The converting industry includes a wide range of applications and processes, each with different measurement and control requirements. This includes single coater stations up through complex, multi-scanner tandem extrusion lamination lines with advanced web gauging measurements and controls.

NDC’s family of web gauging systems are uniquely positioned to address the challenges of the converting industry. With nine distinct measurement technologies, three scanning frame designs and two system platforms, NDC can provide the exact web gauging configuration for each process. Add to that NDC’s applications expertise and global service support and the result is optimum product quality and a fast return on investment (ROI).
NDC’s Measurement Excellence

Measurement techniques for the converting processes

► **Direct Selective Measurement:**
A single infrared sensor can be used where coat weight measurement is required. NDC’s infrared sensor measures just the coating layer directly and independently from the substrate layer with its selective measurement technology.

► **Combination Measurement:**
Two sensors are placed on a single scanner after the coater. The selective sensor measures the coating directly while the basis weight sensor measures total mass. The basis weight of the substrate is determined by subtraction.

► **Differential or Subtractive Coat Weight Measurement:**
Two sensors are used where the first sensor measures the substrate and the second sensor measures the total weight (coat + substrate). The coat weight is calculated by subtracting these two measurements.

► **“Same Spot” Measurement:**
Some substrates such as paper exhibit significant formation or weight variations. Same Spot Measurement assures that the sensors of multi-scanner systems are synchronized so that each sensor traverses precisely along the same path on the web. This eliminates any substrate variability from affecting the coat weight measurement. This feature can also ensure same-spot measurement throughout line speed transitions.

► **“True Net Coat” Measurement:**
In addition to Same Spot, NDC’s differential measurement system can also employ “True Net Coat”. The True Net Coat model allows for both sensors (total and base) to be calibrated against the coat response curve which enables a far more accurate net coat calculation.
Accurate, Reliable Measurement

Application-matched sensors that produce superior results from your process

IG710e
► IG710e Infrared
The IG710e backscatter sensor provides high-resolution, accurate coat weight, laminate and moisture measurement for paper and other substrates. Selective infrared technologies provide direct coat weight measurements that can discriminate up to 6 components in coatings without the need for additional scanners and sensors.

SR710e
► SR710e Infrared
The SR710e reflectance gauge is specifically designed to accurately measure thin, clear coatings on metal foils, metalized papers and plastics. Its unique optical configuration minimizes any interference effects, while its use of mid-infrared absorption allows the thinnest of coatings, such as lube layers on can stock, to be easily and accurately measured.

XRB
► XRB X-Ray Backscatter
NDC’s X-ray single-sided backscatter (XRB) sensor offers unsurpassed measurement range and low installation costs. It combines good measurement performance with minimal issues related to licensing costs.

XRT
► XRT X-Ray Transmission
NDC’s X-ray transmission (XRT) sensor offers excellent measurement precision and CD resolution. Its variable energy range provides superb flexibility across a variety of applications, including high tolerance to product flutter. Like the XRB, it shares minimal issues related to licensing costs or administration.

GBS
► GBS Gamma Backscatter
The Gamma Backscatter sensor family (GBS) provides cost-effective measurement in a compact, single-sided form factor. The sensor combines an integrated source and detector for measuring either the thickness or weight of a product from one side of the sheet. Its compact size allows measurements to be taken from parts of the process that may be inaccessible to conventional sensors.

Beta
► Beta Transmission
NDC’s Model 300 beta transmission sensors provide accurate, on-line measurement of product’s total thickness or basis weight. These sensors feature a high-efficiency detection system and are selected with optimum source activity for each application.
Proven, Capable Solutions

NDC applications for the converting industries
...the difference is experience

**Same-Spot Measurement**

Precisely coordinates the sampling and data collection of substrate and coated product gauges to provide accurate, responsive coat weight measurement by directly linking scanning speed to the process line speed. Accurate measurement is maintained throughout line speed changes.

**FastStart**

Fast Start provides an early indication of coat weight during start-up and product changes and is valuable for multi scanner measurement configurations. Once the process lag-time between scanners has passed, the system automatically transfers scanner timing to provide Same Spot functionality.

**Specialty Coat Weight Measurement Option**

**Pattern Recognition** software measures the coat weight of patch and stripe/zone coatings. The cross and machine direction gaps are ignored.

**Explosion-Proof and Harsh-Environment Equipment Options**

Certain scanners & sensors available in Class 1, Division 2, Groups C & D approved designs.

ATEX/IECEx approved designs are available for certain products. Contact an NDC representative for more information.

**Solvent-Based Coating Measurement**

For processes with consistent solids ratio in the wet coating, a final coat weight profile determination may be made based on measurement of the wet coating, prior to drying.

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**Extrusion, Coating and Lamination for Industrial Material Applications**

- Single coating station
- Tandem coating station (up to 3 stations)

**Extrusion Coating and Lamination for Packaging Materials Applications**

- Single coating station
- Flexible packaging
- Tandem coating stations (up to 4 stations)
  - Liquid packaging (aseptic)
  - Flexible packaging

**Textile Coating**

- PUR
- Latex
- Silicon, stain resistant coatings
- PVC

**Coil and Metal Foil Coating**

- Wax, oil, chromate, polymer, lacquer on steel
- Adhesive, wax, oil, lacquer on copper
- Adhesive, polymer, wax, oil, lacquer on aluminum

**Speciality Coating**

- Lithium ion and other types of battery coating
- Dry photoresist coating
- Optical films including PDP and LCD
- Window and glazing films
- Magnetic media (Fe$_2$O$_3$ coating)

**Paper Coating**

- NCR (carbonless) coating
- Thermal coating
- Adhesive coating (label stock)
- PVDC coating
- Silicon coating (release papers)

**Polymer Film Coating**

- Adhesive labels, tapes and dermal patches
- Laminating pouches and protective films
- PVDC

**Abrasives Manufacturers**

- Makers
- Sizers
- Up to 5 scanners and 6 sensors
Company overview

Combining industry-best performance and reliability with a global support structure

NDC Technologies, headquartered in Dayton, Ohio, designs, develops and produces a wide range of process measurement and control instrumentation for a broad scope of manufacturing industries.

NDC has manufacturing facilities in Dayton, Ohio and Maldon, UK, with centers of excellence at each of these locations including Irwindale, California and Ans, Belgium. In addition, we have a manufacturing and service facility in Middletown, Connecticut and direct sales and support facilities in France, Germany, Italy, India, China and Japan. There is also a highly trained network of Sales and Service distribution channels in more than 60 countries around the world.

NDC Technologies is strategically structured to serve the following key industry segments:

► Film Extrusion and Converting
  NDC provides basis weight, thickness, coat weight and moisture measurement and control systems for a diverse array of applications in the film extrusion and converting industries and also provides solutions for customers in nonwovens and calendering.

► Food, Bulk and Tobacco
  NDC delivers both on-line and at-process analyzers for the measurement of key constituents such as moisture, fat, oil and protein. NDC’s broad spectrum of measurement solutions are used in the food, chemicals, minerals building materials, pharmaceutical and tobacco industries.

► Cable and Tube
  NDC serves the wire, cable, fiber optic, pipe and tube industries with a broad portfolio of on-line and off-line measurement and control solutions for the dimensional monitoring of diameter, ovality, wall thickness, eccentricity, length and speed, and other parameters.

► Metals
  In the steel and aluminum industries, NDC offers advanced solutions to measure the coatings applied to metal surfaces and the non-contact length and speed of products at critical points in the manufacturing process.