STUDENT PROJECT: Modelling of a Refrigeration Receiver for Test Systems

With the introduction of cheaper and more powerful microprocessor software based digital control is increasing in refrigeration systems. This create a need for automatic test of these controllers and here a simple model of the refrigeration system is useful sine it makes it possible to “close the control loop”.
Many refrigeration systems contain a refrigerant receiver to hold the refrigerant liquid during low load. The modelling of a receiver can be tricky due to input flow changes during start and stop of the compressor.
A simple model of a receiver with a well-defined interface would be useful in a refrigeration model used for software testing. These test models need to be programmed in C++ since there is no simulator framework available in a software test system.

Methodology

The first step could be to develop a receiver model (and perhaps a condenser model) in Simulink/Simscape. The model could then be verified by lab measurements.
The next step could be to investigate how the model could be simplified and how that would “degrade” the model and make it less precise.

Primary objectives

// Develop a generic receiver model for use with Simulink/Simscape
// Verify model against lab measurements
// Simplify the developed model for use in a C++ environment

Secondary objectives

// Implement a simplified model in C++
// Verify the model in the C++ simulation environment

Prerequisite skills

// Knowledge of refrigeration systems
// C++-code knowledge

We Offer

// A professionally competent team that provides opportunities for both personal and professional development.
// An inspiring and informal work environment with access to a strong collegial network.

Please send your application and CV as soon as possible. We conduct interviews on a rolling basis and will close the position once the right candidate is found.
If you have any questions about the position, please feel free to contact us.

Bitzer Electronics supervisor

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