micro resist technology GmbH Köpenicker Straße 325 12555 Berlin Germany

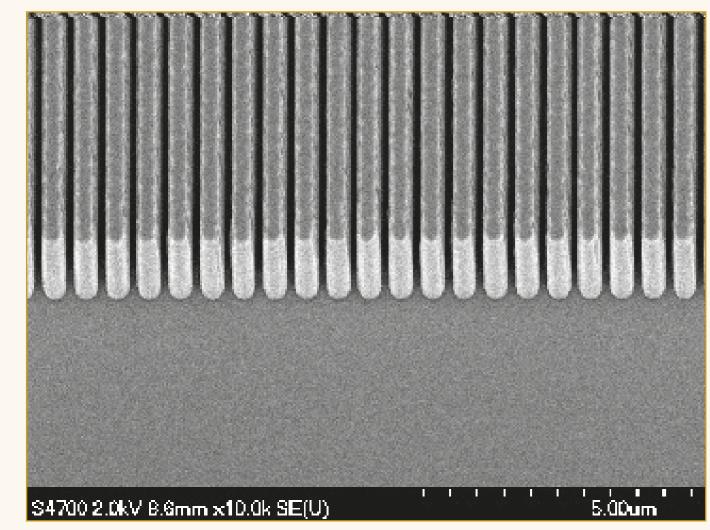
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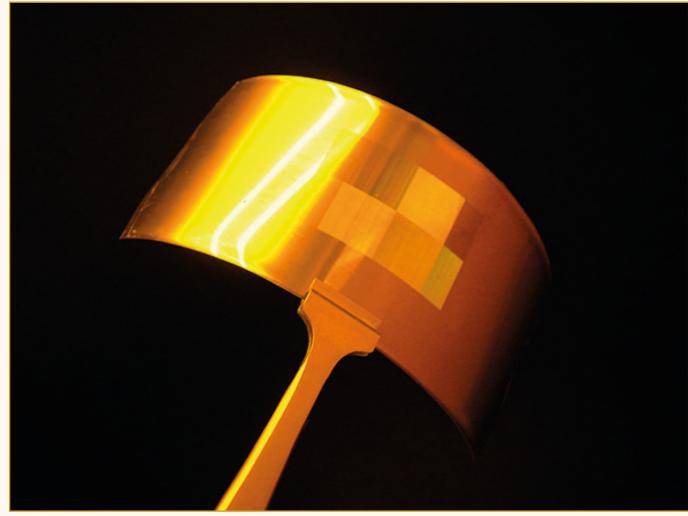


# OrmoStamp® for Polymer Working Stamps

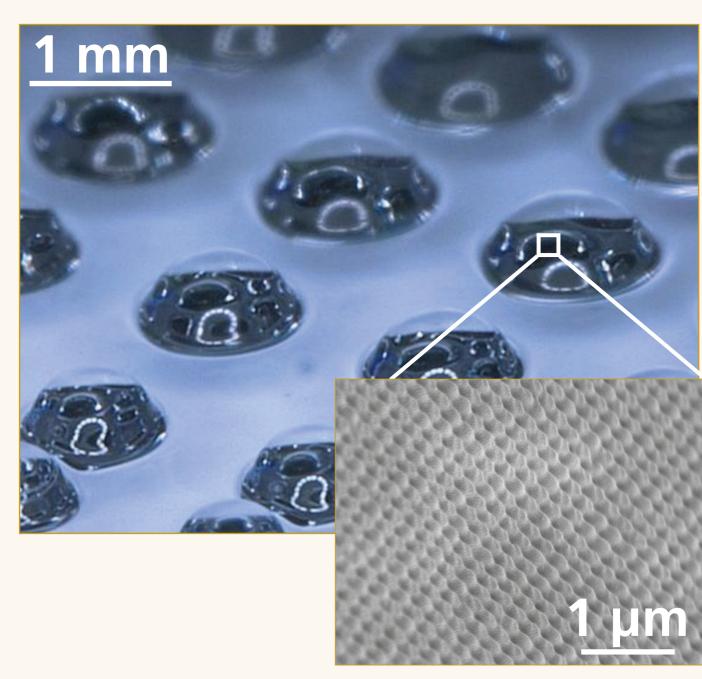
## Transparent working stamps for NIL and related techniques



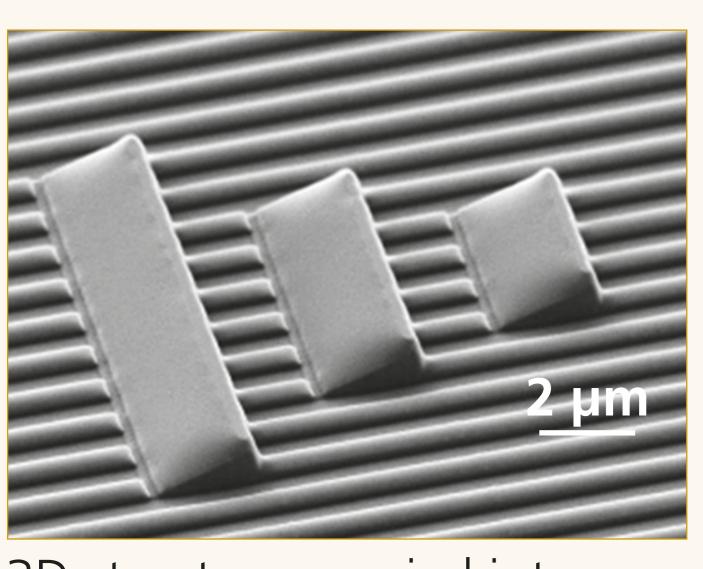
OrmoStamp® mold with high aspect ratio (Courtesy of TU Dresden, Germany)



Flexible **OrmoStamp®** on Nickel backplate (Courtesy of PSI, Switzerland)

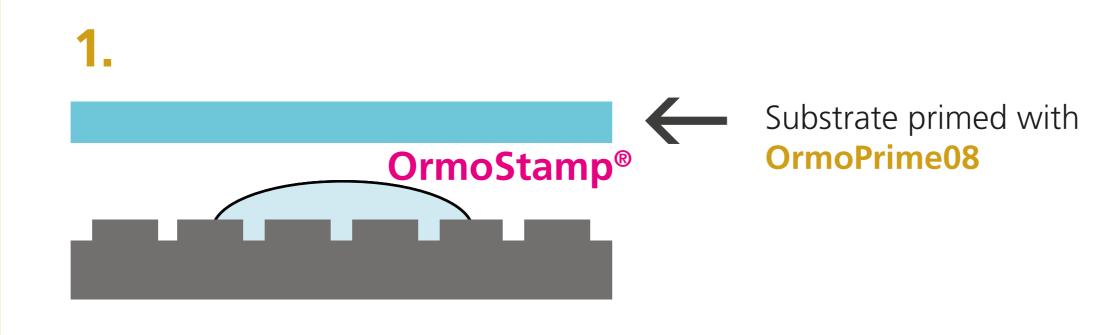


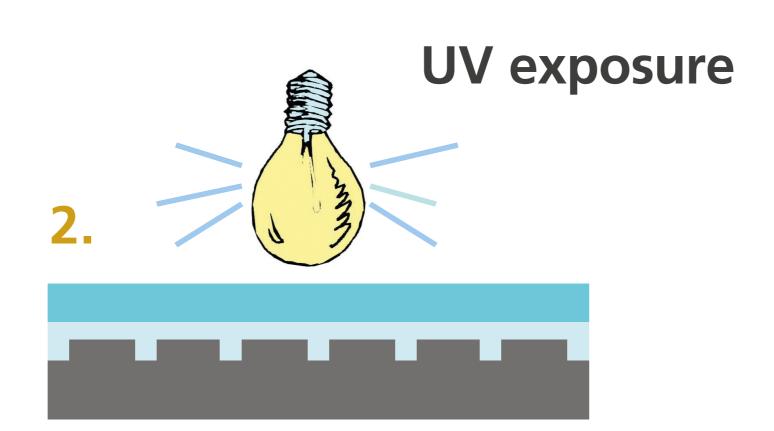
OrmoStamp® replication at different length scales (Courtesy of HZB, Germany)



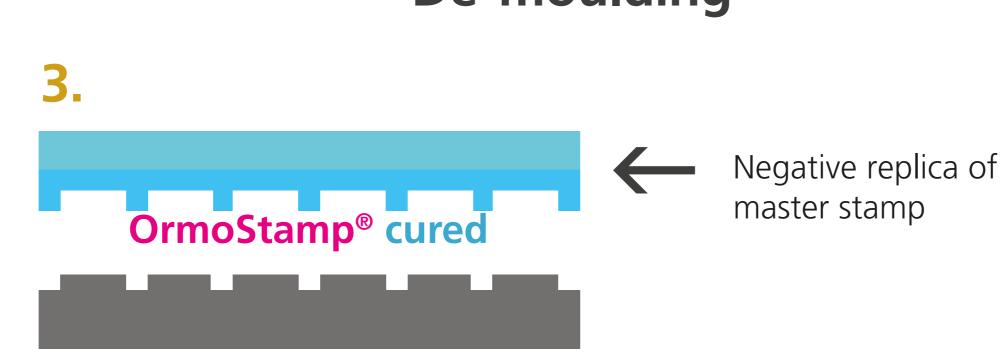
3D structures copied into **OrmoStamp®** (Courtesy of PSI, Switzerland)

## **Process flow**

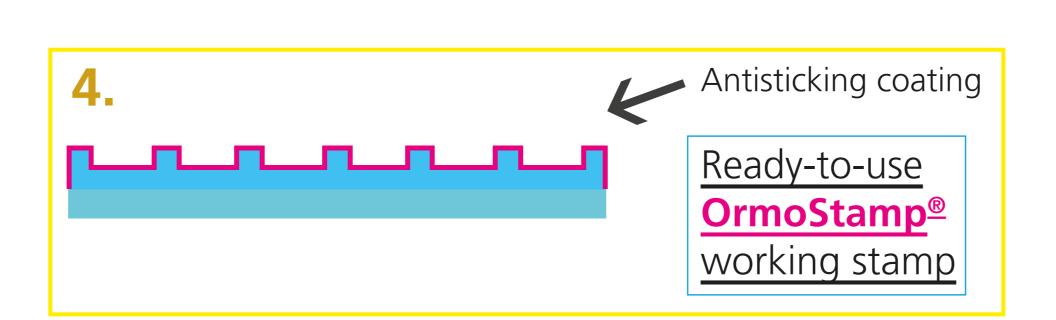




## **De-moulding**



#### Release treatment



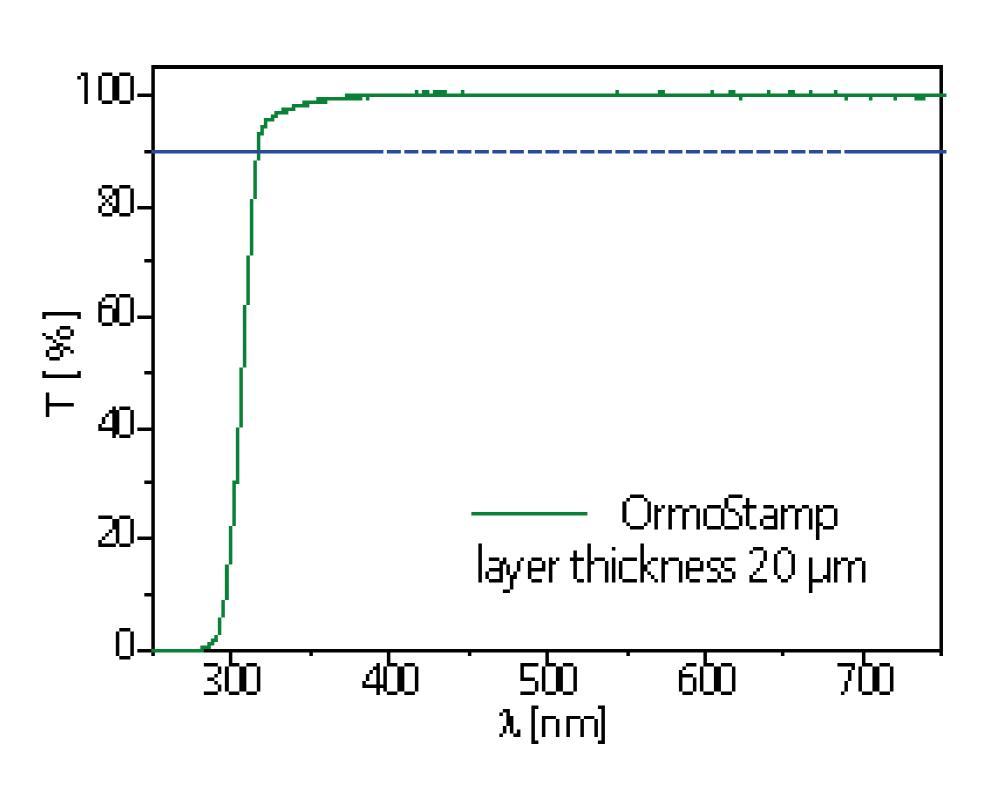


# Next steps:

IMPRINT
UV-based or/and
thermal

## **Unique features**

- Mechanically and thermally stable
- Excellent pattern replication
- Processing with standard lithography equipment
- Enhanced anti-adhesive properties for low release forces
- Highly transparent for UV and visible light

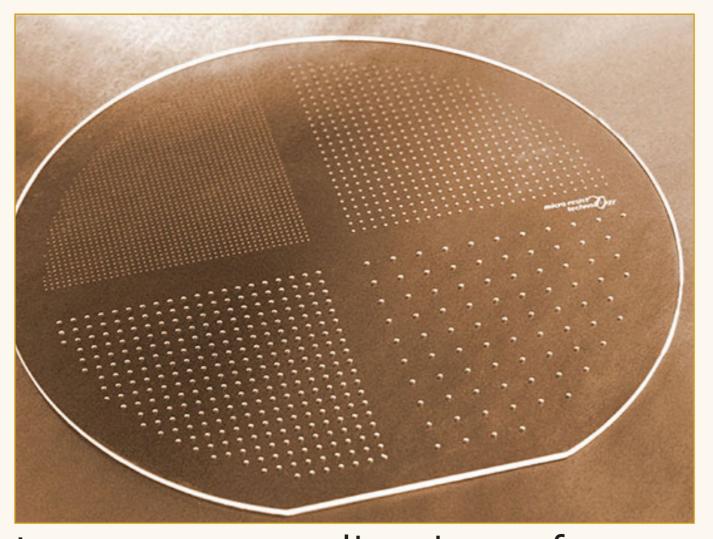


### **Applications**

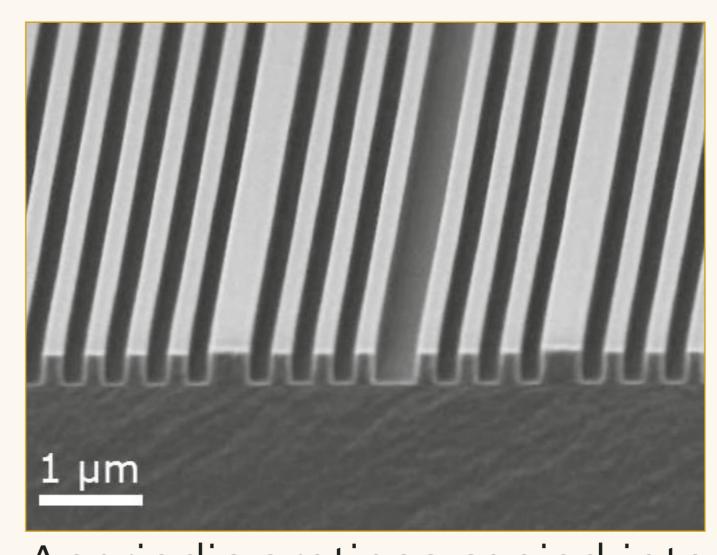
- Working stamp fabrication
- Cost efficient alternative to quartz stamps
- For UV-based and thermal imprinting

#### **Technical data**

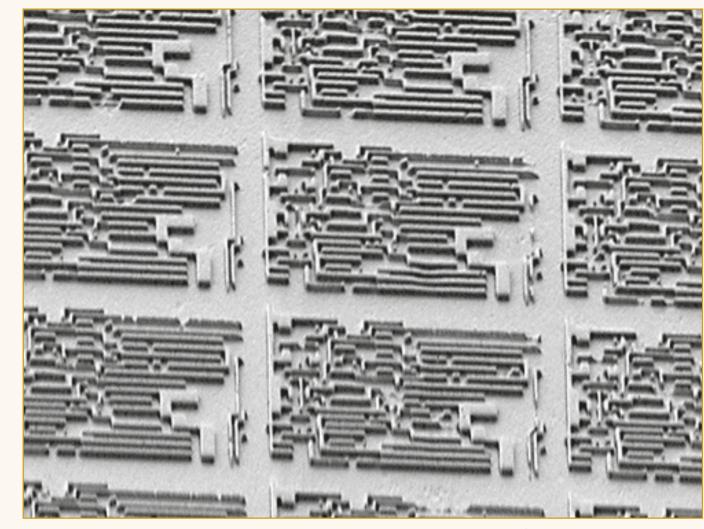
Thermal stability	up to 270 °C (short term)
CTE (20 – 150 °C)	140 ppm K <sup>-1</sup>
Hardness (nanoindentation)	36 ± 1 MPa
Shrinkage (during curing)	~ 6%
Young's modulus	650 MPa



Large area replication of **OrmoStamp®** using 6 inch glass substrate



Aperiodic gratings copied into OrmoStamp® (Courtesy of PSI Switzerland)



OrmoStamp® stamp for SFIL, (Courtesy of University of Cardiff, UK)

OrmoStamp®: DE 30 210 075 435; IR 1 092 621; TW 100030629 (application)
Hybrid polymers based on ORMOCER®s for micro-optics licensed by the Fraunhofergesellschaft zur Förderung der Angewandten Forschung in Deutschland e.V.