بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأفلام قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

بعض الوثائق الاصلية تالفة

بالرسالة صفحات لم ترد بالاصل

Austempering of Spheroidal Graphite (SG) Cast Iron

By

Amer Ahmed Abd Alhkeem

A thesis Submitted to the
Faculty of Engineering at Cairo University
in partial fulfillment of the
requirements for the degree of
MASTER OF SCIENCE

in

METALLURGICAL ENGINEERING

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Abstract

As the spheroidal shape of graphite can not be further improved, the subsequent thrust on research and development has, therefore, been towards the modification of the matrix structure of ductile iron.

Austempering treatment applied to ductile iron provides a quantum leap in mechanical properties – almost doubling its strength while retaining its toughness. The combination of diverse properties such as strength, toughness, ductility, good machinability and low cost has made austempered ductile iron (ADI) substitute forged steel in many industrial applications.

In the present work a systematic study has been made to determine the effect of austempering treatment cycle on the machanical properties of ductile cast iron. The causes behind the superior combination of strength and ductility have been discussed on the basis of microstructures observed. The results are encouraging. The strength properties obtained with the unalloyed ductile iron used in this work are approaching the properties of alloyed ductile iron reported in the literature.