

## ABSTRACT

The kinds of motorcycle namely Vespa Piaggio, Honda Grand, and Yamaha Force 1. These entire motorcycle brand mostly liked and they are in demand in Indonesia marketing. We had known the motorcycle brand because of its nomination and it's achievable price of course, these qualification enable us as consumers to be interested in it.

We choose motorcycle not only seeing the fashion and price but also the quality of it. It deals with the rider's safety, length using of its instruments and reselling price. Therefore, the writer is going to search one of the instruments of two-wheeled motorcycle in other to know the benefit characteristic of each instrument.

The research about Vickers' hardness in connecting rod Vespa Piaggio motor cycle, Honda Grand, and Yamaha Force 1 is to compare the three instruments with connecting rod standard. The micro structure research in connecting rod of Vespa Piaggio motor cycle, Honda Grand, and Yamaha Force 1 is find grain form of element.

The result of the experiment shows that Vickers' hardness of the connecting rod about HV=617.169 kg/mm<sup>2</sup> for Vespa Piaggio, HV=621.16 kg/mm<sup>2</sup> for Honda Grand, and HV=657.9 kg/mm<sup>2</sup> for Yamaha Force 1. The standard of connecting rod material HB= 375kg/mm<sup>2</sup> or HB390 kg/mm<sup>2</sup>. Thus, the price of each connecting rod is involved as the standard price. By the experiment of microstructure, it can be compared between three connecting rods which each of them has different grain from one to another.

## INTI SARI

Jenis-jenis kendaraan bermotor roda dua atau sepeda motor ada bermacam-macam, di antaranya Vespa Piaggio, Honda Grand dan Yamaha Force 1. Ketiga macam merk sepeda motor tersebut banyak peminatnya dan laku di pasaran Indonesia. Dalam hal memilih sepeda motor kita tidak hanya melihat berdasarkan model dan harga tetapi kualitas sepeda motor itu sendiri, karena berkaitan dengan kenyamanan pengendara, umur komponen-komponen serta harga jika motor itu dijual kembali. Untuk itu penulis akan melakukan penelitian tentang salah satu komponen yang terdapat dalam kendaraan bermotor roda dua, dengan harapan dapat mengetahui lebih dalam manfaat, keuntungan serta ciri khas komponen tersebut.

Penelitian tentang kekerasan Vickers pada batang torak sepeda motor Vespa Piaggio, Honda Grand dan Yamaha Force 1 adalah untuk membandingkan ketiga komponen tersebut dengan standar bahan batang torak. Penelitian struktur mikro pada batang torak sepeda motor Vespa Piaggio, Honda Grand dan Yamaha Force 1 untuk mengamati bentuk butiran pada elemen.

Hasil pengujian menunjukkan kekerasan Vickers rata-rata di setiap titik pengujian batang torak Vespa Piaggio HV = 617,65 Kg/mm<sup>2</sup>, kekerasan batang torak Honda Grand HV = 621,16 Kg/mm<sup>2</sup>, kekerasan batang torak Yamaha Force 1 HV = 657,9 Kg/mm<sup>2</sup>. Standar untuk bahan batang torak adalah IIB = 375 Kg/mm<sup>2</sup> atau HV = 390 Kg/mm<sup>2</sup>. Dengan demikian harga kekerasan untuk ketiga batang torak tersebut sudah di atas harga standar yang ada. Dari hasil pengujian struktur mikro dapat dibandingkan ketiga batang torak memiliki butiran yang berbeda.