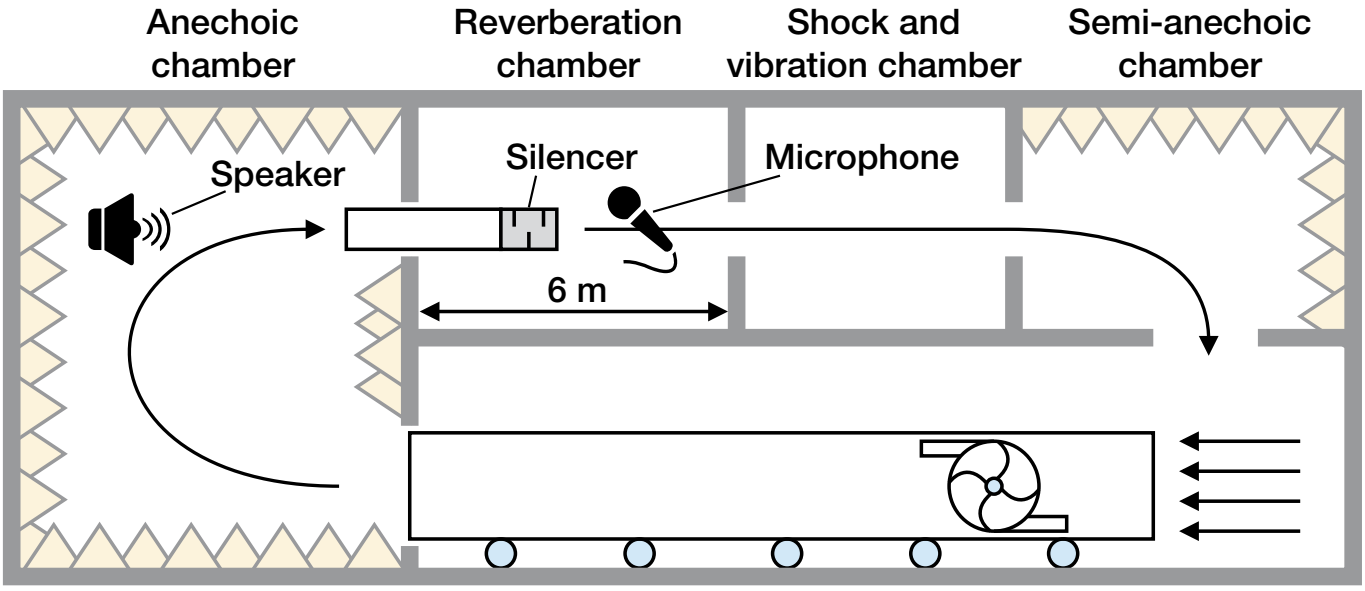
Noise reduction

The insertion loss of our silencers is measured at SP Technical Research Institute of Sweden and KTH Royal Institute of Technology. A range of different sizes and lengths has been tested. The insertion losses of untested sizes have been calculated via interpolation and the application of theoretical models.

The test method used is ISO 7235. This means that measurements are made using a loudspeaker as a sound source both with and without airflow in the duct (see illustration).

Since actual installations in the field have other duct lengths and other sound sources than is the case in a laboratory test, differences in insertion loss between laboratory and field scenarios can arise. These differences are generally largest at very low and high frequencies. However, the airflow in the duct does not generally have much of an effect on the insertion loss.



Schematic of the test scenario

Regenerated sound

High airflow speeds through the silencers generate aerodynamic noise. Such noise increases considerably with speed, normally by about 18 dB for a doubling of speed.

In the case of circular silencers this noise is generally negligible compared to other noise, while in the use of rectangular baffle silencers it can be significant in certain instances.

The data presented for this regenerated sound is based in part on experience from installations in the field and in part on theoretical calculations.

Pressure drop

In the case of silencers, the pressure drop is presented as a function of the airflow. The largest part of the pressure drop is seen across the silencer's intake and exhaust, but even the friction between duct walls and baffles comes into play. Our data is sourced from both our own laboratory and measurements on installations in the field.

The pressure drop is a type of average value for a silencer of average length. In actual installations the pressure drop varies depending on the uniformity of the airflow and the length of the silencer. Compared to the data presented here, it is reasonable to expect variations in the order of ±15%.

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