

## LASER HARMONIC SEPARATORS

### Features

- Offered on Ø 0.5 or 1 inch UV FS substrates with surface flatness  $\lambda/10$

Harmonic separators are dichroic beamsplitters that reflect one wavelength and transmit others. Reflectance is better than 99.5% for the wavelength of interest and transmittance is at least 90% for the rejected wavelengths. The rear surface of harmonic separators is antireflection coated. If possible use shorter wavelength for reflection and longer wavelengths for transmission in order to have higher reflection/transmission coefficients.

### Substrate

Material	UV grade Fused Silica
S1 Surface Flatness	$\lambda/10$ typical at 633 nm
S1 Surface Quality	20–10 scratch & dig (MIL-PRF-13830B)
S2 Surface Flatness	$\lambda/10$ typical at 633 nm
S2 Surface Quality	20–10 scratch & dig (MIL-PRF-13830B)
Diameter Tolerance	+0.00 mm; -0.12 mm
Thickness Tolerance	$\pm 0.25$ mm
Parallelism	< 30 arcsec
Chamfer	0.3 mm at 45° typical

## LASER HARMONIC SEPARATORS WITH HIGH TRANSMISSION

### Coating

Technology	Ion beam sputtering
Adhesion and Durability	Per MIL-C-675A. Insoluble in lab solvents
Clear Aperture	Exceeds central 85% of diameter
Coated Surface Flatness	$\lambda/10$ at 633 nm over clear aperture
Back Side Antireflection Coated	AOI 45°, R<0.5%, (s+p)/2 AOI 0°, R<0.2%
Laser Damage Threshold	> 0.3 J/cm <sup>2</sup> , 200 fs, 100 Hz, 343 nm, p-pol >0.7 J/cm <sup>2</sup> , 10 ps, 50 kHz, 343 nm, p-pol

Reflected wavelength, nm	Reflection	Transmission	12.7 × 3 mm		25.4 × 6 mm		50.8 × 8 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR

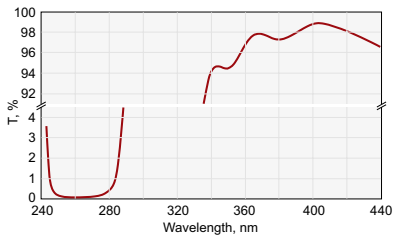
#### AOI = 0 deg. Substrate material: UV grade Fused Silica

343	R <sub>sp</sub> >99.5%	T <sub>sp</sub> >98% @ 515 nm + T <sub>sp</sub> >99% @ 1030 nm	041-3530PHT	213	042-3530PHT	270	045-3530PHT	490
380 – 420	R <sub>sp</sub> >99.9%	T <sub>sp</sub> >99% @ 720 – 880 nm			042-4800HT	270	045-4800HT	490
505 – 525	R <sub>sp</sub> >99.9%	T <sub>sp</sub> >99% @ 1010 – 1050 nm	041-5130HT	196	042-5130HT	247	045-5130HT	450
760 – 840	R <sub>sp</sub> >99.9%	T <sub>ave</sub> >95% @ 380 – 420 nm			042-0840HT	282	045-0840HT	510
1015 – 1045	R <sub>sp</sub> >99.9%	T <sub>sp</sub> >98% @ 510 – 520 nm	041-6510HT	201	042-6510HT	253	045-6510HT	470

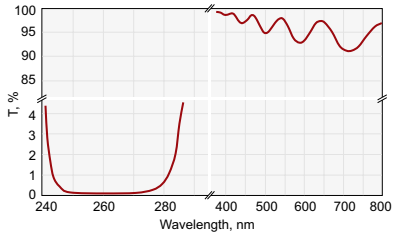
#### AOI = 45 deg. Substrate material: UV grade Fused Silica

343	R <sub>sp</sub> >99.5%	T <sub>sp</sub> >98% @ 515 nm + T <sub>sp</sub> >99% @ 1030 nm	041-3535PHT	213	042-3535PHT	270	045-3535PHT	490
380 – 420	R <sub>sp</sub> >99.9%	T <sub>sp</sub> >99% @ 720 – 880 nm			042-4805HT	270	045-4805HT	490
505 – 525	R <sub>sp</sub> >99.9%	T <sub>sp</sub> >99% @ 1010 – 1050 nm	041-5135HT	196	042-5135HT	247	045-5135HT	450
760 – 840	R <sub>sp</sub> >99.9%	T <sub>ave</sub> >95% @ 380 – 420 nm			042-0845HT	282	045-0845HT	510
1015 – 1045	R <sub>sp</sub> >99.9%	T <sub>sp</sub> >98% @ 510 – 520 nm	041-6515HT	201	042-6515HT	253	045-6515HT	470

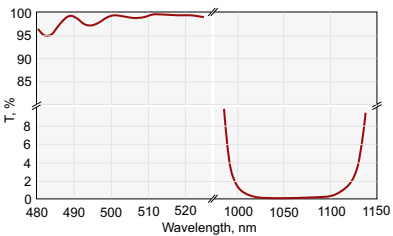
## STANDARD LASER HARMONIC SEPARATORS



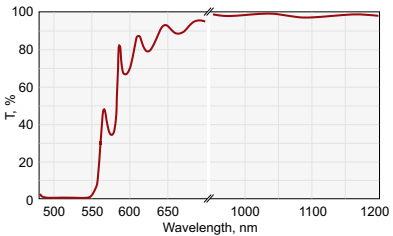
**042-2405.** HR>99.5% @ 257-275 nm + HT>95% @ 390-410 nm, AOI=45°



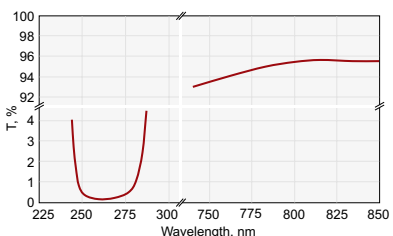
**042-2485.** HR>99.5% @ 257-275 nm + HT>90% @ 400+800 nm, AOI=45°



**042-6515.** HR>99.5% @ 1030 nm + HT>93% @ 515 nm, AOI=45°



**042-5135.** HR>99.5% @ 500-530 nm + HT>95% @ 1000-1060 nm, AOI=45°



**042-2805.** HR>99.5% @ 257-275 nm + HT>95% @ 780-820, AOI=45°

## Coating

Technology	Electron beam multilayer dielectric
Adhesion and Durability	Per MIL-C-675A. Insoluble in lab solvents
Clear Aperture	Exceeds central 85% of diameter
Coated Surface Flatness	$\lambda/10$ at 633 nm over clear aperture
Back side antireflection coated	AOI 45°, R<0.5% AOI 0°, R<0.25%
Laser Damage Threshold	>100 mJ/cm <sup>2</sup> , 50 fsec pulse, 50 Hz, 800 nm typical

Reflected wavelength, nm, R > 99.5%	Transmitted wavelength, nm	Transmission, %	Ø12.7x3 mm		Ø25.4x3 mm		Ø50.8x8 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR

### AOI = 0 deg. Substrate material: UV grade Fused Silica

257 – 275	780 – 820	>95	<b>041-2800</b>	167	<b>042-2800</b>	201	<b>045-2800</b>	305
257 – 275	390 – 410	>95	<b>041-2400</b>	167	<b>042-2400</b>	201	<b>045-2400</b>	305
257 – 275	400 + 800	>90	<b>041-2480</b>	190	<b>042-2480</b>	224	<b>045-2480</b>	339
390 – 410	780 – 820	>95	<b>041-4800</b>	167	<b>042-4800</b>	201	<b>045-4800</b>	305
800	400	>93	<b>041-0840</b>	161	<b>042-0840</b>	196	<b>045-0840</b>	293
333 – 353	1000 – 1060	>95	<b>041-3130</b>	155	<b>042-3130</b>	190	<b>045-3130</b>	282
333 – 353	500 – 530	>95	<b>041-3450</b>	155	<b>042-3450</b>	190	<b>045-3450</b>	282
333 – 353	515 + 1030	>90	<b>041-3530</b>	178	<b>042-3530</b>	213	<b>045-3530</b>	316
500 – 530	1000 – 1060	>95	<b>041-5130</b>	155	<b>042-5130</b>	190	<b>045-5130</b>	282
1030	515	>93	<b>041-6510</b>	161	<b>042-6510</b>	196	<b>045-6510</b>	293

### AOI = 45 deg. Substrate material: UV grade Fused Silica

257 – 275	780 – 820	>95	<b>041-2805</b>	167	<b>042-2805</b>	201	<b>045-2805</b>	305
257 – 275	390 – 410	>95	<b>041-2405</b>	167	<b>042-2405</b>	201	<b>045-2405</b>	305
257 – 275	400 + 800	>90	<b>041-2485</b>	190	<b>042-2485</b>	224	<b>045-2485</b>	339
390 – 410	780 – 820	>95	<b>041-4805</b>	167	<b>042-4805</b>	201	<b>045-4805</b>	305
800	400	>93	<b>041-0845</b>	161	<b>042-0845</b>	196	<b>045-0845</b>	293
333 – 353	1000 – 1060	>95	<b>041-3135</b>	155	<b>042-3135</b>	190	<b>045-3135</b>	282
333 – 353	500 – 530	>95	<b>041-3455</b>	155	<b>042-3455</b>	190	<b>045-3455</b>	282
333 – 353	515 + 1030	>90	<b>041-3535</b>	178	<b>042-3535</b>	213	<b>045-3535</b>	316
500 – 530	1000 – 1060	>95	<b>041-5135</b>	155	<b>042-5135</b>	190	<b>045-5135</b>	282
1030	515	>93	<b>041-6515</b>	161	<b>042-6515</b>	196	<b>045-6515</b>	293

## Related Products

### Pellin-Broca Prisms.

See page 1.52

### Adapter for Beamsplitter at 45° 840-0116.

Find more at EksmaOptics.com

### Kinematic Mirror and Beamsplitter Mount 840-0020.

Find more at EksmaOptics.com

