

Abstract

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Breach control method on-board oil tankers

Hull damage could cause enormous total losses in lives and properties, in addition to severe environmental hazards. It is an object of the proposed system presented in this paper to provide a movable hull's hole closure device which could be easily installed and positioned over the hull hole. The closure is done using a fabric sheet deployed from the main deck, down to the keel, passing under the bottom, then up to the other side of the hull. This process is done mechanically using wire ropes. Wires are attached to a roll in a cylinder mounted on a carriage which movable on the deck alongside the edge of the vessel. The ends of the wires securing lines can be pulled and rolled on a drum positioned on opposite side of a ship. Damage cases were suggested, followed by numerical simulations for these cases to solve for the appropriate width and thickness of the wrapping material that would be able to secure the water tightness of the ship and withstand the ship's draft hydrostatic pressure. Keywords: Damage control Oil spill Collision hull damage ship wrapping Kevlar 49 FEA Rubber