



## Powder bed fusion

### SELECTIVE LASER SINTERING (SLS)

SLS technology uses a high-powered laser to sinter the surface of a powder bed in a two-dimensional pattern, then applies another layer of powder to build up the part in a vertical direction. SLS is ideal for producing parts with complex features that must still bear a mechanical load.

<b>Industry applications</b>	Automotive, medical, industrial, CPG
<b>Material types</b>	Thermoplastic
<b>Environment / certification</b>	UV, chemical, flame (V-0)
<b>Material options</b>	Limited (mostly nylons)
<b>Isotropy</b>	Isotropic
<b>Multi-material printing</b>	No
<b>Process type</b>	Batch
<b>Process design / NRE required</b>	Minimal
<b>Recommended part size</b>	Softball
<b>Throughput / annual volume</b>	High (10,000s)
<b>Part color</b>	Post-finishing
<b>As-built texture</b>	Rough, uniform
<b>Support material required</b>	Not required
<b>Minimum feature size</b>	Small / medium

**Benefits:** Vast design freedom (e.g., moving assemblies are possible); well-understood thermoplastics; process has been validated, production-ready

### MULTI JET FUSION (MJF)

MJF is a proprietary technology from HP that utilizes fusing and detailing agents to apply a two-dimensional pattern on a bed of polyamide powder. High-powered lamps then heat and fuse the layer. This process repeats until the part is complete. Parts made with MJF don't require supports, and the high-density, low-porosity materials used in the process make it ideal for chemical resistance, complex assemblies, housings, enclosures, and watertight applications.

<b>Industry applications</b>	Automotive, medical, industrial, CPG
<b>Material types</b>	Thermoplastic
<b>Environment / certification</b>	UV, chemical, flame (HB)
<b>Material options</b>	Limited (mostly nylons)
<b>Isotropy</b>	Isotropic
<b>Multi-material printing</b>	No
<b>Process type</b>	Batch
<b>Process design / NRE required</b>	Minimal
<b>Recommended part size</b>	Softball
<b>Throughput / annual volume</b>	High (10,000s)
<b>Part color</b>	In-process (multicolor), post-finishing *Exact color-matching not available
<b>As-built texture</b>	Rough, uniform
<b>Support material required</b>	Not required
<b>Minimum feature size</b>	Small / medium

**Benefits:** Vast design freedom (e.g., moving assemblies are possible); well-understood thermoplastics; process has been validated, production-ready