New Nonwoven Gauging Systems

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Agenda

- About SolveTech
- How It Works
- Off Line
- On Line
- Benefits
- Summary
About SolveTech

• Founded in 1981 by Doug Lawrence
• Headquarters and Manufacturing in Wilmington, DE USA
• Focuses on capacitance gauging technology- On line and in the lab
• Very responsive to customers- attitude of service and providing value.
• Can custom engineer solutions
SolveTech Technology Can Measure:

- Thin Nonwoven Materials
  - Typically less than 0.25” thick.
  - Base Materials
  - Coatings/Adhesives on Nonwovens
  - Interface of nonwovens and other non-conductive materials.

- Additionally We Measure:
  - Wovens
  - Extruded Plastic Film
  - Ceramic Tape
  - Paper
  - Foam
  - Coatings
  - Any non-conductive material
Nonwoven Gauging

• Lab Use
  • Cut and weigh is a common method currently but it has limitations
  • PR2000 offers much higher resolution
  • Can be calibrated to read in g/m^2

• On Line
  • High response speeds possible- reading every 0.01 seconds
  • Customizable footprints averaging over a given area
    • Low noise in the reading because it averages over an area
    • On Line Cut and Weigh
  • Multiple Channels can be placed adjacent to each other
    • Great for measuring adhesive regions
Our Technology

• Capacitance Thickness Gauging Systems
  • Measures material thickness using an electric field without contact
• Proprietary Technology with Market Leading Performance
• No Nuclear Radiation or X-Rays = No Regulatory Headaches
• Customizable to Material Needs
• Industrially Durable
  • 25+ year life!
• Refined over 35 years of constant development
How It Works

Measurement Footprint

**Figure 1**
Simplified Measurement Head (Single Channel) showing an electric field between two measurement electrodes.

**Figure 2**
When a material is placed in the gap, it will respond to the electric field. The gauge contains a circuitry which is sensitive to this response.
How It Works

• The nonwoven material will cause a disturbance to the field which is read as a percentage.
• Air is tared out of the measurement so it is not a factor.
• The gauge will sense the amount of material that is present in the field.
• Different materials/formulations may have a different response so the gauge is calibrated accordingly.
• Rectangular footprints are created, and the gauge averages the thickness over this entire footprint.
  • In the Lab: 0.125” by 2.25”
  • On Line: 1” x 2” typical
• These footprints can be calibrated so it is like doing a cut and weigh without having to cut and weigh.
Lab Gauge: The PR2000 Precision Profiler

• Delivers the thickness profile for a strip of material in the lab
  • Runs it through automatically while taking data
• The measurement head measures the material every 0.125”
• This allows the user to see a picture of the variability in the cross web direction
• Quickly takes data saving time/money
• Highly accurate, repeatable and stable.- Best on the market in all of these categories
• Great for a producer, converter or purchaser of material
The PR2000

- Measurement Head
- Measurement Footprint
- Nip Roller
- Drive Roller
- Material Spooling (Optional)
Cross Web vs Down Web Profiling
Example- Nonwoven Cross Web Profile

• A sample strip of material is cut: 3.4” wide, length can be anything.
• We then run the samples and produce the profile- takes ~30 seconds
Test of Repeatability

- We overlay two consecutive runs to show how well the device repeats - Run 1 is Blue, Run 2 is Red
Inspect A Sheet
SC1000 SpotChecker

• Measures a given spot under the measurement zone
• No need to cut the material into strips

Measurement Area (Customizable)

Software Records the Data Points
On Line Gauging

Options

• Single Channel
  • High speed basis weight feedback for a selected area
  • Customizable

• MultiChannel
  • Multiple channels for complete web coverage possible- Up to 60 inches wide
  • Can place channels in any location
Uses For Single Channel

- An online check for process conditions
- Can be used for machine direction/down web data
- Helps to spot defects and provide traceability
- Great quality control tool
- Like having live cut and weigh on line
MultiChannel with Continuous Coverage

- Use Single or Dual Heads
- Customize
  - Lane Width
  - Lane Count
  - Lane Location
Uses for the MultiChannel

• Complete coverage possible to see the live cross web profile every second

• Adhesives/Coatings
  • Can place a channel in the adhesive zone and directly adjacent.
  • This allows you to subtract out the substrate directly adjacent to the coating
Example MultiChannel Layout

Array Gauge Using 2 Measurement Heads
(Sample Configuration)

Full Coverage of 20 Inch Web using 2 Heads with 10 Channels Each
Each Measurement Area is 2" x 1" (MD x TD)
Example Configurations

MultiChannel with Two Heads with 3 Channels Each
Benefits for a Material Producer

- Visualize your process
- Reduce material usage through tighter control
- Verify average thickness and variability range before sending material to customers.
- Reduce waste by catching defects early
- Measuring helps improve quality and your brand
- See where to make adjustments -> Set up quickly
- Predict maintenance issues, reduce scrap and save time!
Benefits for a Material Purchaser/Converter

• Inspect the incoming product prior to processing
• Evaluate different suppliers
• Verify you are running the correct material
• Understand the product you are buying
• Huge time savings and better accuracy for incoming product inspection versus micrometers/cut and weigh
• Prevent or diagnose problems in the converting process
Summary

• SolveTech is introducing our technology to the nonwoven community after several successful installations
• It can be used by both producers, converters and purchasers of film
• High Performance, Green, and Customizable
• Great tool for quality control and production
• SolveTech will prove our technology to you through sample testing and trails.

Send us samples today for a free analysis!
Questions?

Thank you for your time!

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