

***EFFECTS OF HOLDING TIME IN QUENCHING PROCESS ON CHANGES
IN TENSILE STRENGTH AND TOUGHNESS OF AISI 1045***

By

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ABSTRACT

In the industry world, steel is a material widely used. One type of steel widely used is AISI 1045 steel, classified as medium-carbon steel. However in its use, the characteristic of steel property itself is not in accordance with the desired needs. Therefore, it is required engineering or changes in the property and characteristic of steel meet the desired needs. One of the ways is quenching method, of which the process is affected by holding time used.

To determine the effects of holding time in quenching process of AISI 1045 steel, in this study it was performed tensile and toughness tests on steel. Variations of holding time used in this study were 15, 30, and 60 minutes at a temperature of 900⁰C-1000⁰C. The test result show that the greatest tensile strength is 1,588 kN/mm² at the holding time 30 minutes, and the biggest steel toughness is owned by raw material equal to 15.33 J/mm².

Keywords :Tensile test, Holding Time, Quenching, AISI 1045 Medium Carbon Steel.