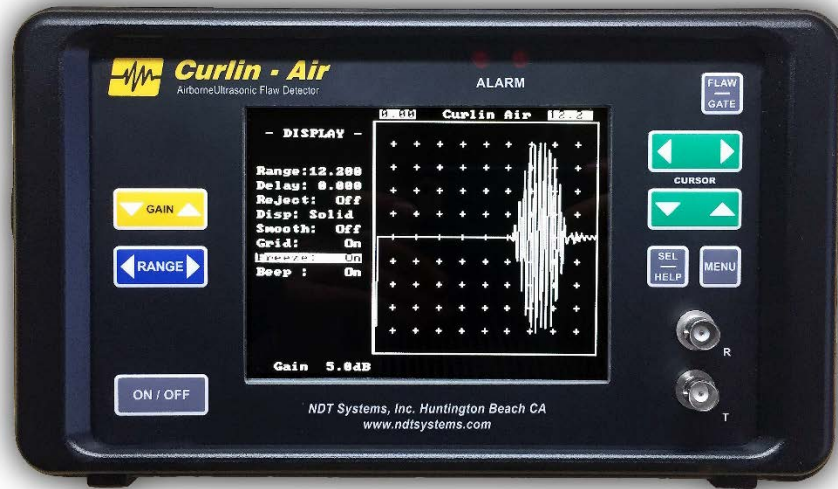


# Curlin Air

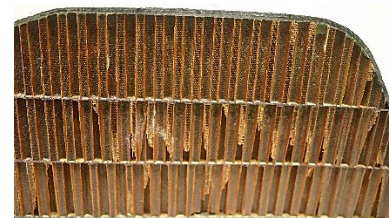
AIR-COUPLED COMPOSITE BOND TESTER



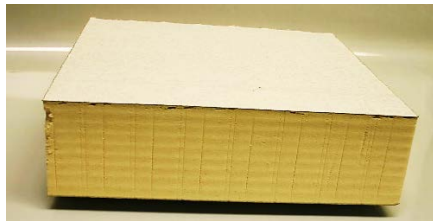
Carbon fiber skins with honeycomb core



Glass fiber skins with wood core



Multi-core sandwich



Metal skins with foam core



Plastic-to-foam welds



Foam

## Introduction

The Curlin-Air is a non-contact, air-coupled and through transmission ultrasonic flaw detector. The very low transducer frequency of 50 kHz allows penetration and thus inspection of highly attenuative materials, which cannot be inspected with traditional ultrasonic equipment. Further, the instrument does not require any surface preparation and can penetrate up to 6 inches (150mm) of foam, honeycomb, wood or other materials with a high air/volume ratio and can detect potential anomalies.

## Operating Principle

A transmitting and receiving probe are positioned on opposite sides of the material under test by means of a mechanical yoke which keeps the two probes both aligned and at constant distance from another at all times. This ensures that any signal fluctuation is caused by a change of the acoustic attenuation of the material under test, which in turn indicates a material anomaly. The instrument live display shows instantly is the sound path is interrupted by a defect in the material. Available flaw gates and alarms can be programmed and stored for each application.

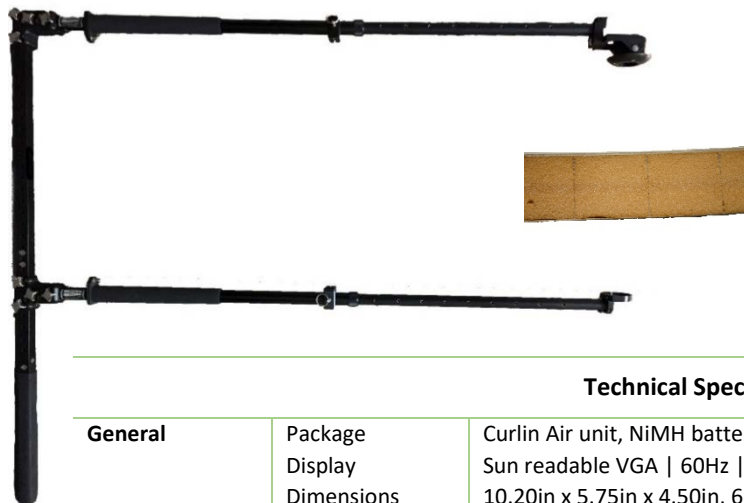
# Curlin Air



## AIR-COUPLED COMPOSITE BOND TESTER

### Applications

| Material Under Test                       | Industry     | Application   | Nature of Defect                                      |
|---|--------------|---|---|
| Carbon-Fiber with honeycomb core sandwich | Aerospace    | Control surfaces, thrust reversers, cargo doors       | Skin-to-core disbonds, damaged core                   |
| Metal skin with foam core sandwich        | Construction | Building safety: Construction of fire doors and walls | Voids in the foam core                                |
| Drywall                                   | Construction | Drywall   | Inspection for material integrity                     |
| Multi-core sandwich                       | Marine       | Increased impact resistance and safety                | Inspection for skin-to-core and core-to-core disbonds |
| Carbon-Carbon bond                        | Space        | Heat shields  | Delaminations, disbonds                               |
| Fiberglass skin with foam core            | Leisure      | Surfboards  | Inspection for cracks, voids, crushed cores           |



### Technical Specifications

|                    |                  |   |
|--------------------|------------------|---|
| <b>General</b>     | Package          | Curlin Air unit, NiMH batteries, AC charger (110-240V), User manual, COC, Pelican Case    |
|                    | Display          | Sun readable VGA   60Hz   640 x 480 pixels   4.55in x 3.4in (116mm x 86mm)                |
|                    | Dimensions       | 10.20in x 5.75in x 4.50in, 6.3lbs   259mm x 146mm x 114mm, 2.9kg                          |
|                    | Power source     | Field-replaceable rechargeable NiMH batteries (autonomy of 8 hours) or AC power           |
|                    | Operating temp   | 32 F - 122 F (0 °C to 50 °C)  |
|                    | Storage temp     | -4 F - 140 F (-20 °C to 60 °C)  |
|                    | Connector type   | Dual BNC  |
|                    | Units            | Inch/mm   |
| <b>Transducer</b>  | Transmitter type | AT1 – Standard transmitter   1.5in (38mm) DIA   |
|                    | Receiver type    | AT1 – Standard receiver   1.5in (38mm) DIA<br>AT2 – Special receiver   0.25in (6.4mm) DIA |
|                    | Frequency        | 50 kHz  |
|                    | Display modes    | RF, -HW, +HW, FW  |
| <b>Performance</b> | Thickness range  | 1in – 120in (0.025m to 3m) in air   |
|                    | Velocity range   | 0.005 in/μs – 0.750 in/μs (0.13 to 19.05mm/μs)  |
|                    | Delay range      | 0in to 199in (0m to 5.05m) in air   |
|                    | Pulse length     | 1 – 25 adjustable cycles in tone-burst  |
|                    | Gates            | Fully adjustable amplitude or distance gates  |
|                    | Gain             | 0 to 115dB  |
|                    | PRF              | 6 – 125 Hz  |
| <b>Storage</b>     | Bandwidth        | Narrow or Wide  |
|                    | Alarm            | Visual and audible alarm modes  |
|                    | User setups      | Up to 50 user setups or screen shots  |

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