*March 2018 Further information:* *Chris Pockett*

**New Renishaw EquatorTM 500 – intelligent process control for larger parts with all the benefits of the proven Equator 300 gauging system**

 **Equator gauging systems have helped to improve yield and increase process capabilities of production lines around the world, by providing high accuracy dimensional inspection data next to turning and machining centres, at the point of manufacture. The new larger Equator 500 system now enables the gauging of larger parts, with a working volume of 500 mm in diameter and up to 400 mm in height.**

Both Equator 300 and 500 systems are accurate between 5 ºC and 50 ºC at any rate of temperature change, and are capable of scanning speeds in excess of 200 mm/s. Every system is compatible with simple-to-use Organiser operator software, EZ-IO software for automation, and IPC (intelligent process control) software for updating tool offsets on CNC machine tools.

**Larger measuring volume**
The Equator 500 has a gauging volume of 500 mm diameter in the X/Y plane and 250 mm in Z when used with the SM25-2 scanning module. This can be expanded to 400 mm in Z with the SM25-3 scanning module, which allows styli up to 200 mm in length to reach many more features. The base of Equator 500 supports workpiece and fixturing with a total weight limit of 100 kg. The ratio of gauging volume to footprint means that the machine is extremely space efficient, with a footprint of just 920 mm by 924 mm. This allows manufacturers of larger parts to easily fit Equator 500 onto the shop floor alongside their production machines. Typical applications include the manufacture of car and truck transmission and engine casings, drive-train parts like conrods and differential housings, suspension castings, pressed parts, valves and pumps.

**High speed gauging of size, position or geometry**Most users of Equator systems need short cycle times to maximise throughput from their manufacturing processes. Both Equator 300 and 500 systems, while maintaining high levels of repeatability, are capable of rapid scans and high speed touch points on a wide variety of features. Years of customer experience with Equator systems have proven the capability to gauge size, position and geometry on a single device. This can eliminate the need to stabilise parts to the temperature of the quality room prior to measuring geometry and form of critical features.

**Accuracy with rapid temperature changes, now over a 45 ºC range**Climatic conditions can result in variable daily and seasonal temperature cycles. For example, early in the morning a cold machine shop can increase in temperature due to both external conditions and machinery heating up. The system has been proven to cope with this by re-mastering, meaning that accurate gauging can start as soon as the first part has been produced and continue regardless of how conditions change.

**Automatic update of tool offsets directly from Equator 300 and 500 systems**

The Equator range is compatible with new IPC software which allows constant monitoring and automatic adjustment of a machining operation, keeping part dimensions close to nominal and well within process control limits. This correction of process drift improves part quality and manufacturing capability, and reduces scrap. The proximity of the Equator gauge to the CNC process allows adjustment at the point of manufacture, avoiding time delays or reliance on finished part (tailgate) inspection. An Equator gauging system can be connected to one or multiple CNC machine tool controllers.

**Process control configured to specific manufacturing operations**

IPC software can average results from several parts to determine the true process mean for adjustment of critical cutting tools. For process control purposes, often only one machined feature per cutting tool will require gauging, in contrast with the many features inspected for typical Quality Assurance (QA) applications. The frequency and magnitude of offset updates can be configured on a feature-by-feature basis depending on design tolerances, process variation and tool wear rates.

IPC is an integral function of Equator Process Monitor software, using recent historical gauging data to determine process corrections. Connection to a compatible machine tool can be as simple as connecting an Ethernet cable from the Equator controller to a CNC machine.

**Reduce dependence on skilled operators**

The ability to correct a process automatically with IPC software eliminates the potential for manual data entry errors, and removes the requirement for an expert to decipher traditional measurement reports into a process correction value at the CNC machine.

**Available with new automatic part loading system**

The new EQ-ATS Equator Automatic Transfer Systems, for Equator 300 and Equator 500, allow parts to be loaded on to a fixture plate in front of the gauge, and transferred in and out of the measuring volume under automatic program control. They can be used for either manual loading by operators, cranes or fork-lifts, or robot loading in an automated cell, protecting the Equator gauge from accidental damage. EQ-ATS is easily integrated, bolting directly on to the base of the Equator gauge.

**The versatile gauge**

The Equator gauging system is unique in its design and method of operation. The speed and temperature range benefits of the Equator 300 system are now available for larger parts with the Equator 500, further expanding the capability of Renishaw’s flexible gauging range.

**www.renishaw.com/equator500**

Captions

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