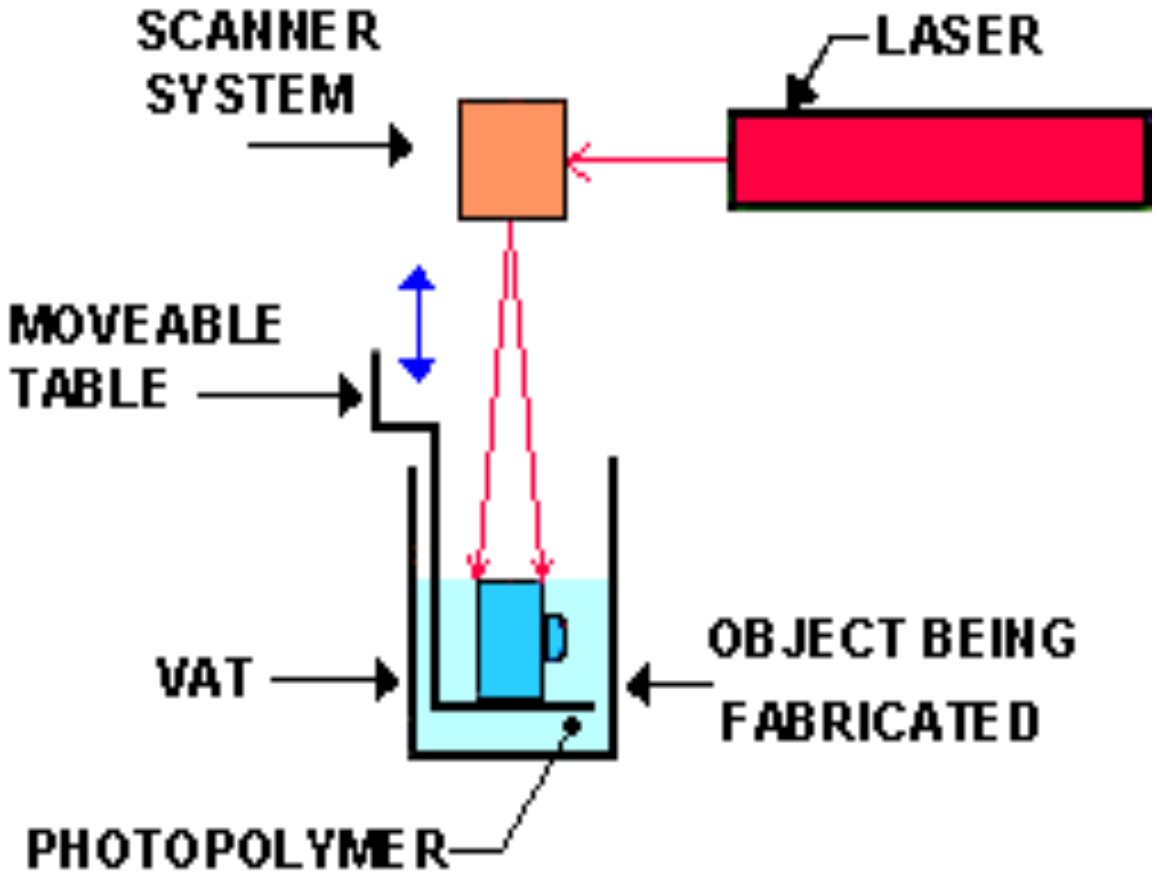


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Fused Deposition Modeling

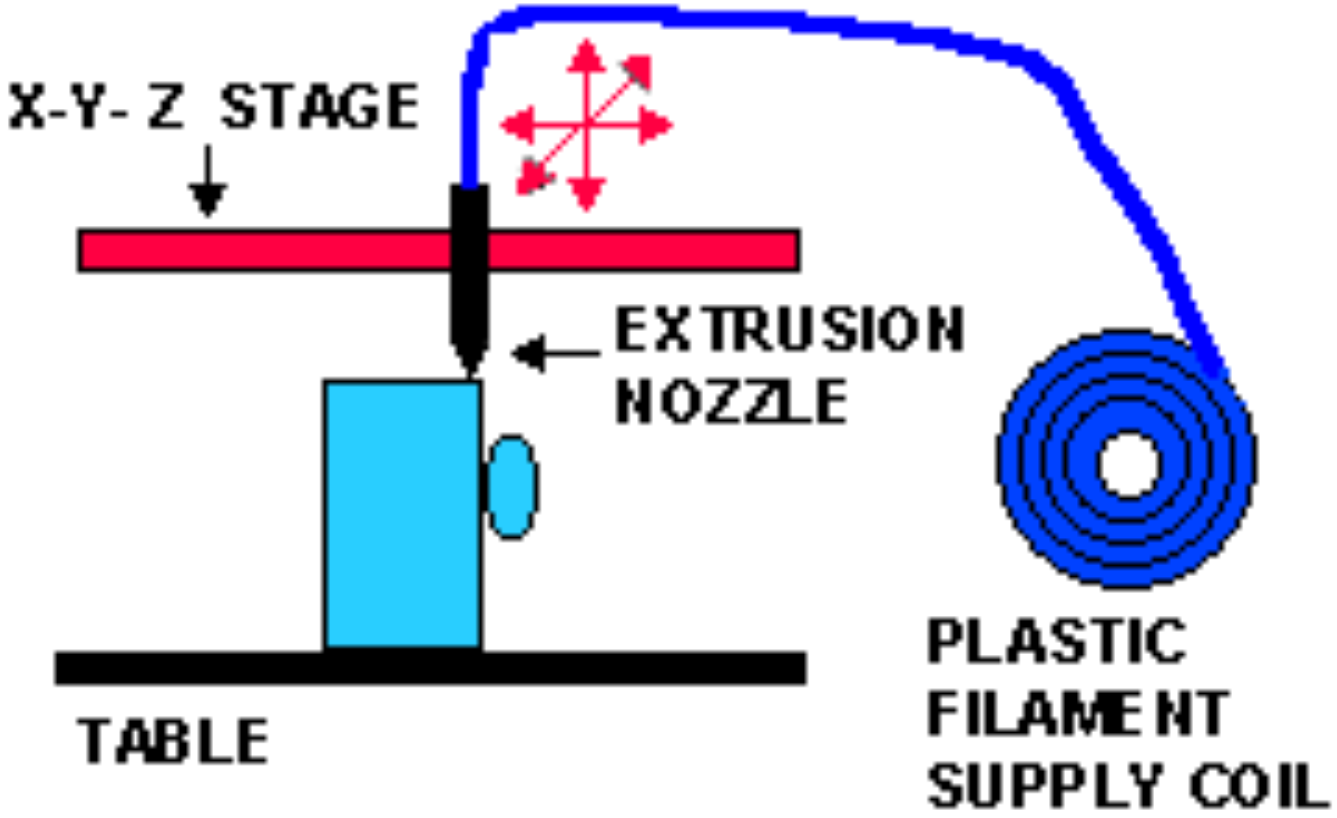


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SLS – Selective Layer Sintering

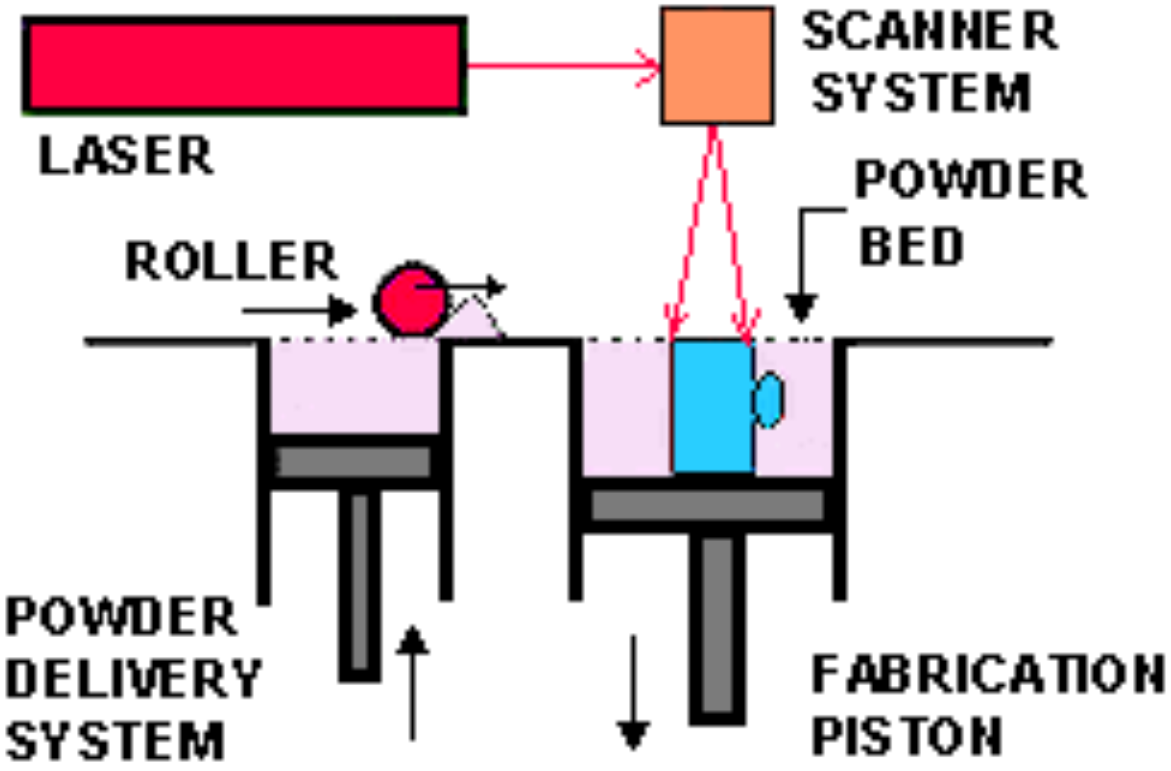


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Direct Metal Laser Sintering

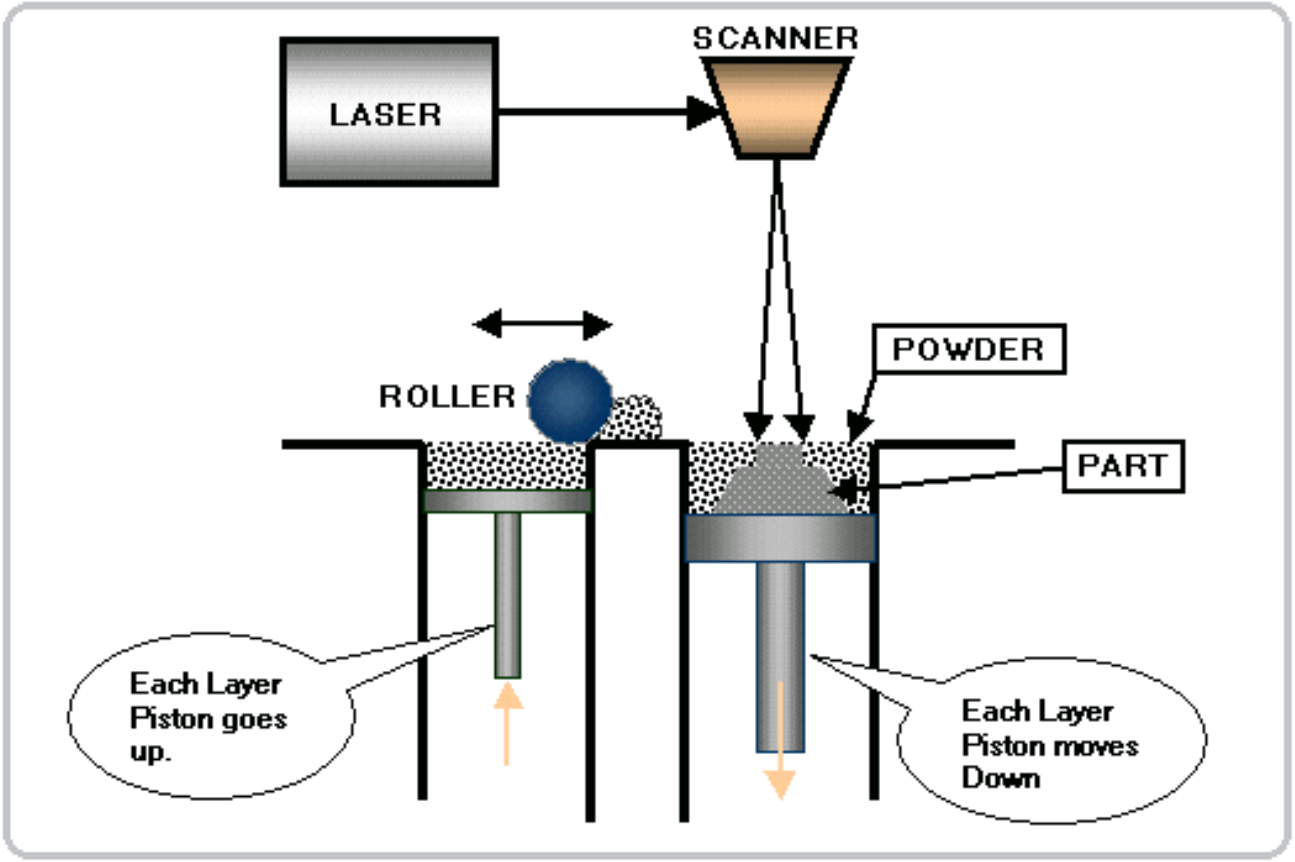


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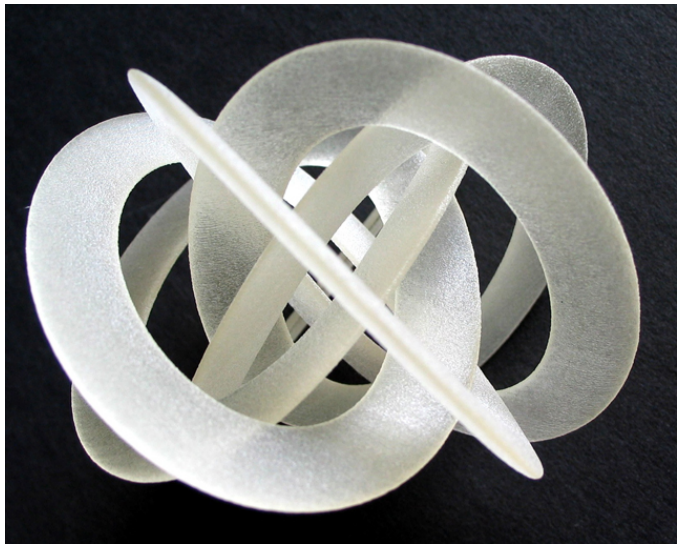
Additive Manufacturing Terms

- 3D Printer
- 3D Scanning
- Build Cycle
- Build Platform
- Build Surface
- Computer Aided Design (CAD)



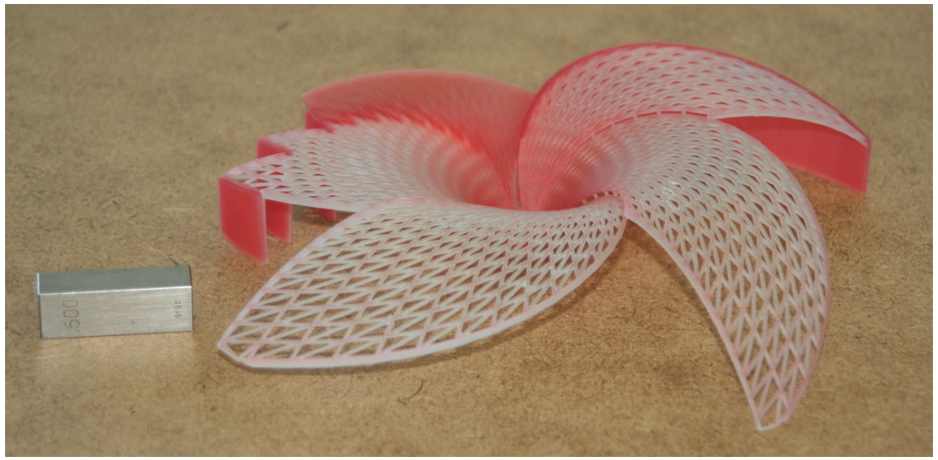
Additive Manufacturing Terms (cont)

- Computer Aided Manufacturing (CAM)
- Machine
- Machine Coordinate System
- Prototype Tooling
- Rapid Tooling



Additive Manufacturing Terms (cont)

- Stereolithography (STL)
- Subtractive Manufacturing
- Tool, Tooling
- X Axis
- Y Axis
- Z Axis



Questions ??

