PENGARUH VARIASI TEMPERATUR TERHADAP UJI KEKERASAN *ROCKWELL* PADA BAJA AISI 1045

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Abstrak

Semakin terjadinya pergesekan pada poros gardan dapat menimbulkan keausan pada poros gardan. Untuk meminimalisir tingkat keausan pada poros gardan dibutuhkan bahan material yang memiliki karaktristik tahan aus ketika terjadi gesekan pada poros gardan *(propeller shaff)* seperti: baja AISI 1045 yang memiliki kandungan karbon dengan persentase 0, 45%. Dengan kandungan baja karbon yang sesuai dengan kualisi ketahanan aus bahan tersebut berpotensi untuk dijadikan bahan baku pembuatan poros gardan *(prolleer shaff).* tujuan dari penelitian ini untuk mengetahui nilai kekerasan pada baja AISI 1045. Metode yang digunakan *heat treatment* Dengan variasi temperatur 750^{O}C, 800^{o}C dan 850^{O}C kemudian dilakukan *holding time* 30 menit, serta variasi pendingin solar, air garam dan oli SAE 140. Hasil pengujian kekerasan *Rockwell* didapatkan pada temperatur 750^{o}C dengan variasi pendingin air garam 49,67 HRC, solar 48,17 HRC, dan oli 47 HRC. Temperatur 800^{o}C dengan variasi pendingin air garam 54,67 HRC, solar 52,33 HRC, dan oli 46 HRC. Pada temperatur 850^{o}C dengan variasi pendingin air garam 53,67 HRC, Solar 48 HRC, dan oli 47,50 HRC. Kandungan magnesium pada air garam memperangaruhi kekerasan pada spesimen

Kata kunci: Baja AISI 1045, *heat treatment, holding time, propeller shaff*

EFFECT OF TEMPERATURE VARIATION ON ROCKWELL HARDNESS TEST IN AISI 1045 STEEL

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Abstract

The more friction on the axle shaft can cause wear on the axle shaft. To minimize the wear rate on the axle shaft, materials that have wear-resistant characteristics are needed when there is friction on the axle shaft (propeller shaff) such as: AISI 1045 steel which has a carbon content of 0.45%. With a carbon steel content in accordance with the quality of wear resistance, this material has the potential to be used as a raw material for making axle shafts (prolleer shaff). The purpose of this study was to determine the hardness value of AISI 1045 steel. The method used was heat treatment. With a temperature variation of 750^{O}C, 800^{o}C and 850^{O}C then a holding time of 30 minutes was carried out, as well as variations in diesel coolant, salt water and SAE 140 oil. Rockwell hardness test results were obtained. at a temperature of 750^{o}C with a variety of cooling brine 49.67 HRC, diesel 48.17 HRC, and oil 47 HRC. Temperature 800^{o}C with variations of cooling brine 54.67 HRC, diesel 52.33 HRC, and oil 46 HRC. At a temperature of 850^{o}C with a variation of 53.67 HRC of salt water, 48 HRC of diesel fuel, and 47.50 HRC of oil. The magnesium content in brine affects the hardness of the specimen

Keywords: AISI 1045 steel, heat treatment, holding time, propeller shaff