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二维超音速激波风洞及其应用

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TWO DIMENSIONAL SUPERSONIC SHOCK TUNNEL AND ITS APPLICATION

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摘要

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摘要 简述了二维超音速激波风洞的设计要点和性能,并给出在该风洞中低凸台诱导激波和湍流边界层相互作用的实验结果。实践表明:在被驱动段和喷管之间安装一个前缘光滑的矩形剖面短管道;并将二维喷管精加工成型,就能获得实验所需的均匀超音速气流。

关键词: 激波风洞 激波干扰 分离流 压力测量 热流

Abstract: A brief description is given of design and performance of a two dimensional supersonic shock tunnel. The experimental results of three dimensional interaction between shock wave and turbulent boundary layer induced by low protuberance are presented. Current experience indicates that the use of a rectangular tunnel with round leading edge from driven tube end to two dimensional nozzle entrance, when coupled with precisely manufactured contoured nozzle, can generate a uniform supersonic flow which is generally adequate for aerodynamics testing.

Keywords: shock tubes shock wave interaction separated flow pressure measurement heat flow

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