**Cost-efficient, functional prototypes for small bore motorcycle parts**

“3D printing on Ultimaker mitigates risk, and opens the door to creating working concepts on extremely low investment. Long gone are the days of spending thousands of dollars running multiple prototypes through traditional CNC machining methods. When we take a design to the machine shop, we know before we start that it’s a fully functional design meeting our standards.”

— Greg Hatcher, Owner of MNNTHBX

MNNTHBX uses Ultimaker to save time and money on prototypes, increasing design flexibility and improving product testing phases.

**Company**
MNNTHBX

**Industry**
Small bore motorcycle

**Challenge**
MNNTHBX faced obstacles in time and cost when prototyping innovative products for small bore motorcycles. Outsourcing to CNC mills cost the team thousands of dollars and several days to complete, which reduced the amount of time they had for product testing and design customization.

**Solution**
With the Ultimaker, they were able to produce custom prototypes quickly and efficiently with 90% cost savings in raw materials. The parts were sturdy enough for product testing on motorcycles and allowed for flexible, creative thinking during the design process that outsourcing would otherwise bottleneck.

**Results**
- Customizable parts for design flexibility
- 90% cost savings on raw materials
- Design freedom for fewer iterations
- Product testing with usable parts

**MNNTHBX - Introduction**
MNNTHBX (Man in the Box) designs and manufactures innovative products for the small bore motorcycle industry. They often produce customized parts that are the first of their kind, unique to enthusiasts interested in tailoring their motorcycles to individual preference. Traditionally, they relied on CNC mills to produce their prototypes for design and testing without much room for modification.

With the introduction of 3D printing into their process, they not only saved money, but found the freedom to test functional prototypes in-house and redesign quickly without spending thousands of dollars. Switching from aluminum to 3D printed PLA for prototyping resulted in immediate and valuable cost savings, convincing the MNNTHBX team that Ultimaker was the best option for their prototyping and design needs. Today, hand-drawn designs are turned into STL files for testing and redesign on Ultimaker, then sent out for CNC production once perfected.
The ability to test custom designs that are otherwise too financially risky to outsource allows MNNTHBX to more efficiently discover the best option for production.

Using Ultimaker replaces 75 hours of machine time from traditional methods and saves the team 90% on raw materials by swapping aluminum for PLA.

The capability to mount PLA prints directly onto motorcycles for thorough testing of tight tolerances and custom parts eliminates risk of design failure.

<table>
<thead>
<tr>
<th></th>
<th>Ultimaker 3D printer</th>
<th>External CNC supplier</th>
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</thead>
<tbody>
<tr>
<td><strong>Costs</strong></td>
<td>$200 per part, including man hours and material</td>
<td>$1,500 - $2,500 per part, including man hours and material</td>
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<tr>
<td><strong>Time</strong></td>
<td>12 hours per part</td>
<td>1 week per part</td>
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<tr>
<td><strong>Iterations</strong></td>
<td>1-5 iterations per part</td>
<td>5-10 iterations per part</td>
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About Ultimaker
Since 2011, Ultimaker has grown to become a leading brand, creating accessible, professional desktop 3D printers. The company has offices in the Netherlands, New York, and Boston, with production facilities in both the U.S. and Europe. With a growing team of over 200 employees, plus over 24,000 active community members, Ultimaker strives to deliver the highest-quality 3D printers, software and materials, without compromise.

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