

Abstract

AMAIWave is a wave generator located in a test basin of the Antwerp Maritime Academy. This thesis focuses on the conversion of the wave generator to a pneumatically driven system, as well as the development and realization of a wave absorber to prevent a standing wave. The installation is designed to test prototypes of the FinEShIP and AMARETO projects in a controlled environment.

First, we investigate the applications and requirements for the installation, after which each part of the wave generator is explained. The wave generator is controlled via an Arduino in combination with a relay circuit. This allows consistent waves to be generated with a period between 300 milliseconds and 1 second.

In the second part of this thesis, we analyse existing solutions and develop an inclined slope, inspired by a natural beach, to prevent the reflection and formation of a standing wave. Finally, the performance of the wave generator and the wave absorber is evaluated, with attention to possible improvements.