ACCUSCAN SERIES

Dual- and single-axis diameter & ovality gauges for quality- and cost-driven manufacturers

► Instantly detect changes in product with fast, comprehensive non-contact measurements
► Optimize process control through increased measurement accuracy and repeatability
► Produce higher quality products in less time and with less waste
► Get highly flexible communications for easy integration with your processes
► Realize the lowest total cost of ownership

BETA LaserMike Products
Ultra-Fast, Dual-Axis Laser Diameter Gauges for Superior In-Line Process Control

AccuScan 5000 Series
Highest Single-Scan Accuracy in the Industry
The AccuScan 5000 Series gauges set the standard in diameter and ovality measurement. The new family of ultra-fast AccuScan 5000 gauges performs high-speed measurements at 2400 scans per second per axis (totaling 4800 measurements per second) and provides the highest single-scan accuracy in the industry. The improvements in the single-scan calibration algorithm mean that each scan is highly accurate, providing the most reliable readings in applications such as high-speed tolerance checking of flaws, the monitoring of complex product shapes/profiles, and other challenging measurement requirements. With a range of models covering diameters up to 80 mm (3.15 in.), the AccuScan 5000 Series brings precision, quality, and productivity to your process.

Features & Benefits:
► High-Speed Tolerance Checking option permits the early, accurate, and dependable detection of product lumps and necks to eliminate costly product waste
► STAC (stranded, twisted, armoured, and corrugated) logic software option provides accurate maximum/minimum or enveloped readings on shaped and enveloped products at a higher rate, allowing for faster process control of complex product constructions
► Integrated air purge system keeps windows clean from dust and debris for maximum uptime and reduced maintenance
► Supports a wide range of communications protocols*, including RS-232, EtherNet/IP, Ethernet TCP/IP, DeviceNet, Profinet, Profibus, CANopen, Analog, and Digital
► Optional ultra-bright display and operator interface to easily configure and view measurement data
► Rugged construction, sealed to IP 65 (NEMA 4) standards provides protection in the harshest environments for long service life
► Applicable as a stand-alone gauge or part of a full-line solution

Communications & Options
Each AccuScan 5000 series gauge has built-in signal processing and intelligence and supports the following communication protocols:

- RS-232
- Profibus
- Profinet
- DeviceNet
- EtherNet/IP
- Ethernet TCP/IP
- CANopen
- Analog/Digital

Making Light Work
Laser Scanning Measurement Principle

In 1972, the founders of the original Beta LaserMike product line introduced the world’s first laser scanning micrometer (the “LaserMike”). NDC’s AccuScan gauges employ this laser scanning measurement principle. They use a low-power, helium-neon laser that is scanned at high speed through a measurement window and across the product.

When the laser first scans across to the receiver, the light hits the photocell and the voltage rises. The voltage drops when the light is blocked by the product and rises again when the light reaches the photocell. The change in time (Δt) that the light is blocked by the product is proportional to the product’s outer diameter.

Applications

The AccuScan diameter and ovality gauges have a long history of being a proven performer in a wide range of industrial applications*, including:

- Cord
- Plastic and Rubber Hose
- Plastic Pipe
- Plastic Tube – including medical, automotive, heat shrink, irrigation, and other products
- Rods
- Wire and Cable – bare, jacketed, and coated
- And other extruded or drawn cylindrical, flat, or unique profile products

*Opaque, semi- and full-transparent products supported by AccuScan 5000 series of gauges.

AccuScan 5000 Series Specifications

<table>
<thead>
<tr>
<th>Performance</th>
<th>AccuScan 5012</th>
<th>AccuScan 5040</th>
<th>AccuScan 5080</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD range</td>
<td>0.1 – 12 mm</td>
<td>0.2 – 40 mm</td>
<td>1.27 – 80 mm</td>
</tr>
<tr>
<td></td>
<td>(0.004 – 0.47 in.)</td>
<td>(0.008 – 1.50 in.)</td>
<td>(0.050 – 3.15 in.)</td>
</tr>
<tr>
<td>Gate size</td>
<td>16 mm (0.63 in.)</td>
<td>52 mm (2.05 in.)</td>
<td>108 mm (4.25 in.)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.0005 mm¹</td>
<td>±0.001 mm¹</td>
<td>±0.002 mm²</td>
</tr>
<tr>
<td></td>
<td>(±0.000020 in.)</td>
<td>(±0.000040 in.)</td>
<td>(±0.000080 in.)</td>
</tr>
<tr>
<td>Repeatability (Single Scan)</td>
<td>±1µ±0.025%</td>
<td>±2µ±0.025%</td>
<td>±5µ±0.025%</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.00001 mm (0.0000004 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scan rate</td>
<td>2400 scans/sec/axis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Communications

| Standard³ | Analog, DeviceNet, Profinet, Profibus, CANopen, EtherNet/IP, Ethernet TCP/IP, and dual Analog-Digital output plus dry relay contacts |

Environmental and Physical Data

<table>
<thead>
<tr>
<th>Power</th>
<th>24 VDC, 6 W, 0.9 A</th>
<th>24 VDC, 9 W, 1 A</th>
<th>24 VDC, 10 W, 1 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3 Kg (6.61 lb)</td>
<td>10 Kg (22 lb)</td>
<td>31 Kg (67 lb)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>255 x 174 x 40 mm</td>
<td>380 x 360 x 80 mm</td>
<td>660 x 634 x 107 mm</td>
</tr>
<tr>
<td></td>
<td>(10.0 x 6.85 x 1.57 in.)</td>
<td>(15 x 14.2 x 3.1 in.)</td>
<td>(26 x 25 x 4.2 in.)</td>
</tr>
<tr>
<td>Temperature</td>
<td>5-45° C (41-113° F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection Rating</td>
<td>IP65 (NEMA 4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹±0.02% of product size. ²±0.01% of product size. ³Contact NDC for configuration choices.

AccuScan 5000 Series gauges use laser scanning technology.
AccuScan 4012
The AccuScan 4012 gauge provides single-axis diameter measurement capabilities in a high-performance package.

The AccuScan 4012 gauge offers manufacturers a compact, highly accurate, and robust solution for measuring product diameters up to 12 mm (0.47 in.). The AccuScan 4012 gauge integrates Digital Signal Processing and intelligence for outstanding measurement repeatability and it supports a range of communication protocols. Its durable, low-maintenance design enables the gauge to reliably operate in a wide variety of demanding industrial applications. With the AccuScan 4012, you get powerful features and big performance in a small, cost-efficient package.

Features & Benefits:
► High scan rate of 1200 scans/second/axis for enhanced process monitoring
► High-accuracy, low-drift measurements regardless of where the product is positioned within the measuring gate
► Specially engineered optics with unique calibration technique provide the highest achievable accuracy
► Small footprint to install the gauge at a wider range of locations on the production line
► Flexible communication integration with RS-232, EtherNet/IP, Ethernet TCP/IP, DeviceNet, Profinet, and CanOpen*
► Optional ultra-bright display and operator interface to easily configure and view measurement data
► Monitor gauge operation and performance such as gauge status, on-board communication options, RS-232, and Ethernet data transmissions with color-coded LED status indicators
► Rugged, robust IP65 rated housing keeps out moisture and dirt
► Applicable as a stand-alone gauge or part of a full-line solution

*See specifications for more details on standard and optional communication protocols.

AccuScan 4012 Specifications

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<tr>
<td>Repeatability (Single Scan)</td>
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</tr>
<tr>
<td>Resolution</td>
<td>0.00001 mm (0.0000004 in.)</td>
</tr>
<tr>
<td>Scan rate</td>
<td>1200 scans/sec/axis</td>
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<tbody>
<tr>
<td>Standard</td>
<td>RS-232, DeviceNet, Profinet, EtherNet/IP, Ethernet TCP/IP</td>
</tr>
<tr>
<td>Optional</td>
<td>Profibus, Analog/Digital</td>
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<tr>
<td>Protection rating</td>
<td>IP65 (NEMA 4)</td>
</tr>
<tr>
<td>Weight</td>
<td>1.54 kg (3.4 lb)</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>235 x 109 x 40 mm (9.2 x 4.3 x 1.6 in.)</td>
</tr>
</tbody>
</table>

Optional ultra-bright display to easily view measurement data

Making Light Work
Economical and User-Friendly Off-Line Part Measurement System

AccuScan Bench-top

The AccuScan bench-top measurement system enables you to quickly and easily setup an off-line part measurement system to check samples and track, manage, and analyze critical product data. This simple low-cost solution is ideal for use in a lab or at a production floor QC station.

Single-Axis, Dual-Axis or Four-Axis Diameter & Ovality Measurement

The AccuScan bench-top measurement system can be equipped with a highly accurate AccuScan single-axis, dual-axis or four-axis diameter and ovality gauge. AccuScan gauges offer high-speed and submicron accurate measurements on opaque and transparent products, as well as easy integration techniques with flexible communication protocols. All gauges can be equipped with an optional ultra-bright display. Or, you can use the powerful bench-top measurement system with the Beta LaserMike AccuNet software for total control of the off-line part/sample inspection process.

Optional customized bases and part fixtures are available to ensure rapid and accurate mounting of the part. You can easily setup and connect gauges directly to an optional PC either through USB or Ethernet.
AccuScan gauges can be integrated with Beta LaserMike DataPro or InControl process controllers into your production line for a complete diameter and ovality measurement system solution. In addition to diameter measurement, a complete portfolio of measurement technologies are available to give you more control over your entire production process.

Coaxial, Primary and Jacketed Cable

Pipe and Tube
ActiveScan

The Beta LaserMike ActiveScan system precisely measures the height and width of flat, sector, and special-shaped cables. This motion-based gauge measures product diameters up to 40 mm (1.50 in) with ±0.001 mm (±0.000040 in.) accuracy. System includes AccuScan dual-axis laser diameter gauges, pneumatic motion system, and proprietary STAC Logic software. Contact your local NDC representative for more details.

ActiveScan provides accurate, non-contact measurement of unique cable profiles.

Accessories and Options

AccuScan gauges can be equipped with various accessories and options to meet your specific application needs.

Accessories

► **Height stand** (normal upright or at 45 degrees)
► **Light stack**
► **Roller guides**
► **Calibration set**
► **Air cleaner filtering unit**

Software Options

► Glass logic for measuring transparent/translucent products (not available with the AccuScan 3175)
► Single-scan flaw detection for Lump and Neckdowns
► In-head Fast Fourier Transform (FFT) analysis of the diameter measurement
► Fast analog output for further analysis or connection to a Digital Panel Meter
► STAC logic for measuring stranded, twisted, armoured, or corrugated products
► AccuNet software for complete off-line part/sample inspection
Precision Measurement & Control Solutions
The Beta LaserMike line of measurement and control solutions from NDC Technologies is designed to increase productivity, improve product quality, and reduce manufacturing costs. These solutions provide in-process dimensional monitoring, control, and sample/part inspection of products such as wire and cable, fiber optics, metals, rubber and plastic, flat rolled goods, tube and pipe, and other manufactured goods. Every system is backed by NDC’s world-class service and support organization. With offices around the globe, we’re committed to serving your unique measurement application needs.