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先进旋涡燃烧室钝体结构参数选择的数值分

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Title: Numerical Simulation of Bluff-body Structural Parameters in Advanced Vortex Combustor

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摘要: 为确定先进旋涡燃烧室前后钝体结构参数的最佳匹配关系,运用数值模拟方法对不同钝体结构参数影响下的燃烧室冷态流动进行了研究。结果表明,模型Ⅰ中的钝体布置方式具有较好的流动特性,且当钝体结构参数当量比为H_1/H_2=0.7、S/H_1=0.6时,凹腔内旋涡稳定性高,燃烧室总压损失系数小; AVC结构参数的选择不能完全照搬TVC稳定驻涡形成结构关系式,需要区别对待。

Abstract: In order to study the best matching relation of bluff-body structural parameters in advanced vortex combustor(AVC), numerical simulation on the cold state flow in combustor was carried out. The results indicate that the combustor has better flow characteristics by the layout of bluff-body presented in model I, when the equivalent ratios of structural parameters are H_1/H_2=0.7 and S/H_1=0.6, total pressure loss coefficient is lower and stability of vortex is stronger.The selection rule of structural parameters in AVC can not copy totally from the stability of vortex formation structure relation in Trapped Vortex Combustor(TVC).

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