

FINAL YEAR REPORT
DIPLOMA IN MECHANICAL ENGINEERING
SCHOOL OF ENGINEERING
MARA INSTITUTE OF TECHNOLOGY
40450 SHAH ALAM
SELANGOR DARUL EHSAN

TITLE:

TO STUDY TIG ARC AND WELDING
CHARACTERISTIC

DONE BY:

AMRAN B. ABD. RAHMAN

MOHD FISOL B. FADHIL

CONTENTS

PAGE

Preface
Acknowledgement

CHAPTER 1

1.0.0 Introduction1
1.1.0 Principles of tungsten arc
welding2
1.2.0 Some safety measure in
welding6
1.2.1 Personal protection6
1.2.2 Fire prevention7
1.2.3 Electrical shock8
1.2.4 Ventilation10

CHAPTER 2

2.0.0 Literature study on
parameters involved in GTAW ..11
2.1.0 Arc voltage11
2.2.0 Arc current12
2.2.1 Direct current,
straight polarity (DCSP)12
2.2.2 Direct current,
reverse polarity (DCRP)14
2.2.3 Alternating current.....15
2.3.0 Electrode shape15

PREFACE

With the bless of Allah we hope that our project will be succesfull. The objective of our project is to analyse the parameter of TIG welding arc. Instrument where are used in this project a hidraulic system and set of TIG welding.

In this project the velocity of sylinder stroke, type current value, vottage and electrode shape and type will be part of the parameters that will be given special observation in this project.

All the parameters will be recorded where it will be used to analyse the criteria of arc in the welding. It is with greates hope that with the completation that with the completion of this project student, lectures and those who are interested in applying or using project it for research other other fields which is interelated.

Wallahualam.

ACKNOWLEDGEMENT

We would like to take this opportunity to say that we are indebted to many people in many ways in completing our project. We would like to wish every one of them our sincere thanks.

In particular we would like express our greatest appreciation to Encik Sunhaji Bin Kiyai Abbas for the encouragement, advise and guidance which help us in making this project a succes. His support, encouragement and understanding from time to time are too precious to be valued. With his efforts, he had actualy given us the confidence that we most needed to make this project into a reality.

Also to all lectures, the technicians of the Mechanical Engineering Department of Technology as well as many of our friend, who had given their sincere comments and sharing their views in doing the project.

1.0 INTRODUCTION

The objective of our project is to analyse the parameters of TIG arc welding. In welding there are certain particular characteristics which are dictated by the nature of the application. All the parameters like type of current used, current value, voltage, electrode shape and type and welding speed will be recorded and they will be used to analyse the behaviour of the arc in welding.

Shielding gas is the foundation in TIG arc welding, we will explain its behavioral characteristics which occur during the experiment.

It is important to follow safety regulation in welding for high personal and equipmental protection. Failure to observe these safety can result in personal injury like skin and eye burn, severe burns to the body or fatal shock, discomfort and pysical harm and death.

The study of the welding characteristics upon variations in parameters will be reported is the objective to write and may be used for reference in the future.