

Comparative Study of Micro Plasma Arc Welding Parameters Effect on 0.5mm Thick Sheets of Steel, Titanium and Inconel Alloys

Mayuri Baruah¹, Kasif Ansari^{2*}, Shashi Bhushan Prasad³, Sachin Kore⁴

^{1,3} Production & Industrial Engineering Department,
National Institute of Technology Jamshedpur, Jharkahnd

² BA College of Engineering Jamshedpur

⁴ Mechanical Engineering Department, IIT Guwahati, Assam

*Corresponding author

ABSTRACT

These days welding of thin plate are prominent due to its importance in various fields such as aerospace, medical science and industrial application etc. Where welding of thin structure is required. The Stainless steel and titanium are mostly used due to its corrosive resistance with high strength. Micro plasma arc welding (MPAW) is one of the effective welding processes, for these structures, therefore optimum process parameters for effective microwelding needs to be studied. In this work welding of 0.5 mm thick stainless steel 304 sheets, Titanium sheet and Inconel sheets is studied. The effects of welding parameter such as plasma gas flow rate and base current on the weld properties are studied. Characterisation of weld is carried out by tensile test, microstructure and hardness test. These tests are carried out on different specimen which are obtained by micro plasma arc welding using different variation of welding parameter for different specimen. The results obtained from the test are analysed and optimum values of welding parameter are estimated.

Keywords: Microwelding, Inconel, Titanium

