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Paik, J., Lee, D., Noh, S. et al (2019) Large scale physical model testing on the ultimate strength of a steel stiffened plate structure under cyclic compressive loading Proceedings of the The 12th International Symposium on Plasticity and Impact Mechanics (IMPLAST

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Abstracts for Technical Session 19

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

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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