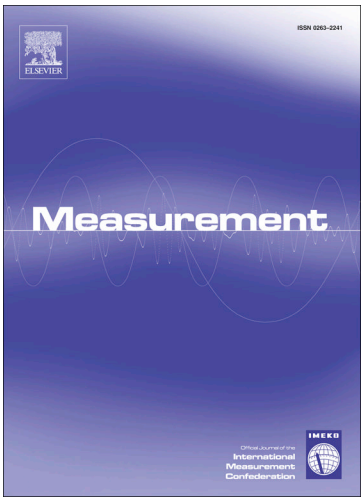

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Online measuring method and dynamic characteristics of gas kinetic parameters of linear compressor

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Abstract:

Gas force has great influence on linear compressor performance and it is normally nonlinear and time varying. To make it easy for the theoretical analysis and control of linear compressor, the gas force is generally represented by an equivalent spring and an equivalent damper, thus the linear model of gas force is important to the precision of the theoretical model. However, the existing numerical linearization methods of gas force are lack of experimental validation. To solve this problem, this paper presents a new online measuring method for the gas kinetic parameters based on a vector algorithm, and builds up an online measuring test bench, then experimentally investigates the dynamics characteristics of the gas kinetic parameters and compares the numerical results with the experimental results. The comparisons show that the numerical results using Fourier transform agree well with the experimental results.

Keywords: linear compressor; gas kinetic parameters; online measuring; dynamic response; vector algorithm