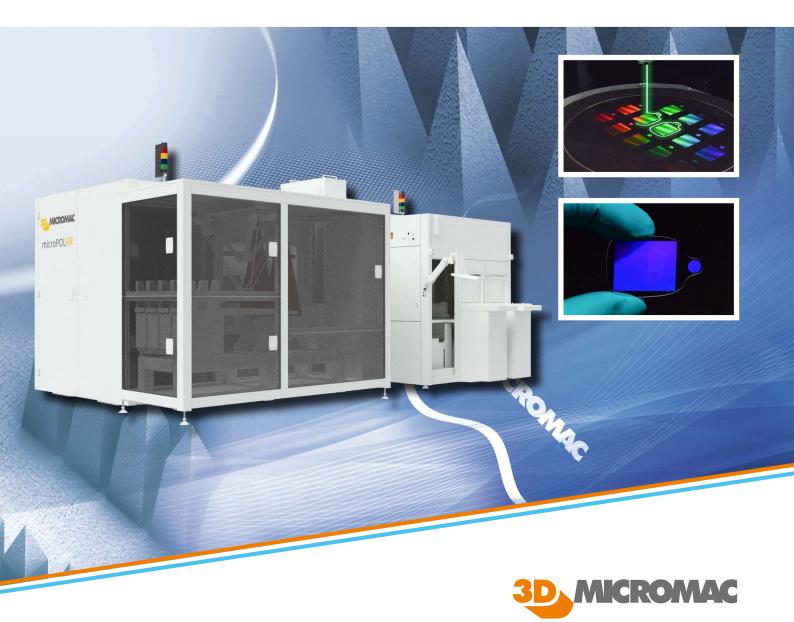# microPOLAR™

HIGHLY PRODUCTIVE LASER PROCESSING SYSTEM
FOR AR WAVEGUIDE CUTTING

3D-Micromac's microPOLAR laser micromachining system is designed to process high-index glasses and other transparent crystalline materials. Its sophisticated glass-cutting capabilities make it the ideal choice for the wafer-based separation and singulation of augmented reality (AR) waveguides. The highly versatile system is in-field-upgradeable, thus fitting R&D purposes, as well as enabling mass production with high yield.

HIGHLIGHTS

- Outstanding in-field upgradability
- Low cost per unit
- Flexible choice of lot size and shape
- Avoidance of edge damages and chipping
- High bending strength after singulation of glasses
- Small footprint

microPOLAR™ - SYSTEM OVERVIEW

microPOLAR is based on an industry-proven machine platform for mass production

The microPOLAR laser system is based on a machine platform that is fitted for high-throughput mass production. Its modular design makes it in-field upgradable and, thus, the ideal choice for emerging technologies such as augmented reality (AR) applications.

microPOLAR's sophisticated laser cutting process has been developed especially for cutting high refractive index wafers for AR devices. Therefore, we focused on developing the process to achieve an extraordinary high bending strength. It avoids edge damage and chipping as well as particle formation during processing. Low part tolerances are just one of the many advantages of this highly specialized laser cutting process.

The availability of several handling and inspection options enables the system to be used as a highly efficient production platform. It can be easily integrated into production lines. Robotic or manual loading and unloading options are available as well.

	microPOLAR M	microPOLAR A	microPOLAR A2
Typical applications	• Waveguides for AR devices		
Productivity level	• Research & development* • Pre-production*	• Volume production*	• Volume production* • Mass production*
Materials	• SCHOTT RealView® (1.7; 1.8; 1.9; 1.9 lightweight) • HOYA • CORNING (1.7-2.0 RI) • Other transparent crystalline materials (e.g. $LiNbO_3$)		
Substrate dimensions	• Bare wafer: 12" • Taped wafer: 8"		
Laser process modules	• Modification • Separation	• Modification • Separation	• 2 x Modification • 2 x Separation
Additional modules	• Manual loading and unloading • Quality inspection	• Input via EFEM • Quality inspection • Automated unloading into trays • Output via EFEM	
Metrology	• Automatic alignment		
Software microMMI™	• Control and supervise of all hardware components and machining parameters • Different user levels (administrator, supervisor, operator) • Data input file types: DXF, CSV, Gerber, CLI, others on request		
Safety	• Laser class 1 housing with integrated control panel • Overview camera (webcam)		

*In-field upgrade possible

FOCUS R&D

Ask for our dedicated R&D tool - focussing entirely on the cutting process without being limited to one application.

3D-Micromac AG
Technologie-Campus 8
09126 Chemnitz, GER

www.3d-micromac.com
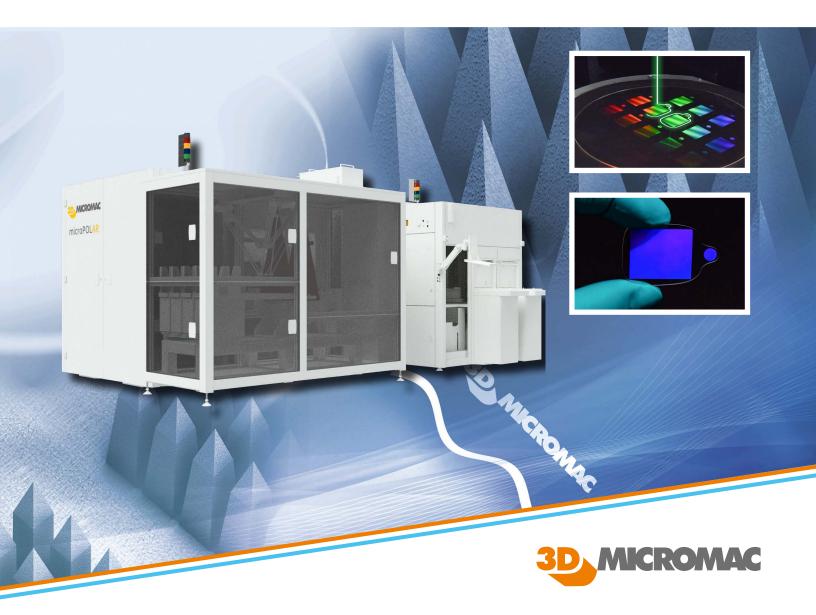+49 371 40043 222
sales@3d-micromac.com

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