

Media Release

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Laser cavity mirrors with tailor-made spectral requirements

Optics Balzers produces individually adaptable, application-specific laser cavity mirrors. A perfectly controlled coating optimizes the precise spectral parameters of the laser mirrors. The optimization of the spectral attributes allows the targeted influencing of the laser power yield

With their spectral stability, gas lasers remain an indispensable signal source, especially in the fields of measurement technology and microscopy. However, the performance parameters are decisive in the optimization and adaptation of the lasers for the relevant applications.

Optics Balzers specializes in, amongst other things, the production of high reflecting (HR) cavity mirrors, as well as the corresponding output coupling (OC) mirrors with precisely defined transmission for gas lasers. The oscillation of laser modes can be controlled due to the unique spectral characteristics of the coated cavity mirrors. The power output and the stability of the laser can thus be perfectly adapted to respective applications.

The know-how of Optics Balzers, both in the polishing of the required substrates and in relation to the special coating technology, allows the performance parameters to be tailored precisely to each application. The reflection of the HR cavity mirrors can be guaranteed up to $R > 99.99\%$. The cavities' OC mirrors have a transmission tolerance of $\pm 0.05\%$. They are manufactured both as flat substrates and as substrates with a defined radius. Currently, a range of cavity mirrors of various radii is available, with diameters measuring from $\varnothing 6\text{mm}$ to $\varnothing 7.75\text{mm}$.

All substrates for the cavity mirrors are made by an in-house polishing process. A P4 grade is standard for all substrates. On average, the residual roughness of substrates after the polishing process is $\text{RMS} < 0.3\text{nm}$, and for assorted applications, substrates with an RMS value of $< 0.2\text{nm}$ are selected.

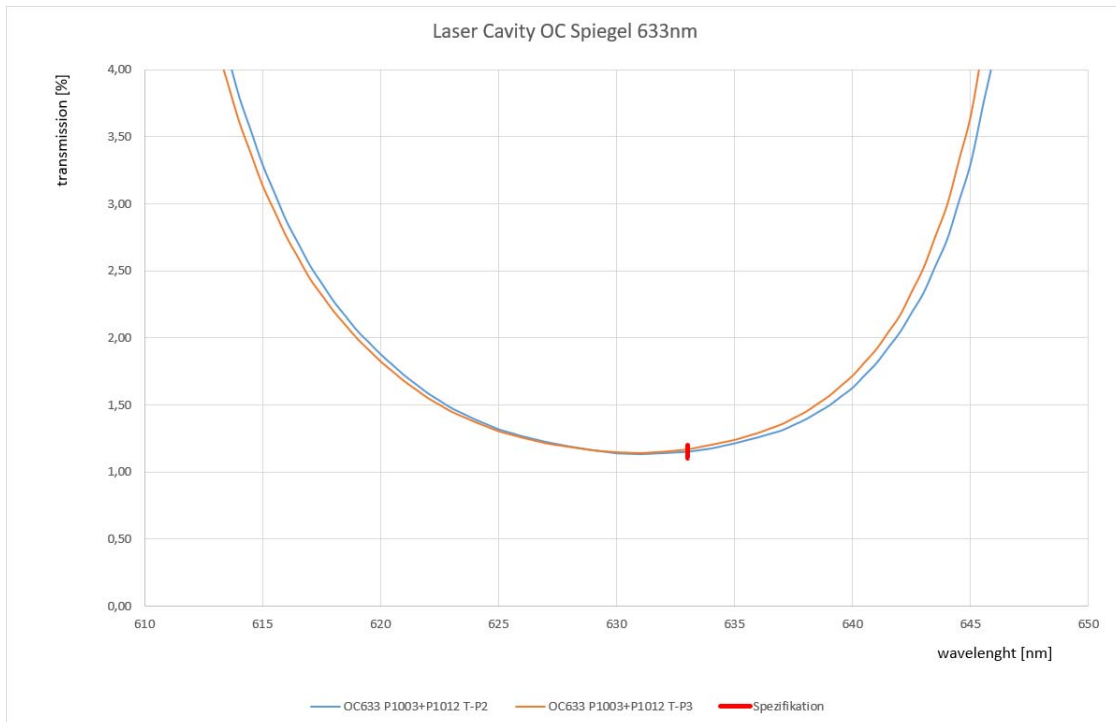


Fig.: Spectral measurement Production Lot OC Mirror 633nm

Our capacity for the precise process control of our coating technology along with the exceptional quality of our polishing process have been decisive factors in the success of the technological development of this Optics Balzers product line.

Optics Balzers (located in the Principality of Liechtenstein) has been the preferred partner for providing innovative optical coatings and solutions for more than 70 years. Together with its subsidiaries in Jena (Germany) and Penang (Malaysia), Optics Balzers is a global leader in the supply of optical coatings and components. The Liechtenstein-based high-tech company focuses on selected markets such as Life Sciences, Consumer, Space, Automotive and Lighting. The products and services offered range from optical coatings and glass processing, patterning and bonding technologies, to the manufacture of complete optical subassemblies and are acknowledged as being unique worldwide.

Additional information: www.opticsbalzers.com