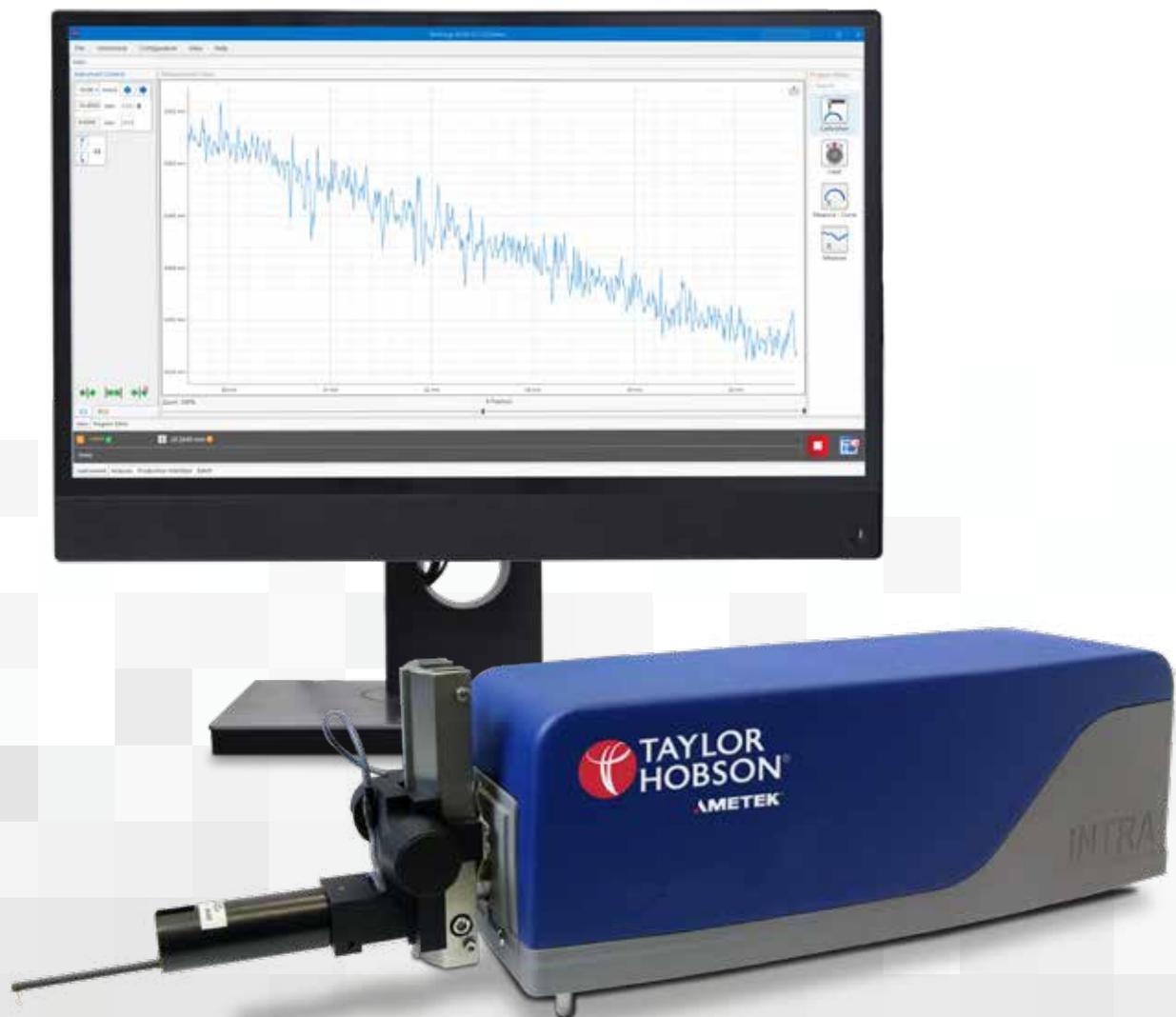


INTRA PRO

Precision shop floor solution for
surface finish and contour measurement



INTRA PRO

Roughness and contour measurement Measure both with a single gauge

Housed in a rugged casing, the INTRA PRO has a proven history of maintaining accuracy of measurement without the need for constant maintenance or support.

Quality, flexibility and ease-of-use have enabled the INTRA PRO to become a portable shop-floor standard across a wealth of different industries. The INTRA PRO combines industry leading specification with simplicity of operation for unbeatable practicality and value.

Advanced contour measurement

Cost effective, robust and portable contour solution with built in 90 mm Z height and optional 350 mm column.

- Simple, single user interface for calibration, measurement and analysis
- Patented ball calibration
- Precision glass scale
- Excellent temperature stability
- Roughness and contour on single gauge



Gauge linearity

Unless your measurements are all taken within the same vertical position of the gauge range and never exceed the amplitude of the step height master, the data you collect may be non-linear which will cause incorrect results.

Using ball calibration is more reliable than the step height master as this eliminates non-linearity.

The INTRA PRO is calibrated using a unique patented ball calibration to check linearity of the entire gauge range. Many other systems can only use a few points in the range.

Traverse accuracy

Many roughness checkers are time based, collecting data for a fixed period of time instead of a precise, constant distance.

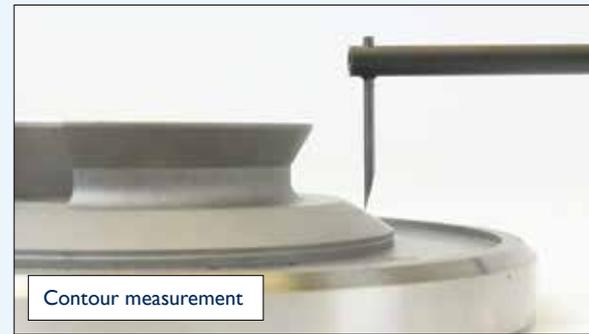
Anything that affects speed of traverse – wear, dirt, slippage, etc. – affects the quantity and spacing of the collected data points which in turn affect the measurement results.

The INTRA PRO utilises a glass scale and reading head to ensure that data collection is accurate and consistent.

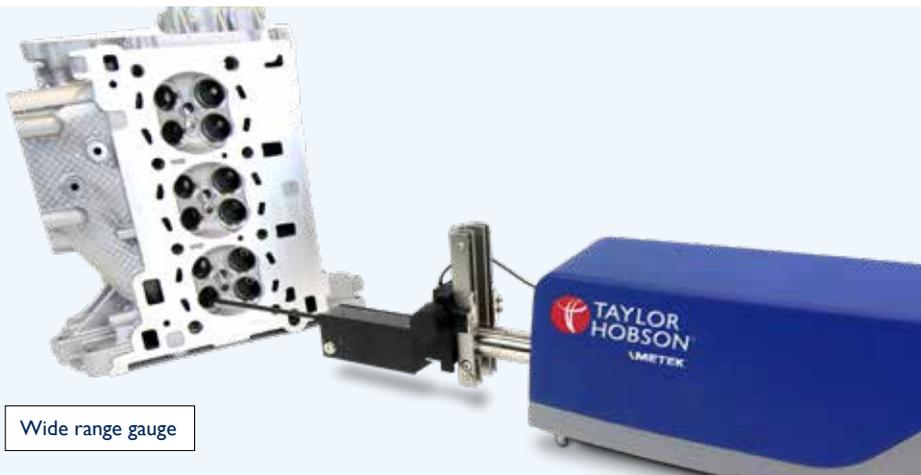
Every measurement on every instrument is calculated from the exact same quantity of identically spaced data points.



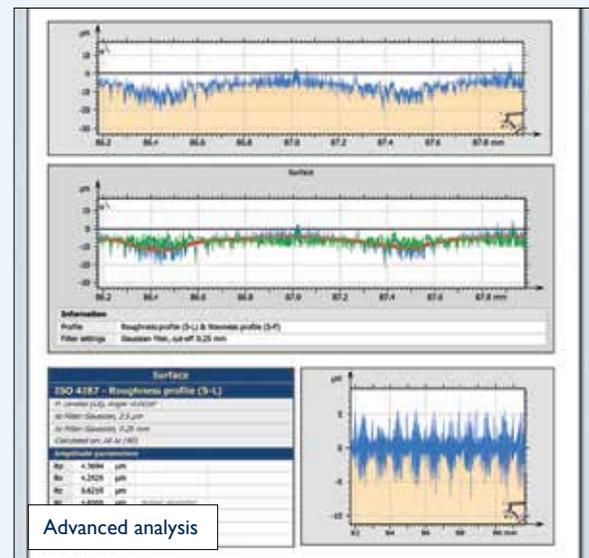
High precision gauge



Contour measurement



Wide range gauge



Advanced analysis

Two gauges to meet all of your demands

High precision gauge

This head leads the industry with up to 2 mm (0.08 in) of range and an outstanding range to resolution ratio of 262,144:1.

1 mm - range/resolution

- 1 mm / 4 nm (0.04 in / 0.16 µin)
- 0.2 mm / 0.8 nm (0.008 in / 0.03 µin)

2 mm - range/resolution

- 2 mm / 8 nm (0.08 in / 0.31 µin)
- 0.4 mm / 1.6 nm (0.016 in / 0.06 µin)

Wide range gauge

The wide range gauge provides up to 32 mm (1.26 in) of range with 15 nm (4.8 µin) resolution. Suitable for form and contour measurements.

20 mm - range/resolution

- 20 mm / 76 nm (0.79 in / 3 µin)
- 4 mm / 15 nm (0.16 in / 0.6 µin)

32 mm* - range/resolution

- 32 mm / 125 nm (1.26 in / 4.8 µin)
- 6.4 mm / 25 nm (0.25 in / 1.0 µin)

* Contour measurement only.

POWERFUL SOFTWARE

Simple user interface with icon driven display **Designed with the operator in mind**

Metrology 4.0 Smart Software

The icon-based user interface provides simple measurement and advanced analysis.

Metrology 4.0 workflow has been designed to be quick to use whilst reducing operator mistakes.

Simple workflow

- Simple icon interface for various measurement types
- Create bespoke apps with pre-saved settings
- Gauge indicator
- Intuitive workflow in 3 easy steps:
 - Load Part, Contact Stylus, and Click Measure

Guided measurement and calibration routines

Operators can be walked through a procedure with guided measurement prompts in the form of pictures or videos. These ensure measurements are done correctly and reduce operator errors.

Desktop publishing & analysis

Users can tailor their analysis to suit them. Fully flexible and professional with tolerancing and company logos.

User inputs

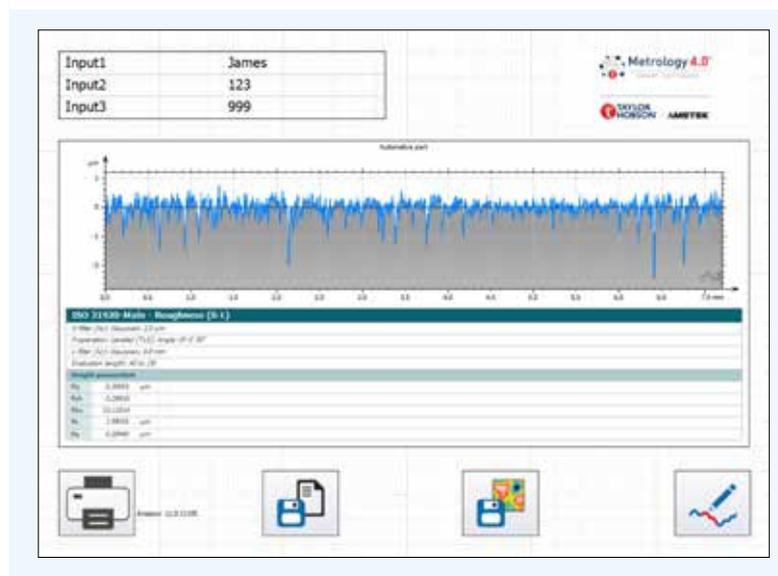
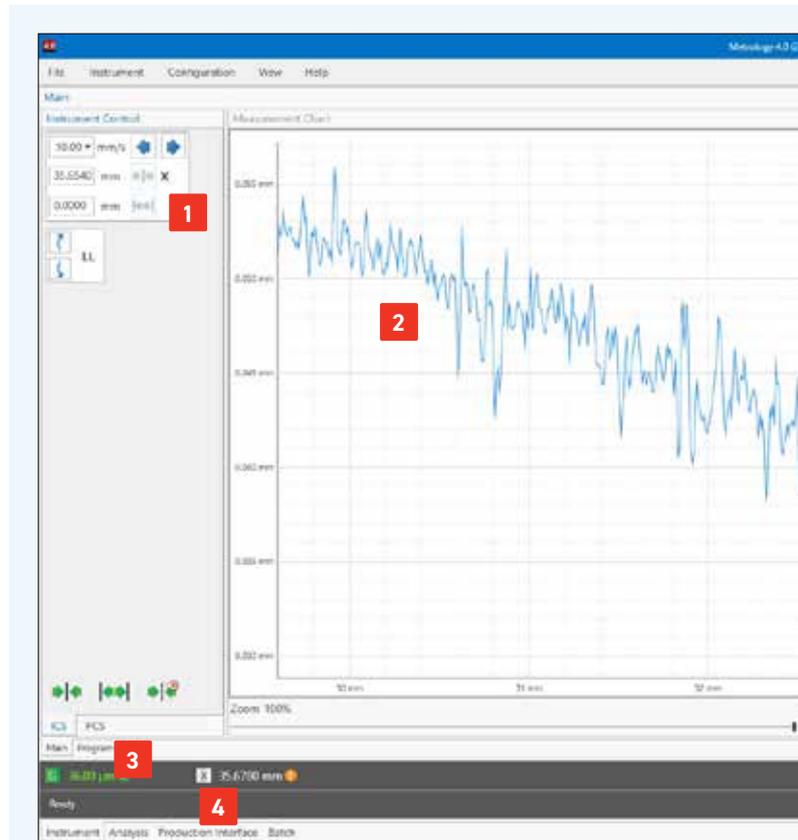
User input information can be entered at the start of a program and is used on the report. Items such as operator name, part number, etc.

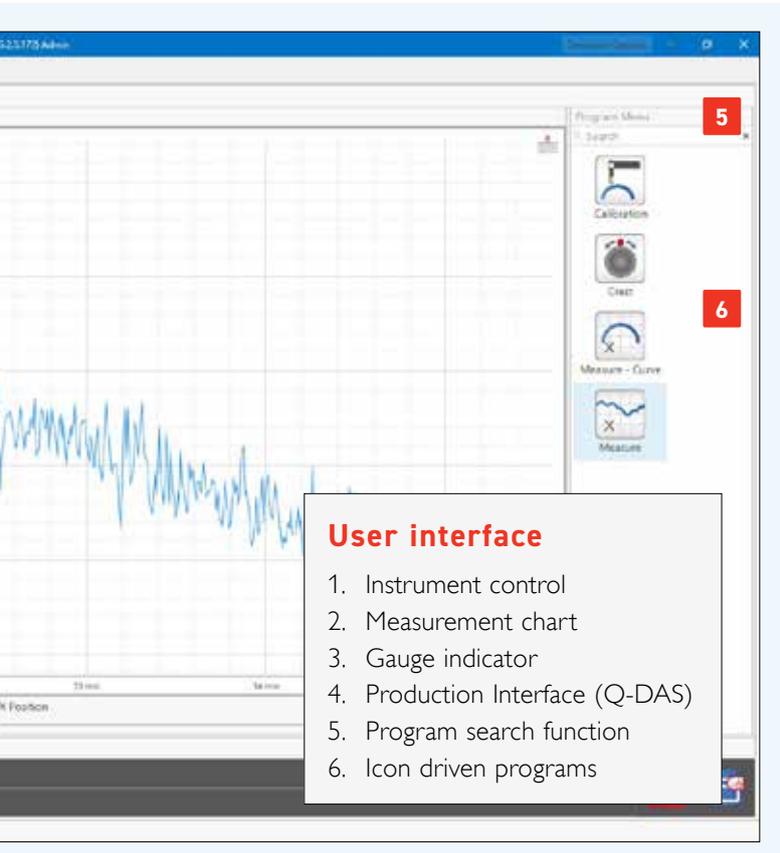
Live measurement preview

A real-time preview of the measurement is shown.

QDAS output

Metrology 4.0 now allows statistical analysis in the form of QDAS output.





Taylor Hobson Advanced Modules (THAM)

Taylor Hobson offer the service to implement specialised algorithms into the standard software. Contact Taylor Hobson for more information.

X-Crest functionality

Advanced feature for precision measurement and enhanced surface analysis.

Stage control integration

Seamless interaction with motorised stages for automated and precise positioning.

Variables

Variables make programs more flexible. Variables could be used to reduce the number of programs required to measure a range of parts or further calculation on parameters.

Reducing program complexity with variable programming

A bearings manufacturer produces over 100 part sizes across 3 bearing grades.

Without variable programming, this would require over 300 individual programs. Metrology 4.0 with variable programming delivers consolidation into a single adaptable program.

Benefits

- Significant reduction in programming workload
- Simplified maintenance - update one variable instead of hundreds of programs
- Improved efficiency and consistency across production



DEDICATED ANALYSIS

Dedicated, Windows® software package Designed for use with INTRA PRO

Extensive surface finish analysis

The INTRA PRO includes everything needed for the assessment of surface finish.

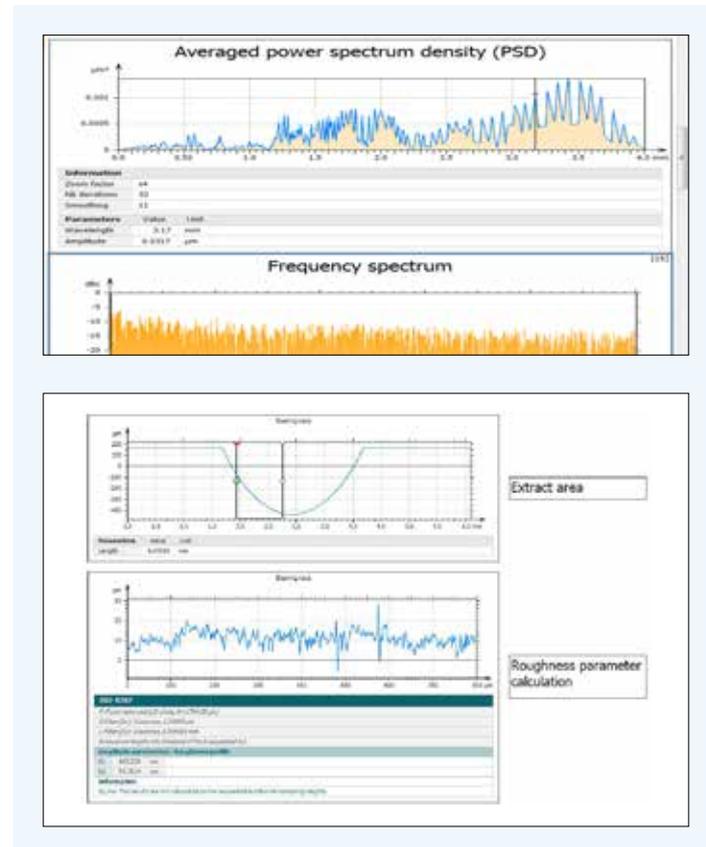
Fundamental roughness and waviness parameters are included, plus form error analysis, feature exclusion, zoom tool and analysis templates for shop floor applications.

Advanced contour analysis

Contour is an essential tool for geometric dimensioning, tolerancing of profiles and full form deviation analysis.

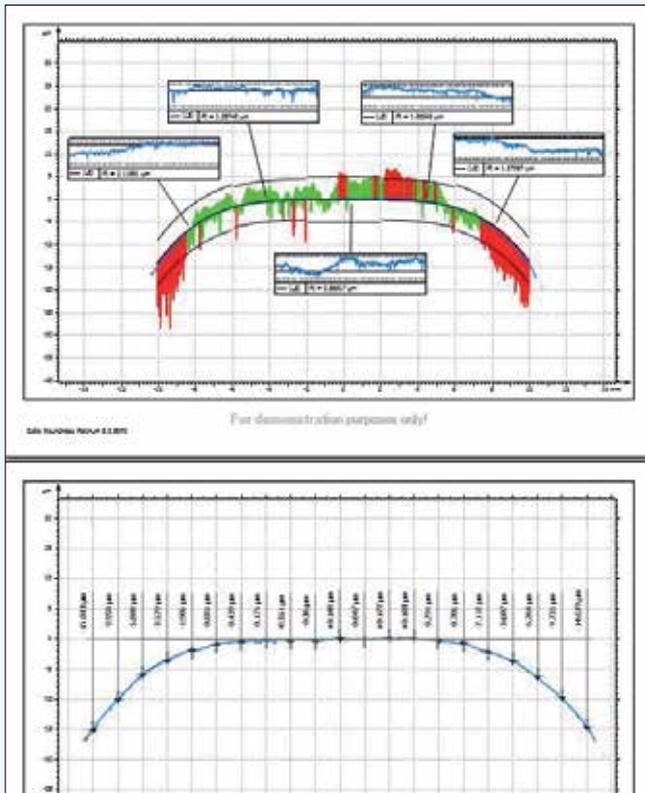
Save time and increase productivity with automation features within contour analysis, including:

- Gothic arch
- Angle
- DXF fitting
- Roller profile and drops
- Wall / Disc thickness
- Distance measurement



Existing features & benefits

- **Form analysis** - Measure and evaluate radius, angle (slope) and dimension
- **Simple user interface** - Combines simple calibration, measurement and analysis to deliver a true shop floor solution.
- **Dual profile analysis** - Allows comparison of measurements for wear, tolerancing, etc.
- **Metrology 4.0 Topography Analysis** - Software utility for topography applications*
- **Pass/Fail tolerances** - All parameters can be assigned nominal, minimum and maximum values.
- **Full compatibility** - Surface finish results from other Taylor Hobson surface roughness instruments can be imported to Metrology 4.0 software, allowing a uniform report style.
- **In depth analysis** - Profiles can be levelled and zoomed to remove unwanted features or defects from the analysis. Distance measurement between features of a profile are easily achieved and the information can be displayed graphically/numerically. Step height and the area of a valley or peak can also be calculated.
- **Desktop publishing facility** - Comprehensive desktop publishing function which allows clear presentation of measurements, results and profiles.
- **Advanced time-saving analysis templates** - A 'template' can be created whereby a sequence of analysis functions can be saved and applied to future measurements, turning detailed reporting tasks into routine documents.



Taylor Hobson's unique patented ball calibration routine

The patented routine ensures that the dimensional measurement capability and gauge linearity are calibrated in a single, automated operation.

Using high-precision spherical calibration artefacts that have been produced to exacting standards and then calibrated for radius, form and surface finish in our own UKAS approved laboratory. Our automated routine delivers a true gauge calibration.

In operation the user simply completes a dialogue confirming parameters such as the percentage of gauge range to be used and the traverse speed.

Working from knowledge of the stylus geometry and the dimensions of the calibration standard, the software automatically calculates the measurement properties and drives the traverse unit, completing the calibration with the minimum of operator intervention.

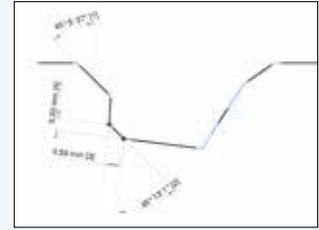
New features & benefits

- **Customised analysis settings**
 - Frequently used analysis settings can be pre-saved and remembered by the software
 - Repetitive analysis can be done in a single click
- **Batch analysis**
 - Analyse multiple measurements as part of one routine
 - Analysing 5 measurements is now 5x quicker!
 - Ensures that each measurement has been analysed the exact same way
- **Undo & redo**
 - Mistakes are fixed with a single click
- **Multiple tabbed documents**
 - The user can compare documents side by side
- **Drag and drop files**
 - View your results quicker
- **Improved parameters calculation (with warnings)**
 - Warnings prevent users from making mistakes such as 'double filtering'
 - Filtering conditions can be displayed inside of the document
- **Quicker calculation times for large datasets**
 - Calculation time has been greatly improved for Gaussian filter and Robust Gaussian filter
- **Quick extraction operators**
 - Analyse the important areas of your part easily
- **Taylor Hobson Advanced Modules (THAMs)**
 - Bespoke analysis modules written for you
- **MATLAB™ operators**
 - Add your own analysis into the software using MATLAB™ scripts

Measuring brake calliper profile

Measure undercut in two measurements and join them together for analysis

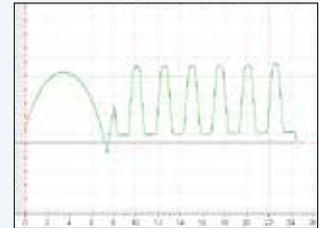
- Wide range gauge and 20 mm chisel tip stylus
- Metrology 4.0 analysis (Contour)



Measuring worm gear profiles

Analyse the complete profile for quality checking of parts

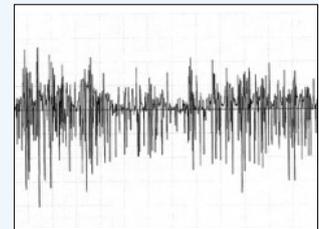
- Wide range gauge and 20 mm chisel tip stylus
- Metrology 4.0 analysis (Contour)



Measuring band saw blades

Identify 'chatter' and surface finish variations which can cause fatigue

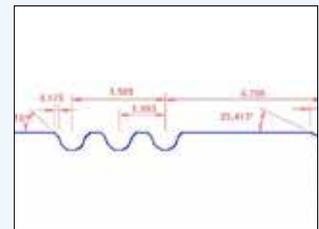
- High precision gauge and 1 mm stylus*
- Metrology 4.0 analysis



Measuring engine valve grooves

Inspection of parts to eliminate expensive rejects

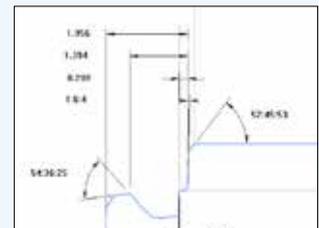
- Wide range gauge and 2 mm knife edge stylus
- Metrology 4.0 analysis (Contour)



Measuring bearing groove

Complete profile quality check on bearings

- High precision gauge and 20 mm chisel tip stylus**
- Metrology 4.0 analysis (Contour)



* Column, precision vice and manual Y-stage required.

** In high gain mode (4 mm range).

Sales

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- **Design Engineering** – Special purpose and dedicated metrology systems for demanding applications.
- **Precision Manufacturing** – Contract machining services for high precision applications and industries.

Service

Email: taylor-hobson.service@ametech.com
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- **Preventative Maintenance** – Protect your metrology investment with an AMECare support agreement.
- **Upgrades** – Carried out by Taylor Hobson accredited service engineers and include installation and calibration to ensure your system runs at peak performance.

Metrology Support

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- **Contract Measurement** – A cost effective option to capital expenditure, simply send in first article or production components for measurement.
 Measurement of your parts is carried out 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 & Testing** – Certification for artifacts or instruments in our laboratory or at customer's site.



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World-Class Global Support

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