

# microMARK™

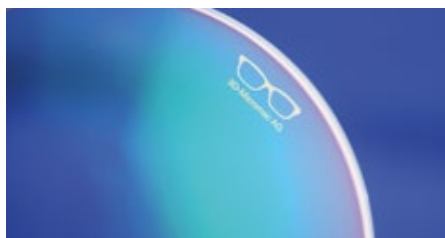
System Solutions for Marking of Ophthalmic Glasses and Contact Lenses



## Laser Engraving on Ophthalmic Lenses



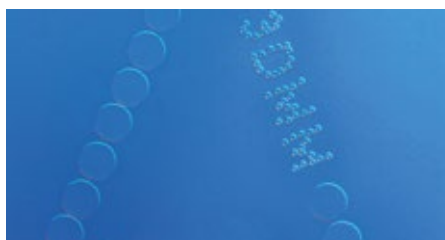
Contact lens with adjustment and UDI marking



Branding on AR-coated lens



Permanent engraving on CR 39



Excimer engraving with different aperture sizes

The production of ophthalmic lenses requires different marking processes. For example, technical engravings or brandings for spectacle lenses. For contact lenses the UDI marking is a FDA requirement. 3D-Micromac offers ophthalmic marking solutions for laser engraving of all types of ophthalmic lenses, e.g. prescription and sunglasses, or contact lenses. All systems use UV lasers for permanent marking and guarantee:

- Reliable process stability
- Highest engraving precision
- Maximum throughput
- Top availability
- Flexibility in system configuration
- Simple retrofitting

The customer can choose between premium quality excimer laser systems and high quality maintenance-free DPSS laser systems. Both are suitable for production of technical engravings and visible brandings on blocked and unblocked lenses as well as contact lenses.

Using excimer laser systems the engravings will be generated by cold laser ablation of 193 nm UV radiation. This results in a superior engraving quality considering all cosmetic aspects without any heat affection and micro cracks.

Besides the already proven excimer technology, 3D-Micromac has developed an all-new compact and maintenance free DPSS laser system to meet customer's demand for high quality marking with significantly decreased cost of ownership. The system is suitable for visible, invisible as well as for technical engravings of all kind of spectacle lenses (incl. CR39, Polycarbonate, High-Index materials and even mineral glass) and marking of hard and soft contact lenses. The use of a UV DPSS laser source achieves a high-quality marking result related to excimer laser engravings.

3D-Micromac started the development of the MC-Flexc laser engraving systems for a distributor in 2004. With over 200 systems installed worldwide and an approx. 80 percent global market share of all premium labeling systems of ophthalmic and contact lenses, 3D-Micromac has established itself as the market leader in the field of ophthalmic marking systems.

The worldwide available service team of 3D-Micromac supports customers throughout the life cycle of the engraving systems. In addition, 3D-Micromac has a fully equipped application laboratory with experienced process engineers, which support customers in feasibility tests, process development, and realization of customized solutions.

microMARK™ MCF RXe 200

Premium quality marking device for all kinds of blocked lenses

Suitable for:

- Technical marking of spectacle lenses
- Branding functionality for unblocked lenses on request

Benefits:

- High quality engraving with accurate contrast adjustment on a variety of spectacle lenses and coatings
- Small footprint
- Low investment and operating cost
- Easy retrofit of automated handling system at customer’s site on request



	microMARK™ MCF RXe 200
Suitable for	<ul style="list-style-type: none"><li>• Blocked lenses (mineral, plastic) with a maximum size of 80 mm x 35 mm (D x H above block reference)</li></ul>
Productivity	<ul style="list-style-type: none"><li>• 150 blocked lenses/hour with automatic handling</li></ul>
System accuracy	<ul style="list-style-type: none"><li>• ± 0.1 mm</li></ul>
Laser sources	<ul style="list-style-type: none"><li>• Industrial proven long life excimer laser source</li><li>• 193 nm</li></ul>
Beam delivery unit	<ul style="list-style-type: none"><li>• Galvanometer scanner with mirror deflecting system</li><li>• Marking field of Ø 80 mm</li><li>• Power management</li></ul>
Software	<ul style="list-style-type: none"><li>• Proven ULM software version 4.0.0.0 (or higher), Interface to lensware LMS /</li><li>• ULM Socket Connection standard</li></ul>
Options	<ul style="list-style-type: none"><li>• Automatic handling system</li></ul>
Dimensions	<ul style="list-style-type: none"><li>• 960 x 600 x 1200 mm³ (W x H x D) (manual and automated system)</li></ul>
Safety	<ul style="list-style-type: none"><li>• Laser class 1</li></ul>

## microMARK™ MCF

### Excimer laser engraving system for premium quality lens marking

Suitable for:

- Technical and decorative engraving (branding) on high index, tinted, coated and all other lenses
- Technical and UDI marking on hard and soft contact lenses

Benefits:

- Premium engraving quality on all materials and coatings, e.g.
  - Organic and mineral glass
  - Concave or convex blocked and/or unblocked lenses
  - Indexes from 1.5 to 1.8
  - Hardened and tempered lenses
- High throughput by automatic handling
- Maximum availability by second laser source



	microMARK™ MCF RX	microMARK™ MCF MP
Suitable for	<ul style="list-style-type: none"> <li>• Blocked lenses</li> <li>• Adapter for unblocked lenses and contact lenses</li> </ul>	<ul style="list-style-type: none"> <li>• Blocked and/or unblocked lenses</li> <li>• Contact lenses on request</li> </ul>
Productivity	<ul style="list-style-type: none"> <li>• 180 to 210 blocked lenses/hour with automatic handling</li> </ul>	<ul style="list-style-type: none"> <li>• 180 blocked lenses or 120 unblocked lenses/hour with automatic handling</li> </ul>
System accuracy	± 0.05 mm (on blocked lenses)	
Laser sources	<ul style="list-style-type: none"> <li>• Excimer laser 193 nm</li> <li>• Optional Excimer laser 248 nm</li> </ul>	
Beam delivery unit	<ul style="list-style-type: none"> <li>• Galvanometer scanner with F-Theta objective</li> <li>• Marking field of Ø 80 mm</li> <li>• Power measurement at the end of beam path</li> <li>• Permanent nitrogen beam path purging</li> </ul>	
Software	<ul style="list-style-type: none"> <li>• Control software microMMI (convergent to existing laser solutions)</li> <li>• VCA/OMA interface prepared for the main surfacing line manufacturer</li> <li>• Easy to use layout editor including vector, bitmap &amp; logo import</li> <li>• Remote connection client included</li> <li>• Data backup on request</li> </ul>	
Options	<ul style="list-style-type: none"> <li>• Integrated second laser source or backup laser</li> <li>• Automatic handling system</li> <li>• High speed pneumatic mask changing device</li> <li>• Z-measurement (center point)</li> <li>• Automatic gas exchange</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated second laser source or backup laser</li> <li>• Automatic handling system</li> <li>• High speed or pneumatic mask changing device</li> <li>• Image recognition system</li> <li>• Z-measurement</li> <li>• Automatic gas exchange</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>• 800 x 2100 x 1850 mm<sup>3</sup> (W x H x D) Stand alone</li> <li>• 1300 x 2100 x 220 mm<sup>3</sup> (W x H x D) Automated handling</li> </ul>	

microMARK™ MCL

Maintenance-free DPSS laser engraving system

Suitable for:

- Branding and technical marking of spectacle lenses
- Technical and UDI marking of hard and soft contact lenses

Benefits:

- High quality engraving with accurate contrast adjustment on a variety of spectacle lenses and coatings
- Low investment and operating cost
- Maintenance-free due to on-site installation and plug-and-play replacement of main components direct by customer
- On request easy retrofit of automated handling system at customer's site



	microMARK™ MCL
Suitable for	<ul style="list-style-type: none"><li>▪ Blocked lenses</li><li>▪ Adapter for unblocked lenses and contact lenses available</li></ul>
Productivity	<ul style="list-style-type: none"><li>▪ 150 blocked lenses/hour with automatic handling</li></ul>
System accuracy	<ul style="list-style-type: none"><li>▪ ± 0.1 mm</li></ul>
Laser source	<ul style="list-style-type: none"><li>▪ Maintenance-free UV solid state laser</li></ul>
Beam delivery unit	<ul style="list-style-type: none"><li>▪ Galvanometer scanner with F-Theta objective</li><li>▪ Marking field of Ø 80 mm</li><li>▪ Power regulation</li></ul>
Software	<ul style="list-style-type: none"><li>▪ Control software microMMI (convergent to existing laser solutions)</li><li>▪ VCA/OMA interface prepared for the main surfacing line manufacturer</li><li>▪ Easy to use layout editor including vector, bitmap &amp; logo import</li><li>▪ Remote connection client included</li><li>▪ Data backup on request</li></ul>
Safety	<ul style="list-style-type: none"><li>▪ Laser class 1</li></ul>
Options	<ul style="list-style-type: none"><li>▪ Automatic handling system</li><li>▪ Branding adapter solutions</li><li>▪ Service and installation kit</li></ul>
Dimensions	<ul style="list-style-type: none"><li>▪ 500 x 700 x 850 mm³ (W x H x D) Stand alone</li><li>▪ 1050 x 1600 x 2200 mm³ (W x H x D) Automated handling</li></ul>

\*Other configurations on request



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#### 3D-Micromac worldwide

