

KO | BRINGING QUALITY INTO FOCUS

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Plane Mirrors for Laser Distance Measurements

Knight Optical can offer you [Plane Mirrors \(general, \$\lambda/1\$ and \$\lambda/4\$ \)](#), for use within Laser Distance Measurement Applications in a range of materials such as Soda-lime float glass, white float glass, and BK7 glass.

Plane mirrors also known as front surface mirrors or first surface mirrors are used widely within Laser Distance Measurement applications. As stock we hold a number of general purpose, $\lambda/1$ and $\lambda/4$ with a range of up to 6 types of coatings such as Enhanced Aluminium, Al/SiO_2 and Al/MgF_2 . Our general purpose grade mirrors are made from good quality float glass and generally available in thicknesses of 1mm, 3mm and 6mm as standard.

Laser Distance Measurement devices utilise the use of a laser beam to be able to determine the distance of an object. How optical mirrors are used in conjunction with these devices is that, a mirrored surface can be measured with a laser tracker; which will help determine the distance between the laser distance measurement and the mirror at its current location which would be the target in question for ascertaining its distance.

Typical specs:

Material:	Soda lime float glass, BK7 or equivalent
Diameter Tolerance:	+0/-0.2mm
Lengths/ width:	$\pm 0.3\text{mm}$ ($\leq 100\text{mm}$), $\pm 0.5\text{mm}$ ($> 100\text{mm}$)
Thickness:	$\pm 0.25\text{mm}$
Surface Quality:	<60-40 scratch/dig for general purpose, <40-20 scratch/dig for $\lambda/4$
Flatness:	
1.1mmthk:	1 λ over 10mm dia.
3/6mmthk:	2 λ over 25mm dia.
Parallelism:	<3 arcmin

Options available:

- Edging of stock mirrors to smaller diameters.
- Stock mirrors can be machined to custom square or rectangular apertures or bespoke designs.
- Various mounting options.
- Larger 99% dielectric 145x100mm substrates are available from stock for custom larger sizes in 1mm, 3mm and 6mm thk.
- Larger 94% enhanced aluminium sheets are available from stock for custom sizes. 3mm and 6mm are available as 1100x940mm, 1mm and 2mm are available as 635x400mm sheets.

Mirror coatings:

UV applications:

[Ali/MgF₂, R.avg>85%@180-650nm, AOI= 0°-45°](#)

Visible applications:

[Enhanced Al_i, R.avg>94%@450-650nm, AOI=0°-45°](#)

[All-Dielectric, R.avg>99%@450-700nm, AOI=0°-45°](#)

NIR applications:

[All-Dielectric, R.avg>98%@700-1064nm, AOI=0°-45°](#)

[Ion-Plated Silver, R.avg>96%@450-2000nm, AOI=0°-45°](#)

NIR/ FIR applications:

[Protected Gold, R.avg>97%@750-FAR IR, AOI=0°-45°](#)

All our Flat Mirrors are fully inspected on their quality in our ISO 9001 certified, state-of-the-art Metrology laboratory, our ZYGO interferometer and Radius Slide tests for the form error, irregularity and TWE on flat and spherical surfaces, and Starrett AV300 provides video imaging for non-contact testing on small dimensions. This allows us to work to the highest [QA standards](#) and meet the tolerance specifications on these **precision components**.

[Contact our technical sales team](#) to discover how Knight Optical's high quality Plane Mirrors and superior service can improve your instrumentation and supply chain experience.

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· Watch our [Corporate Video](#)

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