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**Renishaw to give India debut to its new metal additive manufacturing system at IMTEX 2017**

Renishaw, a world leader in precision engineering technologies, will be exhibiting its extensive range of metrology and additive manufacturing equipment at IMTEX 2017 which takes place at the Bangalore International Exhibition Centre, Bangalore, India, from 26th January to 1st February. Renishaw will be exhibiting on stand B123, Hall 3A, showing its new RenAM 500M additive manufacturing system, its new high productivity machining cell concept, as well as its new non-contact vision measurement probe system (RVP) for co-ordinate measuring machines (CMMs). Also demonstrated will be the new MODUS™ 2 metrology software suite which simplifies the programming of CMMs, plus Renishaw’s full suite of machine tool probes, calibration products, metrology fixtures, styli and position encoders, including the Queen’s Award winning RESOLUTE™ absolute encoder.

**RenAM 500M additive manufacturing system**

Making its India trade show debut will be the RenAM 500M. Fully designed and engineered in-house to be used for serialised production, the [RenAM 500M](http://www.renishaw.com/en/renam-500m--30939) builds complex metal components directly from CAD using metal powder fusion technology. Highlights of the system include a Renishaw designed and engineered optical system with dynamic focussing, automated powder sieving and recirculation, a 500 W ytterbium fibre laser and patented high capacity dual filter SafeChange™ system.

**High productivity machining cell showcases process control at IMTEX 2017**

Renishaw will demonstrate how the ability to monitor key process inputs, analyse data and continuously improve manufacturing processes facilitates increased productivity and higher accuracy. The company believes that simply measuring the output of a manufacturing process using ‘tailgate’ inspection is not enough and, more often, too late to control all the variability in that process. It is critical that checks and measurements are also made before, during and immediately after machining to control both common-cause and special-cause variation.

Automation, measurement and feedback can deliver process control throughout the stages of manufacturing. Optimised processes monitor not only the condition of parts, but also the performance of machines, process trends, interventions and environmental effects. Renishaw’s high productivity machining cell will use the machining of an enclosure housing to show how measurement data and connectivity can enable highly automated accurate manufacturing with low overall labour costs to be realised.

The cell will demonstrate the effects of machine tool performance on the quality of parts produced, and show how manufacturers can monitor and control their machines to ensure they are capable of producing good parts. Renishaw will also demonstrate rapid automated setting of tools and workpiece location using standard user-programmable cycles.

**SPRINT™ high-speed contact scanning system**

Renishaw will also be exhibiting its game changing SPRINT system which brings exceptional, high-speed, high-accuracy scanning to CNC machine tools. SPRINT records a constant stream of accurate 3D points across the part surface, and analyses this data in real time on the CNC machine tool controller, to provide game-changing opportunities for automated in-process control on high-value CNC machines. The SPRINT system incorporates a new generation of on-machine scanning technology that will deliver a step-change in the benefits of process control, enabling fast and accurate form and profile data capture from both prismatic and complex 3D components.

For blade manufacture, the SPRINT system provides unprecedented capability for blade tip refurbishment and root blending applications. For multi-task machining applications, the SPRINT system offers users completely new process control capabilities, including exceptionally repeatable diameter measurement cycles.

Additional functionality offered by the SPRINT system provides a rapid health-check of a CNC machine tool's linear and rotary axes in seconds, making it possible to implement a daily machine monitoring regime with little or no operator involvement.

**Non-contact vision probe for the REVO® multi-sensor system**

IMTEX also sees the India launch of Renishaw’s new vision measurement probe (RVP) for use with the REVO-2 5-axis measurement system on CMMs. RVP increases the multi-sensor capability of REVO-2 by adding non-contact inspection to the existing touch-trigger, high-speed tactile scanning and surface finish measurement capability of the system.

For certain applications, non-contact inspection provides clear advantages over traditional tactile probing techniques. Thin sheet metal parts, components with large numbers of holes (as small as 0.5 mm), and parts which are not suited to tactile measurement can now be fully inspected with the RVP system. This new innovation also gives exceptional improvements in throughput and CMM capability by utilising the 5-axis motion and infinite positioning provided by the REVO head.

**MODUS 2 metrology software suite**

Users of co-ordinate measuring machines visiting IMTEX 2017 will also be interested to see how the MODUS 2 metrology software suite brings new levels of clarity and efficiency to the programming and operation of CMMs. Based on the established and highly capable MODUS platform, and supporting Renishaw’s range of three and five-axis CMM sensor technologies, MODUS 2 has been designed with usability in mind, including an innovative, easy-to-learn interface and faster programming, resulting in unprecedented levels of productivity with or without a CAD model.

The user experience for MODUS 2 is also designed to be identical whether the software is connected to a ‘live’ CMM or working in an offline environment where full simulation with speed control allows measurement sequence development and visualisation. Further innovations include ‘Off Surface’ motion technology, intelligent measurement strategies, automatic reporting and an interactive virtual CMM environment. From simple manual machine operation through to complex part measurement on multi-axis systems, MODUS 2 adapts automatically and only offers functionality relevant to the current task.

**Next generation of digital encoder**

Also on display will be the VIONiC™ digital encoder range which has been designed to reduce overall system size to the minimum achievable for a high-performance system, whilst delivering class-leading performance in terms of cyclic error, jitter and accuracy. Customers can choose between two VIONiC readhead variants. The standard VIONiC readhead features a Sub-Divisional Error (SDE) of <±30 nm, a range of available resolutions from 5 µm to 20 nm, and speeds beyond 12 m/s. Alternatively for the most demanding performance requirements, customers can select VIONiCplus™ with best-in-class SDE down to <±10 nm, low jitter to 1.6 nm RMS and resolutions from 100 nm down to 2.5 nm. Low SDE encoders are essential to minimise velocity ripple, which is important in constant-velocity applications such as laser scanning.

**XM-60 multi-axis calibrator**

Renishaw will also exhibit its new XM-60 multi-axis calibrator at IMTEX. The XM-60 is capable of measuring all six degrees of freedom from a single set-up, in any orientation for linear axes. It offers significant improvement in simplicity and time saving over conventional laser measurement techniques. As demands on component tolerances increase, manufacturers are now required to consider all error sources from the machines producing parts; angular errors as well as linear and straightness errors. XM-60 captures all these errors in a single set-up. Designed for the machine tool market, the XM-60 multi-axis calibrator complements Renishaw's calibration product line which includes the XL-80 laser system, XR20-W rotary axis calibrator and QC20-W wireless ballbar. The XM-60 uses the XC-80 environmental compensator to correct for environmental conditions.

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