

## عنوان مقاله:

Analysis of Flow Field Distortion in Ship Inlet System and Its Effect on Compressor Performance

## محل انتشار:

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## خلاصه مقاله:

Intake system structure design is categorized under gas turbine marine technology, and its performance affects the inlet flow field of the compressor, thereby impacting the overall operation stability of the gas turbine. Therefore, this study analyses the structural characteristics of various types of intake systems and establishes a computational domain model. Numerical simulation methods are used to systematically study the internal and external flow fields of the intake system. By varying the structure of the intake system, we compare and study the distribution form of the flow field inside and outside the intake system, velocity and total pressure distribution of the compressor inlet section, and flow loss inside the intake system. The speed and total pressure distortion of the compressor inlet section are analysed quantitatively. It was concluded that inlet distortion causes the leakage flow from some channels to spill into adjacent blade channels at the leading edge of the higher span, resulting in an early compressor stall. Specifically, the compressor stall and working flow margins are reduced by ۲.۵۱% and ۲.۷۶%, respectively.

## کلمات کلیدی:

Ship intake structure, Inlet distortion, Structural modification, Axial compressor, Compressor performance

## لینک ثابت مقاله در پایگاه سیویلیکا:

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