Onyx: Making New Products Picture Perfect

Comparing the Numbers

	Cost	Time
Markforged Printed Part	$5.39	6.82 hours
3D Printing Service	$22.87	144 hours + shipping time

ROI: Markforged printer cut lead time from 1.5 weeks to 6.5 hours, allowing for simplified and less expensive part customization

Well Equipped

At Media Blackout, customization of camera and TV equipment is key. "Most other companies will make devices like monitors, cameras, but no one really specializes in connecting all these devices together so that they work easily and efficiently with as little cable mess as possible," founder and product designer Alan Rencher explains. "We come up with ideas to get the rat's nest on the camera down." At Media Blackout, nearly everything is custom made to perfect parts for customer applications: "We can make anything our customer needs: we can help them design something that they need to make their workflow more efficient on set,"

Connecting the Dots:

Media Blackout creates made to order camera, cable, and media equipment to improve efficiency on set

Bad Lighting:

Founder Alan Rencher has been using his Markforged printer to help manufacture one-off devices, but has run into roadblocks making his devices look the way his customers want

A New View:

With Onyx, Markforged's newest filament, Media Blackout can create professional end use parts with filament designed for sleek aesthetic and high strength performance.

Rencher describes. "Since we do a lot of low volume or one-off jobs, 3D printing is a great way to do that cost effectively...it's pretty quick and it's not as expensive as other manufacturing methods."

Because Media Blackout frequently deals with heavy camera equipment, the company needed parts that were strong but light. Markforged was a natural fit for them. "We make a lot of parts that need to be lightweight and very rigid....we have parts on which we need to eliminate vibrations or hold a certain amount of weight," Rencher explained. "We saw that Markforged offers carbon fiber printing, and we thought that was a great way to go." With Markforged technology, they can make anything from low profile brackets to lightweight accessories for drones and gimbal rigs. Thus far, they've been using the Markforged for customized content. "We've been doing a lot of bracketry and we also make a lot of small electronics enclosures with it - we can actually design an enclosure that fits everything we need it to in a more efficient, smaller package...enclosures go in between a camera and a battery, so you have a lot of weight on them: we don't want things to pull apart or to bend in any way, so we'll just put carbon fiber in those parts."

Put in Perspective

Despite the strength of the parts they were producing, the translucent nylon was causing a problem: many customers were skeptical of Media Blackout's products. On set, light and glossy finishes will often reflect light into the camera and ruin the shot, which is why most filming equipment is dark. "We were dying parts before because no one likes white parts on set," Rencher explained. "Dying takes a while and there is room for error. We've had parts warp or bubble, and then you have to scrap the part and make it all over again."

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Markforged reached out to Media Blackout to offer a test of Onyx, a new chopped carbon fiber filament in the Markforged filament suite. The filament is an alternative to the industrial strength nylon that Markforged provides, and its micro-carbon reinforcement is not only stiffer but also gives parts a high quality, stealth black finish ideal for customer-use parts. After the switch, Onyx immediately eliminated the problem: "Having a dark color readily available saves us from an extra step of having to dye it...it's really helping out on time," he expressed. But that wasn't all: the material's impressive matte black finish allowed Media Blackout to present their customers with professional parts. "The new material, it just looks like a finished product."

The chopped carbon fiber reinforcement rooted in this new filament makes Onyx tough, stiff, and stable, even when printing. "A lot of parts, when they get to a smaller size, they'll warp in certain areas and then we'll have to mitigate that by filling it in with something or changing the designs dramatically," as Rencher described. "Onyx is a stiffer material, the edges are true...parts look better and they fit together better, so it's been a huge help. We don't have to redesign or print new parts." The added material strength of Onyx has not only saved time, but also reduced cost: "Having a stiffer material is great. Parts don't bend as much. With the nylon, if you make something that's light, you could bend it in half...adding fiber would stiffen that up. With the new material, there is less bending so on some of the parts we were putting carbon fiber in, we could easily tweak them so that we didn't need to have carbon fiber and that saves us money."

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Primed for Success

The Markforged printer had already helped Media Blackout produce engineering-quality parts at the push of a button. With composite fiber reinforcement, designing parts with the strength to hold camera equipment was made simple: "Even on finished products that we used to have machined, if we need a part that is too expensive or physically not able to be manufactured, we can use the printer to make those parts." In general, Rencher has been very satisfied with his Markforged printer: "Overall I'm really happy with it, and it's great to be able to make all these parts. I get ideas sometimes after work, and I'll just go into CAD and design it real quick and print it out the next day."

But the engineering toughness and finish that Onyx provides has empowered Media Blackout to bring their products to higher standards of quality. They've made their parts stronger for cheaper, and the process of presenting custom cable and camera solutions to customers has never been faster. "When we were dying the parts black, some of the parts would either retain some water or the dye would react badly with the glue and then it wouldn't set properly. With the new material, not having to dye it, we've completely cut that out." Onyx has helped them eliminate intermediary steps to success and enabled Media Blackout to 3D print customer-facing products.

Even now, Rencher has new ideas for implementation. "We could even use it for making trim on certain things, we're still discovering different ways of using this, and we're going to have a lot more uses for it once we get to know the material a little better," he says. "It's helping us make parts that are direct sale to market... I think we're going to never look back with this new material."

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