S弯进气道流动控制技术的试验研究(PDF下载)

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Title: Experimental investigation on flow control in an S-shaped inlet

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摘要: 在低速风洞中采用微型叶片作为涡流发生器对某S弯进气道进行流动控制，通过风洞试验研究了微型叶片的不同参数（包括叶片高度、轴向位置、安装组数）对进气道气动特性的影响。试验测量了来流风速V=60m/s、模型攻角α=8°的条件下有/无微型导流叶片时进气道出口截面的总压和静压分布，并由此计算得到进气道出口截面的总压恢复系数和畸变指数。试验结果表明：微型叶片的不同参数（包括叶片高度、轴向位置、安装组数）对进气道流动有明显影响；通过在进气道第一弯道处安装合适高度和组数的微型叶片涡发生器，可以明显改善进气道出口流动；在现有的试验条件下，叶片高度h/Ri=0.02、轴向位置Xvg/Ri=1、组数Nvg=8是相对较优的流动控制方案，主要表现为：与未安装微型叶片相比，进气道流量系数φ=0.8时出口畸变指数降低了0.051，总压恢复系数提高了0.007。

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