

# Intensification of Oil and Oil Product Heaters by Means of Auger Inserts

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## Abstract

© Published under licence by IOP Publishing Ltd. This paper discusses the approach of how to intensify the heat exchange processes under laminar flows of high-viscosity non-Newtonian fluids with the use of auger inserts. This approach of intensification refers to the methods of swirling the flow, which creates a rotational motion of the fluid throughout the entire duct cross-section being most relevant to the high-viscosity fluids.

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## References

- [1] Kadyirov A I, Khalitova G R and Vachagina Ye K 2016 The hydrodynamic structure of a viscous flow in ducts with intensifiers as screw inserts (Kazan: Alademenergo papers. Publishing House: Research Center for Energy Problems of the Kazan Scientific Center of the Russian Academy of Sciences) 58-74
- [2] Popov I A, Makhyanov Kh M and Gureyev V M 2009 Physics and industrial application of heat exchange intensification: Heat exchange intensification (monograph: Center for Innovative Technology) 560
- [3] Nazmeyev Yu G 1988 Heat exchange in laminar flow in discrete-rough ducts (M.: Energoatomizdat) 376
- [4] Khusnutdinova E M, Konakhina I A and Khamidullina A F 2017 Comparative Analysis of Thermohydraulic Performance of Enhanced Viscous Oil and Oil Product Heaters IOP Conference Series: Materials Science and Engineering 012046