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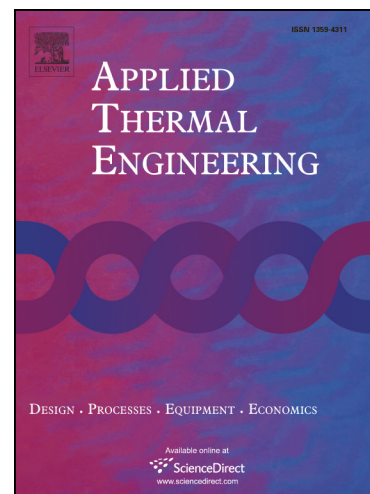
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Thermo-mechanical simulations for the comparison of heating channels geometries for composite material injection tools

Jean COLLOMB^{a,b,*}, Pascale BALLAND^{a,*}, Pascal FRANCESCATO^{a,*}, Yves GARDET^b, David LEH^b,
Philippe SAFFRÉ^a

^aUniv. Savoie Mont Blanc, SYMME, FR 74000 Annecy, France

^bCompany CT1, Compose Group, 8 bis avenue de la Gare, 01100 Bellignat, France

Abstract

To meet the expectations of the aeronautics and automotive manufacturers in terms of throughput, appearance quality and structural quality for high-performance composite injected parts, it is necessary to produce reactive and thermally efficient tools. The aim of this paper is to compare the thermal performance of a conventional mold with circular cross-section heating channels, resulting from the design rules published in the literature, and a mold with rectangular section channels for different heating channel positions. The thermal simulations carried out on the models were made at identical operating points, with the models based on the design rules of conventional molds with circular cross-section heating channels. It is important to note that this study was conducted taking into account the technological constraints related to pressure drops and pump use.

Keywords:

Heat Transfer, Profiled Channels, Rapid Heating, Rapid Heat Cycle Molding, Thermal Simulations

*Corresponding author

Email addresses: jean.collomb@univ-smb.fr (Jean COLLOMB), pascale.balland@univ-smb.fr (Pascale BALLAND), pascal.francescato@univ-smb.fr (Pascal FRANCESCATO)

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