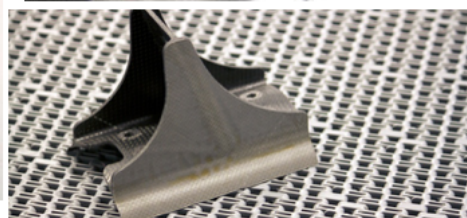
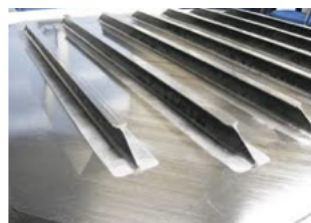


Semi-Automated Phased Array Immersion System for Small Composite Parts

TD NDE offers a turn-key semi-automated system for the inspection of small Carbon Fiber Reinforced Polymer (CFRP) parts.

A small immersion tank is installed on an adjustable working platform. The inspection table may be adjusted to the height and preferences of each individual to reduce fatigue and improve effectiveness. Inspections can be performed standing or sitting down. The Phased Array instrument, parts, transducers and wedges are all located within reach of the inspector. Parts are maintained with clamps to allow rapid positioning and positioned on fixtures that do not affect backwall amplitude. Water temperature is kept between 70° to 85° F (+/- 2° F) for operator well-being.

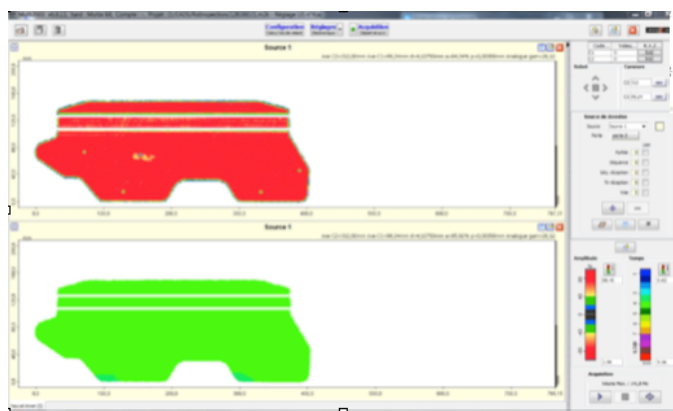


The system comes with all the necessary hardware and software and includes delivery, training and support. Two transducers are required: one to inspect radii and one for flats. All probes are concurrently installed on the instrument to gain production time.

The system is designed by inspectors having inspected thousands of aerospace parts made with CFRP.

Solution:

- Designed for CFRP part inspection
- Can be used for all shapes (L,Z,C,T brackets, hat section, etc)
- 100% Inspection
- Phased Array, Pulse Echo, Immersion, 5 MHz
- Smallest defects .25" diameter
- Time-of-Flight and Amplitude C-Scans
- A scans as required
- Cycle time: less than 12 min average
- Customizable
- Compatible with ULTIS software



Ultrasonic Hardware/Software

Phased Array Instrument

- M2M Phase Array Pocket Instrument 16/64 (8.3x5.7x2.8in)
- Multi 2000 Acquisition and Analysis Software
- Acquisition trigger on event (e.g. threshold, detected echo)
- Real-time image display during acquisition
- Maximum data flow > 30 MB/s.
- Adjustable voltage: 10 to 80 V with 1V steps
- Maximum PRF 30 kHz
- Bandwidth: 0.5 to 25 MHz
- Adjustable gain on each channel from 0 to 80 dB
- Adjustable analog DAC 80 dB (max. 20 dB/ μ s) synchronized on events
- Maximum sampling frequency: 100 MHz, Range 10 bits
- USB 2 for data transfer to PC
- Hypertronic connector

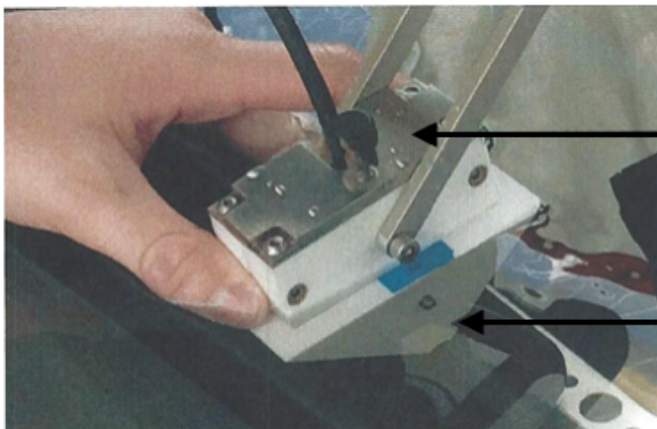


Transducers

- Imasonic, 5 MHz, 32 elements, 1 mm pitch
- Imasonic, 5 MHz, Radius 25 mm, 1.32 mm pitch
- Y Splitter Adaptor

Wedges

- Flat: Qty 1
- Radius: Qty 10



Probe is fixed to the top wedge and not removed

Bottom adaptable shoe is removable

System Description

The standard system comes with the following components at an affordable entry price. All items are customizable.

Support Table

- Working area including tank 66X 32"
- Adjustable in height with hydraulic pump (min stroke of 12")
- Top shelf includes the monitor, the PA UT instrument, the two probes, the scanner, and a support for all wedges
- Table is made of Stainless Steel or a corrosion resistant material
- Capacity of 1000 lb.

Immersion Tank

- 40x20x12 inches
- SS 304 Steel
- Jig installed at the bottom to hold parts mechanically
- Adjustable to hold different part width
- Parts are positioned on rounded heads to not adversely affect the ultrasonic measurement

Inspection Arm

- Three axis motion and a gimbal/gimbal at the transducer for added freedom
- Transducer displacement in axes
 - Travel X: 33 in
 - Travel Y : 12 in
 - Travel Z : 10 in
- Mechanical lock to maintain axes in position

Filtration

- Installed at the back of the system
- Includes output to connect to main facility drain
- Paper Cartridge Filter
- Water Heater

Acquisition PC

- Installed under the table
- 21 inch monitor on a stand
- Windows 7
- 2.8 GHZ Processor
- 8 GB DDR memory
- 500 GB hard drive
- UPS

OPTIONS

ULTIS Analysis software. A powerful composite analysis software for defect analysis and automated inspection loaded with composite related NDT tools.

Database Integration

- Bar code reading of all parts
- All part numbers and details/requirements in a database
- Results saved on the network for quality control and production (part inspected, results, operator, date...)

Automatic wedge management

- Each wedge is linked to the database
- Appropriate light is turned on to indicate wedge required for part being inspected (require database option)
- Addition of a simple PLC

Additional Options

- Table can be sized up or down
- Air knife for part drying
- Anti-skid floor mat
- Analysis work station