

**DESIGN OF PORTABLE SPOT WELDING WITH A CAPACITY 1000
WATT BY INCREASING SIZE OF THE SECONDARY WINDING**

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ABSTRACT

Spot welding is generally large-scale, high-power and heavy, so it becomes a problem when used in daily needs/in small industries. Therefore, this final project will be directed at the design and assembly of portable spot welding used variations in coil wire diameter of 8 mm, 4 mm, and 1 mm to determine the effect of increased weldability. The method used in this research is design method. The research design is carried out sequentially started from planned, modeled, assembled, and functional tested through tensile tests and micro tests. In the 1 mm secondary coiled wire did not able to reach a sufficient temperature to obtain a weld connected. The 4mm coiled wire did only capable of welded plates at a plate thickness of 0.3 mm with a UTS of 35.5 N/mm^2 , and the 8 mm coiled wire did capable of welded at a plate thickness of 0.3 mm with a UTS of 45.3 N/mm^2 to 0.6 mm with a UTS of 18.8 N/mm^2 . The maximum capability of the portable spot welding tool only reaches a plate thickness of 0.6 mm with a variation of 8 mm of wire coil. The larger of the diameter secondary coil wire will produce a higher tensile strength in the welded joint so that will produce welded area be a wide.

Keywords: Spot Welding Portable, Transformator, Secondary Winding, Tensile Testing, Macro Photo.