Код: 10773

C.M. Hedberg, E. Johnson, S.A.K. Andersson, K.C.E. Haller, G. Kjell, S.-E. Hellbratt

Ultrasonic Monitoring of a Fiber Reinforced Plastic—Steel Composite Beam During Fatigue

Дрезден, Германия, 2012 год

7 стр; формат: 23,5 x 16 см; библиографический список: 11 единиц

The use of composite superstructures on current or newly built steel hulls is a recently emerged technology. The economic estimations predict that the extra costs for putting composite superstructures, with the present safety margins, on steel ships will be paid back in only 2-3 years. This also makes the ships having smaller ecological footprints with less fuel consumption and CO2 emissions. In this stage of development it is needed to ensure the durability of the joints between the steel and glass fiber reinforced plastic.

The first step is that the joints must first be proven to withstand fatigue. In this test a 4-meter beam, which represents the joint, were investigated for fatigue progression by a four-point-bending fatigue test. In order to show that ultrasonic material monitoring techniques can be used to monitor the damage progression, the beam was measured during the tests until failure.

The test was successful both in showing that the joint could withstand high levels of mechanical exposure, and in that the ultrasonic techniques accompanied the damage progression which means that they may be used on vessels during operation.

Доклад. 6-я Европейская конференция по мониторингу технического состояния сооружений, 2012. Редакция Кристиана Боллера.

Ключевые слова:

Содержание.