

## Standard Superpolished Optics

The REO standard optics offering includes a selection of our superior superpolished substrates and precision thin film coatings. Any of the custom coatings outlined below can be applied to an assortment of the listed superpolished substrates. REO standard superpolished optics are available at competitive prices and lead time making them a quick custom solution for product development or research project applications.

REO has perfected the superpolishing process to provide substrate surfaces with roughness  $< 0.8 \text{ \AA RMS}$  and minimal defects. Combine these high quality substrates with our high density, smooth IBS coatings and the result is scattering and absorption losses that are substantially lower than any other product on the market. REO standard superpolished optics also offer spectral precision and extreme environmental stability. These high performance, quick turn products will enable the development of your most demanding optical system.



## REO Superpolished Substrates

REO PN	Material	Diameter Ø	Thickness	S1 Finish	CA	S1 ROC	S2 ROC
40654	FS C7980 0A	7.75mm	4mm	superpolished ( $< 0.8\text{A rms}$ )	4mm	$\infty$	$\infty$
40651	FS C7980 0A	7.75mm	4mm	superpolished ( $< 0.8\text{A rms}$ )	4mm	5cm concave	$\infty$
40655	FS C7980 0A	7.75mm	4mm	superpolished ( $< 0.8\text{A rms}$ )	4mm	10cm concave	$\infty$
40656	FS C7980 0A	7.75mm	4mm	superpolished ( $< 0.8\text{A rms}$ )	4mm	50cm concave	$\infty$
40657	FS C7980 0A	7.75mm	4mm	superpolished ( $< 0.8\text{A rms}$ )	4mm	100cm concave	$\infty$
40658	FS C7980 0A	12.7mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	10mm	$\infty$	$\infty$
40659	FS C7980 0A	12.7mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	10mm	5cm concave	$\infty$
40660	FS C7980 0A	12.7mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	10mm	10cm concave	$\infty$
40661	FS C7980 0A	12.7mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	10mm	50cm concave	$\infty$
40662	FS C7980 0A	12.7mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	10mm	100 cm concave	$\infty$
40663	FS C7980 0A	25.4mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	20mm	$\infty$	$\infty$
40664	FS C7980 0A	25.4mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	20mm	10cm concave	$\infty$
40665	FS C7980 0A	25.4mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	20mm	50cm concave	$\infty$
40666	FS C7980 0A	25.4mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	20mm	100cm concave	$\infty$
40667	FS C7980 0A	25.4mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	20mm	200cm concave	$\infty$
40668	FS C7980 0A	25.4mm	6.35mm	superpolished ( $< 0.8\text{A rms}$ )	20mm	300cm concave	$\infty$

### Additional Substrate Specifications (per ISO 10110)

Chamfer:  $0.3 \pm 0.2\text{mm} \times 45^\circ$

Thickness Tolerance:  $\pm 0.13\text{mm}$

Centering/Wedge:  $\leq 30'$

Diameter Tolerance:  $+0.0\text{mm}/-0.13\text{mm}$

Radius of Curvature:  $\pm 1\%$

Surface Figure (S1/S2):  $3/ 3.0(0.2)$  at  $632.8\text{nm}$

Surface Imperfection Tolerance (S1):  $5/ 2 \times 0.04; L2 \times 0.004; E0.02$

## Typical Custom IBS Coating Characteristics

### HR Mirror Coatings

CWL Specification Range	Coating Bandwidth	0° or 45° AOI (s & p)	Typical LDT
260 nm - 320 nm	CWL +/- 3%	R >= 99%	>8 J/cm <sup>2</sup> @ 20ns
320 nm - 400 nm	CWL +/- 3%	R >= 99.5%	>10 J/cm <sup>2</sup> @ 20ns
400 nm - 900 nm	CWL +/- 3%	R >= 99.9%	>30 J/cm <sup>2</sup> @ 20ns
900 nm - 1600 nm	CWL +/- 3%	R >= 99.99%	>40 J/cm <sup>2</sup> @ 20ns

### AR Coatings

CWL Specification Range	Coating Bandwidth	0° AOI	Typical LDT
260 nm - 320 nm	CWL +/-3%	R <= 0.1%	> 4 J/cm <sup>2</sup> @ 20ns
320 nm - 400 nm	CWL +/-3%	R <=0.1%	> 5 J/cm <sup>2</sup> @ 20ns
400 nm - 900 nm	CWL +/-3%	R <=0.1%	> 15 J/cm <sup>2</sup> @ 20ns
900 nm - 1600 nm	CWL +/-3%	R <=0.1%	> 20 J/cm <sup>2</sup> @ 20ns

### Polarization Coatings

CWL Specification Range	Coating Bandwidth	Brewster's Angle	Typical LDT
260 nm - 320 nm	CWL +/-1%	Rs > 99.5% Tp > 90%	> 8 J/cm <sup>2</sup> @ 20ns
320 nm - 400 nm	CWL +/-1%	Rs > 99.8% Tp > 95%	> 10 J/cm <sup>2</sup> @ 20ns
400 nm - 900 nm	CWL +/-1%	Rs > 99.8% Tp > 98%	> 30 J/cm <sup>2</sup> @ 20ns
900 nm - 1600 nm	CWL +/-1%	Rs > 99.8% Tp > 98%	> 40 J/cm <sup>2</sup> @ 20ns