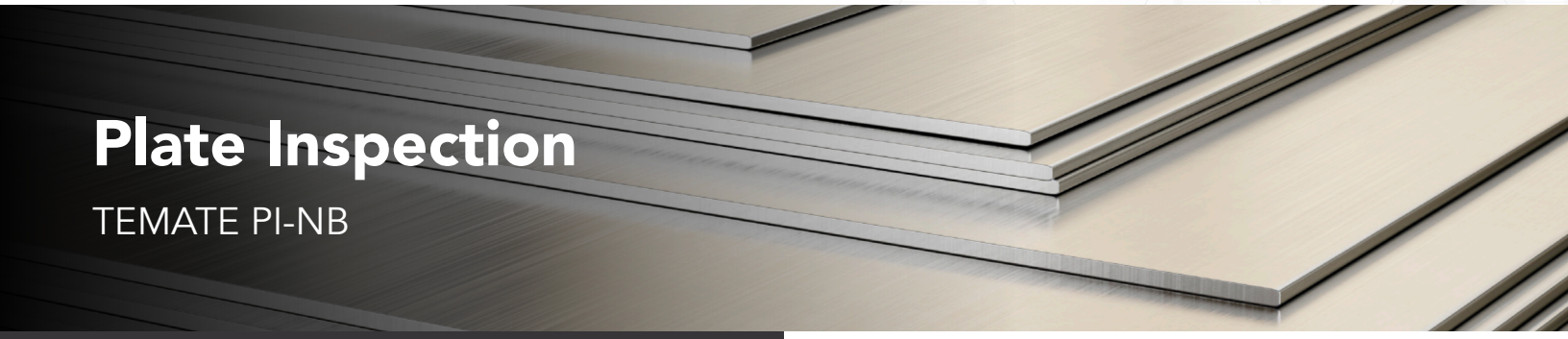

Plate Inspection

TEMATE PI-NB

Equipment Highlights

- Non-contact EMAT technique.
- Permits inspection at very high & very low temperatures.
- Easy probe deployment. Results are not affected by slight variations in probe position.
- Scalable to meet any plate width.
- Off-line and in-line integration options available.
- EMATs can inspect oily, wet, or oxidized surfaces with no change in performance.
- Designed to be installed in-line or off-line and to meet all the relevant plate inspection standards.

The TEMATE PI-NB is an automated ultrasonic system for volumetric inspection of metallic plates using normal beam sensors. The system uses ultrasonic EMAT (Electro Magnetic Acoustic Transducer) methods to detect lamination defects without the use of liquid couplant.

The system features real-time inspection monitoring with results available for post-analysis tracking and process monitoring. Optional paint marking system is supplied for immediate marking of flaw locations.

Advantages of the temate PI-NB over conventional piezoelectric transducers include:

- Dry inspection with EMAT eliminates liquid couplant.
- Inspects cold and hot materials up to 650˚C.
- Easier probe deployment. EMAT probes do not require to be perfectly perpendicular to the part to perform the inspection, facilitating mechanical deployment and improving the reliability of the inspection.
- Greater probe consistency. EMAT coils are integrated circuits with practically no variability from probe to probe.
- Less sensitivity to surface conditions.
- EMATs can inspect oily, wet or oxidized surfaces with no change in performance.
- Better performance for volumetric inspection in production environments.

The temate PI-NB provides similar sensitivity to defects than equivalent piezoelectric systems in laboratory settings, and superior performance in typical production environments thanks to all the advantages shown above. The temate PI-NB is designed to be installed in-line or off-line, and to meet all the relevant plate inspection standards, including EN10160, ASTM A435 and ASTM A578.

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TEMATE PI-NB - Specifications

Materials Inspected	• Ferromagnetic and non-ferromagnetic metallic plates. • 6.35 mm (0.250") to 150 mm (6") thickness. • Material temperature from -30°C to 650°C (-22°F to 1202°F).
Defect Detection	• Internal flaws such as lamination defects, inclusions, flat-bottom holes and porosity. • Meets EN10160, ASTM 578/A578M-96, A435A, ISO12094 and can be adapted to meet other codes.
Inspection Technique	• Ultrasonic Electro Magnetic Acoustic Transducer (EMAT) non-destructive test method. • Pulse-echo sensor configuration produces and measures ultrasonic reflections between part surfaces. • Internal defects (e.g. inclusions, laminations, porosity) found from earlier arrival of sound, and/or reduced back-wall reflection. • Arrays of sensors are deployed for coverage as needed. • Optional, independent edge-inspection arrays. • Rapid ultrasonic sampling for speeds of up to 1 m/s.
Sensor Assembly	• Sensor assembly is comprised of sets of EMAT sensors and electronics with adaptive spring compliancy. • A part detection switch is mounted to automatically control inspection relative to the start/end of the plate and on weld splices. • Remote sensor electronics are housed in a separate box nearby the sensor. The remote electronics includes low noise preamplifiers, signal filters and transmitter matching networks to support extended distances between the sensor and data acquisition electronics. • An optional paint marking system may be mounted aside and integrated into the temate PI-NB for immediate flaw marking.
Data Acquisition Electronics	• For in-line systems up to 72 channels; the electronics are housed in an industrial enclosure NEMA 12 and IP 55 per EN 60 529/10.91 protection rating, located up to 150 cabling meters (330 feet) from sensor. • For larger in-line and off-line systems; the electronics are normally housed in a sealed enclosure on top of Sensor Assembly. • Includes EMAT T/R electronics, magnet pulser, power supplies, computers and communication interfaces.
Software Features	Real Time Acquisition & Processing • Uses fast FPGA-based signal acquisition and processing. • Provides uninterrupted control and analysis of all time sensitive operations, including real-time display and disposition. Processing Link • Connects real-time acquisition & processing with the user interface. • Decouples acquisition from user interface for easy hardware upgrades, and rapid customization. • Organizes and prepares data received from real time acquisition & processing for representation. NDT-WEB User Interface • Provides display and user controls customized for the application using proprietary NDT-WEB real-time web technology. • Broadcasts its own Wi-Fi signal for simple access by any device using a regular browser and IP address (no client software needed). Alternatively, users can connect to the equipment using an external video monitor or ethernet port. • Permits easy customization of user controls and display without affecting the operation of the equipment. • Includes built-in features to connect to NDT-LINK, Innerspec's web portal for support, spares purchasing, and automated/remote operation and process control tools.
Power and Environmental Ranges	• 115 VAC (+/- 10%), 60 Hz (230 VAC-50 Hz optional), minimum 10A capacity. • Operating temperature with AC unit 0°C (32°F) to 38°C (100°F) • Humidity non-condensing 5% to 95% RH.