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## Influence of microjets on flow development for diameter ratio of 1.6 for correctly expanded nozzles

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### Abstract

This paper aims to study the microjet's efficacy as a management tool for the duct's flow field. The nozzle was correctly expanded for a diameter ratio of 1.6 (i.e., area ratio = 2.56). The Mach numbers considered were from 1.25 to 2. The investigation shows that the development and recovery of the duct flow are smooth at lower Mach numbers. At Mach 1.48, jet noise was reduced considerably when the control is initiated. For higher Mach numbers of the study, namely Mach 1.6, 1.8, and 2.0, the flow's oscillatory nature was noticed. This phenomenon reiterates that the nozzles flow is wave-dominated. For most of the flow, the flowing nature remains unaltered due to control. The flow

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remained connected with the duct for duct length twice the nozzle exit diameter. (C) 2021 Elsevier Ltd. All rights reserved. Selection and peer-review under responsibility of the scientific committee of the International Conference on Smart and Sustainable Developments in Materials, Manufacturing and Energy Engineering.

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