

# microVEGA™ xMR

## SELECTIVE LASER ANNEALING FOR MONOLITHIC MAGNETIC SENSORS

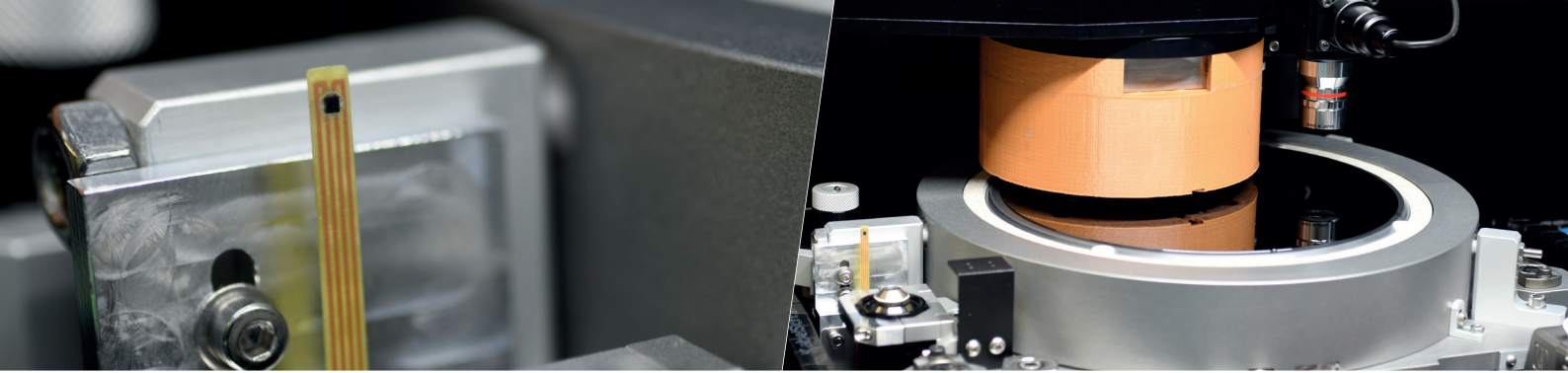
The microVEGA™ xMR system provides high-throughput laser annealing for monolithic magnetic sensor formation.

A highly flexible tool configuration, the microVEGA™ xMR can accommodate both Giant Magnetoresistance (GMR) and Tunnel Magnetoresistance (TMR) sensors, as well as easily adjust magnetic orientation, sensor position and sensor dimension - making it an ideal solution for magnetic sensor production.

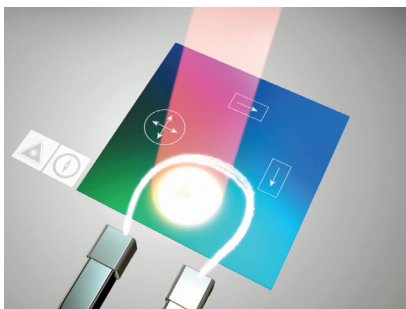
### HIGHLIGHTS

- Single platform for both GMR and TMR sensors
- Very high energy homogeneity - resulting in improved sensor quality
- Accommodates wafer sizes up to 300 mm
- Flexible recipe programming and wide parameter range including pulse energy, sensor dimensions, distance between sensors, magnetic orientation and magnetic flux





## microVEGA™ xMR - SYSTEM CONFIGURATION



The microVEGA™ xMR uses on-the-fly spot and variable laser energy to provide selective heating of the pinning layer in each sensor in order to “imprint” the intended magnetic orientation. Magnetic field strength and orientation is adjustable by recipe, while high-temperature gradients ensure low thermal impact. This allows sensors to be processed directly next to read-out electronics as well as closer together, and enables the production of smaller sensors - freeing up space for processing more devices per wafer.

Suitable for	<p>Adjustment of magnetic orientation, sensor position and sensor dimension for</p> <ul style="list-style-type: none"> <li>• Giant Magnetoresistance (GMR) sensors and</li> <li>• Tunnel Magnetoresistance (TMR) sensors</li> </ul>
Accuracy	<ul style="list-style-type: none"> <li>• System accuracy: <math>\pm 5 \mu\text{m}</math></li> <li>• Accuracy of magnetic field direction (orientation): <math>\pm 0.010^\circ</math></li> </ul>
Laser source and beam path	<ul style="list-style-type: none"> <li>• ns laser source</li> <li>• NIR laser wavelength</li> <li>• Variable laser spot size selectable by recipe</li> <li>• Spot in X and Y freely programmable</li> </ul>
Integrated measurement	<ul style="list-style-type: none"> <li>• Energy sensor at laser exit</li> <li>• Power sensor at chuck level</li> <li>• Beam analyzer at wafer level or laser exit</li> <li>• Gauss-meter integrated</li> <li>• All relevant data are saved in log files</li> </ul>
Standards	<ul style="list-style-type: none"> <li>• CE/UL as option</li> <li>• Laser class 1</li> <li>• ISO class 5</li> </ul>
Options	<ul style="list-style-type: none"> <li>• Heating chuck</li> <li>• Automatic wafer handling</li> <li>• SECS/GEM interface</li> </ul>
System dimensions	<ul style="list-style-type: none"> <li>• 2,716 mm x 2,317 mm x 2,118 mm (width, height, depth) including automatic wafer handling</li> </ul>