

ANALISIS SIFAT MEKANIK BAJA AISI 1045 MELALUI PROSES QUENCHING TERSIRKULASI DAN TEMPER SEBAGAI BAHAN ALTERNATIF PAHAT PEMOTONG PAKU

Febry Achmad Zahmal dan Ikal Adi Lestari¹⁾, Syaharuddin Rasyid dan Ahmad²⁾

1). Alumni T.Mesin Politeknik Negeri Ujung Pandang
email; febryachmad16@gmail.com

2) Dosen T. Mesin Politeknik Negeri Ujung Pandang
email: saharpnup@gmail.com

Abstract - *The purpose of this research is to improve the quality of the chisel cutting nails with quenching process using steel AISI 1045 at a temperature of 850°C and 900°C by varying the speed of the cooling medium 3.29 m/s, 0.82 m/s, 0.36 m/s, 0.2 m/s, 0.13 m/s. The method used is the process of heating the specimen at temperatures of 850°C and 900°C with holding time for 30 minutes, then specimen in quenching the cooling medium flowing water and then proceed with the tempering. Hardness testing methods after quenching and tempering is method Cone Hard Rockwell (HRC) and the method is a method Charpy impact testing. The test results obtained in this study, the highest hardness value is at a temperature of 900°C before 3.29 tempered by the cooling speed m/s at 59.8 HRC and impact strength value of 5.73 Nm/mm². After tempering process value drops to 58.2 HRC hardness and impact strength values rose to 6.28 Nm/mm². From these results indicate that the AISI 1045 steel can be used as an alternative material to use nail cutter chisel, which uses SKD11 steel with 58-60 HRC hardness value.*

Keywords: *Quenching, Tempering, Tersirkulasi, Baja AISI 1045*