

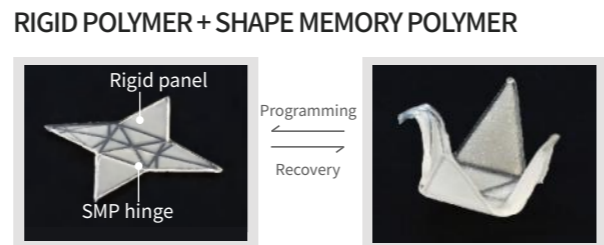
# APPLICATION CASE

**01** **Multimaterial Origami**

Dimensions: 25×25×0.6 mm<sup>3</sup>

Characteristics: Shape reconfiguration of hard panel /SMP hinges through thermomechanical programming

Applications: 4D printing, foldable structures

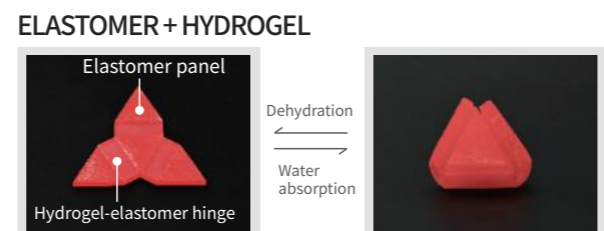


**02** **Multimaterial Origami**

Dimensions: 27×24×1.6 mm<sup>3</sup>

Characteristics: Elastomer-hydrogel laminate evolves into 3D structure driven by hydrogel dehydration

Applications: 4D printing

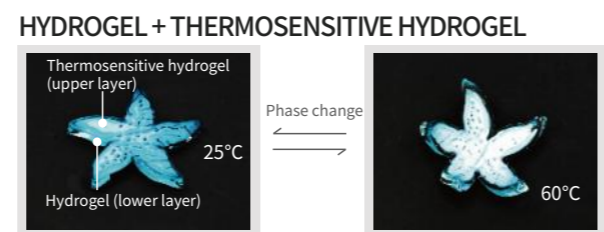


**03** **Multimaterial Laminate**

Dimensions: 25×25×2 mm<sup>3</sup>

Characteristics: Phase change of thermo sensitive hydrogel drives the laminate to deform

Applications: 4D printing, sensors

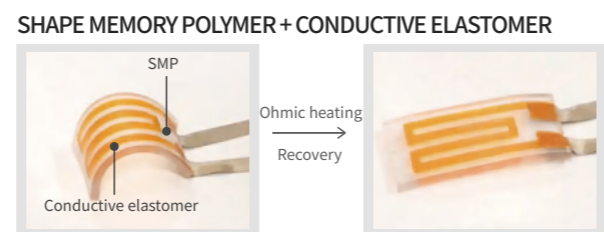


**04** **Joule Heating Circuit**

Dimensions: 30×12×1.5 mm<sup>3</sup>

Characteristics: Ohmic heating drives SMP/conductive elastomer structure to restore its initial shape

Applications: Intelligent unfolding structures

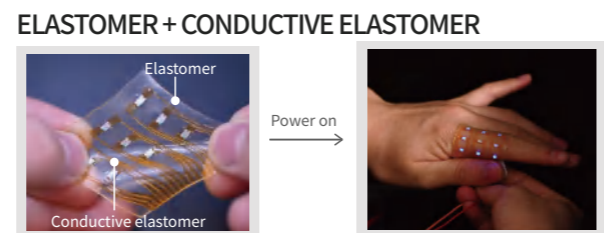


**05** **Flexible Circuit**

Dimensions: 30×30×0.5 mm<sup>3</sup>

Characteristics: Combining elastic substrate with conductive elastic circuit enables the realization of wearable electronics.

Applications: Flexible electronics, sensors



## Related Papers

- Rong Wang, Chao Yuan, Jianxiang Cheng. et al., Direct 4D printing of ceramics driven by hydrogel dehydration. Nature Communications, 15, 758 (2024)
- Honggeng Li, Biao Zhang, Haitao Ye, et al., Reconfigurable 4D printing via mechanically robust covalent adaptable network shape memory polymer. Science Advances, 10, eadl4387(2024)
- Xiangnan He, Biao Zhang, Qingjiang Liu, et al., Highly conductive and stretchable nanostructured ionogels for 3D printing capacitive sensors with superior performance. Nature Communications, 15, 6431 (2024)
- Caicong Li, Jianxiang Cheng, Yunfeng He, et al., Polyelectrolyte elastomer-based ionotronic sensors with multi-mode sensing capabilities via multi-material 3D printing. Nature Communications, 14, 4853 (2023)
- Qi Ge, Zhe Chen, Jianxiang Cheng. et al., 3D printing of highly stretchable hydrogel with diverse UV curable polymers. Science Advances, 7, eaba4261(2021)
- Jianxiang Cheng, Rong Wang, Zechu Sun, et al., Centrifugal multimaterial 3D printing of multifunctional heterogeneous objects. Nature Communications, 13, 7931 (2022)
- Biao Zhang, Honggeng Li, Jianxiang Cheng, et al., Mechanically Robust and UV-Curable Shape-Memory Polymers for Digital Light Processing Based 4D Printing. Adv. Mater. , 33, 27, 2101298 (2021)
- Xiangnan He/Jianxiang Cheng/Zhenqing Li, et al., Multimaterial Three-Dimensional Printing of Ultraviolet-Curable Ionic Conductive Elastomers with Diverse Polymers for Multifunctional Flexible Electronics. ACS Appl. Mater. Interfaces, 15, 2, 3455–3466(2023)

## CONTACT

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# Multimaterial 4D Printing

microCube M150  
 microCube M150E



## INTRODUCTION

A vat photopolymerization multimaterial 4D printer for manufacturing parts of various materials, including shape-memory polymers, conductive elastomers, elastomers, hydrogels, and rigid resins.

## Product Specifications

Product Model	M150 / M150 Pro	M150E
Light source	UV LED (405 nm)	UV LED (405 nm)
Optical resolution	25µm	50µm
Z-axis resolution	±2µm	±5µm
Layer Thickness	10-200 µm	50-200 µm
Number of resin vat	3	3
Printing mode	Intra-layer / Inter-layer multimaterial	Intra-layer / Inter-layer multimaterial
Centrifuge speed	10000 rpm	3000 rpm
Printing platform diameter	Φ42 mm / Φ56 mm	Φ43 mm
Build size - height	30 mm	30 mm
External dimension	950mm(L) × 650mm(W) × 700mm(H)	450mm(L) × 550mm(W) × 550mm(H)
Product weight	100KG	50KG

