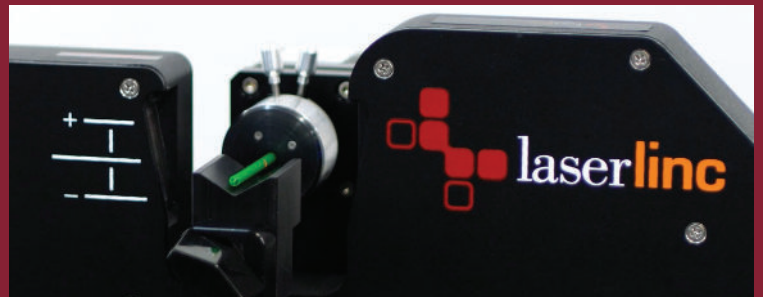


# OFF-LINE VERIFICATION TO VALIDATE IN-PROCESS MEASUREMENTS

## LaserLinc Off-Line Measurement Solutions

LaserLinc's range of off-line measurement solutions allows accurate and efficient product quality verification. Our innovative product and software solutions measure:

Diameter – Ovality – Wall Thickness – Inside Diameter  
Concentricity – Feature Length – Tapers – Dimensional Defects



# WHETHER YOU'RE MANUFACTURING COMPONENTS FOR THE MEDICAL, AUTOMOTIVE OR OTHER INDUSTRIAL MARKETS, OFF-LINE SAMPLE VERIFICATION IS CRUCIAL TO CONFIRM 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, slowing production, and increasing costs.

LaserLinc offers a range of innovative off-line solutions, based upon unrivaled applications knowledge, that simplify measurement and ensure accurate, efficient, and consistent results.

Our off-line measurement solutions offer:

- ✓ Robust fixtures for fast, accurate sample positioning, ensuring consistency in every measurement.
- ✓ Ease of use, requiring no specialized training, providing operator-independent results.
- ✓ Linking of on-line dynamic readings to cooled and relaxed off-line sample measurement data, closing the QC validation loop for dimensional traceability.
- ✓ Unlimited technical and application support for two years.
- ✓ Future proof investment, adapting to your evolving measurement requirements.



# BENCHLINC™

BenchLinc is a series of off-line tabletop part inspection systems that include fixtures paired with a 1, 2, or 3 axis laser micrometer and/or ultrasonic device to accurately measure a variety of part dimensions and features.



## BenchLinc OD

*Precise automated measurements of diameter and ovality for small, high-specification parts*



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

Features include:

- ✓ Keyless, self-centering "Zero" chuck sizes: 0.125" [3.18 mm], 0.25" [6.35 mm] and .5" [12.7 mm].
- ✓ Overall ovality [maximum diameter minus minimum diameter measured].
- ✓ Easy-to-use, customizable operator interface using an HD touchscreen tablet or the end-user's Windows-based PC as preferred.



## BenchLinc OD/ID

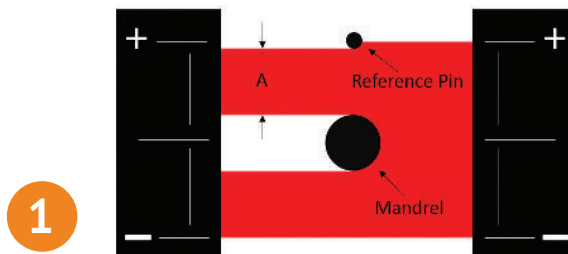
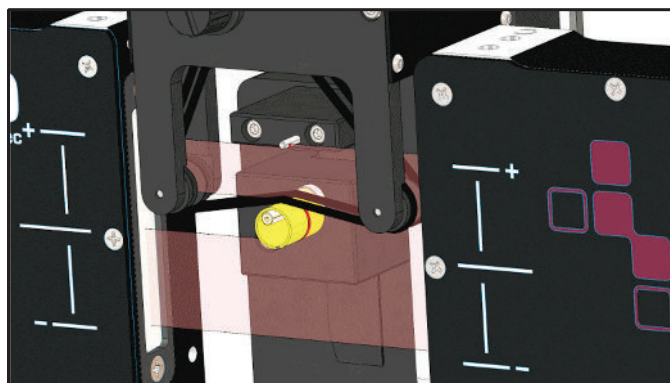
*Accurately measure outer diameter, wall thickness & variation, inner diameter, and ovality of tube-shaped products*

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

Features include:

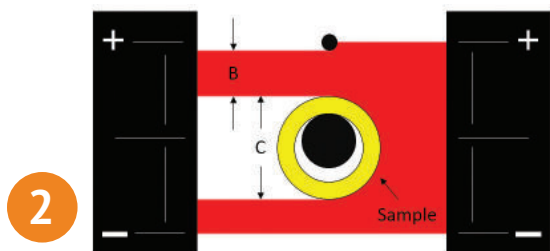
- ✓ Works with any type of material, even braided and multi-layer tubing.
- ✓ Innovative mandrel design allows for quick changeover without a problematic three-jaw chuck and includes a corner relief to ensure the tube sample rests flat on the mandrel even if there is a small burr on the inner diameter.
- ✓ Choice of two standard mandrels; custom sizes are available.
- ✓ Easy-to-use, customizable operator interface using an HD touchscreen tablet or the end-user's Windows-based PC as preferred.
- ✓ Available with 25, 50 and 115mm measurement ranges.

### BenchLinc OD/ID: Mode of Operation



**Establish reference datums.**

A = Distance between the reference pin and mandrel

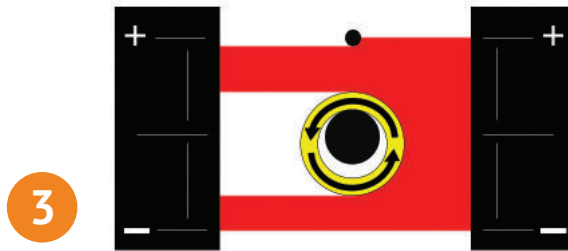


**Insert sample on mandrel and begin measurements.**

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 are displayed and recorded.**

Ovality =  $\Delta C$

Wall Variation =  $\Delta (A - B)$



# 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. It provides accurate, continuous non-contact measurements over the full length of the sample unlike other measurement methods, which are limited to inspecting the ends of tubing.

Features include:

- ✓ Accurate wall and concentricity results due to unique LaserLinc ultrasonic sensor assembly for discrete samples.
- ✓ Measures down to 0.003" [75 µm] wall thickness of metals, such as nitinol, stainless steel, cobalt chromium, and other specialty alloys.
- ✓ Easy to use, integrated, package requiring no additional engineering.
- ✓ Optional laser micrometer provides outer and inner diameter and ovality measurement.



# BenchLinc V

## Easy location and alignment of sample parts for dependable, 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 sample placement remains consistent, especially when checking for minimum and maximum diameters over the length of a sample.

Features include:

- ✓ Measure up to five unique features on each part with the option for more on request.
- ✓ Four measurement modes:
  - Scan the entire length to capture max and min values.
  - Measure at specific locations.
  - Scan multiple regions of the part to capture max and min values.
  - Continuous measurement and tolerance checking.
- ✓ Small footprint and hands-free operation supported with a foot pedal option.



## SmartLinc™ Display

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

- ✓ Touchscreen for operator friendly, ease of use.
- ✓ Simple validation for medical and other high compliance applications.
- ✓ Discrete or continuous measurement modes.
- ✓ Graphically trend measurements for visualization of data.
- ✓ Visual feedback [red/yellow/green background] of tolerance status.
- ✓ Recipe-driven for quick product changeovers.

# Metron™

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

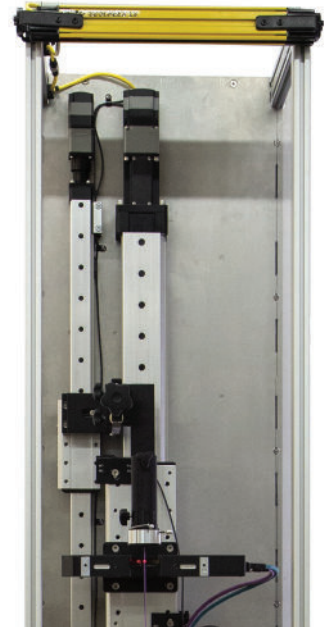
LaserLinc's Metron series are cost-effective measurement systems designed for automated off-line sample inspection of full-length cylindrical products, such as guidewires and catheters. The system simplifies part loading and consistently checks and logs diameter, ovality, and length measurement data against a recipe, providing pass/fail results on completed parts while minimizing operator errors.

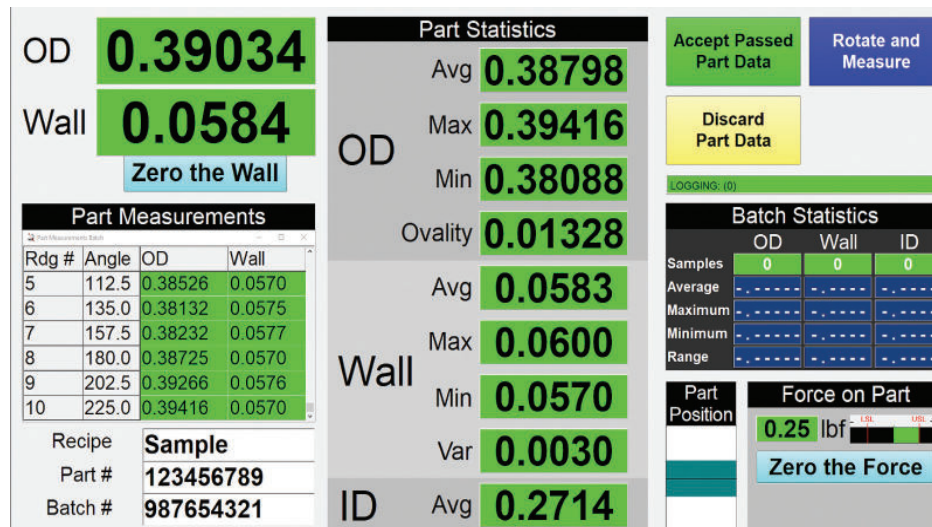
Using the Metron system, customers can:

- ✓ Optimize measurement speed by creating automated inspection routines.
- ✓ Simplify inspection without the need for highly skilled operators.
- ✓ Record data for historical 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.

Metron offers the following unique capabilities:

- ✓ Taper inspection and tolerance checking: find exact diameters at the ends of a taper and exact taper length.
- ✓ For products such as catheters extruded over a mandrel, automatically detects the part on the mandrel with no special part preparation.
- ✓ Measures pitch on products such as braided catheters or corrugated tubing.
- ✓ Optional 72-inch version with easy loading.





## Total Vu™ HMI Delivers Powerful Off-Line and In-Process Measurement Solutions

*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 allowing all stakeholders to get what 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 to reduce costs, increase production, and improve quality.

The Total Vu HMI delivers high functionality at a lower cost, especially when incorporating existing LaserLinc gauging. Its open-architecture platform also 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.

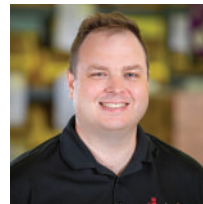
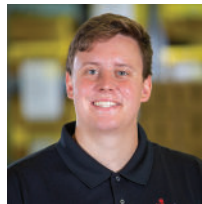
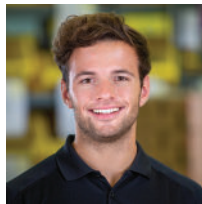
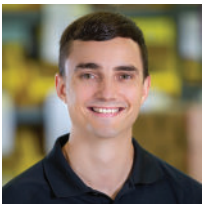
- ✓ Use standard displays or customized displays to meet your specific needs.
- ✓ Initiate quick changeovers with unlimited recipe storage.
- ✓ Summarize product quality and process capability with statistics display and reporting.
- ✓ Detect and report dimensional flaws using unique, built-in filtering 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-IN-CLASS WARRANTY, 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. On new installations, comprehensive 2-year applications and technical support is included. Need replacement equipment on LaserLinc-manufactured products? For standard equipment under warranty, we typically ship a replacement the same day.

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



LaserLinc.com  
[info@laserlinc.com](mailto:info@laserlinc.com)  
Phone: +1 937 318 2440



*U.S. owned and manufactured*

©2021 LaserLinc