ABOUT

MARKFORGED

Markforged was founded to change the way products are made. At the intersection of traditional manufacturing and cutting-edge material science, we believe in a future where going from your design to finished parts is easy, simple, safe and affordable. That’s why we’ve created the world’s only ecosystem of plastic, metal and composite 3D printers— so you can focus on building products that change the world.
COMPLETE METAL SOLUTION
SINTER-1, METAL X, WASH-1
MARKFORGED

PRODUCTS

METAL X
Metal Printer

X7
Industrial Precision

X5
Industrial Composite

X3
Industrial Onyx
MARK TWO
Professional Composite

ONYX PRO
Onyx Composite

ONYX ONE
Onyx Desktop

EIGER
Markforged Software
HARDWARE

BUILD QUALITY

Featuring an all-aluminum unibody and kinematic bed coupling, Markforged sets the standard in build quality and industrial design. With a fully enclosed build chamber, ultra-quiet motion system and humidity controlled material storage, our printers are equally at home whether in the office or on the factory floor.
INDUSTRIAL SERIES
Industrial Precision
Cloud-connected software and a 4.3” touchscreen comes standard with every printer, washer and furnace. Regular over-the-air updates mean that your Markforged products keep getting better. Material usage tracking and out-of-material detection help monitor your printers and reduce waste. Just a few of the ways we’re working to reduce the distance from design to part.
With automatic version control, real-time fleet management and cloud-based collaboration, Eiger is the world’s most advanced 3D printing software. Designed from the ground up to make manufacturing simpler, Eiger enables you to print plastic, metal and composite parts straight from your browser. Our internet-connected architecture ensures the latest features and performance enhancements are always available.
SOFTWARE

OPTIMIZATION

Our cloud software platform gives you an incredibly high degree of control over the final properties of your finished part. By automatically analyzing your parts we enable you to optimize for strength, weight and print time without changing your design.
Jaw - Large Coupling
Abraham Parangi

Part Stats (up to layer 232)

- Onyx: 23.86 / 37.49 cm³
- Kevlar: 2.51 / 5.67 cm³
- Material Cost: 10.61 / 16.13 USD
- Weight: 31.29 / 48.82 g

Warning
Some layers have thin features that will not be preserved unless the 'Expand Thin Features' setting is turned on in the Part page.
Continuous Filament Fabrication

Shape your part in your favorite CAD package, upload the STL file and select from composite materials such as Carbon Fiber, Fiberglass or Kevlar.

Our cloud-based printing software automatically paths the composite fibers throughout the plastic matrix for optimum strength. Customize reinforcement to meet your design requirements.
Formed from the combination of two materials, composite parts are incredibly strong and versatile. Our unique fabrication process enables you to print parts that are an order of magnitude stiffer and stronger than typical 3D printed objects.

The dual material system crafts the composite part one layer at a time. The first nozzle builds the plastic matrix and the second winds the fiber throughout.

As strong as aircraft grade aluminum and over 40% lighter, Markforged CFF parts are more than capable of replacing machined metal tools, fixtures and prototypes.
The ADAM process gives you unparalleled design flexibility. Shape your part in your favorite CAD package, upload the STL file, and select from a wide range of metal materials.

Metal powder bound in plastic is printed layer at a time into the shape of your part. Parts are scaled up to compensate for shrinkage during the sintering process.
After washing to remove binding material, parts are then sintered in a furnace at around 85% of their melting temperature, and the metal powder fuses into solid metal.

Complex geometries and captive infills make for isotropically strong lightweight parts. Pure metal and over 99% dense, the final part is now ready for use.

Atomic Diffusion Additive Manufacturing lives at the intersection of 3D printing and metal injection molding. Building on years of experience printing plastic loaded with carbon fiber, ADAM is an all new way to create metal parts.
METAL

17-4 STAINLESS STEEL

Combining high strength, corrosion resistance and exceptional hardness, 17-4 stainless steel is widely used in the aerospace, medical and petroleum industries.

<table>
<thead>
<tr>
<th>LAYER HEIGHT</th>
<th>TOLERANCE</th>
<th>SINTERED DENSITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 μm</td>
<td>±50 μm (geometry dependent)</td>
<td>99%</td>
</tr>
</tbody>
</table>

Compatible with

- Metal X
- X7
- X5
- X3
- Mark Two
- Onyx Pro
- Onyx One
<table>
<thead>
<tr>
<th>CAMSHAFT SPROCKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATERIAL</td>
</tr>
<tr>
<td>PART COST</td>
</tr>
</tbody>
</table>
PLASTIC

ONYX

Designed to combine the toughness and durability of Nylon with the dimensional stability and strength of composites, Onyx is the world’s most capable 3D printing plastic.

<table>
<thead>
<tr>
<th>FLEXURAL STRENGTH</th>
<th>TENSILE STRENGTH</th>
<th>FLEXURAL MODULUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>81 MPa</td>
<td>36 MPa</td>
<td>2.9 GPa</td>
</tr>
</tbody>
</table>

Compatible with

Metal X  X7  X5  X3  Mark Two  Onyx Pro  Onyx One
MATERIAL  ONYX
PART COST  $26.51
Using our unique composite reinforcement process, Fiberglass parts are an order of magnitude stiffer and stronger than typical 3D printed parts.

<table>
<thead>
<tr>
<th>FLEXURAL STRENGTH</th>
<th>TENSILE STRENGTH</th>
<th>FLEXURAL MODULUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>210 MPa</td>
<td>590 MPa</td>
<td>22 GPa</td>
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</table>

Compatible with

- Metal X
- X7
- X5
- X3
- Mark Two
- Onyx Pro
- Onyx One
AIRCRAFT BRACKET

- MATERIAL: ONYX & FIBERGLASS
- PART COST: $112.49

- EXTERIOR SHELL: ONYX
- INTERIOR REINFORCEMENT: FIBERGLASS
With excellent strength-to-weight and stiffness, Carbon Fiber is our highest performing composite material. Ideal for applications requiring high strength and low weight.

<table>
<thead>
<tr>
<th>FLEXURAL STRENGTH</th>
<th>TENSILE STRENGTH</th>
<th>FLEXURAL MODULUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>470 MPa</td>
<td>700 MPa</td>
<td>51 GPa</td>
</tr>
</tbody>
</table>

Compatible with:

- Metal X
- X7
- X5
- X3
- Mark Two
- Onyx Pro
- Onyx One
BRAKE LEVER

INTERIOR REINFORCEMENT
CARBON FIBER

EXTERIOR SHELL
ONYX

MATERIAL
ONYX & CARBON FIBER

PART COST
$16.99
With excellent strength-to-weight and stiffness, Carbon Fiber is our highest performing composite material.

<table>
<thead>
<tr>
<th>PLASTIC</th>
<th>COMPOSITE</th>
<th>STAINLESS STEEL</th>
<th>ALUMINUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onyx</td>
<td>Fiberglass</td>
<td>17-4 Stainless Steel</td>
<td>6061 Aluminum</td>
</tr>
<tr>
<td>Nylon</td>
<td>Carbon Fiber</td>
<td>316L Stainless Steel</td>
<td>7075 Aluminum</td>
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<tr>
<td></td>
<td>Kevlar</td>
<td></td>
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<tr>
<td></td>
<td>HSHT Fiberglass</td>
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<table>
<thead>
<tr>
<th>TITANIUM</th>
<th>INCONEL</th>
<th>TOOL STEEL</th>
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<tbody>
<tr>
<td>Ti-6Al-4V</td>
<td>IN Alloy 625</td>
<td>A-2 Tool Steel</td>
<td>Find out more at</td>
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<tr>
<td></td>
<td></td>
<td>D-2 Tool Steel</td>
<td>markforged.com</td>
</tr>
</tbody>
</table>
METAL X
Metal Printer
GET IN TOUCH

To learn more about our technology, printers and advanced materials, please get in touch.

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