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Heat Transfer Correlations for Exhaust Gas Flow

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Abstract : Exhaust systems are key contributors to ground vehicles as a heat source. Understanding heat transfer in exhaust systems is related to defining effective parameter on heat transfer in exhaust system. In this journal, over 20 Nusselt numbers are investigated. This study shows advantages and disadvantages of various Nusselt numbers in different range Re, Pr and pulsating flow amplitude and frequency. Also (CAF) Convective Augmentation Factors are defined to correct standard Nusselt number for geometry and location of exhaust system. Finally, optimum Nusselt number and Convective Augmentation Factors are recommended according to Re, Pr and pulsating flow amplitude and frequency, geometry and location effect of exhaust system.

Keywords : exhaust gas flow, heat transfer correlation, Nusselt, Prandtl, pulsating flow
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