RENISHAW

Group profile 2001

Contents

Group headquarters, New Mills, Wotton-under-Edge, Gloucestershire, UK.

Overview

1973 – 2001

The first touch-trigger probe was invented to solve a specific inspection requirement of measuring some complex pipe runs for the Olympus engines used on Concorde. However, it went on to transform the design, and revolutionise the use, of Co-ordinate Measuring Machines (CMMs) for post-process inspection of manufactured components.

Sir David McMurtry

The problem arose at Rolls-Royce plc in 1972, when David McMurtry, now Sir David McMurtry, Chairman and Chief Executive, Renishaw plc, 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 CMM. 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.

Norman Key of Notsa, and later Chairman of LK, heard of David's invention and immediately realised its potential. He placed an order for the first ten probes.

David discussed his invention with John Deer, now Deputy Chairman, Renishaw plc. John, with a background

John Deer

in 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.

Earlier, David had formed a small manufacturing operation in his spare time with a friend, which was called Shepherd and Adams (S&A). This made components for some of David's earlier inventions, together with other components which were sold to engineering companies.

Rolls-Royce took out a patent on David's original design, which was filed on 21st September 1972 with him acknowledged as the inventor. To secure its position, S&A needed a manufacturing licence but it was commercial practice at Rolls-Royce to negotiate such licences only 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, from which time, all probes have carried Renishaw's trademark.

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. From the first order from Notsa, production moved to John's home in Chepstow.

Notsa showed the probe at an exhibition where it attracted considerable interest. John wrote to other CMM manufacturers and received enquiries from the UK and the USA. By 1974, business had grown to such an extent that John finally decided to leave Rolls-Royce and work full time for Renishaw.

An important milestone in the history of the company was the establishment of joint proprietorship with Rolls-Royce of David's original probe patent and a number of others. John approached Rolls-Royce in 1976 and was successful in persuading them that joint ownership of the patents was in the best interests of both parties. The relationship with Rolls-Royce terminated in 1987 when Renishaw purchased Rolls-Royce's 50% share in the patents.

By 1977, David had been promoted to Deputy Chief Designer at Rolls-Royce but negotiated to become a consultant 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. There was a flurry of new development in probes and probing systems for CMMs, including new types of styli, extension bars, the motorised head and the probe autochange system. These innovative products, all patented, were important developments which have greatly contributed to fully automated inspection with a fast throughput.

Renishaw acquired its first commercial premises in 1976, in the centre of Wotton-under-Edge, Gloucestershire, UK. Then, Renishaw had nine employees, yet almost all the major CMM manufacturers in the world were using Renishaw's probes. In that year, Renishaw introduced its first inspection probe for use on CNC (Computer Numerically Controlled) machine tools. In 1980, the site was extended to provide additional facilities for the fast growing company.

Renishaw (Ireland) Ltd, originally Renishaw Electronics (Ireland) Ltd, was established in 1981 in Dublin, to provide additional independent manufacturing capacity for the Group's products.

Overview

Expansion in the UK

By the middle of 1981, with annual sales approaching £3 million, larger premises were considered essential in the UK to facilitate growth. A former woollen mill and site, one mile away from Wotton's town centre, was acquired from Tubbs Lewis Co Ltd, part of the Courtauld Group. Over the next couple of years, extensive refurbishment took place, culminating in the official opening in 1985 of the New Mills site, as it is known today. The Old Town site in Wotton-under-Edge was also acquired in that year.

The company saw its flotation on the London Stock Exchange in 1983, when Renishaw obtained a quotation for its shares on the Unlisted Securities Market. One year later, in 1984, the company obtained a full listing for its shares on the London Stock Exchange.

With the continued demand for the Group's expanding range of products, additional space for research and development, and manufacturing operations was needed. In 1989, work commenced on Renishaw's Technology Centre, located just north of the Mill building, and it was ready for occupation in 1990. In 1993, work began on building a new Machine Shop, linked to the Technology Centre, which was completed early in 1994.

Work commenced on further expansion in September 1997, the first phase of planned long term development, which has been incorporated into the local District Council's plans for industry in the area until the year 2011. This first phase covered the expansion of the Technology Centre to satisfy the continued growth of the Group's research and manufacturing requirements and was completed in 1998.

The second phase, for occupation in 2002, will be centred around a new waterside, within a landscaped setting. Access to the site is also being improved.

The third phase will provide further floor space within the agreed site boundary at New Mills to accommodate the growth of the Group's business and forecast requirements to the year 2011.

This ensures a real and sustainable environment for Renishaw, its neighbours and the wider community, and is an indication of the Group's continued investment for future growth.

In 2000, Renishaw acquired a 13 acre industrial site at nearby Woodchester, Gloucestershire for a new manufacturing base. Extensive refurbishment has commenced and the company is phasing the transfer of the relevant operations from Wotton-under-Edge.

Expansion overseas

In April 1981, Renishaw established its first subsidiary company overseas, near Chicago, Illinois, to support the development of its market and to provide a full after-sales service. 2001 saw the opening of Renishaw Inc's new headquarters buiding at Hoffman Estates, Illinois.

In April 1982, Renishaw K.K. was established in Tokyo to support Renishaw's products in Japan, and subsequently a regional office in Nagoya was set up for additional support.

In 1986, Renishaw GmbH was established in Filderstadt near Stuttgart, Germany, relocating to Pliezhausen, Stuttgart in 1992. An extension to the original building will be completed by the end of this year.

In 1988, Renishaw acquired Périféric SARL, a French company that specialised in the development and manufacture of industrial terminals for CNC machine tools, and the marketing of a range of imported terminals, keyboard printers and graphics peripherals. This was an opportunity for Renishaw to acquire an established infrastructure to reinforce the company's presence in France. Subsequently, marketing Renishaw's products became its sole activity, with some research and development activities retained for the development of radio transmission for probing systems on large machine tools. In 1990, the company changed its name to Renishaw S.A., relocating to Emerainville, and then to Champs-sur-Marne in 1997.

Renishaw S.p.A. was established in Torino, Italy in 1989, with Renishaw Iberica S.A. in Barcelona, Spain, and Renishaw A.G. in Pfäffikon, Switzerland in 1991. A new building is currently under construction for Renishaw A.G. for completion in 2002.

Renishaw (Hong Kong) Ltd followed in 1993 and Renishaw Latino Americana Ltda was established in São Paulo, Brazil in 1996. The latter company moved into larger premises earlier this year.

Representative Offices have been established in Singapore and Beijing, China in 1994, Jakarta, Indonesia in 1995, Shanghai, China in 1997, and Taichung, Taiwan in 2000, together with a Liaison Office in Seoul, South Korea in 1999.

A Liaison Office in India was established in 1997, together with a Representative Office in Australia in 2000. Both operations are now subsidiary companies, Renishaw Metrology Systems Private Ltd which was established in Bangalore in 2000 and Renishaw Oceania Pty Ltd which was established near Melbourne in 2001.

Renishaw International B.V. in The Netherlands, originally a holding company for the Group, has now opened an office in Breda to support the Benelux countries. Renishaw has also entered into a 50% business partnership with RLS merilna tehnika d.o.o. based in Ljubljana, Slovenia under which RLS will market Renishaw's products in South Eastern Europe. In turn, Renishaw will assist in the distribution of RLS products.

A new subsidiary company is being planned for Brno, Czech Republic, to support the growth of Renishaw's business in Eastern Europe.

Currently Renishaw has 1655 employees around the globe, 1213 in the UK and 442 overseas.

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1. The first 3D touch-trigger probe and patent specification.

2. Location of the second phase of expansion at New Mills.

3-5. Artist's impressions of new building concepts.

Overview

Awards

Renishaw has received many awards during its 28 years' history.

The company has been honoured with nine Queen's Awards to date, three for Technological Achievement, in 1980, 1990 and 1995, five for Export Achievement, in 1979, 1981, 1985, 1987 and 1992 and in 2001, the Queen's Award for Enterprise: International Trade.

In 1987, The Fellowship of Engineering presented the coveted MacRobert Award "for the design and exploitation of Renishaw probes for metrology". This is often called "The British Nobel Prize for Engineering".

Renishaw's range of motorised heads received a Design Council Award in 1989.

In September 1992, Renishaw was granted the Investor in People Award, the Government's commendation for organisations which have shown their commitment to training and have satisfactorily met the national standard in the UK. Following reviews by the panel's auditors in 1995 and 1998, this was renewed for a further three years.

The Raman microscope received The Prince of Wales Award for Innovation in 1993 and the 1995 Award by the Worshipful Company of Scientific Instrument Makers.

In 1996, RAMTIC was honoured with three awards. The Machinery Award – "Innovation in Production Engineering", Metalworking Production Award – "Best Manufacturing System" and Manufacturing Industry Achievement Awards – "Production Innovation of the Year". The company also gained "West of England Business of the Year Award" together with Export Times "Corporate Exporter of the Year". Also, at the 1996 Manufacturing Industry Achievement Awards, the RG2 scale and readhead system was "Design Innovation of the Year", with the TP200 probe Highly Commended as "Metrology Innovation of the Year". At the Metrology for World Class Manufacturing Awards 1997, Renishaw was proclaimed winner of Category 3 – Measurement for Manufacturing Excellence.

In 1998, Renishaw received two Scottish Manufacturing Achievement Awards. Also in that year, eight products were selected as Millennium Products, the UK Government's initiative to promote innovation through new products and services. These included PHS1 and PH50 motorised heads, SP600M analogue probe, TSA automated toolsetting arm, DLC analyser, UV Raman microscope and RGH22 and RGH24 readheads. A ninth product, HS10 laser scale, was selected in May 1999. The South West Region's 1999 accolade from the Institute of Marketing was also received "for exceptional product and international market development in industrial markets".

In 2000, the company was honoured with "Business of the Year" award from Gloucestershire Newspapers Ltd, sponsored by HSBC, a "Winners" trophy from Deloitte & Touche "Technology Fast 50" and the Gloucestershire Ambassadors Furniss Cup, 2000 "for the company making the biggest contribution to the well-being of the County".

In June, in the Manufacturing Excellence Awards, MX2000, the company was judged Winner of the KPMG Award for Product Innovation, together with Runner-up for the KPMG Foresight Award for Manufacturing Excellence and 2nd Place Award for Process Innovation.

In the MX2001 Awards presented in June this year, the company was again honoured with the Award for Product Innovation and was "Runner-up" for Manufacturing Excellence.

These awards are an initiative by the Department of Trade and Industry, organised by The Institution of Mechanical Engineers (IMechE), with support from KPMG, Warwick Manufacturing Group and the Institute for Manufacturing with Cambridge University Engineering Department. These initiatives demonstrate for the new millennium how manufacturing excellence adds value for customers, for stakeholders of all types, and for the wider economy as a whole.

In April of this year, the company received the World Class Award for Metrology from the GTMA, the Gauge and Toolmakers Association, for outstanding achievement.

Sir David McMurtry has received numerous personal awards. In 1986, he was presented with The Society of Manufacturing Engineers, USA – Albert M. Sargent Progress Award, also The Institute for the Advancement of Engineering, Los Angeles, USA – International Contribution to Engineering and Scientific Community Award.

In 1987, the San Fernando Valley Engineers' Council, California, USA presented him with the International Engineer of the Year Award. He was also one of the four-man team honoured with the MacRobert Award. In 1988 he was elected a Fellow of the Society of Manufacturing Engineers, USA.

In 1989, David McMurtry was made a Royal Designer for Industry (RDI) in the UK. In 1991, he received The 7th News Digest Marketing Award, from this major Japanese industrial journal, the only time the award has been presented to a leading company executive outside Japan. 1994 saw three further honours given to David McMurtry. In June of that year, 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".

He was appointed visiting Professor of the University of Huddersfield and was awarded an honorary Doctorate of

Engineering of the University of Birmingham. He was also a finalist in the Prince Philip Prize for Design. In 1995, David was honoured with the Champions of Metrology Award from the Metrology for World Class Manufacturing.

In 1998, David received an Honorary Doctorate of Engineering from Heriot-Watt University, Scotland. In 2000, he became a Fellow of the Institution of Mechanical Engineers (F Inst. Mech. E).

In the New Year's Honours List for 2001, David was appointed a Knight Bachelor "for services to Design and Innovation" and was formally invested as Sir David McMurtry in March. In July, he received an Honorary Doctorate of Engineering from the University of Bristol and also became a Fellow of the Royal Academy of Engineering (F R Eng).

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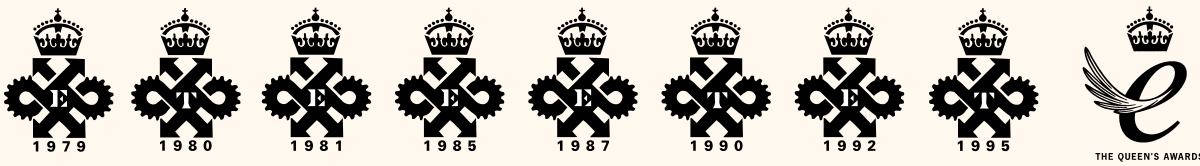

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1. Sir David McMurtry CBE, RDI at Buckingham Palace, March 2001.
2. MX2001 award for 'Product Innovation'.
3. 1987 MacRobert Award.
4. Sir David McMurtry receives a commemorative bowl, emblem of The Queen's Award for Enterprise 2001 from Henry Elwes, Her Majesty's Lord Lieutenant of Gloucestershire.
5. Previous and latest Queen's Awards.