



FemtoLine Laser Optics

LASER MIRRORS

Laser mirrors for femtosecond applications are designed to have a broad operating wavelength range and linear phase versus frequency characteristics (*group delay dispersion (GDD)*). The coating is a single layer dielectric and has no phase shift over the operating wavelength region.

High reflectivity mirrors always have higher reflection, broader operating region and lower pulse distortion for s-polarization than for p-polarization for the same dielectric coating. If possible use the mirrors with s-polarized beam. Our standard mirrors are suitable for fundamental Ti:Sapphire and Yb:KGW or KYW lasers and their doubled, tripled or quadrupled frequencies.

SUBSTRATE

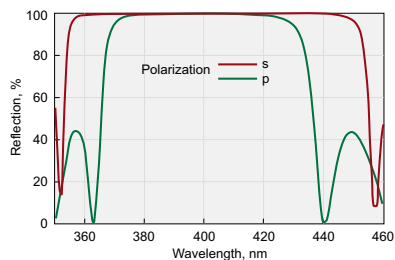
Material	UV grade Fused Silica or BK7 glass
S1 Surface Flatness	$\lambda/10$ at 633 nm
S1 Surface Quality	20-10 scratch & dig (MIL-PRF-13830B)
S2 Surface Quality	Commercial polish
Diameter Tolerance	+0.00 mm -0.12 mm
Thickness Tolerance	± 0.25 mm
Wedge	< 3 min
Chamfer	0.3 mm at 45° typical

COATING

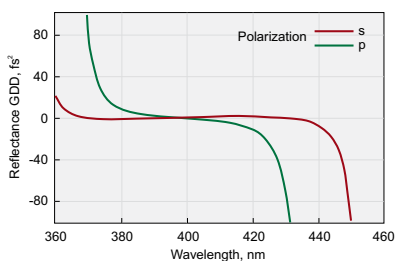
Technology	Electron beam multilayer dielectric or Ion beam sputtering
Adhesion and Durability	Per MIL-C-675A. Insoluble in lab solvents
Clear Aperture	Exceeds central 85% of diameter
Coating	Hard dielectric High Reflection R>99.5%
Angle of Incidence	0 or 45±3°
Designed for average polarization	$R=(R_s+R_p)/2$
Laser Damage Threshold	>100 mJ/cm ² , 50 fsec pulse, 800 nm typical
Coated Surface Flatness	$\lambda/10$ at 633 nm over clear aperture

Low GDD Ultrafast Mirrors

Substrate material: **BK7 grade A**



HR>99,5%@380-420 nm, AOI=45°



HRsp@380-420 GDD, AOI=45°

Size: **12.7 × 3 mm**

Wavelength, nm	R, % (s+p)/2 AOI=0° / AOI=45°	Catalogue number		Price, EUR AOI=0° / AOI=45°
		AOI=0°	AOI=45°	
380-420	99.8 / 99.5	031-0400-i0	031-0400	57 / 57
500-530	99.8 / 99.5	031-0515-i0	031-0515	56 / 56
760-840	99.8 / 99.5	031-0800-i0	031-0800	61 / 61
1000-1060	99.8 / 99.5	031-1030-i0	031-1030	61 / 61

Size: **25.4 × 6 mm**

Wavelength, nm	R, % (s+p)/2 AOI=0° / AOI=45°	Catalogue number		Price, EUR AOI=0° / AOI=45°
		AOI=0°	AOI=45°	
380-420	99.8 / 99.5	032-0400-i0	032-0400	89 / 89
500-530	99.8 / 99.5	032-0515-i0	032-0515	74 / 74
760-840	99.8 / 99.5	032-0800-i0	032-0800	85 / 85
1000-1060	99.8 / 99.5	032-1030-i0	032-1030	75 / 75

Size: **50.8 × 8 mm**

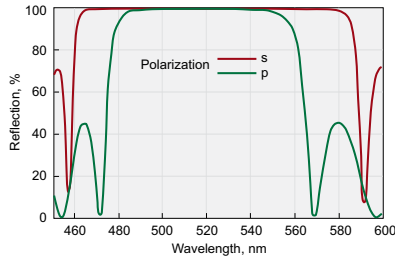
Wavelength, nm	R, % (s+p)/2 AOI=0° / AOI=45°	Catalogue number		Price, EUR AOI=0° / AOI=45°
		AOI=0°	AOI=45°	
380-420	99.8 / 99.5	035-0400-i0	035-0400	133 / 133
500-530	99.8 / 99.5	035-0515-i0	035-0515	110 / 110
760-840	99.8 / 99.5	035-0800-i0	035-0800	133 / 133
1000-1060	99.8 / 99.5	035-1030-i0	035-1030	110 / 110

Size: **76.2 × 12.7 mm**

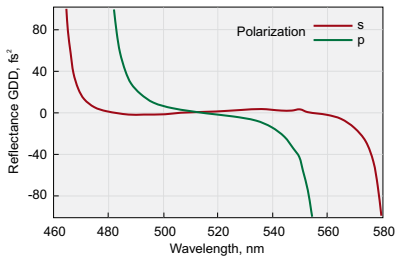
Wavelength, nm	R, % (s+p)/2 AOI=0° / AOI=45°	Catalogue number		Price, EUR AOI=0° / AOI=45°
		AOI=0°	AOI=45°	
380-420	99.8 / 99.5	037-0400-i0	037-0400	199 / 199
500-530	99.8 / 99.5	037-0515-i0	037-0515	185 / 185
760-840	99.8 / 99.5	037-0800-i0	037-0800	199 / 199
1000-1060	99.8 / 99.5	037-1030-i0	037-1030	185 / 185

Low GDD Ultrafast Mirrors

Substrate material:
UV grade Fused Silica



HR>99.5% @ 500-530 nm, AOI=45°



HRsp@500-530 GDD, AOI=45°

Recommended for high power laser applications operating in UV region.

Size: **12.7 × 3 mm**

Wavelength, nm	R, % (s+p)/2		Catalogue number		Price, EUR
	AOI=0°	AOI=45°	AOI=0°	AOI=45°	AOI=0° / AOI=45°
257-275	99.0	99.0	041-0266-i0	041-0266	81 / 81
333-353	99.8	99.5	041-0343-i0	041-0343	77 / 77
380-420	99.8	99.5	041-0400-i0	041-0400	75 / 75
500-530	99.8	99.5	041-0515-i0	041-0515	74 / 74
760-840	99.8	99.5	041-0800-i0	041-0800	75 / 75
1000-1060	99.8	99.5	041-1030-i0	041-1030	75 / 75

Size: **25.4 × 6 mm**

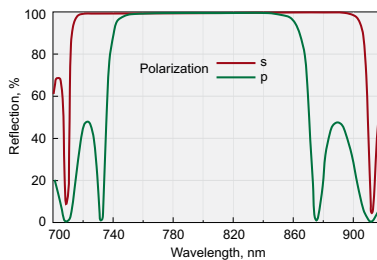
Wavelength, nm	R, % (s+p)/2		Catalogue number		Price, EUR
	AOI=0°	AOI=45°	AOI=0°	AOI=45°	AOI=0° / AOI=45°
257-275	99.0	99.0	042-0266-i0	042-0266	111 / 111
333-353	99.8	99.5	042-0343-i0	042-0343	107 / 107
380-420	99.8	99.5	042-0400-i0	042-0400	101 / 101
500-530	99.8	99.5	042-0515-i0	042-0515	91 / 91
760-840	99.8	99.5	042-0800-i0	042-0800	97 / 97
760-840	99.9	99.8	042-0800HHR-i0	042-0800HHR	145 / 145
1000-1060	99.8	99.5	042-1030-i0	042-1030	92 / 92

Size: **50.8 × 8 mm**

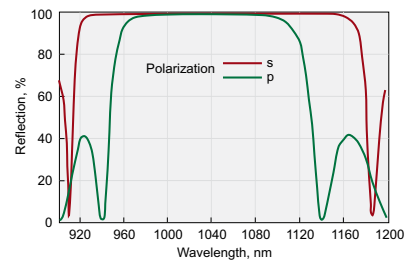
Wavelength, nm	R, % (s+p)/2		Catalogue number		Price, EUR
	AOI=0°	AOI=45°	AOI=0°	AOI=45°	AOI=0° / AOI=45°
257-275	99.0	99.0	045-0266-i0	045-0266	207 / 207
333-353	99.8	99.5	045-0343-i0	045-0343	187 / 187
380-420	99.8	99.5	045-0400-i0	045-0400	181 / 181
500-530	99.8	99.5	045-0515-i0	045-0515	169 / 169
760-840	99.8	99.5	045-0800-i0	045-0800	181 / 181
1000-1060	99.8	99.5	045-1030-i0	045-1030	169 / 169

Size: **76.2 × 12.7 mm**

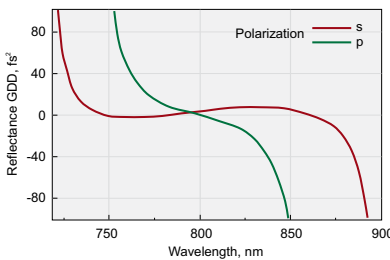
Wavelength, nm	R, % (s+p)/2		Catalogue number		Price, EUR
	AOI=0°	AOI=45°	AOI=0°	AOI=45°	AOI=0° / AOI=45°
257-275	99.0	99.0	047-0266-i0	047-0266	290 / 290
333-353	99.8	99.5	047-0343-i0	047-0343	281 / 281
380-420	99.8	99.5	047-0400-i0	047-0400	272 / 272
500-530	99.8	99.5	047-0515-i0	047-0515	258 / 258
760-840	99.8	99.5	047-0800-i0	047-0800	272 / 272
1000-1060	99.8	99.5	047-1030-i0	047-1030	258 / 258



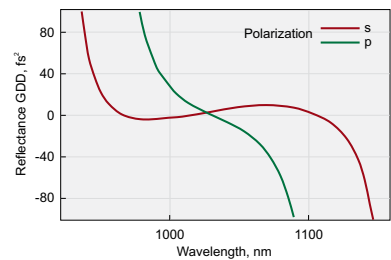
HR>99.5% @ 760-840 nm, AOI=45°



HR>99.5% @ 1000-1060 nm, AOI=45°



HRsp@760-840 GDD, AOI=45°



HRsp@1000-1060 GDD, AOI=45°

RELATED PRODUCTS

Adapter for Mirror
at 45° 840-0115
See page 8.76

