

**THE EFFECT OF THE WORKPIECE'S SHAPE AND TYPE OF MATERIAL
AGAINST THE SIZE DISTORSION IN HARDENING PROCESS**

By

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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, nor 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.

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ABSTRACT

THE EFFECT OF THE WORKPIECE'S SHAPE AND TYPE OF MATERIAL AGAINST THE SIZE DISTORSION IN HARDENING PROCESS

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Efficient become one things to be considered so that can maximize performance and develop the productivity. The grinding process plays an important role in improving efficiency because the it is takes a considerable amount of time in the process of feeding. So far there has been no standard advice on the raw material sizing that will be on the grinding wheel as allowance, so that many industries use their own standards based on approximately.

This thesis discusses how much the actual allowance needed for each type of material and its shape. To find out, the authors used an experimental method to determine the expansion of heat of the heated steel expansion in the hardening process as one of the things that could cause size distortion which further affects allowance. Experiment this time the author use 3 different type of material that is AISI 1045, 4130 and 4340, and make 2 common form, that is solid and hollow form with length each 70 mm. Size, linear and geometric tolerances become controlled variables for each specimen to be treated equally. The verification and inspection process is carried out by using high precision measuring instruments such as CMM machines, surface and hardness tester.

Keywords: efficient, size distorsion, allowance, expansion of heat, AISI 1045, AISI 4340, AISI 4130



DEDICATION

I dedicate this works for Yosephine Endang Susilowati and Ellya Mahardika.



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