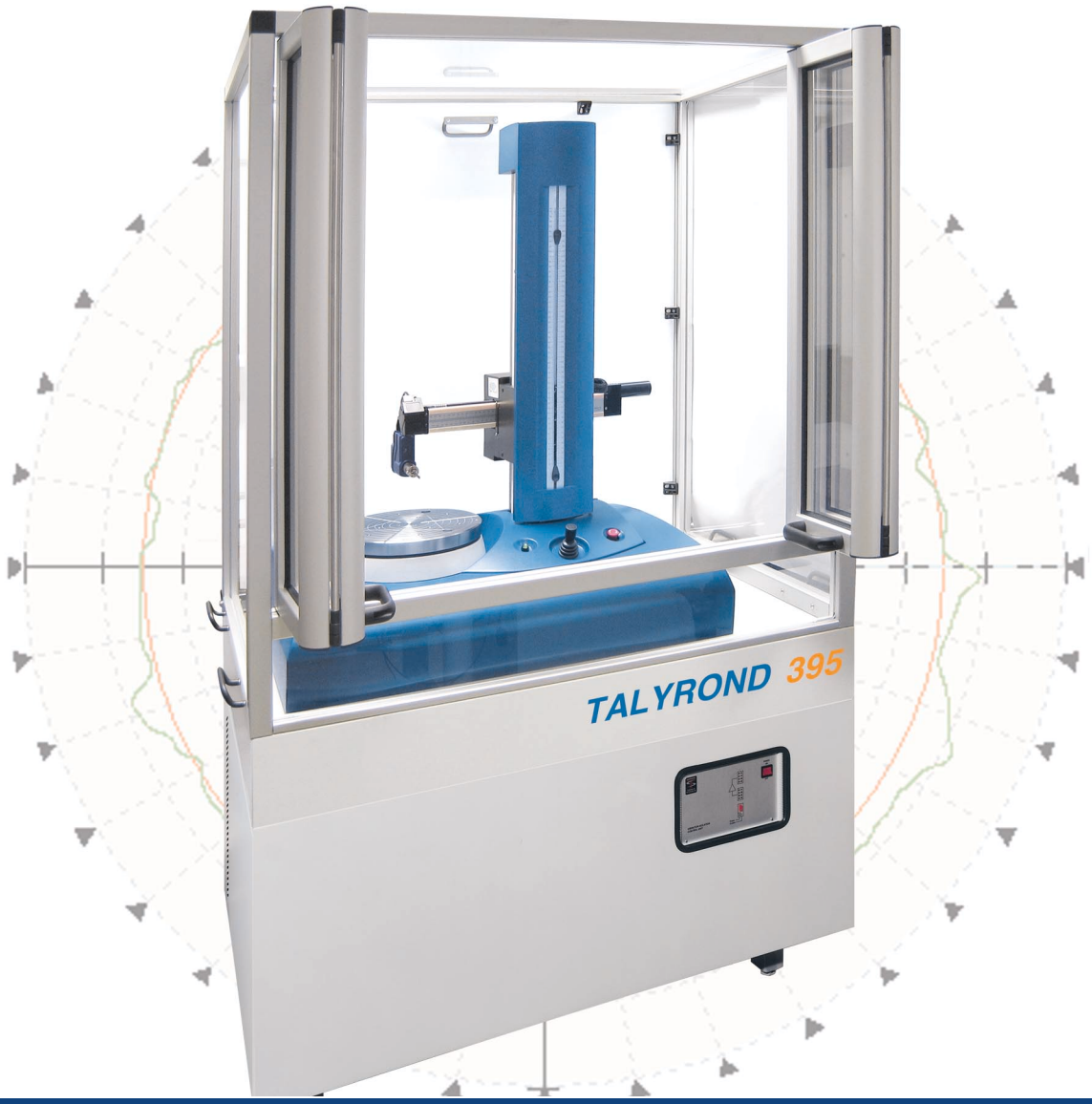
Talyrond 395 Roundness/Cylindricity Systems

PRODUCT

A high precision instrument for nanometric form analysis

The Talyrond 395 has been designed specifically for the measurement of precision components. The instrument's construction, external isolation and full CNC operation provide the platform required for the most demanding of environments.



Talyrond 395 for the measurement of precision components

Versatility	–	automated arm attitude/orientation mechanism
Simplicity	–	self calibration of the arm, column, spindle and gauge
Integrity	–	high precision air spindle ±0.01µm
Precision	–	gauge resolutions down to 1.2nm
Stability	–	active vibration and environmental isolation system
Repeatability	–	high accuracy position control of all axes

Taylor Hobson PRECISION

Talyrond 395

A high precision Roundness/Cylindricity measurement system for nanometric form analysis

Spindle Accuracy ± 0.01µm
Ultra high precision roundness measurement of sub-micron components requires spindle accuracies down to nanometre level. The Talyrond 395 diamond turned air-bearing spindle is unsurpassed in radial and axial accuracy.

Gauge resolution to 1.2nm
With 1.2nm resolution the new Talymin 5 gauge is ideal for all high precision applications. The mechanical integrity of the crutch (fixed crutch optional) and pivot mechanism eliminates drift during the measurement cycle and assures stability of contact between the gauge and the component.

Dynamic vibration isolation
To achieve nanometric accuracy and repeatability, all potential errors must be eliminated. To isolate floorborne vibration from the measurement loop, Talyrond 395 includes dynamic antivibration mounts located between the support frame and base.

Automatic centring and leveling to sub micron target values
All components of the Talyrond 395 centre and level mechanism are machined to a high order of accuracy using materials that optomise resolution and repeatability. The centre and levelling process is so accurate it effectively simulates the relationship between the machine axis and component axis to bring the measurement closer to the manufacturing process. This feature is critical for inspection of coned seating faces.

Automatic axis and gain calibration
Two fast, accurate and unique calibration routines are available on the TR395. The first routine is used for automatic calibration of all the axis positions, the second will calibrate the instruments gauge head in seconds.

Environmental enclosure
Localised airflow, temperature fluctuations and contamination can all have an effect on precision measurement systems. The Talyrond 395 comes with a fully integrated enclosure that isolates the measuring platform from external environmental influences.

Stable cast iron base
The spindle, vertical column and horizontal arm are all anchored to a one-piece cast iron base. No other material can provide this level of stiffness and stability when measuring moving loads.

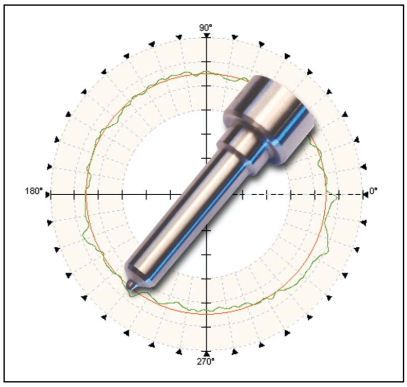
Accuracy built into every axis
Mechanical stability throughout the measuring loop is essential to reliable performance and measurement integrity. Every axis of the Talyrond 395 offers outstanding specification:

Vertical column straightness
0.1µm + 0.0002µm/mm

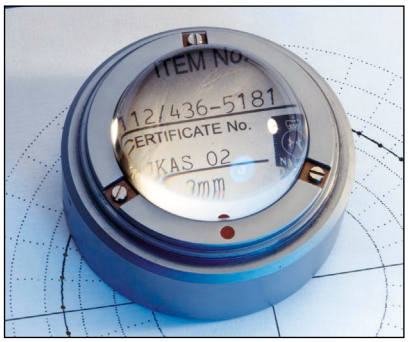
Horizontal arm straightness
0.125µm + 0.000625µm/mm

Traceable calibration
Any claim of roundness accuracy to nanometric levels must be supported with proof and traceability. Optional with every Talyrond 395 system is an ultra high precision glass hemisphere with roundness deviation less than or equal to 10nm and individual slope values of less than 2nm/7.2º.

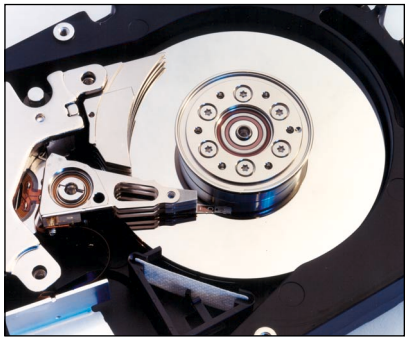
This unique calibration artefact is used to monitor and prove that spindle performance is within specification.

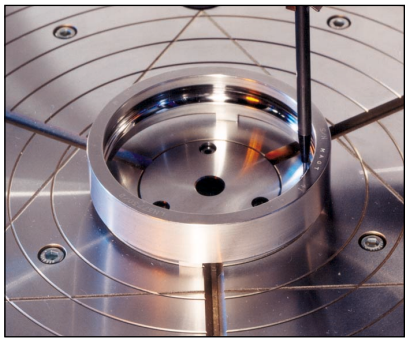


Fuel injectors



Calibration artefacts


Fluid dynamic bearings


High precision bearings

Specifications are subject to change without notice. Note, not all features are included with all instruments. Please enquire for detailed specifications.