CASE STUDY



How Amuse3D Cut Paint Preparation Time Through Automated Vapor Smoothing

Industry
3D Printing Service Bureau

Material
PA12, PA12 Smooth, PA11

Application
Painted End-Use Parts

May 2026 // V1.1

For service bureaus like Amuse3D, scaling the production of painted end-use parts is particularly challenging. Customers expect a finish comparable to injection-molded parts, but achieving that on raw printed surfaces traditionally means hours of sanding, multiple primer passes, and three to four coats of paint to hide the underlying texture. By integrating PostPro vapor smoothing into their workflow ahead of the paint booth, Amuse3D replaced the labor-intensive surface finishing steps with an automated, repeatable process. The result are faster turnaround times, consistent surface quality, and a scalable production workflow.

About the Application

Amuse3D, based in Chennai, India, is a rapidly growing 3D printing service bureau serving customers across industries requiring both functional and cosmetic end-use parts.

An increasing part of their work involves painted parts where the visual finish is just as important as dimensional accuracy. Customer facing enclosures, consumer products, and cosmetic components all demand a smooth, uniform, defect free surface that holds paint cleanly and consistently from one batch to the next. Delivering that level of finish using traditional manual preparation was becoming the single biggest constraint on Amuse3D's ability to scale.

The Challenge

Before implementing vapor smoothing, surface finishing at Amuse3D relied heavily on manual processes and the paint preparation process included:

- Hand sanding of every part, often in multiple stages with progressively finer grits.
- Two or more primer coats, with sanding between coats, to fill the residual surface roughness.
- Three to four coats of topcoat to fully hide the printed layer texture and achieve an acceptable finish.

This not only led to an average lead time of 2-3 days per batch with 3-5 operators required for parallel processing, but it also caused high variability in surface quality across parts and batches. Moreover, powder residue was sometimes still present in fine features and internal geometries, making rework necessary due to inconsistent results.

As a result, post-processing accounted for up to 75% of total lead time, creating a bottleneck that limited scalability despite strong printing capacity.

The Solution

To overcome this bottleneck Amuse3D integrated the PostPro SF100 into their workflow. The system was deployed directly after depowdering and shot peening, creating a streamlined and controlled finishing process:

MJF printing ▶ depowdering ▶ shot peening ▶ vapor smoothing ▶ dyeing/painting

By delivering a sealed, uniform, and smooth surface straight out of the PostPro SF100, vapor smoothing fundamentally changed what the paint shop had to do.

The Difference Made by PostPro Vapor Smoothing

By automating surface finishing, Amuse3D transformed its production capability:

- Manual sanding reduced to near zero
- Finishing time reduced from 2-3 days to approximately 1 day
- 2-3 operators redeployed to higher-value tasks
- Overall throughput across the bureau increased by 30-50%
- Painting reduced from three to four coats down to one or two
- Significantly improved paint adhesion and surface consistency, batch to batch

Within weeks, the process was fully operational, with recipes optimized for different geometries and wall thicknesses.



BEFORE



AFTER

Conclusion

For service bureaus delivering painted end use parts, the painting step is often where margin and lead time are won or lost. By adding vapor smoothing as the foundation of their surface finish, Amuse3D removed the manual preparation work that had been holding the paint shop back, reduced the number of coats required, and built a painting process that is faster, more consistent, and considerably less expensive per part.

For any service bureau or manufacturer trying to scale painted 3D-printed parts, this is the workflow change worth looking at first.

This case demonstrates how automated post-processing plays a key role in making additive manufacturing more efficient, reliable, and financially more viable for service bureau environments.

Benefits of PostPro Vapor Smoothing for Painted Parts:

- **Eliminates manual sanding ahead of the paint booth**
- **Reduces primer and topcoat requirements, often from three to four coats down to one or two**
- **Approximately 20 to 30% reduction in painting and preparation cost per part**
- **Improves paint adhesion and batch to batch consistency**
- **Frees skilled operators from manual finishing for higher value work**
- **Removes the painting bottleneck that limits service bureau scalability**



Customer Quote:

"AMT vapour smoothing has transformed our finishing process from a labor-intensive bottleneck into a scalable, repeatable workflow. The improvement in surface quality, combined with reduced manual effort and better paint performance, has significantly enhanced our production capability and customer satisfaction."

Gowri Shankar Mehanathan
Managing Partner
Amuse 3D



Additive Manufacturing Technologies Ltd

Tinsley Park, Airport Business Park, Unit N,
Europa House
Sheffield S9 1XU, UK

Amuse 3D Factory

Survey No 139/A, Plot 3 & 4,
Oragadam, Panruti,
Tamil Nadu 631604,
India