Analysis Of Shunt Strength In Variations Bolts Made From Cast Piston Waste Motorcycle

Muhammad Rizki Fajar Ramadhan

Mechanical and Automotive Engineering Programs

Departemen Of Engineering

ABSTRACT

Bolt is a machining component that is used as a bond between two elements, where the basic material used in making bolts is piston waste. The purpose of this study was to determine the torsional strength of the bolt variation made from waste piston motorbikes and compare the strength of torsional bolts variations made from waste piston piston motorbikes with steel bolts. The torque test results of M8 bolts are 0.43 N.m, shear stress is 4.40 Mpa, shear modulus of elasticity is 4.21 Mpa and shear strain is 1.04. M10 bolt has a torque strength of 1.08 N.m, shear stress of 5.50 Mpa, shear modulus of 2.91 Mpa, shear strain of 1.89. M12 bolt has a torsional strength of 2.27 N.m, 6.90 Mpa shear stress, 1.80 Mpa shear elastic modulus, 3.90 shear strain. It was concluded that the larger the diameter of the bolt, the greater the value of the torsional strength. The highest torsional strength value is 2.4 N.m which means it has a strength of 0.83% smaller than steel bolts. For construction, it is then amended to add another mixture to change the alloying element from the piston waste and perform microstructure testing.

Keywords: Bolts, Piston waste, Twisting test.