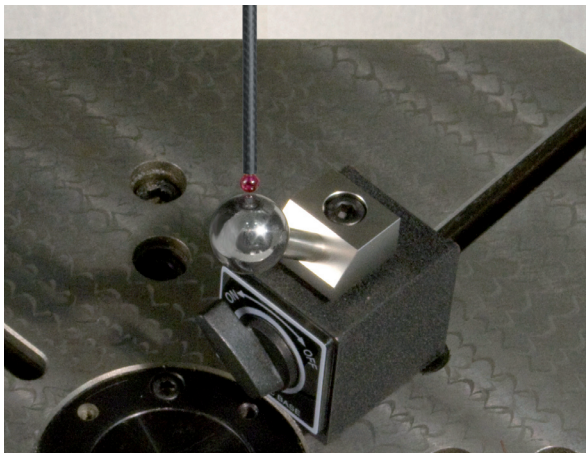


New system offers fast, automated health check for multi-axis machine tools

Renishaw has extended its market leading range of machine tool testing and calibration systems, with AxiSEt™ Check-Up, a new cost-effective solution for checking the alignment and positioning performance of rotary axes. In just a few minutes, users of five-axis machining centres and multi-tasking mill-turn machines can now identify and report on poor machine alignments and geometry that can cause extended process setting times, as well as non-conforming parts.



There has been strong growth in the market for multi-axis machines, but until now, no easy and reliable process for analysing the performance of their rotary axes and identifying problems caused by incorrect machine set-up, collisions or wear. Key to precision machining is the ability to understand the location of the centres of rotation of the rotary axes relative to the machine's linear axes. Without accurate data about these 'pivot points', a machine's controller will be unable to reliably control the relative positions of the tool and the component as the rotary axes are moving, leading to inconsistent machining results.

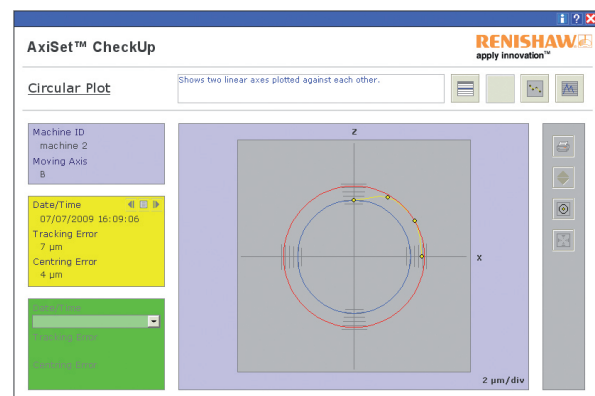
Renishaw's AxiSEt™ Check-Up provides accurate and repeatable test results using automated probing routines to gather performance data from a reference artefact, and includes simple, yet powerful analysis. All tests utilise existing spindle-mounted Renishaw touch probes, which are standard fitment on most multi-axis machines, with probing routines generated using machine-specific macro software supplied with AxiSEt™ Check-Up.

Set-up is fast and simple. To perform the test a user quickly locates a supplied calibration sphere within the machine tool's working envelope using a magnetic

mount. Using the supplied custom macro software, a touch probe is then programmed to automatically take reference measurements around the sphere. Users are in full control and can define their own test angles to ensure that machines are tested at critical orientations. To ensure the highest test accuracy, the use of Renishaw's high accuracy RENGAGE™ strain-gauge probes is recommended.

Measurement results from the AxiSEt™ Check-Up test are output to a PC where a supplied Microsoft® Excel® spreadsheet presents easily understood analysis of the data and compares machine performance with defined tolerances. If necessary a user can then alert a machine supplier to carry out further detailed checks and possible error correction.

Analysis of a machine's capabilities is presented in various formats including a graphical representation of performance that highlights tracking and centring errors, a function that compares two sets of data for the same machine, a simple 'pass' or 'fail' test against the user's pre-defined tolerances, and a history screen that allows comparisons of the performance of rotary axes over time. All spreadsheet analysis can be incorporated in a simple report generated using Microsoft® Word®.



To ensure the optimum analysis of rotary axis performance using AxiSEt™ Check-Up, it is important that the machine's standard three linear axes are also performing within specification. This should be determined and corrected if necessary using Renishaw's XL-80 laser calibration system, and then regularly checked using a Renishaw QC20-W ballbar. Together these powerful performance testing products combine to ensure the highest quality parts can be consistently produced by five-axis machining centres and mill-turn machines.

More information

For more information on Renishaw's machine tool testing and calibration systems visit www.renishaw.com/calibration