

### Ultrasonic Systems for LF-Ultrasonic USPC 3041 NF / USPC 3011 NF

Ultrasonic systems of modular design optimised for materials which are difficult to test :

- Concrete
- Wood
- Stone
- Rubber
- Cast materials
- Composites with honeycomb- and foam cores
- Aluminium foam
- and other



#### Highlights

- Quality control und quality reliability
- Ultrasonic imaging -also for civil structures
- Detection of internal defects
- Field testing
- Determination of the young´s modulus
- High power burst transmitter
- High resolution and high dynamic range
- Testing in through-transmission and echo-techniques

The USPC 3011/3041 belongs to a new generation of ultrasonic systems based on PC boards. This technique not only provides a powerful ultrasonic system but also a powerful PC with all possibilities of evaluation and documentation.



#### Ultrasonic hardware: HILL-SCAN 3011NF or HILL-SCAN 3041NF with DAC

Boards like HILL SCAN 3011/3041 provide a high resolution. The distance-amplitude control (DAC) compensates the sound attenuation of material and those of the sound field divergent, so that reflectors in different depths cause nearly the same echoes. The receiver filters suppress the backscattering from the materials. The broadband setting provides a large frequency range from < 500 Hz to 10 Mhz, so that even the testing of steel components is possible. We are able to design a system for your special requests.

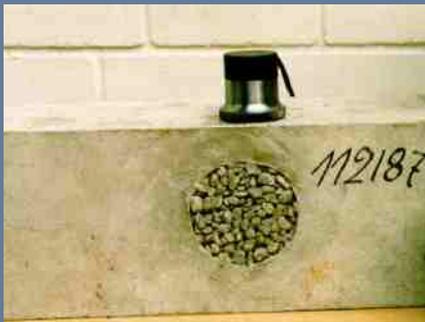


### Low frequency Ultrasonic Technique $20 \text{ kHz} < f < 1 \text{ MHz}$

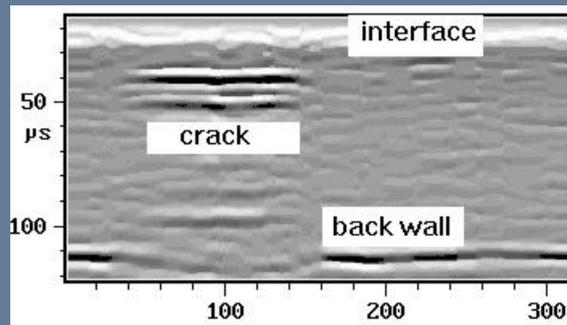
The sound attenuation of materials depends strongly on the test frequency and increases by the 4th potency of the frequency. Materials with high sound attenuation and/or high inhomogeneity can only be tested with low frequencies. Our low frequency systems (USPC3011/3041) are optimised for these applications. Materials like concrete or foam which are difficult to penetrate can only be tested with frequencies in the range

of 20 kHz to 1 MHz. The optimal excitation with our burst transmitters AirTech 4100 or HILL-SCAN 3101 in combination with the receiver filters of the boards HILL-SCAN 3011/3041 provide a high signal to noise ratio because of the suppression of scattering and even a testing in echo-technique.

#### Applications:



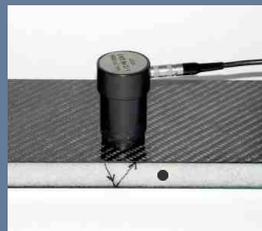
Testing a concrete specimen with gravel pocket with echo-technique



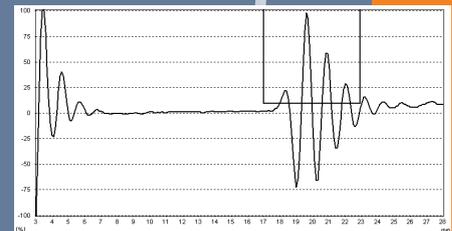
Bt-scan of a concrete specimen with crack plane



Determination of the Young's-modulus of a mortar specimen in through-transmission technique



Echo-technique testing of a CFRP-sandwich specimen with foam core



And your application ?



Echo-technique testing of a CFRP-sandwich specimen with aluminium core

