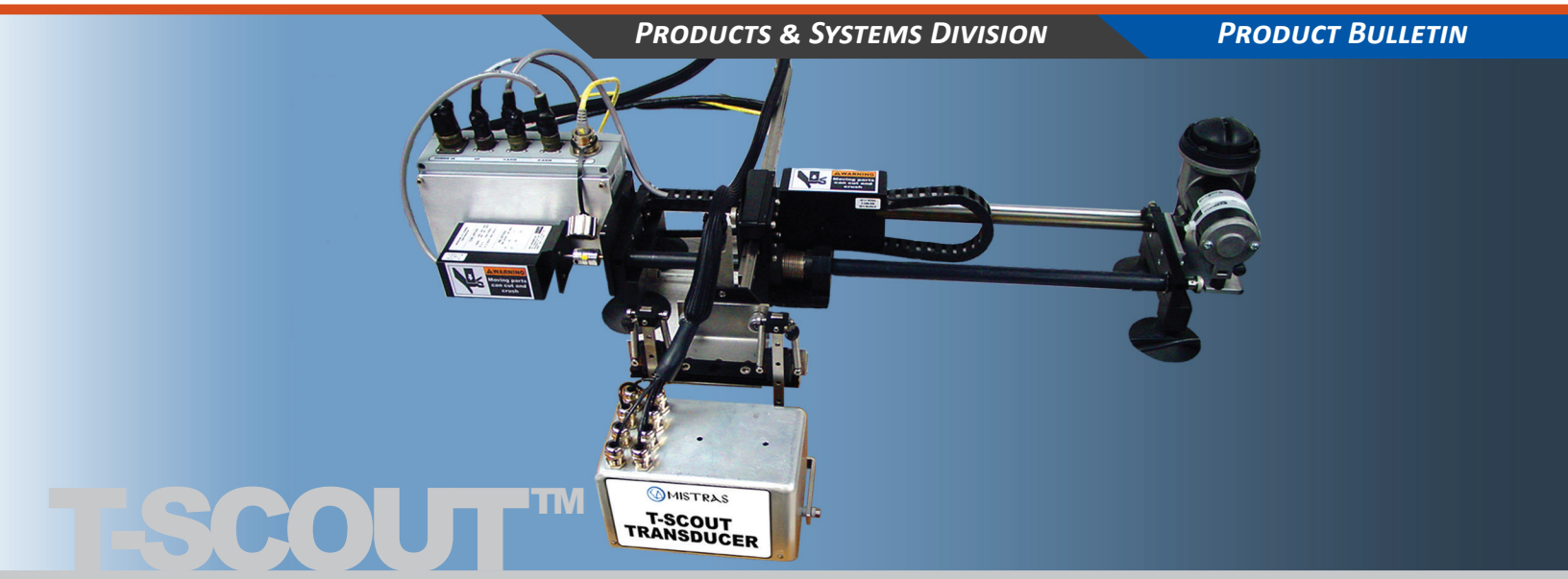
MISTRAS

One Source for Asset Protection Solutions

PRODUCTS & SYSTEMS DIVISION | PRODUCT BULLETIN



T-SCOUT™

T-SCOUT™ | Portable Inspection System

The T-SCOUT™ imaging technique is a low-cost, portable inspection system designed primarily for the field inspection of complex, thick-section composite structures. Mutli-layer composite structural elements and materials offer many advantages over comparable metal designs, including a much greater stiffness-to-weight and strength-versus-weight ratios along with a higher resistance to corrosion. Yet in order to realize these worthwhile benefits, the layers that make up the composite structure must be fully bonded to each other during the original manufacturing and during any subsequent repair or maintenance process.

PROBLEM

Inspection techniques have been developed to ensure fully-bonded layer integrity, including various forms of Ultrasonic Testing (UT). Yet because of the nature of the material – i.e. the bonding process, the material size and composition – these techniques typically require highly-specialized tests parameters only available in large laboratories or production facilities.

This meant testing in portable, field-oriented environments, especially those after original manufacturing or during repair/maintenance operations testing, was almost impossible.

SOLUTION

Thick Section Composite Oblique Ultrasonic Testing with T-SCOUT™.

As an oblique incidence angle, low-frequency Guided Wave Acousto-Ultrasonic technique, the T-SCOUT™ is capable of detecting the presence of primary defects by penetrating through different layers of thick section multi-layered composites.

It does so with a cutting-edge fusion of the latest Ultrasonic Testing technology, proprietary data acquisition, analysis and reporting control software (UTwin™), and the exciting portability produced by a coupling with a Remote UT module.

Defects detected by the T-SCOUT™ include, but aren't limited to:

- Delaminations in the composite supporting layer
- Debonds between embedded elastomer layers and ceramic tiles
- Debonds between elastomer layers and supporting composite layers

KEY FEATURES

- Multi-sensor probe (can be reduced to single probe for greater portability)
- Highly-integrated 4-channel UT Module, which contains:
  - High Energy Pulser
  - Multichannel UT receiver
  - Digital Feature Processing
- Computer-controlled scanning bridge
  - Other scanners, including manual versions are also available
- Windows-based Ultrasonic data collection, analysis and reporting control program (UTWin™)

APPLICATIONS

T-SCOUT™ technology applications are viable when other inspection technologies are unable to be employed from a single side of a structure. Material and structural applications include:

- Thick composites on aircraft structural parts
- Composite helicopter rotor blades
- Multi-layer, composite-based armor
- Thick-section composite ship hull structures
- FRP (high-pressure) containers
- FRP covered concrete
- Multilayered (de-icing) blankets

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