

# EXPERIMENTAL SETUP FOR INVESTIGATION OF FREE-CONVECTION HEAT EXCHANGE ON FINNED TUBES OF AIR-COOLING HEAT EXCHANGER

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## Abstract

*The purpose of this work was to develop an experimental setup for investigation of free convection on the finned calorimeter tube. Empirically we obtained the dependence of the end heat loss in the calorimeter tube on the temperature bushings. We made a comparison with Mikheyev data for free convection on a smooth calorimeter tube and found that the error of the experimental data was less than 3%. We developed a technique and carried out experimental studies of the calorimeter finned tube with geometric parameters  $d \times d_0 \times h \times s \times \Delta \times l = 56 \times 26 \times 15 \times 2,5 \times 0,5 \times 330$ . For convective heat transfer we obtained experimental dependences of Nusselt numbers on Rayleigh numbers for the tubes with varying degrees of blackness, which are consistent with each other and with the known laws*

## Keywords

*Air cooling apparatus, free convection, convective flow, heat transfer coefficient, reduced degree of blackness, calorimeter tube, Nusselt number, Rayleigh number*

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