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Antireflection (AR) Coatings

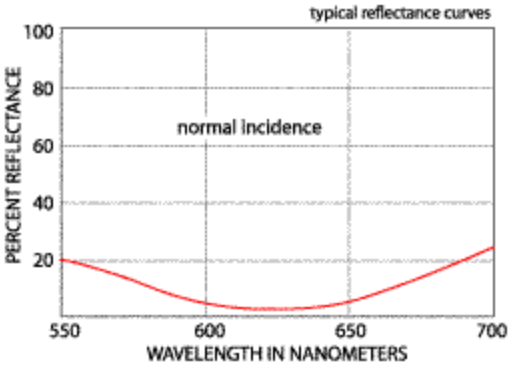
V-Coatings

V-coatings are multilayer antireflection coatings that reduce the reflectance of a component to near-zero for one very specific wavelength. Our V-coatings are intended for use at normal incidence, for maximum reflectances of not more than 0.25% at their design wavelength.

V-coatings are extremely sensitive to both wavelength and angle of incidence. For example, a V-coating intended for the helium neon wavelength (632.8 nm) when used at 30-degree incidence will reflect about 0.8%. At 45-degree incidence, the same coating will reflect over 2.5%. If your application involves other than normal angles of incidence or high-numerical-aperture (low f-number) optics, it may be better to use a HEBBAR™ coating.

Experience shows that the maximum reflectance typically achieved by these coatings is often closer to 0.1% than the 0.25% we specify. Using V-coatings on fused-silica optics can therefore provide exceptionally high external transmittances.

The reflectance curve for a typical V-coating, on BK7 glass, designed for operation at 632.8 nm is shown below.



Example of a V-coating for 632.8 nm

Clearly the performance of such a coating is highly dependent on the refractive index of the component material. However, we specify all coatings by performance figures and not by design. This means that we will change the design to suit the material being coated. This makes ordering coatings simple: select the specification you want to achieve, tell us what to put it on, and we do the rest. This means that your reflectance curve may vary from the one shown on this page, but the coating will meet your requirements. In addition to the standard coatings listed here, Melles Griot can supply V-coatings at any center wavelength from 193 nm to 2000 nm.

These coatings are not intended for use with high-energy lasers although the Nd:YAG coatings are suitable for many medium-power applications including diagnostics.

V-Coating, Normal Incidence

Wavelength (nm)	Laser Type	Maximum Reflectance (%)	COATING SUFFIX
193	ArF	0.5	/101

248	ArF	0.25	/102
266	YAG 3rd harm.	0.25	/103
308	XeCl	0.25	/104
351	Ar ion	0.25	/105
364	Ar ion	0.25	/107
442	HeCd	0.25	/111
458	Ar ion	0.25	/112
466	Ar ion	0.25	/113
473	Ar ion	0.25	/114
476	Ar ion	0.25	/115
488	Ar ion	0.25	/116
496	Ar ion	0.25	/117
502	Ar ion	0.25	/118
514	Ar ion	0.25	/119
532	YAG 2nd harm.	0.25	/122
543	HeNe	0.25	/121
633	HeNe	0.25	/123
670	GaAlAs	0.25	/128
694	Ruby	0.25	/124
780	GaAlAs	0.25	/163
830	GaAlAs	0.25	/166
850	GaAlAs	0.25	/167
904	GaAs	0.25	/125
1064	Nd:YAG	0.25	/126
1300	InGaAsP	0.25	/168
1523	HEnE	0.25	/169
1550	InGaAsP	0.25	/169

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