The activity of the professional measuring workplace is focused on research in the field of measurement, analysis of noise and vibration of machinery and equipment. The used measuring technology enables multichannel measurements of dynamic variables and their evaluation in the time and frequency domains in real time or in subsequent signal processing. Noise and vibration measurements can be supplemented by measuring other physical quantities. Special acoustic spaces are available for accurate measurements.

Based on these measurements, measures to reduce noise and vibrations are proposed. When solving the problems, correlation of noise and vibrations and their relationship to the modal and dynamic properties of the system are being analyzed.

MEASUREMENT AND ANALYSIS OF NOISE

- Sound pressure level measurements
- Sound intensity measurements
- Sound power measurements
- Measurements of material parameters (absorption, sound insulation)
- Noise frequency analysis (FFT, 1/n-octave)
- Mapping of noise fields using microphone arrays (acoustic holography, beam forming)
- Graphical display of the sound field around an object
- Identification of the main noise sources, determination of partial acoustic performances
- Cooperation to reduce the noise of machinery

MEASUREMENT AND ANALYSIS OF VIBRATIONS

- Measuring overall vibration values
- Measurement of time histories and angular vibration waveforms (dependence on rotation of a mechanism, e.g. main shaft of a machine)
- Frequency and order analysis
- Measurements of transients on a machine
- Measurements of the transmission and attenuation characteristics of oscillating systems
- Experimental modal analysis (Natural frequency, natural wave shapes, damping)
- Measurements of operational wave shapes (machine vibration animation in steady or transient state)
- Electromechanical excitation of bodies and mechanisms using controlled vibrators
- Cooperation in reducing the vibration of machinery, design and implementation of vibration isolating elements
- Vibrodiagnostics

HALF ANECHOIC CHAMBER

- Internal dimensions 12 x 8,5 x 5,5 m
- Measurement of sound pressure levels from 20 dB(A)
- Measuring machines in a weight of up to 10 t
- Supply of technological media, flue gas exhaust

ECHO CHAMBER

- Volume of 224 m³
- Conforms to ISO 354
- Measured sample in a weight of up to 1 t