

## **STUDY THE EFFECT OF ADDITION COPPER LAYER FOR SPOT WELDING OF LCS- 304LSS JOINTS**

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### **ABSTRACT**

The resistance spot welding of dissimilar materials is generally more challenging than that of similar materials due to differences in the physical, chemical and mechanical properties of the base metals. The influence of the primary welding parameters affecting the heat input such as; peak current on the morphology, micro hardness, and tensile shear load bearing capacity of dissimilar welds between Low Carbon steel and 304LSS joints and LCS-Cu-304LS joints investigated in this study. This study has been done in two stages: First, welding LCS -304LSS in weld parameters changed, after addition Copper sheet between LCS and 304LSS sheets in Optimum Parameters (8KA welding current, 20Cycle weld time and 15.6N) force of electrode. Results shown that the increasing in Weld current, weld time and force of electrode led to increase of the mechanical properties for joints and the addition Copper layer between LCS and 304LSS led to reduce the mechanical properties for joints such as (the Maximum Load and Hardness) and the failure mode changed from pullout in LCS-304LSS joints to Interfacial mode for LCS-Cu-304LSS joints .

**KEYWORDS:** Resistance Spot Welding, Weldability, Low Carbon Steel, 304L stainless Steel, and Copper Layer, Tensile-Shear Load, Welding Parameters, Mechanical Properties