



◀ The Equator uses a parallel kinematic structure for high-speed scanning and repeatability. Source: Renishaw

to-point reliability. High scanning can be achieved by this patented concept along with fast moves between features.

"Equator is unique in its design and method of operation and has already changed the thinking of hundreds of production engineers, making it the new gage of choice," says David Emmet, business manager, CMM and Automated Measurement Products. "The versatility and repeatability Equator offers look set to change the world of gaging."

Installation of the Equator gaging system is quick and easy and can be out of the box and operating in less than 20 minutes. Only single-phase power is required with no air supply necessary. Also, with its lightweight design weighing in at roughly 55 pounds, crowded factory spaces are not an issue for the Equator.

According to Emmett, the Equator systems are available with two levels of software, a programmable version for production engineers to create DMIS programs and, at a lower price, a shop floor system that allows those programs to be executed but prevents operators from making modifications. Both software levels include Modus Organizer operator front-end software.

"In the programmable version, Modus Equator programming software allows engineers to rapidly create gaging routines for any part—simple or complex, prismatic or free-form," says Emmett. "Modus Equator features the ability to easily program scanning measurements and touch points, using the industry-standard Renishaw SP25 compact scanning probe. Scanning allows thousands of data points to be taken to define a feature for true form analysis."

# VERSATILE GAGING

The new Equator is a single gage that can be used for an unlimited amount of applications.

BY KARI O'ROURKE, MANAGING EDITOR

Earlier this year, Renishaw (Hoffman Estates, IL) kicked off its first gaging product line with the new Equator—a versatile gaging system capable of inspecting multiple parts. The patented system can be reprogrammed within minutes depending

on changes to part designs or if new parts need to be measured, using Dimensional Measuring Interface Standard (DMIS) programming.

The Equator's unusual appearance is the result of a stiff parallel kinematic structure that allows for easy scalability while maintaining stiffness for point-

## SPECIFICATIONS

- Working volume X Y Ø 300 millimeters
- -Z 150 millimeters
- Comparison uncertainty: ±0.002 millimeter
- Maximum scanning speed: 100 millimeters per second
- Maximum movement speed: 500 millimeters per second
- Scanning rate: 1,000 points per second
- Scale resolution: 0.0002 millimeter
- Fixturing requirement: ±1 millimeter
- Machine air supply requirement: No air required
- Operating temperature: 10 C to 40 C
- Storage temperature: -25 C to 70 C
- Relative humidity operating range: 20 to 80%
- Maximum power consumption: 750 watts
- Typical power consumption: 110 watts
- Probe type: Renishaw 3 axes SP25 analog scanning
- Fixture plate: 305 millimeters by 305 millimeters aluminum
- Maximum workpiece: weight 25 kilograms
- Machine weight: 25 kilograms
- Machine dimensions (W x D x H): 570 millimeters by 500 millimeters by 700 millimeters



Shown here is the Equator gaging a medical component. Source: Renishaw

Full programming functionality is provided by taking the dongle that comes with the programmable system and plugging it into a shop floor system. Engineers can then adjust programs while retaining control.

Prior to the product launch, the Equator was put through a testing phase with several leading companies in the aerospace, automotive and medical fields. One company that participated in the prelaunch was Meyer Tool (Cincinnati), an aero-engine component maker. Since

implementing the Equator, Meyer Tool has been able to eliminate at least four expensive hard gages in a new work cell.

"And that's just the beginning of the impact the company anticipates for its inventory of custom hard gages, which can cost up to \$20,000 each to design, build and maintain," says Beau Easton, quality manager, Meyer Tool. "Down the line, design changes can add another \$3,000 to \$10,000 to reconfigure and qualify an existing gage."

The Equator is capable of measuring a variety of parts including, shaft cylinders, hip joints, blade and root form, and molding.

An entire Equator system includes a port stylus changing rack, SP25 probe system, controller, one fixture plate and stop button or joystick kit—all at the running cost of \$26,000. Accessories also are available.

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