MOTOR CURRENT TO PREDICT SURFACE SMOOTHENESS QUALITY ON THE TAPER HOLE OF ANCHOR BLOCK

By

Hery Agung Kurniawan

2-1752-016

MASTER'S DEGREE
in

MECHANICAL ENGINEERING - MECHATRONICS CONCENTRATION

FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

August 2018

Revision after Thesis Defense (02 August 2018)

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, or material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

[Hery Agung Kurniawan]

Student _____ Date _____

Approved by:

[Dr. Ir. Gembong Baskoro M.sc]

Thesis Advisor _____ Date _____

[Edi Sofyan, B.Eng., PhD]

Thesis Co-Advisor _____ Date _____

[Dr. Irvan Setiadi Kartawiria, S.T., M.Sc]

Dean _____ Date _____

ABSTRACT

MOTOR CURRENT TO PREDICT SURFACE SMOOTHNESS QUALITY ON THE TAPER HOLE OF ANCHOR BLOCK

By

Hery Agung Kurniawan

Thesis Advisorus, Advisor Dr. Ir. Gembong Baskoro, M.sc.

Co-Advisor, Edi Sofyan, B.Eng., PhD. Co-Advisor

SWISS GERMAN UNIVERISTY

Surface Roughness measurement is one big problem on the Anchor Block making process. The problem is caused of the weight of product is around of 30 – 50 kg / piece, volume of product is around 1100 pieces / month, and the distance of the quality room and the production line is around 800 meter. We want find some solution of this problem by creating a device that can convert the current on the machine spindle to be roughness level value.

Current on the spindle motor is one thing that always present on the milling manufacture process. By knowing the characteristic of the machine and the process, then the produced current can used as a parameter comparison of mechanical output for example surface roughness on the hole of anchor block.

By modify current measurement device to be Roughness Predicting Device, with add the equation $\boldsymbol{y2 = (-0.00037) * x1^2 + 0.185 * x1 + 0.0}$ in the control of the device, with the tolerance of the Roughness Predicting Device is ***± 10 %,*** and using current on the spindle motor as a parameter input for the device. We can directly compare mechanical output (surface roughness) on the machine without bringing the work piece to the quality room.

Keywords: Spindle Motor Current, Surface Roughness, Roughness Predicting Device

DEDICATION

I dedicate this work for the better future of ATMI Cikarang, the place that I work

ACKNOWLEDGEMENTS

Praise be to the Lord, for all his grace and guidance, so that the Author can finish his thesis with the title **"MOTOR CURRENT TO PREDICT SURFACE SMOOTHNESS QUALITY ON THE TAPER HOLE OF ANCHOR BLOCK "**

This final thesis resolved not be separated from the support and cooperation with other parties.

In this regard, the Author would like to thank.

Dear:

1. My parents, that are always guiding and pray throughout the course of my life.
2. My beloved wife, that always support all thing in my life.
3. Dr. Ir. Gembong Baskoro, M.Sc. that always guidance during the study Authors in SGU and the process of writing this thesis.
4. Edi Sofyan, B.Eng., PhD. that always guidance during the study Authors in SGU and the process of writing this thesis.
5. The SGU lecturers who has given all his knowledge.
6. Management ATMI Cikarang, which provides the opportunity for the Author to continuing education at SGU.
7. My friend, Dananto who always help and share knowledge in order to assist Author in undergoing the process of the study and the completion of this thesis.
8. My friend, Tatang who always help and share knowledge in order to assist Author in undergoing the process of the study and the completion of this thesis.

Contents