提升水下結構抗震能力之探討

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摘 要

本文探討一個實際的氣輪機靜葉片端壁外部熱傳的問題。氣輪機從燃燒室到第一級靜葉片之間的燃氣通道，其出口與靜葉片進口接合處沿流動方向有個下降台階，對於靜葉片通道而言，這是一個背向進口台階。因為不同材料的熱脹冷縮，此台階大小也可能隨著氣輪機負載而改變，而且會影響下游三維熱流場發展。本研究以平滑端壁狀況為基準，探討此進口台階對靜葉片通道中端壁熱傳係數及膜冷卻有效性之影響。實驗測試段採用兩側有開縫隙的雙半葉片模型，下降台階大小S取為弦長C的4%。膜冷卻流以與端壁成45度的角度注入主流，膜冷卻孔無任何複合角。主流雷諾數固定在Rec = ，膜冷卻流吹氣率為0.5或2.0。利用液晶熱傳技術的實驗結果顯示，背向進口台階大幅提升了端壁的熱傳係數並改變其分佈樣式。雖然大部分端壁面積之膜冷卻有效性也有提高，但對於再接觸點附近熱點之消除幫助不大。 關鍵字: 下降台階，端壁，膜冷卻，熱傳係數。

關鍵詞 : 背 ; 靜 ; 熱流場 ; 複合角 ; 有效性 ; 關鍵字 ; 氣輪機 ; 熱流場 ; 複合角 ; 有效性 ; 關鍵字 ; 氣輪機 ; 膜

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