

# AxiSet™ Check-Up

## About Renishaw

Renishaw is an established world leader in engineering technologies, with a strong history of innovation in product development and manufacturing. Since its formation in 1973, the company has supplied leading-edge products that increase process productivity, improve product quality and deliver cost-effective automation solutions.

A worldwide network of subsidiary companies and distributors provides exceptional service and support for its customers.

### Products include:

- Dental CAD/CAM scanning and milling systems.
- Encoder systems for high accuracy linear, angle and rotary position feedback.
- Laser and ballbar systems for performance measurement and calibration of machines.
- Medical devices for neurosurgical applications.
- Probe systems and software for job set-up, tool setting and inspection on CNC machine tools.
- Raman spectroscopy systems for non-destructive material analysis.
- Sensor systems and software for measurement on CMMs (co-ordinate measuring machines).
- Styli for CMM and machine tool probe applications.

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**RAPID**  
measurement of multi-axis machine performance



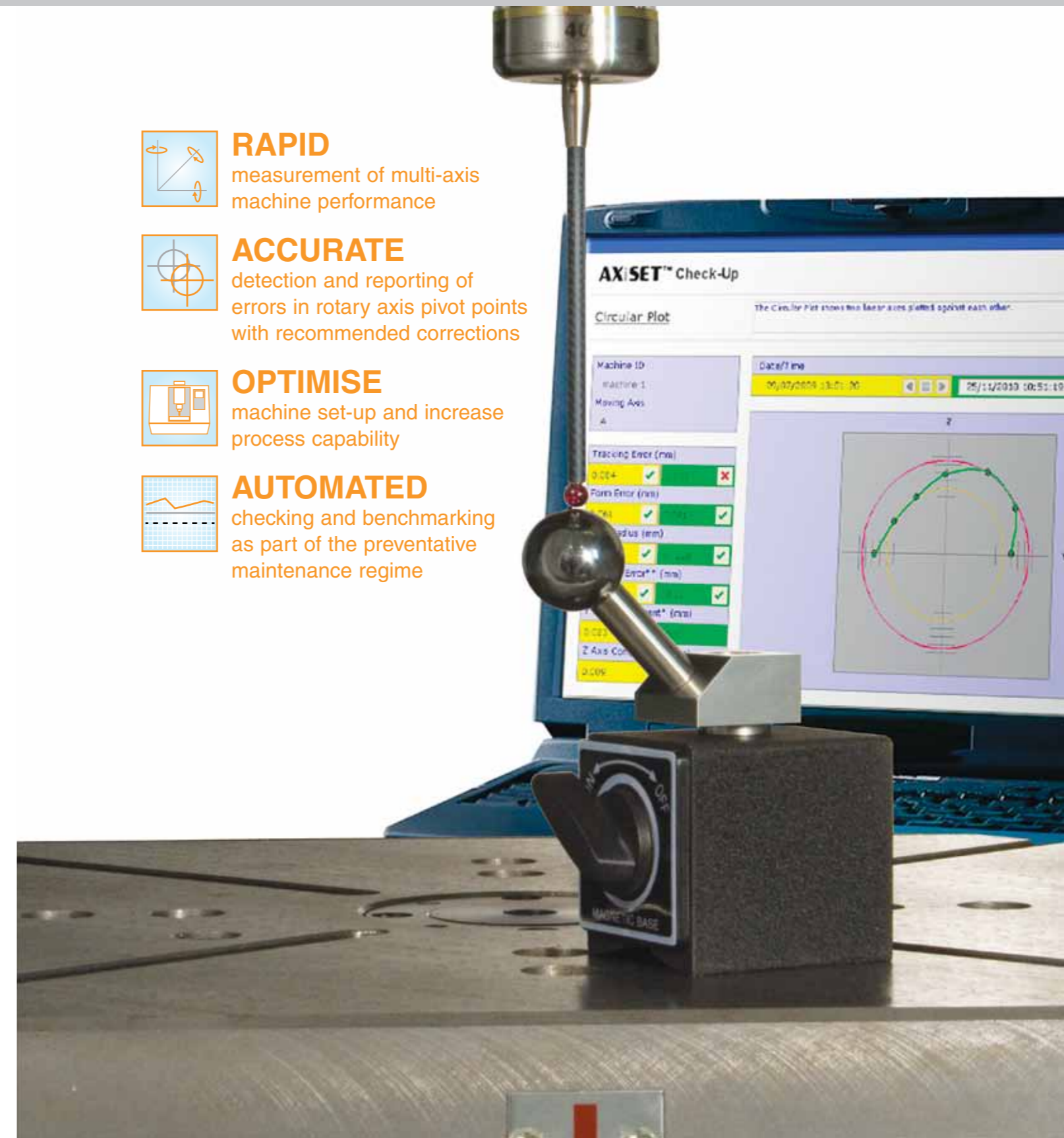
**ACCURATE**  
detection and reporting of errors in rotary axis pivot points with recommended corrections



**OPTIMISE**  
machine set-up and increase process capability



**AUTOMATED**  
checking and benchmarking as part of the preventative maintenance regime



The accuracy of complex parts produced on multi-axis machines is strongly influenced by the accurate setting of the centres of rotation (pivot points) of rotary axes. Such pivot points are made use of either within machine CNCs for the Tool Cutter Point Rotation function, essential in 5-axis machining, or within CAM systems for producing angled features (3+2 axis machines).

There has been strong growth in the market for these 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.

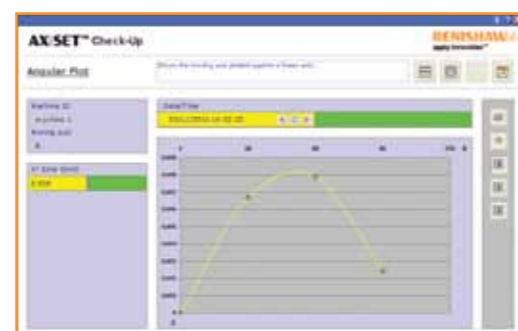
Compatible with common formats of 5-axis and multi-tasking machines, as well as other machines with rotary axes e.g. horizontal machining centres, **AxiSet™** Check-Up provides machine users with a fast and accurate health check of rotary axis pivot points. Alignment and positioning performance checks are carried out rapidly to benchmark and monitor complex machines over time.

With its probing macro software and a dedicated calibration artefact, it provides graphical representations of machine performance. PASS or FAIL decisions based on defined tolerances are provided allowing corrective actions to be made based on the reported errors. Trends in machine performance can be tracked over time using history and comparison functions. All results can be printed in a standardised report via Microsoft® Excel® and Microsoft® Word®.

**The latest AxiSet™ Check-Up release 2 now offers new and improved features to extend the benefits.**



Circular plot



Angular plot



History plot



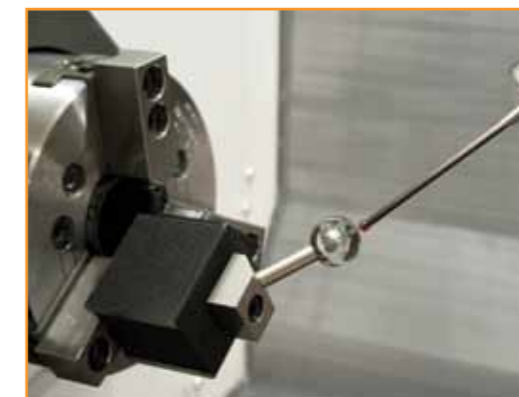
### Key benefits

- Reliably check and track machine performance trends over time
- Measure and report critical errors quickly
- Provide recommended correction values for machine optimisation
- Increase confidence before critical features are machined
- Eliminate unplanned down time
- Reduce scrap and increase profits
- Enhance quality systems



### New functionalities in release 2

- Discrete reporting of pivot point and lathe centre line error along linear axes (as commonly defined in CNCs)
- Incremental and absolute reporting modes
- User selectable calculation methods to establish pivot points
- Display of form error and swing radius
- Automatic import and backup of multiple data sets
- Compatibility with Microsoft® Windows 7 and Office 2010



### System components

#### Macros

Written for a range of CNC controllers, these probing macros are machine specific and available for a range of machines with rotary axes, including 5-axis machining centres and multi-tasking mill-turn lathes. These macros drive the machine collecting measurement data.

#### PC software package

Running in Microsoft® Excel®, the software analyses the probe data, and displays results in various easy to read graphical formats.

#### Hardware

A single calibration sphere conveniently mounted on a magnetic base is used as a reference feature for measurements. This simple-to-use artefact ensures that set-up time is kept to a minimum and in most cases does not require fixtures or parts to be removed.

#### Recommended for use with AxiSet™ Check-Up

**Strain gauge probe** - For ultimate accuracy, Renishaw recommends the use of strain gauge probes. These include the latest generation of **RENGAGE™** probes as well as the widely used MP700 model.

**Calibrated test bar** - Ensures that **AxiSet™** measurements are traceable and comparable to the settings made by machine tool builders.

