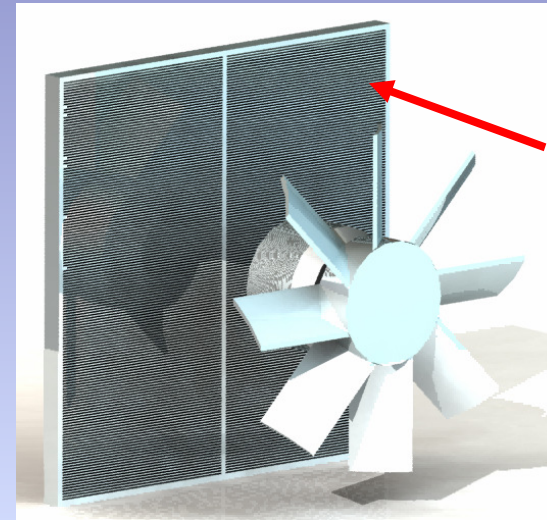


COMPUTATIONAL ANALYSIS TO DETERMINE THE EFFECT OF BLOCKAGES ON AXIAL FANS

Background

Axial flow fans are often used in automotive applications with upstream radiators. This significantly effects the fan flow structure and performance characteristics.

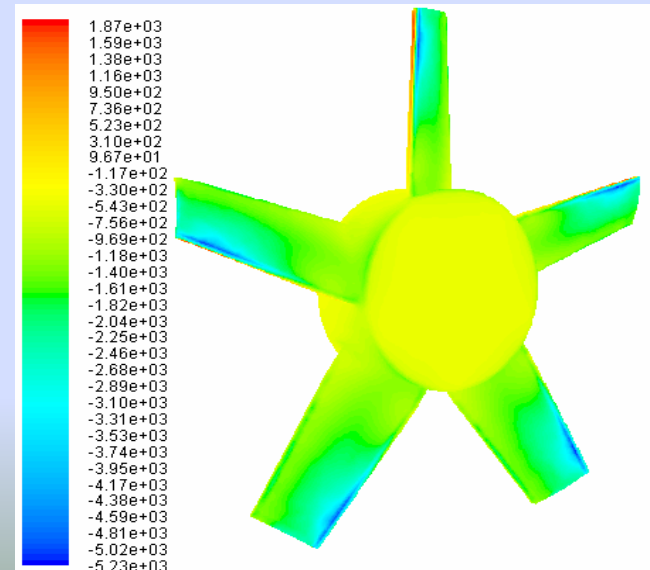


Radiator
(Blockage)

Model Layout

Objective

To develop a simple computational (CFD) model for determining the effect of flow blockages on in-situ axial fan performance that may be used as part of the initial fan design process.



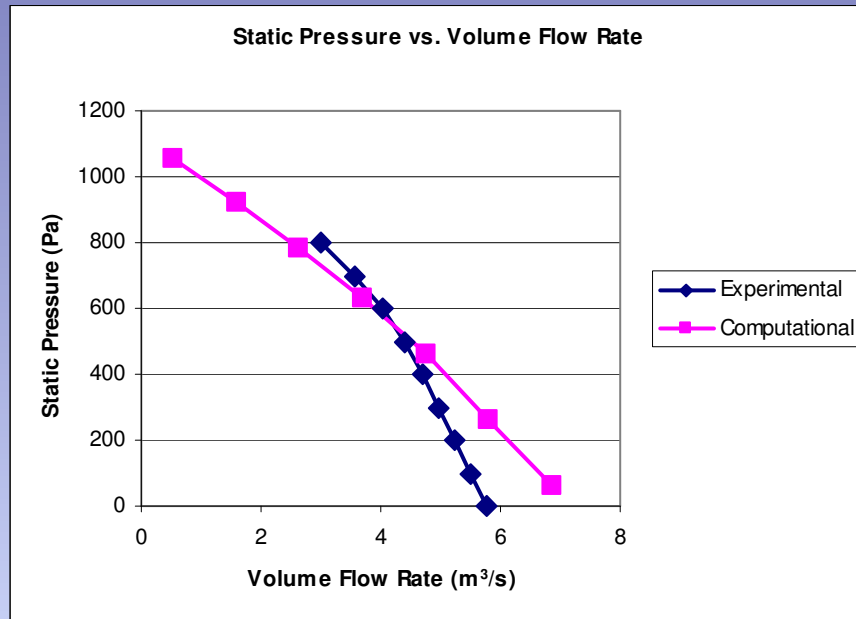
Contours of Static Pressure (Pa)

Research Being Carried Out

Using an existing fan module, a procedure has been generated for determining performance characteristics efficiently. This has been found to be in agreement with available experimental data.

The effects of varying the position and shape of the flow blockages are being examined, as well as refinement and optimization of the modeling procedure.

**RHF Fans Ltd. Irlam, England*



Comparison of computational and experimental methods*

Expected Outcomes

A complete model will be generated describing the effect of downstream blockages on axial flow fans. This will include a modeling procedure for future applications.