

EFFECT OF TEMPERATURE DIFFERENCE ON LOW CARBON STEEL IMPACT STRENGTH

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ABSTRACT

The rapid development of science and technology is very influential on industries in the country, some of which are machinery and construction industries which are mostly metal as raw material. Each metal has different characteristics, the ability of a material in its use can be influenced by various factors including temperature. In an effort to find metal properties that are in accordance with what is needed, among others, is by giving loading treatment at different temperatures. The testing process was carried out at temperatures of -15°C, 28°C, 50°C, 100°C and 200°C. From the research that has been done, it is found that the lowest low carbon steel impact strength price occurs at temperature -15°C. The average impact strength is 0.27 J/mm² with the shape of the result is flat, shiny and looks to break the grain, while Impact of the highest low carbon steel impact occurs at a temperature of 200°C with an average value of the impact strength is 0.52 J/mm² with the shape of the fracture looks fibrous and does not break the grain. Temperature transition from brittle to ductile occurs between temperatures 28°C to 100°C, where the results of the fracture looks shiny on the inside and fibrous on the outside.

Keywords: *Low carbon steel, heating process, cooling process, and impact test.*