



Discover how we can improve your  
instrumentation and supply chain  
experience today!

## KO | BRINGING QUALITY INTO FOCUS

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### Ball and Half Ball Lenses for Endoscopes

**Knight Optical** can offer you [Stock and Custom Ball Lenses](#), for use within [Endoscopes](#) in a range of materials such as Sapphire, Ruby, Quartz and BK7 or equivalent.

Ball Lenses are widely used for focusing and coupling light into and out of fibres. With the high refractive index of Sapphire (Al<sub>2</sub>O<sub>3</sub>) material, it yields a low spherical aberration that can be used in the range of UV from 200nm up to 5µm, and with it being one of the hardest materials they are resistant to damage. The key feature of ball lenses is their short back focal length allowing for precision coupling where size or space is a limiting factor in the system. Typically used in pairs, where one lens acts as collimator for the second to focus the light back into the coupled fibre.

Ball Lenses are manufactured from a single substrate of glass and therefore, depending on the geometry of the input source, can focus or collimate light. [Half Ball Lenses](#) can also be used as an interchange with a full ball lens for more compact designs.

In addition to our stock Ball and Half Ball Lenses, we can offer a full range of custom lenses in a variety of materials such as ceramic, UV and NIR materials at custom sizes and focal lengths to suit your application.

#### Typical specs:

<b>Material:</b>	<a href="#">BK7 or equivalent</a> , <a href="#">Sapphire</a> , <a href="#">Ruby</a> , <a href="#">Quartz</a>
<b>Diameter Tolerance:</b>	±2.5
<b>Figure (sphericity):</b>	1λ
<b>Focal Length (@587mm):</b>	± 0.2% (<10mm), ±2.0% (10-1000mm), ±5.0% (>1000mm)
<b>Surface Quality:</b>	<40-20 Scratch/Dig
<b>Back Focal Length (mm):</b>	0.05 up to 2.34 for stock parts
<b>Focal Length (mm):</b>	0.345 up to 7.34 for stock parts

**All our Ball Lenses are fully inspected on their quality in our ISO 9001 certified, state-of-the-art Metrology laboratory**, using our Trioptics Optispheric 2000AF equipped for precise EFL and BFL measurements, and Starrett AV300 video microscope for high accurate diameter testing. 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 Ball Lenses and superior service can improve your instrumentation and supply chain experience.

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