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**Renishaw’s latest product innovations support flexible machining and measurement**

Global engineering technologies company, Renishaw, showcases flexible manufacturing innovations at EMO Milano 2021 (hall 5, stand C14).

Trends such as increasing product mix, rapid product innovation and shorter product lifecycles call for a new breed of flexible machining and measurement solutions. Renishaw’s automated, configurable and programmable sensors for co-ordinate measuring machines (CMMs), shopfloor gauging and on-machine probing technologies all provide the flexibility to help manufacturers cope with changing product demand and evolving design iterations.

At EMO Milano 2021, Renishaw is promoting new and enhanced CMM inspection technologies, as well as improved hardware and software functionality for its gauging products, increased repeatability of its on-machine tool measurement solutions, and enhanced connectivity and battery life for its latest radio transmission machine tool probing system.

**Renishaw expands the capabilities of its REVO® system with a new sensor and enhancements to the existing range of probes**

Renishaw’s REVO 5-axis measurement system delivers high-performance scanning, non-contact inspection and surface finish analysis on a single CMM. When used in conjunction with a low cost changer, the REVO system’s removable probes provide added system flexibility, enabling manufacturers to carry out more measurements on the same machine.

At EMO 2021, Renishaw is promoting its flexible REVO 5-axis CMM inspection technologies, including a brand new sensor, and enhancements and updates to its existing range of probes.

The new RUP1 ultrasonic probe for use with the REVO system adds automated ultrasonic thickness inspection to the system’s existing CMM inspection capabilities. Ultrasonic thickness measurement delivers clear advantages over traditional tactile probing techniques for parts where access to internal features is challenging. Aircraft landing gear parts, power generation drive shafts, and hollow aerospace blades are all parts where the RUP1 probe will be of benefit.

EMO visitors can see a demonstration of the RUP1 system measuring the wall thickness of a tubular aerospace component at the Renishaw stand (hall 5, stand C14).

Also for use with the REVO 5-axis measurement system, Renishaw is extending the range of modules for its renowned SFP2 sensor for automated surface finish inspection.

New additions include a specialised stylus for groove measurement, such as the grooves in engine cylinder bores prior to a plasma coating process. Another module is characterised by its large elongated radius skid (125 mm), which enables scanning with cut-off values above 0.8 mm, making it more tolerant of measuring parts that may not be perfectly clean, while still being compliant with international standards.

Enhancements to the REVO system’s other range of sensors include the addition of an angle change mirror (ACM) for use with the REVO vision probe (RVP) for non-contact inspection applications. The ACM accessory enhances access for the RVP system with the help of a precision mirror, which rotates the field of view through 90°, allowing vision inspection of bore surfaces and other features previously inaccessible to RVP.

The RVP probe and ACM will be on display at EMO Milano 2021 to showcase the speed, flexibility and ease of use of Renishaw’s automated multi-sensor technology on a single CMM. Visitors to the Renishaw stand can watch RVP inspecting an electric vehicle (EV) motor stator.

**Programmable Equator™ shop-floor gauging systems**

Vehicle electrification has seen the automotive industry shift towards increasingly flexible and adaptable manufacturing practices. Accelerated hybrid and EV development is resulting in new and continually changing product designs, requiring increasingly high levels of flexibility, without reinvestment in tooling and equipment.

With rapidly changing market dynamics, regulations and customer perceptions, automotive manufacturers are being asked to adapt their designs more frequently, so it is essential that they select inspection processes with speed and flexibility in mind. Renishaw’s Equator shop-floor gauging systems are being deployed by automotive manufacturers to inspect components such as stators and EV motor housings due to the system’s flexibility and programmability.

Gauging gives manufacturers the confidence to carry out simple quality control procedures at the point of manufacture. Conventional fixed gauging is custom built for every component, so when a design evolves, the gauge is costly and time-consuming to replace. Renishaw’s Equator gauge is different. It performs a combination of rapid touch point and high-speed scans of components to inspect features. It’s highly repeatable, thermally insensitive, versatile and, importantly, reprogrammable. If a product’s design changes, or a completely new design needs to be checked, the Equator gauge can be quickly redeployed to inspect components by simply reprogramming the gauge.

Using the Equator gauge with Renishaw’s Intelligent Process Control (IPC) software also provides an integrated machine tool solution for shop-floor control of manufacturing processes. IPC translates inspection results into tool offset updates, which are communicated automatically to machine controllers. This enables manufacturers to automatically identify and adapt to sources of process drift, such as tool wear. When the Equator gauge is integrated as part of an automated cell or as a flexible shop floor gauging station, manufacturing capability is significantly improved.

Offset information collected as part of IPC, as well as historical inspection data, can now also be fed into the Renishaw Central manufacturing data platform. Renishaw Central provides a consistent method of connecting Renishaw measurement and manufacturing devices, including the Equator gauging system, to make it easy for a variety of systems and processes to access Renishaw device data.

The programmability of Renishaw technologies makes them ideal for pre-production, so that when processes are ready, they can be re-tasked in production.

**Renishaw’s on-machine probing systems promote flexibility**

Renishaw’s configurable and programmable on-machine probing systems also promote flexibility and are proven to help machine shops across many industries transform their production capabilities. The second-generation NC4+ Blue non-contact tool setting solution is one of many smart factory process control solutions to be demonstrated by Renishaw at EMO Milano 2021.

The NC4+ Blue non-contact tool setter delivers significant improvements in tool measurement accuracy, ensuring components can be machined more accurately and efficiently. The latest evolution of NC4+ Blue features an ultra-compact design, now available in four sizes, with operating gaps ranging from 55 mm to 240 mm. Measurement repeatability has been improved across the range, now down to +/- 0.5 micron on smaller separations.

NC4+ Blue is compatible with Renishaw’s extensive range of graphical user interfaces, including on-machine and mobile apps, such as Renishaw Set and Inspect and GoProbe. These consistent, easy-to-use programming platforms simplify the programming and re-programming of on-machine measurement, which is ideal for users new to probing or with little machine code knowledge, while still offering operational benefits to more experienced users.

As product development times and product lifecycles become shorter, manufacturers need to invest in versatile equipment, which can work as part of flexible and re-usable cells. Using flexible equipment that can be easily re-programmed or re-purposed provides a greater return on investment for manufacturers and enables them to cope with changes in demand.

Renishaw incorporates multi-sensor functionality, and the ability to measure a variety of feature types, into many of its products and platforms. The breadth of its expertise in measurement technology makes Renishaw uniquely placed to deliver flexible and versatile metrology systems which transform manufacturing capability and economics.

For further information on Renishaw’s latest product innovations that support flexible machining and measurement, visit hall 5, stand C14 at EMO Milano 2021 (4-9 October 2021).

**-ENDS-**

**Notes to editors**

UK-based Renishaw is a world leading engineering technologies company, supplying products used for applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It has over 4,500 employees located in the 37 countries where it has wholly owned subsidiary operations.

For the year ended June 2020 Renishaw recorded sales of £510.2 million of which 94% was due to exports. The company’s largest markets are China, the USA, Japan and Germany.

Throughout its history Renishaw has made a significant commitment to research and development, with historically between 13 and 18% of annual sales invested in R&D and engineering. The majority of this R&D and manufacturing of the company’s products is carried out in the UK.

The Company’s success has been recognised with numerous international awards, including eighteen Queen’s Awards recognising achievements in technology, export and innovation.

Further information at [www.renishaw.com](http://www.renishaw.com/)