

## Aluminium Optics

Aluminium is a good thermal and electrical conductor, having about a 60% conductivity, thermal and electrical, of copper for both. However, aluminium only has a density that is only 30% of copper, which makes it a better choice material for weight conscious designs, such as the Apple MacBook Pro laptop computer. Aluminium is used, with copper laminates, as the substrate for highbrightnessLEDlighting. Precisionmachiningcanbeusedtomakesolidmirrorassemblies that has the highest reflectance of any mirror finished surface in the 0.2 to 0.4 $\mu\text{m}$  (UV) and in the 3 to 10 $\mu\text{m}$  (Far Infra-red) regions. In the visible region, 0.4 to 0.7 $\mu\text{m}$ , the finish is better from tin and silver, and in the 0.7 to 3 $\mu\text{m}$  (NIR) by silver, gold, and copper.

The most frequently requested specifications for aluminum metal optics are as follows:

<b>Diameter range</b>	25.4mm to 101.6mm
<b>Diameter tolerance</b>	better than $\pm 0.1\text{mm}$
<b>Centre thickness</b>	up to 50mm
<b>Centre thickness tolerance</b>	better than $\pm 0.05\text{mm}$
<b>Clear aperture</b>	90%
<b>Centration tolerance</b>	better than 1 arc minute
<b>Form error</b>	better than $\lambda/4$ (633nm) over aperture
<b>Surface quality</b>	<40-20 scratch/ dig
<b>Surface radius tolerance</b>	less than 1 fringe over aperture
<b>Linear dimension</b>	up to 200mm
<b>Linear tolerance</b>	better than $\pm 0.1\text{mm}$
<b>Angular tolerance</b>	better than 5 arc minutes
<b>Coating finish</b>	ground
<b>Chamfer</b>	0.3x0.3@45°

## Coatings

BBAR coating @0.2-9 $\mu\text{m}$  wavelengths

Our capabilities are always expanding so if your requirement is not mentioned above please enquire as we have many years of experience in this field.

Contact our multilingual technical sales team and discover how Knight Optical's high quality aluminum optics capabilities and service can improve your instrumentation and supply chain experience.