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论文

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一种跨音速翼型和机翼设计方法的新进展

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CFD SOFTWARE FOR TRANSONIC AIRFOIL AND WING DESIGN—AN UPDATE Hua Jun, Zhang Zhongyin

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摘要

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摘要

讨论一种基于N-S方程、欧拉和速势方程加混合附面层修正的跨音速流动准确控制方程逆解法, 及其在跨音速翼型和机翼设计中的应用。分析了两种紊流模型对分离的适应性, 探讨了N-S和欧拉方法的阻力估算精度问题, 列举了若干超临界和层流翼型及机翼的设计实例以及软件验证。

关键词: 纳维-斯托克斯方程 欧拉方程 逆解法 气动设计 软件验证

Abstract:

A transonic airfoil and wing design software is presented based on the solutions of the N S equations, Euler and potential equations. plus mixed boundary layer methods. The applicability of two turbulent models to the flow with separation and the accuracy of the drag calculation with N S and Euler solvers are also investigated. Design examples and code validation are discussed.

Keywords: NavierStokes equation Euler equation inverse problem aerodynamic design code validation

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