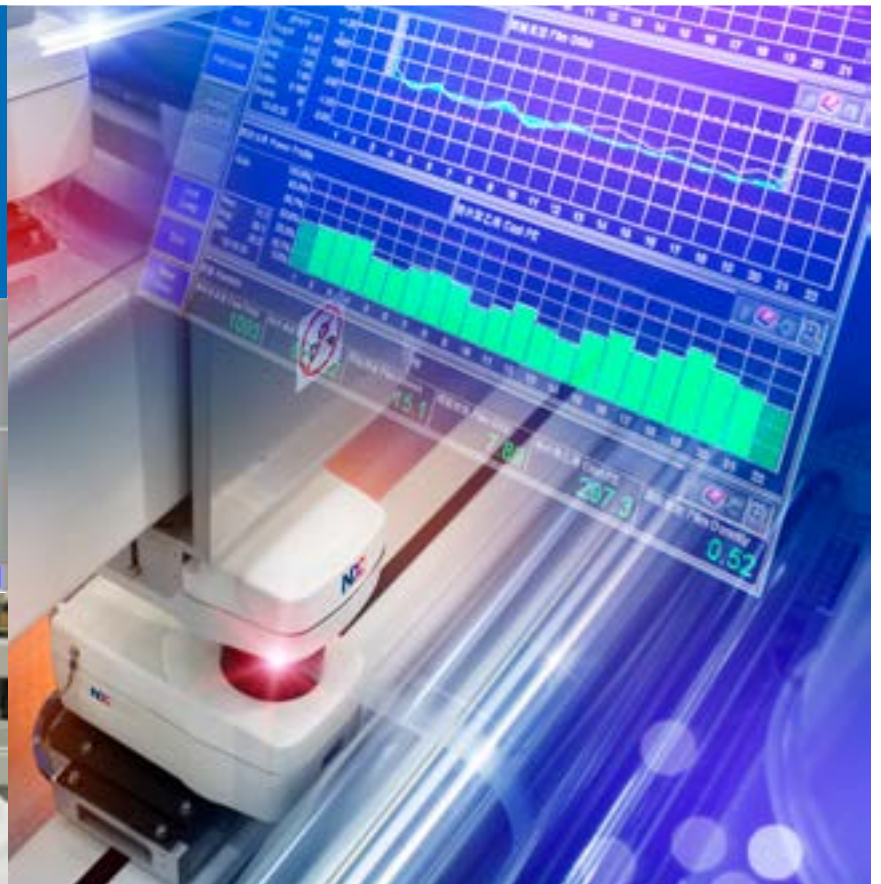
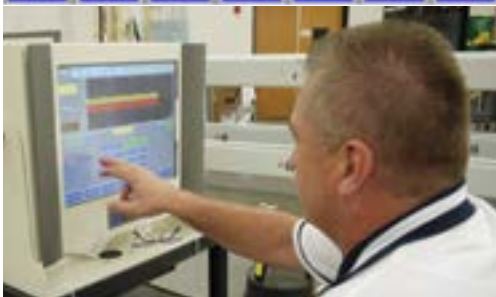
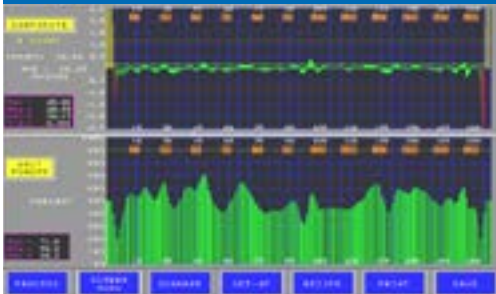




# WEB GAUGING AT A GLANCE

NDC Advantage  
Series



# NDC Technologies Web Solutions

Engineered to deliver  
outstanding results from your process



- ▶ Extrusion
- ▶ Converting
- ▶ Calendering
- ▶ Nonwovens

## Measurements

- ▶ Basis Weight
- ▶ Thickness
- ▶ Coat Weight
- ▶ Barrier Layers
- ▶ Application-Specific Measurements

## Controls

- ▶ Machine Direction
- ▶ Advanced Profile Controls
- ▶ Application-Specific Controls

## Process Visibility

- ▶ Process Analysis
- ▶ Quality Reporting
- ▶ OPC Integration

**NDC's Web Solutions are designed to deliver greater results through measurement, control and process visibility. Industry 4.0 OPC UA communications are supported by NDC intelligent solutions.**

NDC's TDi™ (Total Distributed Intelligence) Web Gauging platform is based on a robust industrial architecture that ensures high reliability, low cost of ownership and straightforward installation. The TDi architecture supports intelligent sensors (iSensors™) and scanning frames (iFrames™) with each device running its own compact powerful processor called the D-BRIC™. This architecture supports fast Ethernet communications between the system components, but also provides fast commissioning and remote diagnostics capability.

## Customer Benefits:

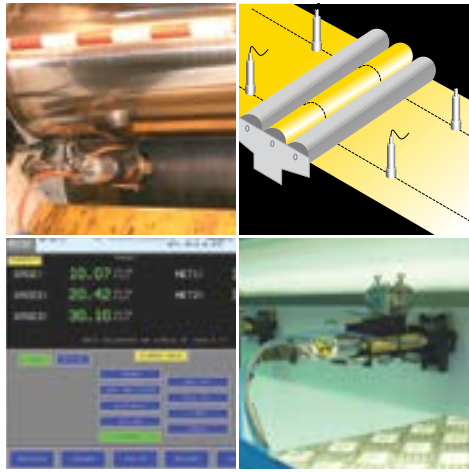
- ▶ Higher quality and productivity
- ▶ Lower manufacturing costs
- ▶ Improved process visibility

# NDC's TDi Platform

## A reliable, scalable platform

that can be configured for a wide range of applications

NDC's Web Gauging systems are engineered to deliver greater results through measurement, control and process visibility. The flexible TDi architecture means they can be configured for applications ranging from fixed-point measurement to multi-scanner systems with complex controls.

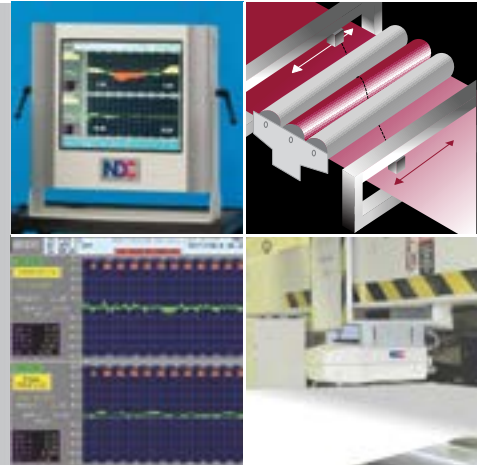


### 8000F Fixed-Point Web Gauging System

- ▶ Simple, accurate measurement solution
- ▶ Common TDi architecture with NDC's family of web gauging systems
- ▶ Capable of supporting more than one line
- ▶ Seamless upgrade path to NDC's 8000 TDi scanning systems
- ▶ Supports NDC's GBS and IR sensors
- ▶ Process visibility provided by NDC's MiniFlex™ Operator Work Station (OWS) or a customer-provided PC
- ▶ Compact sensor form factors deliver measurements from restricted process locations
- ▶ No sensor standardization
- ▶ High-reliability system with low cost of ownership

### 8000 TDi Web Gauging System

- ▶ Web Gauging solutions for the extrusion, converting, calendering and nonwovens industries
- ▶ Common TDi architecture that includes NDC's intelligent sensors and scanning frames
- ▶ Fast Ethernet communications between all of the system nodes
- ▶ Supports up to three AccuTrak™ or MiniTrak™ scanners and four sensors
- ▶ Extensive library of operator and maintenance displays with NDC's MiniFlex OWS
- ▶ Complete package of available machine direction and advanced profile controls



### Pro.Net TDi Web Gauging System

- ▶ Offers expanded measurement, control and information capability
- ▶ Provides the incremental power of an industrial PC running Windows® software
- ▶ Suitable for large, complex processes, for example film orientation lines, tire calenders, multi-station coaters and sandpaper lines
- ▶ Supports up to six AccuTrak™ or MiniTrak™ scanners and eighteen sensors
- ▶ User-configurable displays that enable operators to organize essential information on a single screen



# The Largest Number of Web Gauging Sensors

## NDC offers a measurement solution

for the most demanding web gauging applications

NDC's web gauging portfolio includes infrared, beta, X-ray, laser, gamma and optical measurement technologies. These gauges are all supported by the TDi platform, representing the widest range of measurement technologies available for the web gauging business.

### Gamma Backscatter



The Gamma Backscatter family provides cost-effective basis weight measurement in a compact form factor.

### FilmPro



FilmPro measures the true thickness and weight of thin film to thick sheet polymeric products and coatings with multi-layer discrimination.

### NW710S Infrared



The NW710S employs forward-scatter optics to measure the basis weight and moisture of spunbond nonwoven products.

### SR710S Infrared



The SR710S is specifically designed to measure clear coatings on metal, foils, metallized papers and plastics.

### NDC710S Infrared



The NDC710S sensor provides coat weight and moisture measurements and can effectively discriminate individual layers in co-extruded coatings.

### XRT X-Ray Transmission



Provides basis weight or thickness measurement across a wide range of products with minimal safety licensing issues.

### XRB X-Ray Backscatter



The XRB sensor offers cost-effective thickness or weight measurement in a compact single-sided form factor.

### OptiMike



The OptiMike optical micrometer projects a beam of light across the apex of the product on a roll to measure thickness.

### Laser Dual-Sided



NDC's laser gauges measure thickness via a distance triangulation computation of a laser beam.

### Laser Reflection



The reflection laser gauge measures thick products in tight process locations as an alternative to nuclear technologies.

### Beta Transmission




NDC's 310 Beta transmission gauges feature a high-efficiency detector and minimized source activity for safety and performance.

# Measurement Configurations

NDC's measurement solutions

...by application

SENSOR TECHNOLOGY AND APPLICATION SELECTOR CHART												
Industry:	Extrusion				Converting				Calendering			
 <b>Sensor Technology</b>	Measurements											
	Sheet Thickness	Basis Weight	Voided Film Thickness	Barrier Layer Thickness	Blown Film Thickness	Coatweight/Coating Thickness	Moisture/Water-based Coating	Lamination Thickness	Clear Coatings on Metallized	Calendered Thickness	Basis Weight	Wire Balance, Position, Count
Gamma Backscatter	■	■			■	■				■	■	
IR Transmission	■	■	■	■	■	■	■	■				
IR Backscatter						■	■	■				
IR Forward Scatter							■					
IR Reflection									■			
X-Ray Transmission	■	■			■							■
X-Ray Backscatter	■	■								■	■	■
OptiMike Laser Shadow	■		■					■		■		
Beta Transmission	■	■			■	■				■	■	■
Laser Triangulation	■									■		

This chart presents the typical sensor technology choices for the measurements indicated.

# 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 Technical Centers of Excellence at each of these locations including Irwindale, California and Loncin, Belgium. In addition, there are direct sales and support facilities in China, Japan, France, Germany and Italy. 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:

► **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 and Bulk**

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 aluminium industries, NDC offers advanced solutions for the measurement of thickness, width, flatness, edge shape, coatings, and length and speed of sheet and long casted products.



NDC Technologies is represented in over 60 countries worldwide. [www.ndc.com](http://www.ndc.com)

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Document Number: B-BROC-SENS-TotalVolatile-2018JULY31  
Date of Issue: July 2018  
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