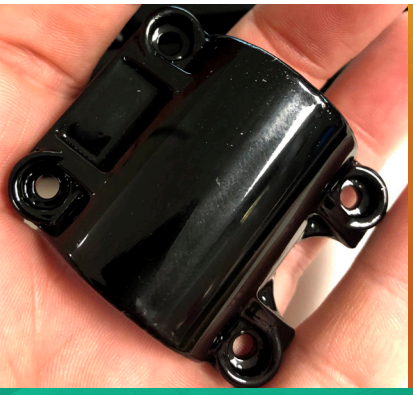
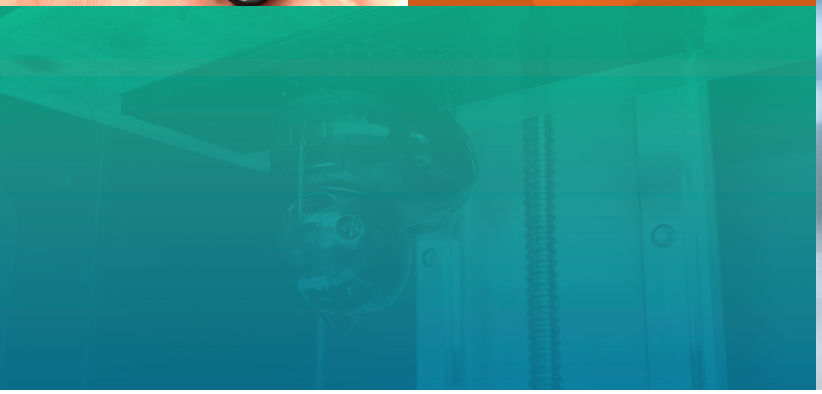
Additive Manufacturing Capabilities





Services

- Custom filament materials and coloring
- Material testing: tensile strength, heat deflection temperature, composition and more
- Training and consulting services
- Machine and material section advice
- Design for additive manufacturing: training and consulting
- Custom jig and fixture design: M. Holland offers additive design expertise to help create custom tooling to increase shop productivity, safety and efficiency.
- Application Development: contact the M. Holland additive team at 3Dsupport@mholland.com to discuss how your application can be produced using additive manufacturing.

Post Processing

- Sand Blasting
- Tumble Polishing
- Powder Coating
- Painting
- Metal processing and fabrication: CNC machining, bending, cutting
- CNC router and etching

New Capabilities (As of August 2020)

- Laser Cutting: metal and polymer laser cutting, laser etching
- Traditional Polymer Manufacturing
- Low batch/small scale injection molding
- Vacuum Forming
- Small scale traditional metal fabrication & machining

To learn more about what M. Holland can do for you, visit **mholland.com** or call **+1 800-872-7370**.

Print Method	Part Size	Materials
FFF/FDM STYLE 3D PRINTING *filament and direct pellet fed*		
Filament-fed machines	1m³ (1 x 1 x 1 m) (XYZ)	Virtually limitless, below are a few favorites. For a full list, check our line card. • Common materials such as PLA, PETG, ABS, etc. • Medical grade materials • Carbon fiber filled
Direct pellet extrusion	6.1 x 2.3 x 1.8 m (XYZ)	• Glass fiber filled • Electrostatic discharge materials (ESD) • Fire retardant • Flexible materials • High temperature materials
POWDER BED FUSION *sintering and binder jet technology*		
Selective Laser Sintering (SLS): for polymers	700 x 380 x 580 mm	• Nylon 12 • Glass filled Nylon 12 • Nylon 12 food safe • Nylon 12 fire retardant • UL Blue Card certified Nylon • TPU *Nylon 12 and glass-filled Nylon 12 are standard materials. Machine change fees apply to using other polymers.
Material Jet Fusion (MJF): produces similar parts to SLS, but has limited material options	332 x 190 x 248 mm	• Nylon 12 • Nylon 11 • TPU
PHOTOPOLYMERIZATION *light curing of thermoset liquid resins. Best for high detail and tight tolerance parts*		
Stereolithography (SLA)	25.6 x 29.5 x 21.6" (largest)	Accura ClearVu (Polycarbonate-like)
	5.7 x 5.7 x 6.9" (smaller)	Rubber-like, ABS-like, high temperature or high strength material
Digital Light Projector (DLP)	338 x 190 x 150 mm Tolerances up to +/- 50 micron can be held.	Contact M. Holland for more information and material recommendations. Primarily offer Loctite 3D resins, but others are available upon request.
Polyjet Full Color	19.3x15.35x7.9"	Not recommended for most applications due to cost. Contact M. Holland for applications assistance.
METAL ADDITIVE MANUFACTURING		
316L FDM printing and sintering	100 x 100 x 100 mm or smaller recommended	Process Outline: • Parts can be printed on most FDM printers capable of printing abrasive materials. • Once printed parts are sent to be debound and sintered with special equipment and returned to customer typically within two weeks.
Direct Metal Laser Sintering (DMLS)	9.8 x 9.8 x 12.8"	• Stainless Steel • Maraging Steel • Tool Steel • Inconel • Aluminum • Titanium

MHolland

For Technical Support, contact **3Dsupport@mholland.com**
For assistance ordering materials, contact **3Dinfo@mholland.com**
For 3D Printed parts, contact **3Dparts@mholland.com**