

## New laser-based tool recognition system gives high-speed broken tool detection

**The Renishaw TRS2 tool recognition system is a cost-effective solution for reliable, rapid broken tool detection on a wide range of machine tools and tool types, eliminating the problems caused by broken tools in terms of scrap, re-work and downtime. Using Renishaw's unique ToolWise™ technology, tools as small as 0.2 mm\* diameter can be checked at 300 mm range. With tools typically spending 1 second in the laser beam, the TRS2 is also suitable for use in high volume production environments and for low, medium and high speed spindle machines.**

Comprising a single compact unit containing the laser source and detection electronics, the TRS2 is easy to install and can be mounted outside the machine's working envelope, saving valuable table space and also being safe from the risk of collision.

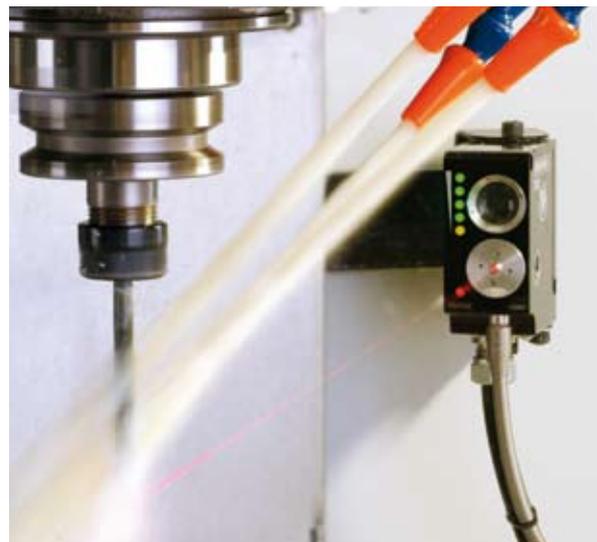
Set-up is also simple with dedicated Renishaw software. Tools can be detected at distances of between 0.3 metres and 2.0 metres, depending on a tool's surface finish, machine environment and installation. The TRS2 is suitable for a wide range of machines, although it is optimised for use at distances of up to 1.0 metre.



The Renishaw TRS2 is a replacement for the original TRS1 unit, which has been successfully installed on machines worldwide. With enhancements made to Renishaw's unique ToolWise™ technology, the TRS2 benefits from improved tool detection reliability and reduced cycle times.

A key benefit of this enhancement is the ability to work at a greater range of spindle speeds, (200, 1000 and 5000 RPM) enabling the detection of a larger number of tool types in a wider range of applications.

For instance, gun drill applications are now possible and for high speed spindle machines, valuable time waiting for spindle deceleration is minimised. The detection of small, dark tools is now more reliable, and the TRS2 can detect a wider range of solid centre tools including drills, taps, end mills, slot drills and ball nose end mills.



Conventional non-contact broken tool detection systems depend on the laser beam being blocked (tool OK) or not blocked (tool broken). The TRS2 is different, using the unique tool recognition electronics within the ToolWise™ technology to determine whether a tool is present by analysing the reflected light pattern from the rotating tool. Random light patterns created by coolant and metal chips are ignored, reducing the chance of not detecting a broken tool due to coolant blocking the beam.

\* Depending on the tool surface finish, machine environment and installation.