EFFECT OF FLOW RATE ON DEVELOPMENT OF MICROSTRUCTURE BY MIG WELDING

MUHAMAD RIZAL BIN KHALID

(2000127658)

BACHELOR OF ENGINEERING (HONS)
(MECHANICAL)
MARA UNIVERSITY OF TECHNOLOGY (UiTM)

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"I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree".

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Date : 08/11/04

Muhamad Rizal Bin Kalid

UiTM No: 2000127658

ABSTRACT

This final project is about to study the effect of different flow rate on development of microstructure by MIG (metal inert gas) welding. Others variables such as stand-off distance, current and speed of the welding were fixed. Mild steel plates with the thickness of 5mm were used during the study. MIG welding technique was chosen. MIG welding method was used since it is the easiest way and has been used in many welding application. 5 different flow rates were performed during the study; 5 / min, 10 //min 20 //min and 25 //min. The study emphasizes on the best flow rate that produce good quality welding by taking account some of metallurgical aspects; microstructure and macrostructure development, hardness distribution at important areas in weld (HAZ, parent metal and weld area). Besides that, density determination was also performed in order to find out any relation between these properties to others. From this study, it shows that flow rate 10 / min give the good properties in terms of hardness profile and density. Hardness measurement, density test, macro and microstructure observation were performed in order to find out relation between these parameters.

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