

# In-Process, Complete Gear Inspection at Light Speeds

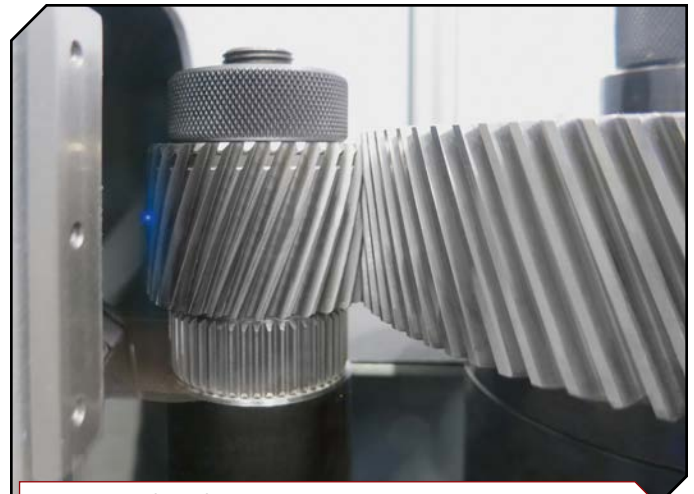
**New GRSL technology adds value to high-volume transmission gear inspection by combining non-contact laser inspection with tried-and-true composite roll testing.**

Douglas Beerck, Vice President and General Manager, Gleason Metrology Systems

Driven by recent advances in power transmission design and manufacturing technologies, unprecedented improvements in gearbox quality, reliability, noise reduction and overall performance are now within reach. At Gleason Metrology Systems, we're racing to keep pace with the inspection challenges that now exist for today's gear manufacturers and, ultimately, to add value with new technologies that improve accuracies, cycle times, capabilities and ease of use.

## GRSL: Bringing Non-Contact to High Volume

The most recent example of where all of these 'added value' user benefits have converged in a single technology: the new Gleason GRSL Gear Rolling System with non-contact laser inspection. GRSL combines the latest non-contact gear analytical measurement innovation with the double-flank roll test gear inspection process used today in most high-volume gear production where 100% inspection is required. This new product follows the strategy of the recently introduced multi-purpose GMSL non-contact inspection system from Gleason. Where the GMSL was developed to exceed the requirements of today's most stringent gear processing research, development and reverse engineering needs, the GRSL brings high accuracy, high speed, non-contact measurement of gears in-process to the high-volume production environment, where performance



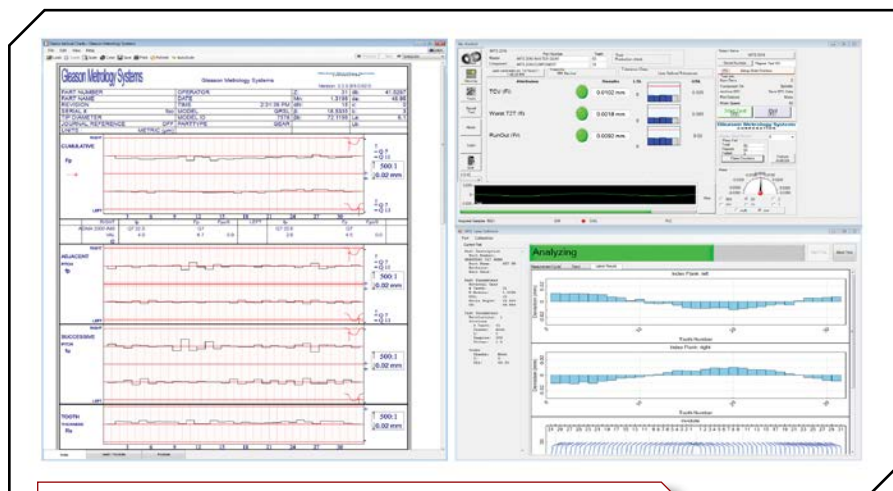
Non-contact (laser) index and profile inspection can be performed on all the gear teeth in a matter of just 10 to 15 seconds, as compared to several minutes when done conventionally.

expectations have never been higher.

The GRSL product stays true to the strategy our partner customers continue to ask us to follow. It adds value by adding measuring capability with multiple sensors on a common platform to reduce cost of ownership, the number of operators required and the footprint. In addition, it adds throughput by measuring both the composite, functional error and the individual part characteristics of both involute and index simultaneously during the same revolution of the gear during the test cycle.

## Single Platform, Exciting Possibilities

This patent-pending, dual-purpose inspection system provides additional value by offering the GRSL platform in three different configurations for use as a stand-alone manual gauge, a semi-automatic gauge or even as a fully automated gauge where high-volume throughput is the priority. Tests for full analytical results of both involute and index are performed on all teeth for most external, cylindrical gears up to 250 mm diameter in a matter of seconds along with the composite double-flank roll test, again with both tests taking place simultaneously.



With GAMA gear analysis and charting output, options exist for AGMA, DIN, ISO as well as OEM specific analysis for the involute and index measurements, with common charting as seen on the popular GMS series of analytical machines.

With the new GRSL, the power of high-speed involute and index measurements also comes with the ability to integrate with Gleason Metrology's GAMA gear analysis and charting output. This means options for AGMA, DIN, ISO as well as OEM specific analysis are available for the involute and index measurements, with common charting as seen on the GMS line of analytical machines throughout the gear industry today.


Consider the possibilities of full, high speed involute and index measurement in process, inline. Add to that the ability to network this data in a closed-loop configuration directly to the machine tool using *Gleason Connect* to communicate results that can assist in determining necessary changes to the machine tool, the cutting tool, part setup, etc. All of this is now available, fully integrated with the traditional double-flank roll composite testing still called for on most part prints today in high-volume gear production.

### Faster Cycle Times, Greater Throughput.

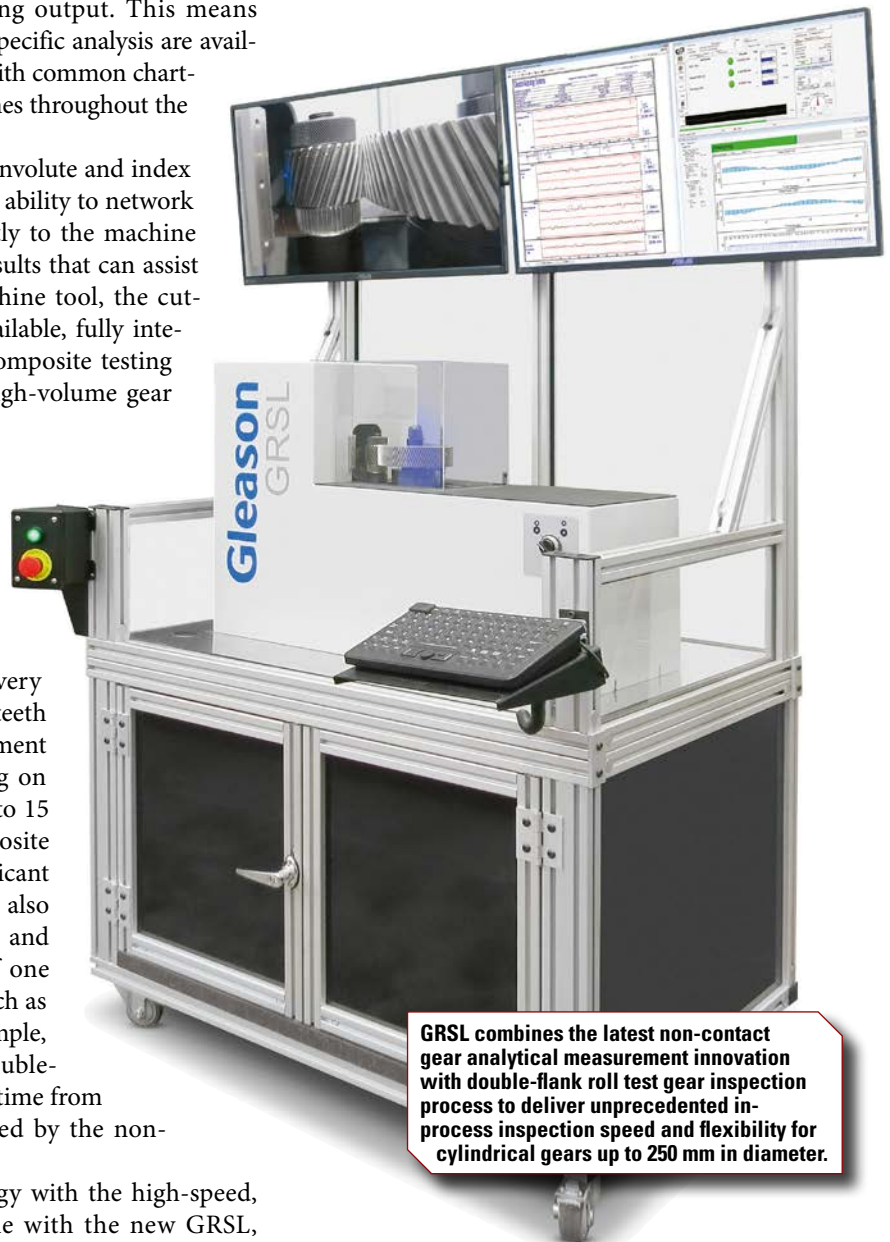
Measurements of analytical characteristics are typically taken on a dedicated, stand-alone analytical machine in a lab or on the shop floor, but not inline. This typically takes several minutes for a sampling of teeth, say every 90 degrees, for involute measurement and all teeth for index. The GRSL offers analytical measurement of all teeth in a matter of seconds, depending on the gear size, with many tests completed in 10 to 15 seconds, and provides the double-flank composite test data simultaneously, thus delivering significant throughput value for our end users. The GRSL also offers the flexibility of operating the analytical and composite, double flank tests independent of one another if desired. This can offer advantages such as extending the life of the master gear if, for example, it is determined that not all parts require double-flank composite testing as more is learned over time from the involute and index measurements provided by the non-contact laser inspection.

Finally, by combining Gleason 4.0 technology with the high-speed, analytical inspection capability now available with the new GRSL, gear manufacturers can 'close the loop' between inspection system and machine tool to make machine corrections fast, error-free and in a fully automated process.

### Get In Touch With Non-Contact

Interested customers can *get in touch with non-contact* at the Gleason booth at this year's International Machine Tool Exhibition (IMTS) in Chicago September 10-15. 

**For more information**  
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**GRSL combines the latest non-contact gear analytical measurement innovation with double-flank roll test gear inspection process to deliver unprecedented in-process inspection speed and flexibility for cylindrical gears up to 250 mm in diameter.**

**Douglas Beerck** is a veteran of 25 years in the gear metrology industry and has been Vice President and General Manager of Gleason Metrology Systems since 2005.

