INFLUENCE OF TEMPERATURE VARIATION IN THE PROCESS OF QUENCH HARDENING, AUSTEMPERING, MARTEMPERING TO MICROSTRUCTURE AND TOUGHNESS VCN 150 CARBON STEEL

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Abstract

Steel is one of the most widely used metal in engineering. The materials with tenacity at the core and hardness at the surface has longer aged relatively than other materials. This materials are able to withstand the load and do work, repeating movements, such as bushing, camshaft, gears, and pinions.

That’s why the author doing research on carbon steel VCN 150 that give heat treatment before, so we know the strength and the structure of micro-level.

After doing research, it was concluded that the highest toughness specimens obtained 0.0363 J/mm² using Austempering treatment at temperature 900 °C and the lowest values obtained 0.0026 J/mm² using water quenching treatment with temperature 900 °C.

Key word : Carbon Steel of VCN 150, quenching hardening, austempering, martempering