ONLINE ISSN : 1881-1760
PRINT ISSN : 1880-3717

Journal of the Japan Society of Naval Architects and Ocean Engineers
Vol. 2 (2005) pp.271-277

[Image PDF (2876K)] [References]

Cavitation test on a straight leading edge propeller and a tip rake propeller

Shosaburo Yamasaki and Akinori Okazaki

(Accepted October 14, 2005)

Summary: The cavitation phenomena, such as tip vortex cavitation, leading edge vortex cavitation or sheet cavitation on a propeller increase vibration and noise. In order to reduce vibration and noise, the extent and the collapsing behavior of cavitation should be controlled. In this paper, three types of propellers were designed; a standard propeller, a straight leading edge propeller (SLEP), and a backward tip rake propeller (BTRP) having the tip rake to the pressure side. With these model propellers, open water test, the observation of cavitation by means of a high speed video camera, and the measurement of the pressure fluctuations were conducted. For all three cases, sheet cavitation was involved into tip vortex cavitation around the blade tip and for the case of SLEP, sheet cavitation was separated on the blade surface. For the cases of SLEP and BTRP, the blade surface was attacked by cloudy sheet cavitation connected with tip vortex cavitation and this area was eroded. And the propeller open efficiency of SLEP was better than that of the standard propeller and the pressure fluctuations of BTRP were lower than those of the standard propeller.

[Image PDF (2876K)] [References]

Download Meta of Article[Help]
RIS
BibTeX

Engineers, (2005), Vol. 2, pp.271-277 .