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**Renishaw unveils the XM-60 multi-axis calibrator**

Renishaw, the world-leading metrology specialist, will be exhibiting its XM-60 multi-axis calibrator at MACH 2018 on stand H19-430. 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.

The XM-60 multi-axis calibrator provides ahighly accurate laser system that incorporates unique technology with a patented optical roll measurement and fibre optic launch system. The compact launch unit is remote from the laser unit, reducing heat effects at the point of measurement. It can be mounted directly to the machine on its side, upside down and even on its back, which is particularly beneficial in areas with difficult machine access.

Reducing uncertainties of measurement is paramount for any user. The Renishaw XM-60 has been designed to measure machine errors directly, reducing the inaccuracies which can result from complex mathematics used in some alternative measurement techniques. Direct measurement makes comparison before and after machine adjustments a quick and simple task with users’ existing part programs for XL-80 measurement. The receiver is fully wireless and powered by rechargeable batteries, avoiding trailing cables during machine moves which could cause inaccuracies or break the laser beam during measurement.

The performance of each XM-60 multi-axis calibrator is traceable to international standards and every unit is also certified before shipment. This provides users with the confidence that their system will deliver the specified accuracy day-after-day where it counts - in the workplace.

To support the release of the XM-60 multi-axis calibrator, Renishaw's CARTO software suite can guide users through the workflow of the measurement process. CARTO includes Capture and Explore applications which already provide data capture and analysis for the XL-80 laser interferometer system. The CARTO user interface can easily be configured to suit user preferences, with the ability to change themes and customise displays. It is tablet friendly and has expandable menu sections for ease of use on compact screens. Test methods are automatically saved, so for repeat testing users can simply recall an earlier test.

Capture features a part program generator, supporting Fanuc 30, Heidenhain 530, Mazak Matrix and Siemens 840D controllers, with more to follow in later releases. It has advanced features to automatically set the dwell time in the program, based on the averaging period selected by the user, and ‘matched time’ mode to assist time based capture when using the XL-80 system. In XM-60 mode Capture uses the calibrator's straightness measurement functionality to improve its ease of use.

XM-60 provides users with powerful machine diagnostic capability through the measurement of all degrees of freedom from a ‘single shot’. By capturing three linear and three rotational error sources during any measurement, users can discover the source of their errors, rather than the effect which is often seen when only performing linear measurement. Handling all of this data is performed by the Explore application which provides a summary view of all the six channels of data, each of which can be displayed against a wide range of international standards. The management of such high volumes of data is also easily handled within Explore. A user defined tag can be assigned to any test, or group of tests saved in the database, and data can then be filtered by these tags.

Renishaw’s XM-60 multi-axis calibrator is supplied in a robust Peli™ system case, with space for accessories and XC-80 compensator kit. The case has been designed to provide safe storage and transportation of the laser system, and in many applications the laser unit can remain in the case during measurement, simplifying the set-up. An optional fixturing kit is available to help with mounting the XM-60 to machines, which is supplied in a carry case for ease of transportation.

For further information on Renishaw’s calibration and performance monitoring products, visit [www.renishaw.com/xm60](http://www.renishaw.com/calibration).

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