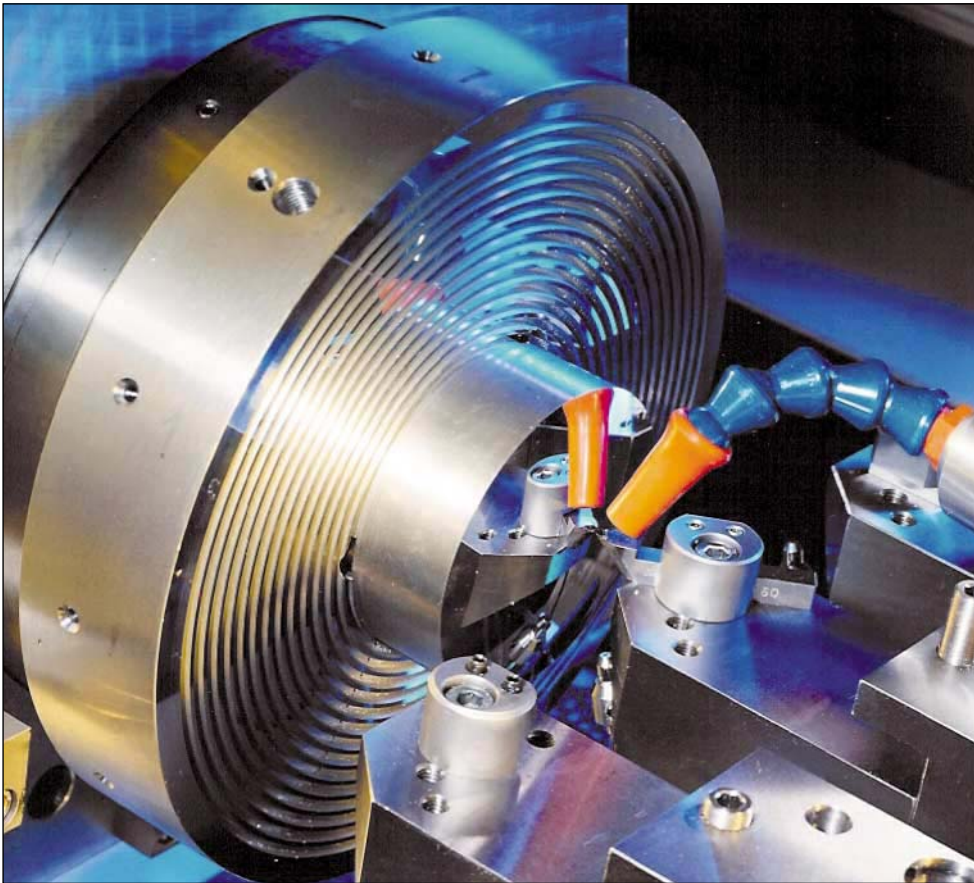


Ultra Precision Manufacturing

Machining
Assembly
Inspection



Expertise, experience and machinery for sub-micron accuracies

Contract manufacturing
services for high
precision industries

Key processes include:

- Surface grinding
- Cylindrical grinding
- Diamond turning
- Flat lapping
- Graticule laboratory
- Complex machining
- Precision assembly
- Inspection

Taylor/Hobson
PRECISION

Our credentials

Taylor Hobson is world renowned as a manufacturer of precision measuring instruments. Used for final inspection in research and production, our equipment performs at nanometric levels of resolution and accuracy.

Our machines

First of all, we invest in only the highest precision machine tools produced by leading manufacturers around the world. We then work extensively with the manufacturer to enhance the performance of the machine to better satisfy our unique requirements.

Our people

Taylor Hobson engineers have developed manufacturing skills and processes that push the very limits of precision. They have an intimate understanding of how the design, performance and production of manufactured components will contribute to direct improvement of the end product specification.

Taylor Hobson Accreditations

ISO9001:2000
ISO14001
ISO17025



Surface grinding

Levels of surface grinding precision that for Taylor Hobson are relatively straightforward to attain are often considered specialist by the majority of industry. General straightness in the 2µm range can be achieved on a routine basis with little need for technical support.



Surface grinding capacity and capability

Model	Chuck Capacity (length x width)	Maximum under wheel	Accuracy
ELB SF CNC	1500mm x 800mm	800mm	5µm over chuck area
ELB 15 CNC	1200mm x 350mm	400mm	0.25µm over 1000mm
ELB 10 NC	800mm x 450mm	400mm	0.5 µm over 600mm

Cylindrical grinding

High precision cylindrical grinding represents Taylor Hobson's strongest manufacturing process expertise.

We produce the reference datums for our measuring instruments with a combination of geometry, dimension and surface finish control that is amongst the very best in the world.



Cylindrical grinding capacity and capability

Model	Length between centers	Maximum diameter	Maximum weight (centers)	Straightness accuracy
Schautt E450U2000	2040mm	350mm	200Kg	1µm over 1000mm
Studer RHU400	400mm	240mm	80Kg	1µm over 400mm
Studer RHU650	700mm	240mm	80Kg	1.5µm over 700mm
Studer 500	500mm	190mm	65Kg	1µm over 400mm
Studer 750	750mm	190mm	65Kg	1.5µm over 750mm

Complex machining

Complex machining is critical to many components used in Taylor Hobson's metrology instruments. Extremely high dimensional and geometrical tolerances must be machined on a "one hit" basis to ensure that the end structure is highly stable with a high grade cosmetic appearance.

Over the years we have developed the processes, tooling and skills that allow us to routinely achieve these extraordinary results. Our capability was expanded with the acquisition of a Mori Seiki MT2000S Machining Centre. It provides for high precision machining of components in 5 axes.



Mori Seiki MT2000S - 5 Axis Milling / Turning Centre

Bar capacity spindle 1	63mm dia.
Bar capacity spindle 2	60mm dia.
Distance between spindles	1,000mm
Accuracy	10µm

Diamond turning

Our experience with high precision diamond turning has contributed to a direct improvement in our product specification. The diamond turned air bearing spindles used in Taylor Hobson roundness measuring instruments typically out-perform the 0.02µm radial limit of error specification.



Diamond turning capacity and capability Nanoform 300DT

Feature	Travel	Horizontal straightness	Vertical straightness
X Axis	250mm	0.5µm full travel	1µm full travel
Z Axis	150mm	0.3µm full travel	1µm full travel
Air bearing spindle	Runout 0.1µm at 1000 rpm axial and radial		
Surface finish	10nm Ra		
Slideways	Hydrostatic oil bearings		

Metrology services

To complement our precision manufacturing capability we also offer impartial measurement and certification services for components and assemblies.

Laboratory certification

Taylor Hobson's UKAS Laboratory (registry number 0026) is the only laboratory outside the National Physical Laboratory authorised to calibrate surface roughness and roundness standards.

Measurement / Inspection

Within our Centre of Excellence reside experienced, professional metrologists as well as state of the art measuring equipment. These assets combine to assure strict accountability for Taylor Hobson and absolute confidence in the measurement results for our customers.

Contracted Services from Taylor Hobson

- **Design engineering**
special purpose metrology systems for demanding applications
- **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
- **Preventative maintenance**
protect your metrology investment with a Talycare service cover plan
- **Operator training**
on-site instruction will lead to greater proficiency and higher productivity
- **Precision manufacturing**
contract machining services for high precision applications and industries
- **UKAS Calibration**
certification for artefacts or instruments in our laboratory or at customer's site

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Graticule laboratory

The Taylor Hobson graticule laboratory has the capability to manufacture glass and metal gratings and a range of other components based on deposition and etching technology. We use these components in our own measuring instruments and also undertake sub-contract manufacture for a number of prestigious companies.



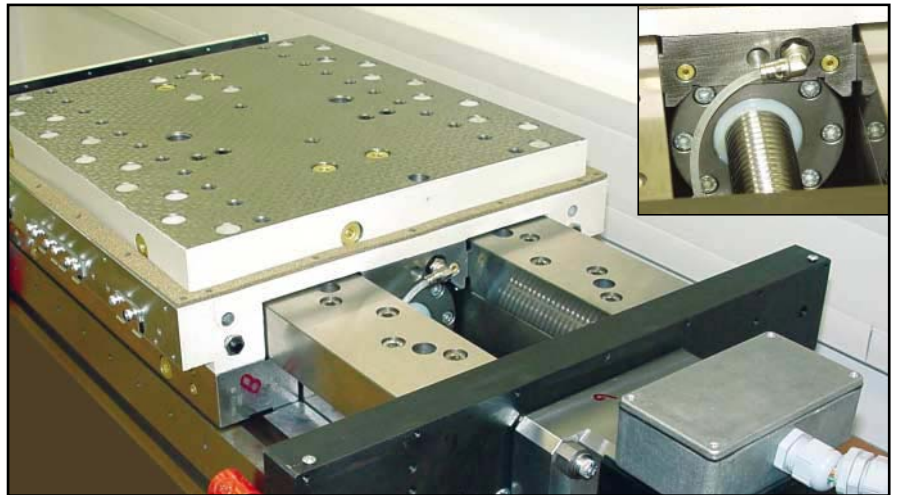
Flat lapping

A full range of lapping equipment is available for ferrous and non-ferrous materials. Assessment of flatness by monochromatic light source as well as other techniques is available. Required services for cleaning are also in place.

Capacity: 300mm diameter

Precision assembly

Precision assembly is a key Taylor Hobson strength. Our experience in electro-optical-mechanical assembly is instrumental to our success in the metrology industry. The nature of our business dictates that our assembly staff be flexible, highly skilled and able to cope with complex tasks involving multi-stage testing and sign-off.



precision assembly - slide detail of Ultraform 250 diamond turning machine

Diamond turning machines epitomise the melding of technology and craftsmanship at Taylor Hobson. Our expertise at precision assembly provides the Ultraform 250 with performance more likely found in measuring instruments than machine tools.

- **Feedback resolution:** 8.60nm
- **Form accuracy:** < 0.20µm
- **Radial motion error:** < 0.05µm
- **Axial motion error:** < 0.05µm

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.

Contracted Services from Taylor Hobson

- 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

For the above services, contact our Center of Excellence:

email: taylor-hobson.cofe@ametek.com
 or call: +44 116 276 3779

- Design engineering**
 special purpose, dedicated metrology systems for demanding applications
- Precision manufacturing**
 contract machining services for high precision applications and industries
- Preventative maintenance**
 protect your metrology investment with a Talycare service cover plan

For the above services, contact our Sales Department:

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