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Experimental Investigation of Some Thermodynamic Aspects of Refrigerating Compressors

ABSTRACT

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The following aspects of the thermodynamic phenomena of a reciprocating refrigerating compressor have been investigated: 1) Three methods for the measurement of manifold heat transfer coefficient have been developed and the experimental uncertainties and the differences in the results are discussed. 2) The heat transfer coefficient in the valve passage of a ring-plate valve has been measured. 3) Valve leakages have been measured under different conditions. 4) It has been shown that the discharge coefficient for the valve passage can be improved. And 5) The mass fraction of oil in the refrigerant flow has been measured directly and indirectly. The results are applicable to mathematical models of refrigerating compressors.