Large scale physical model testing on the ultimate strength of a steel stiffened plate structure under cyclic compressive loading

12th International Symposium on Plasticity and Impact Mechanics
IMPLAST 2019
29 September – 3 October 2019, Busan, Republic of Korea

Large scale physical model testing on the ultimate strength of a steel stiffened plate structure under cyclic compressive loading

Jeom Kee Paik[a,b,c*], Dong Hun Lee[a], Sung Hwan Noh[a], Dae Kyeom Park[b], and Jonas W. Ringsberg[d]

[a]*Department of Naval Architecture and Ocean Engineering, Pusan National University, Busan, Republic of Korea*
[b]*The Korea Ship and Offshore Research Institute, Pusan National University (Lloyd's Register Foundation Research Centre of Excellence), Busan, Republic of Korea*
[c]*Department of Mechanical Engineering, University College London, London, UK*
[d]*Department of Mechanics and Maritime Sciences, Chalmers Univeristy of Technology, Gothenburg, Sweden*
** Email. jeompaik@gmail.com*

Abstract

Engineering structures such as ships and offshore structures are subjected to cyclic loading in operation. The magnitude of cyclic loads is sometimes very large although it may not cause the collapse of the structures. It is considered that the cyclic loading can result in local failure or structural members and the ultimate strength of structures with local failures due to prior cyclic loading may be reduced compared to that of structures that have not experienced cyclic loading. The aim of the present study is to obtain the test database obtained from a physical model testing on a large scale steel stiffened plate structure under cyclic compressive loading. Details of the test database are documented.

Keywords: Steel stiffened plate structures; Cyclic compressive loading; Ultimate strength; Large scale physical model testing; Test database