

The image features three blue corrugated metal sheets arranged in a row, viewed from an isometric perspective. The sheets have a consistent wavy, ribbed texture. In the background, there are three circular patterns, each containing a smaller version of the corrugated metal texture. The overall background is a solid light blue color.

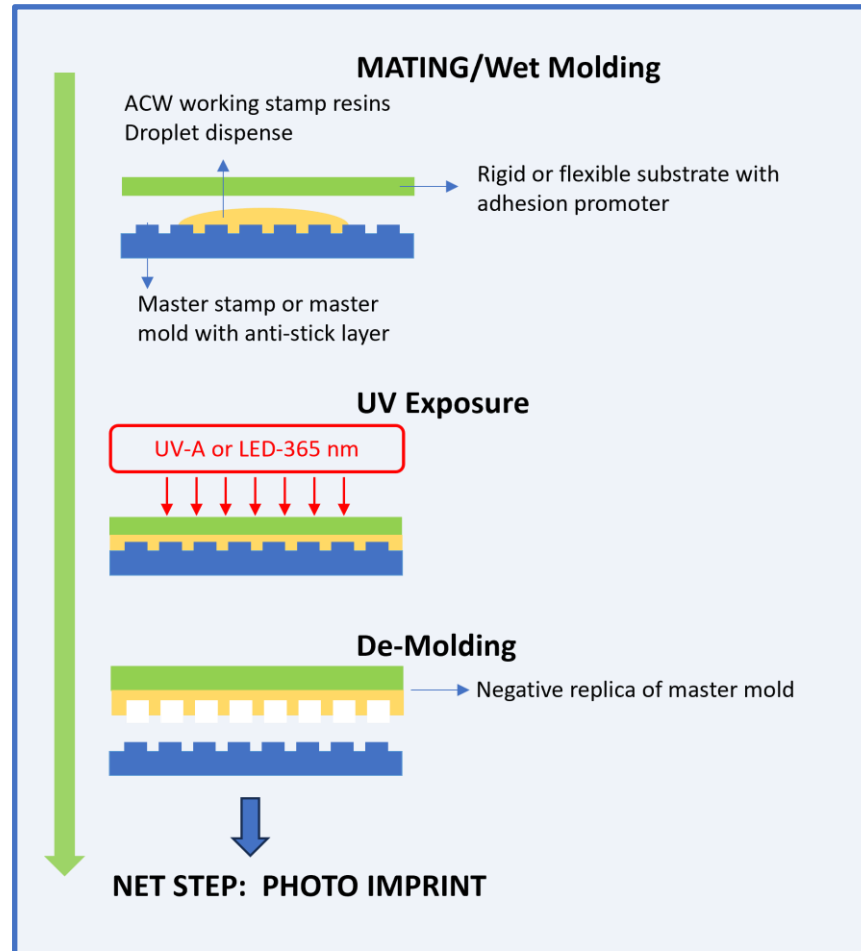
ACW's Working Stamp Resins

Advantages made in ACW's working stamp resins



1. Fluorine-free material: Environmentally friendly
2. ANTI-STICK Layer is NOT required: reduces number of working stamp process steps
3. Excellent CHEMICAL RESISTANCE: resists etching power of aggressive imprint resins and minimizes height gain for multiple imprints
4. Excellent mechanical and thermal stability for multiple imprints

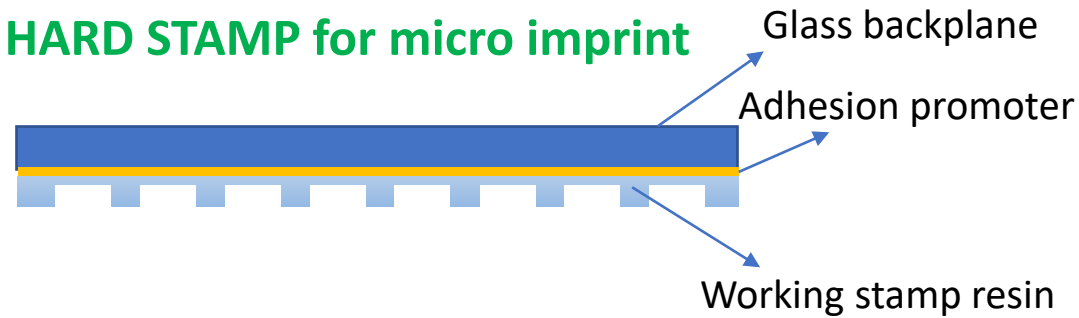
Working Stamp Process Flow



ACW's WS Resins for Hard and Soft WS



HARD STAMP for micro imprint

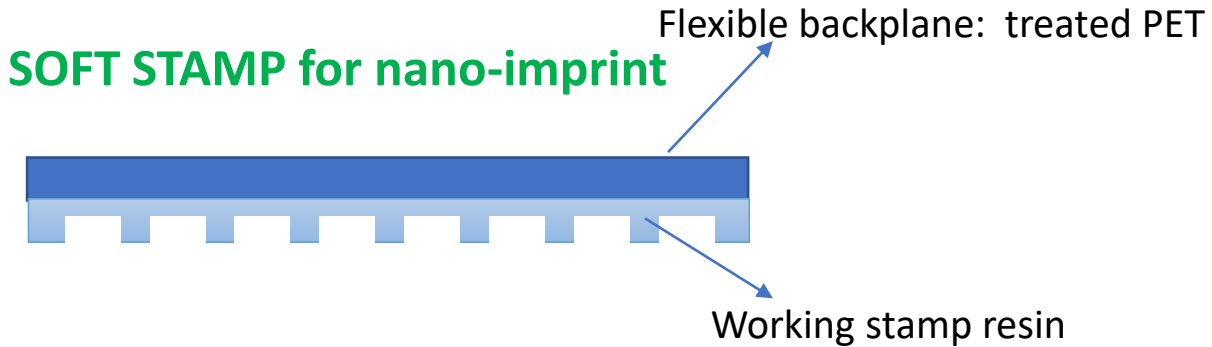


Advantage of UV cure versus heat: Low cost and high replication accuracy.

ACW's WORKING STAMP RESIN for micro-imprint

- WS-104
- WS-105

SOFT STAMP for nano-imprint



- Advantages of soft stamp versus hard: Low cost
- Advantages of UV versus heat (PDMS):
 - Low cost and high replication accuracy
 - Multiple imprints

ACW's WORKING STAMP RESIN for nano-imprint

- FS-2400
- FS-2600

FS-2400/2600: WS resins for nano-imprint



- FS-2400 has high modulus. FS-2600 has low viscosity

Property	FS-2400	FS-2600
Viscosity (cps @ 25°C)	600 to 700	200 to 300
LED 365 nm dose (J/cm ²) oxygen free or between two substrates	10-20 (200 mW/cm ² x 100 sec)	10-20 (200 mW/cm ² x 100 sec)
Young's Modulus (GPa)	2.5	1.0
Tg (°C)	155	147
Contact Angle of water in air (°)	107	117
% transmission (400 to 1000 nm)	>90	>90

EVG NIL: Test results for FS-2400 at EVG

ACW FS-2400

Binary Gratings

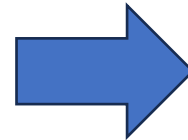
- EVG UV-A (inorg.)
- EVG UV-OA-R18 (org.)
- mrt mr-NIL213 (org.)
- ACW LuxNIL P285
- ACW LuxNIL Q70

High Aspect Ratio

- EVG UV-A
- ACW LuxNIL P285

Slanted Gratings

- EVG UV-A
- ACW LuxNIL P285



Roller Speed for ACW P285 could be **increased** up to 25% for binary gratings!!!

SmartNIL[®] POR (test plan): 5%

INCREASED PRODUCTIVITY

Smooth and easy detachment of imprints even for slanted features

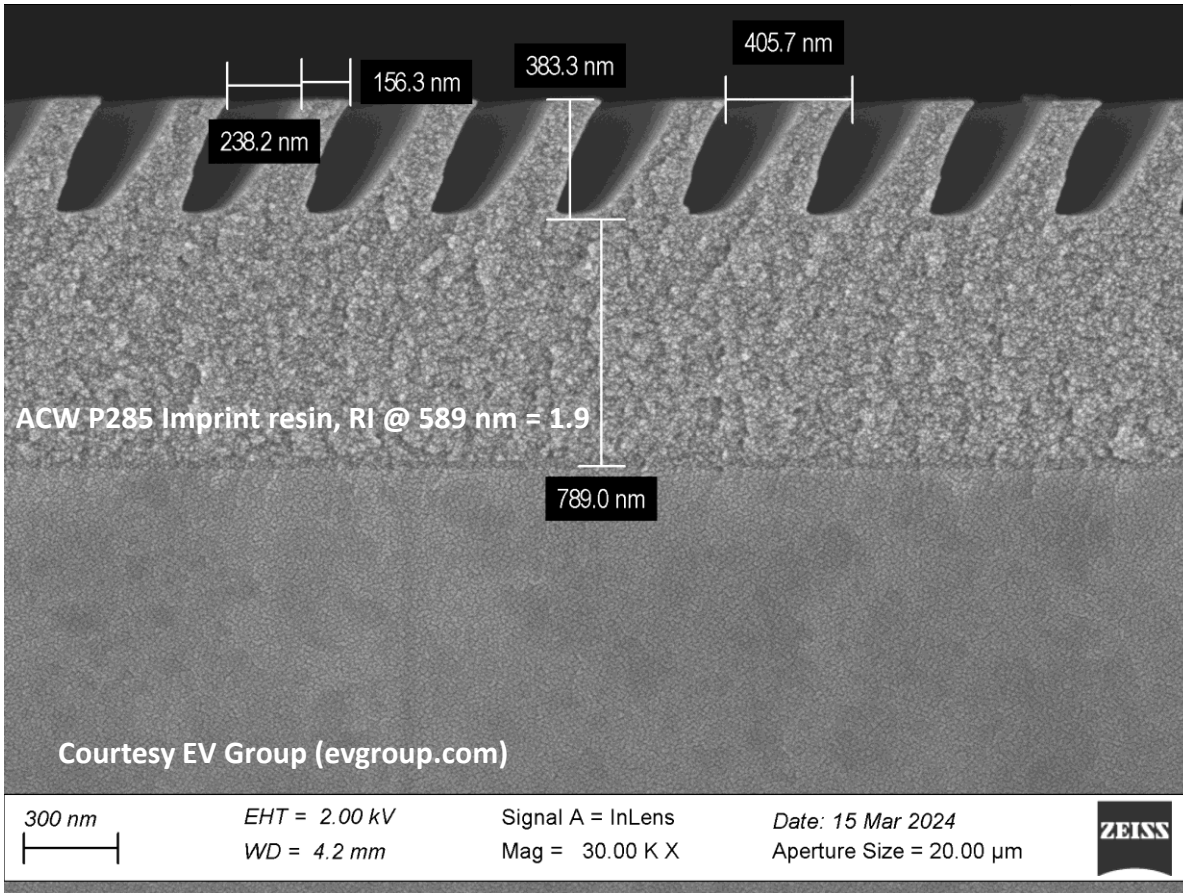
HIGH YIELD

Courtesy EV Group (evgroup.com)

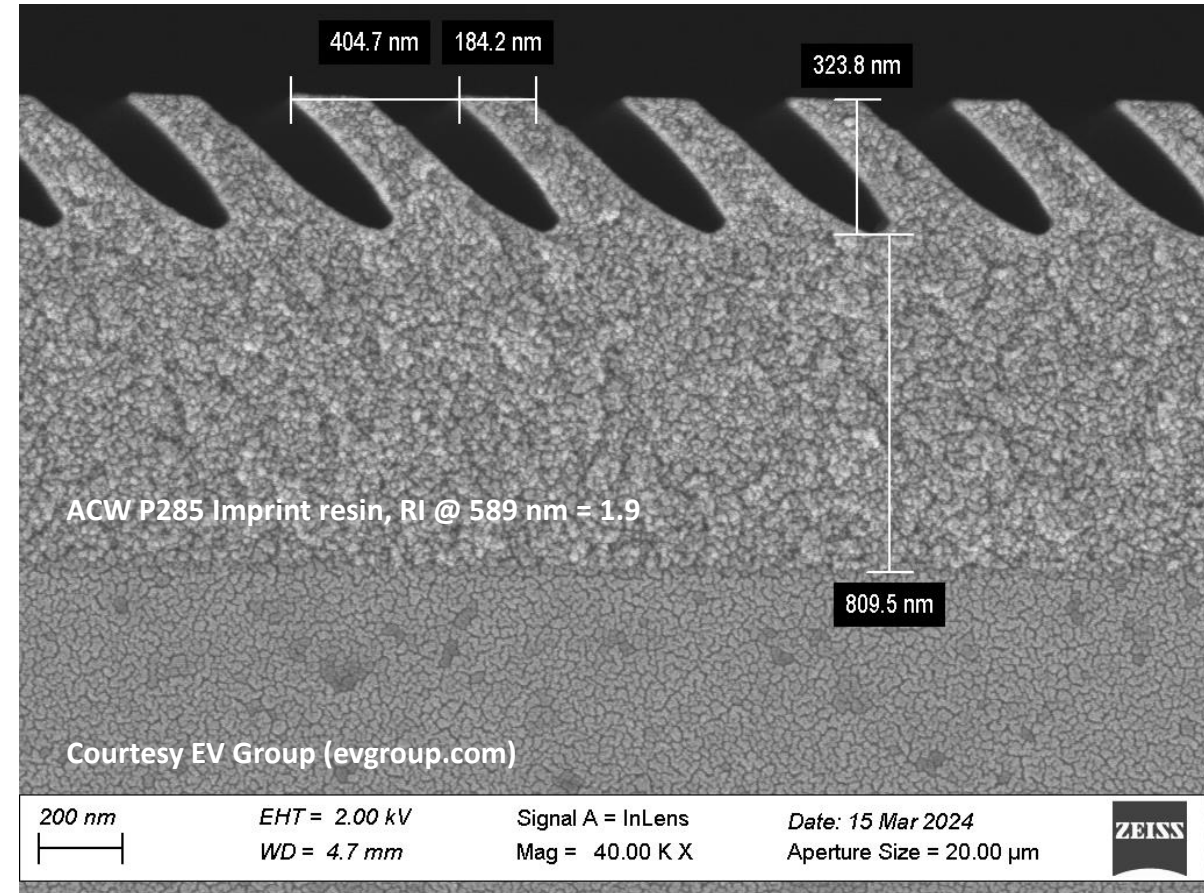
EVG NIL: ACW FS-2400 + Slanted Grating (ACW P285)



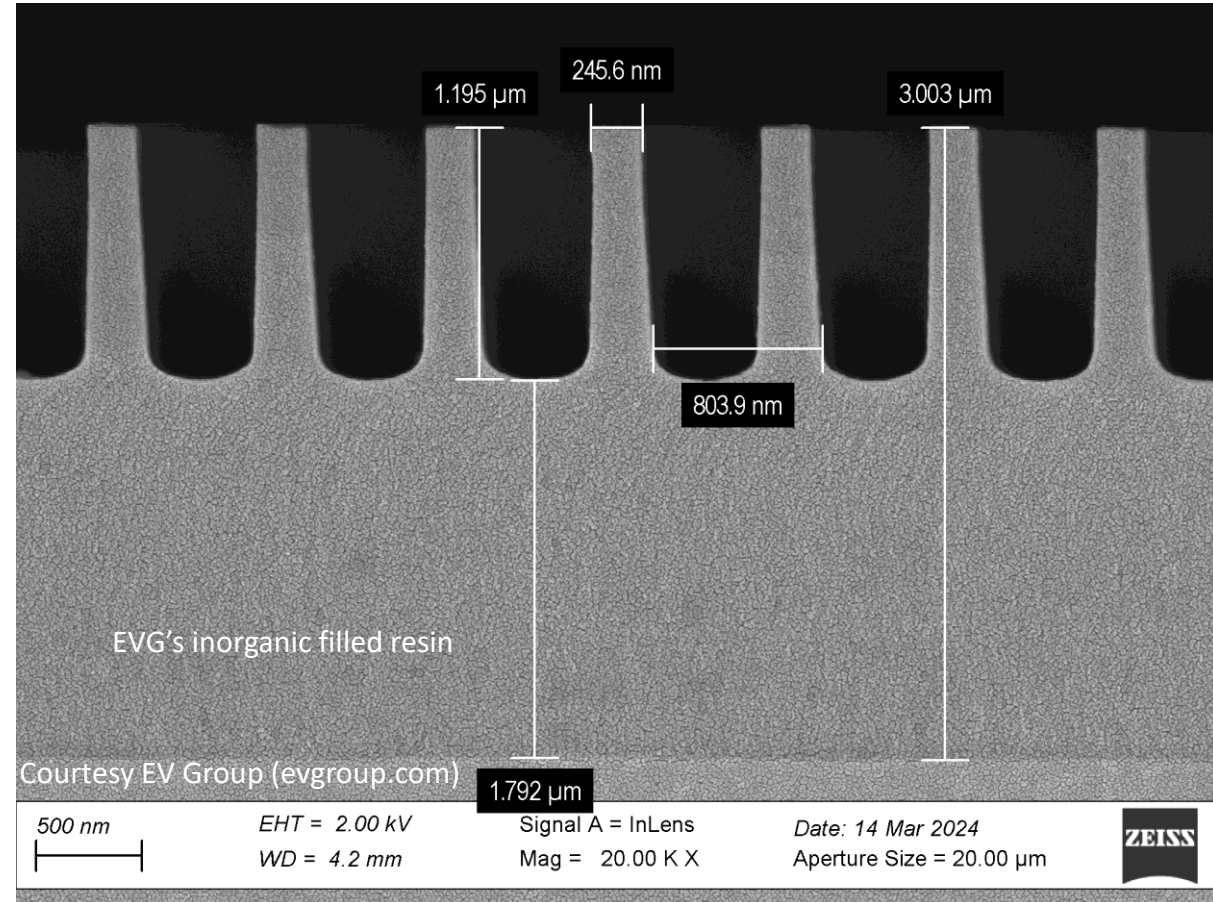
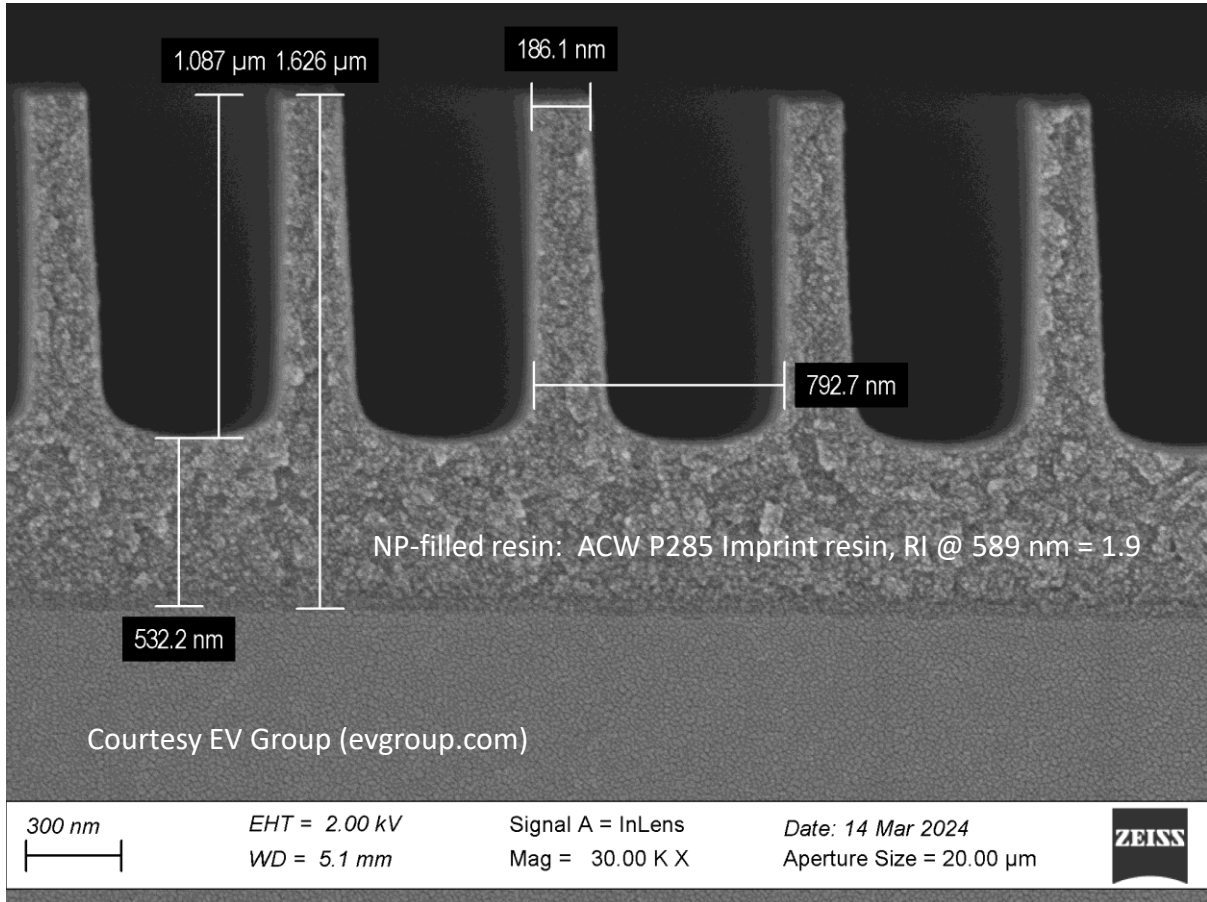
30° Angle



45° Angle



EVG NIL: ACW FS-2400 + High Aspect Ratio Structure



WS-104/105: WS resins for micro-imprint



- WS-104 and WS-105: excellent flexibility and adhesion

Property	WS-104	WS-105
Viscosity (cps @ 25°C)	250 to 350	100 to 150
LED 365 nm dose (J/cm ²) oxygen free or between two substrates	38-50 (250 mW/cm ² x 150 to 200 sec)	38-50 (250 mW/cm ² x 150 to 200 sec)
Young's Modulus (GPa)	1.2	0.3
Tg (°C)	70	65
Contact Angle of water in air (°)	116	120
% transmission (400 to 1000 nm)	>90	>90

ACW Resin Solutions for Working Stamps



- ***Fluorine-free: environmentally friendly***
- ***High water contact angles: no anti-stick layer is needed***
- ***Excellent chemical, mechanical and thermal stability:
multiple imprints with minimal or no height gain***
- ***Resins are now commercial and available***
- ***Contact ACW for details at info@addisoncw.com***

For Japan

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