CASE STUDY

# Coway Engineering & Marketing leverages on expert-driven support for industrial-grade 3D printing

*“We had a pleasant experience collaborating with Creatz3D. The 3D printed fixtures’ quality were exceptional.*

*We especially appreciated Sally’s guidance. She was patient and took the time to explain key ideas and concepts thoroughly.”*

***– Mr. Marc Tan, Coway Engineering & Marketing Pte Ltd***

CASE STUDY

# *AD-HOC 3D PRINTING SERVICES*

INDUSTRY
AEROSPACE

CLIENT
COWAY ENGINEERING & MARKETING PTE LTD

APPLICATION
HIGH-MIX LOW-VOLUME PRODUCTION

CLIENT'S PROFILE

*Coway Engineering & Marketing Pte Ltd has been a trusted precision engineering solutions provider for 30 years, serving key industries such as Aerospace, MRO, and Oil & Gas.*

*Their expertise spans precision machining, aerospace bushings manufacturing, and component repair under certified quality management systems.*

CONFIDENTIAL

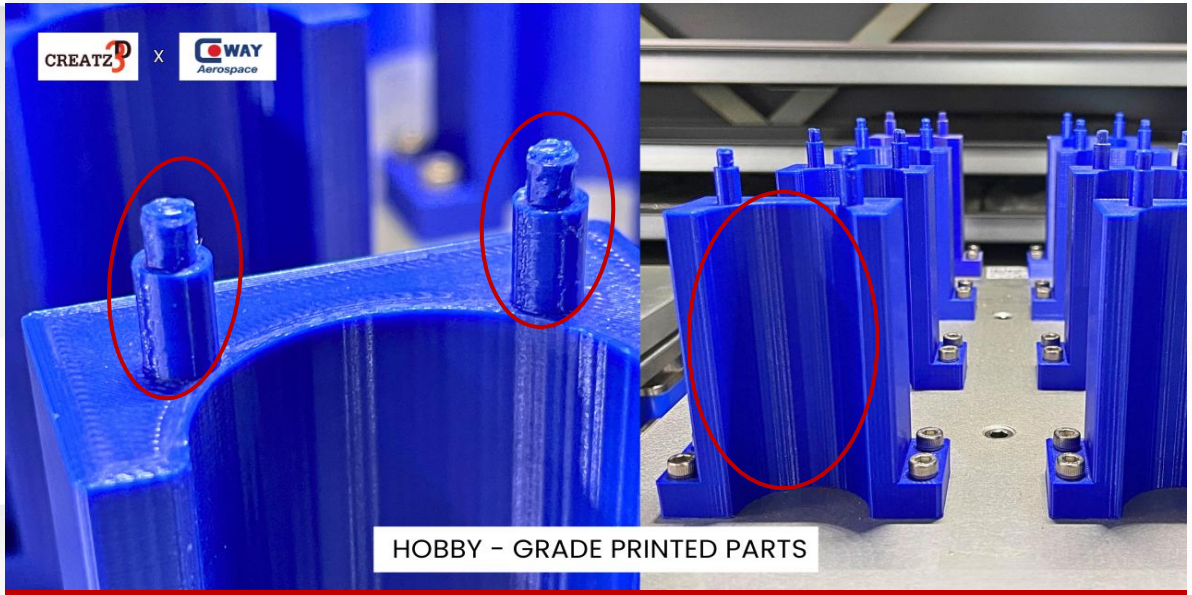
## CHALLENGES

### Limitations on Hobby-Grade 3D Printing & Inefficient Business Capacity

As an established CNC machining operation, Coway recognized that producing low-volume fixtures in-house or through traditional outsourcing wasn't too difficult to achieve. However, doing so would divert the core capacity away from the company's primary business value and revenue-generating activities.

In 2022, Coway shifted to 3D-printing using a hobby-grade printer and an internal team to produce these fixtures. Despite the transition, persistent issues limited the workflow efficiency and advantages that additive manufacturing was intended to deliver.

The hobby-grade printer produced inconsistent part quality, failing to meet the flatness and repeatability standards required for seamless integration with Coway's Coordinate Measuring Machine (CMM) system. Without consistent dimensional accuracy, each component required additional manual inspection and corrective rework to meet measurement requirements that impacted their productivity.




Designing fixtures with tight tolerances became a repetitive trial-and-error obstacles due to **part shrinkage and dimensional inaccuracies during printing with hobby-grade printer**.

CASE STUDY

# *AD-HOC 3D PRINTING SERVICES*

INDUSTRY
AEROSPACE

CLIENT
COWAY ENGINEERING & MARKETING PTE LTD

APPLICATION
HIGH-MIX LOW-VOLUME PRODUCTION

TESTIMONIAL

*"We had a pleasant experience collaborating with Creatz3D. The 3D printed fixtures' quality were exceptional.*

*We especially appreciated Sally's guidance. She was patient and took the time to explain key ideas and concepts thoroughly."*

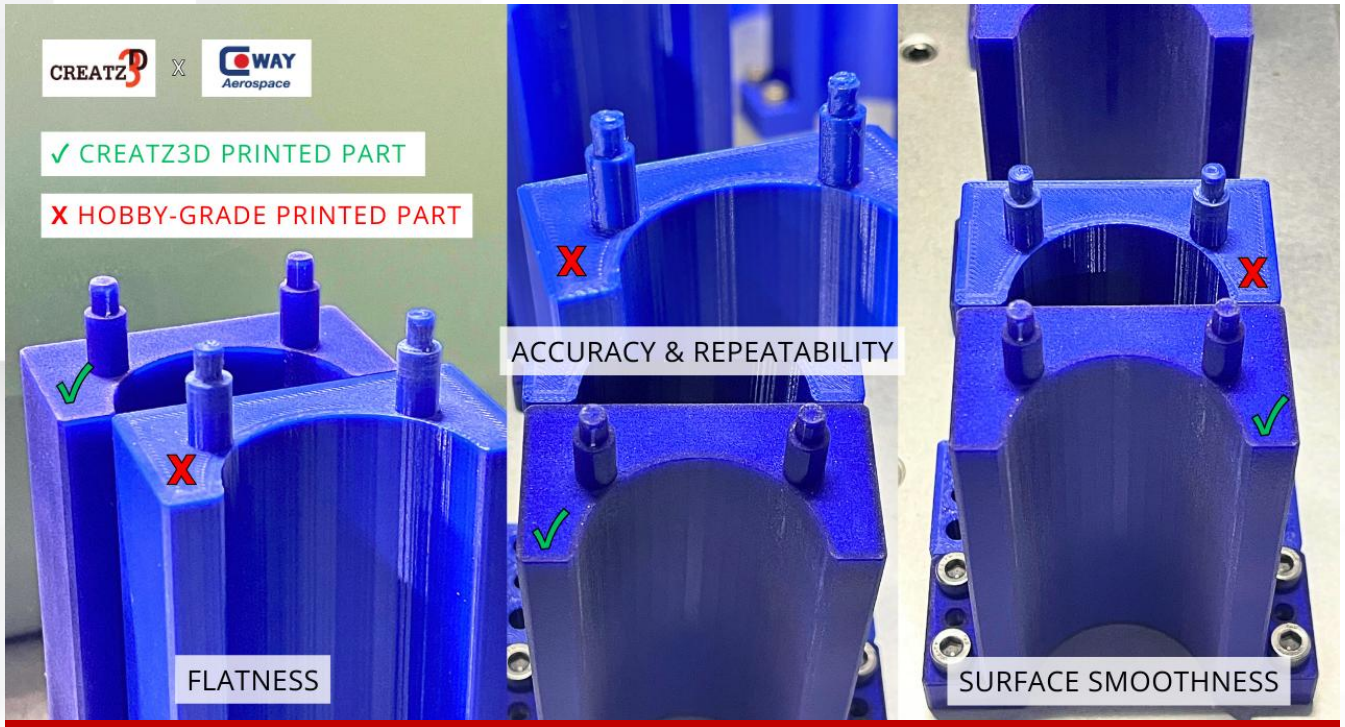
***– Mr. Marc Tan, Coway Engineering & Marketing Pte Ltd***

CONFIDENTIAL

## SOLUTIONS

### Industrial-Grade 3D Printing Enables Precision & Quality Control

Coway prioritized expert-driven support through our ad-hoc 3D printing services to address the limitations of their hobby-grade printer and enhance overall operational efficiency.




High-quality fixtures were produced with **surface smoothness and part accuracy within ±100 microns**, ensuring seamless compatibility with Coway's CMM inspection systems.

Based on Coway's application objectives, we recommended the most suitable 3D printing technology and material to achieve an optimal balance of precision, performance, and durability.

Through our expertise and result-driven approach, high-quality fixtures were delivered with surface smoothness and ±100 microns accuracy, ensuring seamless integration with Coway's CMM inspection systems.

CASE STUDY

# *AD-HOC 3D PRINTING SERVICES*

INDUSTRY
AEROSPACE

CLIENT
COWAY ENGINEERING & MARKETING PTE LTD

APPLICATION
HIGH-MIX LOW-VOLUME PRODUCTION

DATA REPORT
*Creatz3D fixtures demonstrated consistent geometry and surface quality, while the hobby-grade fixtures were crude, misaligned, and required extensive post-processing due to excess byproducts which increased the setup time further and interrupted their overall productivity.*

CONFIDENTIAL

## IMPACT

### Industrial-Grade 3D Printing for Low-Volume Fixture Production Reliability

By adopting industrial-grade 3D printing, Coway eliminated additional manual inspection and corrective rework required to meet measurement standards. This strategic shift also kept CNC machines dedicated to high-output components, improving throughput and overall operational productivity for low-volume production.

COWAY'S CMM INSPECTION SYSTEM

**PRINTED FIXTURES COMPARISON DATA**
Hobby-Grade vs Creatz3D

Each pallet contained 8 printed fixtures.
The recorded data reflects the total time required to load all 8 workpieces, transfer them to the CMM system, and make the necessary program adjustments prior to inspection.
***All hobby-grade fixtures required program modifications to compensate for uneven stud surfaces and inconsistent shape.***

| Cycle | Hobby-Grade Fixtures Time (minute) | Creatz3D Fixtures Time (minute) | Time Saved (minute) |
|---|---|---|---|
| 1 | 5.2 | 2.1 | 3.1 |
| 2 | 4.8 | 2 | 2.8 |
| 3 | 6.5 | 2.1 | 4.4 |
| 4 | 4.5 | 1.9 | 2.6 |
| 5 | 5 | 2 | 3 |
| 6 | 7.2 | 2.1 | 5.1 |
| 7 | 4.9 | 2 | 2.9 |
| 8 | 5.5 | 2.2 | 3.3 |
| 9 | 4.7 | 1.9 | 2.8 |
| 10 | 6 | 2 | 4 |

CASE STUDY

# *AD-HOC 3D PRINTING SERVICES*

INDUSTRY
AEROSPACE

CLIENT
COWAY ENGINEERING & MARKETING PTE LTD

APPLICATION
HIGH-MIX LOW-VOLUME PRODUCTION

SUCCESS HIGHLIGHT
*The ability to fabricate fixtures on demand allowed for faster design validation and reduced reliance on Coway's CNC resources, significantly improving their operational agility and workflow continuity for their customers.*

CONFIDENTIAL

## Driving Measurable Gains through Additive Manufacturing Integration

The collaboration between Coway and Creatz3D drove measurable gains in cost control, innovation, and operational efficiency. Replacing CNC machining with additive manufacturing for selected jigs and fixtures resulted in a 30–40% reduction in material and production costs.

This success also reinforced Coway's readiness for digital transformation, laying a strong foundation for broader additive manufacturing adoption across their operations.