

## Dispersive coatings, including chirped mirrors and matched pairs



As part of our recently enlarged program for ultrafast laser applications, **LASEROPTIK** offers all kinds of dispersive coatings, including chirped mirrors and matched pairs. In addition, the use of high-quality substrates with superior roughness from our product lines Premium (RMS < 0.2 nm) and Super-polished (RMS < 0.1 nm) helps to achieve lowest losses for these critical components. A variety of standard sizes is available from stock.

For example, chirped mirrors compensate for the dispersion introduced by other elements like the laser crystal in a laser cavity. Or they serve as compressors in chirped pulse amplification systems (CPA). They include types like

- mirrors with low or optimized GDD
- GTI mirrors, i.e. highly dispersive narrow bandwidth mirrors
- chirped mirrors and matched mirror pairs
- octave-spanning broadband chirped mirrors with moderate GDD
- partial reflectors
- coatings used within an OPO

## Extremely low loss laser optics



For any application which requires coated optics with extremely low losses **LASEROPTIK** manufactures mirrors with  $R > 99.998\%$  and total losses < 10 ppm. These so called super-mirrors are used in ring laser gyroscope assemblies or certain scientific and commercial applications.

**LASEROPTIK** uses modified IBS machines that are capable to produce low absorption and low scatter coatings on super-polished substrates. The cleanliness of these machines and environment is maintained in dedicated cleanrooms, where also the extensive substrate pre- and aftertreatment takes place.

Measurement devices such as white light profilometers and high resolution microscopes for the inspection procedures are in place. A custom built cavity ring-down setup allows to determine the reflection with a precision of up to four decimal places and to quantify the losses.

The use of super-polished substrates with a surface roughness RMS < 0.1 nm is essential for the values mentioned above. Their quality is inspected with a white light profilometer to assure best performance of the finished mirror.