INTENSIFICATION OF HEAT EXCHANGE IN INTERNAL CHANNELS OF A CIRCULAR CROSS-SECTION

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INTRODUCTION. Development of new methods of an intensification of heat exchange in internal canals, decrease of expenses of energy resources, increase in efficiency of thermal point.

DESCRIPTION. The intensification of heat exchange processes in elements of a power inventory at the equal areas of heat exchange and at equal speeds of the same heat carrier is defined by structure of its current on heat exchange surfaces, understand both thickness of a dynamic boundary layer, and the mode of boundary-layer flow as structure of a current (laminar, turbulent) and also spatial and temporary scales of vortex indignations in a boundary layer, their intensity. Realizing analogy of Reynolds, increasing tension on a streamline surface and by that increasing intensity of vortex structures in a boundary layer, intensify heat exchange. However process this energy-intensive. The structured surfaces of the heat exchangers realizing oscillation the pristenochnykh of vortex structures of the given look and scale allow to minimize energy consumption on unit of change of intensity of heat exchange.

Structuring streamline surfaces - one of methods of an intensification of heat exchange, formation of obstacles most widespread today with a minimum resistance is a special case of this method and allows to increase significantly overall performance of a heat exchange inventory by an intensification of vortex indignations in a stream. Intensity of the heat sink and accompanying body height of hydraulic resistance enough with difficulty depend on geometrical parameters of a surface at change of Reynolds numbers and Prandtl.

Influence of turbulence of an internal stream on heattransfer in a developed turbulent boundary layer long time remained low-investigated. It is caused by the fact that at such mode of a current there were no bases to expect the strong intensification of heat exchange.

CONCLUSIONS.

1) The heat exchange intensification in round section can be reached at the expense of obstacles with a minimum resistance.

2) Achievement of work is decrease of hydraulic resistance in internal canals and an intensification of heat exchange.