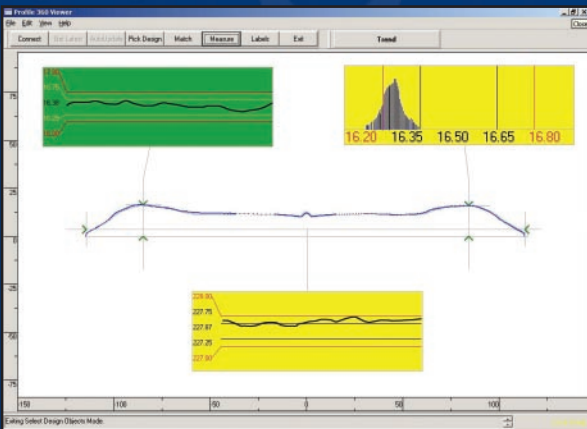
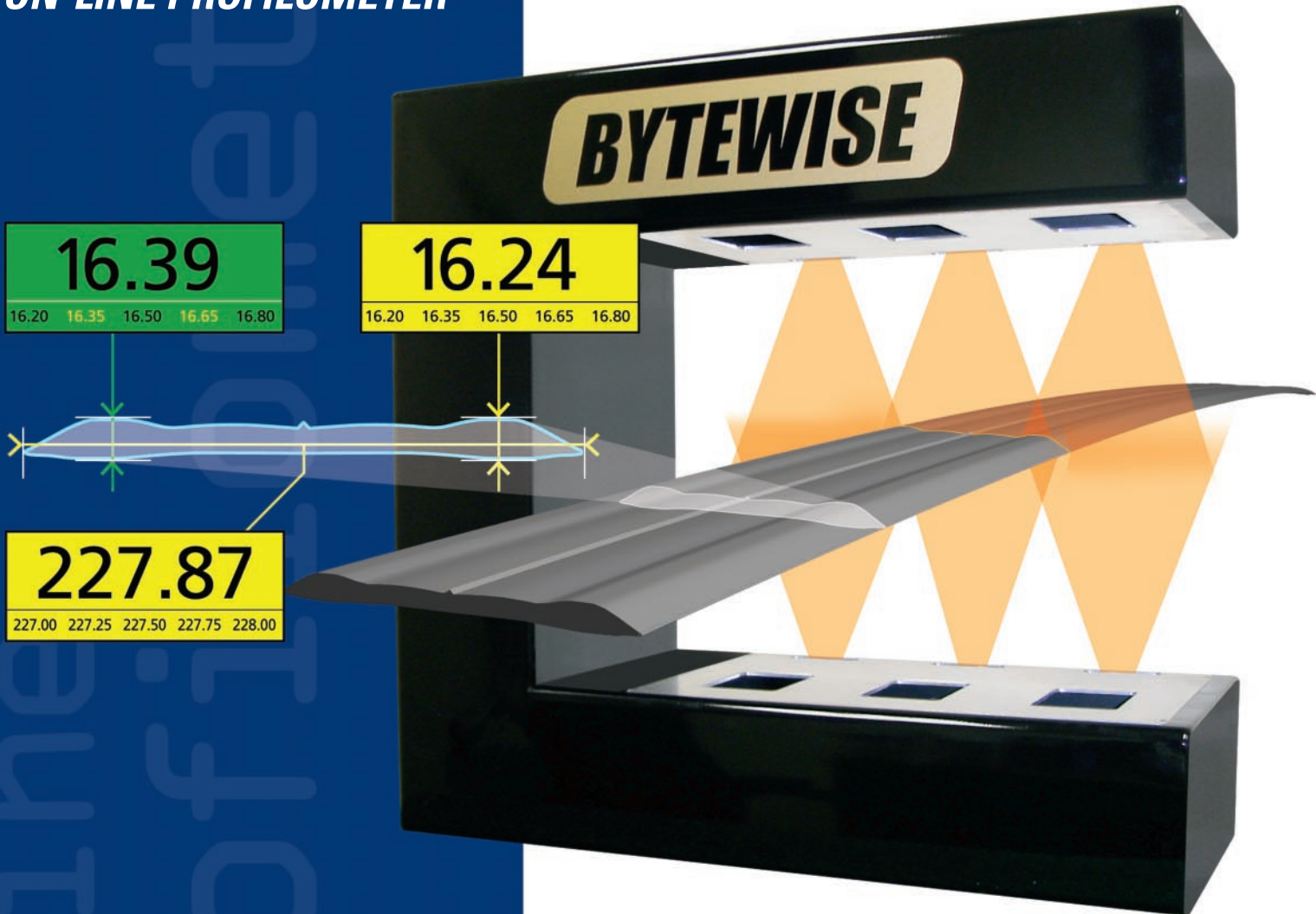


BYTEWISE OLP

ON-LINE PROFILOMETER

The Bytewise On-Line Profilometer (OLP) provides automatic, high speed, non-contact measurement of extrusions. OLP outperforms scanning systems by collecting instantaneous cross-section profiles rather than measuring in a zigzag pattern.

On-line measurement enables immediate response to process variation caused by materials, equipment and die problems. OLP can reduce startup, run-time and assembly scrap and, ultimately, customer returns.

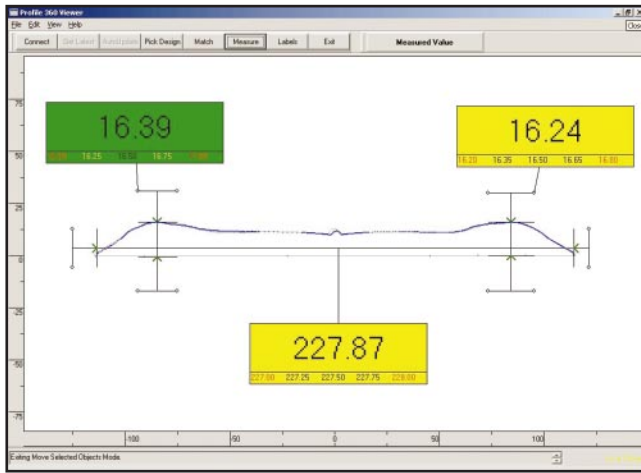


Key Benefits

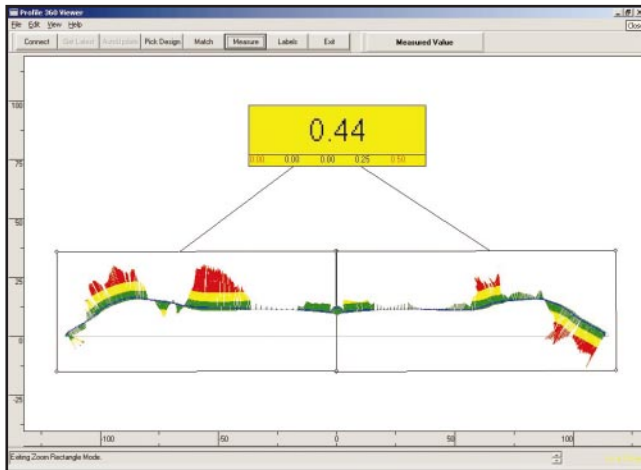
- Ensure your process remains in control across the multiple dimensions of width, thickness, density/porosity, and distribution for greater uniformity and product quality
- Provide material saving benefits by running your product to the minimum acceptable tolerance
- Provide for greater throughput and less rework by empowering your operator to respond to problems immediately
- Control your process more tightly and improve Cpk
- Install quickly at any line location for 100% quality verification
- Integrate the PC-based system seamlessly with your existing Windows-based network and data warehouse
- Produce reports for production, quality and customer requirements

Byte-wise On-line Profilometer (OLP)

Display Software

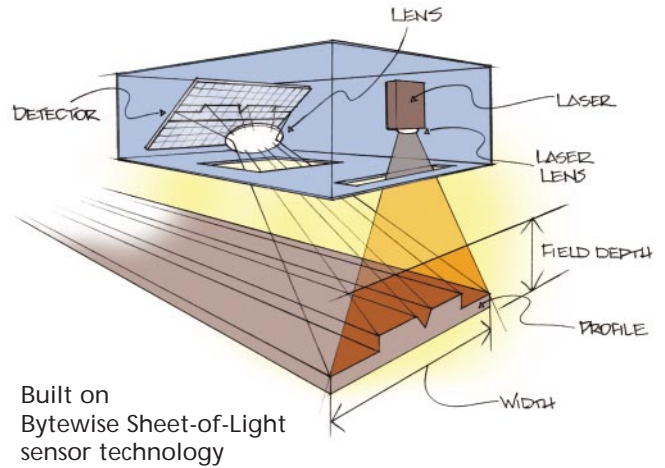


Assess tread width and true thickness parameters

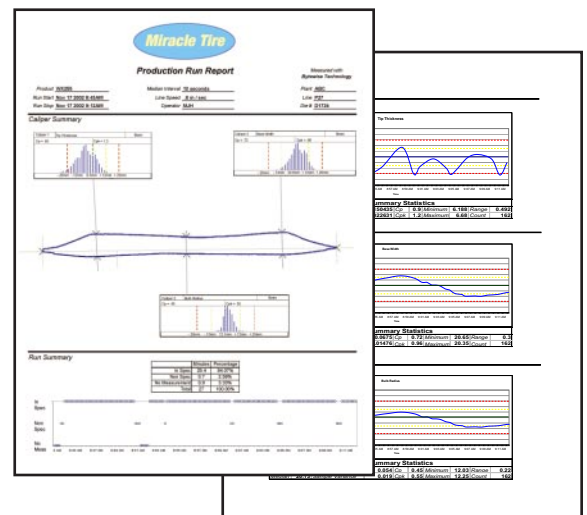


Assess error in tread profile shape and conicity

Measurement Principle



Reporting Software



Specifications⁴

For detailed specifications please see <http://www.byte-wise.com/MarketingDownloads/OLPDetailedSpecs.pdf>

| | Measurement Range (mm) | | | | Measurement Range (inches) | | | |
|--------------------------------|---------------------------------------|----------|-----|-----|----------------------------|-----------|-------|-------|
| | Thickness | 300 | 450 | 600 | Thickness | 11.81 | 17.72 | 23.62 |
| Absolute Accuracy ¹ | 0.15 | ← 0.30 → | | | 0.006 | ← 0.012 → | | |
| Relative Accuracy ² | 0.0225 | ← 0.09 → | | | 0.001 | ← 0.004 → | | |
| Resolution ³ | 0.001mm / 0.00004in | | | | | | | |
| Measurement Rate | Selectable up to 7.5 profiles/second | | | | | | | |
| Communication Interface | Analog & Digital I/O; RS232; Ethernet | | | | | | | |
| Laser Classification | IIIa CDRH | | | | | | | |

- 1) Absolute Accuracy: The maximum amount of error present in any single measurement of a target located anywhere within the field of view.
- 2) Relative Accuracy: The maximum amount of error present when comparing successive measurements of a target with changing dimensions and located at a fixed position within the field of view. (This also can be considered as "accuracy in measuring product variation.")
- 3) Resolution: The smallest meaningful unit of measurement that is reported by the system.
- 4) For all specifications, measurement rate is assumed to be one update per second.