

GENERATING CAVITATION EROSION DATA FOR PROPELLER
MATERIALS OF COASTAL VESSELS II
USING ANSYS (FEA)

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ABSTRACT

Erosion damage on a propeller blade normally starts with a surface deterioration or roughening, and this is followed by a plastic deformation of the blade surface. It caused by a large scale and essentially random bombardment of the surface by micro-jet impact and pressure waves from collapsing cavities. This deformation continues until large scale fatigue failure eventually occurs over the surface and the material starts to erode.

In this project, studies are made on the propeller material specimen by using ANSYS (*FEA - Finite Element Analysis*) software at CADEM Centre. Pure Aluminium, High Strength Yellow Brass, Nickel Aluminium Bronze, Martensitic Stainless Steel and Cast Iron materials are selected for these case studies. Using FEA, the distribution of stress acting on each element is found out. The material removal rate (MRR) of the above materials are calculated and compared with experimental results.

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