



Nano-Level Gear Inspection Goes Smaller

With the 175GMS nano, Gleason brings submicron-level inspection capabilities to smaller gears, helping ensure minimal noise, greater precision, and longer life

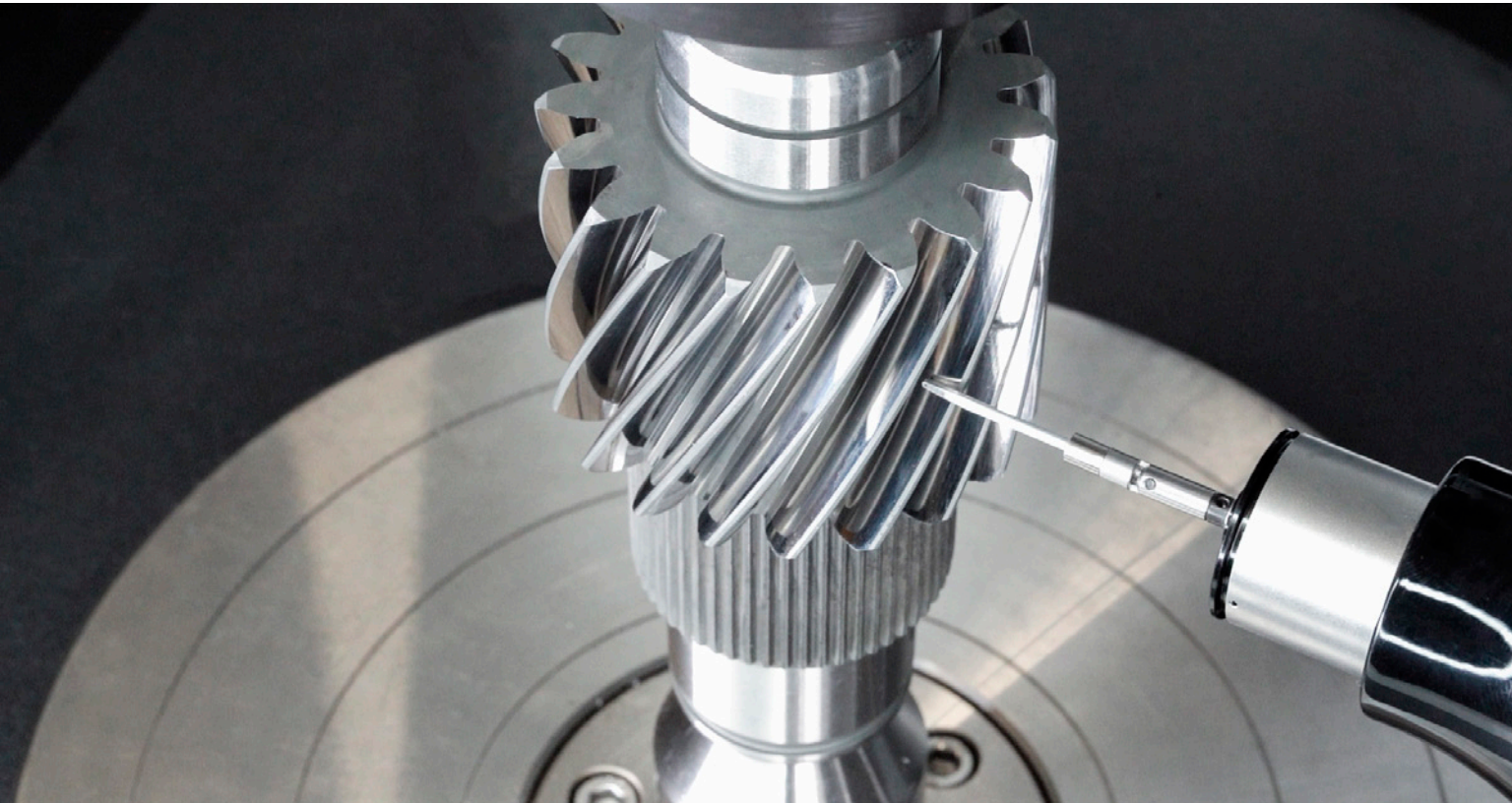
Klaus Deininger, International Sales
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Complete inspection of gear surface finishes at the sub-micron level became a reality with the introduction of Gleason's 300GMS nano, in 2022. The new system ushered in an exciting new era in gear inspection. For the first time, producers of EV transmission gears, and gears for other applications requiring very tight tolerances and low noise requirements, could quickly inspect surface finishes and perform extremely reliable noise analysis at submicron levels—benefits that were almost impossible to achieve just a few years ago.

Now, based on the success of the 300GMS nano platform, Gleason has expanded its nano series with the introduction of the 175GMS nano gear metrology system. The 175GMS nano picks up where the very popular 175GMS leaves off. Like its predecessor, it's designed for the complete inspection of all types of gears as large as 175 mm in diameter and shaft-type gears up to 500 mm in length, with a module range of 0.4 (0.2 is optional) to 6.35 mm. But it also delivers the additional nano capabilities first offered with the 300GMS nano. Users can now measure, at submicron level, gear pitch, tooth size, profile, and lead at high speed along with surface finishes with a skidless probe seamlessly integrated into an automated probe changer. The latest *GAMA* software platform also performs noise analysis with the Advanced Waviness Analysis software tool. The 175GMS nano gear metrology system is equipped with a high-precision SP25 3D scanning probe head, a wide range of styli, and an advanced mathematical analysis that supports roughness evaluations to DIN, ISO, ANSI, and other standards. It also offers 3D measurement and GD&T analysis rivaling those of a CMM.



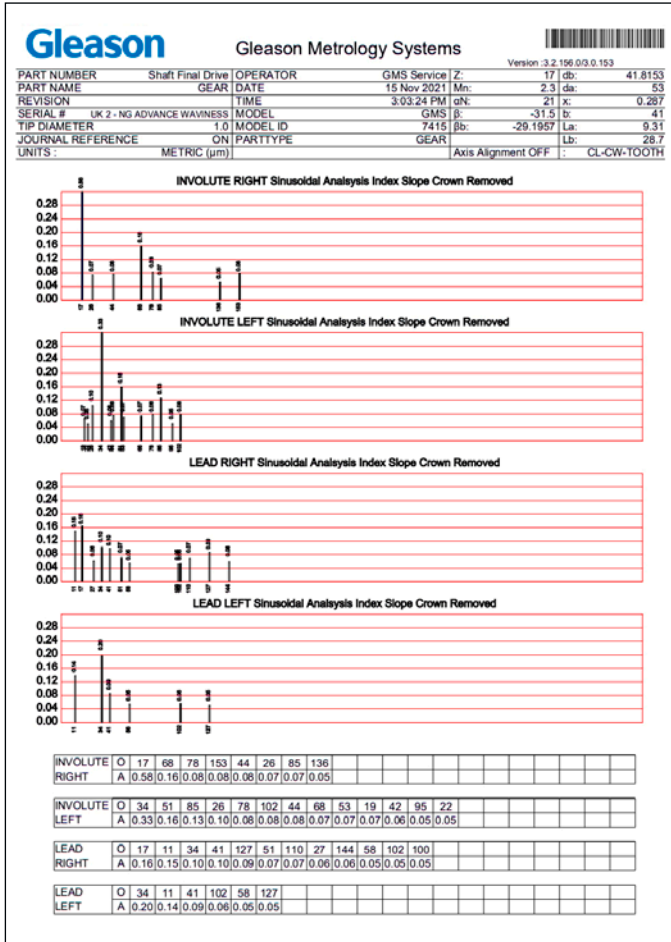
Based on the success of the 300GMS nano platform, Gleason has expanded its nano series with the introduction of the 175GMS nano gear metrology system, for all types of gears as large as 175 mm in diameter and shaft-type gears up to 500 mm in length, with a module range of 0.4 (0.2 is optional) to 6.35 mm.



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Like all the metrology systems in the Gleason GMS series, the 175GMS nano seamlessly integrates into any user's manufacturing ecosystem through Gleason's latest *GAMA 3.2* application with its best user-friendly interface supporting a dozen plus international languages. Fully compatible with Windows, it effortlessly integrates into server environments, opening avenues for enhanced SPC data evaluation and remote maintenance services via Gleason Connect, among others.

testing on a single flank tester or end-of-line tester at the final installation. This technology advantage, known by Gleason as "Smart Loop," holds the key to elevating gear designs faster and more seamlessly to a much higher level, for peak performance.



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175GMS nano can quickly inspect surface finishes and perform extremely reliable noise analysis at sub-micron levels, using the latest GAMA software platform and Advanced Waviness Analysis software tool.

The 175GMS nano is optionally equipped with the patented Advanced Operator Pendant (AOP) enabling operators to record video and voice messages and to monitor environmental conditions. It may also be used to support remote maintenance via video telephony, and it can read bar and QR code information directly into the machine, for further use in inspection protocols or to select the appropriate inspection cycle.

As gear industries advance, so too does the need for unparalleled precision. The 175GMS nano gear metrology system heralds the advent of a new era, where nano-level inspection is no longer the exception, but the rule. The Gleason 175GMS nano is just the latest example of how Gleason continues to redefine the boundaries of what's possible, setting the stage for the future of gear quality and performance.

Through Gleason's "Closed Loop" feature, users can take the connectivity of manufacturing and inspection to the next level. The 175GMS nano communicates inspection results directly to Gleason production machines, enabling automatic correction of machine settings. From power skiving to threaded wheel gear grinding, this synergy opens new horizons for quality production. Additionally, inspection results like topography measurements and order spectrum from *Advanced Waviness Analysis* software can be forwarded to *KISSsoft* design software. In *KISSsoft*, the designer can then see the differences between the design and the actual produced gear and evaluate variables such as the differences in contact patterns in the final application under various load conditions. Noise behavior can then be predicted even before

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