

Product Name :
Compression Refrigeration System

Product Code :
LIM-CAT-L0045-00003



Description :

Compression Refrigeration System

Technical Specification :

Compression refrigeration system

Comparison of different expansion elements, investigation of the effects of over- and under filling with refrigerant
The setup of represents a typical refrigeration circuit consisting of a hermetic compressor, condenser, evaporator and expansion element. Evaporator and condenser are designed as finned tube heat exchangers.

The pipes of both heat exchangers are partially transparent to visualise the process of the phase transition during evaporation and condensing. Three capillary tubes of different lengths and a thermostatic expansion valve can be compared as expansion elements.

The trainer is equipped with a receiver for refrigerant. Using the receiver, refrigerant can be added to or removed from the refrigeration circuit. This allows for the effects of overfilling or underfilling of the system to be examined. The flow rate of the refrigerant is read from a flow meter. Temperature and pressure in the refrigeration circuit and the electrical power consumption of the compressor are recorded by sensors. The measured values can be read on digital displays.

Learning objectives/experiments:

Function and operational behavior of the refrigeration circuit components
Operation with expansion valve or with capillary tubes of different lengths.

Under filling or overfilling with refrigerant
Thermodynamic cycle in the log p-h diagram

From the log p-h diagram and in comparison with the measured values



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