

## **Acoustic Noise Emission from Electric Motors**

The issue of noise emission from electric drives is becoming increasingly important. Motor manufacturers have to comply with certain standards in order to assure the high competitiveness of their products. At the same time, with today's variable speed drives, which are supplied with non-sinusoidal voltages, the issue of noise reduction has become more complex. This is because the influence of additional factors, compared to machines supplied with sinusoidal voltage, must be considered over a wide speed range. The key to optimizing the machine's acoustic behavior is the thorough knowledge of the influence of the different noise sources and the excitation mechanisms over the complete speed range. Apart from the theoretical analysis and the simulation, an experimental investigation is necessary to obtain a better understanding of the previously mentioned factors and to minimize the machine's acoustic noise. Some characteristic case studies of acoustic noise emission in asynchronous machines supplied from voltage source inverters are presented, in order to examine the influence of diverse factors on the total noise level.

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