

Practical Applications of Air-Coupled Ultrasonic Technique

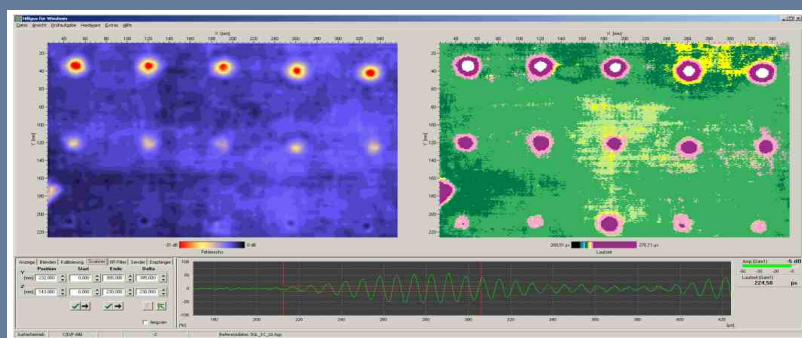
W. Hillger, L. Bühling, D. Ilse, Ingenieurbüro Dr. Hillger, Braunschweig

Air-coupled ultrasonic imaging technique avoids coupling problems like air-bubbles, but the large acoustic mismatch between solids and air have to be solved with special transducers, a powerful excitation as well as a hard- and software signal processing.

USPC 4000 AirTech

Since more than 12 years Ingenieurbüro Dr. Hillger has been developed air-coupled systems for laboratory as well as industrial applications.

The **USPC 4000 AirTech** includes a powerful burst-pulsar, an ultra-low noise preamplifier and a band pass filter amplifier. The combination of hard- and software filters increases the signal-to-noise ratio up to 50 dB. The imaging software **Hillgus for Windows** enables an easy control of the system and of the different manipulators as well as evaluation and measuring functions of the C- and D-scans.

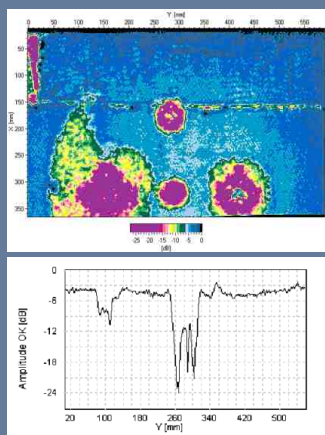


User interface Hillgus for Windows



AirTech-transducers from 50 to 300 kHz

Application: Sandwich Components



C-scan and echo-dynamic of an impacted honeycomb component

USPS 4000AirTech in Combination with a Robot



Cooperation with Robo-Technology

Demonstrator: USPS 4000AirTech in combination with a robot

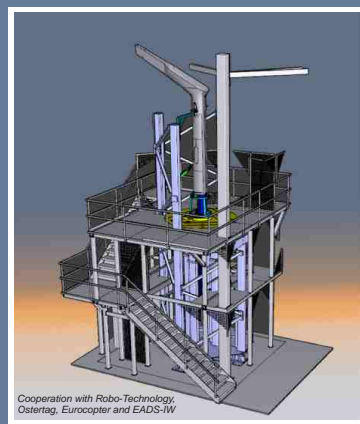
Special Manipulator Systems



Flatscan 1500 (for plates up to 1.5m²)



Scan system for cylindrical components Ø 70-1600mm, length up to 2270mm



Cooperation with Robo-Technology, Osterlag, Eurocopter and EADS-W

Ten axis equipment for the EC 145 Eurocopter tail boom in Donauwörth/Germany