

DEVELOPMENT OF OPTIMUM RANGE OF JOINT DESIGN FOR CARBON STEEL  
BY SMALL WIRE SUBMERGED ARC WELDING PROCESS.

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## **ABSTRACT**

Submerged arc welding (SAW) is commonly used for fabricating large diameter line pipes, pressure vessels and structures due to its high deposition capability, high quality welds, ease of automation and low operator skill requirement. The purpose of this study is to investigate and develop the optimum welding condition for small wire submerged arc welding. The welding is performed on a fiat plate with V-groove profile. The welding parameters are current, voltage, welding speed and joint design. The optimized welding conditions were obtained from another project. In order to achieve good weld penetration, one critical parameter on joint design is the variation of root gap. The result of this experimentation showed that the root gap has to be within 2 to 4mm spacing. The root bead has to be supported by flux bed. Standard welding procedure test were applied on the welded joint. The result of tensile, bending and macro etching test were successful, thus verifying the good weldability or the process and its parameter.

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