

DISPERSIVE MIRRORS FOR ULTRAFAST LASER APPLICATIONS

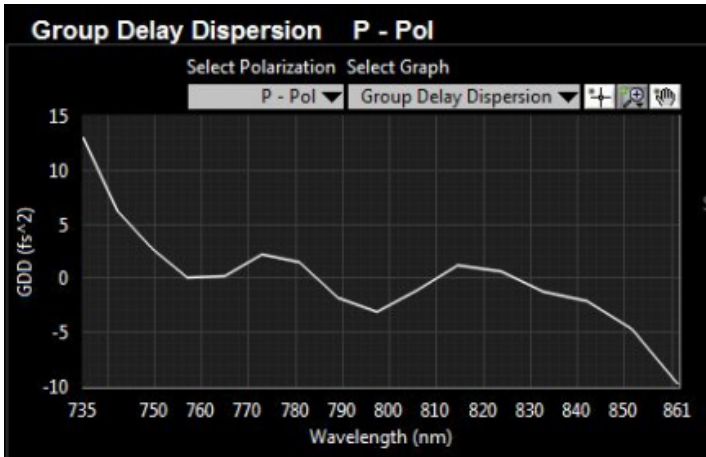
Mirror with dispersive coatings is one of the key elements allowing accurate control of intensities and phases of different spectral ranges for femtosecond lasers and laser systems. Coherent provides extensive coating technologies in one place spanning Ion Beam Sputtering, Ion-assisted Deposition, Electron Beam Evaporation, and Magnetron Sputtering to manufacture a broad range of dispersion-compensated laser optics. They are designed to manage the effects of dispersion by accurately control of group delay (GD) and group delay dispersion (GDD) from 350 nm to 3000 nm.



DISPERSIVE MIRRORS FOR ULTRAFAST LASER APPLICATIONS

Low-GDD Mirrors

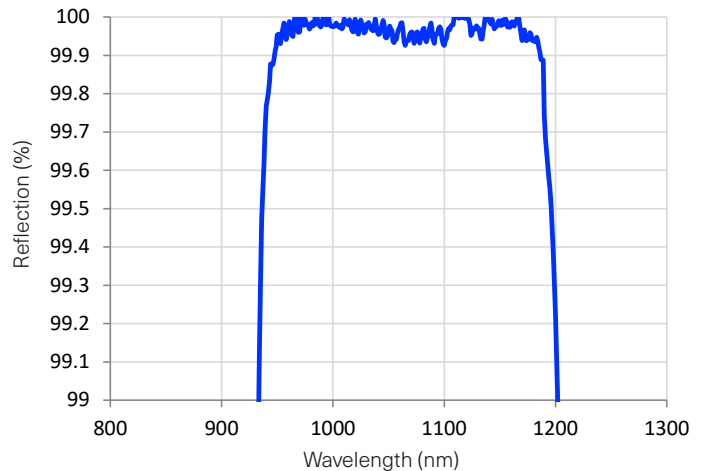
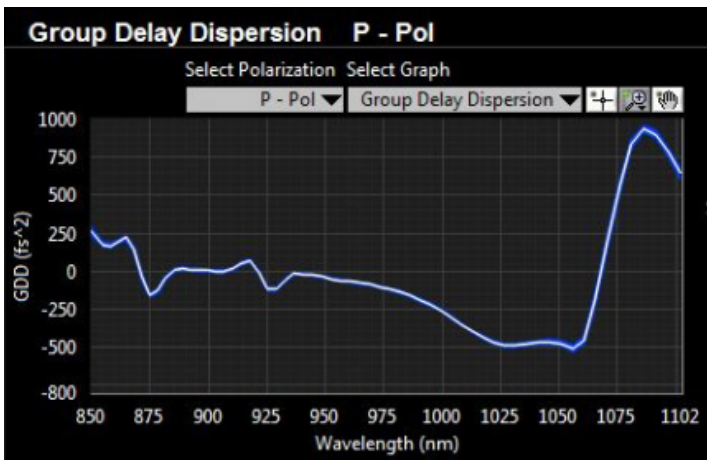
- Dielectric coatings with very high reflection (> 99.95%)
- Metal-based or all-dielectric turning mirrors
- $|GDD| < 20 \text{ fs}^2$



Low-GDD mirror for Ti:Sapphire lasers

Gires-Tournois Interferometer (GTI) Mirrors

- Designed to meet strict requirements for group delay (GD) and group delay dispersion (GDD)
- Lowly dispersive to highly dispersive, according to customer specifications
- Flat GDD curve in concerned region
- High reflection

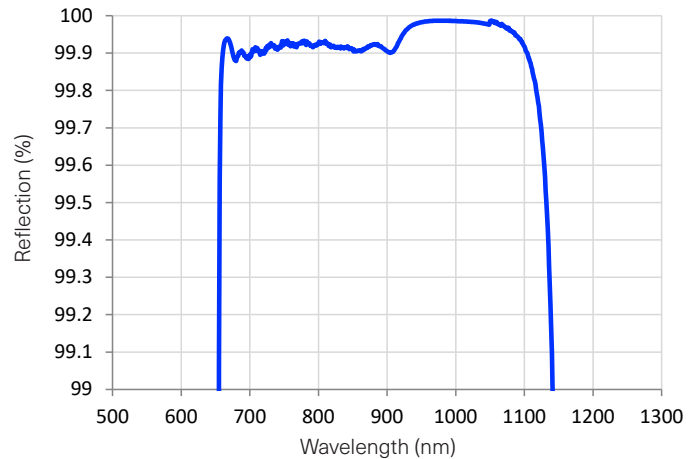
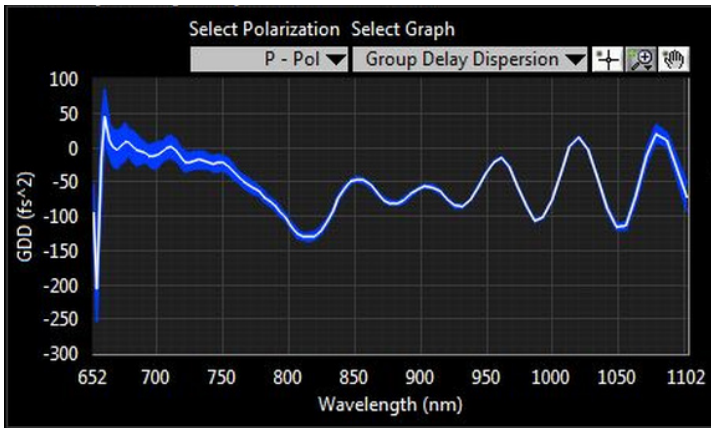


Measured spectrum and GDD for a highly dispersive mirror for Yb-doped ultrafast lasers

DISPERSIVE MIRRORS FOR ULTRAFAST LASER APPLICATIONS

Chirped Mirrors and Matched Pairs

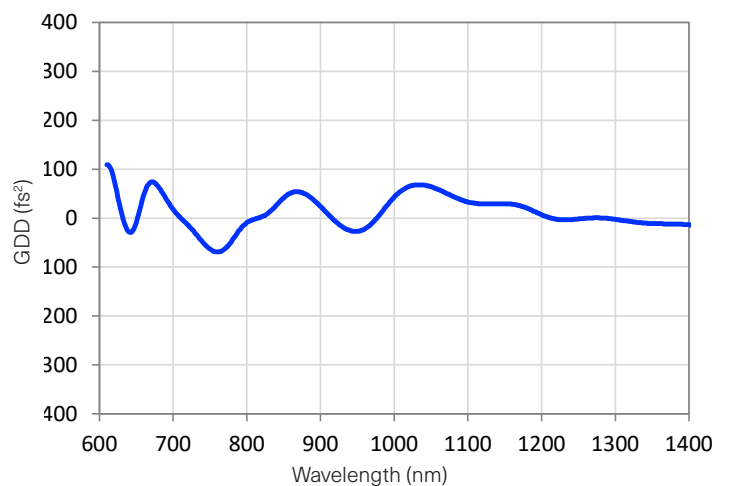
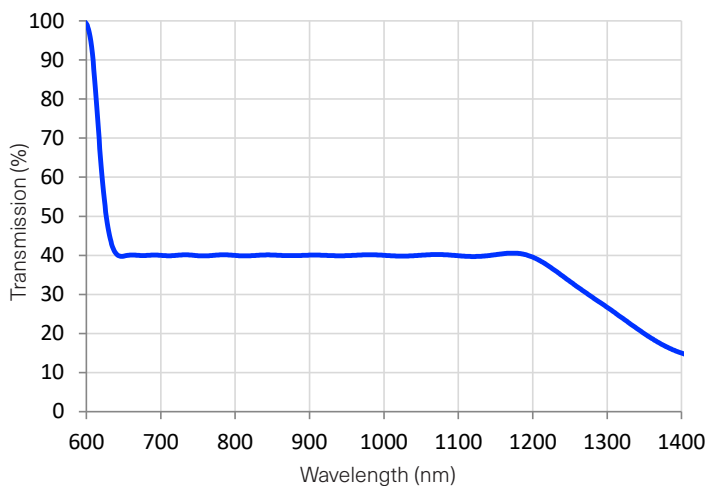
- Bandwidth of 100 to 650 nm, in the wavelength range between 600 and 1400 nm
- High reflection, depending on the bandwidth and design (narrower bandwidth corresponds to higher reflection)
- Matched pair to decrease residual GDD oscillations



Measured spectrum and GDD of a 675-1100nm Chirped Mirror for Ti:Sapphire Lasers

Other Optics with Custom-tailored Dispersion and Reflectivity

- Ultrafast laser optics also for Visible lasers, Chirped Pulse Amplification (CPA), Optical Parametric Oscillators (OPO) and Optical Parametric Amplifier (OPA)
- Fully customized optics for volume applications including output couplers, beamsplitters, thin film polarizers and broadband edge filters.



Specially Designed Output Coupler