

Automatic Prism/Polygon measurement system



High stability angle measurement and testing of optical prisms, polygons, wedges and angle gauges.

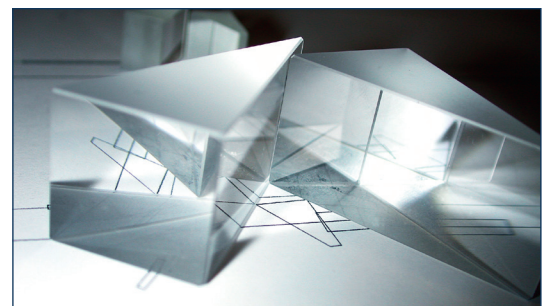
In order to be used successfully in most applications, prisms must be manufactured with very strict tolerances and accuracies. Most high precision prisms tend to be made in small batches, each batch varying in shape, size, and number of surfaces.

The Taylor Hobson automatic prism/polygon measurement system offers high stability angle measurement and testing of optical prisms, polygons, wedges and angle gauges. The reliability and accuracy of this measurement system is down to three key components:

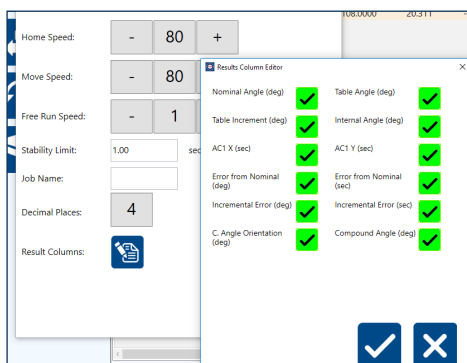
1. The Taylor Hobson digital Ultra Autocollimator is respected throughout industry for its high accuracy and stability, using the latest digital technology to produce a 2 axis, high accuracy (0.2 sec) stable instrument over a wide range (1800 seconds).
2. The Aerotech rotary stage gives precision positioning and movement to less than 1 second.
3. Dedicated software allows programmes to be written, saved and recalled using a simple, step-by-step process and the results produced in a detailed report format, giving all angular X and Y results, ready for visual analysis or export in .csv format for further calculations.

The accuracy of the setup is further improved by using an error separation technique on the table.

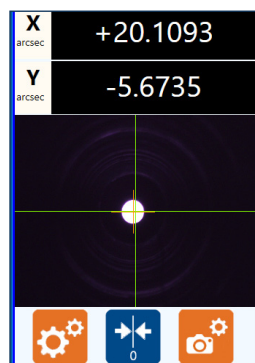
- The uncertainty of reading on any measured face in the X axis is a maximum of ± 0.5 arc sec.
- The uncertainty of reading on any measured face in the Y axis is a maximum of ± 1 arc sec (pyramid error).



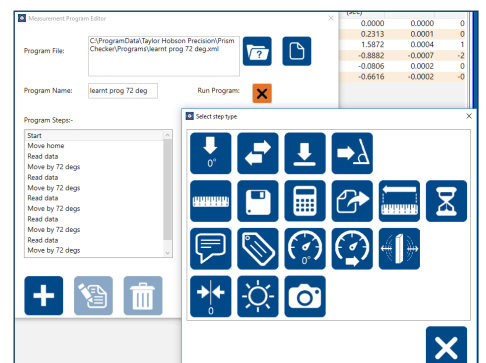
The Taylor Hobson prism checker measures a range of optical prisms, polygons, wedges and angle gauges from as little as 2 mm² in size



Results set up screen



Ultra autocollimator screen



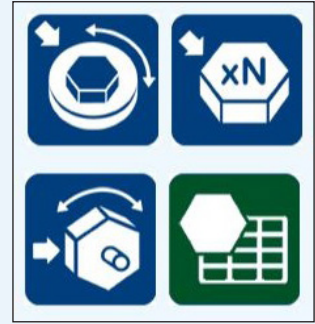
Clear, icon driven programming software

Checking a polygon

Polygons used for checking indexing tables and heads are typically 8, 9 or 12 sided although they can be supplied with as many as 72 faces. Since polygons are not perfectly regular a calibration chart is supplied to detail the deviations.

The Taylor Hobson system offers automatic polygon measurement.

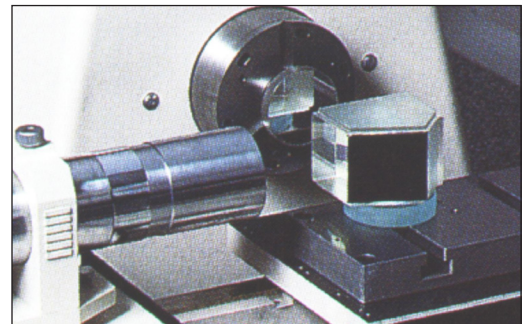
The first polygon face (zero face) is aligned to the autocollimator and set to zero along with the rotary table. The table is then rotated until its readout matches the nominal angle of the polygon (30° increments for a 12 sided polygon). Each face should align with the autocollimator and if perfect the autocollimator reading should read zero.



Taylor Hobson's Autocollimator

Our digital autocollimator range is also ideal for setting and checking optical manufacturing machines:

- Squareness of diamond turning machines
- High accuracy straightness of wafer machines
- Indexing heads



This application note demonstrates just one of the applications for the Taylor Hobson electro-optical metrology range.

Contact Spectrum Metrology to discuss your own measurement requirements.



Spectrum Metrology Ltd.

Unit 8 Ireton Avenue, Leicester, LE4 9EU

Tel: +44 (0)116 276 6262

Email: sales@spectrum-metrology.co.uk

Web: www.spectrum-metrology.co.uk



Taylor Hobson UK

Tel: +44 (0)116 276 3771
taylor-hobson.sales@ametec.com



Taylor Hobson France

Tel: +33 130 68 89 30
taylor-hobson.france@ametec.com



Taylor Hobson Germany

Tel: +49 6150 543 0
taylor-hobson.germany@ametec.com



Taylor Hobson Italy

Tel: +39 02 946 93401
taylor-hobson.italy@ametec.com



Taylor Hobson India

Tel: +91 80 6782 3346
taylor-hobson.india@ametec.com



Taylor Hobson China

taylor-hobson-china.sales@ametec.com

Shanghai Office

Tel: +86 21 5868 5111-110

Beijing Office

Tel: +86 10 8526 2111

Chengdu Office

Tel: +86 28 8675 8111

Guangzhou Office

Tel: +86 20 8363 4768



Taylor Hobson Japan

Tel: +81 34400 2400
taylor-hobson.japan@ametec.com



Taylor Hobson Korea

Tel: +82 31 888 5255
taylor-hobson.korea@ametec.com



Taylor Hobson Singapore

Tel: +65 6484 2388 Ext 120
taylor-hobson.singapore@ametec.com



Taylor Hobson Thailand

Tel: +66 2 0127500 Ext 505
taylor-hobson.thailand@ametec.com



Taylor Hobson Taiwan

Tel: +886 3 575 0099 Ext 301
taylor-hobson.taiwan@ametec.com



Taylor Hobson Mexico

Tel: +52 442 426 4480
taylor-hobson.mexico@ametec.com



Taylor Hobson USA

Tel: +1 630 621 3099
taylor-hobson.usa@ametec.com

