



Semi-anechoic chamber to measure sound power and sound intensity

Technical Data

Semi-anechoic chamber P19

Dimensions inside the linings: 19,43 m x 5,25 m x 6,17 m = 629 m³

Depth of the absorbing lining: 650 mm

Limit frequency for an absorption coefficient of $\alpha \geq 0,99$: 125 Hz

Resonance frequency of the spring bearing: 7 Hz

Flow rate of the ventilation system: max. 4000 m³/h

Measurement method

Measurement of the sound pressure with various temporal average determinations, measurements of maximum values, statistical evaluation of sound levels, various spatial average determinations, directional characteristics, frequency spectra,

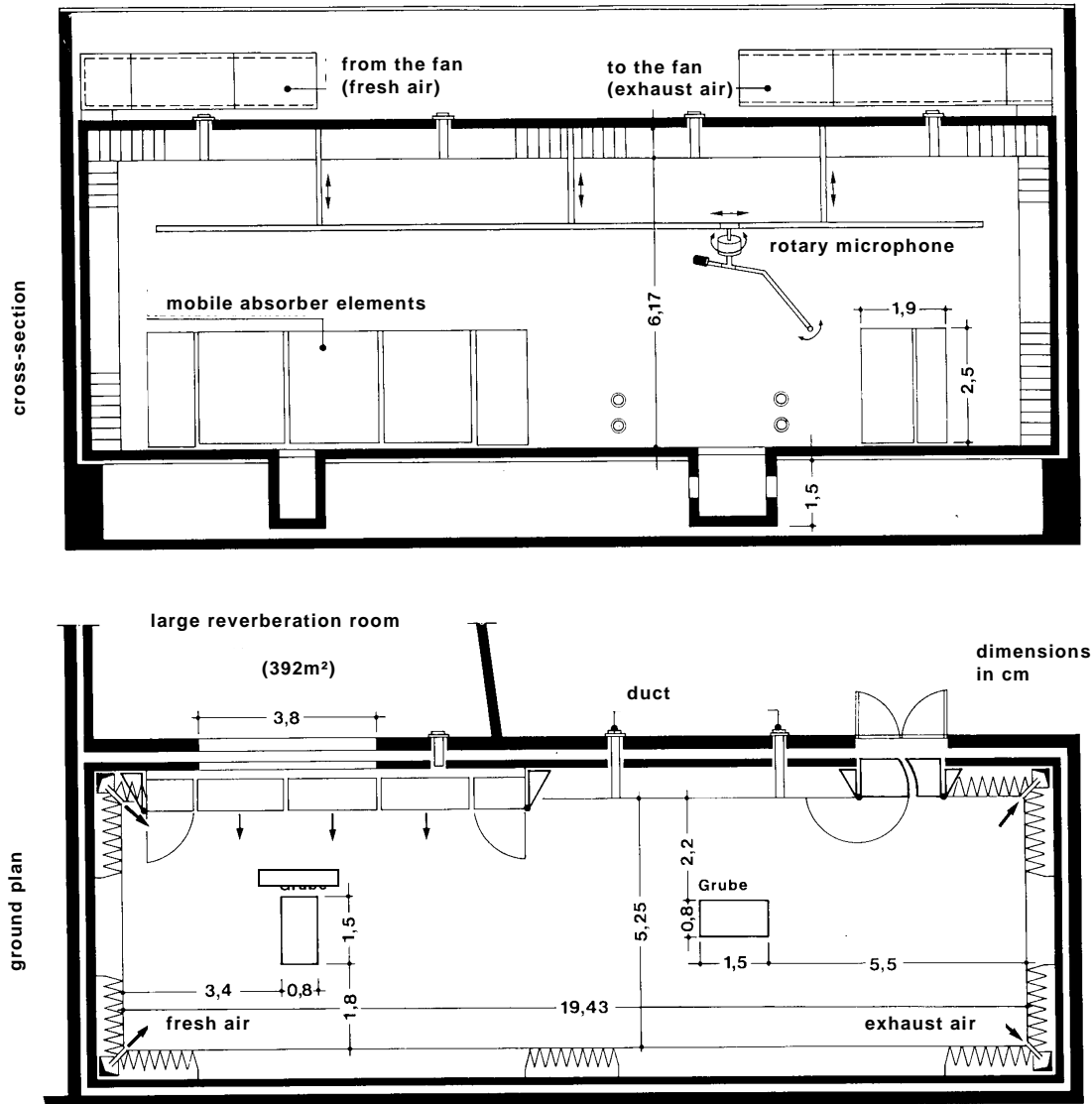
determination of the sound propagation via model area, acoustic radiation of buildings, acoustic shading by buildings and shields,

sound power measurements depending on the working condition and working point of the machine,

sound intensity measurements according to the cross spectrum method,

localization and identification of sound sources or background noise suppression by means of the correlation method in case of intensive noise sources.

The semi-anechoic chamber and the adjacent reverberation room of the Fraunhofer Institute of Building Physics offer ideal conditions for the installation of larger machinery units, for the simulation of equipment and buildings as well as for the passage from free-field to diffuse-field conditions through a 10 m² broad opening. Both rooms have structure-borne and airborne sound insulation so that practically no flanking transmission of sound may occur.



The semi-anechoic chamber is also suited for scale-model measurements on a 1:40 scale. In addition, efficient ventilation and air-conditioning systems allow the simulation of wind and temperature profiles by means of properly dimensioned ventilation slots in each corner of the chamber. A line of pits in the floor allows access to the test objects from the subjacent basement as well as the installation of the sound sources flush with the floor.

By means of a rail, which is mounted at a height of 3.60 m above the floor, a rotary microphone can be moved along the longitudinal axis of the semi-anechoic chamber. The cables for measurements and control run through cable ducts in the floor or openings in the walls to reach the central measurement control position.