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QC20
ballbar

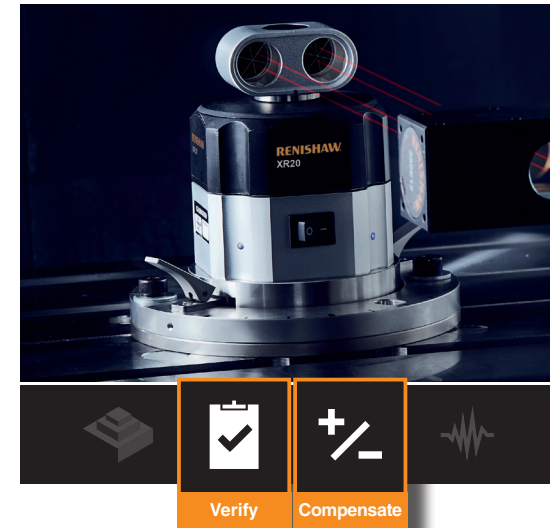
Wireless ballbar for machine tool performance diagnosis

Ballbar testing provides a simple, rapid check of a CNC machine tool's positioning performance to recognised international standards (eg. ISO, ANSI/ASME) allowing users to benchmark and track the performance of their machines and to quickly diagnose problems before they need maintenance.

Regular ballbar testing of machine tools helps to:

- ensure accurate parts, first time, from CNC machines
- reduce machine down-time, scrap and inspection costs
- demonstrate compliance with machine performance and quality management standards
- implement fact-based predictive maintenance

www.renishaw.com/qc20



XR20
rotary axis calibrator

Highly accurate and repeatable rotary axis calibration

The XR20 rotary axis calibrator works in conjunction with XL-80 and XM-60 laser systems to measure and correct rotational errors. It provides rapid calibration for stages, jigs and machine tools and benefits from:

- calibration of rotary axes to ± 1 arc second accuracy
- wireless operation
- built-in alignment targets
- auto-calibration compensates for set-up alignment errors
- automatic direction and feedrate detection, up to 10 rpm

www.renishaw.com/xr20



Discover our calibration products

Precision tools to assess, monitor and improve the static and dynamic performance of motion systems.

Introducing our calibration range

Renishaw's calibration laser and ballbar products provide an accurate foundation to establish a high quality, known and repeatable level of process capability.

They are combined with intelligent calibration software to maximise the performance of your motion system.

RENISHAW



XK10 alignment laser system

A single digital solution for alignment of machine tools

Measure geometric and rotational errors during machine build, maintenance and service with the XK10 alignment laser system to enable accurate alignment and adjustment of machine axes to achieve optimum performance.

This reduces time during machine assembly processes, including on-site service, regular maintenance or repair following a collision.

Used with the XK10 fixturing kit, it enables faster and easier measurements over traditional methods, such as dial indicators, autocollimators and metrology artefacts. The XK10 system can be used on linear rails to ensure they are flat, parallel, level and square. It can also be used to access spindle direction and coaxiality on lathes and multipurpose turning centres.



www.renishaw.com/xk10



XM-60 multi-axis calibrator

Measure six degrees of freedom in any orientation from a single set-up

The XM-60 is a laser measurement system capable of measuring errors in six degrees of freedom along a linear axis, simultaneously from a single set-up. It is a powerful diagnostic tool measuring all geometric errors in the axis from a single capture. Its unique optical roll measurement system provides measurement in any orientation.

For volumetric compensation, the XM-60 multi-axis calibrator provides a quick and accurate method of data population. Easy upload of compensation files to the machine control results in consistent performance across the machine volume.



www.renishaw.com/xm60



XL-80 laser system

Directly measure geometric errors in a machine independently

The XL-80 laser system gives confidence in the measurements and makes it possible to isolate errors in real-time, unlike laser tracker and tracer systems.

This allows machine accuracy to be improved by:

- making targeted alterations to the machine's assembly
- using the data to apply error compensation
- documenting the improved capability of the machine

The XL-80 laser has become the system of choice for a variety of laboratory applications and calibration houses. Its ultra-stable laser frequency, published error budgets, and unbroken traceability make it ideal as a reference system. A variety of connections and triggering options are available.



www.renishaw.com/xl80