

New AccuScan 6012 four-axis diameter gauge**1.Introduction**

Over the years, industry has relied on conventional dual-axis and three-axis diameter and ovality gauges for on-line and off-line measurement applications. But, the increasing production line speeds and the uncontrollable rotation and vibration of products still pose measurement accuracy challenges. Global manufacturers have been long waiting for a better solution and it has finally arrived. The new Beta Laser Mike AccuScan 6012 four-axis gauge takes diameter and ovality measurement to a new level. With four-axis measurement and ultra-fast scan rate capabilities, it is now possible to achieve a more accurate average outer diameter and ovality measurement at higher line speeds and for off-line applications. The new AccuScan 6012 provides unmatched performance where it counts while enabling you to realize numerous quality and production advantages.



2. Four reasons why you need the new AccuScan 6012 four-axis gauge

2.1. Improves Ovality Accuracy by up to 100%

Depending on the orientation of the product within the measurement region, two- and three-axis gauges will only provide a certain degree of ovality accuracy. You will only get accurate readings when an elliptical product is perfectly aligned with the measurement axes to detect the maximum and minimum diameters.

The Data for Four-Axis Ovality Measurement Accuracy Speaks for Itself When the product is aligned with the measurement axes, three-axis gauges can provide an average ovality accuracy better than two-axis gauges – but will never deliver 100% accuracy. On the other hand, the AccuScan 6012 four-axis gauge offers a 42% improvement in ovality error over three-axis gauges and delivers 100% accuracy when the product is aligned with the measurement axes.

2.2 Better Measurement Coverage for More Accurate Average Diameter

The AccuScan 6012's four-axis scanning capability provides the most comprehensive measurement coverage around the product's circumference compared to two-axis and three-axis gauges. The AccuScan 6012 performs ultra-fast diameter and ovality measurements at 2400 scans per second per axis, totaling 9600 measurements per second – enabling you to instantly detect changes in the product diameter. Using a unique calibration algorithm, the AccuScan 6012 provides the highest single-scan accuracy in the industry with single-scan repeat ability down to 1 micron. This means with each and every scan you get a true and more accurate diameter measurement.

2.3 Provides the Highest Flaw Detection Accuracy with 25% Improvement Over 3-Axis

More measurement axes mean better flaw detection. In the illustration below, a lump with a given height in the “blind area” (highlighted in red) will not be detected. As you can see, the blind area in the two-axis gauge is significantly larger than the three-axis and four-axis gauges. Similarly, the blind area in the three-axis gauge is larger than the four-axis gauge. With each additional axis, you increase the probability

of detecting lumps and neck-downs by 25%.

2.4 Delivers the Highest Product Quality Yield for Significant Manufacturing Savings

With the new AccuScan 6012 gauge you get the best of all worlds: unmatched four-axis scanning coupled with high-accuracy, ultra-fast measurements. This winning combination lets you instantly detect changes in the product diameter so you can produce more quality product faster for maximum quality results. This level of measurement accuracy and quality coverage helps you reduce scrap and significantly lower manufacturing costs, so your operation is profitable for the long term.

3. Applications

The AccuScan 6012 four-axis gauge can be used in a wide range of applications where the highest accuracy, repeat ability, and performance are critical for small diameter product measurement.

- ▶ Plastic Medical Tube – including catheters, drug delivery tubing, surgical tubing, and other small medical tubing
- ▶ Wire and Cable – including LAN (category), coaxial, medical, automotive, and specialty cable
- ▶ Plastic Automotive Tube
- ▶ Plastic Heat Shrink Tube
- ▶ Cord and Line
- ▶ And other extruded or drawn cylindrical, flat, or unique profile products

4 . AccuScan 6012 Specifications

4.1 Number of axes: 4

4.2 OD range 0.1 – 12 mm (0.004 – 0.47 in)

4.3 Gate size 16 mm (0.63 in)

- 4.4 Accuracy ± 0.0005 mm (± 0.000020 in)
- 4.5 Repeat ability $\pm 1\mu\pm 0.025\%$ (Single Scan)
- 4.6 Resolution 0.00001 mm (0.0000004 in)
- 4.7 Scan rate 2400 scans/sec/axis (total 9600 scans/sec)
- 4.8 Standard RS-232 and Ethernet
- 4.9 Optional DeviceNet, Profinet, Profibus, EtherNet/IP, Ethernet TCP/IP, quad Analog-Digital output, and relay contacts .
- 4.10 Power 24 VDC, 21.6 W, 0.9 A
- 4.11 Temperature: 5-45° C (41-113° F)
- 4.12 Protection rating IP65 (NEMA 4)
- 4.13 Weight 4.5 kg (10 lbs)
- 4.14 Dimensions 360 x 240 x 40 mm (14.1 x 9.4 x 1.5 in)