Introduction

A research project is started in cooperation with SKF on the development of a design method for viscoelastic bearing supports. Ultimate goal of the investigations is to reduce noise of rotating machinery, such as gearboxes and electric motors.

Methods

Sound intensity measurements are performed to determine the acoustic behaviour of a running motor, which is placed on an acoustically hard table (Figure 2). Simultaneously, the structural response of the outer surface is measured, and is used for a hybrid calculation of the acoustic radiated power using a simple cylindrically shaped BEM model.

Results

The radiated acoustic power of the electric motor is determined experimentally, hybridly and numerically (Figure 3).

Conclusions and future research

A running electric motor has been silenced by the use of viscoelastic bearing supports. Using a numerical design approach the effectiveness can be improved.