Product Datasheet

Ultra Low-Profile Retroreflector™ - ULPR™

The Ultra Low-Profile Retroreflector™ (ULPR™) series is a cutting-edge ultralight compact retroreflector. This series represents the PLX brand by having a rugged stability, offered in a range of accuracy options and configurations.

The Ultra Low-Profile Retroreflector™ (ULPR™) series will fit where other retros won't. The ULPR™ is the ideal retroreflector series with a 36% weight reduction over the other retroreflector series. The round shape of the retroreflector is ideal for direct mounting on to bores, standard optical bench lenses and mirror holders. The newest member of the PLX retroreflector family pushes performance further with its compact and sleek patent pending mounting design. The Ultra Low-Profile Retroreflector™ is also extremely stable across varying temperatures, vibration levels, and shock conditions.

Specifications

Substrate	Pyrex
Housing material	Aluminum 6061
Surface Flatness	$\lambda/10 - \lambda/20$ @633nm
Surface Quality	80-50 Scratch-Dig
Beam Deviation	0.25 – 30.0 Arcsecond

The ULPR™ series is available in standard sizes of 0.5 in (12.7mm) to 5.0 in (125mm). The units are available in accuracies to 0.25 arc seconds beam deviation and $\lambda/10$ wave reflected wavefront error. The ULPR™ is provided in a versatile housing, which is compatible with all major mounting systems. The ULPR™ is available with a broad range of standard metallic coatings which meet all applicable MIL-specs. Unprotected metallic coatings are especially suited to interferometric applications. Custom coatings are available upon request.

Coating Types

- A – Enhanced Aluminum
- B – IR Enhanced Aluminum
- C – Unprotected Aluminum
- D – UV Enhanced Aluminum
- E – Protected Silver
- G – Protected Gold
- H – Unprotected gold
- I – Protected Aluminum

Note:

Beam Deviation is the maximum deviation from parallelism, expressed in seconds of arc, of any single return beam from any of the 6 sub-apertures of the retroreflector, when the retroreflector is fully-illuminated.

Exiting Wavefront is the resultant maximum peak-to-valley wavefront deformation from a fully-illuminated retroreflector, where lambda = 633nm. (See next page)

Beam deviation and exiting wavefront are interrelated, and it is only necessary to specify one.

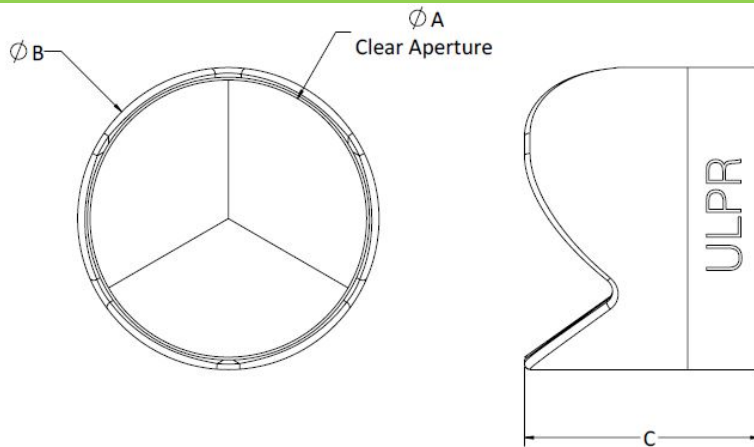Certain high accuracy models may be heavier than indicated here. Check with us for actual weight.

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Outline Drawings

Item	ØA (in/mm)	ØB (in/mm)	C (in/mm)
ULPR-05	0.50/12.70	0.58/14.61	0.50/12.57
ULPR-10	1.00/25.40	1.09/27.69	0.85/21.59
ULPR-15	1.48/37.54	1.57/39.82	1.22/30.99
ULPR-20	1.98/50.40	2.09/53.09	1.58/40.13
ULPR-25	2.37/60.14	2.48/62.99	1.85/46.99
ULPR-50	4.53/114.95	4.68/118.75	3.38/85.85

Specifications

Item	Exiting Wavefront (p.v.633nm)	Weight (grams)
ULPR-05	0.30 – 0.90	3.26
ULPR-10	0.15 – 3.50	17.4
ULPR-15	0.10 – 5.25	46.6
ULPR-20	0.15 – 7.00	96-105
ULPR-25	0.25 – 9.00	159-168
ULPR-50	0.45 – 18.0	840-980

Coating Types

SUFFIX	WAVELENGTH RANGE (nm)	AOI 55° PER-SURFACE REFLECTANCE (AVG)
A	400 - 700	93%
B	600 - 1,600	89%
C	225 - 10,000	90%
D	225 - 700	89%
E	450 - 10,000	96%
G	650 - 16,000	97%
H	650 - 20,000	97%
I	400 - 750	87%

Detailed coating curves are available in the following pages.

Custom Configurations

Custom configurations for specialized applications

PLX engineers can create a custom product for your application. Potential variations include: smaller and larger apertures; modified mounts to meet your interface; super-critical accuracies; dielectric mirror coatings for high-powered lasers; and units able to withstand military and space environments.

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Coating Curve

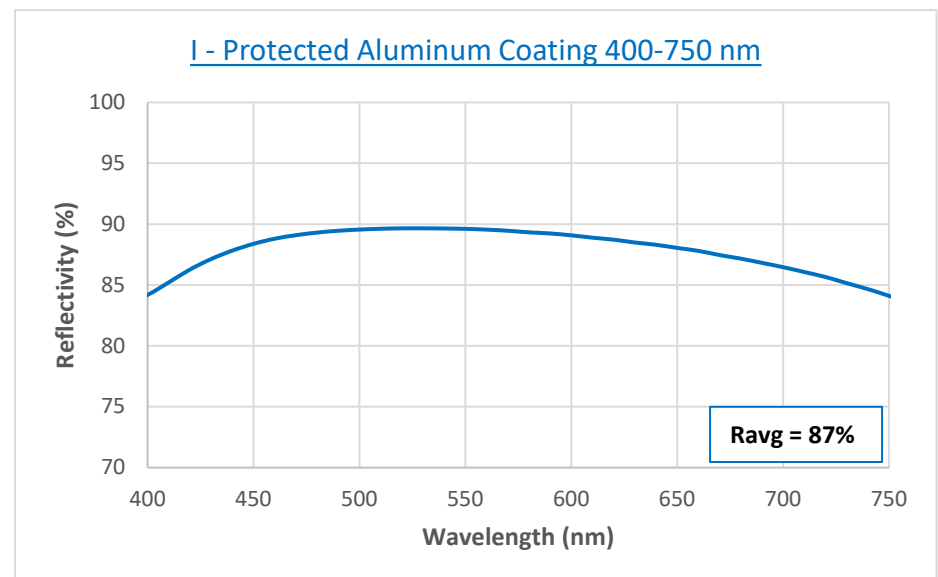### A - Enhanced Aluminum Coating 400-700 nm

Ravg = 93%

B - IR Enhanced Aluminum Coating 600-1600 nm

Ravg = 89%
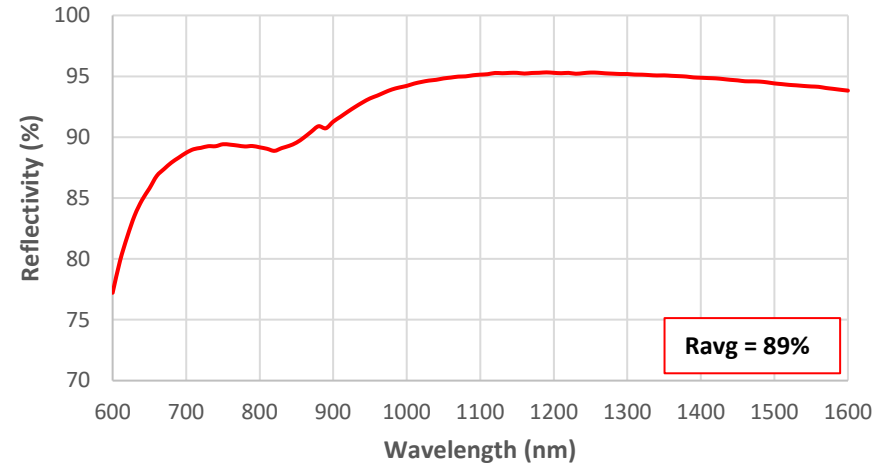
C - Unprotected Aluminum Coating 225-10000nm

Ravg = 90%
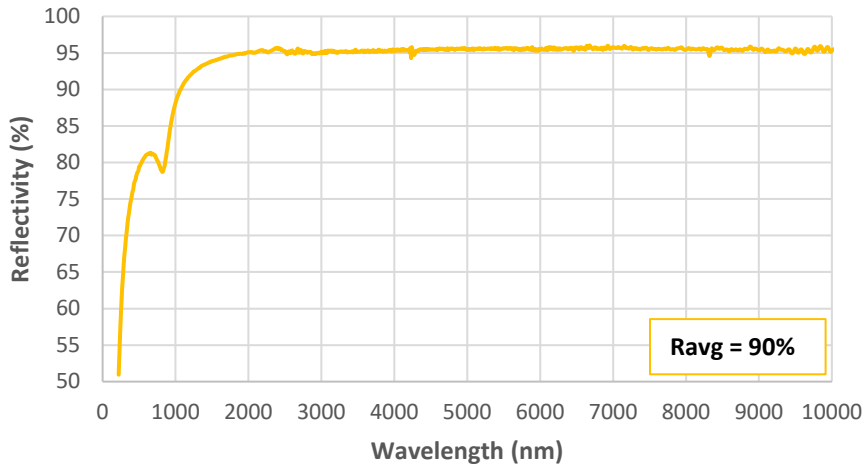
D - UV Enhanced Aluminum Coating 225-700 nm
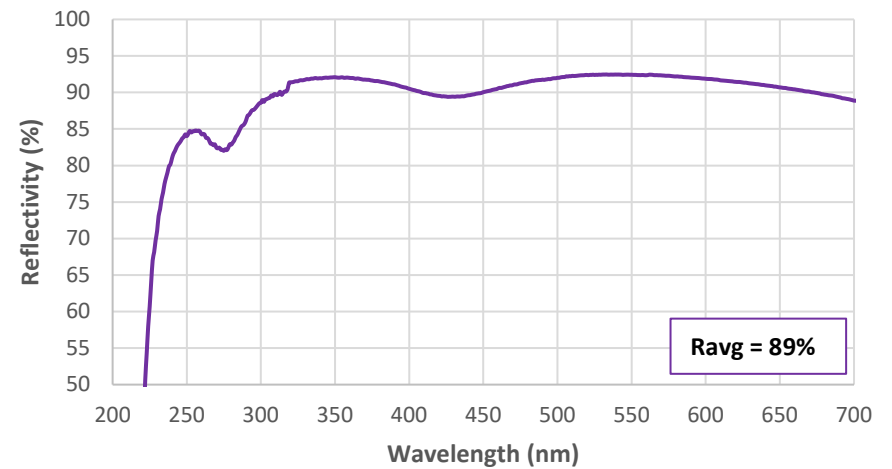
Ravg = 89%

Note: Coatings meet Ravg requirement, but coating curves are for reference as R(λ) may vary ± 2% per
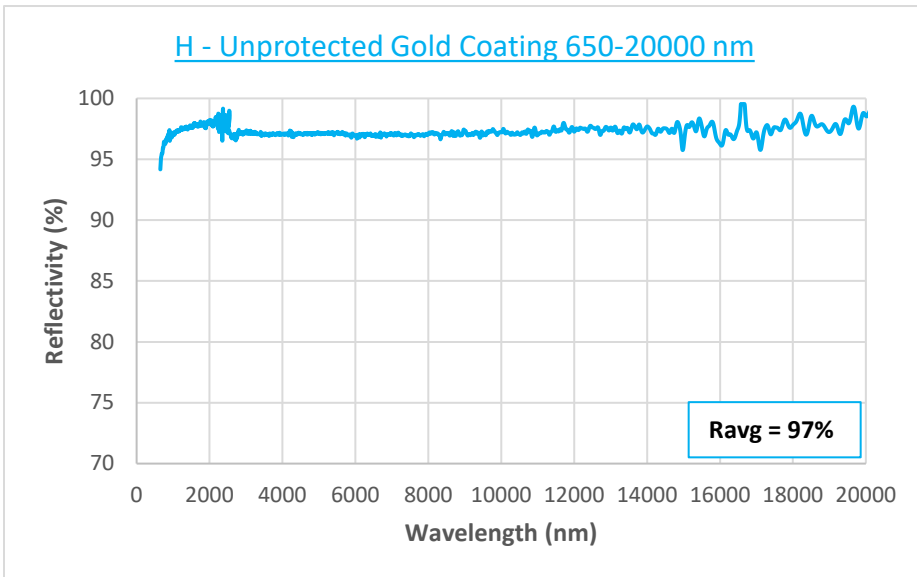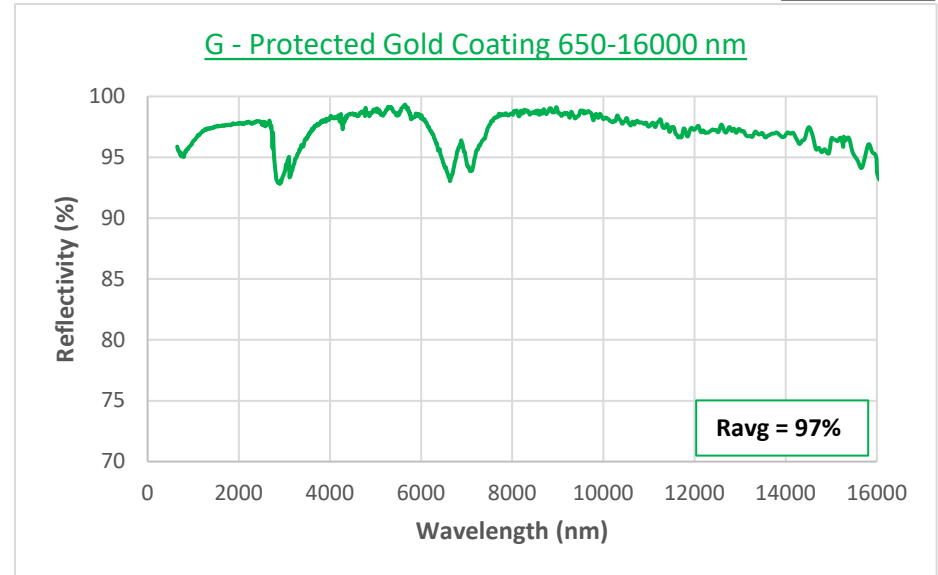
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Coating Curve

E - Protected Silver Coating 450-10000 nm

Ravg = 96%

G - Protected Gold Coating 650-16000 nm

Ravg = 97%

H - Unprotected Gold Coating 650-20000 nm

Ravg = 97%

I - Protected Aluminum Coating 400-750 nm

Ravg = 87%

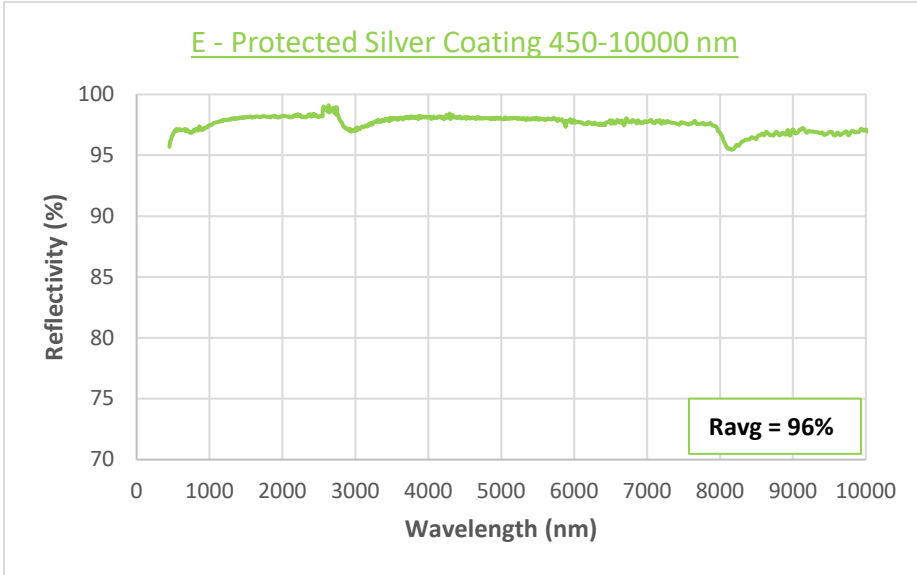**Note**: Coatings meet Ravg requirement, but coating curves are for reference as R(λ) may vary ± 2% per