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AN INVESTIGATION ON RECIPROCATING AND
ROTARY REFRIGERATION COMPRESSORS

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Abstract

In addition to reciprocating compressors which are the traditional working machines in refrigeration cycles, a growing number of different types of rotary compressors are being used, especially for air conditioning purposes.

In an experimental investigation, various reciprocating and rotary compressors were analyzed concerning their thermodynamic and mechanical losses. All the compressors investigated are nearly of the same size and designed for automotive air conditioning systems. They were chosen for this comparative investigation since, at this time, nearly all systems of positive displacement compressors are being used for automotive air conditioning purposes.

A 2-cylinder-in-the-line reciprocating compressor and two types of swash-plate reciprocating compressors were experimentally tested in addition to different types of rotary compressors, i.e., stationary-vane, rotary-vane, wankel-type, screw-type, etc. In this paper the test results will be presented and compared with simplified computer models for the various designs.

Topic: Performance, capacity control and efficiency

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