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PROGRAMA DE INGENIERÍA MECÁNICA

ANÁLISIS DE FALLA DE UNA CAMISA DE MOTOR DIÉSEL DE UN REMOLCADOR

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RESUMEN

En el siguiente artículo se busca determinar las causas de falla de una camisa para motor diésel de un remolcador, debido a que se han fracturado varias camisas en los últimos 4 años, para cumplir con este objetivo se realizaron estudios a escala de laboratorio como inspección visual, ensayos NDS, análisis químico, microscopía óptica y ensayos mecánicos. Los resultados arrojaron que la camisa estaba hecha de un hierro fundido gris de clase 30 y que en su microestructura se encontraba el grafito grande e interconectado por donde las grietas se van propagando, se propone fabricar las camisas con el hierro fundido dúctil ASTM A536 100 – 70 – 03 o fundición de alta resistencia centrifugado con el fin de evitar que las fallas se vuelvan a presentar.

Palabras clave: Fundición gris, grafito, motor diésel, Concentración de esfuerzos, agrietamiento

ABSTRACT

The following article seeks to determine the causes of failure of a liner for a tugboat's diesel engine, because 14 liners have fractured in approximately 4 years. To meet this objective, laboratory-scale studies were carried out such as visual inspection, NDS tests, chemical analysis, optical microscopy and mechanical tests. The results showed that the sleeve was made of class 30 gray cast iron and that its microstructure contained large, interconnected graphite through which the cracks propagate. It is proposed to manufacture the sleeves with ASTM A536 100 ductile cast iron – 70 – 03 or high-strength centrifuged cast iron in order to prevent failures from occurring again.

KeyWords: Grey cast iron, graphite, diesel engine, Stress concentration, cracking

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