








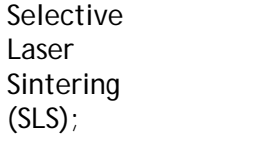
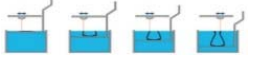
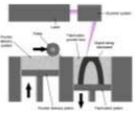
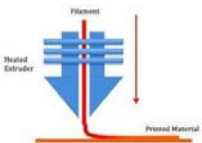

1. Computer Numerical Control (CNC) Machining Processes

This means a computer converts the design produced by Computer Aided Design software (CAD), into numbers. The numbers can be considered to be the coordinates of a graph and they control the movement of the cutter.

| | | |
|---|--|---|
| 1 |  CNC Lathes | A machine for shaping metal, or other material by means of a rotating drive which turns the piece being worked on against changeable cutting tools. |
| 2 |  Milling/Router Machines | Machinery using rotary cutters to remove material by advancing a cutter into a work piece. This may be done varying direction on one or several axes, |
| 3 |  Multi-axis Machining Centres | A manufacturing process that involves tools that move in 4 or more directions and are used to manufacture parts out of materials by milling away excess material. |
| 4 |  Water Jet Cutting | A tool capable of cutting a wide variety of materials using a very high-pressure jet of water. |
| 5 |  Punching Machines | A machine tool for punching and embossing flat sheet-materials. |
| 6 |  Press Brake Machines | A machine pressing tool for bending sheet material. |
| 7 |  Laser Cutting/Welding | The focused laser beam is directed at the material, which then either melts, burns, vaporizes away, leaving an edge with a high-quality finish. |

2. Additive Manufacturing And Rapid Prototyping Processes

A technology that is used in building 3D objects by adding materials layer by layer.

| | | |
|---|--|--|
| 1 |  Selective Laser Sintering (SLS); | Uses a laser to sinter powdered plastic material into a solid structure based on a 3D model. |
| 2 |  Stereolithography (SLA) | A technique for layer by layer structure fabrication, where a laser beam is focused to a surface of a photosensitive liquid to transform it to a solid. |
| 3 |  Direct Metal Laser Sintering (DMLS); | A rapid prototyping or 3D printing designed to use a high power-density laser to melt and fuse metallic powders together |
| 4 |  Fused Deposition Modelling (FDM)/3D printing | A physical object is created directly from a computer-aided design (CAD) model using layer-by-layer deposition of a feedstock plastic filament material extruded through a nozzle. |
| 5 |  electron beam melting | A type of 3D printing, for metal parts. The raw material is placed under a vacuum and fused together from heating by an electron beam. |

Key terms and Acronyms

| | |
|-----------|---|
| Sintering | Sintering is a heat treatment applied to a powder to form a solid |
| CNC | Computer Numeric Control |
| CAM | Computer Aided Manufacture |
| CAD | Computer Aided Design |
| SLS | Selective Laser Sintering |
| SLA | SteroLithogrAphy |
| DMLS | Direct Metal Laser Sintering |
| FDM | Fused Deposition Modelling |
| EBM | Electron Beam Melting |