NEW

Z-MIKE® PRO
LASER MICROMETER

Absolute Precision.
Absolute Repeatability.
Absolute Reliability.
Industry’s Leading Precision Off-Line Part Measurement System

Z-Mike Pro...There is Absolutely No Substitute!

The Z-Mike laser measurement system has a long history of helping the industry’s leading manufacturers and machine shops to deliver precision parts that meet increasingly tighter tolerances. More than 15,000 manufacturing applications worldwide count on Z-Mike’s ±0.5 µm accuracy and ±0.13 µm repeatability to help them deliver superior quality products their customers demand.

The new Z-Mike Pro gauge system continues this tradition to give you the absolute truth about your parts. In the lab or on the plant floor, the Z-Mike Pro’s range of new connectivity, communication and control features for Industry 4.0 increases its performance capabilities to deliver exceptional accuracy, reliability and ease of use in the most challenging measurement applications. All Z-Mike Pro components are backed by a 2-year product warranty.

Accuracy
► Patented optical design and electronics provide unequaled accuracy and exceptional repeatability
► No need for recalibration – auto-calibration maintains precision throughout the measurement range and adjusts for temperature variation in shop-floor environments
► Measurement precision not sensitive to surface type (gloss, matte, color) or to external stray light
► Measurements traceable to national standards

Reliability
► Non-contact technique eliminates operator-influenced measurement error
► No need to center object to be measured – little or no adjustment is required to measure a wide range of part sizes or dimensions
► Rugged cast housing is sealed against dust and moisture for use in factory-floor environments

Ease-of-use
► Larger, higher-resolution, touch-screen display provides a simple, yet powerful user interface
► Multiple product types can be stored and recalled at the touch of button
► Integrated I/O allows seamless use of automated part handling and motion control

Ready for Service Under Industry 4.0
► Expanded connectivity options – Ethernet and USB – that simplify integrating Z-Mike Pro into centralized production networks. This new platform lays the foundation for future connection via WiFi.
► Faster communications processing for more efficient data logging and sharing...improved production reporting and analysis...and increased quality control.
► More I/O connections featuring additional USB resources to provide greater flexibility in connecting Z-Mike Pro to computers, data gathering devices and USB printers that support the CUPS protocol.

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How It Works
A special collimator lens incorporates patented optics, enabling high accuracy in a short focal length. A thin band of high-speed scanning laser light projects from the transmitter to the receiver. A part placed in the beam casts a shadow.

The receiver houses a collector optic, photodiode and preamplifier. Through our patented edge-sensing process, signals from the laser light entering the receiver are used by the microprocessor to calculate the dimensions represented by distances between the shadow edges. Dimensional data is instantly displayed or can be transmitted to a computer or networked system for further processing.
The Z-Mike Pro measurement system is so precise that it can measure parts within tolerances of less than 1 micron and will take your operators only minutes to learn. It measures parts without contact so there is no part distortion or operator influence to affect your measurements. You can measure soft, delicate, brittle, hot and even radioactive parts with complete confidence. And, Z-Mike Pro gauges are engineered with the best edge-detection technology on the market, traceable to national standards (NIST).

1. Diameter
   Outside Diameter of the lobe on a camshaft is determined by the shadow created when the shaft obscures the laser beam as it scans across the measurement area. The camshaft is mounted on a linear slide so that outside diameters can be determined for each cam.

2. Ovality
   A precision shaft is manually rotated to measure maximum and minimum diameter. Ovality is displayed as Max OD - Min OD.

3. Effective Cutting Diameter
   The effective diameter of a part is determined by rotating it in a fixture with near-zero runout. The position of the part and its diameter are monitored simultaneously as the part rotates to determine the maximum circle inscribed by the part.

4. Taper
   The taper angle of a crankshaft bearing is determined by traversing the part on a linear slide with an encoder. The OD is measured at two locations and taper is determined by calculating the change in diameter divided by the change in position of the slide.

5. TIR
   A cutting-tool blank is rotated on a V-block while measuring the gap between the blank and a reference edge. TIR is measured as the total change in the size of the gap.

6. Part Analysis
   The outside diameter, ovality and taper of a medical component are measured simultaneously by traversing the product across the scanning field. As the product is traversed, the Z-Mike Pro software looks at the critical dimension and determines if they are within specified limits.
Simple Touch-Screen Interface
Lets You Easily Access Z-Mike Pro Features & Functions

Data Display
Z-Mike Pro has advanced display capabilities allowing you to display measurement data, access menus to configure Z-Mike Pro and display general information such as presence or absence of error conditions.

Magnified Display
Magnify measurement items on the screen for visibility from a distance.

Pop-Up Menus
Quickly, easily access Z-Mike features and functions via clear pop-up menus.

Tolerance Limits
Categorize parts with five (5) thresholds (low, reject, low warning, in-tolerance, high warning and high reject). Setup either part limits (actual dimensions) or tolerances (plus/minus deviation from nominal).

Library (Part) Selection
Use Z-Mike Pro libraries to store and recall how the measurements are to be taken, and manage other system set-up information via separate libraries. By defining libraries for each product or for different fixtures, you can shorten set-up times for various parts or applications.
Applications Flexibility
Engineered to Precisely Measure a Wide Range of Part Dimensions

**Fuel Injectors**
Critical diameters and taper angles (cones) affect engine performance and emissions. Z-Mike Pro enables you to closely analyze these dimensions.

**Cutting Tools**
Measure effective cutting tool diameters for twist drills, end mills, reamers, routers and hole saws with absolute accuracy.

**Glass Tubes**
Measure transparent parts to the same degree of precision as opaque parts.

**Plug and Pin Gauge Calibration**
Measure cylindrical plug and pin gauge calibration standards with absolute accuracy. Verify and calibrate gauge standards with complete confidence.

**Valves**
Precisely measure the rod diameter and narrow groove cylindricity.

**Pistons**
Many pistons are elliptical. Z-Mike Pro easily measures this shape and the diameter of piston ring grooves.
Rubber Rollers

Control rubber roller profiles and precisely measure diameter, cylindricity, roundness and total indicated runout (TIR) simultaneously.

Crankshafts

The crankshaft’s critical diameters have a crucial impact on engine performance.

Pins and Shafts

Z-Mike Pro effectively measures complex pins and shafts with different diameters and characteristics. And, it can switch from the smallest to the largest measurement diameters without adjustment or recalibration, as long as it remains within the measurement range.

Motor Shafts

Z-Mike Pro easily manages the various dimensional measurements through its “features” capabilities.

Camshafts

Camshafts are complex components and perfect candidates for Z-Mike Pro measurement.

Medical Devices

Measure life-critical parts such as dental implants, cardiac components, artificial joints and surgical devices, to name a few, with the highest degree of accuracy.

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Making Light Work
Modular Fixtures

An extensive line of ready-to-mount modular fixtures are available from simple manual fixtures to fully automatic and intelligent fixtures. These fixtures hold workpieces properly and effectively for any gauging need. Simply attach these easy-to-install fixtures to your gauge for precise, reliable measurements without calibration.

We provide a full line of heavy-duty fixtures to measure large parts, along with automatic motorized fixtures for part translation and rotation. For your custom needs, our Special Engineering group excels at developing fixtures for special applications.

<table>
<thead>
<tr>
<th>Fixture</th>
<th>Description</th>
<th>Part #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal V-Block</td>
<td>Used for measuring parts positioned on their outside diameter.</td>
<td>7060-0117-06 (ZM Pro 25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7060-0117-07 (ZM Pro 50)</td>
</tr>
<tr>
<td>Modular V-Block</td>
<td>Used for measuring parts positioned on their outside diameter. Must be mounted on a slide or insulated base support.</td>
<td>83881 (ZM Pro 25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83627 (ZM Pro 50)</td>
</tr>
<tr>
<td>Flat Test</td>
<td>Designed for use when measuring the thickness of a flat part or the width of a rectangular cross-section, as well as for holding flat surface parts. Must be mounted on a slide or insulated base support.</td>
<td>83640 (ZM Pro 25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83641 (ZM Pro 50)</td>
</tr>
<tr>
<td>Universal Manual Slide</td>
<td>Used to linearly position parts by hand. Available in 18, 25 or 32 in. (457, 635 or 829 mm) lengths.</td>
<td>83610 (18 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83611 (25 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83618 (32 in.)</td>
</tr>
<tr>
<td>Heavy-Duty Manual Slide</td>
<td>Supports large parts with diameters up to 4.5 in. (115 mm) and loads up to 305 lb. (138 kg).</td>
<td>7070-0304-01</td>
</tr>
<tr>
<td>Universal Slide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustable V-Block</td>
<td>Supports parts that must be held on their outside diameters. Must be mounted on a slide.</td>
<td>83609</td>
</tr>
<tr>
<td>Adjustable Dead Centers</td>
<td>Holds variable length shaft-type parts with centers. Must be mounted on a slide.</td>
<td>83607</td>
</tr>
<tr>
<td>Manual Concentricity</td>
<td>Supports cylindrical parts on their outside diameter for measuring concentricity.</td>
<td>83924</td>
</tr>
<tr>
<td>Motorized Concentricity</td>
<td>Supports cylindrical parts on their outside diameter for measuring concentricity.</td>
<td>1334-000-002</td>
</tr>
<tr>
<td>Auto-Rotating Chuck</td>
<td>Motorized rotation of shafts or wires to detect variation in diameter around the circumference. Keyless precision chuck holds diameters 0.030 to 0.50 in (0.76 to 12.7 mm).</td>
<td>84015</td>
</tr>
<tr>
<td>Micrometer Adjustable V-Block</td>
<td>Designed for ultra-fine wire or other material that must be centered for best measurement accuracy. Holds wires in the range of 0.001 to 0.400 in (0.025 to 10.16 mm).</td>
<td>84260</td>
</tr>
<tr>
<td>Reference Edge</td>
<td>Used in applications requiring gap measurement, such as straightness, concentricity and run out.</td>
<td>85138 (1 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85139 (2 in.)</td>
</tr>
<tr>
<td>Insulated Base Support</td>
<td>Support base for Flat Test and Modular V-block.</td>
<td>83639</td>
</tr>
</tbody>
</table>

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Ready-to-Mount Flexibility

- Universal Manual Slide
- Modular V-Block
- Flat Test
- Heavy-Duty Manual Universal Slide
- Adjustable V-Block
- Adjustable Dead Centers
- Insulated Base Support
- Auto-Rotating Chuck
- Motorized Concentricity
- Digital Readout Slide
- Universal V-Block
- Universal Manual Slide
- Manual Concentricity
- Micrometer Adjustable V-Block
- Reference Edge
Specifications

### Measurement

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Z-Mike Pro 25</th>
<th>Z-Mike Pro 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Range</td>
<td>0.100 to 25.4 mm [0.004 to 1.0 in.]</td>
<td>0.254 to 50 mm [0.010 to 2.0 in.]</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.13 µm [±0.000005 in.]</td>
<td>±0.25 µm [±0.000010 in.]</td>
</tr>
<tr>
<td>Accuracy¹</td>
<td>±0.5 µm [±0.000020 in.]</td>
<td>±0.76 µm [±0.000030 in.]</td>
</tr>
<tr>
<td>Measurement Area Depth Of Field</td>
<td>±0.75 x 25 mm [±0.030 x 1.0 in.]</td>
<td>±1.5 x 50 mm [±0.060 x 2.0 in.]</td>
</tr>
<tr>
<td>Laser Beam Velocity</td>
<td>50 m/sec. [2,000 in./sec.]</td>
<td>100 m/sec. [4,000 in./sec.]</td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td>&lt;0.2 µm/°C [&lt;0.000004 in./°F]</td>
<td>&lt;0.2 µm/°C [&lt;0.000004 in./°F]</td>
</tr>
<tr>
<td>Calibration</td>
<td>Factory calibrated</td>
<td>Factory calibrated</td>
</tr>
</tbody>
</table>

### General

| Operating Temperature        | 7° to 36°C [45° to 97°F] at < 90% relative humidity |
| Storage Temperature          | -20° to 60°C [-4° to 140°F]            |
| Dimensions (H x W x D)       | 254 x 635 x 228 mm [10 x 25 x 9 in.] |
| Weight                       | 19.7 kg [43 lb.]                     |
| LaserSource                  | HeNe gas laser; <1 mW output         |
| Display                      | 177.8 mm [7 in.] capacitive touch    |
| Language Support             | German, French and Spanish          |
| Power Requirements           | 100 to 240 volts AC (+5% to -10%), 50/60 Hz [±2 Hz] 100 watts total power |
| Product Warranty             | 2 years                             |

¹Accuracy is maintained over the entire measurement range.

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### Input/Output

Z-Mike Pro provides a variety of input/output connectors to allow flexible integration with other devices.

- Two serial ports – DB9 and USB – to link with computers or data gathering devices
- USB port compatible with most inkjet printers that support the CUPS protocol
- Ethernet port for network connection to facilitate easy data access and sharing
- Digital I/O port for connection of alarm outputs to indicate out-of-tolerance conditions and other errors, as well as digital inputs to activate functions remotely
- Fixture port for connection to intelligent fixtures capable of moving and rotating the test pieces
- Scan output BNC port for diagnostic access to the laser scan signal
Customers Benefit From Our Proven Expertise

Providing our customers with the total measurement solution is our priority. If you’ve reached the end of this document and still haven’t found a standard Z-Mike Pro product that’s just right for your needs, we have great news for you. We offer Custom Solutions to ensure a perfect fit for your particular application.

We can modify an existing product, design and build special fixturing, customize a software application, or engineer a unique system just for you. Let us show you examples of the numerous custom solutions we have provided for a wide range of applications. Getting started is easy - just contact your local Beta LaserMike product representative to be on your way to a solution tailored to your needs.

Customer Success Story

► **Problem:** A leading cutting tool provider required a highly accurate, automated measurement system for its production of extra-long, high-precision carbide drills for motor blocks. The non-contact system had to be vertically oriented and effectively measure the cutting diameter of all the flutes along the entire length of the cutting tool.

► **Solution:** The company implemented a custom, automated cutting tool measurement system (CTMS) utilizing a Z-Mike laser micrometer with unique motorized rotary drive and slide system.

► **Results:** Fast, precision measurements of critical cutting tool dimensions. Highly reliable gauging free from operator influence. The company was so pleased with the system that it now has a second Z-Mike CTMS at its plant.
Optimizing Your Investment with World-Class Service and Support

NDC’s technical expertise comes from deep experience supporting thousands of products at the world’s leading manufacturers. Our portfolio of support offerings leverages this expertise to assist you through the service lifecycle. We offer a complete range of cost-effective support solutions including commissioning, training, technical support and service agreements. Customers rely on our 24-7 availability via myNDC – the industry’s most progressive service cloud portal. Whether it’s configuring new equipment, training your technical staff or solving a technical problem, you can count on our experienced team to help maintain the health and performance of your NDC product.

Visit myNDC service cloud at ndc.custhelp.com.