

OPEN ADDITIVE MANUFACTURING— PRODUCING CAMERA MOUNTS FOR ORIGIN ONE AT SCALE

One hundred parts produced within 24 hours on a single Origin One,
at a fraction of the cost of traditional manufacturing



PRECISION CAMERA HOUSING FOR COMPUTER VISION



Origin One features several integrated cameras for computer vision and capturing temperature data in the IR range; additional sensors measure other environmental conditions during the print process.

Senior mechanical design engineer Matt Miyamoto designed camera mounts for CNC machining out of black ABS plastic. A compound angle meant that the part could

only be machined by a 5-axis CNC (or on a 3-axis CNC with multiple setups), which made the parts expensive to machine at low or high volumes. Matt turned to Origin's own solution to achieve the quality and throughput required.

Size:	84 x 84 x 50.5 mm
Volume:	43.5 cm ³
Surface Requirements:	< Ra 4µm
Color:	Black
Initial Quantity:	100



ABOUT ORIGIN'S P³ TECHNOLOGY

Origin One's Programmable Photopolymerization (P³) technology precisely orchestrates light, temperature, and other conditions, automatically optimizing prints in real time for the best possible results.

High green strength isotropic prints require minimal support structures and can be stacked throughout the entire build volume, allowing for maximum throughput, minimal waste, and post-processing in minutes. No surface finishing (e.g., bead blasting, polishing, or painting) is required. Origin's technology is built for additive mass production and produces parts that are functionally and aesthetically suitable for end use.

BASF UltraCur3D PHOTOPOLYMERS

Origin's Open Material Network includes one of the largest chemical producers in the world, BASF. Origin's programmable print process is capable of printing a wide range of materials including BASF's UltraCur3D which has a combination of excellent surface finish, mechanical strength, UV stability, and throughput that is unmatched in the industry.

ORIGIN

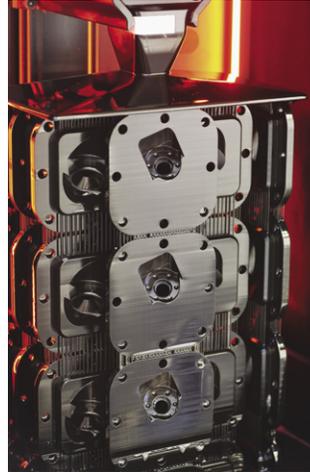


RESULTS

By intelligently packing the parts into the build volume, Origin lab technician Elton Cheung was able to print 40 camera housings in a single print, taking less than 8 hours. Printing overnight enabled maximum printer utilization, and repeating the same print the following

morning meant the order was completed in under 24 hours. Post-print, a simple solvent wash, followed by a one minute UV post-cure, rendered the parts ready for use.

Number of Parts in Build Area (192 x 108 x 350 mm):	40
Build Print Time:	8 Hours
Part Wash and Cure Time Per Build	40 Minutes
Material Cost Per Part:	\$3.38
Origin Amortized Cost Per Part:	\$1.38
Labor Cost Per Part:	\$1.25
Total Cost Per Part:	\$6.41



P³ VS. OTHER MANUFACTURING METHODS

Producing the camera housing using another process costs significantly more, with longer lead times. Alternative quotes are from Protolabs and include an undisclosed margin, but even with a typical

50% markup, using Origin's process and BASF's material is the most cost-effective way to produce these parts.

	ORIGIN	MJF	SLS	DLS	CNC MILLING
Provider:	Origin Lab	Protolabs	Protolabs	Protolabs	Protolabs
Material:	BASF Ultracur3D	PA 12	PA 11	Rigid Polyurethane	ABS
Lead Time:	< 2 Business Days	5 Business Days	4 Business Days	7 Business Days	11-15 Business Days
Typical Surface Roughness:	2-3 (Ra) µm	10.5 (Ra) µm	13.3 (Ra) µm	N/A	3.2 (Ra) µm
Cost Per Part:	\$6.41	\$41.61	\$69.64	\$80.13	\$708.00
Total Cost of 100 Parts:	\$641.00	\$4,161.00	\$6,964.00	\$8,013.00	\$70,854.00

TAKEAWAYS

Origin One enabled the production of a camera housing for a fraction of the time and cost of CNC Milling or other additive manufacturing platforms. Origin's throughput and open material network dramatically increase the number of applications for which additive is suitable. Get in touch to discover which of your parts are suitable for open additive manufacturing at scale.