ABSTRAK

Kualitas hasil *resistance spot welding* mengacu standar keberterimaan dipengaruhi nilai arus listrik pengelasan, ketebalan, jenis material, yang ditinjau dari lebar diameter *nugget* las dan kekuatan tegangan geser. Permasalahan penelitian adalah pengaruh arus listrik pengelasan terhadap kualitas las. Tujuan penelitian adalah analisis pengaruh variasi arus listrik pengelasan terhadap kualitas las mengacu standar JRS. Metode penelitian adalah kuantitatif eksperimen, material penelitian kombinasi antara SUS 304 dan DIN 1.4003 dengan *resistance spot welding* variasi arus pengelasan 8-10kA dan waktu pengelasan 10 *cycle*, hasil pengelasan dilakukan *macro examination*, *tensile shear test*, dan *micro examination* untuk mengetahui kualitas las. Hasil penelitian diameter *nugget* arus listrik terendah 8kA senilai 5,53 mm dan kekuatan tegangan geser 395,179 N/mm^2, dan arus listrik tertinggi 10kA diameter *nugget* senilai 7,17 mm dan kekuatan tegangan gesernya senilai 413,638 N/mm^2. Struktur mikro yang terbentuk pada *nugget* yaitu austenit, ferit, dan martensit. Kesimpulan penelitian adalah ukuran diameter *nugget* mempengaruhi hasil pengelasan.

Kata kunci: *SUS 304, DIN 1.4003, resistance spot welding, arus listrik pengelasan, kualitas las*

ABSTRACT

The quality of resistance spot welding results refers to the standard of acceptance affected by the value of welding electric current, thickness, type of material, which is reviewed from the width of the weld nugget diameter and shear stress strength. The research problem is the effect of welding electric current on weld quality. The research aims to analyze the effect of variations in welding electric current on weld quality referring to the JRS standard. The research method is quantitative experiment, the research material is a combination of SUS 304 and DIN 1.4003 with resistance spot welding variation of welding current 8-10kA and welding time 10 cycles, the welding results are conducted macro examination, tensile shear test, and micro examination to determine the quality of the weld. The results of research nugget diameter lowest electric current 8kA value of 5,53 mm and shear stress strength value of 395,179 N/mm^2, and the highest electric current 10kA nugget diameter value of 7,17 mm and shear stress strength value of 413,638 N/mm^2. The microstructure formed in the nugget is austenite, ferrite, and martensite. The conclusion of the research is that the size of the nugget diameter affects the welding results.

Keyword: *SUS 304, DIN 1.4003, resistance spot welding, weld current, weld quality*