

Effect of Lubrication System on Dynamic Analysis of Scroll Compressors

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ABSTRACT

A theoretical model is proposed in this paper to study the effect of lubrication system on dynamic loads of scroll compressors. The heat transfer mechanisms between oil and refrigerant in compressor room are also considered. Based on this model, a computer simulation program is written and the effects of different design parameters include oil flow rates, injection positions, injection temperatures and rotating speeds are investigated. Output variables such as gas forces, contact forces, moments and thermal performance of the compressor are obtained, some of the result are compared with experimentally measured data and good agreements are found between the simulation results and the measured data.

Keywords: scroll compressor, lubrication system and dynamic load analysis