ABSTRAK

Sprocket merupakan bagian yang sangat penting pada sepeda motor yang berpasangan dengan rantai, berfungsi untuk meneruskan gaya dari *engine* ke roda belakang. Sehingga telah dilakukan penelitian tentang pengaruh media pendingin air garam pada proses *pack carburizing sprocket* sepeda motor imitasi dengan media carbon arang tempurung kelapa terhadap nilai kekerasan dan ketebalan difusi, menggunakan variasi temperatur 800°C, 850°C, 900°C dan dilakukan waktu penahanan masing-masing 1 jam, 1,5 jam, 2 jam. Pada temperatur 800°C dengan waktu penahanan 1 jam, 1,5 jam dan 2 jam nilai kekerasanya yaitu 76,5 *HRC* dengan ketebalan difusi 53,13μ, 83,7 *HRC* dengan ketebalan difusi 59,91μ, dan 91,5 *HRC* dengan ketebalan difusi 89,36μ. Sedangkan pada temperatur 850°C waktu penahanan 1 jam, 1,5 jam dan 2 jam nilai kekerasanya 101,5 *HRC* ketebalan difusi 82,97μ, 102,7 *HRC* ketebalan difusi 94,42μ dan 110,5 *HRC* ketebalan difusinya 190,26μ. Sedangkan pada temperatur 900°C waktu penahanan 1 jam, 1,5 jam dan 2 jam nilai kekerasanya 106,1 *HRC* dengan ketebalan difusi 168,95μ, 112,7 *HRC* ketebalan difusi 214,6μ dan 122,2 *HRC* ketebalan difusi 397,95μ. Dari data hasil penelitian menunjukan bahwa temperatur mempengaruhi naiknya kekerasan *sprocket* dan waktu penahanan mempengaruhi peningkatan kekerasan *sprocket,* semakin lama waktu penahanan maka semakin banyak jumlah karbon yang terdifusi ke *sprocket* dan Air garam sendiri memiliki kemampuan mendinginkan dengan cepat dan teratur sehingga dapat menjebak karbon yang masuk ke pori-pori *sprocket* setelah dilakukan proses *carburizing*.

Kata Kunci: *Pack Carburizing,* Pendingin air garam, Kekerasan,Ketebalan difusi

ABSTRACT

The sprocket is a very important part of the motorcycle that is paired with the chain, serves to transmit the force from the engine to the rear wheels. So that a research has been conducted on the effect of salt water cooling media on the process of imitation motorcycle pack carburizing sprocket with coconut shell charcoal carbon media on the value of hardness and diffusion thickness, using temperature variations of 800°C, 850°C, 900°C and the holding time of each has been carried out. - 1 hour, 1.5 hours, 2 hours respectively. At a temperature of 800°C with a holding time of 1 hour, 1.5 hours and 2 hours, the hardness values are 76.5 HRC with a diffusion thickness of 53.13μ, 83.7 HRC with a diffusion thickness of 59.91μ, and 91.5 HRC with a diffusion thickness of 59.91μ. diffusion 89.36μ. Meanwhile, at 850°C the holding time is 1 hour, 1.5 hours and 2 hours, the hardness value is 101.5 HRC, the diffusion thickness is 82.97μ, 102.7 HRC the diffusion thickness is 94.42μ and 110.5 HRC the diffusion thickness is 190.26μ. While at a temperature of 900°C holding time for 1 hour, 1.5 hours and 2 hours the hardness value is 106.1 HRC with a diffusion thickness of 168.95μ, 112.7 HRC a diffusion thickness of 214.6μ and 122.2 HRC a diffusion thickness of 397.95μ. . From the research data shows that temperature affects the increase in sprocket hardness and holding time affects the increase in sprocket hardness, the longer the holding time, the more carbon will diffuse into the sprocket and the salt water itself has the ability to cool quickly and regularly so that it can trap carbon that enters the sprocket. sprocket pores after the carburizing process.

Keywords: *Pack Carburizing, Brine Cooling, Hardness, Diffusion Thickness*