

Talyrond® 565H/585H

Ultra high precision roundness measurement



Unparalleled measurement capability



The Talyrond® 565H/585H

Ultra high precision roundness measurement

Measure three critical performance elements roundness, surface finish, and now contour exactly as they were produced.

The Talyrond[®] 565H/585H is the number one choice for manufacturers of precision components including bearings, fuel injectors, crankshafts and turbocharger parts and much more...

The Talyrond[®] 500H series is a world leader in speed, position control and accuracy and has the lowest noise floor of any instrument of its kind.

These characteristics combined with the systems unique gauge capability enable measurement of roundness, roughness and contour from a single metrology platform.



High precision emulation of your manufacturing process

The Talyrond[®] 565H/585H range of roundness instruments use rotary, vertical and horizontal measuring datums to duplicate your machine tool's movement and exactly reproduce the workpiece shape. This ultra high precision simulation of the cutting tool path enables precise control of your manufacturing process.

Reproducible measurement results

Decades of experience, ultra precision machining expertise and FEA optimised 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.



4 Gauge	Roundness	Roughness	Contour
Gauge Range Up to 4 mm	Radial Accuracy ± 0.01 μm	Noise Less than 30 nm Rq all axes	LS Arc measurement 5 μm
Resolution Down to 0.3 nm		Ra values Less than 0.1 μm	Pt 0.5 μm



Unparalleled measurement capability

Five measurements in one

Emulating the manufacturing process with a higher degree of precision allows all features to be measured on one instrument



Cams and pistons

A precision encoder and linear scales in all axes enables measurement of non round parts such as cams and pistons.

Powerful software tools help improve your process

Advanced harmonics - identify the cause of bad parts

Ordinary inspection might detect bad components but Talyrond[®] 565H/585H can help you fix the production issues that are causing them.

Deviation in form on a workpiece can be broken down into irregularities that have both frequency and amplitude. Harmonic analysis identifies these imperfections allowing you to pinpoint and correct their cause, reducing the need for ever tighter tolerances on size.

- Full histogram view with tolerance bands
- Pass/Fail and warning messages
- Ranking system according to wave depth or harmonic amplitude
- Comparison to CSV
 or GKD files
- Up to 5000 upr
- Wave depth or harmonic amplitude format









New Advanced Harmonic Standard

A precision machined standard with the following undulations in 360 degrees:

15	upr
50	upr
150	upr
500	upr
1500	upr



Giving confidence



Example of 15th harmonic

3D cylindrical mapping

For production issues beyond the scope of traditional 2D inspection techniques



Crankshaft oil hole without washout



e Crankshaft oil hole with washout

With high accuracy and high resolution in all axes, the Talyrond® 565H/585H allows you to measure in 3 dimensions for more thorough examination of flaws, defects and cutting tool geometry effects that influence performance or lead to component malfunction.

- Twist or lead detection
- Wear scar analysis
- Machining defects
- Leak detection and more



Q-Link is part of Taylor Hobson's ongoing developments supporting automation, data exchange and process control in manufacturing environments. This approach is in line with the Industry 4 philosophy.

Q-Link Production Interface

A simplified interface designed specifically for production environments

Q-Link offers simplicity, versatility and traceability and provides direct communication with SPC software which delivers feedback to your manufacturing process.



QDAS accredited Meets the demands of the Advanced Quality Data Exchange Format



Reporting Instant screen report summary with pass/fail results



Implementation Easy to learn, simple to operate



Tolerancing Visually identifies the parameter and its tolerance band



Protection Allows different user levels and configurations

IN ACTION



Traceability Configurable fields; serial number, operator name, machine number etc...



Automatic R&R Studies available as



Compatibility Across the range of roundness and surface finish products

Widely used in automotive and aerospace component manufacturing where data and strict standard operating procedure control is mandatory



Designed to suit your application

Meeting the ever increasing demands of next generation technologies

Taylor Hobson have had a long association with advanced manufacturing, this association has helped to evolve powerful software solutions to suit your applications

Inner bearing races



Roller bearings



Fuel injectors



Crankshafts



Turbo chargers





Testimonial

Ultra precision bearings are produced to the highest standards available. They are used in industries with a necessity for critical tolerances, high speeds and reliable performance under demanding operating conditions. Ultra precision bearings are also used in safety-critical and harsh environment applications.

Having the responsibility to ensure 1.5 million bearings each year are manufactured to the highest quality, means controlling our components at all stages of manufacturing. We have 15 Taylor Hobson roundness measuring instruments that help us maintain high throughput and the accuracies we require to ensure every one of our bearings is of the highest quality.

Measurement Q/A Coordinator - Leading global bearings manufacturer

Industries and applications:

- Automotive
- Aerospace
- Bearings
- Hydraulics
- Optics
- Dental and medical
- Industrial plants









Designed for metrology without compromise

The construction of the Talyrond[®] 565H/585H is key to measurement integrity

Reproducing the part

Taylor Hobson's core competencies are in cylindrical grinding, surface grinding and diamond turning. All of these disciplines coupled with knowledge in drive mechanisms go towards constructing an instrument with low noise and high geometric accuracy, ensuring reproducibility of the component.

Frictionless air bearing spindle

The instrument's spindle axis, like any spindle based machine tool, is paramount in ensuring integrity of measurement. Utilising Taylor Hobson's own diamond turning lathe we are able to create a reference datum unsurpassed in accuracy and reliability.

Instrument base

Using finite element analysis software, the cast iron base provides a solid foundation for both the high precision air bearing spindle and vertical straightness datum, ensuring movement and weight do not effect results. A choice of passive or active isolation mounts are available, which have been designed for either inspection laboratories or production environments.

Straightness datums

The vertical column is machined for straightness, waviness and roughness to an exacting standard, using traceable standards and techniques developed by Taylor Hobson. The straightness datums are further enhanced to ensure reproducibility of the part with little or no instrument influence.

Industry specific software

Velocity analysis allows bearing manufacturers to evaluate harmonics with respect to amplitude and predict function with respect to speed



Important features of a roundness system

- 1 Parallelism of column to spindle axis
- 2 Column and arm straightness
- 3 Low vertical and radial arm noise
- 4 Squareness of arm to spindle axis
- 5 Radial run-out of spindle
- 6 Low spindle noise
- 7 Minimised coning error of spindle
- 8 Accurate glass scales in all axes









Traceability

Full traceability to international standards



Roundness

Using a precision polished glass hemisphere calibrated to an uncertainty of less than 5 nm Taylor Hobson can guarantee your spindle is within specification and maintain quality of results.



Arcuate correction (contour option)



Taylor Hobson's patented calibration routine and calibration ball corrects for the arcuate motion of the stylus allowing dimensional measurement. This routine is critical to measurement of radius and angled parts when normal calibration routines will not suffice.

Axis calibration

Automated or manual routines are supplied allowing the user to set coordinates to the part or instrument axes. The fully automated routine calibrates the arm, column and spindle.

Straightness, squareness and parallelism

To ensure the column and radial straightness unit conform to specification we can provide standards that are either cylindrical or flat. These standards provide certainty of the measurement axes. These artefacts are combined with special software routines to enhance all axes for correct geometrical form.



Traceability



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

Automated probe calibration

The Talyrond[®] 565H/585H has a unique automated gain calibration for the instrument's gauge; the routine is automated and takes a matter of seconds to set. Alternatively a set of calibrated slip blocks traceable to primary standards are also supplied.

Surface finish

A unique standard is available that provides measurement traceability for roughness in both a vertical and circumferential direction.

Accessories

All the accessories you need to begin using Taylor Hobson roundness measuring systems are supplied as standard. However, for more demanding requirements or improved measurement throughput, we have a range of accessories which may be ordered separately.

Environmental cabinet and active AV mounts

Recommended for use in production or non controlled environments.

Environmental cabinet

The environmental cabinet forms part of the instrument structure and protects against airflow, dust and external influence.

code 112-4276

Active anti-vibration mounts

The active AV mounts protect the system from external vibration by use of piezo actuated mounts.

code 112-4277

Active AV mounts with environmental cabinet

Provides isolation from airflow, dust and external vibration.

code 112-4278

2 Talyrond[®] ball calibration standard

Required for use with contour or form software, this calibration standard corrects for gain, tip and arcuate motion of the stylus.

Talyrond[®] ball standard rad 7.5 mm (Not recommended for 4 mm range) code 112-4305UC

Talyrond[®] ball standard rad 12.5 mm (Not recommended for 4 mm range) code 112-4319UC

Talyrond[®] ball standard rad 22.5 mm code 112-4092UC

3 Flick standard

For rapid calibration of the gauge head; alternative to the standard gauge calibration set.

20 μm (788 μ") range code 112-2308

300 µm (0.012") range code 112-2233

• Calibration standard

Vertical and circumferential roughness. code 112-4341

S Präzisions-Glashalbkugel

For checking total system performance; UKAS calibration certificate is optional.

Roundness < 0.02 µm (0.8 µ") code 112-2324

Glass hemisphere

For checking total system performance; UKAS calibration certificate is optional.

Roundness < 0.05 µm (2 µ") code 112-436

6 High precision test cylinder

For verification of the instrument's vertical straightness accuracy and parallelism of the vertical axis to the spindle axis. UKAS calibration certificate is optional.

code 112-3670-01

Precision test cylinder

For verification of the instrument's vertical straightness accuracy and parallelism of the vertical axis to the spindle axis. UKAS calibration certificate is optional.

300 mm (11.8") cylinder Roundness < 0.25 μm (10 μ") Straightness < 0.5 μm (20 μ")*

code 112-1888

500 mm (19.7") cylinder Roundness < 0.25 μm (10 μ") Straightness < 0.5 μm (20 μ")*

code 112-1997

1000 mm (39.4") cylinder Roundness < 0.75 μm (30 μ") Straightness < 3 μm (120 μ")* code 112-3604

* Straightness over central 90% of test cylinder length













Customised solutions for special applications

Our strategy for success is simple, instead of just selling products, we provide solutions. If our standard instruments and accessories do not satisfy your needs, we can customise a solution to exactly match your application.

Specifications are subject to change without notice.

Parameters



 \bullet = Optional (Customer specific analysis available on request)





The Metrology Experts

Established in 1886, Taylor Hobson is the world leader in surface and form metrology and developed the first roundness and surface finish measuring instruments.

www.taylor-hobson.com

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 customer's site.

© Taylor Hobson Ltd. 2018

Sales department

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

- 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 +44 (0) 116 246 2900 Tel:

• Preventative maintenance - protect your metrology investment with an AMECare support agreement.



Taylor Hobson UK

(Global Headquarters) PO Box 36, 2 New Star Road Leicester, LE4 91O, England

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



Taylor Hobson France

Rond Point de l'Epine Champs Batiment D, 78990 Elancourt, France Tel: +33 130 68 89 30 taylor-hobson.france@ametek.com

Taylor Hobson Germany

Rudolf-Diesel-Straße 16, D-64331 Weiterstadt, Germany Tel: +49 6150 543 0 taylor-hobson.germany@ametek.com

Taylor Hobson Italy

Via De Barzi, 20087 Robecco sul Naviglio, Milan, Italy Tel: +39 02 946 93401 taylor-hobson.italy@ametek.com

Taylor Hobson India

Divyasree NR Enclave, 4th Floor, Block A, Plot No. 1, EPIP Industrial Area, Whitefield, Bengaluru - 560066, India Tel: +91 80 6782 3346 taylor-hobson.india@ametek.com

Taylor Hobson China

taylor-hobson-china.sales@ametek.com Shanghai Office

Part A1, A4. 2nd Floor, Building No. 1, No. 526 Fute 3rd Road East, Pilot Free Trade Zone, Shanghai, 200131, China Tel: +86 21 5868 5111-110

Beijing Office

Western Section, 2nd Floor, Jing Dong Fang Building (B10), No. 10, Jiu Xian Qiao Road, Chaoyang District, Beijing, 100015, China Tel: +86 10 8526 2111

Chengdu Office

Unit 9-10,10th Floor 9/F, Hi-tech Incubation Park, No.26 West Jinyue Road, Chengdu. 610041, China Tel: +86 28 8675 8111

Guangzhou Office

Room 810 Dongbao Plaza, No.767 East Dongfeng Road, Guangzhou, 510600, China Tel: +86 20 8363 4768



Taylor Hobson Japan

3F Shiba NBF Tower, 1-1-30, Shiba Daimon Minato-ku, Tokyo 105-0012, Japan Tel: +81 34400 2400 taylor-hobson.japan@ametek.com

Taylor Hobson Korea

#309, 3rd FL, Gyeonggi R&DB Center, 105, Gwanggyo-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea, 16229 Tel: +82 31 888 5255 taylor-hobson.korea@ametek.com



Taylor Hobson Singapore

AMETEK singapore, 10 Ang Mo Kio Street 65, No. 05-12 Techpoint, Singapore 569059 Tel: +65 6484 2388 Ext 120 taylor-hobson.singapore@ametek.com



Taylor Hobson Thailand

89/45, Moo 15, Enterprise Park, Bangna-Trad Road, Tambol Bangkaew, Amphur Bangplee, Samutprakarn Province 10540, Thailand Tel: +66.2.0127500 Ext 505

taylor-hobson.thailand@ametek.com

Taylor Hobson Taiwan

10F-5, No.120, Sec. 2, Gongdao Wu Rd., Hsinchu City 30072, Taiwan Tel: +886 3 575 0099 Ext 301 taylor-hobson.taiwan@ametek.com



Taylor Hobson Mexico

Acceso III No. 16 Nave 3 Parque Ind. Benito Juarez Queretaro, Qro. Mexico C.P. 76120 Tel: +52 442 426 4480 taylor-hobson.mexico@ametek.com



Taylor Hobson USA

27755 Diehl Road, Suite 300, Warrenville, II 60555, USA Tel: +1 630 621 3099 taylor-hobson.usa@ametek.com

AMETEK°

1100 Cassatt Road, Berwyn, PA 19312, USA Email: info.corp@ametek.com Web: www.ametek.com