



Does silence have to be a luxury?



*21 metre measuring duct. Here it is possible to install both circular and rectangular silencers.*

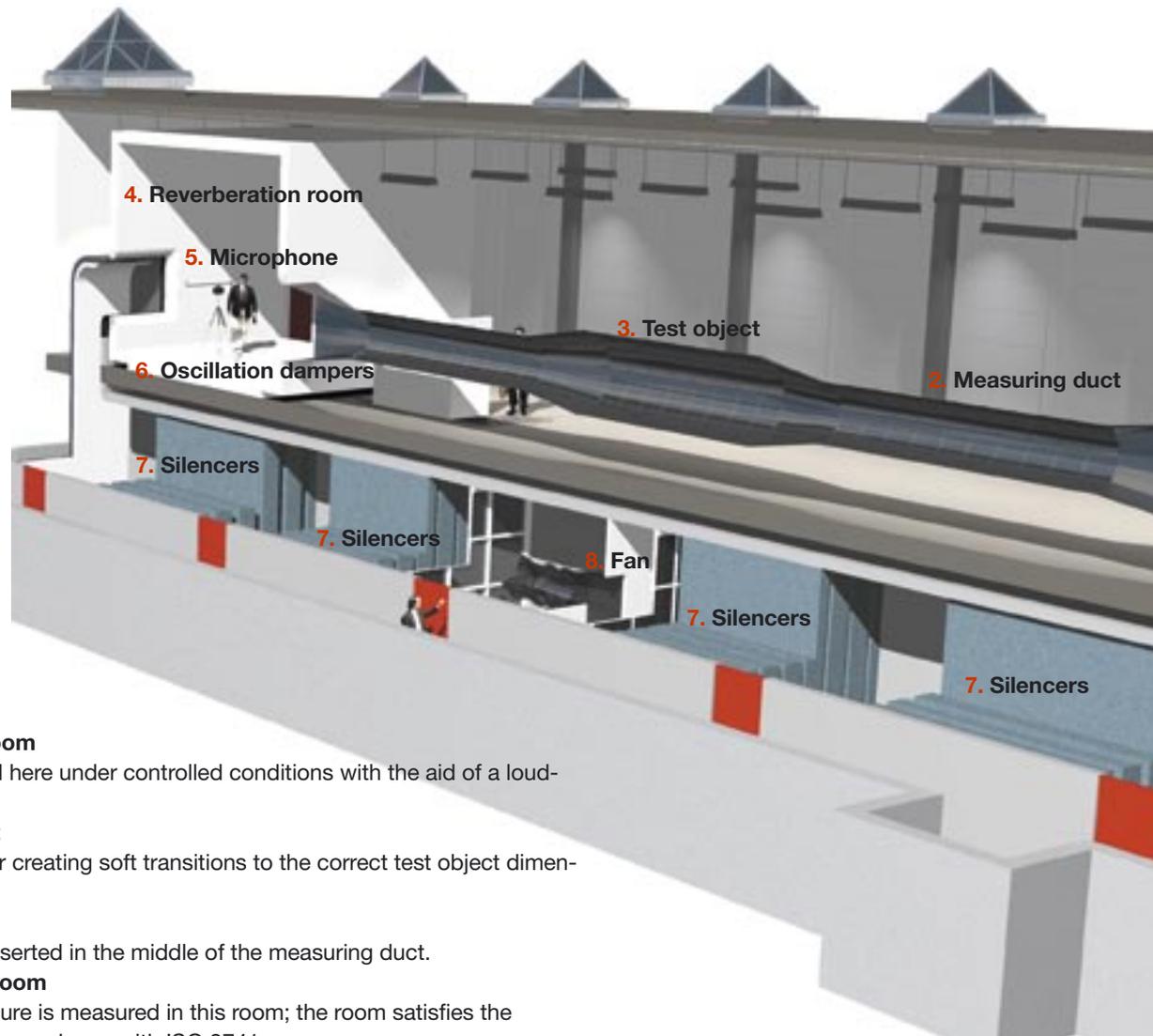
**There is more noise and disturbance around us than ever before. Unwanted noise is just that – unwanted. At times it seems almost as though silence is a luxury. Here at Lindab we do not believe that this should be the case, and we therefore want to help with quieter climate sys-**

**tems. We know that a great amount of noise can be avoided, and we know how to achieve this feat. Through our research and development, we have built up solid expertise in the field of acoustics. And we want to share this expertise in various ways.**

## One of the world's leading sound laboratories produces quieter climate systems

Our sound laboratory will provide us with even better knowledge about acoustics and how to design and dimension the climate systems of the future for

increased sound and climate comfort. It has a 21 metre measuring duct and a reverberation room weighing 147 tonnes, suspended on 32 pneumatic vibration dampers.



### 1. Loudspeaker room

Sound is emitted here under controlled conditions with the aid of a loudspeaker wall.

### 2. Measuring duct

21 metre duct for creating soft transitions to the correct test object dimensions.

### 3. Test object

The silencer is inserted in the middle of the measuring duct.

### 4. Reverberation room

The sound pressure is measured in this room; the room satisfies the requirements in accordance with ISO 3741.

### 5. Microphone

made by Brüel&kjær is mounted on a rotating frame.

### 6. Oscillation dampers

are pneumatic and bear the reverberation room so that unwanted and varying structure-borne sound does not affect the measurements.

### 7. Silencers

Four 3x3 metre silencers with a length of between 3 and 4 metres surround the fan and eliminate the air-borne sound from the fan.

### 8. Fan

can be regulated in the range 0 – 3,000 rpm. This means that the amount of air can be regulated extremely precisely, from 0 – 7,800 l/s (28,000 m<sup>3</sup>/h). The direction of the air can be adjusted, providing the opportunity to measure sound that moves both with and against the air flow, i.e. both inlet and outlet air.

Lindab's sound laboratory is located in Farum, Denmark, and was commissioned in spring 1999. It was established in co-operation with Carl Bro Acoustica, and with consultation from the Fraunhofer-Institut für Bauphysik [Fraunhofer-Institute for Building Physics] in Stuttgart. The laboratory was built in accordance with EN ISO 7235: "Acoustics – Measurement procedures for ducted silencers – Insertion loss, flow sound and total pressure loss", 1995.

Our sound laboratory is the only one of its kind in Europe, and one of the leading examples in the world.

Lindab's sound laboratory provides the answers to the most important questions surrounding acoustics:

- What insertion loss does the silencer have in the various frequency bands?
- How much sound output does the silencer generate when the air passes through it?
- How large a pressure loss does the silencer cause?

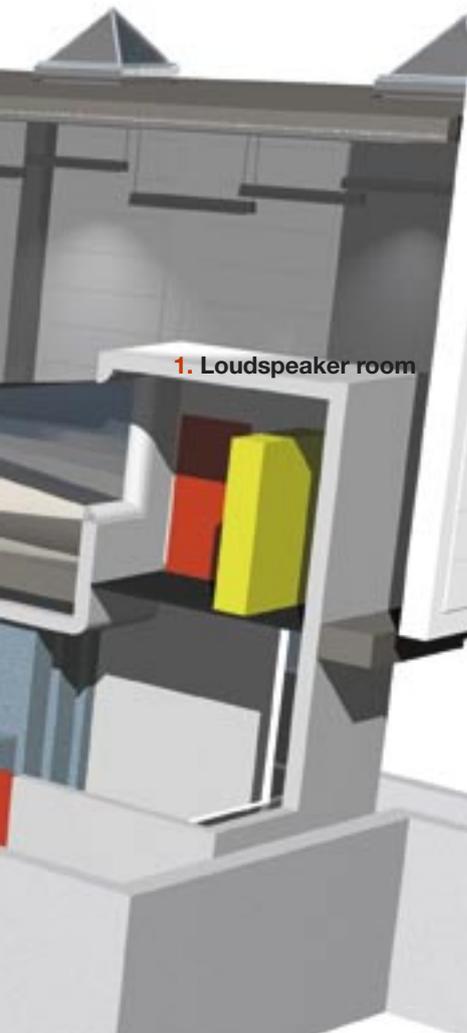
Thanks to our sound laboratory, we can supply correct input data that corresponds with actual circumstances. As a result, you can also trust that your calculations will correspond with actual circumstances. We offer a unique opportunity by also being able to carry out customised tests of systems that you have designed. This also provides us with opportunities to supply accurate, advanced documentation for the ventilation equipment you prescribe – an ever increasing requirement as the potential for more precise calculations increases.

### **DIMsilencer saves you a lot of hard work**



You enter your requirements and input data, and DIMsilencer does the rest. The sound calculation program for duct systems provides you with the potential to carry out dimensioning and to choose silencers quickly. It also allows you to try out several different solutions without having to do time-wasting new calculations. For example, you can immediately see the effect in the room as you move between different possible silencers in the list. The impact on the room of both inlet and outlet air is taken into account, of course.

The program is naturally based on the results from our sound laboratory. This takes the whole situation into consideration, performing new, lightning-fast calculations when you alter your parameters. DIMsilencer is a unique aid when choosing silencers for each specific acoustic situation.



# Silencers from Lindab

## – Product range

### Circular straight



SLU 50



SLU 100

### Circular straight (higher attenuation)



SLGU 100  
SLGU 150

### Rectangular straight



DLD

### Rectangular straight cleanable



DLDR

### Circular straight with pod



SLBU 100  
SLBGU 100

### Curved circular



BSLU 50



BSLU 100

### Rectangular straight (less pressure drop)



DLDY

### Curved rectangular



BDL

### Circular straight with net for exhaust air outlet



SLKNU 50



SLKNU 100

### Circular straight low-built



LRCA



LRBCB

### Rectangular straight low-built



LRLB



[www.lindab.com](http://www.lindab.com)