

# Methods of numerical and experimental studies of additive heat exchangers with Schwarz type surfaces

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Current achievements in the development of design, modeling, creation of experimental samples, conducting experiments and developing promising products of heat exchange devices using 3D printing with metals are presented. According to the conducted studies, Schwarz type P surfaces are promising [1]. Numerical calculations have been validated for these surfaces. The criterion dependences are obtained, which allow using traditional engineering techniques to carry out the computational design of a full-size heat exchanger. Technologies for manufacturing sealed samples of heat exchange matrices with Schwartz cells of type P from 5 mm and wall thickness from 0.2 mm to 8th grade surface purity have been developed. The tightness of the manufactured surfaces was confirmed by computed tomography.

- [1] Svetlakov A, Gulimovskii I, Verbanov I and Maslova D 2024 *Journal of Engineering Physics and Thermophysics* **97**(3) 593–603