

Grinding machine manufacturer's first CMM delivers major efficiency gains



Nikola Biresev, quality manager at Grindex, using the LK CMM to inspect a B-axis housing for an internal grinder at the company's factory in Kikinda, Serbia



The LK CMM completes an inspection routine on a larger grinding machine component automatically in a few hours, whereas previously it took days to inspect manually

Nikola Biresev, Quality Manager, Grindex

In 2021, cylindrical grinding machine manufacturer Grindex, based in northern Serbia, installed its first coordinate measuring machine (CMM), an Altera M 20.12.10 manufactured in the UK by LK Metrology, Castle Donington.

The ex-demo machine is in daily use checking tolerances mainly to below ± 0.05 mm and sometimes half that value. When the company was looking to invest, a CMM was chosen in preference to an optical scanning metrology solution, which was not regarded as being sufficiently accurate, probably by a factor of 10.

Having a nominal inspection volume of 2,000 x 1,200 x 1,000 mm, the CMM is installed in a dedicated inspection room in the user's Kikinda factory. The machine was supplied with a touch-trigger probe for general inspection and complex stylus builds, and an analogue scanning probe for rapid capture of dimensional and surface data from iron, steel and aluminium castings, engine housings, machined components, moulded parts, fabrications, additively manufactured components and assemblies. Training and initial programming assistance formed part of the LK package, as well as ongoing consultancy.

The LK machine was selected in preference to alternative brands of CMM based on recommendations from other manufacturing companies in nearby Serbian cities. The equipment has considerably upgraded the

metrology capability of Grindex, whose quality control toolbox was previously limited to a profile projector, micrometers, height gauges, callipers and a combined machine for roughness testing and checking the roundness of smaller parts. Now with the CMM, more comprehensive and earlier detection of out-of-tolerance features leads to an ability for errors in a metalcutting program spotted earlier, lowering costs both through more efficient production and a reduction in scrapped parts.

Graduate mechanical engineer Nikola Biresev, quality manager at Grindex said, "The LK CMM is used not only for quality control activities and problem-solving, but also to support research and development.

"In particular, it is invaluable for inspecting complex parts precisely prior to assembly into a grinding machine to avoid time-consuming fitting-up issues.

"Previously, checking larger critical parts by hand took several days. Now it takes just a few hours to program the CMM to check a similar part and then one to two hours to run the measuring cycle on the machine.

"The next time we need to check an identical part, the program already exists, saving even more time. If the component is not quite the same, it is simple and quick to edit the program



A Q-axis rotary table for a grinding machine being inspected

to accommodate the differences before running the cycle.”

Mr Biresev is on record as being very satisfied with the purchase of the measuring machine, which he advises accommodates 95% of all parts going through the factory. Only the very largest items need to be inspected by an alternative method. He also commented that the CMM is able to check components more than one cubic metre in size to the same accuracy as it measures parts under 10 mm, an capability that he describes as “a big advantage”.

Grindex uses LK’s CAMIO software for programming, simulation, analysis and reporting in either PDF or Word format. Reports are generated quickly in about one hour, in stark contrast to previous manual reporting which was very time-consuming. The grinding sector is highly quality conscious due to the fine tolerances and surface finishes that customers want to achieve. Machine users often send test parts to Kikinda to verify the manufacturer’s metrology capabilities. Grindex is now able to respond to such accuracy checks and generate reports much more quickly now that the LK measuring platform and software are in place.

About LK Metrology

LK Metrology is renowned for innovative metrology solutions and services. The company's products, including coordinate measuring machines (CMM), portable measuring arms and metrology software, are used worldwide to control and improve the quality of manufactured components. Its precision technology underpins the process chain from design, development, production and assembly through to quality assurance in global industries such as automotive, aerospace, defence, motorsport, energy, medical and contract inspection.

Established in England in 1963, LK Metrology has an impressive heritage in metrology dating back to the birth of CMM technology. Founded by CMM pioneer Norman Key and his father-in-law Jim Lowther, LK Metrology is credited with many of the CMM industry's firsts including the first bridge-type design, first OEM to integrate computers, first to use a touch trigger probe, first to develop inspection software, first to use all air bearings and granite guideways, first to use carbon fibre composite spindles, first to use microprocessor-controlled drive systems, first to produce a truly thermally stable CMM and first to produce a high-accuracy horizontal-spindle CMM.

In 2018, LK Metrology was relaunched as an independent CMM manufacturer after several years as a division of Nikon Metrology. Headquartered in the UK, LK's CMM development and production are at the company's facility in Castle Donington. Sales and support offices are located in the UK, North America, Belgium, France, Germany, Italy and China, supplemented by a worldwide distributor network.