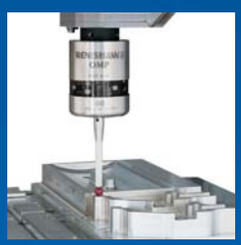
RENISHAW
apply innovation™

Innovation applied

Group profile 2004



Contents

The Renishaw mission

"Renishaw will design, manufacture and supply metrology systems of the highest quality and reliability to enable customers worldwide to carry out dimensional measurements to traceable standards.

Our product offerings will enhance quality and productivity, and we will strive for total customer satisfaction through superior customer service.

Our aim is to provide leading-edge technology by encouraging innovation to address our customers' needs.

We are committed to sustained growth through continued investment in product development and manufacturing methods.

Renishaw wishes to be recognised collectively and individually as leaders and contributors in our field and our community.

We wish to achieve our aims in a way that is caring, open and honest.

Renishaw is an environmentally conscious and responsible company. We will strive to ensure that all aspects of the business have the least harmful effect on the environment."

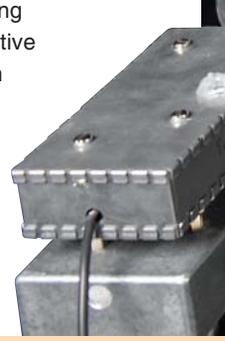
Corporate environmental policy

The corporate environmental policy is an integral part of Renishaw's business strategy. The responsibility for managing and maintaining the policy lies with the Board of Renishaw plc.

Renishaw is an environmentally conscious and responsible company. To carry out this commitment, it is Renishaw's policy to strive to ensure that all aspects of the business have the least harmful effect on the environment by implementing an environmental management system to:

- **Be fully aware of all environmental legislation and ensure that regulatory requirements are met and, where feasible, improved upon.**
- **Monitor the implementation of the policy by carrying out periodic audits of compliance and, when appropriate, introduce remedial measures.**
- **Ensure all employees, in the course of their duties, act in accordance with the environmental policy.**
- **Encourage suppliers, contractors and vendors to act in accordance with our environmental standards.**

In addition, areas of particular attention within the business will be the selection of non-polluting technology, waste minimisation, reuse/recycling and the reduction of energy consumption. Renishaw also makes a positive environmental contribution in the local community by encouraging open communication, general environmental awareness and the promotion of community projects.



Images shown on the front cover (l to r) feature Renishaw's products which have been commended with major awards this year:

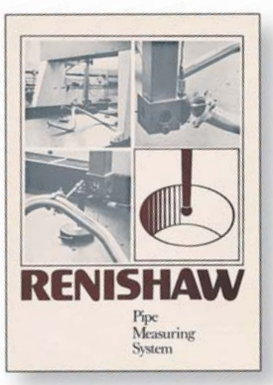
RESR – Worshipful Company of Scientific Instrument Makers
OMP40 – Queen's Award for Enterprise 2004: Innovation
SP25M – Metalworking Production Award for best quality control product or system

Renishaw fundamentally believes that success comes from patented and innovative products and processes, high quality manufacturing and the ability to provide local customer support in all our markets. Renishaw's business is metrology, the science of measurement. The Group's innovative products ensure that exacting specifications are met with cost-effective methods and perform measurement to international standards.

Calibrating Renishaw's ML10 Gold Standard laser systems against an iodine stabilised reference laser which is regularly calibrated at the National Physical Laboratory (NPL), UK

A history of innovation

The first touch-trigger probe was invented by Sir David McMurtry, now Chairman and Chief Executive, in 1972 to solve a specific inspection requirement of measuring some complex pipe runs for the Olympus engines used on Concorde.



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At that time, David was Assistant Chief of Engine Design of all Rolls-Royce engines manufactured at the Filton, Bristol works. His team had already developed a system to define and measure points in space using a v-shaped probe on a Notsa coordinate measuring machine (CMM) but it was heavy to operate and the small diameter pipes were deflected by the pressure of the probe making contact, which gave incorrect readings. Giving the matter some further thought, David built the first touch-trigger probe at home over a weekend. It was quite a simple construction but employing fundamental location principles, it was sufficiently accurate for the task. It acted as a switch where, as the stylus was deflected, contact was broken and froze the digital reading on the CMM. This was achieved with a battery in a circuit that included a solenoid, which took the place of the machine's normal foot switch. Rolls-Royce took out a patent on David's original design, which was filed on 21st September 1972 with him acknowledged as the inventor.

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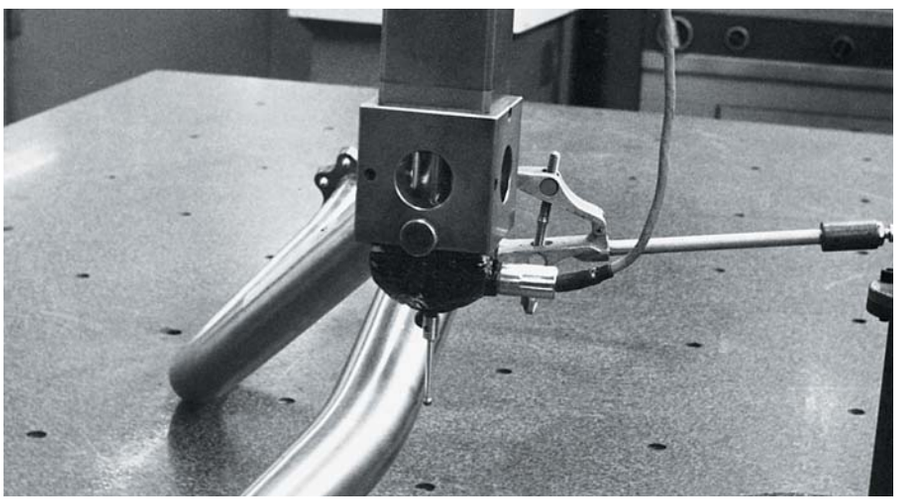
01 A sample of early promotional literature
02 The first 3D touch-trigger probe
03 An early touch-trigger probe measuring complex pipe runs used on Concorde
04 Sir David McMurtry (left) and John Deer, July 2004

David discussed his invention with John Deer, now Deputy Chairman. John, with a background of machine shop engineering, was also working at Rolls-Royce, on power plant dynamics, but wanted to have his own business. The two decided to go into partnership. In his spare time, David had already formed a small manufacturing operation with a friend, which was called Shepherd and Adams. This made components for some of David's earlier inventions, together with other components which were sold to engineering companies. To secure its position, S&A needed a manufacturing licence but it was commercial practice at Rolls-Royce only to negotiate such licences with companies having limited liability. An "off the shelf" company called Renishaw Electrical Limited was acquired for this purpose and registered on 4th April 1973. In turn, the new company entered into a licence agreement with S&A, the arrangement continuing until 1976 when, from that time, all probes carried Renishaw's trademark. The relationship with Rolls-Royce terminated in 1987 when Renishaw purchased Rolls-Royce's 50% share in the patents.

In the early days of the company, John and David went into production in their spare time, making everything themselves. The first prototype probe and development model, together with some sample models, were made in David's garage at Alveston, near Bristol, and he continued to design the early products in Wotton-under-Edge when he moved there in 1973. By 1974, business had grown to such an extent that John finally decided to leave Rolls-Royce and work full-time for Renishaw. The company acquired its first commercial premises in 1976, in the centre of Wotton-under-Edge, Gloucestershire, UK.



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By 1977, David had been promoted to Deputy Chief Designer but negotiated to become a consultant to Rolls-Royce on a two-day week basis, giving him more time to devote to Renishaw's expanding business. It was not until 1979, however, when he had completed his responsibility at Rolls-Royce for the M45 "Quiet Engine" project, that he joined Renishaw full-time. David was named as inventor or co-inventor on some 47 patents or patent applications whilst at Rolls-Royce. Today, he is also named as inventor or co-inventor of approaching 200 Renishaw inventions for which patent protection has been applied worldwide. These have generated several hundred patents which have been granted to date. The value of patent protection was brought home to Renishaw after the first successful patent case.

David has received many personal awards, from overseas as well as in the UK. In 1989, he was made a Royal Designer for Industry (RDI). In June 1994, in Her Majesty The Queen's Birthday Honours list, he was made a Commander of the Order of the British Empire (CBE) "for services to Science and Technology". In the New Year's Honours List 2001, David was appointed a Knight Bachelor "for services to Design and Innovation". His contributions to metrology, the science of measurement, have also been recognised by many institutions and universities.

The company has received many commendations for its products over the past years, including ten Queen's Awards, the most recent being the Queen's Award for Enterprise 2004: Innovation for Renishaw's OMP40 compact spindle probe for computer numerically controlled (CNC) machine tools. Other major honours from the UK include the 1987 MacRobert Award, nine Millennium Products commendations, three Manufacturing Excellence Awards from the Institute of Mechanical Engineers and two achievement awards from The Worshipful Company of Scientific Instrument Makers. Renishaw has also received recognition for its products in France, Germany, Italy, Japan and the USA.

For the financial year ending 30th June 2004, Renishaw's sales totalled £128m, the company employing 1,754 personnel, (1,279 UK, 475 overseas).

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"The best way to predict your future, is to create it"

Sir David McMurtry

Renishaw's first product, the touch-trigger probe, came to revolutionise post-process inspection of manufactured components as well as the development of the CMM itself.

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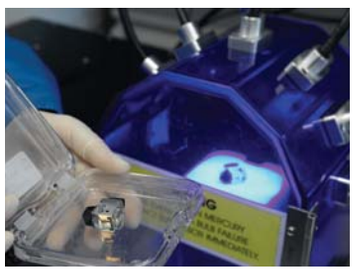

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Over the past thirty years, the management at Renishaw has tried to build a company that is different to most others; different in how technology is applied to real problems; in how the company invests for the long term and manufactures rather than outsources.

Renishaw is a partner in its customers' success and, to provide customer support, the company has established over 20 subsidiary companies overseas, together with regional offices and a network of agents and distributors. With their assistance, new market niches and business opportunities can also be identified quickly.

Since the early days, Renishaw's strategy has been to work on the next generation of innovative products, even if the customer is perfectly happy with existing ones. Everywhere, in industry as well as science, there are increasing demands to measure more things more accurately, to maintain a competitive edge and increase productivity. The company's investment in research and development and all other engineering costs, has always been a priority and represents over 17% of sales annually. Of course, extensive use is made of Renishaw's products in its own manufacturing processes.

The basic idea of measurement is so important that Renishaw is confident of growth and there is a strong emphasis on growing its own people. The company has developed close links with local schools, having made considerable investment with money, resources and time. Annually, some 30 apprentices and 40 sponsored students are supported through university. In this way, contact is maintained with many young people and they are encouraged with the prospect of being offered employment once they have graduated. Career paths are monitored and the best are given management opportunities in the UK, as well as overseas.

As for the future? Sustained growth from developing new products, processes, markets and people. Renishaw fundamentally believes that success comes from innovative and patented products and processes, low cost, high quality manufacturing and the ability to provide excellent local customer support in all our markets around the world.

01 Sir David, second from right, chairs a new product development meeting
02 Innovative production techniques devised for the RLE products
03 The award winning SP25M probe inspecting the feature of a component
04 Sir David McMurtry CBE, RDI, Chairman and Chief Executive, Renishaw plc

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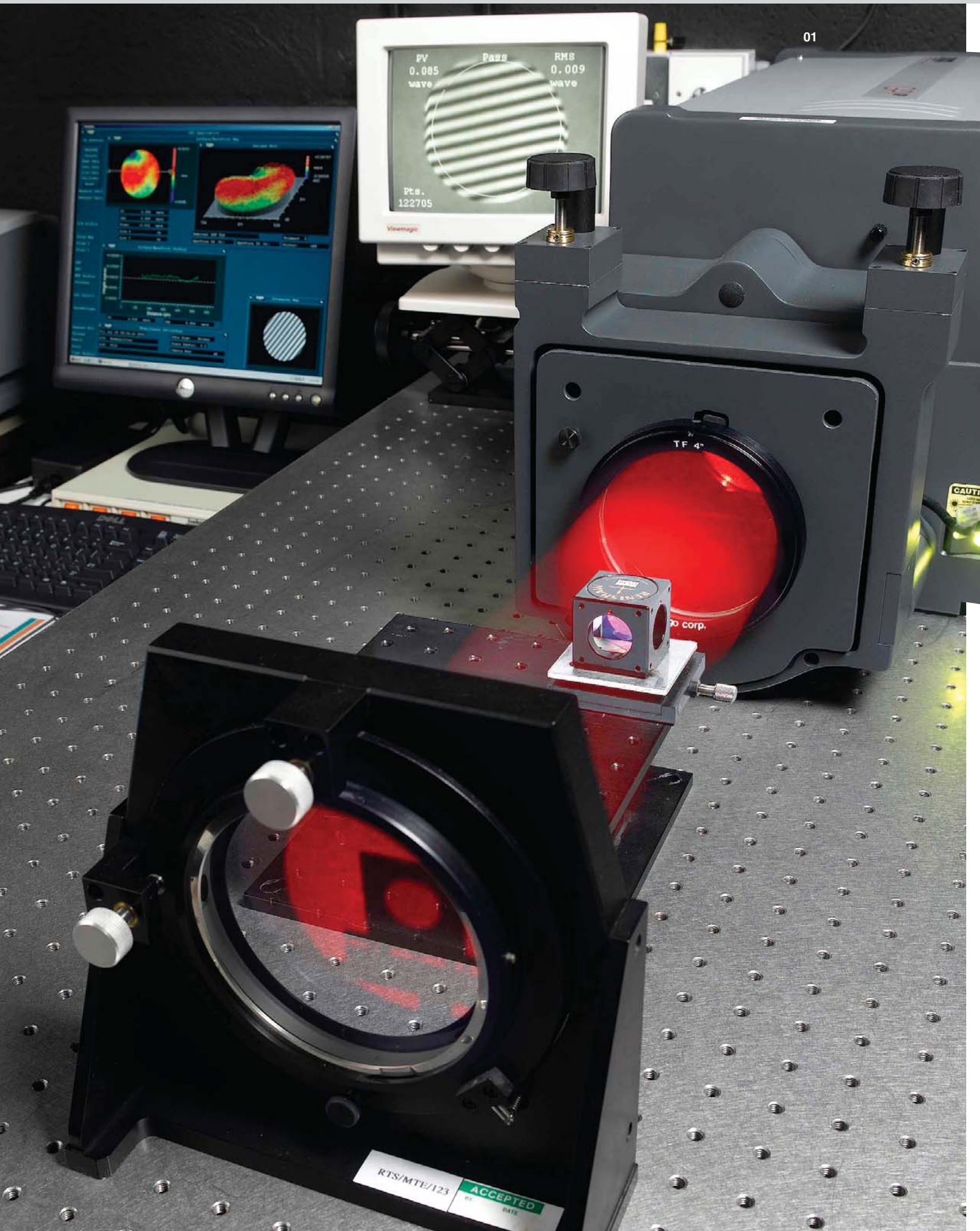
Research and development



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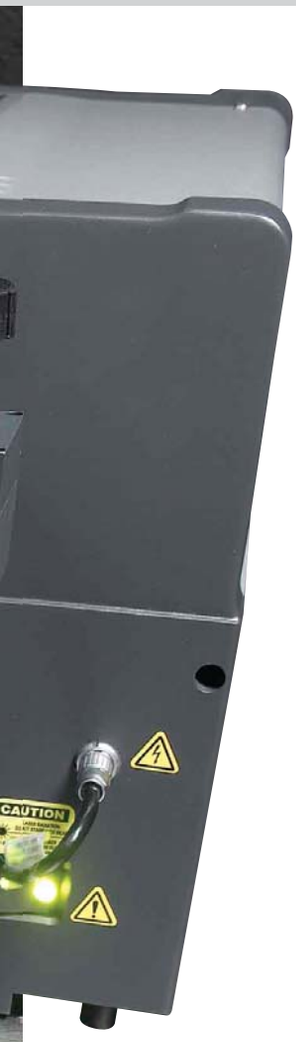


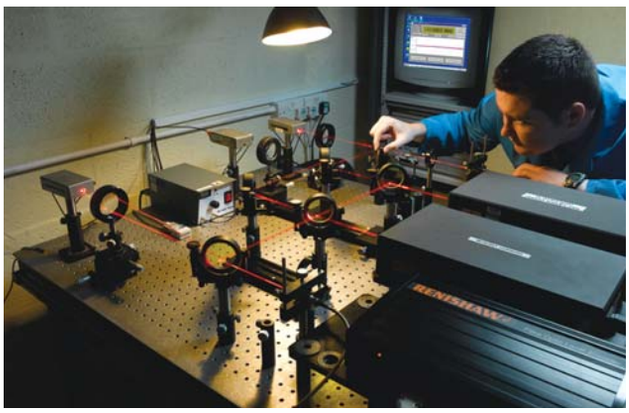
R&D – our future

Since the company's early days, there has been a high commitment to research and development which, together with engineering expenses, amounted to £22m in the year ended 30th June 2004.

Renishaw's continued investment has resulted in a comprehensive range of highly accurate probing systems, accessories, calibration and measuring systems and other innovative products which have significantly advanced the frontiers of knowledge throughout the world.

In addition to the New Mills and Old Town sites in Wotton-under-Edge, specialist research activities in measurement technology are carried out in the UK at Renishaw's locations on the Heriot-Watt campus, Riccarton, Edinburgh and at the University of Exeter Innovation Centre; also at RLS merilna tehnika d.o.o., a partner company in Slovenia.

These research activities continue to generate important patents which form the basis of current and future products. New technologies, which are important to all product lines, are evaluated and developed, as are new product ideas.



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Innovative manufacturing

Renishaw has also consistently invested time and money in the development of innovative and cost-effective manufacturing processes.

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The result of this is a revolutionary automated manufacturing system that maximises the potential of standard machine tools, enabling milling, turning and inspection on a single machine, together with automated loading and unloading of materials and tools. Highly flexible manufacturing is achieved from the ability to produce a variety of components using a single unmanned system. Novel methods are used to enhance the measurement accuracy automatically. This system, called RAMTIC (Renishaw's Automated Milling, Turning and Inspection Centre), which gives in excess of 130 productive hours weekly with assured quality, has won a number of prestigious awards.

In addition, Renishaw uses automated CNC turning centres for smaller components where milling is not required.

Machine tools are routinely calibrated using Renishaw's automated QC10 ballbar routines and laser interferometers. Automatic tool setting and spindle probing routines ensure that components are always machined correctly, first time, to traceable standards.

As the company employs its own innovative products during the manufacturing process, it is uniquely placed to benefit from the productivity improvements made possible by their use, together with any challenges which might occur when integrating new products. This experience can be widely disseminated to its customers around the globe.

Currently, machining is carried out at New Mills but following the completion of the second phase of refurbishment of the buildings at Woodchester, it is planned to move this operation there in this financial year. Much of the assembly operation was relocated there at the end of the first phase of refurbishment. However, development and the initial manufacture of new products will remain at New Mills prior to their transfer to main production.

The main Assembly hall at Woodchester provides leading-edge automated assembly of components in "cells" where multi-skilled operators build and test the finished product. There has been continued investment at both sites for the automated assembly and test of circuit boards using the latest SMT (surface mount technology) systems and machines.

Renishaw (Ireland) Ltd, located at Swords, Co. Dublin, gives additional facilities for manufacturing the Group's mature products, whilst production of Renishaw's calibration and spectroscopy products remains at Old Town, Wotton-under-Edge. RLS merilna tehnika d.o.o., Slovenia, provides manufacturing facilities for specialised products, including magnetic rotary encoder systems.

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01 Motorised docking of a carousel on one of the RAMTIC systems in Renishaw's machine hall, New Mills
02 RLE production, Old Town
03 Assembly hall, Woodchester
04 Manufacturing, Renishaw (Ireland) Ltd
05 Manufacturing at RLS merilna tehnika d.o.o. Slovenia
06 Triact assembly for Triclone 90, New Mills

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Time, money and value

The challenges facing the manufacturing industry continue to increase.

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To remain competitive, companies need to automate production whilst maintaining tight control of the dimensions and finish of their manufactured components. The acceptance of quality control in the production environment means that probing is considered essential and allows the complete manufacturing process to be monitored and made self-correcting. High productivity levels are achievable without manual intervention, the downtime associated with manual set-up of tools, fixtures and workpieces being significantly reduced. An additional benefit is the fast, accurate inspection of first-off components and automated update of offsets.

Renishaw's probes for CNC milling machines and turning centres have been designed to withstand the hostile conditions of hot metal chips and pressurised coolant sprays in the metal cutting environment, with an assured long working life. Used for automated component identification, workpiece setting and inspection, probing has replaced costly, time-consuming manual techniques which rely on the skill of the machine's operator. They also enable inexpensive fixturing to be used.

Tool setting systems enable fast, automatic update of tool offsets in the machine's controller. Tool wear and breakage can be monitored so that replacement tooling may be called up automatically.

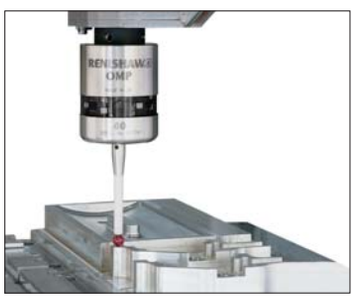
The latest generation of tool setting systems for CNC machining centres incorporates laser technology for checking for missing or broken tool tips and tool form verification.

On CNC lathes or turning centres, where space is restricted, Renishaw has developed a series of high-precision arms which incorporates a tool setting probe. These arms are available in removable, pull-down or motorised versions and in a wide variety of configurations.

As the core of highly automated flexible manufacturing systems (FMS), CNC machines fitted with Renishaw's probing systems are essential to many of their operations, producing considerable savings in time, manpower and materials.

A number of complete hardware/software packages can be retrofitted easily on many machines which did not originally incorporate probing. They too can benefit from automation, with fast pay-back on the investment. A comprehensive selection of probing systems is available to fit a wide range of CNC machine tools, with the option of infrared or radio transmission to the interface, where hardwiring is not practical.

Renishaw provides a unique range of proven solutions to increase throughput, minimise downtime and eliminate scrap – all important contributions to modern manufacturing practice.



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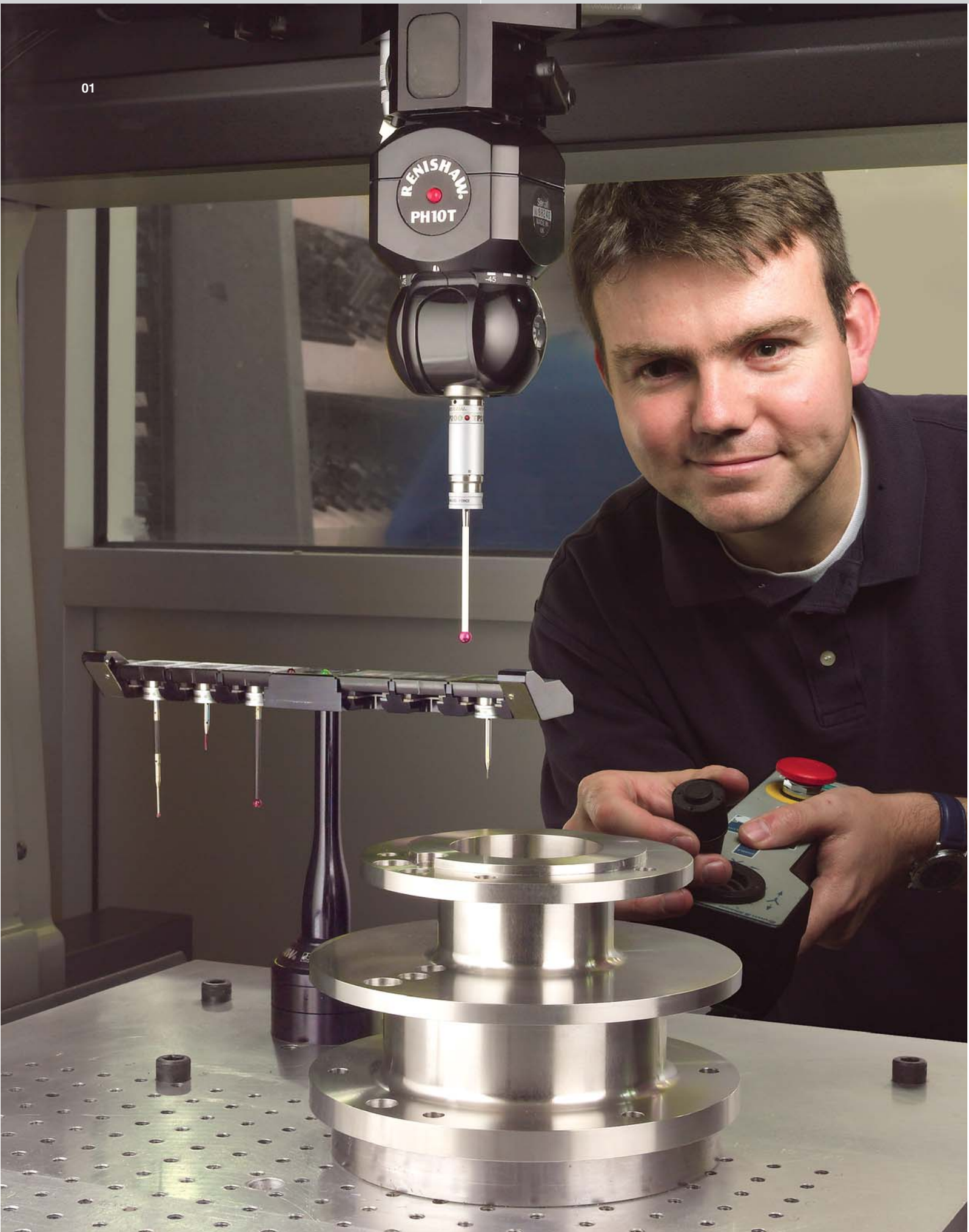
01 HPRA tool setting arm for lathes
02 LP2 lathe inspection probe
03 RMP60 inspection probe employing frequency hopping spread system radio transmission
04 Renishaw's award winning OMP40 compact spindle probe using infrared transmission
05 NC4 non-contact tool setting system for CNC milling machines

Post-process inspection

01 PH10T/TP200 recent upgrade at Rousant Sherwood Manufacturing, specialist in producing complex machined components

02 Inspecting external features on both sides of the Aston Martin DB9 GT sports car. Photograph courtesy of LK



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03 SP80 high accuracy probe with the ability to carry long extension bars if required
04 Inspection of “Quick Step” laminate flooring using PH10/TP200. Photograph courtesy of Uniclic
05 SP25M probe inspecting a machined component
06 UCC2 and SPA2 universal controller system for CMMs

In touch with market trends

Since the 1970s, Renishaw’s probes have been the industry standard.

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Augmented with motorised heads, probing efficiency is maximised and give a 3-axis machine 5-axis capability. A motorised head used with Renishaw’s patented Autochange system enables rapid and automatic exchange of multiple probe types, extension bars and probe/stylus combinations. Probes using detachable stylus modules benefit from automatic or manual stylus changing. These stylus configurations are optimised to suit the design of the CMM and inspection application.

Renishaw originally set inspection standards using touch-trigger principles for collecting data by taking a series of discrete points. High-speed collection of data is now undertaken using continuous contact or analogue scanning. Traditionally, scanning was limited to relatively slow speeds, but Renishaw’s UCC range of controllers enables high-speed scanning, without compromising accuracy and is many times faster than was previously possible.

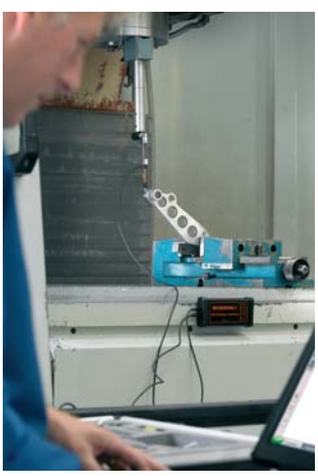
The company supplies a comprehensive range of styli for component inspection and scanning applications. These are available with a variety of profiles, sizes and fittings to best suit the probe employed and the component features and dimensions.

Renishaw’s success has been made possible by the close working relationship the company enjoys with CMM manufacturers and users. The frontiers of inspection technology are constantly being extended and from close liaison throughout the design, development and evaluation process, Renishaw keeps in step with the market’s needs... and, in most cases, one step ahead.

06


Performance measuring solutions

Renishaw's QC10 ballbar checks CNC machine tools quickly and cost-effectively.



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The ballbar software can automatically diagnose a variety of machine errors and can test a machine's positioning performance within a few minutes to ISO and ASME standards. By increasing knowledge of the production process, regular use of the system can increase product quality, reduce scrap and machine downtime and give fast payback.

The latest version of the Ballbar 5 HPS software maximises the efficiency, power and value of regular QC10 ballbar testing. In addition to its diagnostic facilities, features include "Machine history" which reviews a machine's performance over time in a graphical format; "Part program generator" which generates ballbar test part programs quickly and automatically; and "Ballbar plot simulator" which predicts the effect of maintenance and tuning on the machine's performance. This software is also available as an upgrade to existing users and in a number of foreign languages.

The machine checking gauge (MCG) enables a rapid volumetric accuracy check for CMMs, complying with British Standard BS EN ISO 10360-2. Utilising a specially calibrated stylus, the gauge is available in a range of arm lengths and pillar heights to suit most sizes of machines.

Renishaw's laser systems are used to determine the accuracy of CMMs, machine tools and other position-critical systems requiring accurate measurement and calibration. The principle of this laser measurement is based on the international standard for the metre, the speed of light. Its novel design features offer the ultimate in flexibility of operation and software/hardware interfacing.

ML10, the original laser calibration system, was introduced in 1989 and quickly established a reputation as a market leader in terms of system accuracy and customer support worldwide. The recently upgraded ML10 Gold Standard system offers sub-1 ppm (parts per million) accuracy for ultra-precise machine calibration. Having 1 nanometre resolution, the system has a standard linear axis range of 40 metres and works in temperatures from 0° to 40° C, with an environmental compensation unit which "normalises" temperature, pressure and humidity factors. This system has doubled the laser frequency accuracy to ± 0.05 ppm compared to earlier versions and handles axis speeds up to 1,000 mm/sec.

01 QC10 ballbar system checking X-Z positioning performance on a Hurco machine tool at TJW, Cam, Gloucestershire

02 Digital printer undergoing a print test, all positional data having been calibrated and analysed with a ML10 system. Photography courtesy of Inca Digital Printers

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On a high with the Airbus A380 Superjumbo

By virtually every measure of comparison the new Airbus A380 Superjumbo will be the largest commercial aircraft in the world and Renishaw is playing a part.

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Renishaw offers a wide range of compact optical, magnetic and laser encoder systems to provide nanometre resolution, high-speed solutions to meet the requirements of diverse industry sectors. At Airbus Renishaw's encoders are used in robotic wing assemblers. As well as offering unrivalled performance, Renishaw's encoder systems provide simplified installation and minimise cost of ownership.

Optical linear and rotary (angle) encoders offer easy installation and set-up, with many patented features including filtering optics and a set-up LED that remove the need for oscilloscopes and other complicated set-up equipment.

Optical encoders are applied in almost all sectors of industry including metrology, motion systems, electronics, semiconductor handling, medical, scanning/printing, scientific instruments, space research, photography and specialist machine tools. Renishaw's tape-based encoder systems provide resolutions from 10 microns to 10 nanometres. The durable scale can be cut to any user-defined length up to 70 metres. Its unique filtering optics require none of the careful handling and cleaning of many traditional scales so signal strength, purity and accuracy are maintained in conditions considered unsuitable for most open optical encoders.

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01 Renishaw's encoder systems incorporated in the Airbus A380 stage O panel wing assembly robot
02 RG4 encoder system
03 A380 image reprinted courtesy of Airbus

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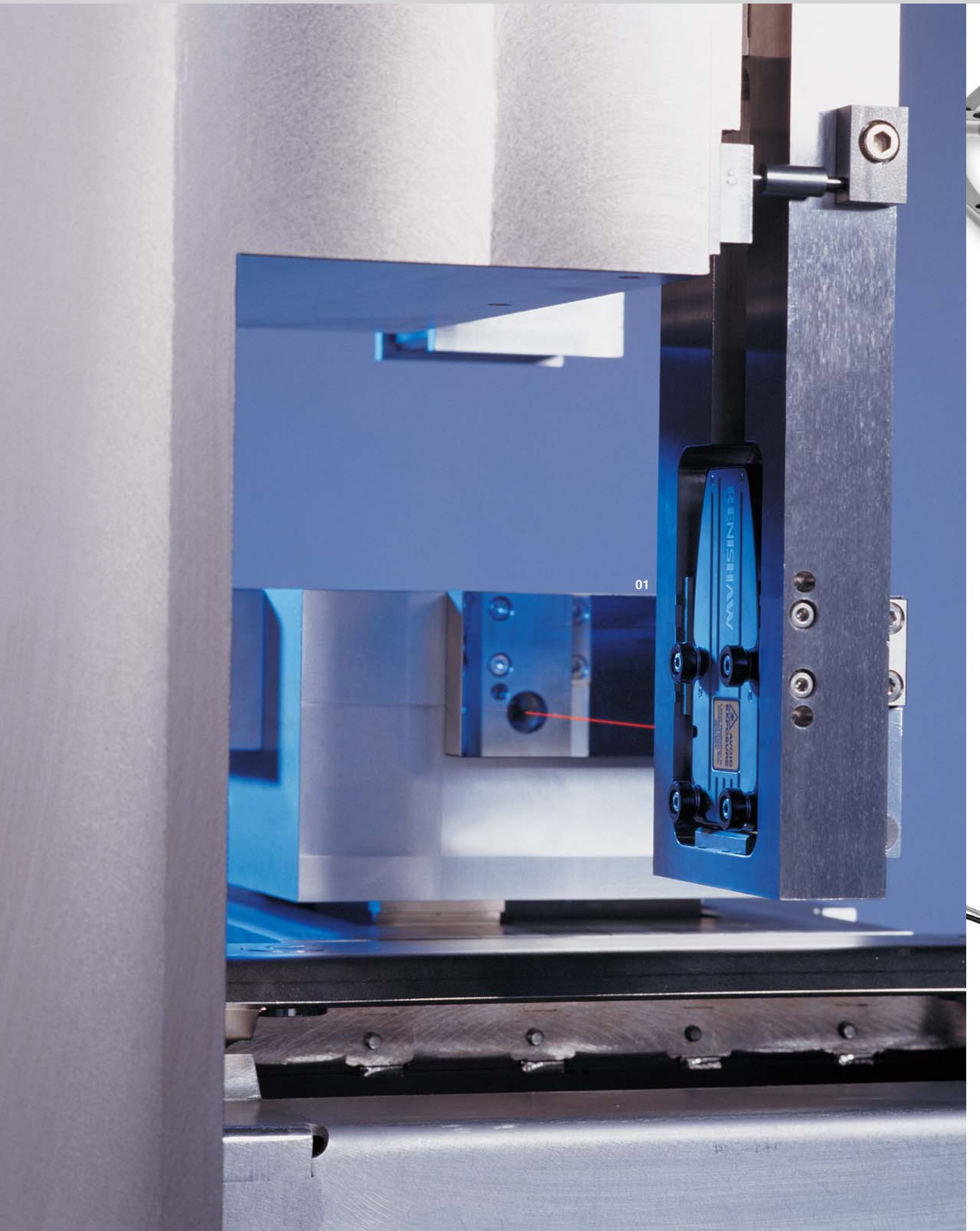
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01 Renishaw's laser encoder system fitted to an ISARA ultra precision CMM. Photograph courtesy of IBS Precision Engineering
02 Signum encoder system
03 RM36 non-contact magnetic encoder, resistant to harsh environments
04 SR readhead direct drive motor (DDR) application
05 RLE10 fibre optic laser encoder

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Laser encoders have an intrinsically high resolution which, combined with a system architecture that eliminates Abbé error, provide the highest possible positioning accuracy. Renishaw offers precision feedback for a variety of applications, ranging from long axis machine tools to X-Y wafer inspection systems. With almost twenty years' experience, Renishaw is unquestionably the world-leading supplier of homodyne interferometer-based metrology solutions. The company enhanced the technology, which is field-proven for the most demanding applications. The laser wavelength is traceable to the National Physical Laboratory (NPL) in the UK.

The evolving range of interferometer-based encoders provides effective position feedback solutions for a broad range of precision applications. Typical applications include E-beam and laser writers; mask, wafer and LCD inspection tools; fibre optic alignment equipment, precision machine tool and CMMs; and long axis aerospace machine tools.

Renishaw's new SIGNUM encoder range offers high-speed, reliable, non-contact performance combined with advanced features including the *IN-TRAC*™ auto-phase optical reference mark.

The first offering from the range is the RESM angle encoder, which comprises the RESM ring, the SR readhead and Si interface. Eliminating position error, backlash and audible noise, the combination of a DDR motor with the RESM encoder provides a perfectly matched rotary motion system.

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To meet the increasing demand for reliable, low cost, high-speed rotary position feedback, Renishaw and its partner company RLS have introduced a range of compact, high-speed (to 30,000 rpm) rotary magnetic encoders which are available as packaged or unpackaged options. These have been designed for use in diverse applications, such as marine, medical, print, packaging, industrial automation, metal working, motor control and instrumentation.

The encoder comprises a magnetic actuator and separate encoder body. Rotation of the actuator is sensed by a custom encoder chip within the body and processed to industry-standard absolute, analogue, incremental and linear outputs.

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Another jewel in our crown

Already a world leader in the field of industrial metrology, Renishaw is now applying its expertise to the growing area of dental CAD/CAM.

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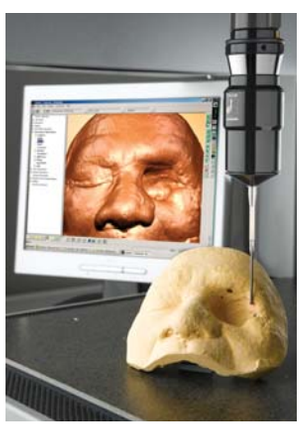

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The need for high-quality scanned data (from dies) and the ability to use this data to manufacture crowns and bridges accurately are requirements with which the company is very familiar, albeit in the environment of manufacturing industries such as automotive and aerospace.

Renishaw has used its metrology expertise to better understand the requirements of margin fits for crowns and bridges. Allowable margin fit errors are perhaps more modest than is generally understood. Renishaw has recently published a UK paper on the accuracy of crowns and their fitting which was printed in the May 2004 issue of “Dental Laboratory” magazine.

Renishaw’s Triclone 90 was developed to meet the particular needs of dental scanning during the production of prosthodontic appliances such as bridges, crowns and inlays. These require high rates of data capture from fine detail impression dies, with high accuracy. It incorporates a unique tripod motion platform which is dynamically stiff, allowing fast, precise motion.

Renishaw commenced working in 2002 with Nobel Biocare, one of the world leaders in innovative aesthetic dental solutions to design a compact, easy to use and affordable dental scanner for small to medium-sized dental laboratories. This resulted in the Procera® Piccolo, a compact single-tooth scanner which is very mobile. Having a small footprint, it fits easily on a laboratory bench, and incorporates Renishaw’s user-friendly software.

It interfaces with Nobel Biocare’s Procera® CADDesign software and allows the dental laboratory to send the scanned data to Nobel Biocare’s facility to manufacture the coping. The laboratory then builds up the porcelain on the coping to produce the crown which is then delivered to the dentist.

For some years, Renishaw’s Cyclone digitising machine with Tracecut software, has provided a complete standalone system for users in many industrial sectors who require the ultimate in high-speed and fine detail scanning. It can be supplied with a low-force analogue contact probe for the very best accuracy or with a non-contact laser probe for scanning delicate materials. A long-bed option is also available to accommodate large components. For the dental profession, it has uses for whole-jaw restoration applications.

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01 Triclone 90 showing Triact mechanism
02 Cyclone scanning a maxillofacial model in the region of the orbital cavity, with in-situ dental implants and abutments, to enable later accurate machining of a supporting plate (superstructure) which will restore aesthetic function and confidence to the affected person. Photography courtesy of The Guy's, King's and St Thomas's Hospitals Medical and Dental Institute
03 The Procera® Piccolo single tooth scanner
04 Currently in Japan, there is a high demand for crowns using ceramic materials in their production rather than metals which can be cast. This gives a more natural appearance. It is also common practice for much of the work to be undertaken in-house by dental surgeons themselves unlike the UK where external dental laboratories are usually involved

04

Non-destructive analysis

Renishaw manufactures a wide range of spectroscopy systems and components for Raman and photoluminescence spectroscopy including Raman microscopes, compact process monitoring spectrometers, diode lasers and state-of-the-art cooled CCD detectors, for end-user and OEM applications.

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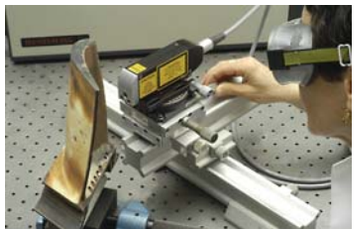


02

The Raman effect occurs when laser light hits a material; light is scattered, a tiny fraction of which is shifted in frequency as atoms in the material vibrate. Analysis of the frequency shifts (spectrum) of the light reveals the characteristic vibration frequencies of the atoms and hence the chemical composition and structure of the material. Particles as small as 1 micrometre can be uniquely identified.

Users in research laboratories, development laboratories and production lines worldwide employ the microscopes and analysers in a diverse range of fields – for example, in the computer hard disc, pharmaceutical, polymer, semiconductor, and chemical industries. Other applications include the identification of drugs and explosives by forensic scientists and the analysis of paint and pigments on historic works of art as an aid to accurate restoration, as well as in the detection of forgeries.

Gemmologists also use the Raman microscopes to identify and determine the quality of gemstones and to determine their provenance by analysing the tiny mineral inclusions contained within them. A variety of bio-medical applications continue to be developed, especially in the study of body tissues and biopsies.

Renishaw's structural and chemical analyser (SCA) for scanning electron microscopes (SEM) is the only commercially available system capable of performing chemical analysis from inside an SEM whilst simultaneously viewing the sample.

The capabilities of Renishaw's Raman instruments are continuously being updated and expanded to include a wider range of lasers, enhanced optical filtering systems, many new accessories, increased automation and improved software, making them even easier to use.

01 Analysis of a slice of meteorite using the structural and chemical analyser at McCrone Associates Inc., USA

02 Evaluating turbine blade coatings using Renishaw's Raman analyser and fibre optic probe system at CESI, Italy

03 An inVia Raman microscope used to research new applications at the Department of Chemical and Forensic Sciences, University of Bradford, UK

Worldwide support

01

Renishaw's headquarters building and main site is at New Mills, Wotton-under-Edge, Gloucestershire, a former 19th century woollen mill. The company has additional operations in the UK at Old Town, Wotton-under-Edge and Woodchester, Gloucestershire together with R&D facilities on the Heriot-Watt campus, Riccarton, Edinburgh and at the University of Exeter Innovation Centre.

Europe

Austria
Renishaw (Austria) GmbH.

Czech Republic
Renishaw s.r.o.

France
Renishaw S.A.S.

Germany
Renishaw GmbH.

Hungary
Renishaw's Representative Office Kereskedelmi Képviselet.

Ireland
Renishaw (Ireland) Ltd.

Italy
Renishaw S.p.A.

The Netherlands
Renishaw International BV, Benelux Sales Office.

Poland
Renishaw Sp. z o.o.

Russia
OOO Renishaw.

Slovenia
RLS merilna tehnika d.o.o.

Spain
Renishaw Ibérica S.A.

Sweden
Renishaw AB.

Switzerland
Renishaw AG.

United Kingdom
Group Headquarters, Renishaw plc, New Mills, Wotton-under-Edge.

United Kingdom
Renishaw plc, Old Town, Wotton-under-Edge.

United Kingdom
Renishaw plc, Woodchester.

United Kingdom
Special Projects Group, Renishaw plc, Riccarton.

United Kingdom
Research and Development Office, Renishaw plc, Exeter.

United Kingdom
Wotton Travel Ltd., Wotton-under-Edge.

01 Group Headquarters, Renishaw plc, New Mills,Wotton-under-Edge

02 Japan, (centre building) Renishaw KK, Tokyo

03 Austria, Renishaw GmbH, Guntramsdorf

02

03

Renishaw has established wholly-owned subsidiary companies, together with other regional operations, to provide technical and marketing support in its major markets around the globe.

During the last financial year, Renishaw KK has moved back to the Shinjuku area of Tokyo, Japan into a building which the company has purchased. In the 1980s, accommodation was rented in adjacent premises.

Renishaw (Austria) GmbH has relocated to Guntramsdorf.

Distributors and agents have been appointed in other key countries around the globe, as listed on Renishaw's website: **www.renishaw.com**

Worldwide

- ○ Renishaw locations (34)
- ● Distributors

Worldwide

Australia
Renishaw Oceania Pty Ltd.

Brazil
Renishaw Latino Americana Ltda.

Canada
Renishaw (Canada) Limited.

The People's Republic of China
Renishaw's Representative Office Beijing.

The People's Republic of China
Renishaw's Representative Office Shanghai.

Hong Kong
Renishaw (Hong Kong) Ltd.

India
Renishaw Metrology Systems Pvt Ltd.

Israel
Renishaw (Israel) Ltd.

Japan
Renishaw KK, Tokyo

Japan
Renishaw KK, Nagoya.

Singapore
Renishaw's Representative Office.

South Korea
Renishaw (Korea) Ltd.

Taiwan
Renishaw's Representative Office.

USA
Renishaw Inc

Our commitment to customer care

The demonstration area in the Technology Centre, New Mills provides a “hands on” opportunity of evaluating particular applications in a live situation without interrupting Renishaw’s own mainstream production.

01

The area is equipped with CMMs and CNC machining centres and lathes for demonstrating the Group’s products, for customer training and for UK and overseas staff training. Similar facilities are available at many of the Group’s subsidiary companies overseas. New product development can also benefit from these unique facilities.

Renishaw demonstrates its products and product capabilities at over 100 global events annually, comprising major international exhibitions as well as local promotions and seminars. These are organised in conjunction with the Group’s subsidiary companies overseas and international distributors. The events are promoted with international advertising, direct marketing and through the Group’s marketing website: **www.renishaw.tv** together with application features on the benefits of using Renishaw’s products.

Renishaw has continued to develop its main website **www.renishaw.com** in particular to improve the speed of searching and downloading. Key sections are also currently available in the Czech, Chinese, Dutch, French, German, Italian, Japanese, Korean, Polish, Portuguese, Russian, Spanish and Swedish languages. The Group’s literature is also available in these and other languages.

02

03

01 Demonstration facilities, New Mills
02 Machine Tool training area, New Mills
03 CMM training area, New Mills
04 Repair centre, Woodchester

04

Worldwide support continued

01 Service centre, Renishaw Inc
02 Production cell at Renishaw Inc provides local manufacturing capability of special styli and enables rapid response for the US market

01

Renishaw has a high commitment to customer care. Should any problem arise, a core team of skilled technicians, based in the UK and at a number of the Group's overseas subsidiary companies, is ready to provide service or perform test and re-calibration as may be required.

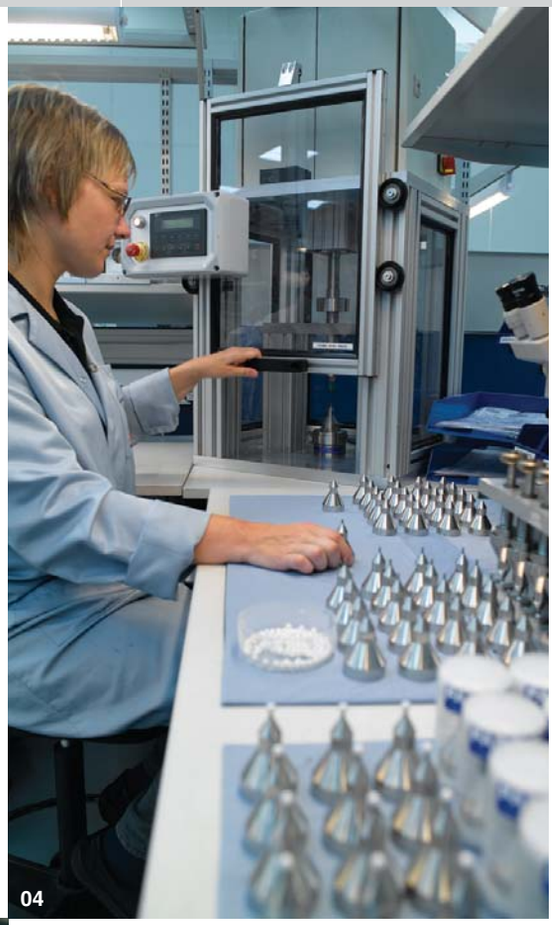
Where a standard product may not meet a customer's requirements for a certain application, Renishaw's specialist design teams can design, develop and deliver tailored solutions, based on the extensive knowledge and experience that the company has acquired whilst working with customers from around the world. These designs can also be the starting point for new standard products since solving a problem for one particular customer may prove beneficial for others.

A customised installation service provides a route to market for many standard products which are required to be fully integrated into a particular machine tool or CMM.

02

03

03 Probe head test rig, service centre, Woodchester
04 Styli specifically designed and manufactured by Renishaw for use on the Faro articulated arm
05 Faro articulating arm CMM inspects car body component
06 WTL travel showroom Wotton-under-Edge
07 On-line reservations from home www.wtlholidays.com


04


05

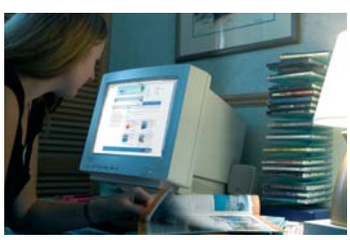
WTL (Wotton Travel Ltd) was established in 1986, initially to co-ordinate the travel requirements of the Renishaw Group.


06

Now, as an independent travel management company, it also provides a range of specialist services to corporate clients worldwide. WTL can cater for all requests, from a weekend break in London, to a trek through the Himalayas. Our consultants have many years experience in the travel industry, with first-hand knowledge of many destinations. Every enquiry is given individual attention to ensure the best holiday is on offer for its customers.

The travel showroom is located in Wotton-under-Edge and is open to personal callers and telephone/email enquiries. A comprehensive range of brochures is on display featuring every kind of holiday, with qualified and trained personnel on hand to deal with travel requests.

Through the Internet and WTL's own reservation system, comprehensive flight and rail information is available, and tickets are issued on site. The service is supplemented by the website **www.wtlholidays.com**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