



航空学报 » 1992, Vol. 13 » Issue (6) :322-328 DOI:

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### 超声音压气机研究的发展

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### DEVELOPMENTS OF SUPERSONIC AND TRANSONIC COMPRESSOR

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摘要

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**摘要** 本文就近20年来超声音压气机研究的发展,进行了一定范围内的调研,对设计与性能作出一些分析与讨论,并提出进一步研究的建议,以供设计参考。

**关键词:** 压气机 压比 效率 喘振裕度

**Abstract:** The recent developments of transonic and supersonic compressor over the world are briefly reviewed and discussed. The roles of various stages are clearly represented on an efficiency versus pressure ratio diagram and also on a normal shock compression efficiency and work coefficient versus Mach number reference diagram. The traditional diffusion factor  $D$  serves as a rough guide only and new criteria or coefficients are needed to reflect supersonic cascade losses more nearly. Further developments from pressure ratio 2:1 upward with efficiency higher than 85% are prospective. Comparative research of stages with positive, zero and negative prewhirls is proposed. Importance of studying physical mechanism and measures to improve surge margin is finally stressed.

**Keywords:** compressor pressure ratio efficiency surge margin

Received 1991-01-17; published 1992-06-25

引用本文:

崔济亚. 超声音压气机研究的发展[J]. 航空学报, 1992, 13(6): 322-328.

Cui Ji-ya. DEVELOPMENTS OF SUPERSONIC AND TRANSONIC COMPRESSOR[J]. Acta Aeronautica et Astronautica Sinica, 1992, 13(6): 322-328.

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