



UNIVERSITÀ
DEGLI STUDI
DI BERGAMO

Dipartimento
di Ingegneria
e Scienze Applicate

Aerodynamic Design of a Centrifugal Blower for Hydrogen Recirculation

Seminar on Turbomachinery applied to Hydrogen

This study analyzed the aerodynamic design and various characteristics of a centrifugal blower applied for the recirculation of unreacted hydrogen in fuel cell electric vehicles (FCEVs). The centrifugal blower, consisting of an impeller, vaneless diffuser, and volute, was designed using working fluid composed of hydrogen, nitrogen, and water vapor, using Concepts NREC software and the ANSYS CFX software was used for 3D numerical simulations during the design procedure. The numerical results showed that the hydrogen recirculation blower, with a smaller molar mass and larger gas constant compared to air, requires a larger impeller diameter and offers a wider operating range. This study provides important design information that can contribute to enhancing the performance of hydrogen fuel cell systems.

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11:00

Room C302
Engineering Campus
Via Marconi, 5 Dalmine

SPEAKER

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