壁面函数对进气歧管CFD计算结果的影响

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关键词： 进气歧管 计算流体力学 壁面函数 进气均匀性

摘　要： 采用5种壁面函数对多缸汽油机进气歧管进行CFD计算，进而分析进气均匀性。结果表明：双层模型壁面函数的计算精度优于标准壁面函数；非平衡壁面函数的计算精度最差，不适合进气歧管进气均匀性分析；在Wolfstein模型、Norris & Reynolds模型和Hassid & Poreh模型这3种双层模型壁面函数中，Hassid & Poreh模型计算的进气量平均值最大，计算得到的不均匀度最小。Five different wall functions were used to simulate the intake manifold of muti-cylinder gasoline engine by CFD method, and the uniformity of intake mass was analyzed. The computed and analyzed results show that the two layer models wall functions are more accurate than the standard wall function; the non-equilibrium wall function is not suitable for the analysis of uniformity of intake mass because of its worst calculation precision; among the three two layer models wall functions (Wolfstein model, Norris & Reynolds model and Hassid & Poreh model), the Hassid & Poreh model has the maximum mean intake mass and the smallest no-uniformity.

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