Abstrak

PERENCANAAN DAN DESAIN ALAT UJI TARIK KOMPOSIT FRAGMENTASI BERBASIS DIGITAL

Penelitian ini bertujuan untuk mendesain dan merancang alat uji tarik komposit fragmentasi berbasis digital dengan menggunakan aplikasi autodesk inventor.

Metode penelitian ini dilakukan dengan metode desain dan perancangan untuk memberikan penjelasan desain dan rancangan alat uji tarik komposit fragmentasi berbasis digital.

Hasil dari penilitian desain alat uji tarik komposit fragmentasi berbasis digital bahwa ada 11 komponen utama pada alat uji tarik dan analisis perhitungan ulir a. tensil stress area= 50,81 mm², b. torsi ulir daya=5,09 Nm, c. hubungan momen punter dan gaya aksial ulir segi empat= 18,234 Nm, d. Efesiensi ulir daya= 57,26% dan tegangan baut= 4,08 . Hasil perancangan komponen-komponen alat uji tarik menggunakan aplikasi autodesk inventor seperti komponen yaitu kontruksi box, dudukan gripper, gripper, pilar penggerak, Ulir penggerak force gauge, indikator penggeak, connection join force gauge, dudukan force gauge, penutup atas alat uji tarik, baut dan mur.

Kata Kunci : *Alat uji tarik komposit,perencanaan ulir baut dan mur*

This study aims to design and design a digital-based fragmentation composite tensile test tool using the autodesk inventor application.

This research method is carried out using design and design methods to provide an explanation of the design and design of digital-based fragmentation composite tensile test equipment.

The results of the research on the design of digital-based fragmentation composite tensile test equipment that there are 11 main components in the tensile test equipment and analysis of thread calculations a. tensile stress area = 50.81 mm², b. power thread torque=5.09 Nm, c. the relationship of torsional moment and axial force of rectangular thread = 18.234 Nm, d. Power thread efficiency = 57.26% and bolt tension = 4.08 kg/mm². The results of the design of the components of the tensile test equipment using the autodesk inventor application such as components, namely box construction, gripper mounts, gripper, driving pillars, force gauge drive thread, gauge indicators, connection join force gauge, force gauge holder, top cover for tensile test equipment, bolts and myrrh.

Keywords : *Composite tensile test equipment, screw and nut thread planning*