OPTICS

COATINGS

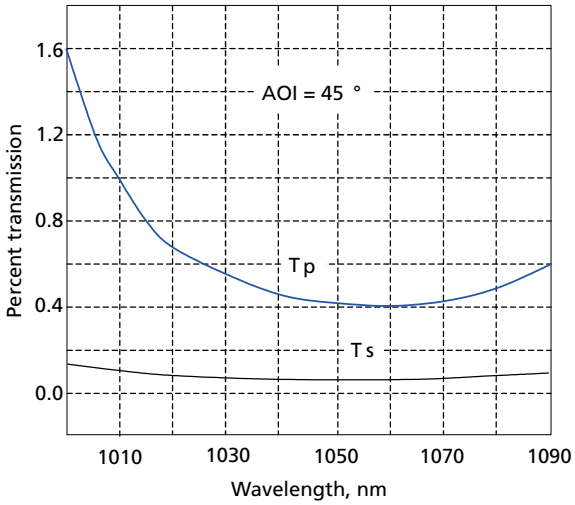
HIGH REFLECTIVITY COATINGS

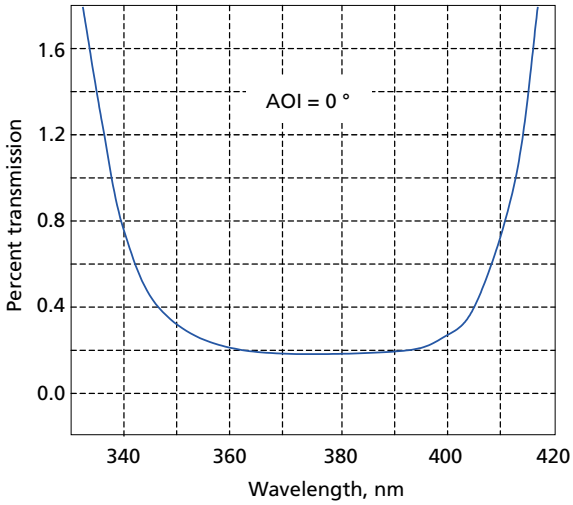
These multilayer coatings are stacks intended to achieve the highest possible reflectivity at specific laser line wavelengths at normal or 45 degrees incidence. Laser line high reflectivity coatings are intended for external beam manipulation applications where even slight losses may be intolerable.

For appropriate coating please add number of chosen coating to required optical component catalogue number.

LASER LINE COATINGS

Typical reflectivity curve of EKSMA HR coatings.



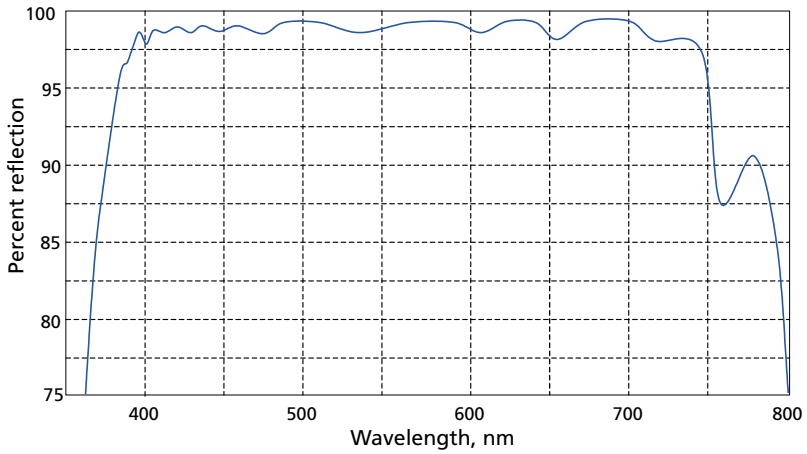


Wavelength, nm	Reflectivity, %	AOI, deg	Recommended substrate	Damage threshold	Coating number
193	98	0, 45	UVFS, MgF_2	1 J/cm² in 10 ns	**1005**
226	99	0, 45	UVFS, MgF_2	1 J/cm² in 10 ns	**1007**
248	99	0, 45	UVFS, MgF_2	1.5 J/cm² in 10 ns	**1009**
266	99	0, 45	UVFS, MgF_2	1.5 J/cm² in 10 ns	**1011**
308	99.2	0, 45	FS	1.5 J/cm² in 10 ns	**1015**
337	99.5	0, 45	FS	1.5 J/cm² in 10 ns	**1017**
355	99.5	0, 45	FS	1.5 J/cm² in 10 ns	**1019**
373	99.5	0, 45	FS	1.5 J/cm² in 10 ns	**1021**
473	99.5	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**1023**
532	99.5	0, 45	FS, BK7	5 J/cm² in 10 ns	**1025**
589	99.5	0, 45	FS, BK7	5 J/cm² in 10 ns	**1027**
616	99.5	0, 45	FS, BK7	5 J/cm² in 10 ns	**1029**
633	99.5	0, 45	FS, BK7	5 J/cm² in 10 ns	**1030**
745	99.5	0, 45	FS, BK7	5 J/cm² in 10 ns	**1031**
830	99.5	0, 45	FS, BK7	5 J/cm² in 10 ns	**1033**
946	99.5	0, 45	FS, BK7	5 J/cm² in 10 ns	**1035**
1064	99.8	0, 45	FS, BK7	5 J/cm² in 10 ns	**1037**
1320	99.5	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**1039**
1410	99.5	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**1041**
1450	99.5	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**1043**
1550	99.5	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**1045**
2000	99	0, 45	FS, Sapphire	1.5 J/cm² in 10 ns	**1047**
2100	99	0, 45	FS, Sapphire	1.5 J/cm² in 10 ns	**1049**

Please contact EKSMA for other wavelength, AOI and reflection value.

BROADBAND COATINGS

Typical reflectivity curve of EKSMA broad band coatings.

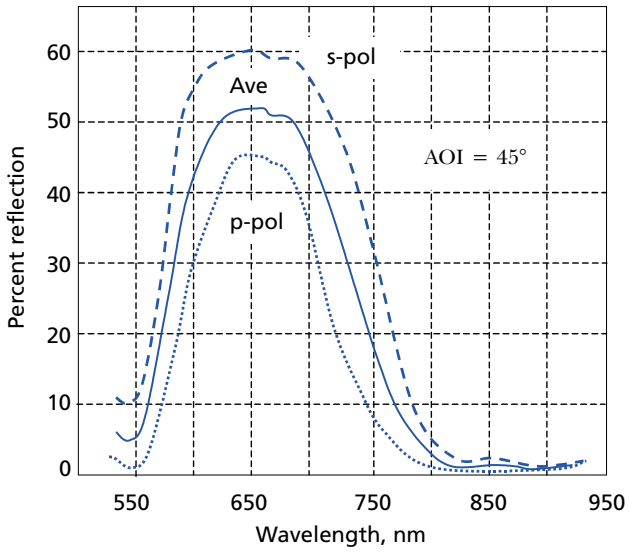


Wavelength, nm	Reflectivity, %	AOI, deg	Recommended substrate	Damage threshold	Coating number
220÷250	99	0, 45	UVFS, MgF_2	1 J/cm² in 10 ns	**1106**
260÷340	99	0, 45	UVFS, MgF_2	1 J/cm² in 10 ns	**1110**
350÷450	99	0, 45	FS, MgF_2	1 J/cm² in 10 ns	**1114**
450÷600	99	0, 45	FS, BK7	1 J/cm² in 10 ns	**1118**
500÷700	99	0, 45	FS, BK7	1 J/cm² in 10 ns	**1122**
500÷800	99	0, 45	FS, BK7	1 J/cm² in 10 ns	**1126**
600÷900	99	0, 45	FS, BK7	1 J/cm² in 10 ns	**1130**
750÷1000	99	0, 45	FS, BK7	1 J/cm² in 10 ns	**1134**
780÷900	99	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**1138**
900÷1100	99	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**1142**

Please contact EKSMA for other wavelength, AOI and reflection value.

PARTIAL REFLECTING COATINGS

EKSMA offers durable multilayer dielectric coatings for efficient beam splitting as well as for output coupling in laser cavities. These coatings are designed for high power laser use. Please refer to subsrates for mirrors or windows section for subtrates for those coatings.

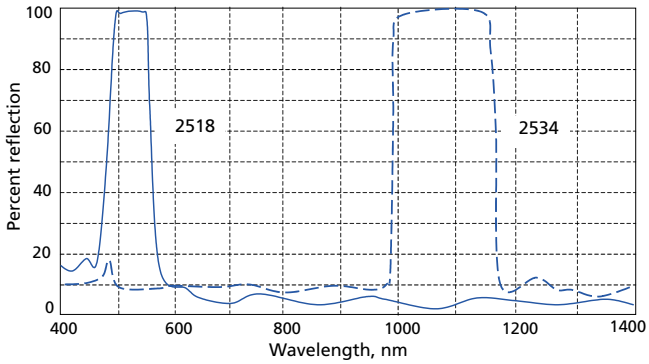


Wavelength, nm	Reflectivity, %	AOI, deg	Recommended substrate	Damage threshold	Coating number
248	25±3	0, 45	UVFS, MgF_2	1 J/cm² in 10 ns	**2012**
	50±3			1 J/cm² in 10 ns	**2015**
	75±3			1 J/cm² in 10 ns	**2017**
266	25±3	0, 45	UVFS, MgF_2	1 J/cm² in 10 ns	**2022**
	50±3			1 J/cm² in 10 ns	**2025**
	75±3			1 J/cm² in 10 ns	**2027**
308	25±3	0, 45	FS	1 J/cm² in 10 ns	**2032**
	50±3			1 J/cm² in 10 ns	**2035**
	75±3			1 J/cm² in 10 ns	**2037**
355	25±3	0, 45	FS	1 J/cm² in 10 ns	**2042**
	50±3			1 J/cm² in 10 ns	**2045**
	75±3			1 J/cm² in 10 ns	**2047**
373	25±3	0, 45	FS	1 J/cm² in 10 ns	**2052**
	50±3			1 J/cm² in 10 ns	**2055**
	75±3			1 J/cm² in 10 ns	**2057**
532	25±3	0, 45	FS, BK7	1.5 J/cm² in 10 ns	**2062**
	50±3			1.5 J/cm² in 10 ns	**2065**
	75±3			1.5 J/cm² in 10 ns	**2067**
745	25±3	0, 45	FS, BK7	1 J/cm² in 10 ns	**2072**
	50±3			1 J/cm² in 10 ns	**2075**
	75±3			1 J/cm² in 10 ns	**2077**
1064	25±3	0, 45	FS, BK7	2 J/cm² in 10 ns	**2082**
	50±3			2 J/cm² in 10 ns	**2085**
	75±3			2 J/cm² in 10 ns	**2087**

Please contact EKSMA for other wavelength, AOI and reflection value.

LASER HARMONIC SEPARATORS

These harmonic separators comprise a dichroic reflector coating and should be applied on the front surface of high precision windows. They are used to separate the various harmonic components of frequency doubled laser systems by selective spectral reflection and transmission. In all cases one wavelength is selected out by reflection and the other wavelengths are transmitted.



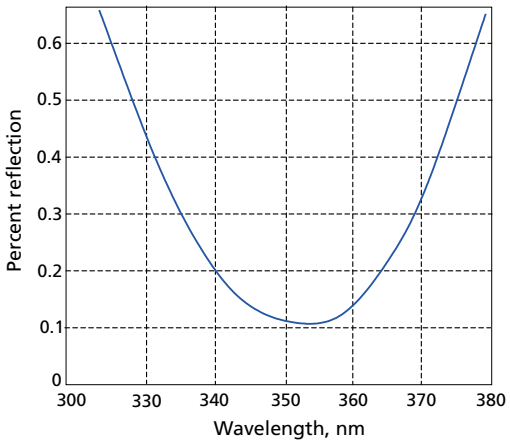
Wavelength, nm	R, %	T, %	AOI, deg	Recommended substrate	Damage threshold	Coating number
200÷220/390÷450	90	80÷85	0, 45	UVFS, MgF_2	1 J/cm² in 10 ns	**2506**
355/532+1064	99	90÷93	0, 45	FS, BK7	1 J/cm² in 10 ns	**2510**
390÷450/780÷900	95	90	0, 45	FS, BK7	1 J/cm² in 10 ns	**2514**
532/1064	99	95	0, 45	FS, BK7	1 J/cm² in 10 ns	**2518**
600/1200	99	85	0, 45	FS, BK7	2 J/cm² in 10 ns	**2522**
800/400	99	90	0, 45	FS, BK7	2 J/cm² in 10 ns	**2526**
1064/400÷700	99	85	0, 45	FS, BK7	2 J/cm² in 10 ns	**2530**
1064/532	99	90	0, 45	FS, BK7	2 J/cm² in 10 ns	**2534**

Please contact EKSMA for other wavelength and AOI.

ANTI-REFLECTION COATINGS

LASER LINE ANTI-REFLECTION COATINGS

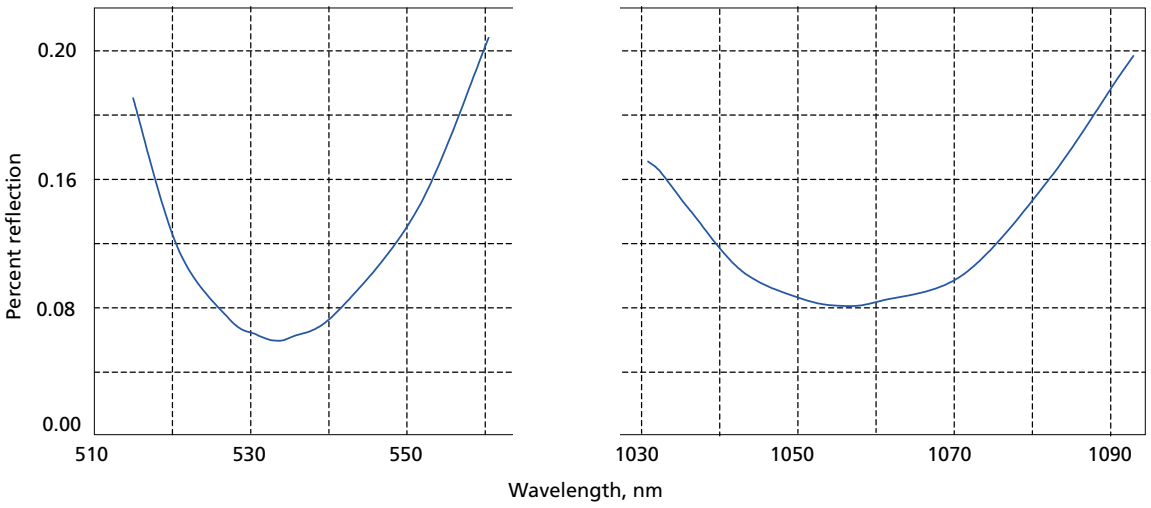
These multilayer anti-reflection coatings are designed for reducing the reflectivity of a component to near-zero for one very specific wavelength. Therefore valuable laser energy is efficiently transferred through complex optical systems rather than being lost to glare and scatter. Our AR coatings are intended for use at normal incidence, and when used in this way will achieve maximum efficiency transmission.



Wavelength, nm	Reflectivity, %	AOI, deg	Damage threshold	Coating number
193	< 1.5	0	1 J/cm² in 10 ns	**3005**
248	< 1	0	1.5 J/cm² in 10 ns	**3007**
266	< 0.5	0	1.5 J/cm² in 10 ns	**3009**
308	< 0.4	0	1.5 J/cm² in 10 ns	**3011**
351÷355	< 0.25	0	2 J/cm² in 10 ns	**3015**
373	< 0.3	0	2 J/cm² in 10 ns	**3017**
532	< 0.2	0	4 J/cm² in 10 ns	**3025**
633	< 0.2	0	4 J/cm² in 10 ns	**3027**
745	< 0.2	0	4 J/cm² in 10 ns	**3029**
780	< 0.2	0	5 J/cm² in 10 ns	**3031**
1064	< 0.2	0	5 J/cm² in 10 ns	**3037**
1320	< 0.2	0	5 J/cm² in 10 ns	**3041**
1547	<0.5	0	4 J/cm² in 10 ns	**3045**

Please contact EKSMA for other wavelength and AOI.

DUAL BAND ANTI-REFLECTION COATINGS

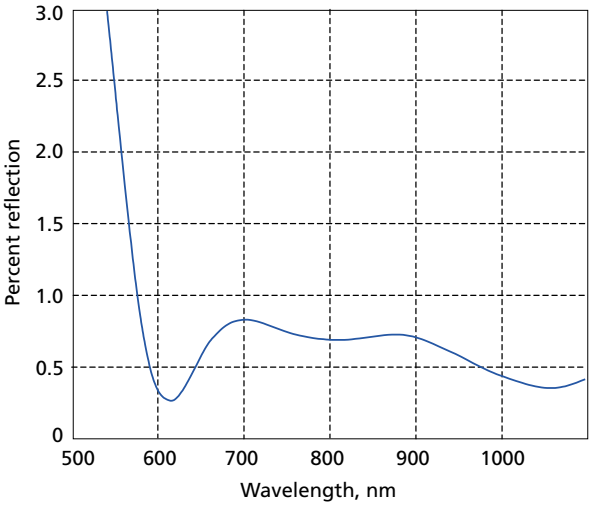


Wavelength, nm	Reflectivity, %	AOI, deg	Damage threshold	Coating number
266 + 532	<0.5	0	1.5 J/cm² in 10 ns	**3106**
355 + 532	<0.5	0	2 J/cm² in 10 ns	**3110**
355 + 1064	<0.5	0	2 J/cm² in 10 ns	**3114**
400 + 800	<0.25	0	3 J/cm² in 10 ns	**3118**
532 + 1064	<0.25	0	4 J/cm² in 10 ns	**3122**
670 + 1064	<0.25	0	4 J/cm² in 10 ns	**3126**
1064 +1320	<0.25	0	4 J/cm² in 10 ns	**3130**
1064 +1570	<0.25	0	3 J/cm² in 10 ns	**3134**

Please contact EKSMA for other wavelength and AOI.

BROAD BAND ANTI-REFLECTION COATINGS

Typical reflectivity curve of EKSMA broad band AR coatings.



Wavelength, nm	Reflectivity, %	AOI, deg	Damage threshold	Coating number
220÷300	<1.5	0	1.5 J/cm² in 10 ns	**3205**
250÷350	<1.2	0	1.5 J/cm² in 10 ns	**3207**
300÷400	<1.0	0	1.5 J/cm² in 10 ns	**3209**
350÷500	<0.8	0	2.0 J/cm² in 10 ns	**3211**
350÷900	<1.0	0	2.0 J/cm² in 10 ns	**3213**
400÷550	<0.4	0	2.5 J/cm² in 10 ns	**3215**
400÷700	<0.9	0	3.0 J/cm² in 10 ns	**3217**
420÷680	<0.5	0	3.0 J/cm² in 10 ns	**3219**
450÷750	<0.5	0	3.0 J/cm² in 10 ns	**3221**
500÷800	<0.6	0	3.0 J/cm² in 10 ns	**3223**
600÷900	<0.5	0	3.0 J/cm² in 10 ns	**3225**
750÷900	<0.5	0	3.0 J/cm² in 10 ns	**3227**
800÷1200	<0.7	0	2.5 J/cm² in 10 ns	**3229**
1000÷1400	<0.7	0	2.0 J/cm² in 10 ns	**3231**
1300÷1700	<0.7	0	2.0 J/cm² in 10 ns	**3233**
1500÷2000	<0.7	0	1.5 J/cm² in 10 ns	**3235**

Please contact EKSMA for other wavelength and AOI.

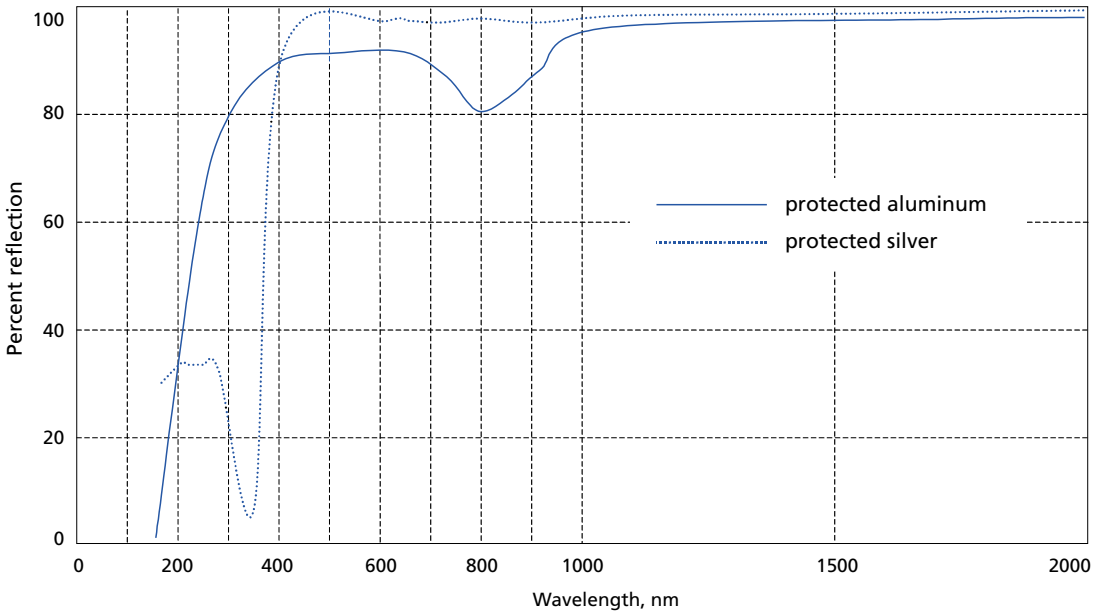
METALLIC COATINGS

protected aluminum

protected silver

Protected metallic coatings provide a moderate level of reflection over a very broad spectral range and are widely used as mirrors. These coatings are protected by a thin layer of dielectric material in order to make them durable. Enhanced metallic coatings provide greater reflection across the operating bandwidth. These coatings are enhanced by adding a multilayer dielectric stack.

Metal coatings will modify the state of polarization of an incident beam of light and are therefore inappropriate for most polarization sensitive applications.



Wavelength, nm	Average Reflection, %	Type	Coating number
250-350	88	UV enhanced aluminum	**0005**
450-650	91	VIS enhanced aluminum	**0010**
300-IR	86	Protected aluminum	**0015**
400-IR	95	Protected silver	**0025**

Please contact EKSMA for other wavelength and AOI.

ORDERING INFORMATION

Prices

All prices are net F.C.A. Vilnius, Lithuania and do not include any taxes. Shipping charges will be added to your invoice. Quantity discounts as well as research application discounts are available upon request.

Delivery

Most of standard products are stocked and shipped off-shelf after receipt of order. Large volume orders are delivered under mutually agreed terms. If not altered, shipping by DHL forwarder is assumed.

Ordering

Orders may be placed by mail, fax, or e-mail. Mail orders should be sent to:

EKSPLA Ltd., Photonics Division
Mokslininku Str. 11
08412 Vilnius
LITHUANIA
For prompt ordering, please use fax or e-mail:
fax: +370.5.272 92 99,
e-mail: sales@eksma.com,
www.eksma.com.

Payment

Term of payment is 30 days net by bank wire transfer. Money orders, bank and company cheques – in this case please add 25.- USD (or equivalent in other currency) to lump sum of invoice to cover cashing charges.

Certificate of Origin

All items shown in this catalogue are of Lithuanian Origin and therefore import duty free when importing to EEC, EFTA and NAFTA countries.

Satisfaction and Returns

All standard products are covered by 30 days customer satisfaction warrantee. If for any reason buyer is not satisfied with purchased item, it may be returned by prepaid shipment for full credit.

Warranty

All products of EKSMA are guaranteed to be free from defects in material and workmanship for a period of one year after delivery. EKSMA does not assume liability from installation, labour or consequential damages.