Robotic PELT®
Automated Coating Thickness Measurement System

Benefits

- **Fully automatic multi-layer coating thickness measurements**
- **Utilizes proven PELT® measurement technology**
- **Increased production quality sampling**
- **Reduced scrap material using non-destructive measurements**

Features

- **Multi-layer: gauging up to 5 coating layers at each measurement point**
- **Integrated distance sensor and positioning**
- **Integration compatible with robotic color and appearance instruments**

Robotic PELT

The Robotic PELT gauge is an automated, online coating thickness measurement system. Advanced PELT automation dramatically increases the paint process sampling rate.

The system utilizes the same proven high resolution PELT® ultrasonic technology used by our industry standard hand-held coating thickness gauges. The system can individually measure up to 5 coating layers simultaneously. Measurements can be made on virtually any substrate material including steel, aluminum, plastics, composites, glass, and wood.

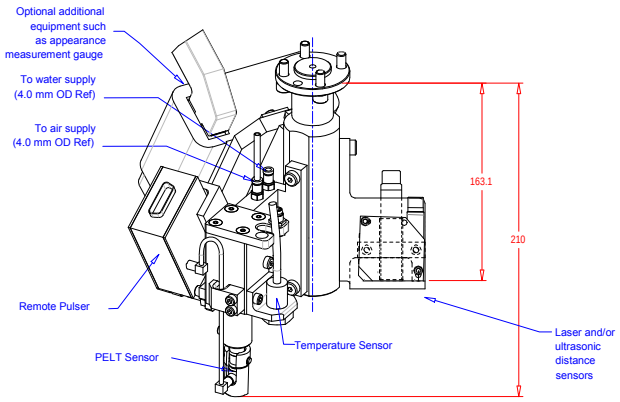
The automated PELT film thickness sensors may be combined with online color and appearance gauges, enabling thickness, color, and appearance measurements from a single robotic cell.

Systems can be configured with single or multiple robots. Each robot utilizes a single PELT sensor End of Arm Tool (EOAT) with integrated distance sensing.

End of Arm Tooling and Positioning

The compact and lightweight EOAT includes an automatic, non-contacting distance sensor. Automated positioning using the distance information requires only rough programming of the measurement point locations. The robot's final angle and distance to each measurement point are adjusted automatically.

End of Arm Tooling



PELT Thickness Measurement Data

Thickness measurement data is output in XML format. Files and data are available over the Ethernet network.

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Robotic PELT® Specifications

Performance Characteristics

Measurement Method	PELT contact pulse-echo ultrasonic.
Couplant	Deionized water.
Calibrated Accuracy	± 1.3 microns (+/- 0.05 mils) or ± 2% of the coating thickness, whichever is the greater value.
Resolution[1]	1 micron (0.001 mm, 0.04 mils)
Minimum Thickness[1]	
Mid coatings:	10 microns (0.010 mm, 0.4 mils)
Single coatings:	15 microns (0.015 mm, 0.6 mils)
Top coatings:	25 microns (0.025 mm, 1.0 mils)
Max Layers	5
Repeatability	± 0.51 micron (0.02 mils), typical (std deviation measurements, repeatedly gauging same job/part).
Radius of Curvature	8.6 mm diameter transducer with 16 mm diameter wear cap: 15 cm convex surface 50 cm concave 6.6 mm diameter transducer with 12.7 mm diameter wear cap: 15 cm convex surface 50 cm concave

[1] Minimum Thickness and Resolution are typical based upon: solvent-borne, water-borne, and powder paint coatings.

System

PELT Sensors	One per robot. Can accommodate up to 16 sensors per system.
Sensor Outer Diameter	12.7 or 15.88 mm (at contact)
Sensor Cable Length	33 m from robot arm to equipment cabinet/console.
Surface Temperature	49° C (120° F) maximum 7° C (45° F) minimum 10° C (50° F) to 32° C (90° F) preferred
Cycle Time	Approximately 6.5 minutes for 50 measurement locations with 2 Robots.
Max Points	No limit. Programmable as a function of body/part style.
Max Part/Body Styles	No limit.
Conveyor/Cell Requirements	Stop station.
PLC Interface	OPC over Ethernet.
Power	100-230 VAC, 50/60 Hz

Robots

Min/Max Robots	Single or multiple (up to 16) robots can be accommodated.
Communication	Via cell's PLC using OPC.

Measurement Data Output

Measurement Data Format	XML formatted files.
Ultrasonic Data Files	PELT .wv3 file format. Compatible with PELT Explorer browser software.

End of Arm Tooling

Weight	1.6 kg (PELT sensor tool, distance sensor, and turret).
PELT Sensor Spring Force	10 to 48 N, depending upon programmed value for sensor shaft spring compression.
Over-travel Protection	Over-travel sensor triggers at 19 mm sensor shaft displacement.
Maximum Travel/ Displacement	25 mm.
Distance Sensor	Non-contacting ultrasonic.
Water	Requires filtered DI (deionized) water for ultrasonic couplant mister, 3 to 5 bar pressure. Approx. 1 milliliter per measurement location.
Air	Only required if a pneumatic water valve is utilized and/or air blowoff is desired.

Note: Specifications are typical at 25° C
Specifications subject to change without notice.