

Effects of Flow on Transmission Loss Characteristics of Silencers of the Multiple Helmholtz Resonator Type

by

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Abstract

This paper describes transmission loss characteristics of silencers composed of multiple Helmholtz resonators. Numerical and experimental results show that the transverse arrangement of resonators can be treated by equally dividing the plane wave front propagated through a flow duct into the cross-sectional area corresponding to individual resonator. It is also shown that the longitudinal arrangement increases the attenuations by these multieffects, even though the performance of each resonator may be lowered by the separated flow close to its entrance.

Keywords: Helmholtz resonators, Transmission loss, Mach number, Resonance frequency, Multieffects.

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