Talysurf® i-Series

A low noise high resolution instrument for roughness and waviness measurement
The new Talysurf® i-Series

A low noise high resolution instrument for roughness and waviness measurement

Ideally suited for automotive, bearings, gears and many other applications

The Talysurf i-Series is a simple to operate high accuracy instrument capable of roughness and waviness measurement. The system's low noise axes and high resolution gauge ensures measurement integrity.

Reproducible measurement results

Decades of experience, ultra precision machining expertise and FEA optimized design combine to provide low noise and near flawless mechanical execution of the measuring axes. Further enhancement via the use of traceable standards and exclusive algorithms effectively eliminates instrument influence from the measurement results.

Gauge

Gauge range 1000 µm
Resolution down to 0.16 nm

Roughness

Noise
Less than 8nm Rq

Form

Form optimization
For flat and curved profiles

Implementation

Easy to learn
Simple to operate
Unparalled measurement capability

Surface detail
High resolution gauges with low noise enables roughness and waviness measurement.

Parameter detail
Additional analyses include Rk, R&W, dominant wavelength and more...
Versatile and easy to use...
Utilizing powerful control and analysis software the measurement of roughness and waviness have never been easier.

**Gauge calibration**
The Talysurf i-Series uses a fast and simple process to calibrate the gain of the system. Utilizing a traceable step height standard calibrated to international standards, the automated routine calibrates the system without operator influence or manual intervention.

**Q-Link production interface**
A simplified interface designed specifically for production environments
- Q-DAS accredited
- Compatible with all instruments
- Simple operation & tolerancing
- User levels
- Traceable fields
- Automatic summary reports & statistical studies

**Form optimization**
The Talysurf i-Series uses a fast and simple algorithm to remove slope, curved and conic form. This quick and simple technique allows roughness and waviness to be analysed over flat and curved surfaces.

**Superior gauging**
The Talysurf i-Series gauge gives unique performance and its attributes include:
- Balanced beam giving any orientation measurement
- Constant stylus force throughout its range
- Integral lift / lower as standard
- Small gauge diameter for greater accessibility
Ultra surface finish parameters
Powerful software for the analysis of surface finish

Surface finish parameters
Primary parameters: DFTF, LSLP Ave, LSLP Max, Pa, Pc, PCF, PCI, PGr, Pda, Pdc, Pdq, PHSC, Pku, PIn, PLo, PIn, Pmr, Pmr(C), Pp, PPc, Pq, PS, Psk, PSm, Pt, Pv, PVo, Pz, Pz(JIS)
Roughness parameters: R3y, R3z, Ra, Rc, Rcf, RCI, RCr, Rda*, Rdc*, Rdq*, RHSC*, Rku, Rin, RLO, Rlq, Rmr*, Rmr(C)*, Rp, Rp1max, Rpc*, Rq, RS, Rsk, RSm, Rt, Rv, Rv1max, RVo*, Rz, Rz(DIN), Rz(JIS), Rz(n)*, Rz1max


Rk parameters and Rk curve: A1, A2, APH, AVH, CV, Mr1, Mr2, Rk, Rp, Rpv, RpV
R & W parameters: AR, AW, Pt, R, Rke, Rn, Rpke, Rvk, Rs, Sr, Saw, Sr, Sw, V, VN, Vte, Vx
Dominant wavelength: WD1c, WD1Sm, WD1t, WD2c, WD2Sm, WD2t, WD2SmMax, WD2SmMin

Note: Also includes Roughness VDA and Rk VDA

Form removal and analysis functions
Angle (slope): Surface tilt can be removed prior to parameter analysis by means of a best fit Least Squares straight line algorithm.
Radius: When the surface is a curved or a more complicated involute shape etc the form is removed prior to parameter analysis by use of a Polynomial form fit algorithm.

Filters and additional features
Filters: Gaussian, Robust Gaussian, Spline, VDA, Morphological, ISO 2CR, 2CR PC, Rk
Cut-off (Lc): 0.08, 0.25, 0.8, 2.5, 8mm and 25mm
Bandwidth: 10:1, 30:1, 100:1, 300:1 and 1000:1 or as defined by data spacing(VDA2006)
Qualifiers: All parameters marked with an asterix require user assigned single or multiple qualifiers. For example, material ratio (mr) may be assessed at one or more slice levels within a single measurement.

Note: Where applicable the parameters conform to and are named as per the standards ISO4287-1997, ISO13565-1-2 and ISO 12085.

Talysurf i-Series floor plan
Traceability
Full traceability to international standards

**Grating correction**
All our traverse units are tested and enhanced using interferometric techniques ensuring accurate dimensional and surface texture measurement in the x direction.

**Arcuate correction**
Patented ball calibration routine
The Form Talysurf systems use a patented ball calibration routine to ensure that both dimensional measurement capability and gauge linearity are dealt with in a single, automated operation.

This fast and simple process uses high-precision spherical calibration artefacts that have been produced to exacting standards and then calibrated for radius and form traceable to international standards.

**Step height**
To ensure the correct gain setting of your instrument, high precision step height standards are available; calibrated uncertainties down to ±4nm.

**Surface finish**
Taylor Hobson can provide glass or metal roughness standards calibrated to an uncertainty of ±(2% + 4 nm), providing measurement confidence and compliance for peak parameters with respect to ISO standards.

Spacing standards are also available to an uncertainty of ±0.6 µm.

**Traceability**
All calibration standards can be provided with traceability to international standards using Taylor Hobson’s own UKAS laboratory.

**Datum straightness**
To check the traverse unit conforms to specifications Taylor Hobson can supply Zerodur straightness standards. These standards combined with special software routines enhance the measuring axis for correct geometrical form.
Serving a global market
Taylor Hobson is world renowned as a manufacturer of precision measuring instruments used for inspection in research and production facilities. Our equipment performs at nanometric levels of resolution and accuracy.

To complement our precision manufacturing capability we also offer a host of metrology support services to provide our customers with complete solutions to their measuring needs and total confidence in their results.

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- Design engineering
  special purpose, dedicated metrology systems for demanding applications
- Precision manufacturing
  contract machining services for high precision applications and industries

Service department
Email: taylor-hobson.service@ametek.com
Tel: +44 (0)116 246 2900
- Preventative maintenance
  protect your metrology investment with an Amecare support agreement

Centre of Excellence department
Email: taylor-hobson.cofe@ametek.com
Tel: +44 (0)116 276 3779
- Inspection services
  measurement of your production parts by skilled technicians using industry leading instruments in accord with ISO standards
- Metrology training
  practical, hands-on training courses for roundness and surface finish conducted by experienced metrologists
- Operator training
  on-site instruction will lead to greater proficiency and higher productivity
- UKAS calibration and testing
  certification for artifacts or instruments in our laboratory or at your customer's site

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