

Broadband Femtosecond Optics

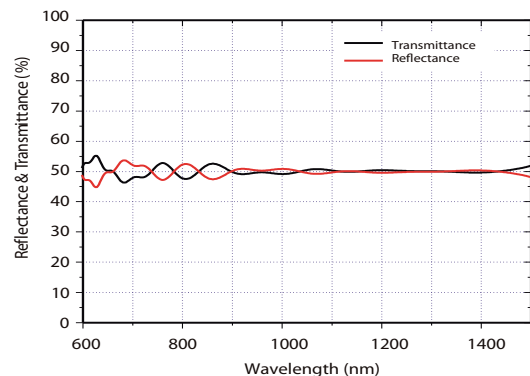
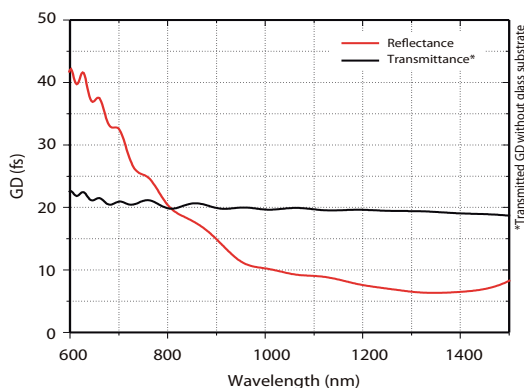
_ Beam Splitters with Balanced Dispersion

- ▶ Femtosecond laser pulses with spectral components approaching one octave and beyond require specialized optical components to avoid the accumulation of phase distortions that cannot be pre-compensated for. Especially in femtosecond measurement equipment and setups an important component is a broadband beam splitter. Most often metallic beam splitters are used which introduce, however, high losses and a undesired wavelength dependency.



Especially designed for demanding ultrafast applications, the NANEO all-dielectric ultra-broadband beam splitters feature a constant splitting ratio and balanced dispersion in transmission and reflection. The dispersion in reflection upon the dielectric coating is designed to be identical to 0.7 mm of fused silica in a way that the dispersion in transmission is the same as in reflection.

- ▶ **Specifications**
 - Wavelength range: 600 - 1500 nm
 - Splitting ratio: 50 % +/- 5 %
 - Substrate: Fused Silica, UV-Grade, $\lambda/10$, S/D: 10-5
 - Diameter: 1"
 - Thickness: 0.7 mm



- ▶ The reflectance, transmission and group delay of a beam splitter with 50% +/- 5% splitting ratio and identical group delay for transmission and reflection in each direction. The shown example covers the wavelength range from 600 nm to 1500 nm. The dispersion in reflection upon the dielectric coating is designed to be identical to 0.7 mm of fused silica in a way that the dispersion in transmission is the same as in reflection.

_ Glass Wedges for Dispersion Fine Tuning

- ▶ Using a glass wedge pair, a pulse compression setup in combination with our NANEO | CHORD dispersion compensation mirrors can be easily obtained. The dispersion characteristics of these mirrors is especially designed to work together with specific glass materials (DCM7: calcium fluoride / DCM9: fused silica) and thus such a wedge pair can be used to fine-tune the dispersion and compress pulses for the desired application.



- ▶ **Specifications**
 - Wedge Substrate: Fused Silica or Calcium Fluoride, S-D < 60/40, surface < λ
 - Dimensions:
 - Center thickness: 1.1 mm
 - Wedge dimensions: 25 (W) x 12 (H) mm
 - Wedge angle: 4°
 - Un-coated for usage under Brewsters Angle
 - Wedge holder available (optional)