

Xometry

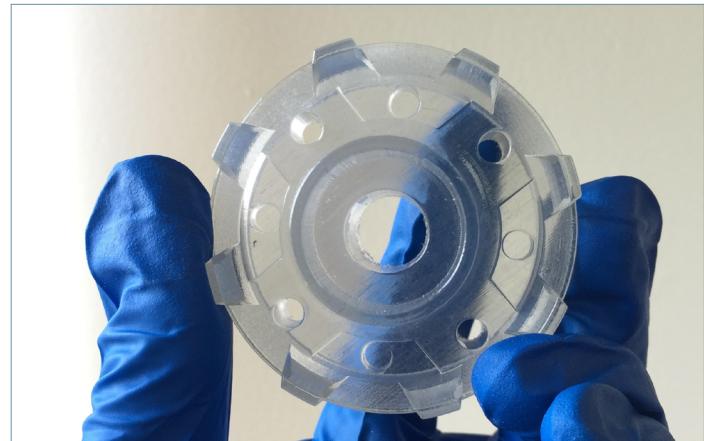
Mini-Guide: PolyJet 3D Printing (PJ3D)

VERSION 2.0



Introduction

PolyJet 3D is a 3D printing technology known for its customizable material properties and excellent surface finish. It works by jetting UV curable resin onto a build tray in a process that is somewhat similar to inkjet printing.



Materials

One of the main benefits of PolyJet is the ability to customize material properties. The availability of photopolymers that simulate end-use materials makes this process a favorite for prototyping.

RIGID OPAQUE



A general purpose prototyping material, Rigid Opaque photopolymers are available in a variety of shades and finishes.

SIMULATED POLYPRO



A digital material that simulates the appearance and functionality of polypropylene for prototyping semi-flexible parts.

RUBBER-LIKE (TANGO)



Rubber-like materials simulate rubber with a range of elastomer characteristics including hardness, elongation, and tear resistance.

TRANSLUCENT/CLEAR



PolyJet offers a translucent material (VeroClear) with a frosted appearance that can be polished for more clarity.

Advantages

Multi-Material Prints

In addition to material selection, PolyJet machines can print multiple materials simultaneously, including the ability to blend materials to create graded properties (e.g. a gradient from a Rigid Photopolymer to Rubber-Like Photopolymer for a part with progressively increasing flexibility). The process also allows for simulated overmolds for features like non-slip surfaces and rubber grips.



Parts in as Little as One Business Day

PolyJet is one of the fastest 3D printing processes at Xometry due to its relatively simple setup and post-processing procedures. Like all additively manufactured parts, there's no custom tooling or mold making involved, so your parts are made on-demand.



Complex Geometries

The freedom to design and manufacture complex geometries and intricate interior structures is one of the great promises of additive manufacturing. 3D printing technologies allow you to create parts impossible to manufacture any other way. Think outside the box!



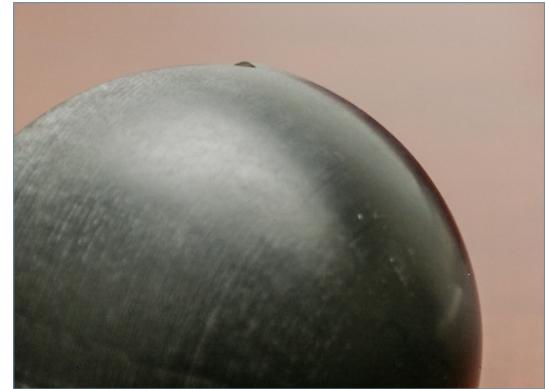
Accuracy

Xometry's PolyJet 3D service allows you to produce parts with a tolerance of +/- 0.004", or +/- 0.001" per inch, whichever is greater.



Surface Finish

Unlike many other 3D printing processes, PolyJet produces parts with a smooth surface finish resembling the look and feel of a final product. This is due to the combination of PolyJet's thin layer height and a roller that compresses freshly printed layers with each pass.



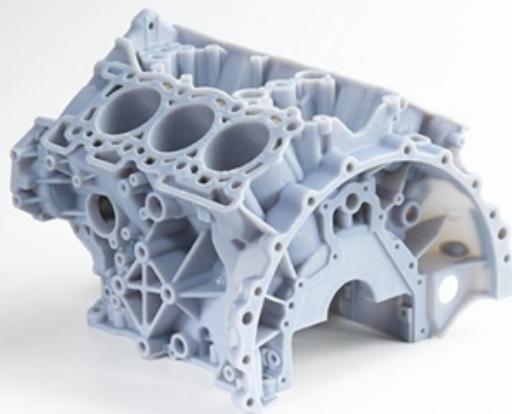
Design Tips

DESIGN FOR MANUFACTURABILITY



As a general rule, any features that cannot be printed using PolyJet will not be suitable for injection molding either. It is a good idea to design for manufacturability, even during the prototyping phase.

AVOID FINE DETAILS



While PolyJet is capable of delivering incredibly detailed prints, the resulting parts are post-processed using a high pressure rinse that can damage fragile features.

NEXT AVAILABLE MATERIAL



Unique to Xometry, selecting "Next Available Rigid" will print your part in the most readily available rigid material, giving you a 5% discount and turnaround times as fast as the same day.

PREPARING A FILE FOR 3D PRINTING



For an in-depth look at designing for 3D printing, check out our free design guide!

xometry.com/3ddesignguide

Resources at Xometry

Online Instant Quoting

Web: Upload your CAD file at get.xometry.com/quote

CAD: Download the free Xometry Add-In for SOLIDWORKS: xometry.com/solidworks

Accepted File Types: .stl, .step, .stp, .x_t, .x_b, .sldpart, .ipt, .prt, .sat, .catpart (max file size: 300MB)

Capabilities: CNC Machining, Sheet Metal Fabrication, 3D Printing, Urethane Casting, Injection Molding

Live Engineering Support

Hours: M-F 8:00 AM - 9:00 PM EST

Email: support@xometry.com

Phone: (240) 252-1138

Online: xometry.com/support offers live chat, FAQs, and other helpful articles.

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