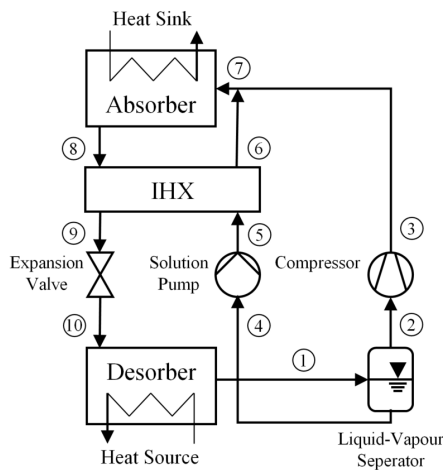


Osenbrück 4.0 - Heat Pump Cycle

Hybrid absorption-compression heat pump with ammonia-water mixture as natural working fluid

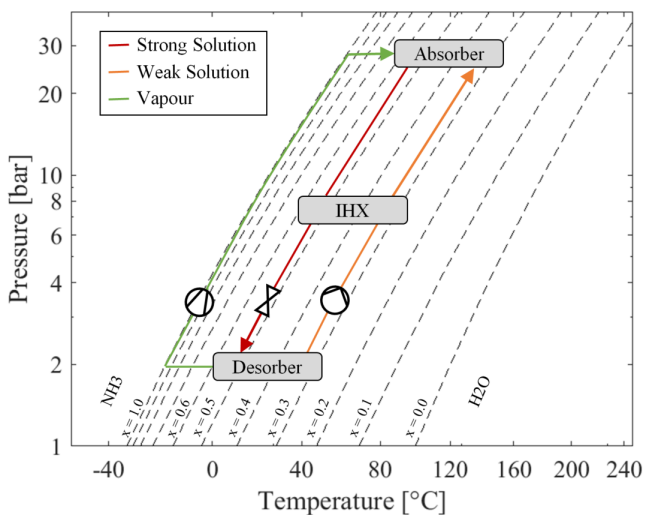
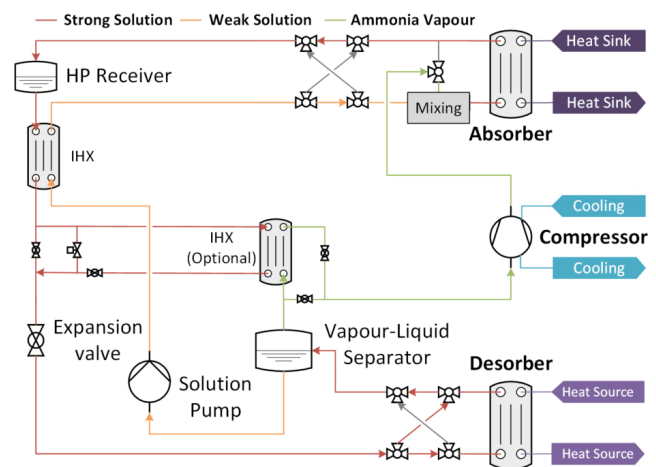
The hybrid NH₃-H₂O absorption-compression heat pump (HACHP) cycle combines the technologies of an absorption and vapour compression heat pump with a mixture of ammonia and water as natural working fluid.

Heat is extracted and released at non-constant temperature glides and the necessary compression ratio is lower compared to conventional vapour compression heat pumps. These properties make the HACHP system interesting for the use in various industrial high temperature applications.



Schematic representation of the HACHP test rig

The aim of the HACHP test rig is to provide a flexible experimental system for the performance and analysis.



Potential research and industry interest

Research

- Improving the understanding of system design and operation
- Investigation of system behavior for various boundary and operation conditions
- Further development and validation of numerical models and results
- Development and testing of new compressor and absorber solutions

Industry

- Design and testing of various operating parameters for user-specific industrial applications
- System and component manufacturers



Contact:

Armin Hafner - armin.hafner@ntnu.no
Marcel Ahrens - marcel.u.ahrens@ntnu.no