Quality Control

KNIGHT OPTICAL QUALITY ASSURANCE & TESTING

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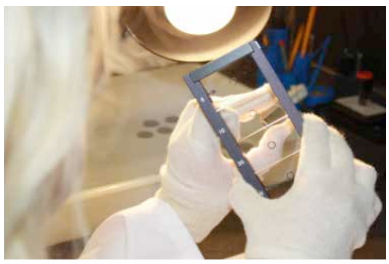
At Knight Optical, quality control is of utmost importance and taken extremely seriously. We understand that if a drawing has a tolerance, surface specification, and material type, then the information is there for a reason. We will always ensure that all aspects of your drawing and specification are adhered to.

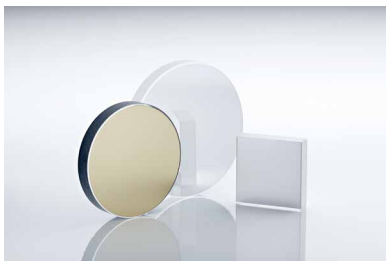
In order to meet our customers' specifications, Knight Optical has invested a substantial amount of time and resources into developing an impressive metrology and quality assurance department. This is run by highly qualified staff, who are trained on the latest state-of-art metrology instruments. This, combined with our professional business relationship, ensures you receive an excellent service you can trust.

Knight Optical has a strict quality system. Our management systems, standards, and guidelines all comply with ISO9001:2015 standard. We also work to the following standards:

- ISO10110 - Optical drawing standards
- BS4301-1991 Preparation of drawings for optical elements and systems
- MIL-C-14806A Coating, reflection reducing for instrument cover glasses and lighting wedges.
- MIL-G-174B Optical Glass

All test data is recorded at Knight Optical and can be provided in a number of different formats. This includes a Knight Optical metrology report which clearly presents all the data in one table. Data can also be presented in original formats produced by the respective software for each instrument.





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OUR METROLOGY TESTING FACILITIES

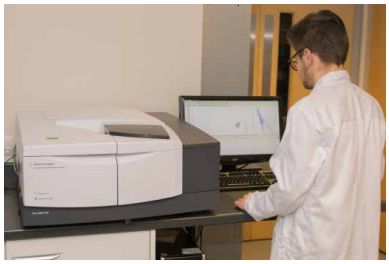
Our most valuable asset is our staff. We have a team of highly trained technicians checking all optical components to ensure they fully comply to drawing specifications and Knight Optical's high quality standards.

Varian CARY 5000 Spectrophotometer

- Measures reflection, transmission, and optical density of coatings and materials
- Scan range ability from 175-3200nm
- Measures OD up to 8 Abs
- State-of-the-art UMA attachment used to measure transmission, absolute reflection, and scattering of optical components including complex cube beamsplitters and polarised optics at multiple angles of incidence
- Measures in S and P polarisation

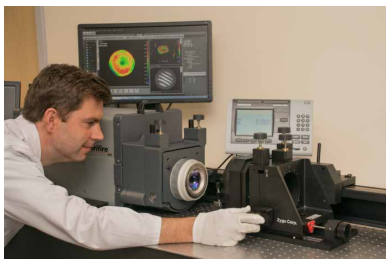
Agilent 660 FTIR Spectrometer

- Measures transmission of IR materials and coatings
- Scan range ability from 1.67µm - 66µm



Zygo Verifire XPZ Interferometer System

- Provides fast, low uncertainty form measurements of flat or spherical surfaces, and transmitted wavefront measurements of optical components and assemblies.
- Interferometric Radius Slide (IRS) system combines linear measurements provided by the encoded rail and cavity measurements made by the interferometer to give highly accurate radius of curvature readings.
- ZYGO's proprietary Mx® software offers a wide range of operational features and data analyis tools for unmatched measurement capability and reporting.
- Measurement accuracy of Lambda/20



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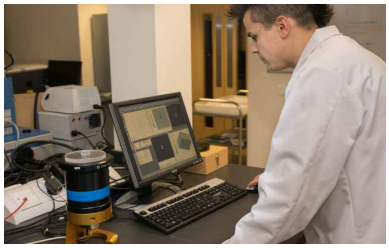

Fisba Interferometer

- Phase-measuring 100mm aperture interferometer system
- Non-contact high speed measurement of surface flatness and irregularity
- Objective and precise measurement of transmitted wavefront error
- Measurement accuracy of Lambda/20
- Single and double-pass measurement of optical components
- Homogeneity of optical glasses

Trioptics PrismMaster

- High speed electric autocollimator with ultra precise motorised rotation
- Completely objective high accuracy position measurement without operator input
- Fully automatic angular measurements on prisms, beamsplitter cubes and polygons
- Wedge measurement in optical windows
- Accuracy of +/- 3 arc seconds (+/- 0.00083°)
- Comprehensive measurement and analysis software allows customised measurement procedures to be created and saved.

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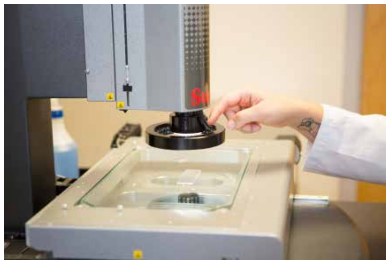
Trioptics Optispheric with Wavesensor Reflex

For testing parameters such as:

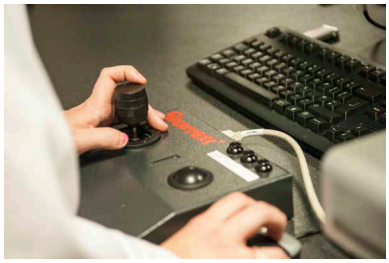
- Effective Focal Length (EFL)
- Back Focal Length (BFL)
- Radius of Curvature (RoC)
- Modulation Transfer Function (MTF)
- Flange Focal Length (FFL)

Can be fitted with a motorised V-Block accessory for testing centration errors < 1µm in both transmission and reflection.

Starrett AV300 Video Imaging Device



- Non-contact dimensional metrology for complex components such as graticules, metal assemblies and apertures.
- Measurement data for parameters including concentricity, corner radii, angles and facet widths (fresnel lenses)
- Automated processes for inspection of large volume optics
- Automated Vision System - bright and darkfield illumination providing robust measurements for even the most challenging surfaces
- Resolution down to 0.0001mm (0.1µm)
- Accuracy over the travel of the stage to within 4.5µm (dependent upon magnification)
- 12:1 motorised zoom giving a wide range of enlargement from 25-500x magnification
- Capacity up to 300mm in length



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"In 2017/2018 Knight Optical will be investing in a Talysurf PGI Optics to advance our aspheric testing capabilities, including reverse engineering aspheric and diffractive optics. Knight Optical will also be investing in a Zygo ZeGage Plus giving us the facilities to measure surface roughness and form on precision optical surfaces."

Talysurf PGI Optic

- Measures Aspheric form error with high accuracy and repeatability
- Aspheric Analysis Utility Software specifically designed to analyse aspheric form error, radius, and slope error
- Capabilities to reverse engineer aspheric and diffractive components by deriving their co-efficient functions.

ZeGage Plus

- Provides 3D optical surface profiling on precision surfaces
- Measures surface texture, form and step-height
- Sub-nanometre precision

For more information or to place an order contact our multilingual technical sales team and discover how Knight Optical's high quality optics and service can improve your instrumentation and supply chain experience.