

3d printing Techniques:

3D printing can be done through various processes but it is here categorised in 7 main processes . Almost every other processes fall into those 7 categories.

- [Vat photopolymerization](#)
- [Inkjet Technology](#)
- [Binder jetting](#)
- [Powder bed fusion](#)
- [Material extrusion](#)
- [Directed energy deposition](#)
- [Sheet lamination](#)

The main processes and materials used in those processes:

Type	Technologies	Materials
Inkjet Technology	Drop-On-Demand or Continuous (Single or Multi nozzle) Particle Deposition	Hot-melt materials (wax, thermoplastic, metal alloy)
Material extrusion	Fused deposition modeling (FDM) or Fused filament fabrication (FFF) and fused pellet fabrication or fused particle fabrication	Thermoplastics , eutectic metals , edible materials, Rubbers , Modeling clay , Plasticine
	Robocasting or MIG Welding 3D Printing ^[10] or Direct Ink Writing (DIW) or Extrusion based Additive Manufacturing of Metals (EAM) and Ceramics (EAC)	Metal -binder mixtures (including Metal clay and Precious Metal Clay), ceramic-binder mixtures (including ceramic clay and ceramic slurries), cermet , metal matrix composite , ceramic matrix composite , Metal (MIG Welding) ^[10]
	Composite Filament Fabrication (CFF)	Nylon or Nylon with short carbon fiber + reinforcement in the form Carbon, Kevlar, Glass and Glass for high temperature fiber

Light polymerized	Stereolithography (SLA)	Photopolymer (including preceramic polymers)
	Digital Light Processing (DLP)	Photopolymer
	Continuous Liquid Interface Production (CLIP)	Photopolymer + thermally activated chemistry
Powder Bed	Powder bed and inkjet head 3D printing (3DP)	Almost any metal alloy , powdered polymers, Plaster
	Electron-beam melting (EBM)	Almost any metal alloy including Titanium alloys
	Selective laser melting (SLM)	Titanium alloys , Cobalt Chrome alloys , Stainless Steel , Aluminium
	Selective heat sintering (SHS) ^[11]	Thermoplastic powder
	Selective laser sintering (SLS)	Thermoplastics , metal powders , ceramic powders
	Direct metal laser sintering (DMLS)	Almost any metal alloy
Laminated	Laminated object manufacturing (LOM)	Paper, metal foil , plastic film
Powder fed	Directed Energy Deposition	Almost any metal alloy
Wire	Electron beam freeform fabrication (EBF ³)	Almost any metal alloy

Availability:

Inkjet technology:

Hot-melt materials (wax, thermoplastic, metal alloy) , [Thermoplastics](#), [eutectic](#) metals, edible materials, [Rubbers](#), [Modeling clay](#), [Plasticine](#) are commonly used substances so that they are cheap and widely available.

Material extrusion:

[Metal](#)-binder mixtures (including [Metal clay](#) and [Precious Metal Clay](#)), ceramic-binder mixtures (including [ceramic](#) clay and ceramic [slurries](#)), cermet, metal matrix composite, ceramic matrix composite, Metal (MIG Welding), Nylon or Nylon with short carbon fiber + reinforcement in the form Carbon, Kevlar, Glass and Glass for high temperature fiber, those materials are not easy available and are expensive .

Light polymerised:

[Photopolymer](#) (including [preceramic polymers](#)), Photopolymer, Photopolymer + thermally activated chemistry, Almost any metal alloy, powdered polymers, Plaster, [Titanium alloys](#), Those [things](#) are expensive and are not easily available.

Powder Bed: Titanium alloys, Cobalt Chrome alloys, Stainless Steel, Aluminium those are also expensive and not easily available.

Laminated: Paper, metal foil, plastic film easily available and can be recycled(ecofriendly).

Powder fed: Almost any [metal alloy](#). (depends on the product , eco friendly)

Wire: Almost any metal alloy.(eco friendly).