ABSTRAK

Dengan perkembangan teknologi sekarang ini pemakaian material sangat dominan. Dalam dunia teknik dikenal dua jenis material, yaitu logam dan non logam. Sebagai dasar pemilihan material yang digunakan dibutuhkan data-data yang kongkrit mengenai material. Penelitian ini bertujuan untuk mengetahui struktur mikro dan kekerasan *top compression* dan *2nd compression* ring piston standar baru, ring piston non-standar baru, dan ring piston standar bekas pakai pada Yamaha 135cc.

Nilai kekerasan *top compression* ring piston standar baru Yamaha 135cc memiliki nilai kekerasan 496,957 VHN dan pada *top compression* ring piston standar bekas pakai mengalami penurunan dengan nilai kekerasan 427,711 VHN. *Top compression* ring piston non-standar baru memiliki kekerasan dibawah *top compression* ring piston standar baru dengan nilai kekerasan 408,497 VHN. Pada *2nd compression* ring piston standar baru Yamaha 135cc memiliki nilai kekerasan 315,288 VHN dan pada *2nd compression* ring piston standar bekas pakai mengalami penurunan dengan nilai kekerasan 281,239 VHN. *2nd compression* ring piston non-standar baru memiliki kekerasan di bawah *2nd compression* ring piston standar baru dengan nilai kekerasan 243,492 VHN.

Kata kunci: ring piston, *top compression, 2nd compression*, pengujian struktur mikro dan kekerasan

ABSTRACT

With the current technological development the use of materials is very dominant. In the world of engineering there are two types of material, namely metallic and non-metallic. As a base material used election takes concrete data about the material. This study aimed to investigate microstructure and hardness of top compression and 2nd new standard compression piston rings, new non-standard piston rings and standard piston rings used on the 135cc Yamaha.

The hardness values of top compression piston rings new standard Yamaha 135cc had a hardness value of 496.957 VHN, the top compression piston rings standard used decreased with a hardness 427.711 VHN. Top compression piston rings non-standard had a hardness below the top compression piston rings new standards with a value of 408.497 VHN hardness. In the 2nd compression piston rings new standard Yamaha 135cc had a hardness value of 315.288 VHN and the 2nd compression piston rings standard used decreased by hardness 281.239 VHN. The 2nd compression piston rings non- standard had a hardness below the 2nd compression piston rings new standards with 243.492 VHN hardness value.

keywords: *piston ring, top compression, 2nd compression, microstructure and hardness testing*

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