

## Optimization on Spot Weld Parameters in Resistance Spot Welding Process on AISI 304

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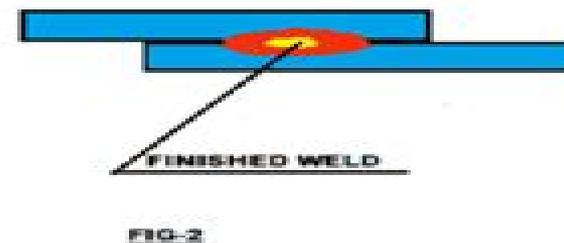
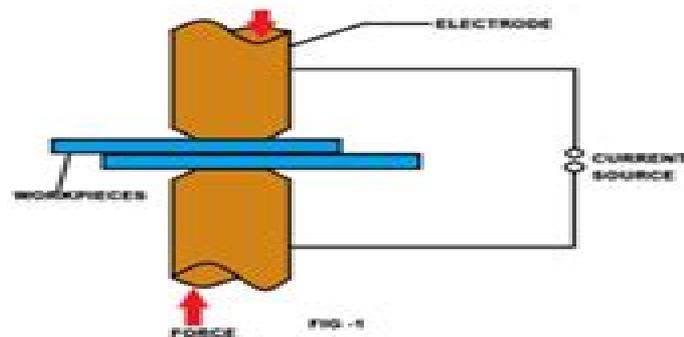
### ABSTRACT

The spot welding procedure is used in a variety of industrial applications. The most critical elements influencing welding quality, productivity, and cost are the spot welding parameters. This research examines the effect of welding factors such as welding current and welding time on the strength of various welding joint designs. Resistance spot welding (RSW) is used in the automotive industry for manufacturing. This research focused on the optimization of process parameters for resistance spot welding (RSW), as well as the tensile testing and spot weld diameter. The goals of this analysis are to comprehend the physics of the process and to demonstrate the effect of electrical current, weld time, and material type on the resistance spot welding process.

**Keywords**-- AISI 304, Spot Welding, Workpieces

### I. INTRODUCTION

Spot welding is one of the most used industrial operations. It is a sort of resistance welding in which heat is generated by using the resistance of the workpiece. Because pressure is applied throughout the welding process, resistance welding is also known as pressure welding. This procedure is distinct from others in that no flux or filler material is required for welding. In this procedure, two or more metals are bonded point to point to form the electrode tip shape. Workpieces are put between the electrodes depicted in Fig. 1, and high current is sent between them after applying pressure for a brief period of time. Parts are heated locally in all types of resistance welding. The material between the electrodes is forced together, melting and destroying the space between the sections. After the current is turned off, a "Nugget" of molten material forms after solidifying and establishing joints, as seen in Fig 2.



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