

3D SCAN



The next step in your
productivity journey

Improving productivity with scanning technology

High-speed probing for CNC machine tools

Every day thousands of touch-trigger probing systems are used to perform part set-up operations on CNC machine tools. These systems provide a reliable and repeatable method for part setting and on-machine feature verification, and have played a pivotal role in increasing productivity for manufacturers worldwide.

Touch-trigger probe users can now take the next step to further improve productivity by switching to an on-machine scanning probe in the form of the Renishaw OSP60 with SPRINT™ technology.

The OSP60 is a high-speed, high-accuracy probing system that returns data-dense metrology information. It captures 1,000 true 3D data points every second at speeds of up to F15000. By operating at such high feedrates, the system collects significantly more data than is possible from traditional probing techniques, and provides numerous operational benefits that help improve productivity.

Benefits at every stage of manufacturing

Benefits provided by the OSP60 can start before metal cutting even begins. A sub-60 second machine health check cycle assesses the machine kinematics to determine the operational capabilities of a machine tool. Additionally, set up and alignment of free-form components, and castings – where part-to-part surface variation typically makes set up very time consuming – can be performed quickly and easily.

In process, the system reports on feature properties including size, position, material condition and surface waviness. Outputting these results to machine variables allows machine and tool updates, plus automated, adaptive toolpath generation for chamfering, deburring and skimming operations.

Data can also be exported to other Renishaw or third-party metrology applications for further analysis or reporting.



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Enabling automation, delivering manufacturing excellence

Scanning technology can significantly reduce cycle time for workpiece set-up and inspection routines. These savings allow increased part throughput on each machine tool, immediately increasing productivity. On-machine, in-process probing can also replace time-consuming manual processes and reduce scrap. Data-dense metrology means that true feature form can easily be established. All of this makes the OSP60 an excellent enabler for 24/7, lights out, closed-loop manufacturing: a significant and fundamental step towards process automation.

Software is crucial to the power and flexibility the system provides. Options for programming, data analysis, and reporting, allow the system to be tailored for multiple applications and industries, and new ways of applying the technology are ever evolving.

Leading manufacturers in aerospace, automotive, medical, oil and gas, and power generation have already invested in the OSP60 and are benefitting from the full range of manufacturing advantages that on-machine scanning provides.

One probe, unlimited applications

Applying the capability provided by the OSP60 is limited only by your imagination. Industries where SPRINT technology will significantly enhance your manufacturing processes include:

Aerospace

Frequently utilising high-value raw materials and superalloys, the aerospace industry offers numerous opportunities for the adoption of on-machine scanning. Utilising the high density of data returned by the OSP60, applications such as the manufacture and repair of jet engines, turbine blades, and impellers can all benefit significantly through the adoption of on-machine scanning.

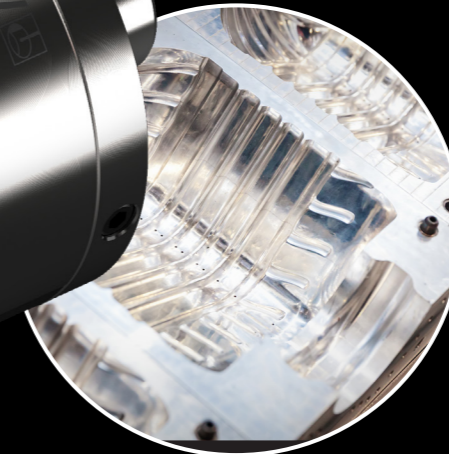


Medical

The manufacture of orthopaedic implants used in joint replacement operations presents various production challenges. This high-volume manufacturing environment uses high-value raw materials that undergo a significant number of machining and polishing operations. Tight tolerances are required, and any scrap considerably impacts profitability. The rapid part set-up and in-process verification capability of the OSP60, even on the complex, highly curved, free-form surfaces found on many implants, helps to minimise scrap rates, increase throughput, and enhance productivity.

Automotive

Throughout the automotive supply chain and across all stages of production, manufacturers are looking to improve the efficiency of their manufacturing processes and speed up component verification. From part set-up and in-process control, through to surface condition monitoring, the speed, flexibility, and ease-of-use offered by the OSP60 can benefit producers of automotive components including engines, gearboxes, and drive shafts.



Mould and die

The data dense information returned by the OSP60 can assist in numerous areas within the mould and die industry. Free-form surface inspection of 3D mould surfaces allows form and feature information, such as position and size of critical holes and insert pockets, to be determined and reported. Mating surfaces can be scanned, and material condition reported to ensure that flashing – and therefore additional finishing processes – is minimised. Fitting capability ensures correct alignment where parts are returned to a machine for rework operations. Adaptive cutting techniques can be used in 'copy-cut' operations to produce mating components.

Electronics

The high-volume consumer electronics industry demands consistently high-quality components and aesthetic enclosures for items such as mobile phones, tablets, and laptops. The OSP60 provides an on-machine solution for rapid part set-up, position and tolerance determination of component-critical features, and verification of feature form. This unique functionality is key to reducing scrap, minimising manufacturing costs, and aids in establishing versatile and robust processes.



Power and energy

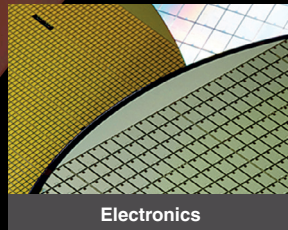
The energy and power generation sector increasingly needs to deliver sustainable, reliable, and affordable solutions. This diverse industrial sector encompasses a wide range of parts from simple prismatic, such as flanges and couplings, through to free-form and 3D components such as ball valves and impellers, which may require complex fitting operations. On-machine component verification using the OSP60 will help reduce manufacturing costs, improve consistency, and deliver a more robust manufacturing process across all power generation applications – wind, nuclear, or oil and gas.

Applying innovation since 1973

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