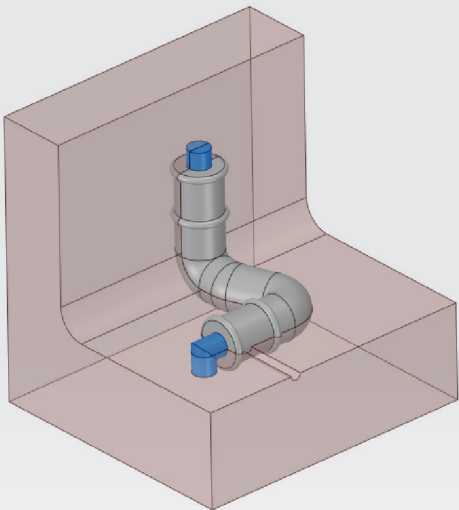


## HEALTHCARE SYSTEMS MANUFACTURER REDUCES PER-PART COST 10X BY HARNESSING NEW OPEN ADDITIVE ECOSYSTEM



**Parts were 3D printed  
at a cost of \$19 each –  
a far cry from the \$190  
per part quoted for  
injection molding.**

### The Challenge

A leading manufacturer of respirators needed to produce 100 translucent, durable, yet pliable 1.5-inch tubes with multiple grooved bends and a 1.5 mm hollow core for use in one of its ventilation products.

The client had explored traditional manufacturing using injection molding but discovered that the tubes were nearly impossible to fabricate due to their very small hollow core. Faced with a four-week lead time and a quote of \$19,000 to fabricate the two tools needed for injection molding, the customer turned to the experts at InterPRO Additive Manufacturing Group for their problem-solving capabilities.

"We knew we could fabricate this part using an Origin 3D printing system, but we were at an impasse because we didn't have an additive material with the properties this part demanded," explained Dan Straka, general manager of InterPRO.

### The Solution

Enter LOCTITE®, a world leader in adhesives and sealants, now with an extensive portfolio of materials for additive manufacturing.

In the past, manufacturers have faced significant limitations trying to 3D print end-use products because of material capability. "Most 3D printed materials are not production worthy because they are not temperature resistant, not tough enough, not translucent, or lack other required characteristics," said Cindy Deekitwong, director of Global Marketing and Strategy for LOCTITE's 3D printing business. "But under the new open materials ecosystem, we can and are developing ground-breaking materials to address the specific needs of the market, including resilient elastomers, heat-resistant polymers, biocompatible formulations, and other high-performance materials."

For this project, LOCTITE furnished InterPRO with a low viscosity silicone that cures into a tough silicone elastomer.

**These pliable yet extremely durable tubes  
contain multiple grooved bends and a 1.5 mm  
hollow core that is nearly impossible to fabricate  
using injection molding.**



# HEALTH CARE SYSTEMS MANUFACTURER REDUCES PER-PART COST 10X BY HARNESSING NEW OPEN ADDITIVE ECOSYSTEM



## The Additive Process

Powered by an Origin printer and LOCTITE's silicone elastomer, InterPRO had the ability to 3D print 30 parts per day, at a cost of \$19 per part – a far cry from the \$190 per part quoted for injection molding, with amortized tooling. What's more, digital manufacturing eliminated lead times. Rather than wait 4-6 weeks for hard tooling, InterPRO had the ability to produce up to 100 units in only 3-4 business days.

Origin's approach resembles digital light processing (DLP) and is called "Programmable Photopolymerization" (P3). It enables a wider range of printing environments than traditional DLP, however, which opens up entirely new chemistries and material characteristics.

Within Origin's open additive manufacturing ecosystem, it's possible to produce commercial-grade additive parts that exceed injection molded strength, consistency and durability with a consumer-grade look and feel – at a fraction of the cost.

## The Future of Manufacturing: Open Additive Technology

Participants in the new ecosystem, like Origin, InterPro and LOCTITE, aspire to grow 3D's share of the manufacturing pie because they understand its potential to drive innovation.

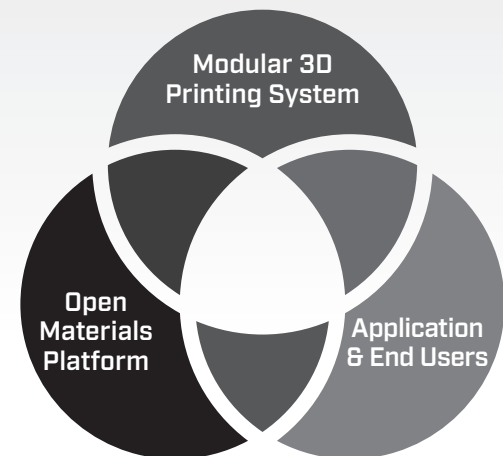
"We are no longer competing against other 3D printers or other service bureaus, we're now competing against injection molding," noted Straka. "We are encouraging our customers to explore additive manufacturing for projects beyond prototyping and small-runs because materials can now meet production and quality requirements for mass production not imagined even just a few years ago."

"Additive is no longer a means to an end. It is the end."



## Benefits of Open Additive Manufacturing

- Streamline the product development cycle.
- Eliminate lead time for tooling fabrication.
- Deliver commercial-grade parts to market faster.
- Reduce costs.
- Expand production on demand.
- Reduce inventory costs.
- Enhance innovation with the ability to develop niche parts.
- Iterate designs quickly and as often as needed to respond to shifts in market demands.



A new ecosystem, comprised of modular 3D printing hardware and software, application-specific materials and experienced service bureaus, makes fabrication of high-volume, consumer-grade, 3D printed parts possible.

**"We are encouraging our customers to explore additive manufacturing for projects beyond prototyping and small-runs because materials can now meet production and quality requirements for mass production not imagined even just a few years ago."**

### About LOCTITE

LOCTITE is the world leader in the adhesives industry and provides the most innovative products for the use of daily glue. With a constantly growing portfolio of high-performance materials, specialized equipment and post-processing solutions, LOCTITE overcomes the limitations of conventional 3D printing to enable additive manufacturing for the production of durable, functional parts. Through its strategic partnership with technology leaders for specialized equipment, LOCTITE is driving the adoption of 3D printing beyond prototyping and toward the production of final parts. (loctite.com)

### About Origin

Based in San Francisco, CA, Origin is an open platform for additive mass production. The company has worked with a network of material partners for over a year to develop a wide range of commercial grade materials for its system, resulting in some of the highest performance and most resilient materials in additive manufacturing, at prices and print speeds that enable high volume production. The company was founded in 2015 and is led by alumni from Google and Apple. (origin.io)

### About InterPRO

For more than two decades, InterPRO has offered an array of prototyping print services including stereolithography (SLA), fused nylon (MJF), fused deposition modeling (FDM), cast urethane parts, rapid silicone and custom finishing. InterPRO is also an authorized reseller of HP Jet Fusion 3D printing systems. (interpromodels.com)