

**SONO**AIR 



**PHASED-ARRAY INSPECTION SYSTEM**

**SONO AIR®**

AIR-COUPLED NONDESTRUCTIVE TESTING

MADE IN GERMANY

**SONOTEC**   
ULTRASONIC SOLUTIONS

# ONE STEP AHEAD

Air-coupled ultrasonic testing is mainly used in process control in production chains and is perfectly suited for testing materials and structures composed of composites (laminates and sandwich structures), ceramics, concrete, glass, polymers (plastics), wood and metal. Thus, a wide range of inspection tasks e.g. interface detection, bonding characterization, inhomogeneity detection or the detection of internal discontinuities and inclusions can be covered.

In addition, impurities and damage to materials and test pieces are prevented in the production process, thus eliminating costly cleaning steps. Ultimately, this is accompanied by an increase in effectiveness and quality. For highly attenuating materials, the performance of the system is critical. The ultrasonic sensors, the scanning area and the system settings should be flexibly adapted to the test task and the material.

These high expectations are met with the new and modular testing system **SONOAIR®**. With the **world's first air-coupled phased -array inspection system** you are one step ahead.

## INDUSTRIES

- ▶ Aerospace
- ▶ Ship building
- ▶ Automobile
- ▶ Wind turbine construction
- ▶ etc.



## MEASUREMENT METHODS

### TRANSMISSION

Probes are placed on both sides of the test object



### PITCH CATCH

Probes are placed at the same side of the test object



# COMPONENTS: SCANNER, RACK AND SOFTWARE



## AIR-COUPLED PROBES

High resolution due to the use of focusing transducers



## AIR-COUPLED TESTING

Inspection of highly attenuating materials



## UPTO 4 CHANNELS

Up to 4 transmitter and receiver channels with freely configurable square wave burst transmitters and low noise receiving amplifiers



## MODULAR CONCEPT

Upgradeable and adaptable system due to the modular concept



# WORLD'S FIRST PHASED-ARRAY AIR-COUPLED INSPECTION SYSTEM



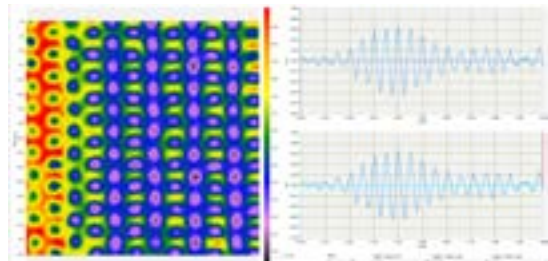
## SOFTWARE

Display of measurement results as A-, B-, C- or D-Scan

Repositioning of measurement gates after the inspection

Storage of the complete A-scans for every measurement point during the testing process (optional)

Individual signal processing algorithms e.g. for filters (optional)



## TRAINING

Offered in cooperation with the expert for air-coupled ultrasonic testing Forschungszentrum Ultraschall FZ-U (research center for ultrasonics)

With theoretical lectures and practical demonstrations the training sessions provide a profound introduction into the subject. Participants also have the opportunity to bring along their own material samples in order to inspect them with experts.

Contact: [www.fz-u.de](http://www.fz-u.de)



Forschungszentrum  
Ultraschall

# APPLICATIONS: MATERIALS, COMPOUNDS AND STRUCTURES

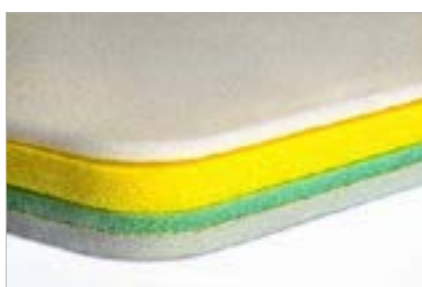
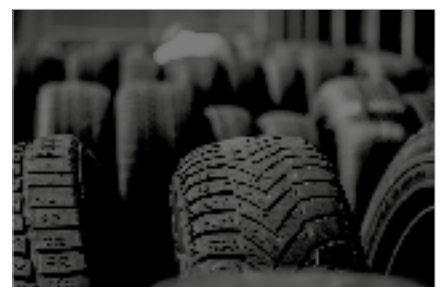


**DIDN'T FIND YOUR APPLICATION? CONTACT US!**

- CFRP
- GFRP
- Honey Comb Structures
- Laminates
- Thin Metal Bonds

- Ceramics / Refractories
- Concrete
- Rubber
- Foams
- Wood

**We conduct feasibility studies!**



## GENERAL DATA

**19" unit consisting of** PC with Windows and software;  
Digitizer 16 Bit, 100 MS/s;  
Transmitter unit;  
Receiver unit

**Operating temperature** 5 to 40 °C

**Network interface** 1 GBit/s LAN

**Protection class** IP20

**Standards** IEC 61010, IEC 60204

## TRANSMITTER

**Number of channels** Unlimited

**Pulse height of the output signals** Up to 400 V (optional up to 800 V)

**Frequency range** 35 to 750 kHz

**Maximum power** 2 kW (400 V), 4 KW (800 V)

**Square wave burst transmitter** Freely configurable  
(the pulse width can be selected individually for every square wave pulse of the burst)

## RECEIVER

**Number of channels** Unlimited

**Frequency range** 25 to 650 kHz (optional up to 3 MHz)

**Gain** 0 to 120 dB, 0.5 dB increment

**Noise** 1 nV/√Hz

## SCANNER

**Scanning area (X x Y x Z)** 500 x 500 x 160 mm

**Positioning accuracy** 20 µm

**Scanning increment** Minimum 50 µm

## PROBES

SONOSCAN CF series with robust stainless steel housing

**Frequency range** 50 kHz to 400 kHz

**Relative sensitivity** Up to -30 dB

**Resolution** Up to 2 mm

**Focusing** Permanent focus with shaped lens or electronically adaptable focus with multi channel Fresnel zone design

## SOFTWARE

Easy to operate and **intuitive graphic user interface**

**Separate windows for parametrization** of the system components (transmitter, receiver, scanner)

Individual screen layout

Storing of complete **A-scans for every measurement point** during the testing process

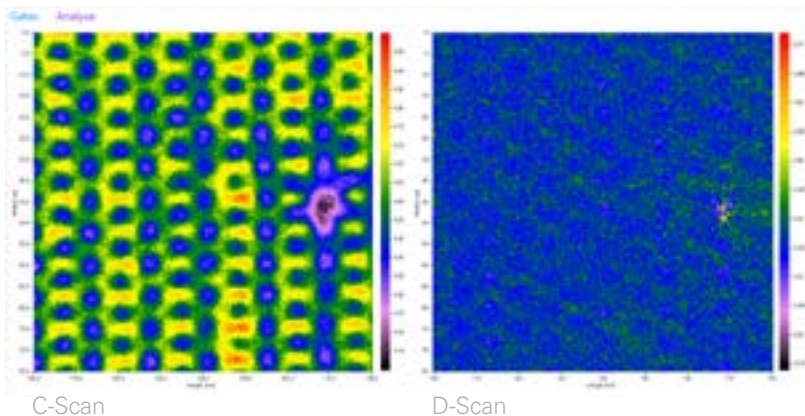
**Repositioning of the gates** after the measurement

**Individual signal processing algorithms** e.g. for filters

Display of the test results as **A-, B-, C- or D-Scan**

Storing and documentation of complete data sets

## EXAMPLE OF MEASUREMENT RESULT



C-Scan and D-Scan of honey comb structure with impact damages

Frequency: 200 KHz

## SALES & SUPPORT

**SONOTEC GmbH**  
Nauendorfer Str. 2  
06112 Halle (Saale)  
Germany

**phone** +49 (0)345 / 133 17-0  
**fax** +49 (0)345 / 133 17-99  
**e-mail** sonotec@sonotec.de  
**web** www.sonotec.eu

**SONOTEC**

Certified according to ISO 9001