
Test bench for researching of the mixing heat-exchanger-evaporator of the low grade power plant

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The article describes a method and equipment for experimental research of heat and mass transfer in a mixing apparatus, where heat exchange occurs at the interface of the two phases. The process is necessary for heat transfer to the boiling substance. The efficiency of heat transfer in the investigated device structure is higher than in devices implementing heat transfer through the wall. In the case of mixing heat exchangers it is possible to achieve close to zero under recuperation. Due to the complexity of the mathematical model describing the process of boiling in a mixing apparatus, this process is poorly understood. The studied process can be used in all industries that require the heat transfer to the boiling liquid. The test bench for the qualitative observation of the hydrocarbon evaporation in the environment of a hot heat-exchange liquid is designed and manufactured. The setup involves the ability to test different types of heat exchangers in order to assess their efficiency. The technique of the experiment carrying out on the expected steam expanding organic Rankine cycle operating parameters is developed.

Keywords: mixing heat exchanger, organic Rankine cycle, heat exchange, close to zero underrecuperation.

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