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CALCULATION OF PIPES SINGLE FORCED CONVECTION

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Based on the developed methodology and calculation formulas, which take into account nonisotermically of surface the mathematical model of heat transfer for tubes bundles under conditions of forced convection is derived. The equations of heat transferunder appropriate boundary conditionsfor single pipe were written and temperatures in thickness pipes were averaged.

The numerical calculation of heat transfer in single tube have been met. As a result the distributions of local heat transfer coefficient on the inner tube surface are divided. The effects of nonisotermicallyon heat transfer characteristics for single pipe are found. It is shown that the maximum coefficient of heat transfer there inlet pipe flow and the minimum output of the tube. These effects are caused by a positive temperature gradient on the inner surface of the tube in the direction of flow.

Comparison of got numeral results with the results of calculation on the simplified methodologies that does not take into account influence of nonisotermically and temperature gradients on heat transfer characteristics are conducted. An error that can arise up at the use of the simplified methodology of calculation is certain. It is shown that for the turbulent mode of flow the indicated error folds 10-15%.