

Prototyping product casings for faster times to market with Meta



In the fast paced, competitive world of VR headset manufacture, innovating fast and staying on top of the latest tech is of key strategic importance to getting ahead in this exciting new field.

At Meta, the virtual optical engineering team are responsible for the development of the optical modules in their VR headsets.

Currently they are working on headsets that will be released in 4-5 years. The new technology integration team prototype a lot of optics to facilitate optical designs and test new technologies for feasibility for use in mass production. With test information in hand, they can feedback to the product team how a design is behaving with a given technology and use this information to make informed decisions on how they will produce their upcoming products at scale. This helps them to eliminate future manufacturing delays and get to market faster.

Thermoforming is a heavily used technology in VR headset mass manufacture for both optical modules and product casings. Engineers at Meta use the Multiplier in their Reality Lab to test and optimize thermoforming settings before going to full scale production.

Above: Representative picture, not actual part, due to confidentiality of content

The challenge: prototyping and verifying the positive pressure thermoformed parts and tools

Mass manufacturing thermoforming set-ups are large, complex pieces of equipment that take up a considerable amount of space and require time and the resource of skilled engineers to set up. Prototyping for these production processes is time consuming and material resource intensive: it takes a long time to adjust for different material settings and large amounts of material are needed in order to get results.

Prototyping however, needs to be fast and nimble in order to iterate quickly. This is not possible using the large scale machines. Smaller scale vacuum formers are not optimized for this as they can not achieve the same highly detailed parts and wall thicknesses that can be achieved with positive pressure thermoforming. It is also of great importance to understand what level of finish the tool that is being formed needs in order to be able to get the correct level of finish on the final part. It is very time consuming to test this tool on large scale manufacturing machines.

The solution: getting results to feasibility studies of thermoformed part prototypes rapidly

Using the Multiplier the team at Meta were able to test the feasibility of specific designs and materials at a far greater speed than anything they had previously been able to achieve. Using a 'closed loop' system they were able to rapidly get singular aluminum tools CNC'd and highly polished to then test on the Multiplier.

This enabled them to test the structural integrity of a specific design and also the ability to easily remove that design from the tool. Any modifications needed could quickly be fed back to the product team who could modify the tool and get a new part from the Multiplier in the same day instead of having to wait for the large scale processes to get up and running. It also gives the design team a much more in depth understanding of the design limits that they can work with using a variety of different materials.

This flexibility enables them to iterate rapidly, using specific and custom materials, ensuring that they can get the maximum output from their tests in the shortest amount of time before going to full scale mass production.

The results:

By understanding the extremities of the process to a much deeper level and by being able to test tools and materials quickly and iteratively, the team at Meta have managed to save a significant amount of time and money in developing their VR headsets and getting them ready for market.

The ease of use, flexibility and power of the Multiplier has been paramount in helping them to achieve these reductions in time and cost.

Ready to start prototyping in-house with the Mayku Multiplier?

With in-house pressure forming, the Mayku Multiplier can replicate the quality of final production more accurately than other prototyping methods.

If you're interested in exploring the benefits of in-house prototyping with the Mayku Multiplier, contact a Mayku Expert today.

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