




# ULTRACRAFT Reflex **RS**

Precision Matched with Speed

 C5 Grade Z-axis Module

 Full-Field Precision Screen

 Dynamic Motion Algorithm 3.0

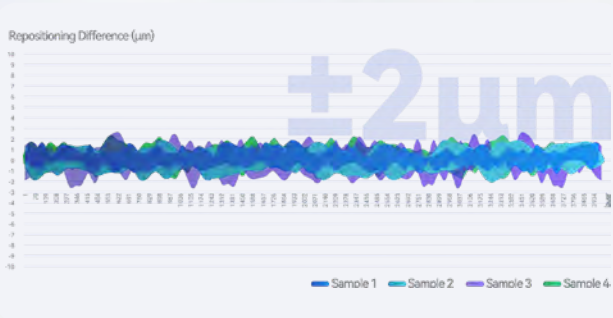


# Reliable and Accurate 3D Printing

## Reliable C5 Grade Z-axis Module

- ◆ High repeat positioning accuracy ensures layer positioning errors are no more than  $2\ \mu\text{m}^*$ .  
Tested with a 50 kg load across ten thousand runs.

Reflex RS Z-axis Repositioning Variation



Test Model Results

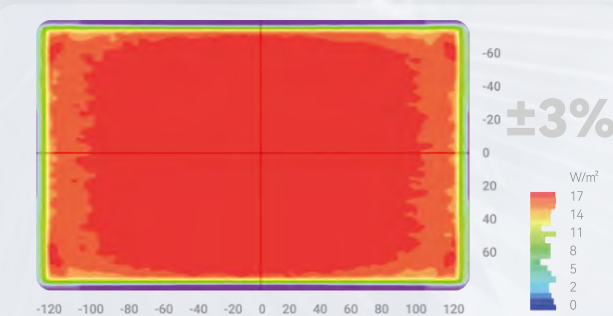


\*Data sourced from HeyGears Lab, 96% of errors within  $1\ \mu\text{m}$ , 99.9% of errors within  $2\ \mu\text{m}$ .

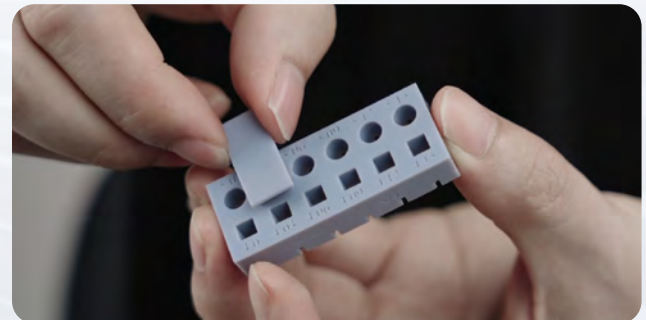
## Full-Field Precision Screen

- ◆ To achieve printing high accuracy and reliability, we partition the screen into 60 zones and calibrate it with a full-screen tool, ensuring light intensity variation remains within  $\pm 3\%^*$  for a printing tolerance of  $\leq 0.05\ \text{mm}$ .

LCD Screen Light Intensity Visualization



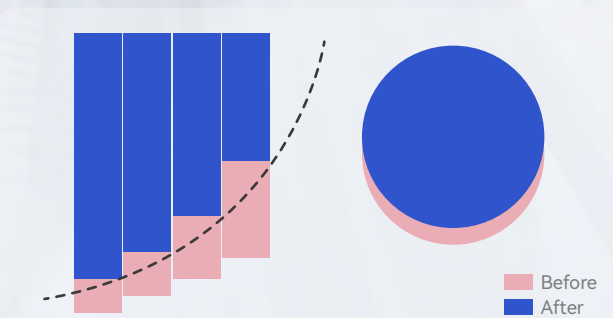
Test Model Results



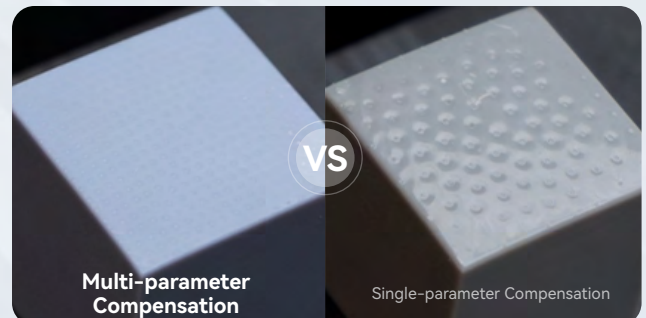
\*Data sourced from HeyGears Lab

## Adaptive Z-axis Compensation

- ◆ The process package allows the RS printer to adjust the Z-axis compensation adaptively for each resin, to support up to 180 combinations of different angles, hole sizes, and edge types. This approach minimizes deformation and resin buildup on support surfaces.



Test Model Results

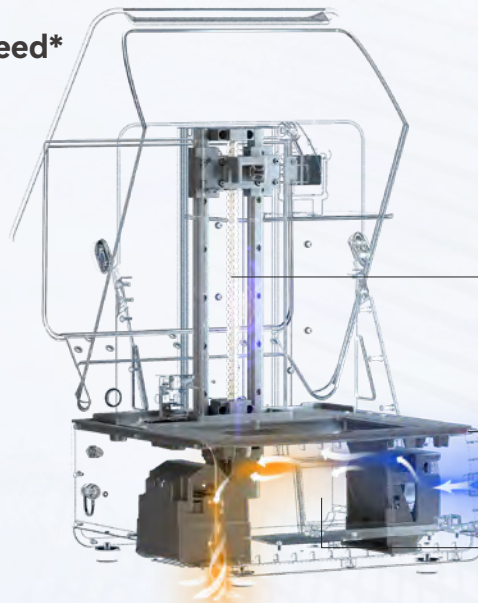


\*Data sourced from HeyGears Lab

# 02 Injection-molded Precision with 2 Hour Speed\*

\*Data from HeyGears Lab, using a layer thickness of 50  $\mu\text{m}$  and model height under 7 cm; printing results may vary per model.

**Built for High Speed**  
4.5 s/layer average printing speed\*



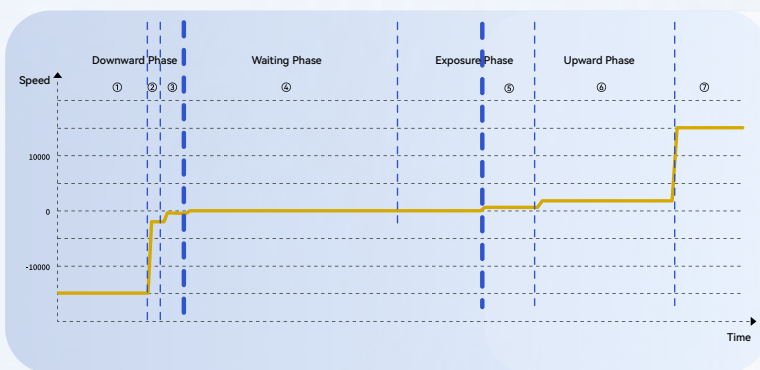
**C5 Z-axis Module**

**High-rigidity Printer Frame\*\***

**Dedicated Screen Cooler\*\*\***

\*Data sourced from HeyGears Lab.  
With high-speed water-washable resin PAWW10, the average printing speed for lattice models reaches 4.5 s/layer.  
\*\*Printer frame flex within  $\pm 2 \mu\text{m}$ .  
\*\*\*Cools screen temperature by up to 10°C during printing.

**Dynamic Motion Algorithm 3.0**  
33% Increase in Print Speed\*



## 01

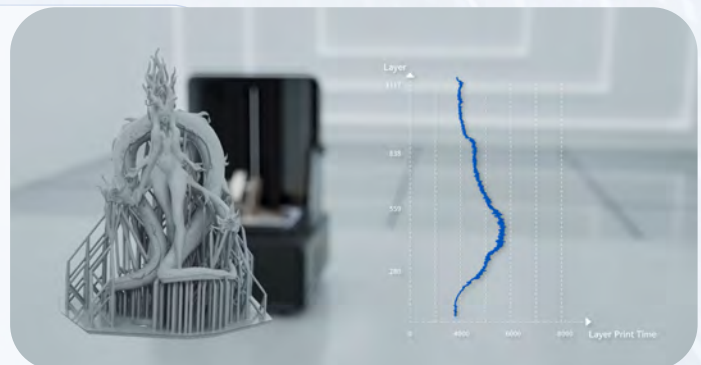
### Single-Layer Dynamic Motion Control

Utilizing a single-layer seven-segment motion control logic, The RS reads real-time data from the force sensors at a frequency of 80 times per second. Based on force values and their rate of change, the RS adjusts the subsequent motion parameters, reducing redundant time and maximizing print success rates.

## 02

### Comprehensive Dynamic Motion Control

This algorithm assesses the printing difficulty for each layer based on multiple factors, including cross-sections, parts spacing, and quantity. It then directs which parameter set to use, from a group of 18 adapted parameter options of motion control. This ensures printing quality while enhancing overall printing speed.



\*Data sourced from HeyGears Lab, utilizing PAWW10 water-washable resin, compared to conventional motion control 3D printing. The exact speed increase may vary based on model.  
\*\*Model created by Great Grimoire.

# 03

## Get Printing in Minutes

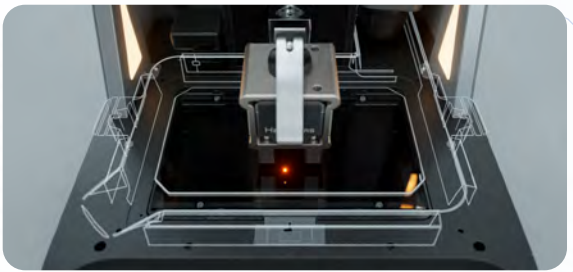
Ready to Print within **10 minutes\***

Learning Time Less than **60 minutes**



\*Data sourced from HeyGears Lab

### Automated Printing Assistance



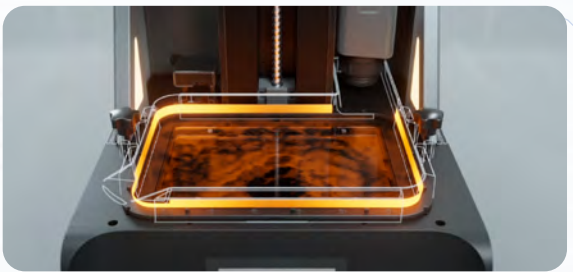
#### High-sensitivity Residue Detection

Force sensors with a sensitivity of 0.1 N can detect resin residue as small as 0.2 mm and can auto-stop upon detection or print failure.



#### Floating Screen Auto Leveling

A floating screen system with a deviation of 0.15° eliminates gaps of up to 240 μm for automatic leveling.



#### Automatic Resin Heating

The optional RS heated resin tank uses an integrated heater for higher efficiency. It can elevate resin temperature from 50 °F (10 °C) to an optimal 73 °F (22 °C) in 20 minutes, auto heating maintains this temperature throughout the printing process for optimal results.



#### Automatic Resin Refill

Automatic resin refill before and during printing, no supervision required.

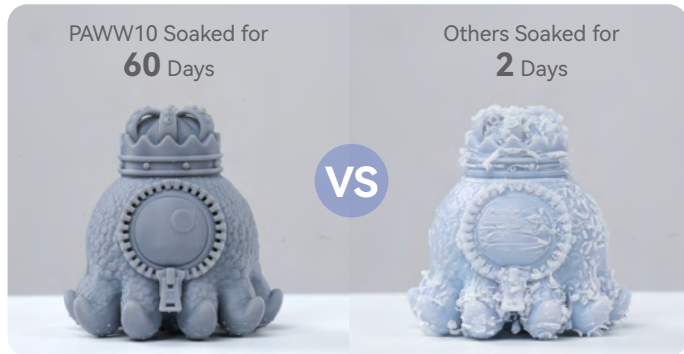
# 04 User-friendly Materials

## Water Washable and Durable



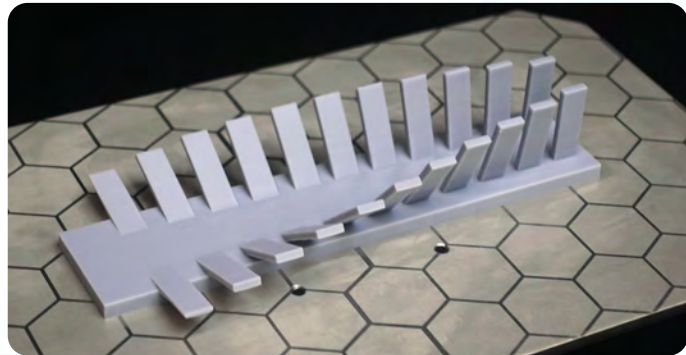
- **2.9% Water Sorption**

UltraPrint PAWW10  
PAWW10 Water-Washable Resin



- **Exceptional Forming Capability**
- **Smallest Unsupported Overhang Angle: 25°**

UltraPrint PAS10  
Standard Modeling Resin



- **High Toughness and Accuracy**
- **Work of Fracture 3350 J/m<sup>2</sup>**

UltraPrint PARP10  
Rapid Prototyping Modeling Resin  
(Orange Clay)



\*Data sourced from HeyGears Lab

## A Complete Production System



ULTRACRAFT  
Cure



ULTRACRAFT  
Wash



RS Heated &  
Pulsing Release Resin Tank



Light Intensity  
Calibration Tool

ULTRACRAFT  
Pulsing Release Module

# 05

## Reflex **RS** Specifications

3D Printing Technology	LCD (MSLA)
Build Volume	222*122*228 mm
XY Native Pixel	29.7 $\mu$ m
Accuracy	$\pm$ 15 $\mu$ m
Layer Thickness	30-100 $\mu$ m
Optical Wavelength	405 nm
Size	380*360*584 mm
Weight	20 kg
Rated Power	180 W
Voltage	100-240 V~50/60 Hz
Connectivity	USB/WIFI
Language	English, Simplified Chinese

HeyGears was founded in 2015 as an innovation-driven company, devoted to providing digital manufacturing solutions in various industries. The company bases its core competencies in 3D printing, software development, materials, and big-data handling. We have a global presence with teams across North America, Latin America, Europe, Middle East, and Asia Pacific.

HeyGears believes in a product development process rooted deeply into vertical applications, and our vision goes beyond just 3D printing technology. We strive to create vertically integrated solutions through the solid establishment of hardware, software, material, and service platforms, delivering our goal to bring advanced technology into daily life.

## HEYGEARS

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