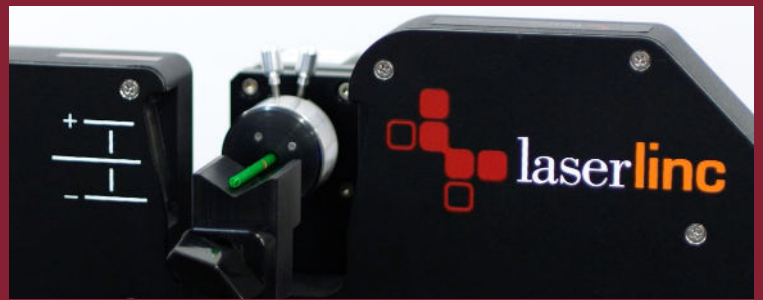


OFF-LINE VERIFICATION, ON-TARGET RESULTS

LaserLinc Off-Line Measurement Solutions

LaserLinc offers a range of off-line measurement solutions for accurate and efficient product quality verification. Explore our innovative products and software solutions that accurately measure diameter, ovality, wall thickness, inside diameter, concentricity, feature length, tapers, and dimensional defects.



IF YOU'RE MANUFACTURING COMPONENTS FOR THE MEDICAL, AUTOMOTIVE, INDUSTRIAL, AND OTHER MARKETS, OFF-LINE SAMPLE VERIFICATION IS CRUCIAL IN VERIFYING PRODUCT QUALITY.

From a simple diameter check to ID/OD/Wall and complete part profiles, LaserLinc has you covered. These verifications range from one or two dimensions of a product sample to a complete profile check over virtually the entire length of the sample.

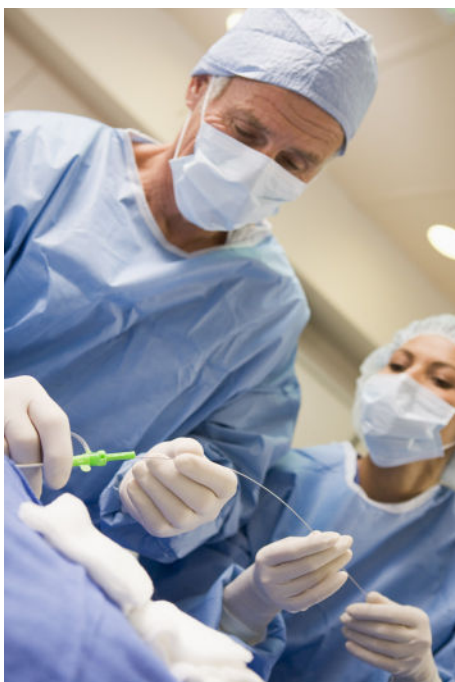
But certain product materials, shapes, and properties can make efficient and accurate off-line measurement challenging. These challenges can slow production and increase costs.

LaserLinc offers a range of solutions—combining innovative technology, software, and deep application knowledge—that simplify off-line measurement and ensure accurate, efficient, and consistent performance.

Our solutions include systems that measure diameter, ovality, wall thickness, inside diameter, concentricity, feature length, and taper. In certain applications, the systems detect dimensional defects as well.

Our off-line measurement solutions:

- ✓ Include manual or automatic fixtures for quick and accurate sample positioning and measurement.
- ✓ Use expertly designed, robust fixtures ensuring consistency in every measurement, for every part.
- ✓ Are simple to use and require no specialized training.
- ✓ Automatically associate and verify dynamic in-process readings off-line to close the measurement “validation loop.”
- ✓ Provide operator-independent results and remove the need for skilled operators.
- ✓ Include unlimited technical and application support for two years.
- ✓ Adapt to your future measurement requirements.



BENCHLINC

The BenchLinc™ series are off-line tabletop part inspection systems that include specialized fixtures paired with a laser micrometer or ultrasonic device to accurately measure a variety of part dimensions and features. A BenchLinc system measures diameter, using a one-, two-, or three-axis laser micrometer, while measuring wall thickness requires a combination of laser derived measurements or ultrasonics.



BenchLinc OD

Thorough and precise automated measurements of diameter and ovality in small high-specification parts



The BenchLinc OD system includes a spring-loaded chuck that accommodates products with diameters down to .001" [25 µm]. It uses a laser micrometer to deliver optimal accuracy by checking sample diameter from multiple angles. Users control the number of measurements per sample and degrees between measurements. These settings are included in recipes for quick, product-specific changeovers and consistent results.

Features include:

- ✓ Available "Zero" chuck sizes: 0.125" [3.18 mm], 0.25" [6.35 mm] and .5" [12.7 mm].
- ✓ Overall ovality provided as the maximum diameter measured minus minimum diameter measured.
- ✓ Clear and easy-to-use operator interface via 11-inch HD touchscreen tablet. Operators can customize the HMI or use their own Windows-based PC to suit their preferences.
- ✓ For installations paired with an in-line measurement system, communicate verified data to the in-line system to associate in-process measurements with off-line cooled and relaxed sample data.



BenchLinc OD/ID

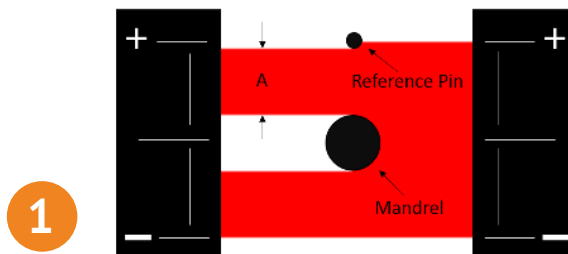
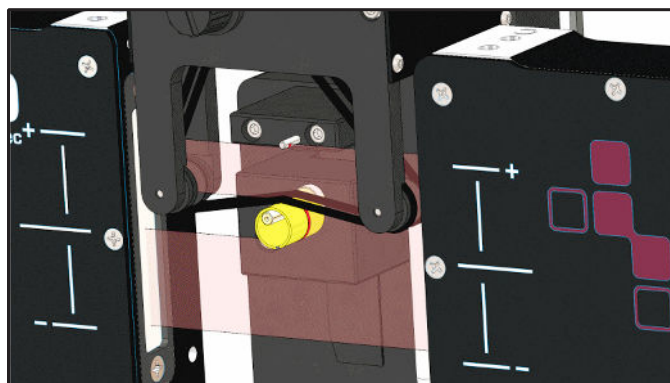
Accurately measure outer diameter, wall thickness & variation, inner diameter, and ovality of tube-shaped products

The BenchLinc OD/ID system has an integrated smart controller that directs measurement inspection and sample manipulation. It also has an integrated load cell to ensure consistent and repeatable pressure on the sample, minimizing operator influence and delivering more accurate measurements.

Features include:

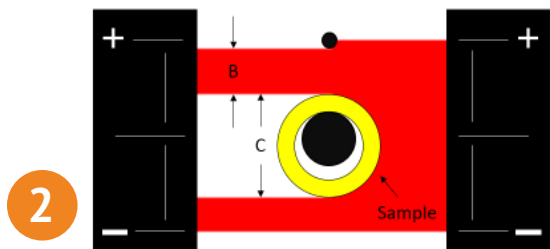
- ✓ The system works with any type of material, even braided and multi-layer tubing.
- ✓ Innovative mandrel design allows for quick changeover without a problematic three-jaw chuck and includes a corner relief to ensure the tube sample rests flat on the mandrel even if there is a small burr on the inner diameter.
- ✓ The system comes with a choice of two standard mandrels; additional custom sizes are available.
- ✓ Clear and easy-to-use operator interface via 11-inch HD touchscreen tablet. Operators can customize the HMI or use their own Windows-based PC to suit their preferences.
- ✓ Available with 25mm, 50mm, and 115mm measurement ranges.

BenchLinc OD/ID: Theory of Operation



If the mandrel is changed or moved, zero the wall. Make sure there is not a sample in the field.

A = Distance between the reference pin and mandrel

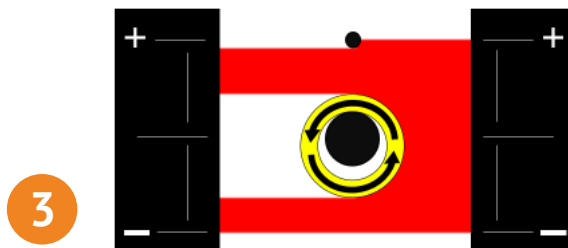


Insert sample on mandrel and begin measurements.

B = Distance between the reference pin and top of sample

C = Outer diameter (OD)

Wall = A - B



The sample is automatically rotated to multiple positions for measurement. Diameter, ovality and concentricity is displayed and recorded.

Ovality = ΔC

Concentricity = $\Delta (A - B)$

BenchLinc UT

Measure wall thickness for cut lengths of tubing ultrasonically

The BenchLinc UT system uses LaserLinc's UltraGauge+ ultrasonic wall thickness measurement technology to inspect cut lengths of tubing. Other optical systems and contact probes are limited to inspecting the ends of tubing, but BenchLinc UT provides continuous non-contact, non-destructive accurate measurements over the length of the sample.

Features and benefits include:

- ✓ Accurate wall and concentricity results due to a specially designed ultrasonic sensor assembly for discrete samples.
- ✓ Measure down to 0.003" [75 µm] wall thickness of metals, such as nitinol, stainless steel, cobalt chromium, and other specialty alloys.
- ✓ Integrated, all-in-one package design requires no additional engineering or integration and is easy to use.
- ✓ With an optional laser micrometer, add outer and inner diameter, and ovality measurement capabilities.



BenchLinc V

Easy location and alignment of sample parts for quick and accurate diameter measurements

The BenchLinc V fixture includes a V-block that enables fast and easy sample positioning and optimal measurement performance. Thru-hole guides are also available and ensure the sample placement remains consistent, especially when checking for minimum and maximum diameters over the length of a sample. For some V-blocks,

hardware is available to mount and convert from a V to a thru-hole guide fixture.

Features and benefits include:

- ✓ Measure up to five unique features on each part, standard: more than five upon request.
- ✓ Four measurement modes:
 - Scan the entire length to capture maximum and minimum measurement values.
 - Measure specific locations.
 - Scan one or more regions of the part to capture maximum and minimum measurement values.
 - Continuous measurement and tolerance checking.
- ✓ Hands-free operation supported with a foot pedal option provides exceptional value in a small footprint.



SmartLinc™ Display

The BenchLinc-V system is also compatible with the economical and easy-to-use SmartLinc Display.

- ✓ 7-inch touchscreen for operator friendly, ease of use.
- ✓ Easy to validate for medical and other strict compliance applications.
- ✓ Continuous measurement mode for hands-free operation.
- ✓ Trend measurement values for graphical visualization of data.
- ✓ Visual feedback [red/yellow/green background] of tolerance status.
- ✓ Recipe-driven for quick changeovers.

Metron

Automate off-line measurements of diameter, length, taper and pitch in full-length cylindrical products

LaserLinc's Metron is a cost-effective measurement system designed for manual and automated off-line sample inspection of full-length cylindrical products, such as guidewires and catheters. The system efficiently and consistently checks diameter, ovality, and length against a recipe, logs the measurement data, and provides pass/fail results on in-process or completed parts.

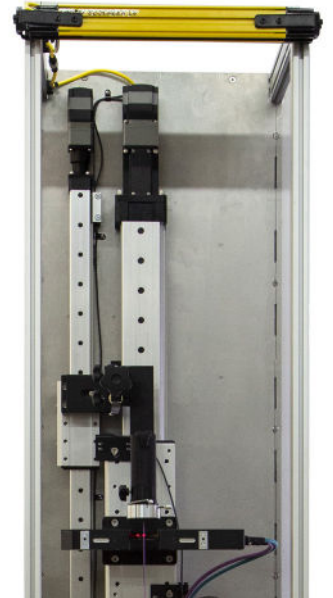
The Metron system simplifies part loading, automates the measurement cycle, automatically records results, clearly indicates pass/fail status, and minimizes operator error.

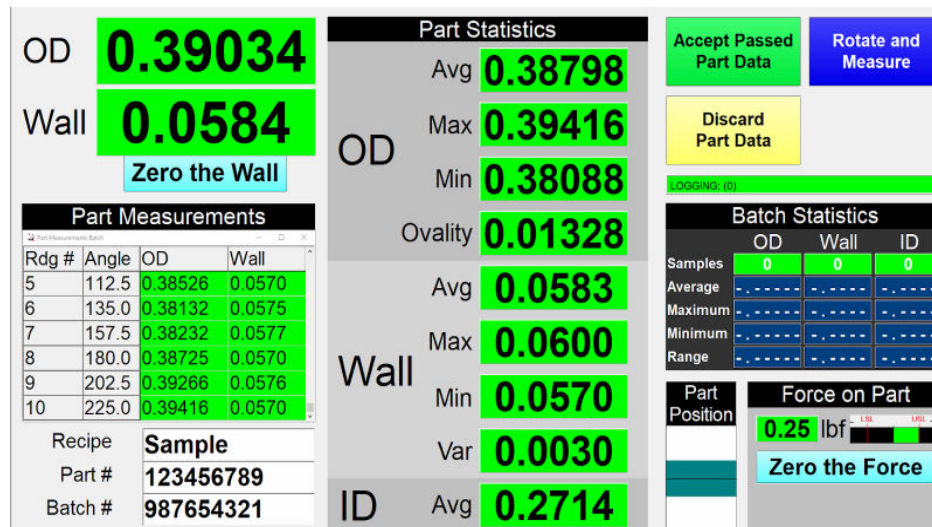
Using the Metron system, customers can:

- ✓ Optimize measurement speed by creating and using simple or comprehensive automated inspection routines.
- ✓ Simplify production inspection and decrease operator error without the need for high-skill operators.
- ✓ Record data for historical or post analysis purposes.
- ✓ Extend measurement capability and analysis via auto-execution of your external script (e.g. Python) on the collected data.
- ✓ Support R&D efforts, including reverse-engineering.

The Metron includes the following unique measurement capabilities:

- ✓ For taper inspection and tolerance checking: find exact diameters at the ends of a taper and exact taper length.
- ✓ For products extruded over a mandrel, such as some catheters, automatically detect the part on the mandrel with no special part preparation.
- ✓ Measure pitch on products, such as braided catheters or corrugated tubing.
- ✓ An optional 72-inch version is available with an automated upper zero chuck height adjustment.





Clear Process Monitoring, Display, Control, and Reporting

LaserLinc's off-line sample verification systems are designed to adapt to your workflows and processes, be simple to use, and deliver the comprehensive results you require.

Total Vu™ HMI is LaserLinc's unique open-architecture, adaptable software solution for process visualization that provides tools and information enabling stakeholders to get everything they need.

- ✓ Operators have easy to read, color graphical displays with application-specific controls.
- ✓ Engineers have monitoring and reporting capability to document and improve processes.
- ✓ Managers gain peace of mind that engineers and operators have the tools they need to reduce costs, increase production, and improve quality.

Total Vu HMI delivers higher functionality at a lower cost, especially when incorporating existing gauging. Its open-architecture platform interfaces with gauges from other vendors giving you maximum flexibility. With Total Vu HMI, you can:

- ✓ Process laser micrometer and UltraGauge+™ signals in real-time so you can instantaneously assess product quality and process trends
- ✓ View large readouts of product measurements and

process variables with color-coded tolerance status and trend charts.

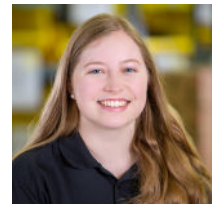
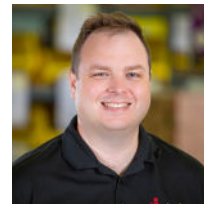
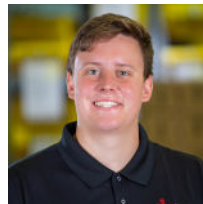
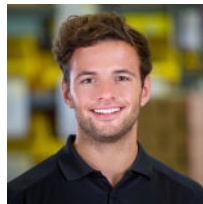
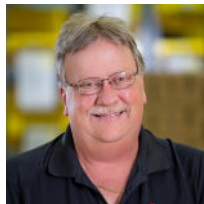
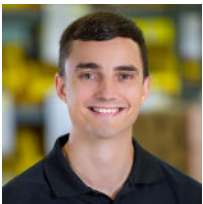
- ✓ Use standard displays or create customized displays to meet your specific needs.
- ✓ Initiate quick changeovers with unlimited recipe storage.
- ✓ Summarize product quality and process capability with statistics display and reporting.
- ✓ Detect and report dimensional flaws using unique, built-in filtering and eliminate any defects before reaching your customer or downstream processes.
- ✓ Capture measurement data to disk or network storage devices for post-processing or record keeping.
- ✓ Process measurements for SPC, flaw detection, measurement, and trending simultaneously for thorough quality checks in one pass.





THE BEST WARRANTY IN THE INDUSTRY, PLUS WORLD-CLASS PERSONAL SUPPORT

Every minute of downtime hits your productivity and profits. Our unique policy of always providing personal contact with our service support team ensures you will get back online quickly. No endless voicemail trails. You'll get expert advice from application engineers who understand your business challenges, plus on-site service if necessary. We are dedicated to keeping your operation moving.



LaserLinc is a U.S. company and proud to design and manufacture its products at its headquarters in Fairborn, Ohio. LaserLinc manufactured products are backed by an industry-leading four-year warranty. Need replacement equipment on LaserLinc manufactured products? For standard equipment under warranty, we typically can get a replacement to you overnight.

For more information on LaserLinc,
please visit [LaserLinc.com](https://laserlinc.com)
or contact us at info@laserlinc.com.



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