Research on optimization of valve open time of the launch barge’s ballast tanks(PDF)

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Title: Research on optimization of valve open time of the launch barge’s ballast tanks

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摘要: Launch barge is an effective tool for transporting ship segments from one place to another in shipyards. During shifting of segments onto a barge, the slideway on the barge’s deck must be adjusted to maintain the same level as the wharf and also the barge must be kept level by adjusting the water in the ballast tanks. When to open the adjusting valves is an important factor influencing the barge’s trim during the water-adjustment process. Because these adjustments are complex a mathematical model was formulated,after analyzing the characteristics of the process of moving the segments onto the barges deck, and considering the effects of this movement’s speed and variations in tidal levels during the move. Then the model was solved by the penalty function method, the grid method, and improved simulated annealing, respectively. The best optimization model and its corresponding solution were then determined. Finally, it was proven that the model and the method adopted are correct and suitable, by calculating and analysing an example.

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本期目录/Table of Contents
下一篇/Next Article
上一篇/Previous Article

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