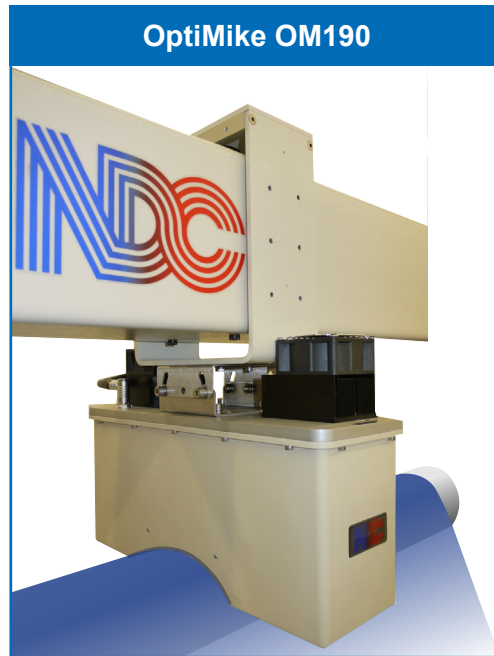


OPTI MIKE OPTICAL MICROMETER

APPLICATIONS:

- Sheet Extrusion
- Foam sheet
- Calendered sheet
- Nonwovens
- Hook and loop fastener material
- Composites

OptiMike™ OM190: Non-Contacting Optical Gauge for Direct Film and Sheet Thickness Measurement



The OptiMike OM190 optical micrometer provides direct, single-sided thickness measurement for non-metallic sheet and thick film products. The optical measurement technique is unaffected by the color, density or gloss of the product.

The sensor incorporates a light emitting diode (LED) array that projects a beam of light across the apex of the product wrapped over a precision reference roll. This roll has low run-out characteristics for accurate, absolute measurement performance. On the opposite side of the roll, a precision charged couple device (CCD) micrometer array measures the exact location of the top surface of the product to sub-micron accuracy. An integrated eddy current sensor measures the distance of the sensor to the surface of the roll. The data from the CCD array and the eddy current sensor are combined to provide a total thickness measurement.

For sound measurement performance, the sensor frame is made from a structurally stable material with a low coefficient of

expansion. A thermo-electric cooling (TEC) system maintains the internal temperature of the sensor components and electronics to within $\pm 0.1^{\circ}\text{C}$. The sensor is surrounded by a thermal protection case to further stabilize the sensor and exclude contaminants.

The case also provides electromagnetic shielding for the internal components. For reliability and ease of installation, OptiMike does not require either air or water utilities.

The intelligent MiniTrak-S scanner serves as the OptiMike's measurement platform for reliable performance and low maintenance requirements.

Features and Benefits

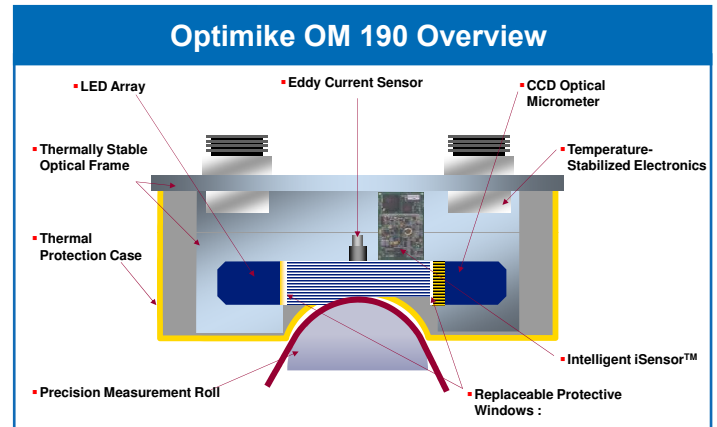


- **Faster start-ups and product changes:**
30-70% improvement in time
- **Improved quality:**
Cross direction improved 30-80% and machine direction improved 30 to 70%
- **Greater profitability:**
Raw material savings of 1 to 10% and scrap reduction of 10 to 80%
- **Fast return on investment:**
Typically less than one year
- **Low cost of ownership:**
User-maintainable with common spare parts
- **Field-proven:**
Low-risk TDi™ web gauging platform
- **Intelligent sensor:**
Supported by a full suite of diagnostics and an interactive graphic user interface
- **Non-nuclear sensor:**
Does not require regulatory licensing or protective guarding

Thermal Stabilization

The OptiMike's thermally-stabilized design is critical for achieving measurement repeatability and long-term absolute accuracy. For example, every 1°C temperature change to the eddy current sensor can translate into an apparent 5-7 microns change in its output. OptiMike is unique because it has been engineered to have a thermally stable optical bench. This includes an optical frame that is structurally stable with a low coefficient of expansion. Furthermore, the sensor electronics are thermally stabilized with thermo-electric coolers. Also, the sensor's thermal protection case keeps heat and contaminants away from the critical measurement components. Finally, internal air flow passages ensure that the sensor is precisely stabilized to within 0.1°C.

In contrast, conventional sensors often have no temperature stabilization, rendering them susceptible to thermally-related drifts in accuracy. Others use thermistor compensation that introduces lags into the measurement. In addition, these optical benches are subject to thermal expansion with further measurement errors being incurred.



Measurement Backing Roll

The choice of the OptiMike's measurement backing roll depends upon the customer's accuracy requirements and application considerations. For superior accuracy and long-term durability, the OM190HP offers the best results using a High-Performance Stainless Steel roll. Alternatively, customers may choose to supply their own roll provided it meets NDC's construction and accuracy specifications.

Specifications

Parameter	OptiMike OM190HP
Measurement Range:	150microns to 5000microns (6mils to 200mils). Contact NDC Applications when outside this range.
Measurement Backing Roll	High Performance Stainless Steel Roll
Reproducibility; ± 2 -Sigma	± 0.5 microns (± 0.02 mils)
Accuracy; ± 2 -Sigma	± 5.0 microns (± 0.20 mils)
Response Time:	10msec
100% Streak Response	1.6mm (0.06mils)
Measurement Resolution	0.10microns (0.004mils)
Maximum Sheet Temperature	50°C, (125°F)
Maximum Sheet Width	2500mm (98in)
Roll Wrap: 1mm Product (0.039") 5mm Product (0.197")	64° 85°
Mean Time Between Failure	52,560hrs or 6 Years (approx)

NDC USA
Tel: +1 626 960 3300
enquiries@ndcinfrared.com

NDC Europe
Tel: +44 1621 852244
sales@ndcinfrared.co.uk

NDC China
Tel: 86 20 2887 3860
info@ndcinfrared.com.cn

NDC Italy
Tel: +39 0331 454 207
info@ndcinfrared.it

NDC Germany
Tel: +49 1801 977112
info@ndcinfrared.de

NDC Japan
Tel: +81 3 3255 8157
info@ndcinfrared.jp

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