

**A STUDY ON THE EFFECT OF HEAT INPUT
TO THE FRACTURE TOUGHNESS OF SA 36
LOW CARBON STEEL WELD METAL**

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ABSTRACT

The aim of this study is to examine the effect various welding heat input on the change of mechanical behavior of S A3 6 type weld mild steel. The experimental data of fracture toughness of the SA36 type mild steel with 0.2% carbon content weldment produced by Metal Inert Gas welding (MIG) method with welding code ASME IX are presented. Results for the weldment were obtained on the weld metal fabricated. The tensile test and fracture toughness test conducted according to BS2782 part 9: 1998 and BS7448 part 1:1991. Results show that the increase of welding heat input (17volt, 21 volt and 23volt) has significant effect on the change of weld mild steel microstructure. The increase of heat input caused softening of the weld metal and heat affected zone (HAZ) due to the microstructural change and microstructural coarsening. Consequently the microstructure change influenced on the increment of weld metal yields strength, σ and decrement on weld metal fracture toughness, J .

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TABLE OF CONTENT

	Page
Abstract	ii
Acknowledgement	iii
List of Figures	vii
List of Tables	x
CHAPTER 1	
Introduction	1
1.1 General Overview on Fracture Mechanics Theory	2
1.1.1 Fracture Toughness Testing of Welded Specimen	3
1.2 General Overview on MIG (Metal Inert Gas) Welding	5
1.2.1 MIG Welding Technique	7
1.2.2 Relation between Weld Size and Heat Input	7
1.3 General Overview on Heat Input In Welding Process	8
1.3.1 Arc Voltage	9
1.3.2 Current	9
1.3.3 Travel Speed	
1.4 Microstructure Study by Optical Microscope	10
CHAPTER 2	
Literature Review	12
CHAPTER 3	
Theoretical Background	19
3.1 Linear Elastics Fracture Mechanics (LEFM) and Elastics Plastics Fracture Mechanics (EPFM)	19

3.2 Stress Intensity Factor (K)	20
3.3 Crack Tip Opening Displacement (CTOD)	21
3.3.1 Crack Tip Opening	22
3.3.2 Determination of CTOD	23
3.3.3 Determination of F_m and q_m	24
3.3.4 Calculation of crack Tip Opening Displacement (CTOD)	25
3.4 Determination of J-Integral	
3.4.1 Interpretation of the Force (F) Versus Load line Displacement	26
3.4.2 Determination of F_m and q_m	26
3.4.3 Determination of U_p	26
3.4.4 Calculation of j-integral	27

CHAPTER 4

Experimental Methodology

4.1 Specimen Preparation	29
4.1.1 Tensile Test Specimen Preparation	31
4.1.2 Three Points Bend Test (SENB) Specimen Preparation	31
4.1.3 Microstructure study Specimen Preparation	32
4.2 Testing Method	
4.2.1 Tensile Test	35
4.2.2 Fracture Toughness Test	36
4.2.3 Microstructure Study	37

CHAPTER 5

Experimental Result and Discussion

5.1 Tensile Test Result	39
5.2 Results on Fracture Toughness Test, J-integral	43
5.3 Microstructure Study	45