

LG2 Autocollimator

The Logitech LG2 autocollimator is a highly accurate angle measuring devices used in the production of parallel specimens. The autocollimator is ideal for measuring small angles, internal and external angular measurement of porro prisms and testing for wedge difference. This highly versatile measuring instrument is an invaluable tool in today's precision materials technology laboratory.

Operating principle:

Light is focused through a dark field graticule. The beam is then passed through X and Y axes optical datum adjustment plates and is reflected by a mirror, through the objective lens, onto the upper surface of the specimen being examined. From here, the image is reflected onto another mirror, which projects it through a light field graticule into the eyepiece. This allows the surface of the specimen to be accurately set in relation to the plane of an optical reference surface and enables accurate measurement of any angular deviation to be made. Specimen holding facilities make it possible to set or adjust accurately the alignment of the upper surface of the specimen to produce either parallel surfaces or a desired angle of specimen orientation.

The Logitech LG2, is suitable for use with a wide range of sample types/holding fixtures, but is particularly suitable for use with the Logitech PP5GT polishing jig.

Method of operation:

Parallel specimen production:

Set-up of the autocollimator is achieved by first setting the X and Y axes adjustment controls to their mid-range positions. The optical reference standard is then placed onto the three optical datum adjustment screws on the base of the stand and the screws adjusted to bring the image into alignment with field of view. This will approximately align the light and dark field graticule. The X and Y axes adjustment are then used to bring the bright and dark field graticule, as viewed through the eyepiece, into exact coincidence. The autocollimator is then ready for use.

Parallel specimen production:

After the initial set-up procedure has been completed, and the first face of the specimen has been polished, the reference standard is removed and the PP5 jig, with the polished face of the mounted specimen uppermost, is placed onto the three optical adjustment screws; the PP5 jig will automatically be centred on top of the screws, thus allowing the beam of light from the autocollimator to travel down through the piston bore and be reflected back into the eyepiece.



- *Full reflectivity from small area specimens*
- *Ideal for use with Logitech PP5 polishing jigs*
- *Suitable for use with low reflectivity specimens*

Using the three angular adjustment screws fitted to the PP5, the plane of the polished face of the specimen is altered until the graticules are once again in alignment. This will bring the polished face of the specimen into alignment with the plane of the optical reference standard, which has surfaces parallel to better than 0.5 seconds of arc. This enables parallel faces to be prepared by polishing the second face of the specimen in this plane. Using this method, it is possible to prepare specimens to parallelism of better than 2 seconds of arc.

Alternative sample holders:

The LG2 Autocollimator may be used with alternative specimen holders, either in the same way as with the PP5 or by retaining the optical reference standard as the base plate onto which specimens or specimen holders are placed. Using this arrangement, a wide range of sample holding fixtures may be accommodated by placing them in contact with the preference standard or preferably on top of the three accurate support balls which may be positioned at any point across the surface of the optical reference standard.

Angle positioning:

Although this type of work would normally be done using a calibrated autocollimator, it is possible to generate angles of up to ± 3 minutes of arc by placing an angled slip gauge on top of the optical reference standard and resetting the autocollimator using the standard technique. This will effectively offset the polishing plane by the appropriate amount and enable angled specimens to be prepared.

Technical Specifications:

Dimensions:

Typical setting accuracy: Better than 2 arc seconds

Adjustment range: ± 3 minutes of arc

Aperture: 25mm (1")

Optical reference disc parallelism: Better than 0.5 seconds of arc

Voltage: 220V/ 50Hz 110V/ 50/60Hz

Light source: 6 V, 0.3 watt



Logitech Precision Jig

Standard Kit:

- 1 x Autocollimator body
- 1 x Cast iron base and support stand
- 1 x Power pack
- 1 x Spare pack bulb
- 1 x Optical reference stand
- 1 x Operations manual

Accessories, Components & Consumables

A comprehensive range of accessories, components and consumables are available to support this system, enabling optimum results and longevity of the machine. A selection of supporting products can be found below. For a more comprehensive listing please go to www.logitech.uk.com

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