Nordson

Measurement & Control

Industry:	Medical Tubing
Application:	Diameter & Wall Thickness Measurement

Company implements non-contact measurement system for research and development of high-tech tubing applications

Profile:

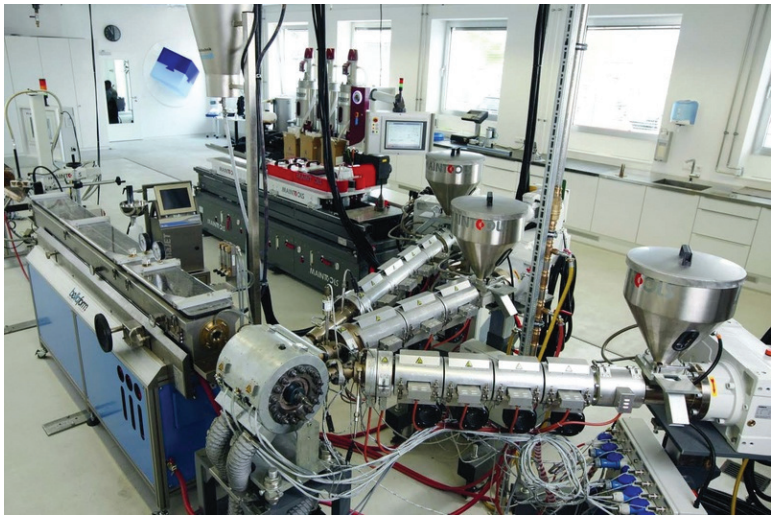
Innovation center for the research and innovation of plastics engineering and application technology.

Solution:

- **TrueWall** AI Wall Thickness & Concentricity Measurement System
- **AccuScan** Diameter & Ovality Measurement System
- **DataPro 5000** Process Control & Data Management System

Results:

- Advanced non-contact measurement technology for world-class, leading-edge R&D center
- Full product measurement coverage for plastic tube extrusion process
- Integrated technology automates setup and collection of product data, as well as provides feedback for process control and statistical product reports
- System solution enables center to find ways to increase production efficiencies, reduce manufacturing costs, improve product quality, and elevate profit margins



Plastic tube extrusion line

A leading international supplier of high-performance compounds and resins (used as raw materials in a variety of markets) has added Nordson Measurement and Control solutions to their production processes. The company's principal product lines consist of proprietary and custom-formulated engineered plastic compounds, color concentrates, and additives that improve the appearance and performance of plastics in a number of specialized applications.

Markets range from diverse industrial and automotive equipment components to construction and home improvement products, film and packaging, medical, telecommunications, garden supplies, toys and more.

The Challenges:

Accurate Product Measurement and Process Control

As part of an industry-leading initiative to bring key partners and advanced technology together, the company opened an innovation center. This innovation center offers a collaborative environment for the company, technology partners, and customers to combine research and development to advance plastics engineering and application technology. It also provides a venue to develop cost-optimizing solutions for materials processing and manufacturing. The facility is equipped with state-of-the art technology that includes a pipe and tube corrugator, extrusion machine, and burst testing facilities. It also includes a comprehensively equipped laboratory service center.

Need for Advanced Measurement Technology

The customer needed the most advanced technology on its extrusion line to accurately measure the wall thickness and outer diameter of the tube and automatically control their production process.

The Solution:

TrueWall, AccuScan, and DataPro 5000

This company selected Nordson's non-contact measurement and control system solution for pipe and tube production. The system includes the following equipment:

- **TrueWall** UltraScan 1025 wall thickness and concentricity gauge
- **AccuScan** diameter and ovality gauge
- **DataPro 5000** process controller and data management system

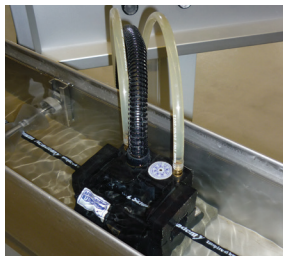
System Setup

The UltraScan gauge is placed at the extruder trough and uses multiple transducers to continuously monitor tube wall thickness and concentricity. It provides a wall measurement accuracy to ±0.001 mm (±0.000040 in) and concentricity accuracy to ±0.1%. It also precisely measures outer diameters from 2.5 to 25 mm (0.1 to 1.0 in).

At the heart of the ultrasonic gauge is the TrueWall AI intelligence module by Nordson. This innovative technology automatically sets up the waveforms of all transducers, tracks tolerances to catch wall variations, and provides highly accurate and repeatable average wall and concentricity measurements. This enables the company to immediately make process adjustments to avoid scrap and ensure quality results.

The AccuScan gauge is placed between the puller and the trough on the extrusion line to measure tube ovality and outer diameters from 0.2 to 25 mm (0.008 to 1.00 in) with accuracy to ±0.001 mm (±0.000040 in). This gauge is also equipped with intelligent Digital Signal Processing (DSP) for increased measurement repeatability. High-speed scanning capabilities enable the gauge to capture 2400 scans per second for precision measurements. An ultra-bright display enables operators to view and configure measurement data at the gauge head, if necessary.

The AccuScan gauge also provides the academy with a number of data communication options to talk to processing equipment and other device controllers, such as Ethernet IP, DeviceNet, Profibus, CanOpen, and RS232.



UltraScan wall thickness gauge in extruder trough

TrueWall with AI Intelligence automatically sets up transducer waveforms

AccuScan accurately measures tube diameter and ovality

The Solution, cont:

TrueWall, AccuScan, and DataPro 5000

The DataPro 5000 interfaces with the TrueWall and AccuScan gauges as well as the extrusion line and alarm lights via Ethernet for complete control and management of the extrusion process. The DataPro 5000 is a professional, fully featured process controller with an easy-to-use, touch screen interface. Closed-loop control ensures plastic pipe and tube products are extruded to exact technical specifications. Out-of-tolerance product conditions are quickly flagged and alerted via alarms to operators. The DP5000 includes configurable trend, SPC, and charting functions, and enables operators at the academy to create custom reports and maintain data logs.

DataPro 5000 precisely controls and manages extrusion process variables related to tube diameter and wall thickness for quality results

The Results:

This company is equipped with the latest measurement technology from Nordson. This advanced non-contact measurement system complements the center's state-of-the-art plastics extrusion facility to provide accurate and complete on-line measurement coverage during production.

Nordson's integrated measurement technology effectively automates the setup and collection of product data, as well as provides feedback for complete process control.

Other benefits include:

- Reduced start-up time
- Decreased material usage
- Improved data management

These benefits will enable this business to realize its ultimate organizational goal: find ways to increase production efficiencies, reduce manufacturing costs, improve product quality, and generate higher value to customers and the industry.

Nordson's non-contact measurement systems can help you dramatically increase productivity and realize bottom-line savings.

For questions or support go to: https://ndc.custhelp.com/

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