Special Issue

High-Performance Compressor Design, Model Analysis and Application

Message from the Guest Editor

Compressors, mature products in a competitive market (air/refrigeration), benefit from every detail for efficiency. While incremental improvements drive performance, breakthroughs in rotor design, optimization, and specialized designs for positive displacement compressors are possible. Efficient operation relies on rotor profiles/clearance, but optimized housing, bearings, seals, and lubrication are vital for maximum gains.

Proper development needs mathematical modeling, validation, component/machine design, product development, training, advanced CAD, process modeling, CFD, modern techniques, data acquisition, and optimization.

Growing demand for efficient compressors requires tailored designs based on use, capacity, and manufacturing. Optimizing shapes, dimensions, and parameters needs a rotor profile generation algorithm combined with fluid flow/thermodynamic modeling.

Well-designed compressors achieve higher rates/efficiency. Optimal rotor parameters, speed, oil flow, and temperature vary with gases/vapors, allowing adjustment for peak performance.

Guest Editor

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Message from the Editor-in-Chief

Machines is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications.
Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided.
There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

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