

EV Group, Toppan team for nanoimprint photonics lithography – September 19, 2022

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By Nick Flaherty

Austrian wafer bonding and lithography specialist EV Group has teamed up with Toppan Photomask to pool their expertise in photonics.

Nanoimprint lithography (NIL) is an enabling high-volume manufacturing process for the photonics industry. The two aim to establish NIL as an industry standard production process for photonics manufacturing for augmented/mixed/virtual reality headsets, smartphone and automotive sensors, as well as medical imaging systems.

Traditional lithography technologies are reaching their limits for the creation of small and arbitrarily shaped patterns, such as metalenses. NIL is a proven, cost-effective process for generating nanometer-scale-resolution patterns on complex structures, and so provides a viable alternative for these applications. NIL can replicate these complex structures very efficiently, on large areas, with fewer design constraints and a very streamlined process flow, for both prototyping and volume production.

Japanese printing firm Toppan spun out its photomask activity in April, and may be a precursor to the acquisition of the business.

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As part of the non-exclusive collaboration, EVG and Toppan Photomask will pool their knowledge, expertise and services to provide NIL development kits using master templates from Toppan Photomask and equipment and process development services provided by EVG. EVG will also offer NIL technology and product demonstrations to interested companies at EVG's NILPhotonics Competence Centre at its headquarters in Austria.

“We are excited to be partnering with Toppan Photomask to bring nanoimprint lithography to mainstream manufacturing applications,” said Markus Wimplinger, corporate technology development and IP director at EV Group. “As the leading supplier of semiconductor photomasks with a reputation for the highest-quality standards, Toppan Photomask has extensive experience working with standardized production methods involving the world’s most stringent manufacturing requirements. This first-of-its-kind collaboration between a nanoimprint process equipment and services provider and a nanoimprint master manufacturer is a huge win for the industry and will aid our customers in quickly scaling up NIL as a mass-production technology for advanced optical devices and components – helping them to bring new ‘virtual’ ideas into reality.”

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“Toppan Photomask is very excited to enter into a collaboration with EVG”, said Chan-Uk Jeon, chief technology officer of Toppan Photomask. “EVG’s NIL tooling and processing capabilities are world class and will enable cost-effective growth in photonics and other new technologies that are now adapting to NIL technology. Toppan Photomask sees a bright future as NIL grows into another successful lithography solution, enabled by both companies’ established strengths.”

www.evgroup.com/; www.photomask.co.jp/english/

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