



**TO OBTAIN THE OPTIMUM PARAMETERS FOR WELDING
OF STAINLESS STEEL USING FRICTION WELDING
TECHNIQUE**


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

Signed : 
Date : 19/5/10
The signature is a stylized cursive 'A' followed by 'B' and 'M'.

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ABSTRACT

The project attempted to investigate the effect of varying the welding parameters that required welding **Stainless Steel** by friction welding technique. The parameters involved in this study were *heating pressure*, *heating time*, *forging pressure* and *forging time*. The scope of the project was to obtain the optimum parameters for welding of *Stainless Steel (SS 304)* specific on 6mm diameter using friction welding technique. The values were obtained by combining the analysis made on the mechanical properties using Tensile Test and by Visual Inspection. Initially, five (5) welding samples at different *heating pressure* are conducted at constant *heating time*, *forging pressure* and *forging time*. The tensile strength of each sample is recorded and a graph of strength against heating pressure plotted. The optimum value for the heating pressure was obtained by combining with that of Visual finding. Similar experiments were carried out for the *heating time*, *forging pressure* and *forging time*. The optimum parameters were selected should be balance-up with the visual inspection of weld quality and it's not necessarily due to the higher value of tensile stress. Otherwise, it also depends on the shape of the flash either good shape or over forming of flash. From the findings, it can be concluded that the optimum parameters for welding of stainless steel specific on 6mm diameter using friction welding technique are following; *Heating Pressure (20 bar)*, *Heating Time (4 second)*, *Forging Pressure (40 bar)* and *Forging Time (6 second)*.

(1 bar = 1.0197kgf/cm²)

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