

## Off-line ID/OD/Wall Measurement System



The BenchMike from Beta LaserMike provides fast and accurate measurements of cut tube samples. Used either in a Quality Control (QC) laboratory or on the plant floor, the BenchMike gives operators a simple and repeatable system for measuring tube samples and immediately knowing whether they meet specifications within tolerances of less than 1 micron (0.000040 in.).

Laser scanning technology allows the BenchMike to measure multiple product dimensions without deforming or damaging the part. Unlike other micrometers and mechanical indicators that can err in zero setting, calibration, or sensitivity of the user, the BenchMike gives repeatable measurements regardless of the operator. With the BenchMike, there is nothing to adjust between part measurements and nothing to wear out.

### The BenchMike Advantage

The BenchMike separates itself from other measurement devices with features that make it the industry's most accurate, reliable, and easiest-to-use gauging system.

#### Accuracy

- Patented optical design and edge-sensing electronics provide high-precision measurements
- Auto-compensation features maintain accuracy throughout entire measurement range and adjust for thermal expansion outside laboratory environments

#### Reliability

- Non-contact measurement technique provides the same level of accuracy, regardless of operator
- Tolerance checking quickly alerts the operator of out-of-tolerance conditions
- Mounting fixtures from Beta LaserMike ensure the test piece is always properly presented to the gauge

#### Ease-of-use

- A touch-screen interface provides simple operation and set-up
- A library list stores product "recipes" and allows the operator to switch products quickly and easily
- Several input/output (I/O) ports allow flexible integration with other devices

### BenchMike Models

Model	OD Range	Accuracy
<b>BenchMike 283-10</b>	0.075 - 25 mm (0.003 - 1.0 in.)	±0.0009 mm (±0.000036 in.)
<b>BenchMike 283-20</b>	0.635 - 50 mm (0.025 - 2.0 in.)	±0.0015 mm (±0.000060 in.)

### Touch-Screen User Interface

Data display



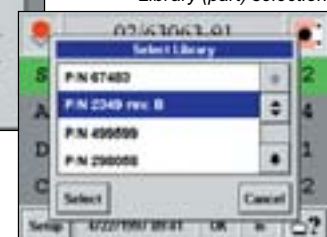
Magnified display



Pop-up menus

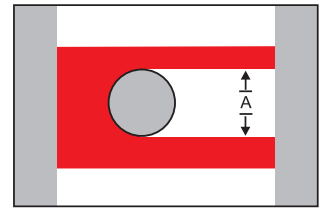


Library (part) selection



## OD Measurement Principle

The BenchMike utilizes the laser scanning measurement principle, as with the AccuScan gauges. For precision OD measurements, simply place a tube sample on the V-block fixture and the BenchMike will instantly measure it. Using the V-block and BenchMike, an operator can measure dozens of parts per minute and with a much higher level of accuracy than any other method available for sample inspection. And with the use of laser technology, the measurements will be repeatable from one operator to another.



Single Diameter Measurement  
OD = A



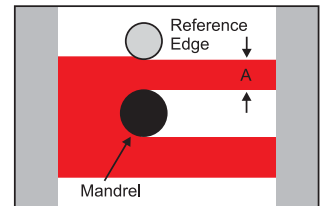
▲ V-Block



▲ Zero Rotating Chuck

## ID/OD/Wall Measurement Principle

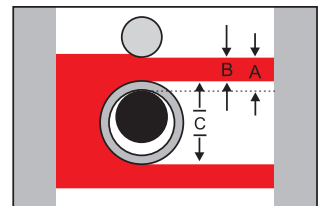
For precision ID, OD, and Wall Thickness measurements, simply place a tube sample on the ID/OD/Wall fixture and the BenchMike will calculate all the dimensions. The ID/OD/Wall fixture can also automatically rotate a sample to a pre-defined number of positions for measurements at multiple points around the product. This rotation allows for the calculation of concentricity and ovality of the tube. The graphical user interface has options to view the rotational cross section of the product and a graph that shows deviation or variation at the various rotational degrees of measurement.



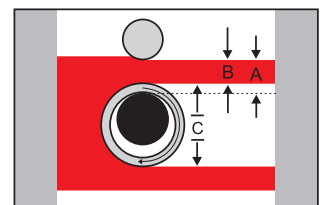
**Step 1:** Master on reference edge and mandrel



ID/DO/Wall Auto-Rotating Fixture ►



**Step 2:** Place product on mandrel and take measurements  
Wall = A - B    OD = C  
ID = OD - (2 x Wall)



**Step 3:** Rotate the product to attain multiple points of measurement as well as concentricity and ovality  
Concentricity =  $\Delta$  (A - B)  
Ovality =  $\Delta$  C

