

## ABSTRAK

### **Pengaruh Variasi Temperature Hardening terhadap Struktur Mikro dan Kekerasan Baja HQ-705**

**(2019: xi + 35 Hal. + Daftar Gambar + Daftar Tabel + Lampiran)**

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*Baja HQ 705 merupakan baja karbon sedang dengan kandungan kimia 0.31% C, 0.26% Si, 0.74% Mn, 0.01 %p, 0.021 % S, 1.59% Cr, 1.41 % Ni, 0.226%Mo. Dengan kandungan karbonnya memungkinkan baja ini dikeraskan dengan proses perlakuan panas hardening dan media pendingin. Metode eksperimen digunakan dalam penelitian ini, dengan 1 spesimen raw material dan 9 spesimen untuk proses hardening. Variasi temperature yang digunakan adalah 830<sup>0</sup>C, 845<sup>0</sup>C, 860<sup>0</sup>C dengan holding time selama 30 menit dan didinginkan menggunakan air kelapa. Hasil pengujian didapatkan rata-rata specimen raw material sebesar 30.64 HRC. Spesimen I temperature 830<sup>0</sup>C dengan holding time 30 menit sebesar 50.20 HRC, Spesimen II temperature 830<sup>0</sup>C dengan holding time 30 menit sebesar 52.44 HRC, Spesimen III temperature 830<sup>0</sup>C dengan holding time 30 menit sebesar 50.54 HRC, Spesimen I temperature 845<sup>0</sup>C dengan holding time 30 menit sebesar 52.64 HRC, Spesimen II temperature 845<sup>0</sup>C dengan holding time 30 menit sebesar 52.12 HRC, Spesimen III temperature 845<sup>0</sup>C dengan holding time 30 menit sebesar 53.20 HRC, Spesimen I temperature 860<sup>0</sup>C dengan holding time 30 menit sebesar 53.30 HRC, Spesimen II temperature 860<sup>0</sup>C dengan holding time 30 menit sebesar 54.14 HRC, Spesimen III temperature 860<sup>0</sup>C dengan holding time 30 menit sebesar 53.80 HRC. Dari hasil pengujian didapatkan tingkat kekerasan rata-rata tertinggi pada specimen II Temperature 860<sup>0</sup>C dengan holding time 30 menit sebesar 54.14 HRC, terjadinya perubahan struktur mikro sebelum proses hardening dan setelah hardening.*

**Kata kunci:** Variasi Temperatur, Baja HQ-705, Struktur Mikro dan Kekerasan

## ABSTRACT

### Effect of Hardened Temperature Variation to the Micro Structure Hardness Number of HQ-705 Steel

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*Steel HQ 705 is medium carbon steel with a chemical content of 0.31% C, 0.26% Si, 0.74% Mn, 0.01% P, 0.021% S, 1.59% Cr, 1.41% Ni, 0.226% Mo. With its carbon content it allows the steel to be hardened by hardening heat treatment and cooling media. The experimental method was used in this study, with 1 raw material specimen and 9 specimens for the hardening process. The variations in temperature used were 830°C, 845°C, 860°C with a holding time of 30 minutes and cooled using coconut water. The test results obtained an average raw material specimen of 30.64 HRC, Specimen I temperature 830°C with a holding time of 30 minutes at 50.20 HRC, Specimen II temperature 830°C with a holding time of 30 minutes at 52.44 HRC, Specimen III temperature 830°C with a holding time of 30 minutes at 50.54 HRC, Specimen I temperature 845°C with a holding time of 30 minutes at 52.64 HRC, Specimen II temperature 845°C with a holding time of 30 minutes at 52.12 HRC, Specimen III temperature 845°C with a holding time of 30 minutes at 53.20 HRC, Specimen I temperature 860°C with a holding time of 30 minutes at 53.30 HRC, Specimen II temperature 860°C with a holding time of 30 minutes amounting to 54.14 HRC, Specimen III temperature 860°C with a holding time of 30 minutes at 53.80 HRC. From the test results obtained the highest average hardness level in 860°C specimen II with a holding time of 30 minutes at 54.14 HRC, the occurrence of changes in microstructure before the hardening process and after hardening.*

**Keyword:** Temperature Variations, HQ-705 Steel, Micro Structures and Hardness