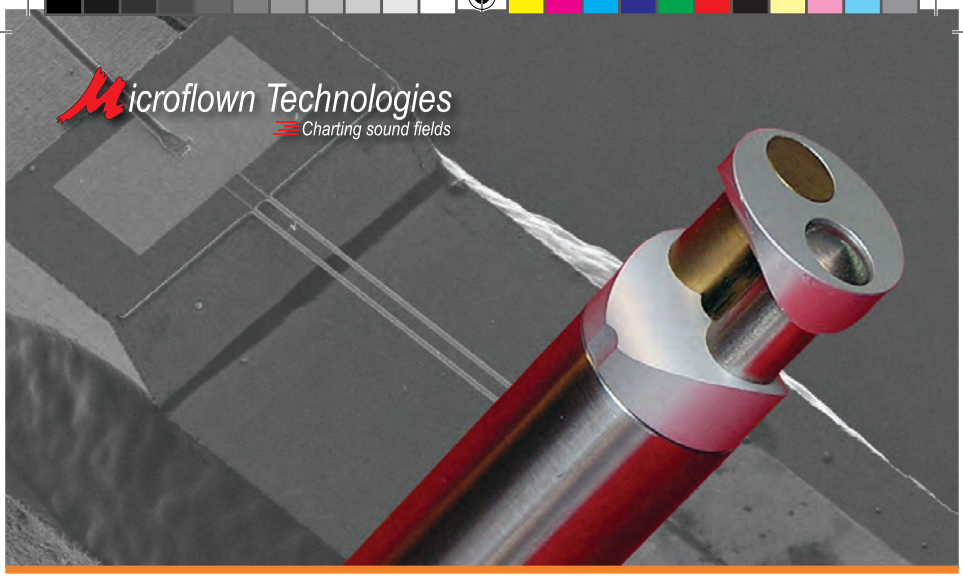


Microflown Technologies

Charting sound fields

Applications

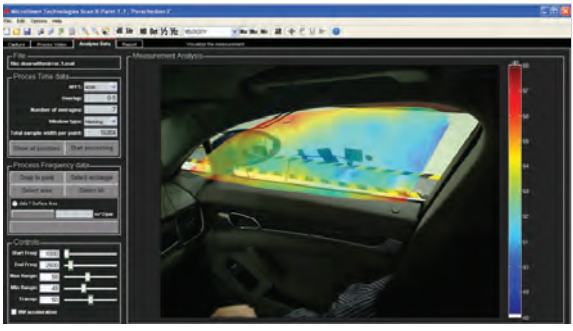
- Sound intensity measurements
- Sound power measurements
- Scan & Paint
- Near field acoustic camera
- Panel noise contribution analysis
- In-situ absorption measurements
- Non contact vibration measurements

Usage examples

- Vehicle interior
- Ground vehicles
- Powertrain
- Electronic consumer goods
- Acoustic enclosures
- Large machinery
- Material testing

Microflown Technologies | Company profile

Microflown Technologies in the Netherlands develops and markets innovative NVH applications based on its patented MEMS-based acoustic particle velocity sensor.
PU probes that combine the measurement of both sound pressure and acoustic particle velocity in a single point form the basis for a rapidly growing number of innovative applications in noise and vibration. Any sound field can be described in a single point by two complementary acoustic properties: the ‘sound pressure’ scalar value and the ‘particle velocity’ vector value.



Acoustic particle velocity is the dominant acoustic property in the acoustic near field. The sound pressure can be seen as a result of an object making too much noise, whereas the particle velocity is highly suitable for localising the reason why the object is making too much noise.

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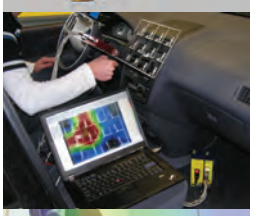

Innovative testing

Microflown-enabled vibroacoustic testing methods provide new possibilities for the industry, both during the product development phase as well as for end-of-line manufacturing control. Unlike with traditional methods, the Microflown sensor can be used in real operating conditions and reverberant conditions.

Firstly, any incoming background noise has a negligible impact on the vibration of the source surface. This is called one way coupling. In other words, the vibration measured very close to the surface is the exact same vibration caused by the source itself, not the background noise. This effect has been shown to result in an increase in the signal-to-noise ratio of more than 10dB in practical experimental conditions.

Particle velocity

Secondly, the particle velocity near a small source (such as a monopole) is high, whereas pressure is low. This means that the relative impact of background noise is even greater for small-size sources. This effect is almost invariably found in practice and leads to an even greater increase in the signal-to-noise ratio.

Thirdly, the particle velocity is directional. The polar pattern of the Microflown is a figure eight, whereas the sound pressure and a normal microphone is omni-directional and measures the total sound field. This significant increase in the signal-to-noise ratio applies not only to particle-velocity mapping but also to sound intensity mapping. Since the background noise is unrelated to the vibration of the surface, the cross-spectrum between pressure and particle velocity is unaffected by the background noise. As a result, the measured sound intensity is as resistant to background noise as the particle velocity measurements on which it is based. Unlike the PP intensity probe, the PU sound intensity probe can be used in a high pressure over intensity environment. In practice, this makes it the only viable way to measure sound intensity in a car interior.

For more information, visit www.microflown.com.

Microflown Technologies

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