3D PRINTING AND DESIGN REFERENCE DOCUMENT	
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Author(s):	jattie
Contributor(s):	

REVISION HISTORY

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0	Draft release	Overview of 3D printing technologies	2024/05/23 16:55	jattie

Types of 3D printers

There are several types of 3D printing technologies, each with its own unique process and applications. Some of the main ones are:

Fused Deposition Modeling (FDM)

FDM is one of the most well-known 3D printing methods. It works by extruding melted thermoplastic filament layer by layer to create the final object. Common materials include PLA, ABS, and PETG.

FDM’s combination of affordability, material options, ease of use, and reliable results has solidified its position as the go-to 3D printing method for many applications

Stereolithography (SLA)

SLA printers use a laser to solidify liquid resin into plastic. The process involves curing the resin layer by layer, resulting in highly detailed and smooth prints. SLA is often used for creating intricate prototypes and dental models.

Selective Laser Sintering (SLS)

SLS printers sinter particles of polymer powder using a laser. The unsintered powder acts as support, allowing for complex geometries. SLS is commonly used for functional parts and industrial applications.

SLS 3D printers are more complex and expensive than some other types, and they require skilled operators for operation and maintenance. As a result, SLS is more popular among enterprise users than hobbyists.

Direct Metal Laser Sintering (DMLS)

Similar to SLS, DMLS uses a laser to sinter metal powder. It's ideal for creating metal parts with high strength and precision.

Electron Beam Melting (EBM)

EBM uses an electron beam to melt metal powder, producing dense and strong metal components. It's commonly used in aerospace and medical applications.

Digital Light Process (DLP)

DLP printers cure liquid resin using a digital light projector. They offer fast print speeds and are suitable for jewelry, dental models, and artistic designs.

Multi Jet Fusion (MJF)

MJF uses a liquid binding agent and a fusing agent to create layers of powder material. It's known for its speed and accuracy, making it suitable for functional prototypes and end-use parts.

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