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ABSTRACT

A STUDY OF STARTING-TORQUE FOR A SMALL HERMETIC COMPRESSOR

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Designing a compressor for 100, 220 volt both combined refrigerator using a transformer, a careful attention is required for the starting characteristic on the assured line voltage. Because voltage drop by transformer makes starting characteristic of compressor worse. So it is necessary to match the characteristic of motor and the moving parts of compressor. First, this paper presents a simplified analysis method for the estimation of starting-torque of compressor. The starting-torque can be divided into three sub parts: torque required to accelerate the angular velocity of rotating parts, torque dissipated by mechanical loss, torque required to compress working fluid. Refrigerant is R-12 and regarded as ideal gas. Second, this paper presents the simulation to match motor and rotating parts of compressor. A comparison is made between the calculated results and experimental data.

* In Korea, line voltage for household has been changing from 100 volt to 220 volt since 1980.

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