International Journal on Recent Researches In Science, Engineering & Technology
(Division of Mechanical Engineering)
A Journal Established in early 2000 as National journal and upgraded to International journal in 2013 and is in existence for the last 10 years. It is run by Retired Professors from NIT, Trichy.
It is an absolutely free (No processing charges, No publishing charges etc) Journal Indexed in JIR, DIIF and SJIF.
Research Paper
Available online at: www.jrrset.com

ISSN (Print) : 2347-6729
ISSN (Online) : 2348-3105

Volume 5, Issue 3, March 2017

JIR IF : 2.54
DIIF IF :1.46
SJIF IF: 1.329

Effect of heat treatment consisting of annealing, normalizing, hardening and tempering on microstructure and mechanical properties of medium carbon steel

Motagi and Lakshmi

Abstract

The authors conducted experiments to study the effect of heat treatment consisting of annealing, normalizing, hardening and tempering on microstructure and mechanical properties of medium carbon steel. For most of the engineering components the process of heat treatment is done to achieve desired mechanical properties which include harness, tougthness,yield strength, ultimate tensile strength etc.Heat treatment process is mostly used for changing microstructure and mechanical properties. Annealing is used for producing steel with refined grains. Normalizing is used for good strength and hardness.Temparing is used for improved ductility and impact strength.Medium carbon steels account for more than 90% of total steel usage. Their experimental work consisted of preparing the specimens of 8x8x3mm.They are grinded and polished the specimens were subjected to two different annealing,oil quenching and temparing at three different temparature200,400,600^{0}c for one hour.The heat treated specimens were tested for mechanical strength and microstructure.The authors have shown through graphs the variation of hardness with temparing temperature,variation of UTS with temaparing temperature and variation of percent elongation with temparing temperature. Also they have exhibited the microstructure for annealed with copper and without copper and normalized with copper and without copper and temperd with copper and with out copper.